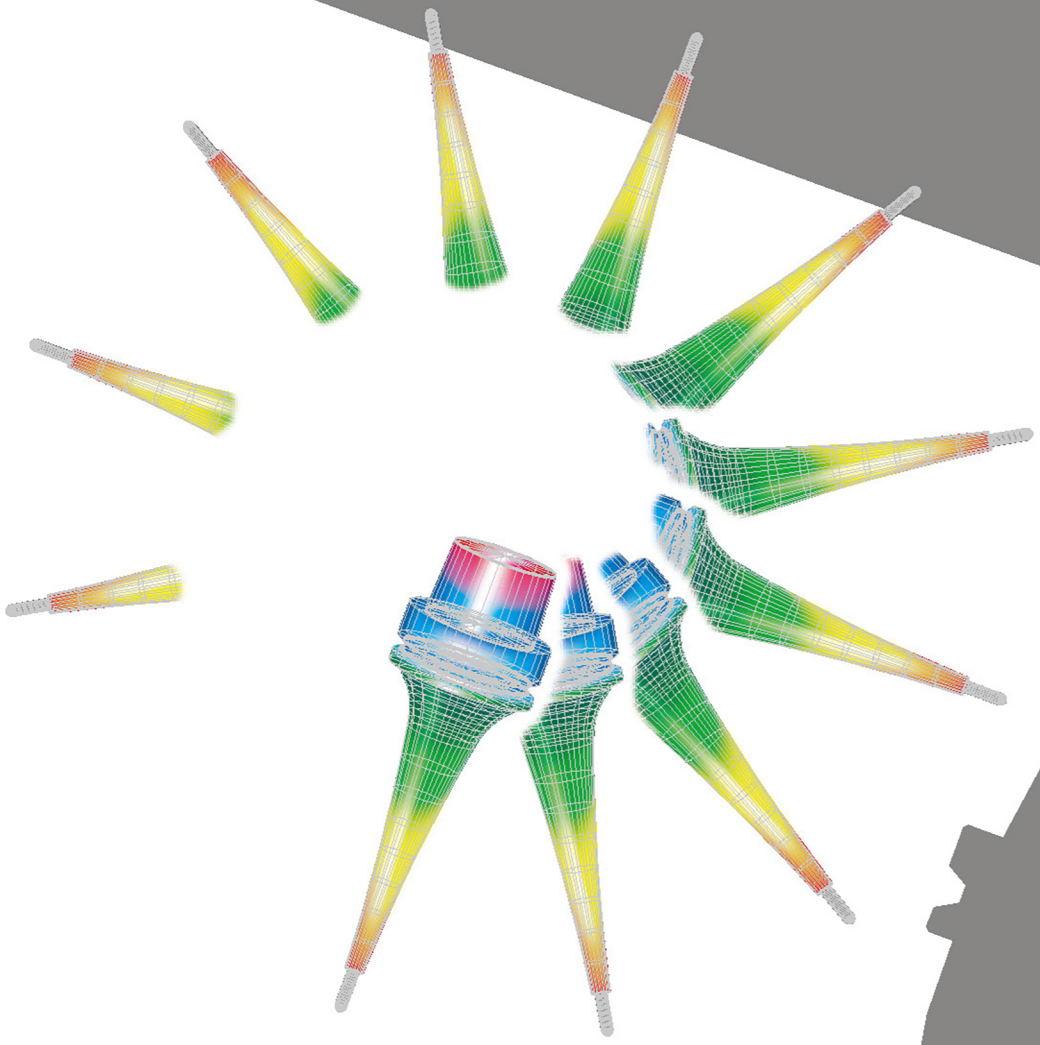
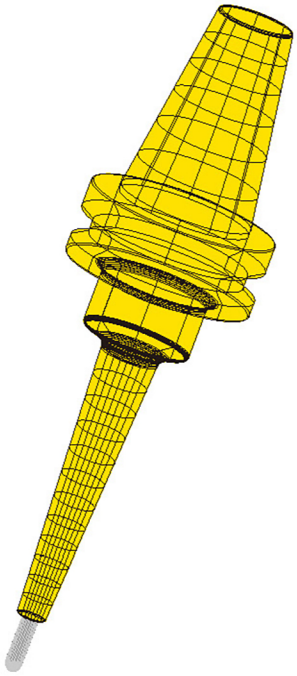
MST



SHRINK-FIT HOLDER SLIMLINE



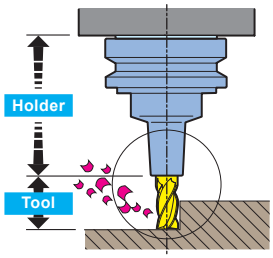
MST corporation

Vol. 3
1709

ENG

for **High-accuracy**, and **High-efficiency** machining **5** Points

1 The shortest
As short as possible



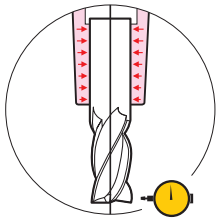
Length becomes **2**times

Deflection becomes **8**times

Use shrink-fit holders
with a slim-tip!

Deflection amount is proportional to projection length^3.

2 Selection
Choose a tool holder that can clamp a cutting tool securely and with high accuracy.



Stronger than collet holders

Clamping force **3**times

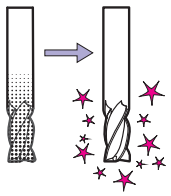
Run-out accuracy within **3**microns (.0001")

Use shrink-fit holders
with strong clamping force and high accuracy!

3 Quality
Do not use worn cutting tools.

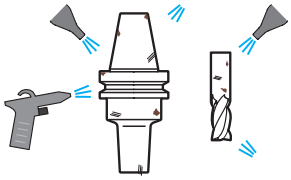
Machining quality and speed

Drops



Replace!

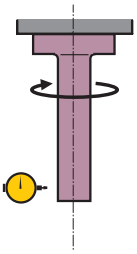
4 Cleanliness
Clean your tool holders and cutting tools.



Cutting chips and oil are **your main enemies.**

Use a tool holder washing machine,
CLEAN BOX!
P.247

5 Accuracy
Machine spindle run-out accuracy should be within 10 microns(.0004").



Check the spindle condition

Use a test bar for dedicated machine spindle maintenance,
CHECKMATE!
P. 251

The SLIMLINE shrink-fit holder provides the perfect solution.



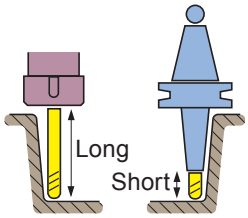
A simple chucking mechanisem without any parts.

- Stable gripping. Gripping power 3 times.
- No gaps.
- No parts that could become loose.
- Does not fall off even if vibrated.



Super-slim shape

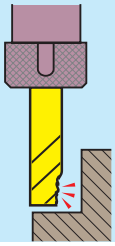
- Allows the holder to enter a workpiece. Can be used with a standard tool.



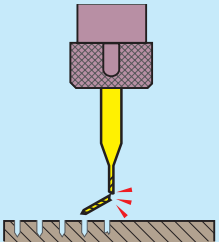
High accuracy

- Twice the tool life.
- Slim tools are also no problem.
- Anyone can use them...

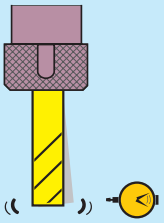
✖ Short cutter life.



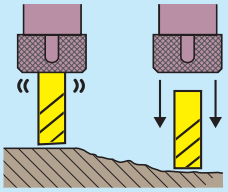
✖ Small tools break soon.



✖ Cutter run-out adjustment is troublesome.

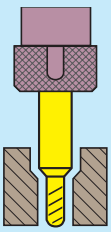


✖ The end mill slips or falls off.

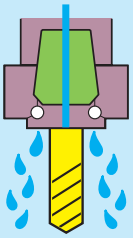


The workpiece is ruined.

✖ The applicable tools are special.



✖ The coolant leaks.



SHRINK-FIT HOLDER

SLIMLINE

SLIMLINE can be used with all high-speed, high-precision machining centers.

SLIMLINE can be used in a wide variety of applications.

Fine-precision machining

High speed and high feed

High speed and heavy duty cutting

Simultaneous 5-axis machining

High quality machining

Linear motor drive

NAK81

Inconel **Zirconia**

HRC62° **Ti-6Al-4V**

SKD61 **STAVAX**

Quartz glass

DMG MORI
HSC linear series

MAKINO
MAG, V22/V33*i*, iQ300/iQ500

MAKINO J
J3

MITSUBISHI
μV1/μV5

MITSUI SEIKI
VL30/VL50

ROKU-ROKU
P12-C genesis , Android II

SODICK
UH430L/UH650L, TT1−400A

SUGINO
Xion- III/Xion- II-5AX

YASDA
YMC430 Ver. II ,YMC650

Japan



MIKRON
HSM series / MILL S Precision series / XSM series

WILLEMIN-MACODEL
30/40 series , 508S/MT , 508/528TB

Switzerland



CINCINNATI MACHINE
SMART-t, MAXOR

HAAS AUTOMATION
VF, UMC

U.S.A.

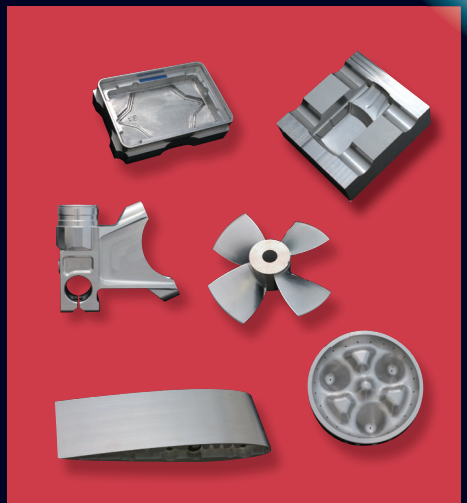
France

FOREST-LINE
Aerostar, Aeromill, Minumac, Vstar, etc.

Italy

FIDIA
D Range , G996 , HS664 , BSEseries , D321

PARPAS
AERO , XS , LHS



Germany

CHIRON
Series08/12

EXERON
HSC-Line, HSC-MP-Line

HERMLE
C series

KERN
Micro, Evo, Pyramid Nano

OPS-INGERSOLL
V5/9, 550/650

ROEDERS
RXP, RXS, RHP, RXD

Medical

Optical communication

Aerospace

Car · Mobile

Fuel battery

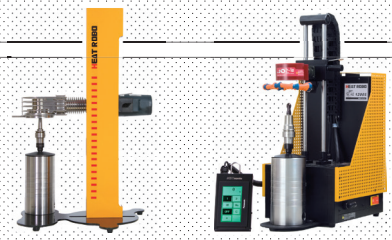
Semiconductor device

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●Hot air heating type
Induction heating type

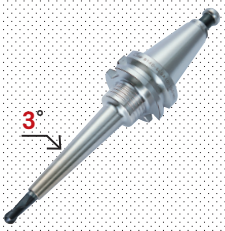


Overview · Model — 16

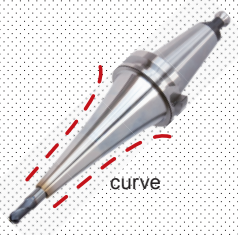
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MONO Series
●Slim, high accuracy and rigidity solid type

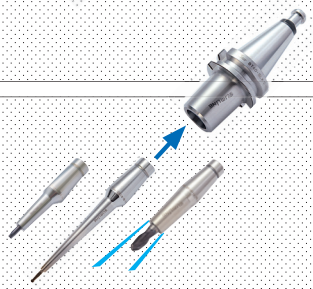
MONO 3°



MONO CURVE



2 PIECE TYPE
●Master holder and collet exchange modular type



Overview · Model — 213

Product List
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- 8type — 215
- 12type — 216

BLACKUNO
●Ultraprecise run-out accuracy.



UNO

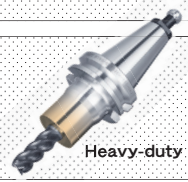


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Product List — 222

HYPER version
●Gripping force and rigidity strengthening type





Overview · Model — 223

Product List
- Short type — 224
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Z
●Anti-rotation and anti-pulling out capability



Overview · Model — 227

Product List
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STRAIGHT arbor
●Straight shank type



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Related products
●Collet holder, Retention knob



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Peripheral equipment
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- TOOL SET UP STATION — 247
- TOOL CAP TCC type — 248
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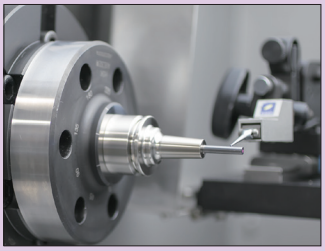
RELIABLE TOOLING

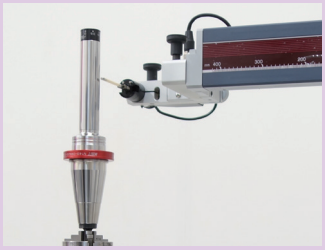
MST's tooling is subject to its own MST's 4 precision standards: taper contact, roundness, surface roughness and heat treatment. These are more precise than JIS or MAS standards. We provide trustworth products under strict quality control.

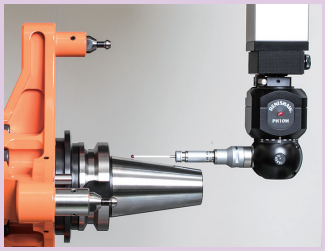
● MST's 4 precision standards

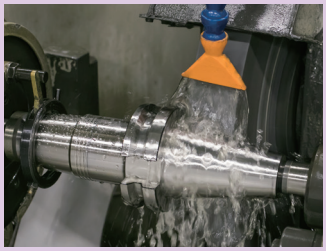
1 Taper contact		%	90
2 Roundness		μm	0.8
3 Surface roughness (Rmax)		μm	0.6
4 Heat treatment	Material		SCM415
	Carburized depth	mm	0.8 ～ 1.0
	Quenching hardness	HRC	55° ± 2°











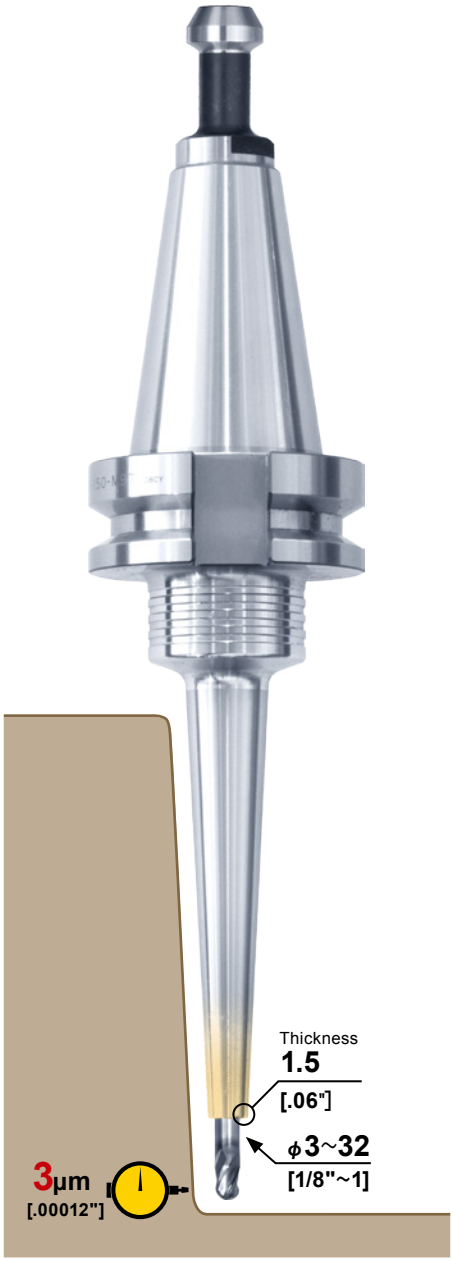
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MST's SHRINK-FIT HOLDER SLIMLINE is



a system to hold tools (carbide) firmly and accurately by heating and cooling the holder (steel).

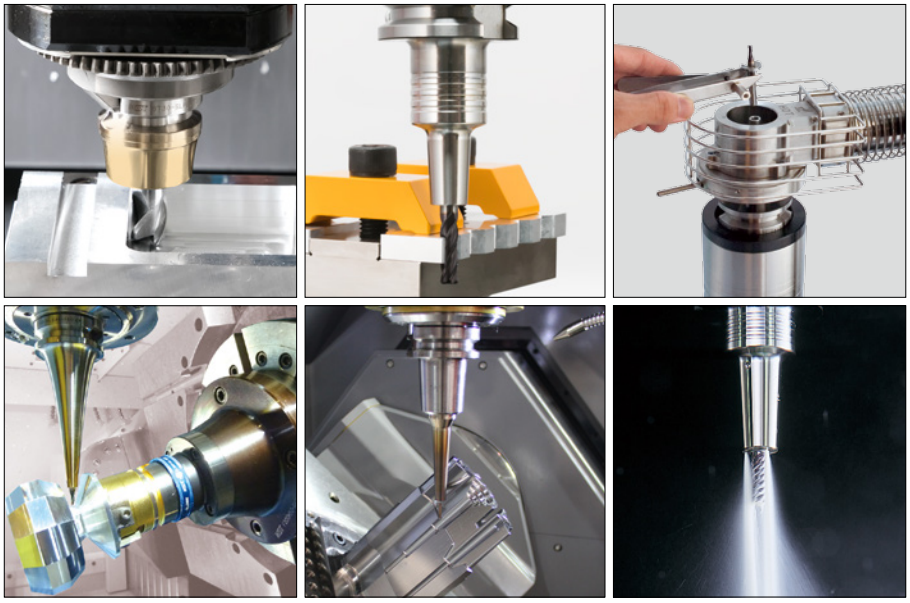
It is different from the existing mechanism of chucking, and is a revolutionary holder that uses the science of material expansion and shrinkage. SLIMLINE is made of MST's exclusive material which is developed to shrink-fit (insert/remove tool) easily at low temperatures (300°C on average).

It also has a coefficient of thermal expansion that is 1.6 times higher than that of regular steel. Unlike conventional holders, SLIMLINE does not require any parts such as collets and nuts to hold tools. The simple mechanism can make the nose very thin, even to a thickness of 1.5mm, and achieve the slimmest holder on the market. It creates less work-piece interference and minimizes cutter projection in order to achieve stable and high-rigidity machining.

Our line-up contains 4,000 kinds to offer the most suitable holder design for a large variety of work-piece shapes. These are benefits that only SLIMLINE can offer.

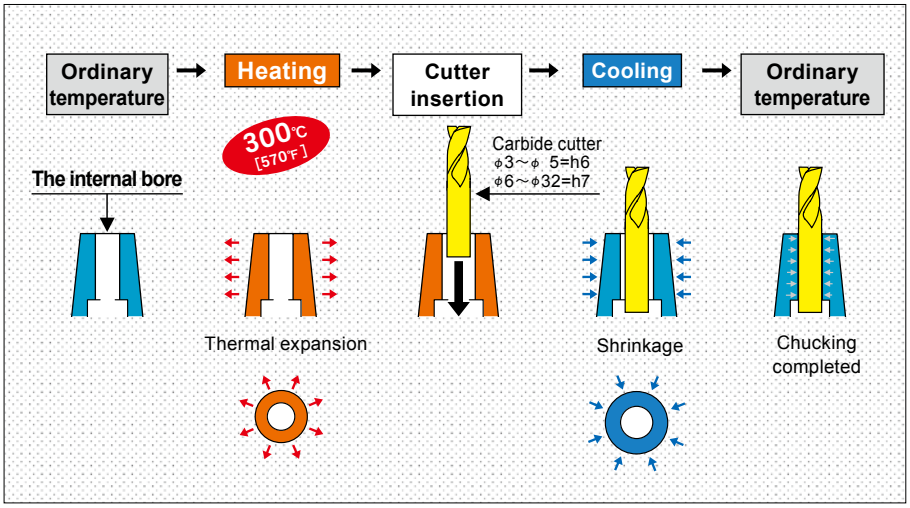
We promise that SLIMLINE will demonstrate its outstanding capabilities in 5-axis, micro-precision, heavy-duty, and many kinds of machining in order to improve accuracy, extend tool life and reduce production cost.

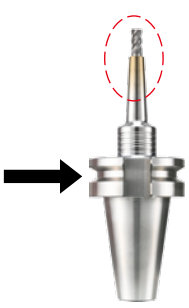
PAT.



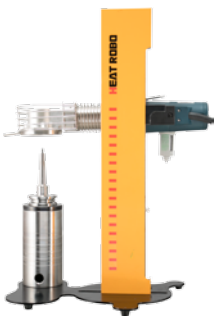
Principle of shrinking technology

- A shrink-fit holder is a chucking system that utilizes the difference between the coefficients of thermal expansion of the holder material (steel) and the cutter (carbide).





Shrink-fit holder



Shrink-fit Heater

Special material for shrink-fitting　Thermal expansion coefficient is 1.6 times higher.

- Special material is applied to MST's shrink-fit holders. This material has a higher coefficient of thermal expansion than that of competitor's shrink-fit holders, and you can shrink-fit at lower temperatures than that of competitors. Also, due to its superior heat resistance temperature, the holder doesn't receive any damage by overheating.

Shrink-fitting temperature and heatproof temperature

MST's SLIMLINE

Heatproof temperature

- You can heat it up to 720℃[1310℉] without any issue.

Shrink-fitting temperature

- Since the heating temperature is lower than 430℃ [810℉] , there is no adverse impact on holder life.

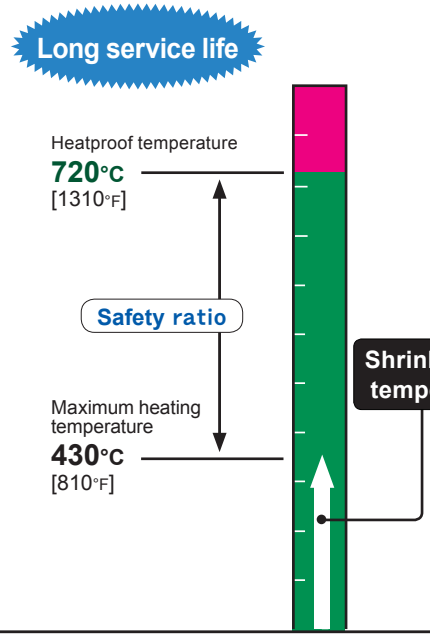
Coefficient of thermal expansion

1.6times (Compared to competitors' holders)

- Between the holder(special material) and cutter(carbide). ⋯**10.5×10^{-6}**mm/℃

The tip of the shrink-fit holder doesn't get burned due to the low heating temperature.





Competitors ' shrink-fit holder

Heatproof temperature

- Heat resistant temperature 580℃ [1080℉] , which is 20% lower than that of MST's proprietary material."

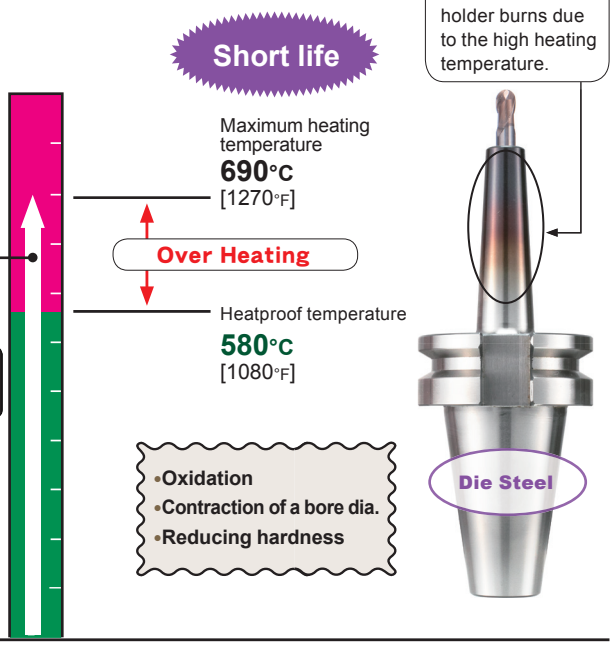
Shrink-fitting temperature

- They need 690℃ [1270℉] for shrinking operation, and it means over heating. Thus, through repeated heating and cooling cycle, the internal bore of the shrink-fit holder deforms, and then the cutter doesn't go into the internal bore.

Coefficient of thermal expansion

- Between the holder(die steel) and cutter(carbide).⋯**6.5×10^{-6}**mm/℃

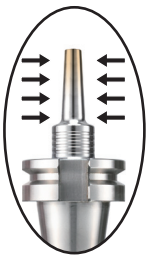
The shrink-fit holder burns due to the high heating temperature.



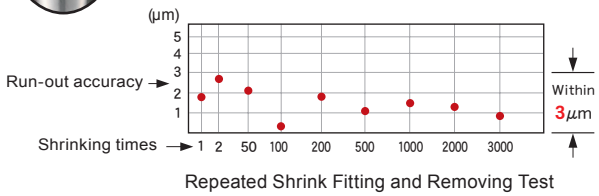
The difference between the maximum heating temperatures of MST's shrink-fit holders and our competitors' (3mm dia. shank cutter) .

The lifetime of shrink-fit holder

MST's SLIMLINE

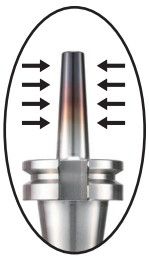


A shrink-fit temperature of a SLIMLINE holder is as low as 430℃ maximum. It never exceeds a heatproof temperature of 720℃ .
Repetitious shrinkage fitting does not cause the deterioration of a holder.

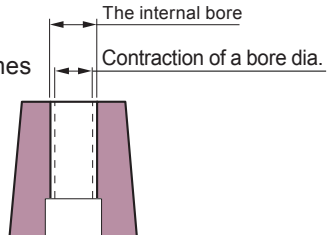


Repeated Shrink Fitting and Removing Test

Competitors ' shrink-fit holder



Heating several times at 700℃

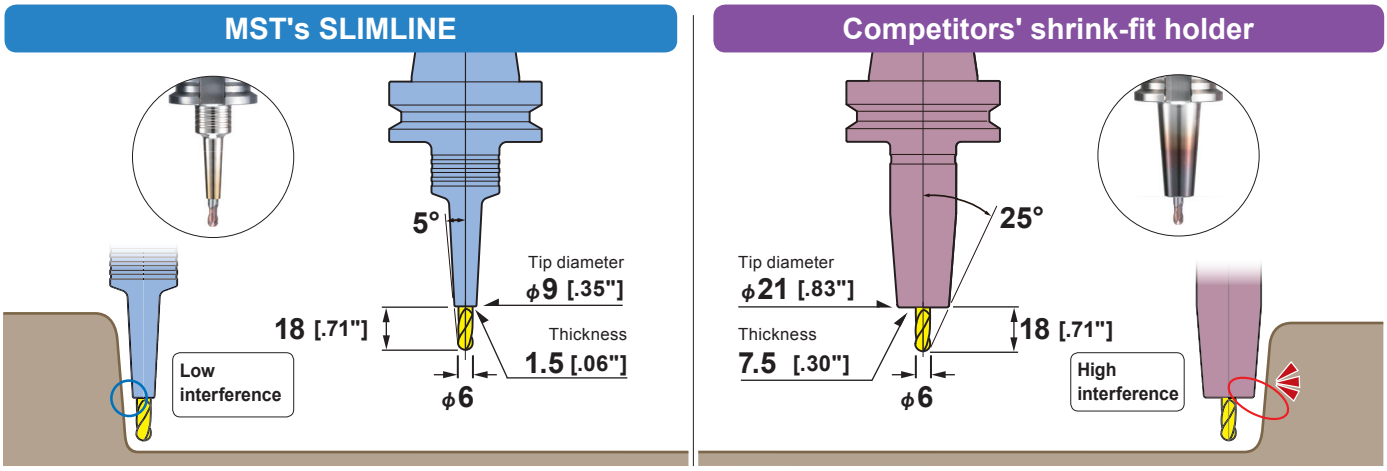


The cutter is difficult to insert.
Run-out accuracy deteriorations.

Repeated over-heating causes change in properties of the materials, the holder will be reduced performance.

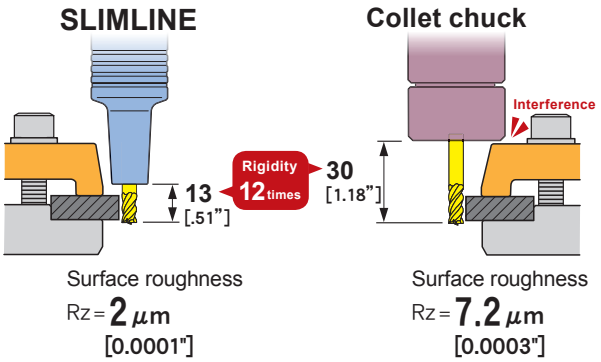
Super-slim design — Displaying the highest performance at deep machining

• The holder tip thickness with 1.5mm minimizes interference against the workpiece and jig fixtures.



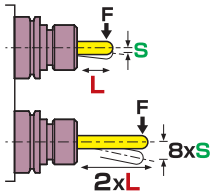
High rigidity — Shortest cutter projection

• The cutting tool life is extended and the finishing surface quality is improved tremendously thanks to reduced deflection.



Deflection amount is proportional to **projection length^3.**

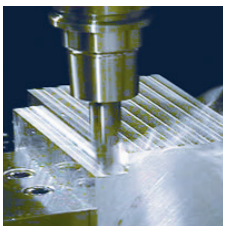
Length becomes **2** times → Deflection amount becomes **8** times



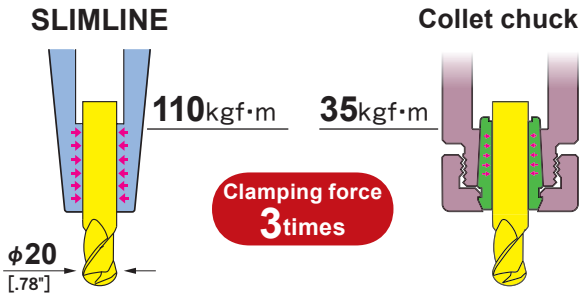
$$S = \frac{6.8 \times F \times L^3}{E \times D^4}$$

S : Deflection amount
L : Tool projection
E : Young's modulus
D : Shaft diameter
F : Load

High clamping force — 3 times greater clamping force (compare with a collet chuck)

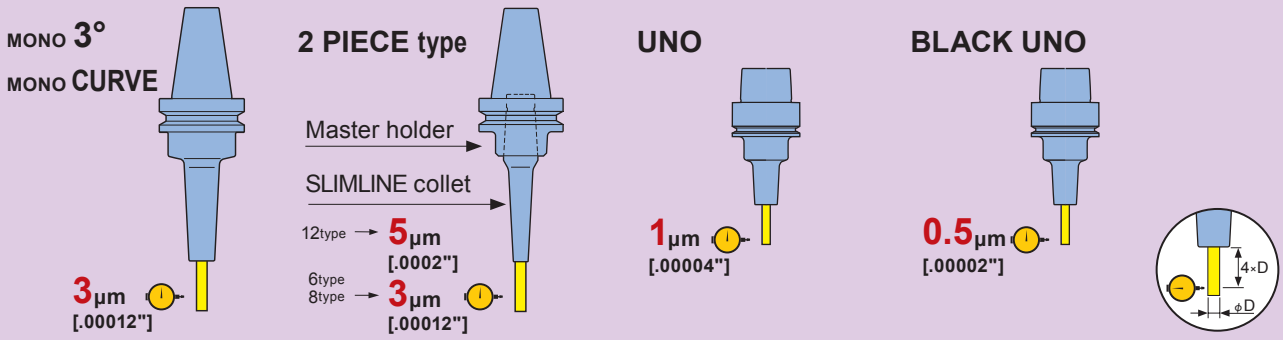






High run-out accuracy — Stable high run-out accuracy can be achieved at all times.

• There are no tightening parts (such as nuts and collets) to hold cutters. The simple design maintains high-accuracy chucking.



A broad line-up

MST's shrink-fit holder, SLIMLINE has an amazing line-up for all kinds of applications!
You can select the optimal holder from a lineup of 4000 types.

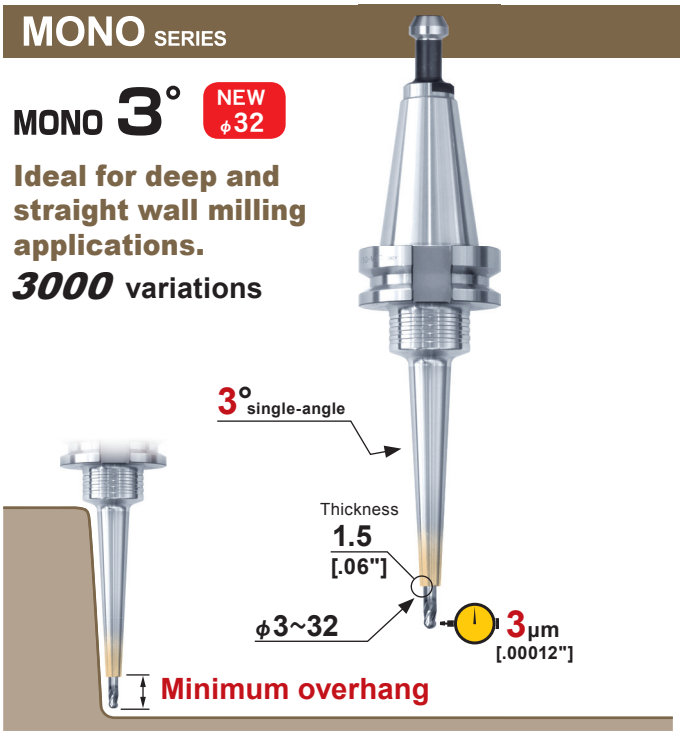


MONO SERIES

→P.16

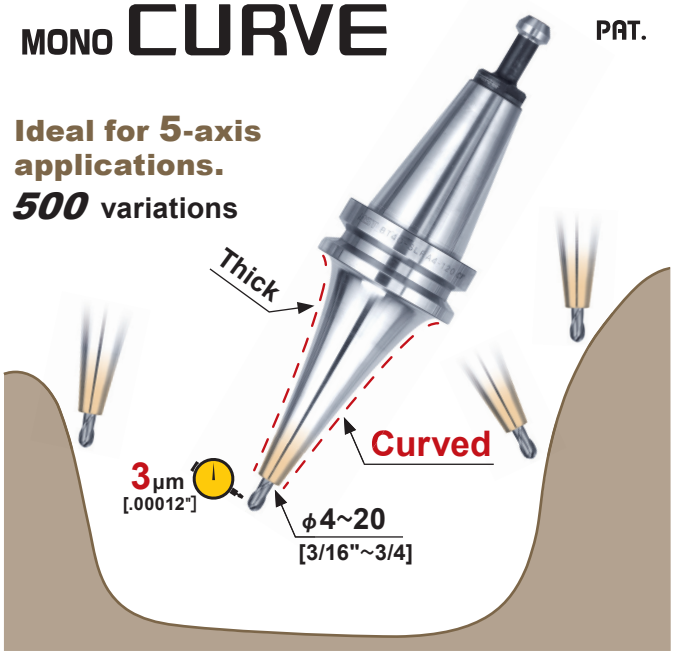
MONO 3° NEW ϕ32

Ideal for deep and straight wall milling applications.
3000 **variations**



MONO CURVE PAT.

Ideal for 5-axis applications.
500 **variations**

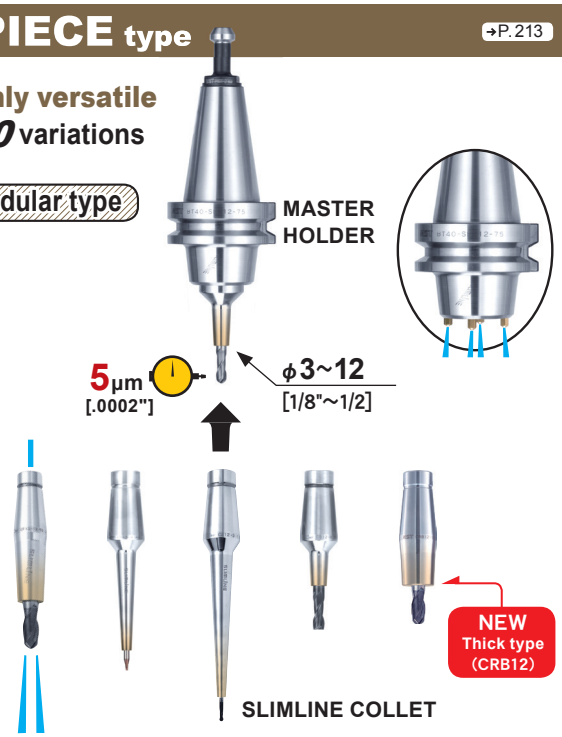


2 PIECE type

→P.213

Highly versatile
250 **variations**

Modular type



UNO

→P.221

Superior accuracy PAT.

NEW
BLACK UNO
0.5μm
[.00002"]

UNO
1μm
[.00004"]



HYPER VERSION

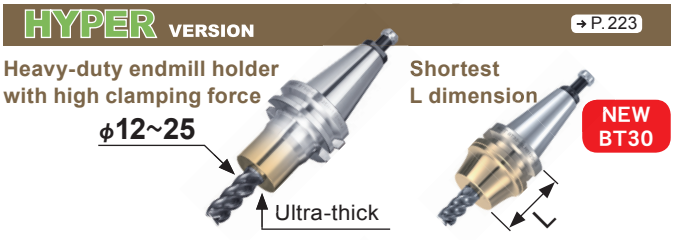
→P.223

Heavy-duty endmill holder with high clamping force

ϕ12~25
Ultra-thick

Shortest L dimension

NEW
BT30



Z

→P.227

Anti-pulling out and anti-slippage mechanism PAT.

ϕ8~25
[5/16"~1]

Anti-rotation and anti-pulling out

Cutters never fall out!

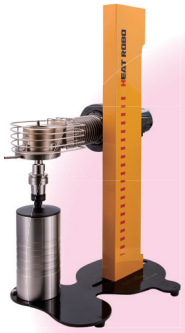


SHRINK-FIT HEATER HEAT ROBO — Shrink-fitting at low heating temperature

- Shrink-fitting temperature is comparatively low, about 300℃, which is safer for the materials. Tools can be changed by the inexpensive and compact shrink-fit unit.

Hot-air Heater

- The heater will not over-heat the holder.



3kw HEAT ROBO Baby3000S
$3,000~



1.2kw HEAT ROBO Baby1200S





1kw HEAT ROBO Baby1000

Induction Heater

- Clean and safe Induction Heater. Desktop type.



1.2kw HEAT ROBO DENJI 1200S
$9,200~

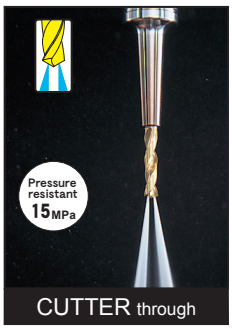


5kw HEAT ROBO DENJI 5000S



For COOLANT through — Withstanding pressure 15MPa

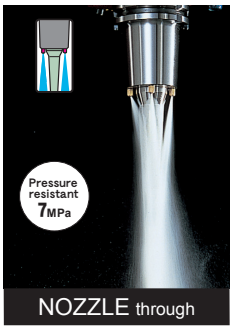
- The shrink-fit holder has a very simple configuration without a collet or a tightening nut. It is easily and completely compatible with through spindle coolant.



CUTTER through
From the tip of cutter



FLUSH through
From the tip of holder to the cutting edge



NOZZLE through
From the nozzle

7MPa (NOZZLE through)



Ideal for carbide coolant-thru drills!

3.175 3 4 5 6 7 8 9 10 11 12 16 20 25
Applicable for all drill shanks.

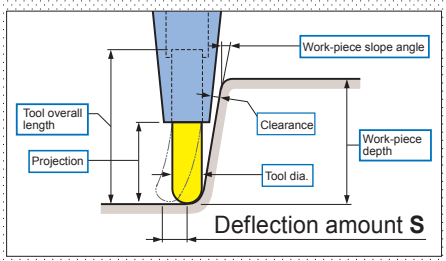
Rigidity calculation software — Holder automatic selection

- Automatically select optimum holders in the order of smaller deflection value S by inputting tool and work-piece information.

P. 260



Output DXF files.



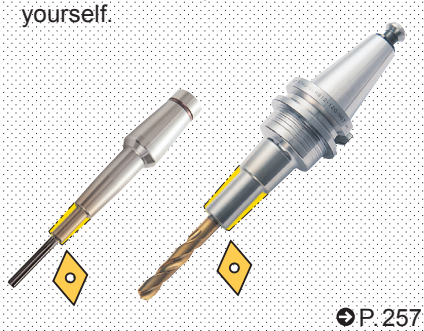
Enter your tool holder, cutting tool, and work-piece information.

No.	Holder	Deflection amount
1	BT40-SLSA6-150cv	3.2
2	BT40-SLSA6-120cv	4.8
3	BT40-SLSA6-180cv	5.2
4	BT40-SLSA6-125-M42	5.6

This system lists tool holders in descending order of rigidity.

USER Customization — Modifying outer-dimension

- When you have interference using a standard holder, you can customize it yourself.



P. 257

- MST can customize upon your request.
- There is a dimensional limitation for customizing.

Production improvement examples

Examples 1 Improved tool design

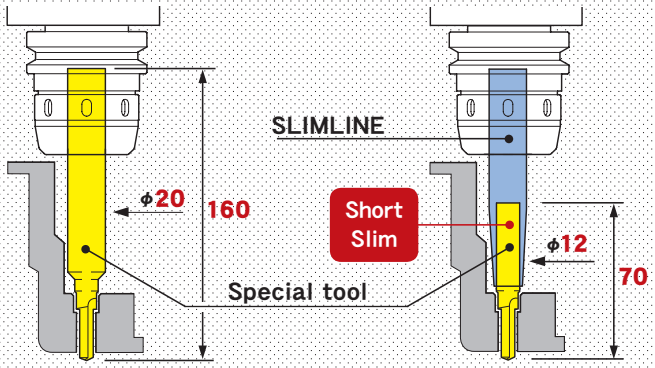
• Reducing the overall length and diameter of the special cutting tool.



Clutch Housing

ADC12

Special tool cost
50% down
¥60,000→¥30,000



Examples 2 Integration of a cutting tool and a holder

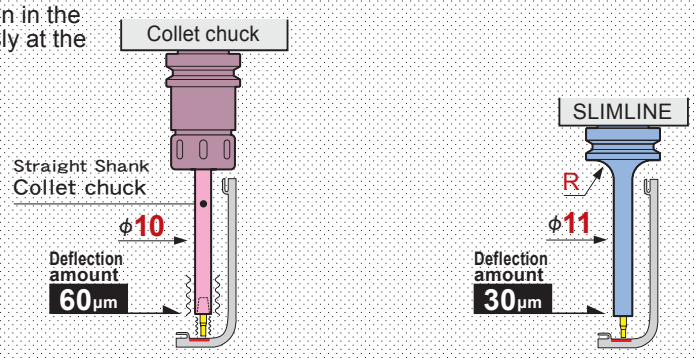
• SLIMLINE Solid type with the thinnest body design in the world allows the rigidity improvement tremendously at the straight wall application.



Smart phone

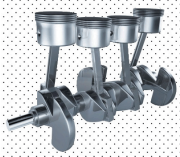
SUS304

Tool life
3 times longer



Examples 3 Interference avoidance.

• Replacing the special long drill to the standard drill.

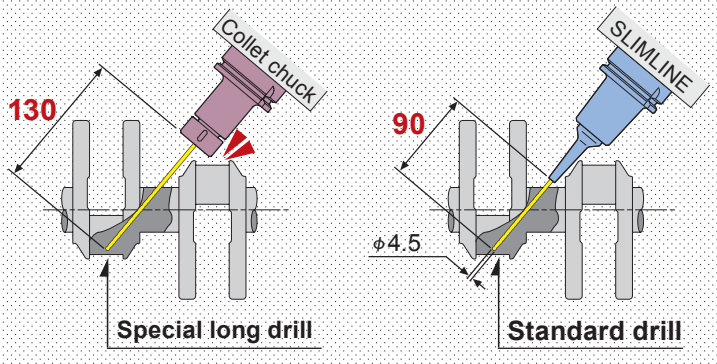


Crankshaft

S53C

Tool cost
reduction
¥23,000→¥12,500

Shortens
machining time
1min. → 30sec.



Examples 4 Small-size drilling

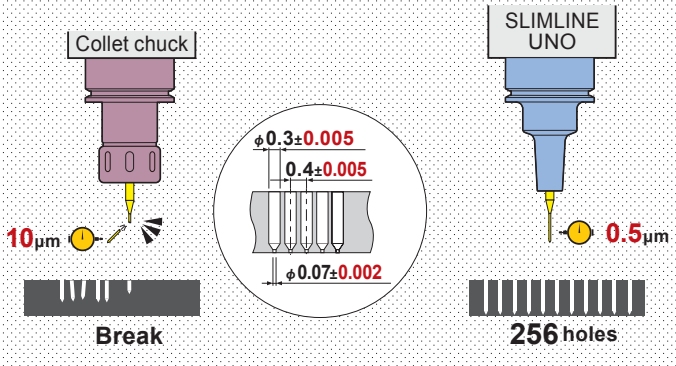
• SLIMLINE UNO allows dia. 0.07mm drilling.



Printer head parts

SUS304

From impossible to
possible



Shrink-fit Heater HEAT ROBO

■Specifications

Spec. \ Shrink-fit Heater	DENJI 電磁5000S	DENJI 電磁1200S	Baby 3000S	Baby 1200S	Baby 1000
CODE	HRD-02S	HRD-01S	HRB-03ST	HRB-02S	HRB-01
Heating method	Induction type		Hot air type		
Output power	5000 w	1200 w	3000 w	1200 w	1000 w
Cutter dia.	~φ32 [1"]	~φ12 [1/2"]	~φ32 [1"]	~φ12 [1/2"]	
Heating time	18 sec.		70 sec.	120 sec.	180 sec.

■Compatibility table by holder type

Holder type \ Shrink-fit Heater	DENJI 電磁5000S	DENJI 電磁1200S	Baby 3000S	Baby 1200S	Baby 1000
MONO series	○	△	○	△	×
2 PIECE type	○	○	○	○	○
UNO	○	○	○	○	×
HYPER VERSION	○	×	○	×	×
Z	○	×	○	×	×
STRAIGHT arbor	○	▲	○	△	×

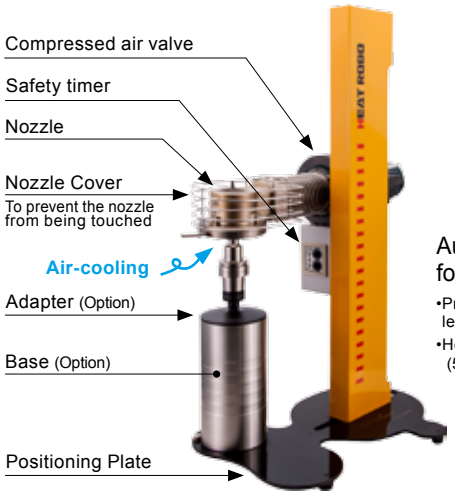
[○] : Available [×]: Not available [△] : Refer to size chart. **[▲] :** Requires recombinations of adaptors and bases. *Please verify compatibility for specific holders.

HOT AIR HEATER

No over-heating.
Compact Affordable.

Baby 3000S

CODE	Area	Size (W×D×H)	Power (Single phase)	Kg lbs
HRB-03ST	Japan	430×330×660mm	200V	9.5 (21)
-03ST-230NA	North America		230V	
-03ST-230EU	Europe			
-03ST-230AS	Asia			



φ32 [1"]
Max. Cutter dia.
3000w
Heating 70 sec.
Cutter dia. Φ6

Automatic shutoff function for cooling operation
- Prevent accidents caused by leaving the heater on.
- Heating→(5 min.)→Cooling→(5 min.)→Stop

■**Std. Access.**
- Safety timer ●Heat-resistant gloves ●Tweezers

■**Option**
- Please choose parts on P.12-15

■**Note**
- Factory compressed air (5kgf/cm²) is required.(consumption air volume: 245 ℓ/min)
- Prepare an air tube (O.D:8mm) and a connection coupling.
- A type without safety timer is also available. Ex. HRB-03S

Baby 1200S



φ12 [1/2"]
Max. Cutter dia.
1200w
Heating 120 sec.
Cutter dia. Φ6

CODE	Area	Size (W×D×H)	Power (Single phase)	Kg lbs
HRB-02S	Japan	370×260×590mm	100V	8.0 (18)
-02S-120NA	North America		120V	

■**Std. Access.**
- Timer ●Heat-resistant gloves ●Tweezers

■**Option**
- Please choose parts on P.12-15

■**Note**
- Some holders cannot be used.

Baby 1000



φ12 [1/2"]
Max. Cutter dia.
1000w
Heating 180 sec.
Cutter dia. Φ6

CODE	Area	Size (W×D×H)	Power (Single phase)	Kg lbs
HRB-01	Japan	340×160×410mm	100V	3.5 (8)

■**Std. Access.**
- Adapter (ADH-SLK) ● Timer ●Nozzles, 2 pieces (HNZ-17, HNZ-22)
- Heat-resistant gloves ●Tweezers

■**Option**
- Please choose parts on P.12-15

■**Note**
- A transformer is required in other volfage. Please consult MST about the details of the transformer.

INDUCTION HEATER

Compact desktop type.
Easy operation with touch panel.

DENJI 電磁 5000S

CODE	Size (W×D×H)	Power (3 phases)	Kg lbs
HRD-02SH	340×470×750mm	200-240V	30 (67)

■Std. Access.
- Heat-resistant gloves ●Tweezers

■Option
- Heating coil(HRD2-CL) ● Please choose parts on P.12-15

■Note
- Use type HSB/HSC for cutter stopper.
- Compressed air required: 5Kgf/cm 2 (air-consumption volume: 245ℓ/min)
- The customer should prepare the following items : auxiliary parts including the air tube (O.D: 8mm.) an air filter and a coupler.



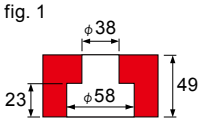
ϕ32 [1"]
Max. Cutter dia.
5000w
Heating 18 sec.
Cutter dia. Φ6

Heating coil (Option)

CODE	Holder I.D	Heating time	ϕC	H
HRD2-CL1	ϕ3~ 6 [1/8" ~ 1/4]	18 sec.	25	33
-CL2	ϕ7~12※1 [5/16" ~ 1/2]	28 sec.	35	42
-CL3	ϕ16, 20※2※3 [5/8", 3/4]		45	47
-CL4	ϕ25 [1"]	40 sec.	55	57
-CL5	MONO series (•MONO 3°[SLRB·SLFB8/10/12/16-M22])	35 sec.	fig. 1	
-CL6	HYPER VERSION (•Short type(All sizes) •Heavy-duty type [ϕ12, 16])	40 sec.	60	47
-CL7	ϕ32, HYPER VERSION (•Heavy-duty type [ϕ20, 25])	60 sec.	70	67



fig. 1



Cross-section view

■Std. Access.
- Protection sheet for heating coil →P.15

■Note
- The coil protection sheet is a consumable part. Replace the coil protection sheet(option) when you see that it is colored or distorted by the heat.

■Caution
- To protect the heating coil,don't heat a holder without using a coil protection sheet.
- When ordering, please note that holders for coil CL5, CL6, or CL7 cannot be heated by CL2, CL3, or CL4.
- ※1 Use the coil, No.5 for SLRB·SLFB8/10/12-M22.
  ※2 Use the coil, No.5 for SLRB·SLFB16-M22.
  ※3 Use the coil, No.4 for A50M-SLRB20, F63-SLFB20

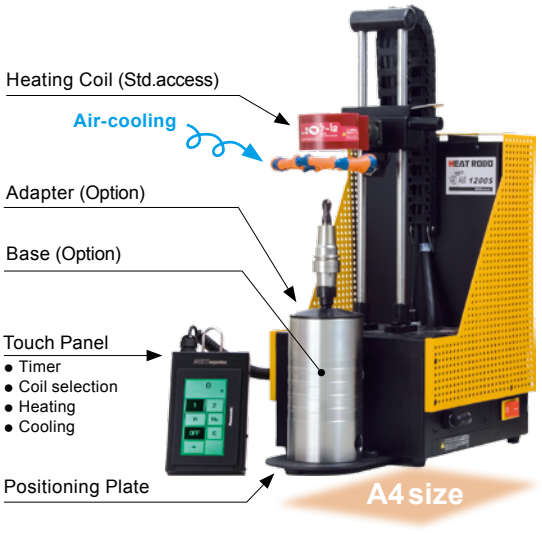
DENJI 電磁 1200S

CODE	Area	Size (W×D×H)	Power (Single phase)	Kg lbs
HRD-01S	Japan	230×410×550mm	100V	14 (31)
HRD-01S-120NA	North America	230×410×550mm	120V	19 (42)
-230AS	Asia		230V	

■Std. Access.
- ●Heating coil(HRD-CL1, CL2) ●Heat-resistant gloves ●Tweezers

■Option
- ●Please choose parts on P.12-15

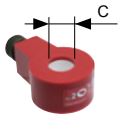
■Note
- Use type HSB/HSC for cutter stopper.
- Compressed air required: 5Kgf/cm2 (air-consumption volume: 245ℓ/min)
- The customer should prepare the following items : auxiliary parts including the air tube (O.D: 8mm.) an air filter and a coupler.
- A transformer is required in Europe. Please consult MST about the details of the transformer.



ϕ12 [1/2"]
Max. Cutter dia.
1200w
Heating 18 sec.
Cutter dia. Φ6

Heating coil (Standard Accessories)

CODE	Holder I.D	Heating time	ϕC
HRD-CL1	ϕ3~ 6 [ϕ1/8" ~ 1/4]	18 sec.	18
-CL2	ϕ7~12 [ϕ5/16" ~ 1/2]	33 sec.	28



■Std. Access.
- ●Protection sheet for heating coil →P.15

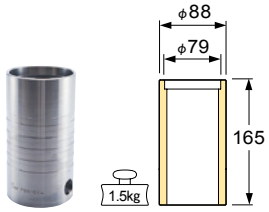
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- ●To protect the heating coil,don't heat a holder without using a coil protection sheet.

■Note
- The coil protection sheet is a consumable part. Replace the coil protection sheet(option) when you see that it is colored or distorted by the heat.

Option

Base

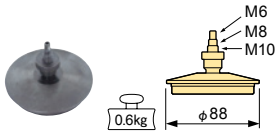
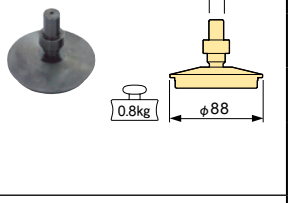
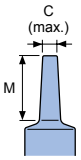
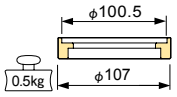
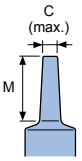
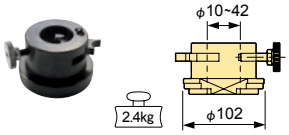
CODE
BAA-01



Examples of typical uses



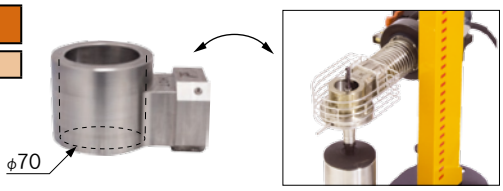
Adapter

CODE	Dimensions	Holder			Shrink-Fit Heater model for Use				
			Type	Screw size	HRD-02S	HRD-01S	HRB-03S	HRB-02S	HRB-01
ADH-SLK		2 PIECE type SLIMLINE collet	6 type	M6	○	○	○	○	○ ※Adaptor (ADH-SLK) is included. No need to purchase base (BAA-01) for 2-piece collet type 12.
			8 type	M8					
			12 type	M10					
		STRAIGHT arbor	ST10	M6					
			ST12	M8					
			ST16/20/25	M10					
ADH-HSK25		MONO 3° MONO CURVE UNO HYPER VERSION Z	E25		○	△ ※ Some holders cannot be used. Please refer to the dimensional sheet.	○	△ ※Some holders cannot be used.  Available dimension C=Max. ϕ32 ※M=22 has a max. diameter of 24 at C.	×
-HSK32			E32						
-HSK40E			E40						
-HSK40A			A40						
-HSK50			A50 / E50 / F63						
-40			BT40 / A63 F63 / F80PD DN40 / CT40						
-50			BT50 / A100 DN50 / CT50						
-15TR			15TR3						
-S20TR			RS20 / S20TR						
-BT30			BT30						
BAS-01		STRAIGHT arbor	ST16/20/25	M10	○	△ ※ Some holders cannot be used. Please refer to the dimensional sheet.	○	△ ※Some holders cannot be used.  Available dimension C=Max. ϕ32 ※M=22 has a max. diameter of 24 at C.	×
			ST32	M16					
			ST42	M24					
-02			Carbide Shank ST○○C						

[○] : Available [×] : Not available [△] : Restricted use

ϕ70 Nozzle (Baby3000S)

CODE
HRB-NZL70



Holder

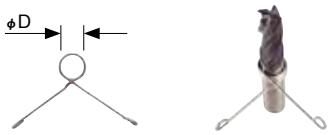
- MONO 3° SLRB32 ϕ32
- HYPER VERSION Heavy type (All sizes)

Option

■Cutter Stopper

Used as a stopper in the holder when shrink fitting or removing a cutting tool.

HSA type (Coil Spring type)



CODE	ϕ D	Set Contents(Q'ty)
HSA-D [Ex.: HSA-6]	3 , 3.175[1/8] , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 ,12 , 16 , 20 , 25 , [3/16 , 1/4 , 5/16 , 3/8 , 1/2]	Each size 10 ea. / SET
HSA-E	3 , 4 , 6 , 8 , 10 , 12	1 ea. , 6 pieces in total
-F	3 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12	1 ea. , 10 pieces in total
-EF	3 , 4 , 5 , 6 , 8 , 10 ,12 , 16 , 20 , 25	1 ea. , 10 pieces in total

■**Note** ● It cannot be used with HEAT ROBO DENJI.

HSB type (Plate Spring type)

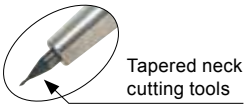


CODE	ϕ D	Set Contents(Q'ty)
HSB-D [Ex.: HSB-3]	3 , 3.175[1/8] , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 16 , 20 , 25 , 32 [3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 1"]	1 piece
-E	3 , 4 , 6 , 8 , 10 , 12	1 ea. , 6 pieces in total
-F	3 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12	1 ea. , 10 pieces in total
-EF	3 , 4 , 5 , 6 , 8 , 10 ,12 , 16 , 20 , 25	1 ea. , 10 pieces in total

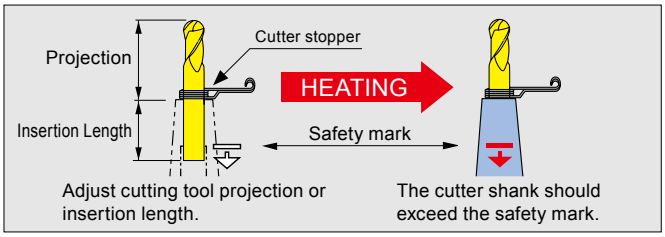
HSC type (Slit Collet type)



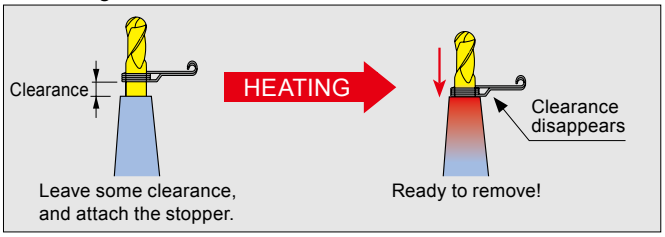
CODE	ϕ D
HSC-D [Ex.: HSC-3]	3 , 3.175[1/8] , 4 , 6



Insertion



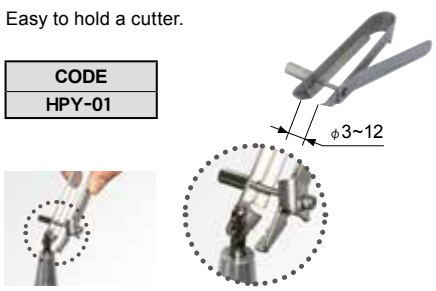
Removing



Cutter Pliers

Easy to hold a cutter.

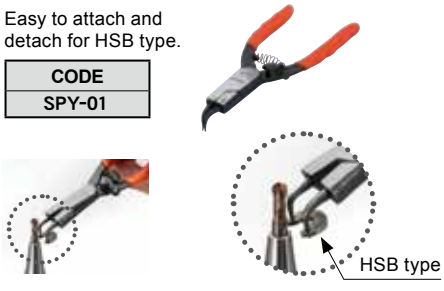
CODE
HPY-01



Stopper Pliers

Easy to attach and detach for HSB type.

CODE
SPY-01



Heat-Resistant Gloves

For additional order

CODE	NOTE
HTB-01	–
-01-R	Right Hand
-01-L	Left Hand



Cutter Tray

Cooling Tray for heated cutting tools after removal from a holder.

CODE
SDH-01

Size:170×170(mm)

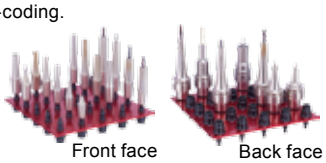


Holder Stand

The stand for the SLIMLINE collet, straight arbor and small shank holders (HSK-E25 and E32) is available in four colors, enabling simple color-coding.

CODE	Color	Front face	Back face	max.Q'ty
SDKT-RE	Red	SLIMLINE collet Straight arbor	Small shank holders (HSK-E25 / E32)	25 pieces each
-BL	Blue			
-GR	Green			
-GD	Gold			

Size:190×190(mm)

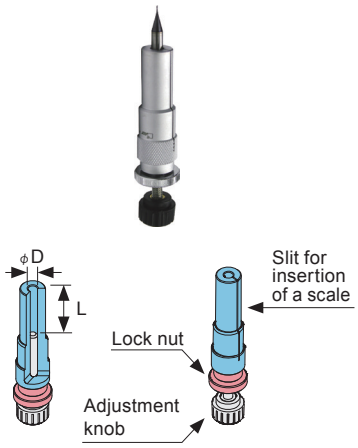




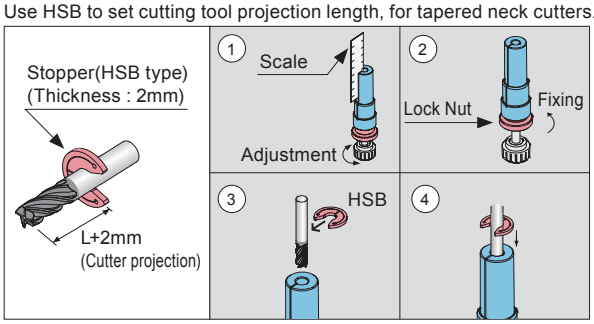
Cutter Adjuster

Simply adjustment for cutting tool projection and insertion length.

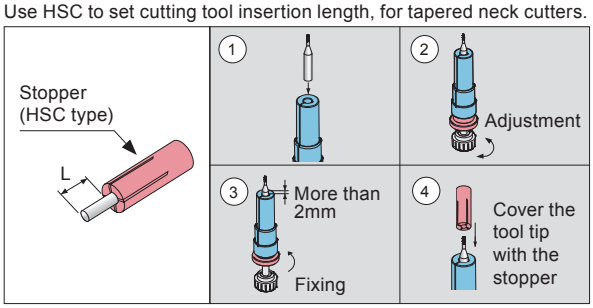
CODE	ϕD	L
HAJ-3	3	10~ 30
-3.175	3.175 [1/8]	
-4	4	13~ 30
-3/16	[3/16]	
-6	6	19~ 45
-1/4	[1/4]	
-8	8 [5/16]	21~ 55
-10	10 [3/8]	22~ 70
-12	12	23~ 85
-1/2	[1/2]	
-16	16 [5/8]	26~ 90
-20	20 [3/4]	37~100
-25	25	40~100
-1"	[1"]	



Use HSB to set cutting tool projection length, for tapered neck cutters.



Use HSC to set cutting tool insertion length, for tapered neck cutters.



■Cleaning tools

Brush type

Nylon brushes for internal bores cleaning.

CODE	I.D
AQC-BR-SET	3 [1/8], 4 [3/16], 6 [1/4], 8 [5/16], 10 [3/8], 12 [1/2], 1 ea. 6 pieces in total
BR 3-5	3 [1/8], 5 pcs.
BR 4-5	4 [3/16], 5 pcs.
BR 6-5	6 [1/4], 5 pcs.
BR 8-5	8 [5/16], 5 pcs.
BR10-5	10 [3/8], 5 pcs.
BR12-5	12 [1/2], 5 pcs.

■Caution

- Do not use when holder is hot.



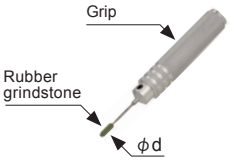


Rubber grinding stone type

To eliminate strong oxidized film, burned-in dust and oil that have been generated in the internal bores.

Standard set

CODE	Note
CLT-GTA-01	1 ea. of below model



Parts

CODE	NAME	ϕd	Q'ty
CLT-GTA-GP	Grip	-	1 pc.
CLT-GTA 3-5	Rubber grind stone	3	5 pcs.
-GTA 4-5		4	5 pcs.
-GTA 6-5		6	5 pcs.
-GTA 8-5		8	5 pcs.
-GTA10-5		10	5 pcs.



■Aqua Cool

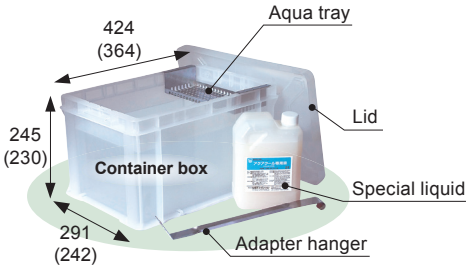
Aqua cool kit

Cooling kit for cooling SLIMLINE holders after shrink fitting or removing

CODE	Note
AQC-KIT-01	1 ea. for below model

Parts

CODE	Name	Note
AQC-EK-01-2	Special Liquid	2ℓ of undiluted Solution, Use at a dilution ratio of 3%.
-AT-01	Aqua Tray	Drainer plate
-AH-01	Adapter Hanger	Hanger for lowering holders into liquid.
CN -245	Container Box	-
-FT	Lid for Container Box	



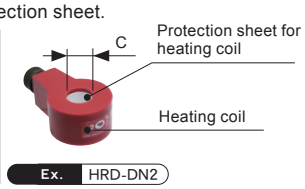
( ) Inside dimension



Protection sheet for heating coil (For Induction Heater)

Don't heat holders without using a coil protection sheet.

CODE	Heater model
HRD -DN○ (Coil No.)	HEAT ROBO DENJI 1200S
HRD2-DN○ (Coil No.)	HEAT ROBO DENJI 5000S



Ex. HRD-DN2

MONO SERIES

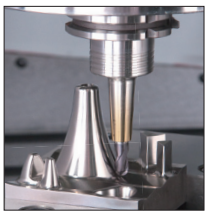
MONO 3°

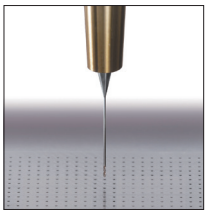


Heavy-duty machining

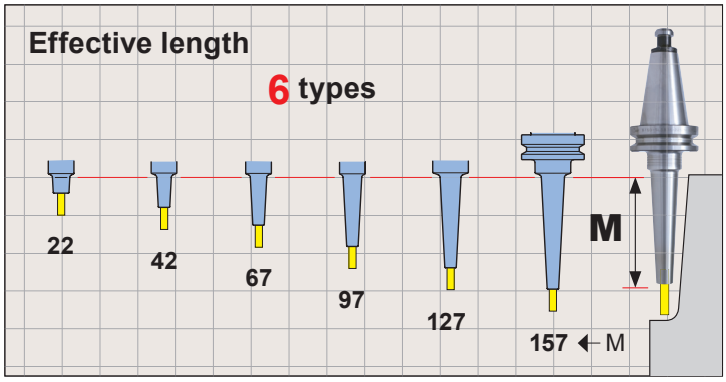


Micro precision





3,000 variations

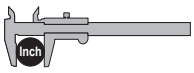


BT50 – SL SA 3 – 110 – M42

- BT50: Shank Type
- SL: SLIMLINE
- SA: Nose shape
- 3: ϕD
- 110: L
- M42: Effective length

PAGE	
18	BT30
22	BT40
51	BT50
80	A40
85	A50
88	A63
125	A100
161	E25
163	E32
168	E40
175	E50
185	F63
204	15T
205	RS20
206	S20T

● DIN and CAT. shank products are available upon request.



● Inch. size I.D is available upon request.

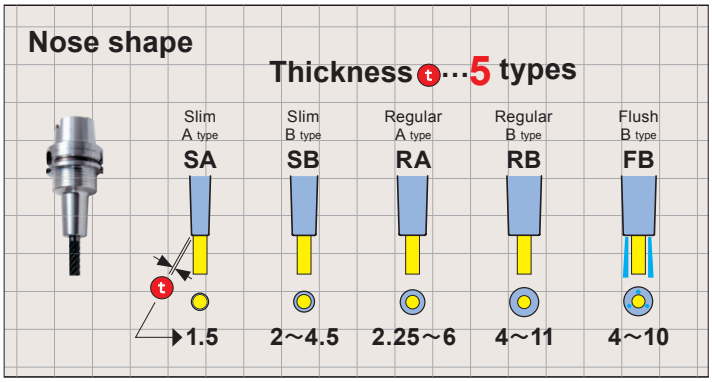
Coolant-through



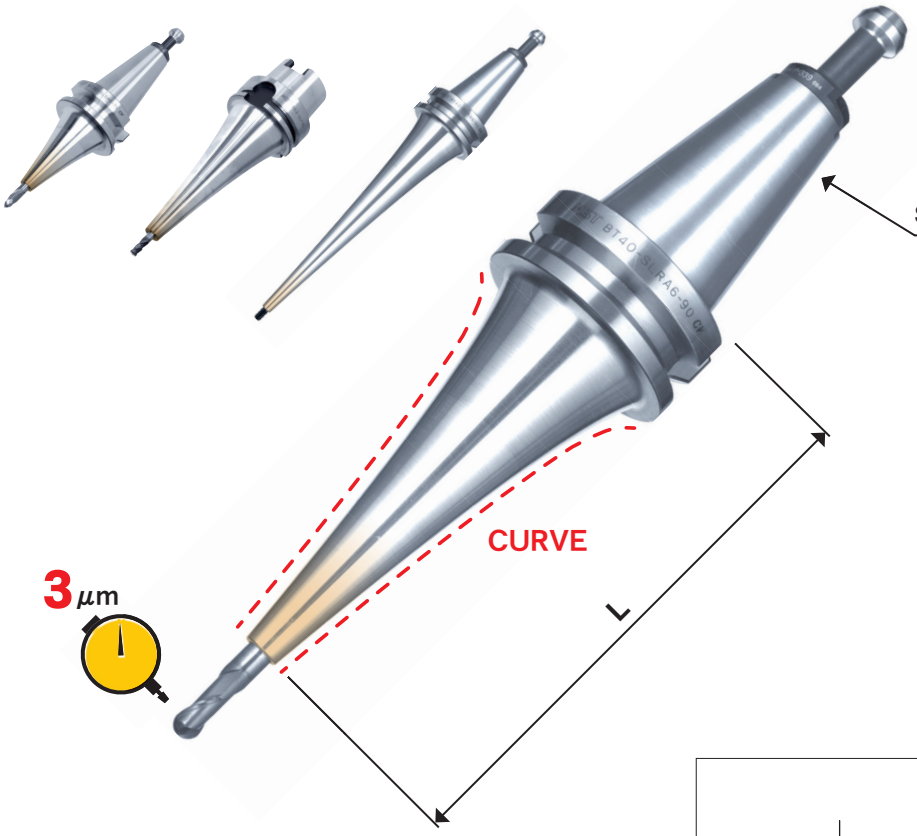
Cutter through



Flush through



MONO CURVE

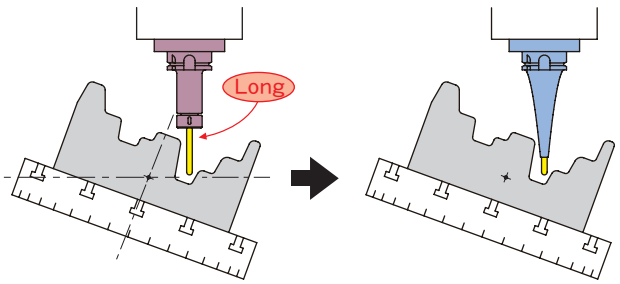






500 variations

5-axis machines



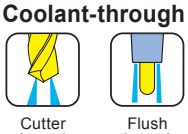
BT50 – SL SA 4 – 165 CV

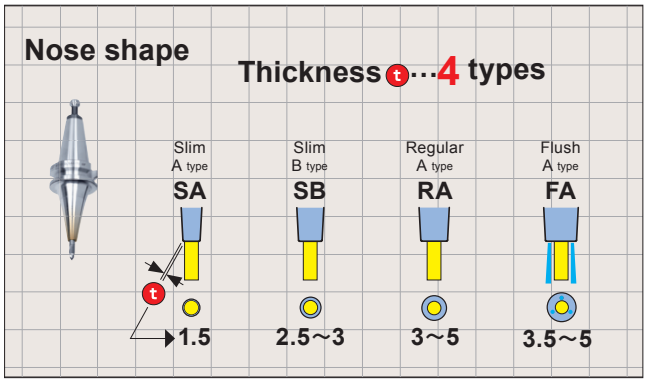
Shank Type / SLIMLINE / ϕD / L / CURVE

PAGE		Inch
18	BT30	—
22	BT40	—
51	BT50	—
88	A63	○
125	A100	○
163	E32	○
168	E40	○
175	E50	○
185	F63	○
207	CT50	○

● DIN shank products are available upon request.

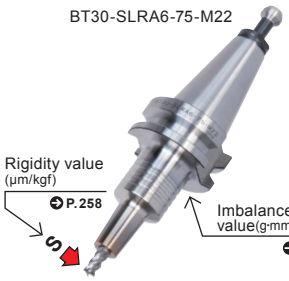
Coolant-through





BT30

MONO 3°



MONO CURVE

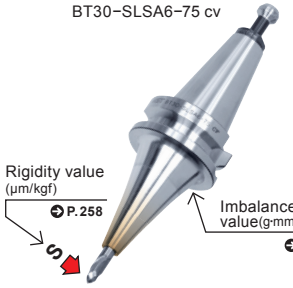


Fig.1

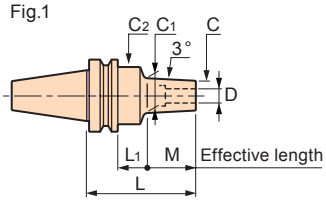
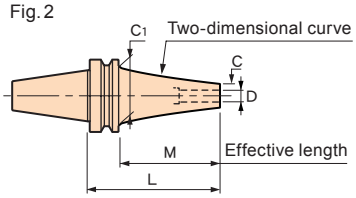
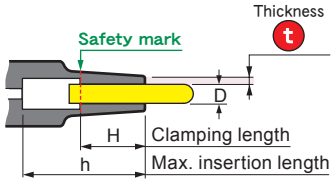


Fig.2



■**Option**
- Retention knob→P.244

■**Caution**
- Retention knob･･･Use a retention knob with hole, or remove the retention knob and heat it.
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.



CV: Curve

Thickness

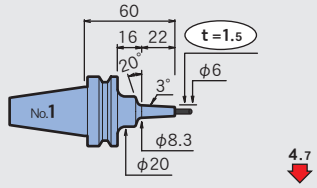
CODE	Fig.	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg	N	S	Scale model
BT30-SLSA3- 60-M22	1	3	6	1.5	60	22	16	8.3	20	9	80	0.4	0.8	4.7	1
- 75-M22					75		31		25		99			4.6	2
- 95-M42					95	42	31	10.4			119			9.2	3
-120-M67					120	67		13			144	0.5	1.6	14.9	4
-SLRA3- 75-M22	1	3	7.5	2.25	75	22	31	9.8	25	9	99	0.5	1.6	2.8	5
BT30-SLSA3.175-75-M22	1	3.175	6.175	1.5	75	22	31	8.5	25	9	99	0.4	0.8	4.4	6
-95-M42					95	42		10.6			119			8.8	7
BT30-SLSA4- 75-M22	1	4	7	1.5	75	22	31	9.3	25	12	99	0.4	0.8	3.6	8
- 95-M42					95	42		11.4			119			7.3	9
-120-M67					120	67		14			144	0.5	1.6	11.9	10
-SLRA4- 75-M22	1	4	10	3	75	22	31	12.3	25	12	99	0.5	1.6	1.8	11
-SLSA4- 75 CV	2	4	7	1.5	75	53	—	34	—	12	99	0.5	1	1.8	12
- 90 CV					90	68					114		1.1	2.8	13
-120 CV					120	98					144		1.2	6.6	14
-SLRA4- 90 CV	2	4	10	3	90	68	—	34	—	12	114	0.5	1	2	15
-120 CV					120	98					144		1.1	2.9	16
BT30-SLSA6- 75-M22	1	6	9	1.5	75	22	31	11.3	25	18	99	0.4	0.9	2.4	17
- 95-M42					95	42		13.4			119			4.9	18
-120-M67					120	67		16			144	0.5	1.7	8.3	19
-SLRA6- 75-M22	1	6	12	3	75	22	31	14.3	25	18	99	0.4	0.9	1.4	20
-SLSA6- 75 CV	2	6	9	1.5	75	53	—	34	—	18	99	0.5	1.3	1.5	21
- 90 CV					90	68					114		1	2.4	22
-120 CV					120	98					144		1.2	5.6	23
-SLRA6- 90 CV	2	6	13	3.5	90	68	—	34	—	18	114	0.5	1.1	1.6	24
-120 CV					120	98					144		1.2	2.5	25
BT30-SLRA8- 75-M22	1	8	14	3	75	22	31	16.3	25	24	99	0.4	0.9	1.2	26
-SLSA8- 75 CV	2	8	11	1.5	75	53	—	34	—	24	99	0.5	1.1	1.3	27
- 90 CV					90	68					114	0.6	1.6	2.2	28
-SLRA8- 90 CV	1	8	16	4	90	68	—	34	—	24	114	0.5	1.2	1.1	29

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg	N	S	Scale model
BT30-SLRA10- 75-M22	1	10	16	3	75	22	31	18.3	25	30	99	0.4	1	1.1	30
-SLSA10- 75 CV	2	10	13	1.5	75	53	—	34	—	30	99	0.5	1.6	1.2	31
- 90 CV					90	68					114		1.4	2	32
-SLRA10- 90 CV	2	10	19	4.5	90	68	—	34	—	30	114	0.6	1.5	1.1	33
BT30-SLRA12- 75-M22	1	12	20	4	75	22	31	22.3	25	30	99	0.5	1.2	1	34
BT30-SLRA16- 60-M22		16	26	5	60	22	16	28.3	34	32	60	0.5	1.6	0.5	35
BT30-SLRA20- 65-M22		20	32	6	65	22	21	34.3	40	38	60	0.6	2.1	0.4	36

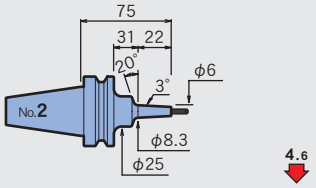
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φ3

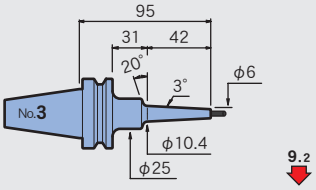
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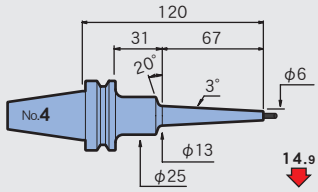
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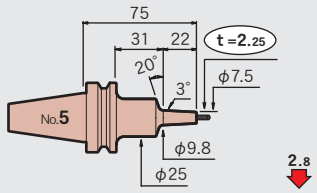
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BT30-SLSA3-120-M67

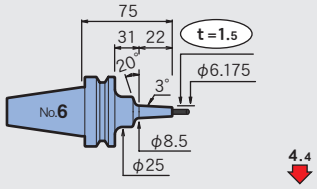


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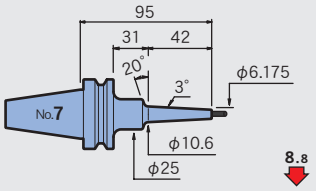


φ3.175

BT30-SLSA3.175-75-M22

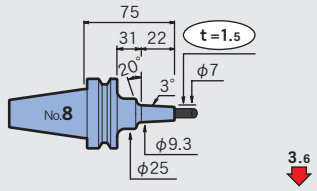


BT30-SLSA3.175-95-M42

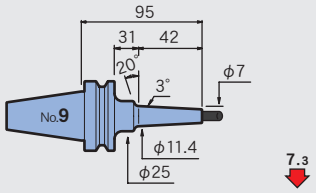


φ4

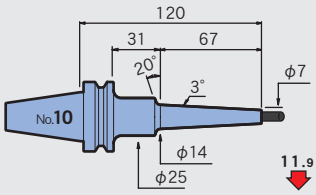
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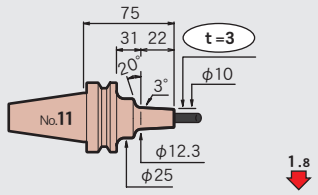
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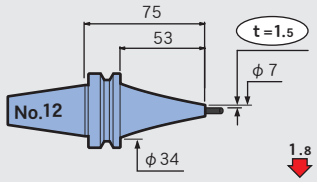
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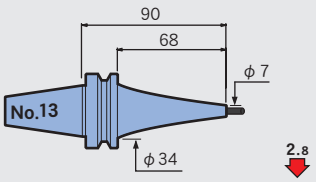
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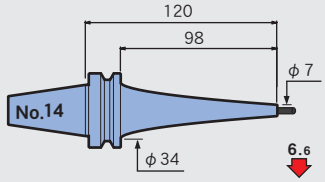
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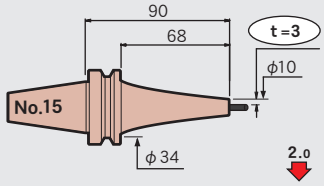
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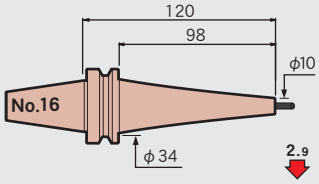
BT30-SLSA4-120 CV



BT30-SLRA4-90 CV

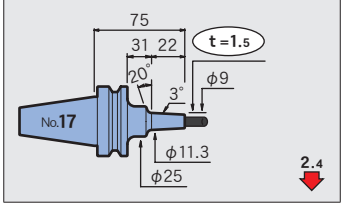


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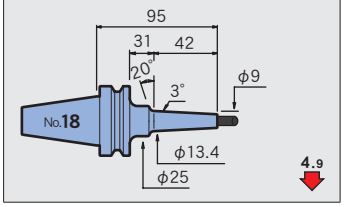


ϕ6

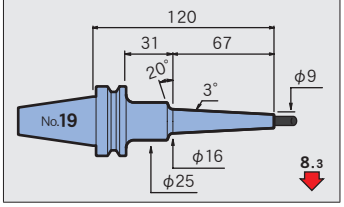
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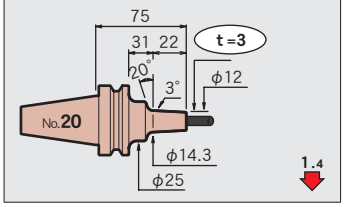
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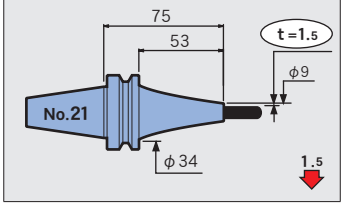
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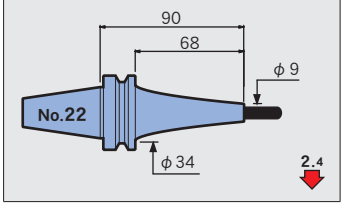
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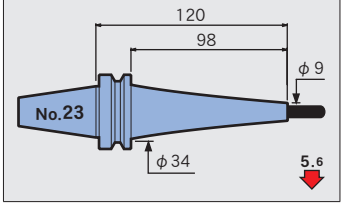
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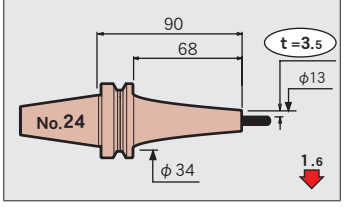
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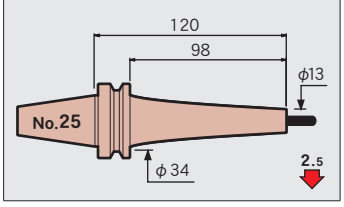
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BT30-SLRA6-90 CV

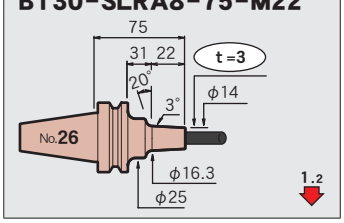


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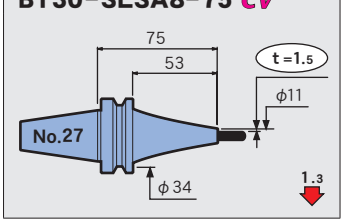


ϕ8

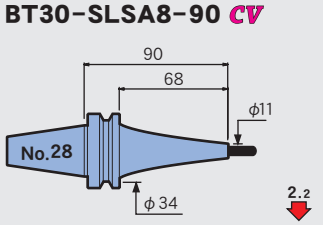
BT30-SLRA8-75-M22



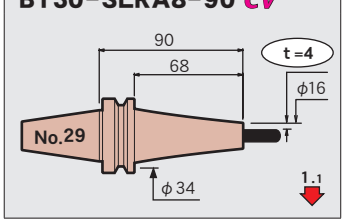
BT30-SLSA8-75 CV



BT30-SLSA8-90 CV

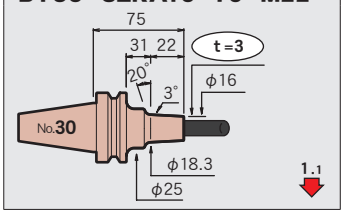


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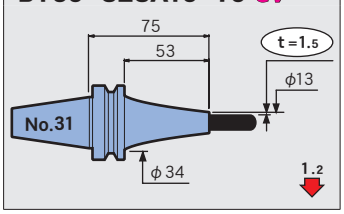


ϕ10

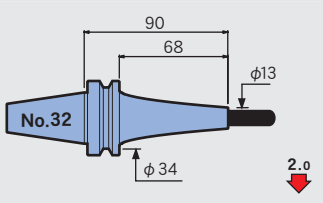
BT30-SLRA10-75-M22



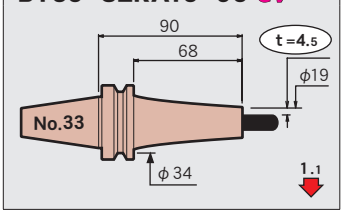
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BT30-SLSA10-90 CV

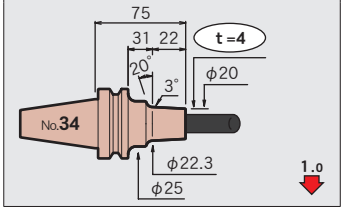


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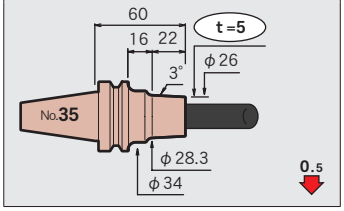
ϕ12

BT30-SLRA12-75-M22



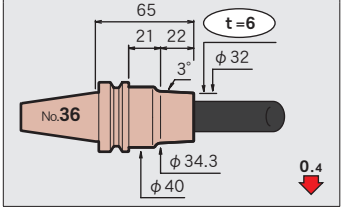
ϕ16

BT30-SLRA16-60-M22



ϕ20

BT30-SLRA20-65-M22



BT40

MONO 3°

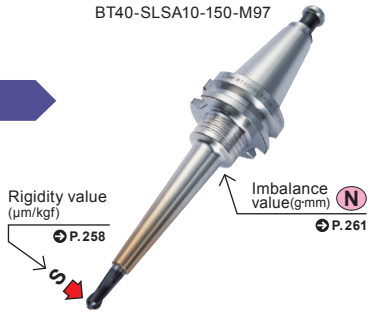


Fig.1

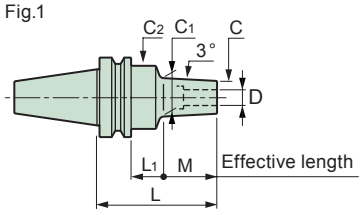
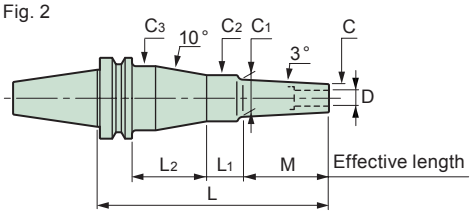


Fig. 2





Compatibility table for HRD-01S

[○] Available [×] Not available

[▲] Usable by raising the heating unit.→P.257

MONO CURVE CV

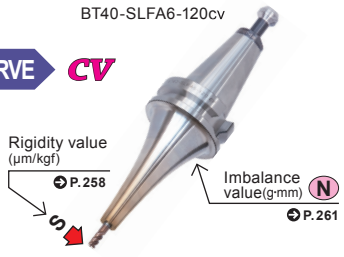
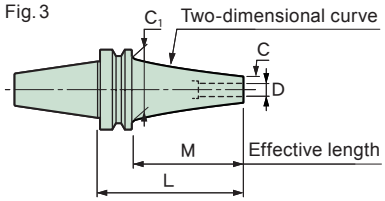
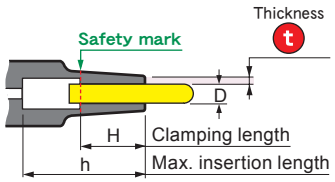


Fig. 3



■**Option**
- Retention knob→P.244

■**Caution**
- Retention knob･･･Use a retention knob with hole, or remove the retention knob and heat it.
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.



CV: Curve

Thickness

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT40-SLSA3- 95-M 42	1	3	6	1.5	95	42	26	—	10.4	25	—	9	130	1	2.3	9.1	○	1
-120-M 67					120	67			13				155		3.1	14.6		4
-125-M 42					125	42	56		10.4				160	1.1	2.5	9.7		2
-150-M 67					150	67			13				185		3.2	15.7		5
-M 97						97	26		16.2						4	20.4		7
-155-M 42	2				155	42	33	53	10.4	26	40		190	1.4	2.7	9.9		3
-180-M 67					180	67			13				215		3.4	15.8		6
-M 97	1					97	56	—	16.2		—			1.2	4.1	22.2		8
-210-M 97	2				210		33	53		25	39		245	1.4	4.3	22.1		9
-SLRA3- 75-M 22	1	3	7.5	2.25	75	22	26	—	9.8	25	—	9	110	1	2.6	2.7	○	10
- 95-M 42					95	42			11.9				130		2.9	5.3		13
-105-M 22					105	22	56		9.8				140	1.1	2.7	3.2		11
-120-M 67					120	67	26		14.5				155		3.4	8.8		16
-125-M 42					125	42	56		11.9				160		3	6		14
-135-M 22	2				135	22	33	53	9.8		39		170	1.4	2.9	3.2		12
-150-M 67	1				150	67	56	—	14.5		—		185	1.2	3.5	14.5		17
-M 97						97	26		17.7					1.1	4.1	12.8		19
-155-M 42	2				155	42	33	53	11.9	25	39		190	1.4	3.2	6		15
-180-M 67					180	67			14.5	26	40		215		3.7	9.8		18
-M 97	1					97	56	—	17.7		—			1.2	4.2	14.3		20
-M127						127	26		20.8	36				1.1	5.4	15.7		22
-210-M 97	2				210	97	33	53	17.7	25	39		245	1.5	4.4	14.4		21
-M127	1					127	56	—	20.8	32	—			1.4	5.5	16.5		23
-240-M127	2				240	127	28	58		36	50		275	1.8	5.8	16.3		24

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg	N	S		Scale model
BT40-SLFB3- 75-M 22	1	3	9.5	3.25	75	22	26	—	11.8	25	—	9	110	1	2.4	1.9	○	25
- 95-M 42					95	42			13.9				130		2.7	3.2		28
-105-M 22					105	22	56		11.8				140	1.1	2.5	2.3		26
-120-M 67					120	67	26		16.5				155		3.4	5.3		31
-125-M 42					125	42	56		13.9				160		2.8	3.9		29
-135-M 22	2				135	22	33	53	11.8		39		170	1.4	2.7	2.3		27
-150-M 67	1				150	67	56	—	16.5		—		185	1.2	3.6	6.4		32
-155-M 42	2				155	42	33	53	13.9		39		190	1.4	3	3.9		30
-180-M 67					180	67			16.5	26	40		215		3.8	6.3		33
BT40-SLSA4- 95-M 42	1	4	7	1.5	95	42	26	—	11.4	25	—	12	130	1	3.1	7.1	○	34
-120-M 67					120	67			14				155			11.7		37
-125-M 42					125	42	56		11.4				160	1.1	3.3	7.9		35
-150-M 67					150	67			14				185			12.8		38
-M 97						97	26		17.2						4.1	16.5		40
-155-M 42	2				155	42	33	53	11.4		39		190	1.4	3.5	7.9		36
-180-M 67					180	67			14				215			12.8		39
-M 97	1					97	56	—	17.2		—			1.2	4.2	18.3		41
-210-M 97	2				210		33	53			39		245	1.5	4.4	18.2		42
-SLRA4- 75-M 22	1	4	10	3	75	22	26	—	12.3	25	—	12	110	1	2.7	1.7	○	43
- 95-M 42					95	42			14.4				130		3.1	3.1		46
-105-M 22					105	22	56		12.3				140	1.1	2.8	2.2		44
-120-M 67					120	67	26		17				155		3.9	5.1		49
-125-M 42					125	42	56		14.4				160		3.3	3.8		47
-135-M 22	2				135	22	33	53	12.3		39		170	1.4	3	2.2		45
-150-M 67	1				150	67	56	—	17		—		185	1.2	4	6.3		50
-M 97						97	26		20.2					1.1	4.8	7.7		52
-155-M 42	2				155	42	33	53	14.4		39		190	1.4	3.5	3.8		48
-180-M 67					180	67			17				215		4.2	6.2		51
-M 97	1					97	56	—	20.2		—			1.2	4.9	9.5		53
-M127						127	26		23.3	32				1.2	6.8	9.3		55
-210-M 97	2				210	97	33	53	20.2	25	39		245	1.5	5.1	9.4		54
-M127	1					127	56	—	23.3	32	—			1.4	7	10.3		56
-240-M127	2				240		30	56			46		275	1.8	7.3	10.4		57
-SLFB4- 75-M 22	1	4	12	4	75	22	26	—	14.3	25	—	12	110	1	2.5	1.3	○	58
- 95-M 42					95	42			16.4				130	1.1	3	2.2		61
-105-M 22					105	22	56		14.3				140		2.7	1.8		59
-120-M 67					120	67	26		19				155		3.8	3.5		64
-125-M 42					125	42	56		16.4				160	1.2	3.1	2.9		62
-135-M 22	2				135	22	33	53	14.3		39		170	1.4	2.9	1.8		60
-150-M 67	1				150	67	56	—	19		—		185	1.2	4	4.7		65
-155-M 42	2				155	42	33	53	16.4		39		190	1.4	3.3	2.9		63
-180-M 67					180	67			19				215	1.5	4.2	4.7		66
-SLSA4- 90 CV	3	4	7	1.5	90	63	—	—	53	—	—	12	125	1.2	3.3	1.8	○	67
-120 CV					120	93							155	1.3	3.8	2.7		68
-150 CV					150	123							185	1.5	4.4	4		69
-180 CV					180	153							215		4.8	6.6		70
-210 CV					210	183							245	1.6	4.9	11.6		71
-240 CV					240	213							275	1.8	5.8	14		72
-SLRA4-120 CV	3	4	10	3	120	93	—	—	53	—	—	12	155	1.3	3.9	1.9	○	73
-150 CV					150	123							185	1.4	4.3	2.9		74
-180 CV					180	153							215	1.5	5.1	4.2		75
-210 CV					210	183							245	1.7	5.7	5.7		76

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT40-SLSA6- 95-M 42	1	6	9	1.5	95	42	26	—	13.4	25	—	18	130	1	3.3	4.8	○	77
-120-M 67					120	67			16				155	1.1	4.4	8		80
-125-M 42					125	42	56		13.4				160		3.5	5.6		78
-150-M 67					150	67			16				185	1.2	4.5	9.2		81
-M 97						97	26		19.2	32				1.1	5.9	11		83
-155-M 42	2				155	42	33	53	13.4	25	39		190	1.4	3.7	5.6		79
-180-M 67					180	67			16				215		4.7	9.2		82
-M 97	1					97	56	—	19.2	32	—			1.3	6.1	11.7		84
-210-M 97	2				210		30	56			46		245	1.7	6.4			85
-SLSB6- 95-M 42	1	6	10	2	95	42	26	—	14.4	25	—	18	130	1	4	3.6	○	86
-120-M 67					120	67			17				155	1.1	5.4	6.1		89
-125-M 42					125	42	56		14.4				160		4.1	4.5		87
-150-M 67					150	67			17				185	1.2	5.5	7.4		90
-M 97						97	26		20.2	32					7.2	8.5		92
-155-M 42	2				155	42	33	53	14.4	25	39		190	1.4	4.3	4.4		88
-180-M 67					180	67			17	25	39		215		5.7	7.4		91
-M 97	1					97	56	—	20.2	32	—			1.3	7.4	9.2		93
BT40 -M127						127	26		23.3					1.2	8.9	11		95
-210-M 97	2				210	97	30	56	20.2		46		245	1.7	7.7	9.2		94
-M127	1					127	56	—	23.3		—			1.4	9.1	12		96
-M157						157	26		26.5					1.3	10.6	13.2		98
-240-M127	2				240	127	30	56	23.3		46		275	1.8	9.4	12		97
-M157	1					157	56	—	26.5	36	—			1.7	10.8	14.5		99
-270-M157	2				270		30	56		32	46		305	1.9	11	14.6	▲	100
-SLRB6- 75-M 22	1	6	14	4	75	22	26	—	16.3	32	—	18	110	1.1	3.2	1	○	101
- 95-M 42					95	42			18.4				130		4.3	1.6		104
-105-M 22					105	22	56		16.3				140	1.2	3.3	1.2		102
-120-M 67					120	67	26		21				155		5.6	2.6		107
-125-M 42					125	42	56		18.4				160	1.3	4.4	1.9		105
-135-M 22	2				135	22	30	56	16.3		46		170	1.6	3.6	1.2		103
-150-M 67	1				150	67	56	—	21		—		185	1.3	5.8	3		108
-155-M 42	2				155	42	30	56	18.4		46		190	1.6	4.7	1.9		106
-180-M 67					180	67			21				215	1.7	6.1	3.1		109
-SLFB6- 75-M 22	1	6	14	4	75	22	26	—	16.3	32	—	18	110	1.1	3.2	1	○	110
- 95-M 42					95	42			18.4				130		4.3	1.6		113
-105-M 22					105	22	56		16.3				140	1.2	3.3	1.2		111
-120-M 67					120	67	26		21				155		5.6	2.6		116
-125-M 42					125	42	56		18.4				160	1.3	4.4	1.9		114
-135-M 22	2				135	22	30	56	16.3		46		170	1.6	3.6	1.2		112
-150-M 67	1				150	67	56	—	21		—		185	1.3	5.8	3		117
-155-M 42	2				155	42	30	56	18.4		46		190	1.6	4.7	1.9		115
-180-M 67					180	67			21				215	1.7	6.1	3.1		118
-SLSA6- 90 CV	3	6	9	1.5	90	63	—	—	53	—	—	18	125	1.2	3.3	1.6	○	119
-120 CV					120	93							155	1.3	3.8	2.3		120
-150 CV					150	123							185	1.5	4.3	3.6		121
-180 CV					180	153							215		4.9	5.7		122
-210 CV					210	183							245	1.7	5.7	7.3		123
-240 CV					240	213							275	1.8	5.9	12		124
-SLRA6- 90 CV	3	6	13	3.5	90	63	—	—	53	—	—	18	125	1.2	3.3	1.2	○	125
-120 CV					120	93							155	1.3	4	1.7		126
-150 CV					150	123							185	1.5	4.8	2.1		127
-180 CV					180	153							215	1.7	5.6	2.8		128
-210 CV					210	183							245		5.9	4.8		129
-SLFA6- 90 CV	3	6	13	3.5	90	63	—	—	53	—	—	18	125	1.2	3.3	1.2	○	130
-120 CV					120	93							155	1.3	4	1.7		131
-150 CV					150	123							185	1.5	4.8	2.1		132
-180 CV					180	153							215	1.7	5.6	2.8		133
-210 CV					210	183							245		5.9	4.8		134

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT40-SLSA8- 95-M 42	1	8	11	1.5	95	42	26	—	15.4	25	—	24	130	1	4.6	3.4	○	135
-120-M 67					120	67			18	32			155	1.1	6.3	5.4		138
-125-M 42					125	42	56		15.4	36			160	1.3	4.7	3.4		136
-150-M 67					150	67			18	32			185		6.5	5.9		139
-M 97						97	26		21.2					1.2	8.4	7.9		141
-155-M 42	2				155	42	33	53	15.4	25	39		190	1.4	5	4.3		137
-180-M 67					180	67	30	56	18	32	46		215	1.6	6.7	5.9		140
-M 97	1					97	56	—	21.2		—			1.3	8.6	8.7		142
-210-M 97	2				210		28	58		36	50		245	1.9	8.8	8.4		143
-SLSB8- 95-M 42	1	8	13	2.5	95	42	26	—	17.4	32	—	24	130	1.1	5.3	2.1	○	144
-120-M 67					120	67			20				155		7.4	3.5		147
-125-M 42					125	42	56		17.4	36			160	1.3	5.5	2.3		145
-150-M 67					150	67			20	32			185		7.6	4		148
-M 97						97	26		23.2					1.2	10	5.2		150
-155-M 42	2				155	42	30	56	17.4		46		190	1.6	5.7	2.5		146
-180-M 67					180	67			20				215	1.7	7.9	4		149
-M 97	1					97	56	—	23.2		—			1.4	10.2	6		151
-M127						127	26		26.3					1.3	12.6	7		153
-210-M 97	2				210	97	30	56	23.2		46		245	1.7	10.4	6		152
-M127	1					127	56	—	26.3	36	—			1.5	12.7	7.7		154
-M157						157	26		29.5					1.4	15.1	8.5		156
-240-M127	2				240	127	30	56	26.3	32	46		275	1.8	13	8.1	▲	155
-M157	1					157	56	—	29.5	42	—			1.7	15.3	8.6		157
-270-M157	2				270		28	58			53		305	2.2	15.6	8.7		158
-SLRB8- 75-M 22	1	8	18	5	75	22	26	—	20.3	32	—	24	110	1.1	3.6	0.7	×	159
- 95-M 42					95	42			22.4				130		5.3	1.1	○	162
-105-M 22					105	22	56		20.3				140	1.2	3.8	0.9	×	160
-120-M 67					120	67	26		25	36			155		7.5	1.7	○	165
-125-M 42					125	42	56		22.4	32			160	1.3	5.5	1.4		163
BT40 -135-M 22	2				135	22	30	56	20.3		46		170	1.6	4.1	1	×	161
-150-M 67	1				150	67	56	—	25		—		185	1.4	7.6	2.2	○	166
-155-M 42	2				155	42	30	56	22.4		46		190	1.7	5.8	1.5		164
-180-M 67					180	67			25				215	1.8	7.9	2.2		167
-SLFB8- 75-M 22	1	8	18	5	75	22	26	—	20.3	32	—	24	110	1.1	3.6	0.7	×	168
 - 95-M 42					95	42			22.4				130		5.3	1.1	○	171
-105-M 22					105	22	56		20.3				140	1.2	3.8	0.9	×	169
-120-M 67					120	67	26		25				155		7.5	1.7	○	174
-125-M 42					125	42	56		22.4				160	1.3	5.5	1.4		172
-135-M 22	2				135	22	30	56	20.3		46		170	1.6	4.1	1	×	170
-150-M 67	1				150	67	56	—	25		—		185	1.4	7.6	2.2	○	175
-155-M 42	2				155	42	30	56	22.4		46		190	1.7	5.8	1.5		173
-180-M 67					180	67	28	58	25	36	50		215	1.9	7.9	2		176
-SLSA8- 90 CV	3	8	11	1.5	90	63	—	—	53	—	—	24	125	1.2	3.3	1.4	○	177
-120 CV					120	93							155	1.3	4	2		178
-150 CV					150	123							185	1.5	4.8	2.7		179
-180 CV					180	153							215	1.6	4.9	5		180
-210 CV					210	183							245	1.7	5.8	6.6		181
-240 CV					240	213							275	1.9	6.7	8.3		182
-SLRA8- 90 CV	3	8	16	4	90	63	—	—	53	—	—	24	125	1.2	3.8	0.7	○	183
-120 CV					120	93							155	1.4	4.2	1.2		184
-150 CV					150	123							185	1.6	4.9	1.8		185
-180 CV					180	153							215	1.7	5.7	2.6		186
-210 CV					210	183							245	1.8	6.5	3.5		187
-SLFA8- 90 CV	3	8	16	4	90	63	—	—	53	—	—	24	125	1.2	3.8	0.7	○	188
 -120 CV					120	93							155	1.4	4.2	1.2		189
-150 CV					150	123							185	1.6	4.9	1.8		190
-180 CV					180	153							215	1.7	5.7	2.6		191
-210 CV					210	183							245	1.8	6.5	3.5		192

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT40-SLSA10- 95-M 42	1	10	13	1.5	95	42	26	—	17.4	25	—	30	130	1	5.5	2.6	○	193
-120-M 67					120	67			20	32			155	1.1	8.1	4		196
-125-M 42					125	42	56		17.4	25			160		5.7	3.6		194
-150-M 67					150	67			20	32			185	1.3	8.2	4.6		197
-M 97						97	26		23.2					1.2		6		199
-155-M 42	2				155	42	30	53	17.4	25	39		190	1.4	5.9	3.6		195
-180-M 67					180	67	28	58	20	36	50		215	1.8	8.5	4.4		198
-M 97	1					97	56	—	23.2	32	—			1.3		6.9		200
-210-M 97	2				210		30	56			46		245	1.7				201
-SLSB10- 95-M 42	1	10	16	3	95	42	26	—	20.4	32	—	30	130	1.1	6.3	1.4	○	202
-120-M 67					120	67			23				155	1.2	9.3	2.4		205
-125-M 42					125	42	56		20.4				160	1.3	6.4	1.8		203
-150-M 67					150	67			23				185		9.5	3		206
-M 97						97	26		26.2						13	3.6		208
-155-M 42	2				155	42	30	56	20.4		46		190	1.6	6.7	1.9		204
-180-M 67					180	67	30	56	23				215	1.7	9.8	3		207
BT40 -M 97	1					97	56	—	26.2		—			1.4	13.2	4.5		209
-M127						127	26		29.3	42					17.4			211
-210-M 97	2				210	97	30	56	26.2	32	46		245	1.8	13.5			210
-M127	1					127	56	—	29.3	50	—				17.9	4.7		212
-M157						157	26		32.5	42				1.5	21.1	5.6		214
-240-M127					240	127	86		29.3	50			275	2.1	18.5	5	▲	213
-M157						157	56		32.5					1.8	21.7	5.8		215
-270-M157	2				270		28	58		42	53		305	2.3	22.2	6.3		216
-SLRB10- 75-M 22	1	10	22	6	75	22	26	—	24.3	32	—	30	110	1.1	3.8	0.6	×	217
- 95-M 42					95	42			26.4				130	1.2	6.3	0.8	○	220
-105-M 22					105	22	56		24.3				140	1.3	4		×	218
-120-M 67					120	67	26		29	42			155		9.4	1.1	○	223
-125-M 42					125	42	56		26.4	32			160		6.5	1.2		221
-135-M 22	2				135	22	30	56	24.3		46		170	1.7	4.3	0.9	×	219
-150-M 67	1				150	67	56	—	29	42	—		185	1.5	9.6	1.3	○	224
-155-M 42	2				155	42	30	56	26.4	32	46		190	1.7	6.8			222
-180-M 67					180	67	28	58	29	42	53		215	2.1	9.8	1.4		225
-SLFB10- 75-M 22	1	10	22	6	75	22	26	—	24.3	32	—	30	110	1.1	3.8	0.6	×	226
- 95-M 42					95	42			26.4				130	1.2	6.3	0.8	○	229
-105-M 22					105	22	56		24.3				140	1.3	4		×	227
-120-M 67					120	67	26		29	42			155		9.4	1.1	○	232
-125-M 42					125	42	56		26.4	32			160		6.5	1.2		230
-135-M 22	2				135	22	30	56	24.3		46		170	1.7	4.3	0.9	×	228
-150-M 67	1				150	67	56	—	29	42	—		185	1.5	9.6	1.3	○	233
-155-M 42	2				155	42	28	58	26.4	36	50		190	1.9	6.8	1.1		231
-180-M 67					180	67			29				215	2	9.8	1.6		234
-SLSA10- 90 CV	3	10	13	1.5	90	63	—	—	53	—	—	30	125	1.2	3.3	1.8	○	235
-120 CV					120	93							155	1.5	4.3	1.3		236
-150 CV					150	123							185	1.6	4.9	2.2		237
-180 CV					180	153							215	1.7	5.6	3.4		238
-210 CV					210	183							245		6	6		239
-240 CV					240	213							275	2	7.9	5.8	▲	240
-SLRA10- 90 CV	3	10	19	4.5	90	63	—	—	53	—	—	30	125	1.3	3.8	0.7	×	241
-120 CV					120	93							155	1.4	4.6	0.9	○	242
-150 CV					150	123							185	1.6	5.4	1.4		243
-180 CV					180	153							215	1.8	6.3	2		244
-210 CV					210	183							245		7.2	3.1		245
-SLFA10- 90 CV	3	10	19	4.5	90	63	—	—	53	—	—	30	125	1.3	3.8	0.7	×	246
-120 CV					120	93							155	1.4	4.6	0.9	○	247
-150 CV					150	123							185	1.6	5.4	1.4		248
-180 CV					180	153							215	1.8	6.3	2		249
-210 CV					210	183							245		7.2	3.1		250

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg	N	S		Scale model
BT40-SLSA12- 95-M 42	1	12	15	1.5	95	42	26	—	19.4	32	—	30	130	1.1	7.1	1.8	○	251
-120-M 67					120	67			22				155		10.7	3.3		254
-125-M 42					125	42	56		19.4				160	1.2	7.3	2.3		252
-150-M 67					150	67			22	36			185	1.4	10.9	3.6		255
-M 97						97	26		25.2	32				1.2	15.3	4.9		257
-155-M 42	2				155	42	30	56	19.4		46		190	1.6	7.5	2.3		253
-180-M 67					180	67			22				215	1.7	11.2	3.9		256
-M 97	1					97	56	—	25.2		—			1.4	15.5	5.8		258
-210-M 97	2				210		30	56			46		245	1.7	15.8			259
-SLSB12- 95-M 42	1	12	19	3.5	95	42	26	—	23.4	32	—	30	130	1.1	8	1.1	○	260
-120-M 67					120	67			26				155	1.2	12.2	1.8		263
-125-M 42					125	42	56		23.4				160	1.3	8.2	1.5		261
-150-M 67					150	67			26	32			185		12.4	2.5		264
-M 97						97	26		29.2	42					17.9	2.4		266
-155-M 42	2				155	42	30	56	23.4	32	46		190	1.7	8.4	1.6		262
-180-M 67					180	67	28	58	26	36	50		215	1.9	12.6	2.2		265
-M 97	1					97	56	—	29.2	50	—			1.7	18.4	2.6		267
-M127						127	26		32.3	42				1.5	22.9	3.3		269
-210-M 97					210	97	86		29.2	50			245	2.1	19	2.9		268
-M127						127	56		32.3					1.9	23.5	3.5		270
-M157						157	26		35.5	42				1.7	27.9	4.1		272
-240-M127					240	127	86		32.3	50			275	2.2	24	3.8	▲	271
-M157						157	56		35.5					2	28.5	4.4		273
-270-M157					270		86						305	2.4	29.1	4.8		274
-SLRB12- 75-M 22	1	12	26	7	75	22	26	—	28.3	42	—	30	110	1.2	6.9	0.4	×	275
- 95-M 42					95	42			30.4				130		8.7	0.6		278
-105-M 22					105	22	56		28.3				140	1.4	7.5	0.5		276
-120-M 67					120	67	26		33	50			155		12.9	0.8		281
-125-M 42					125	42	56		30.4				160	1.6	9.3	0.6		279
-135-M 22					135	22	86		28.3				170	1.8	8.1			277
-150-M 67					150	67	56		33	42			185	1.6	13.5	1.1		282
-155-M 42	2				155	42	28	58	30.4		53		190	2	9.9	0.8		280
-180-M 67					180	67			33				215	2.1	14.1	1.1		283
-SLFB12- 75-M 22	1	12	26	7	75	22	26	—	28.3	42	—	30	110	1.2	6.9	0.4	×	284
- 95-M 42					95	42			30.4				130		8.7	0.6		287
-105-M 22					105	22	56		28.3				140	1.4	7.5	0.5		285
-120-M 67					120	67	26		33				155		12.9	0.8		290
-125-M 42					125	42	56		30.4				160	1.5	9.3	0.7		288
-135-M 22	2				135	22	28	58	28.3		53		170	1.9	8.1	0.6		286
-150-M 67	1				150	67	56	—	33		—		185	1.6	13.5	1.1		291
-155-M 42					155	42	86		30.4	50			190	2	9.9	0.8		289
-180-M 67					180	67			33				215	2.1	14.1	1.1		292
-SLSA12- 90 CV	3	12	15	1.5	90	63	—	—	53	—	—	30	125	1.3	3.7	1.5	○	293
-120 CV					120	93							155	1.5	4.6	1.2		294
-150 CV					150	123							185		4.9	2.4		295
-180 CV					180	153							215	1.7	5.7	3.3		296
-210 CV					210	183							245	1.9	6.6	4.6		297
-240 CV					240	213							275	2	8	5.5	▲	298
-SLRA12- 90 CV	3	12	22	5	90	63	—	—	53	—	—	30	125	1.3	3.9	0.6	×	299
-120 CV					120	93							155	1.6	5.1	0.7		300
-150 CV					150	123							185	1.7	6	1.1	○	301
-180 CV					180	153							215		6.9	1.9		302
-210 CV					210	183							245	1.8	7.7	2.8		303
-SLFA12- 90 CV	3	12	22	5	90	63	—	—	53	—	—	30	125	1.3	3.9	0.6	×	304
-120 CV					120	93							155	1.6	5.1	0.7		305
-150 CV					150	123							185	1.7	6	1.1	○	306
-180 CV					180	153							215		6.9	1.9		307
-210 CV					210	183							245	1.8	7.7	2.8		308

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg	N	S	Scale model
BT40-SLSB16- 95-M 42	1	16	24	4	95	42	26	—	28.4	42	—	32	105	1.2	12.4	0.7	309
-120-M 67					120	67			31				130	1.3	19.3	1.1	312
-125-M 42					125	42	56		28.4				135	1.4	13	0.9	310
-150-M 67					150	67			31				160	1.5	19.8	1.4	313
-M 97						97	26		34.2	42				1.4	27.6	1.7	315
-155-M 42	2				155	42	28	58	28.4		53		165	1.9	13.5	1	311
-180-M 67					180	67			31				190	2	20.4	1.5	314
-M 97	1					97	56	—	34.2	50	—			1.8	28.1	1.9	316
-M127						127	26		37.3	53				1.7	35.8	2.1	318
-210-M 97					210	97	86		34.2	50			220	2.1	28.7		317
-M127						127	56		37.3					2	36.4	2.5	319
-M157						157	26		40.5	53				1.9	44.1	2.7	321
-240-M127					240	127	86		37.3				250	2.5	37	2.6	320
-M157						157	56		40.5	50				2.2	44.7	3.1	322
-270-M157					270		86						280	2.5	45.3	3.5	323
-SLRB16- 75-M 22	1	16	32	8	75	22	26	—	34.3	42	—	32	85	1.2	6.9	0.3	324
- 95-M 42					95	42			36.4				105	1.3	12.5	0.5	327
-105-M 22					105	22	56		34.3				115	1.4	7.5		325
-120-M 67					120	67	26		39				130	1.5	19.4	0.7	330
-125-M 42					125	42	56		36.4				135	1.6	13		328
-135-M 22	2				135	22	28	58	34.3		53		145	2	8.1	0.5	326
-150-M 67	1				150	67	56	—	39		—		160	1.7	20	0.9	331
-155-M 42	2				155	42	28	58	36.4		53		165	2.1	13.6	0.7	329
-180-M 67					180	67			39				190	2.3	20.5	1	332
-SLFB16- 75-M 22	1	16	32	8	75	22	26	—	34.3	42	—	32	85	1.2	6.9	0.3	333
- 95-M 42					95	42			36.4				105	1.3	12.5	0.5	336
-105-M 22					105	22	56		34.3				115	1.4	7.5		334
-120-M 67					120	67	26		39				130	1.5	19.4	0.7	339
-125-M 42					125	42	56		36.4				135	1.6	13		337
-135-M 22					135	22	86		34.3	50			145	1.9	8.1	0.5	335
-150-M 67					150	67	56		39	42			160	1.7	20	0.9	340
-155-M 42					155	42	86		36.4	50			165	2	13.6	0.7	338
-180-M 67					180	67			39				190	2.2	20.5	1	341
-SLSB16- 90 CV	3	16	21	2.5	90	63	—	—	53	—	—	32	100	1.3	4.2	0.6	342
-120 CV					120	93							130	1.5	5.5	0.8	343
-150 CV					150	123							160	1.6	6.2	1.5	344
-180 CV					180	153							190	1.9	7.5	1.9	345
-210 CV					210	183							220	2	8.2	3	346
-240 CV					240	213							250	2.2	9.5	3.7	347
BT40-SLSB20- 95-M 42	1	20	29	4.5	95	42	26	—	33.4	42	—	40	105	1.2	14.2	0.6	348
-120-M 67					120	67			36				130	1.3	24.5	0.9	351
-125-M 42					125	42	56		33.4				135	1.5	14.8	0.8	349
-150-M 67					150	67			36				160	1.6	25	1.2	352
-M 97						97	26		39.2	53					36.8	1.2	354
-155-M 42	2				155	42	28	58	33.4	42	53		165	2	15.3	0.9	350
-180-M 67	1				180	67	86	—	36	50	—		190		25.6	1.2	353
-M 97						97	56		39.2					1.9	37.4	1.4	355
-M127						127	26		42.3	53				1.8	50	1.6	357
-210-M 97					210	97	86		39.2	50			220	2.2	38	1.7	356
-M127						127	56		42.3					2.1	50.5	1.9	358
-M157						157	26		45.5					2	62.3	2.1	360
-240-M127					240	127	86		42.3				250	2.4	51.1	2.3	359
-M157						157	56		45.5						62.9	2.4	361
-270-M157					270		86						280	2.7	63.5	2.9	362

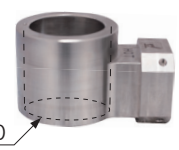
CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S	Scale model
BT40-SLRB20- 95-M 42	1	20	38	9	95	42	26	—	42.4	53	—	40	105	1.5	14.3	0.4	363
-120-M 67					120	67			45				130	1.7	24.6	0.5	366
-125-M 42					125	42	56		42.4				135	1.9	14.9		364
-150-M 67					150	67			45	50			160	2	25.2	0.7	367
-155-M 42					155	42	86		42.4	53			165	2.2	15.4	0.6	365
-180-M 67					180	67			45	50			190	2.3	25.7	0.9	368
-SLFB20- 95-M 42	1	20	38	9	95	42	26	—	42.4	53	—	40	105	1.5	14.3	0.4	369
-120-M 67					120	67			45				130	1.7	24.6	0.5	372
-125-M 42					125	42	56		42.4				135	1.9	14.9		370
-150-M 67					150	67			45	50			160	2	25.2	0.7	373
-155-M 42					155	42	86		42.4				165	2.1	15.4		371
-180-M 67					180	67			45				190	2.3	25.7	0.9	374
-SLSB20- 90 CV	3	20	26	3	90	63	—	—	50.5	—	—	40	100	1.3	4.4	0.5	375
-120 CV					120	93			53				130	1.5	5.8	0.8	376
-150 CV					150	123							160	1.6	6.7	1.3	377
-180 CV					180	153							190	1.9	8	1.8	378
-210 CV					210	183							220	2.1	9.4	2.3	379
-240 CV					240	213							250	2.4	10.7	3	380
BT40-SLRB25- 95-M 42	1	25	45	10	95	42	26	—	49.4	53	—	45	105	1.5	16.4	0.3	381
-125-M 42					125		56						135	1.9	17	0.4	382
-155-M 42					155		86						165	2.3	17.5	0.6	383
-SLFB25- 95-M 42	1	25	45	10	95	42	26	—	49.4	53	—	45	105	1.5	16.4	0.3	384
-125-M 42					125		56						135	1.9	17	0.4	385
-155-M 42					155		86						165	2.3	17.5	0.6	386
BT40-SLRB32- 95-M 42	1	32	54	11	95	42	26	—	58.4	63	—	50	87	1.8	4.7	0.3	387

NEW

φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70



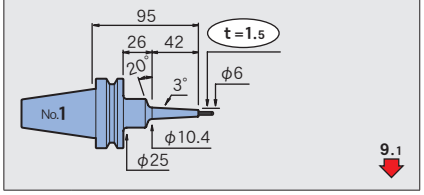


HEAT ROBO Baby3000S

BT40 S=1:7

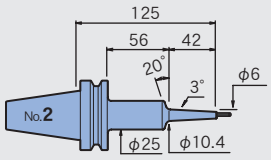
ϕ3

BT40-SLSA3-95-M42



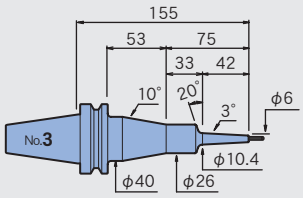
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BT40-SLSA3-125-M42



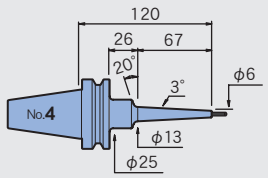
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BT40-SLSA3-155-M42



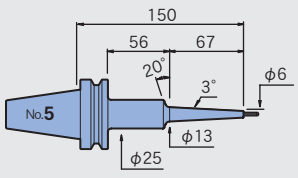
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BT40-SLSA3-120-M67



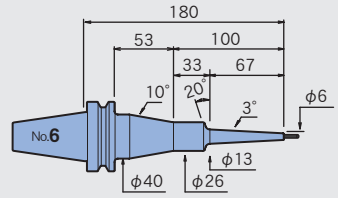
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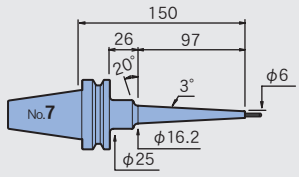
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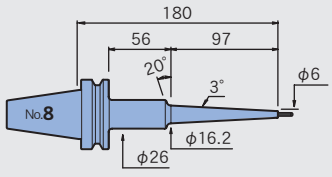
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BT40-SLSA3-150-M97



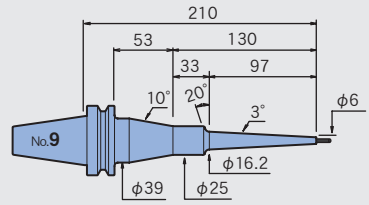
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BT40-SLSA3-180-M97



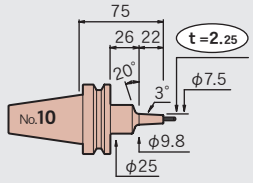
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BT40-SLSA3-210-M97



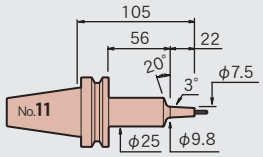
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BT40-SLRA3-75-M22



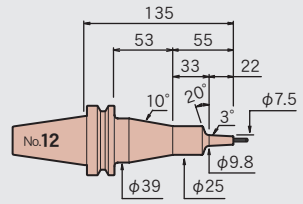
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BT40-SLRA3-105-M22



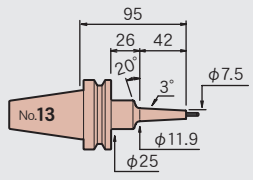
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BT40-SLRA3-135-M22



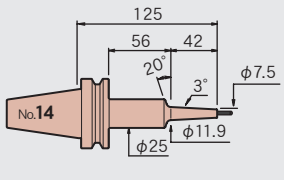
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BT40-SLRA3-95-M42



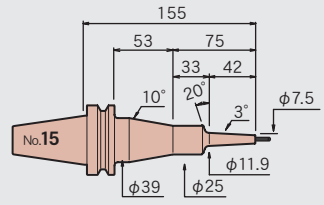
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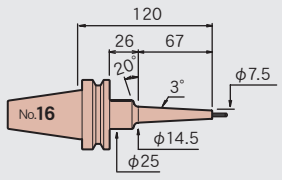
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BT40-SLRA3-155-M42



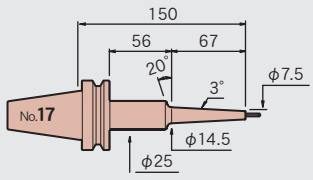
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BT40-SLRA3-120-M67



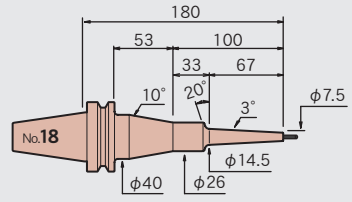
8.8

BT40-SLRA3-150-M67



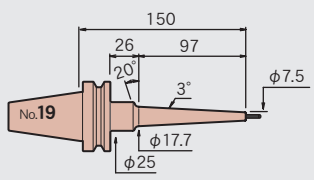
14.5

BT40-SLRA3-180-M67



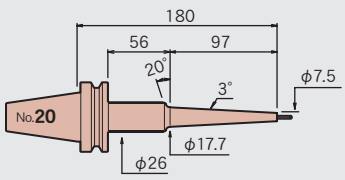
9.8

BT40-SLRA3-150-M97



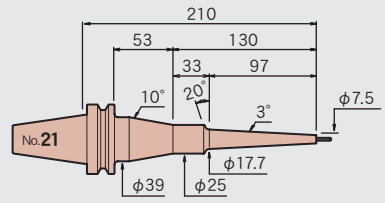
12.8

BT40-SLRA3-180-M97



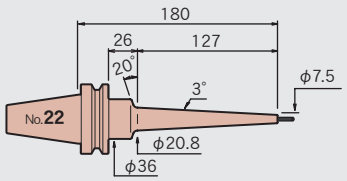
14.3

BT40-SLRA3-210-M97



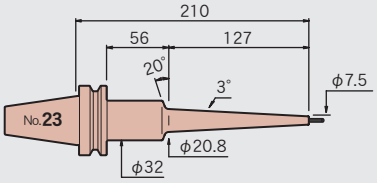
14.4

BT40-SLRA3-180-M127



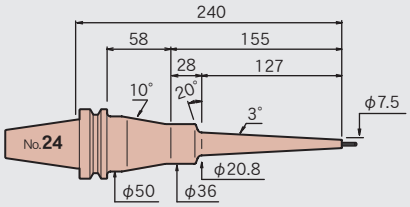
15.7

BT40-SLRA3-210-M127



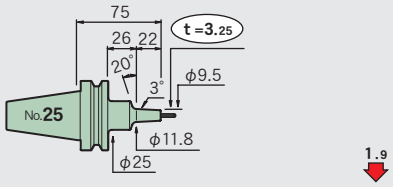
16.5

BT40-SLRA3-240-M127



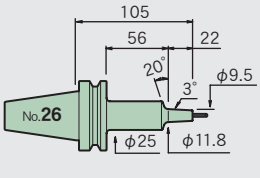
16.3

BT40-SLFB3-75-M22



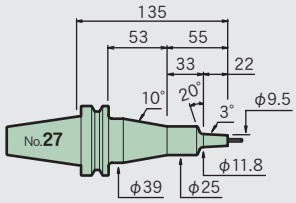
1.9

BT40-SLFB3-105-M22



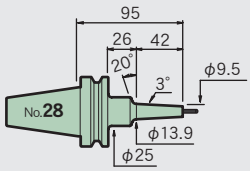
2.3

BT40-SLFB3-135-M22



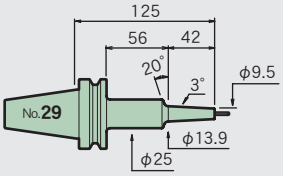
2.3

BT40-SLFB3-95-M42



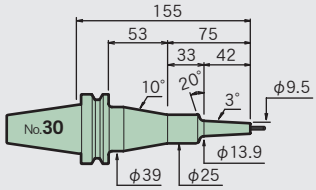
3.2

BT40-SLFB3-125-M42



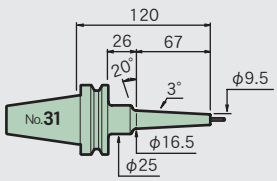
3.8

BT40-SLFB3-155-M42



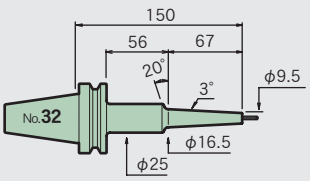
3.9

BT40-SLFB3-120-M67



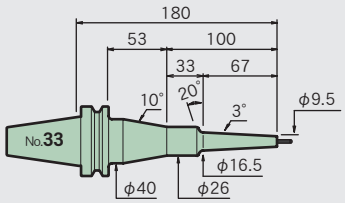
5.3

BT40-SLFB3-150-M67



6.4

BT40-SLFB3-180-M67

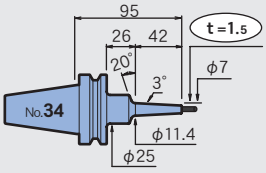


6.3

BT40 S=1:7

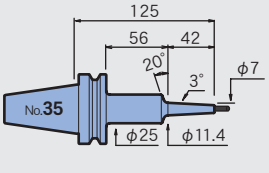
ϕ4

BT40-SLSA4-95-M42



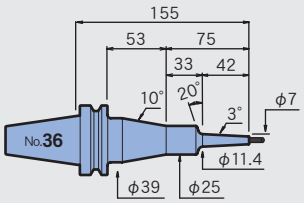
7.1

BT40-SLSA4-125-M42



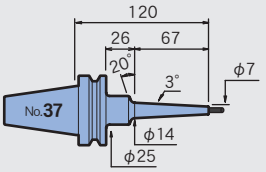
7.9

BT40-SLSA4-155-M42



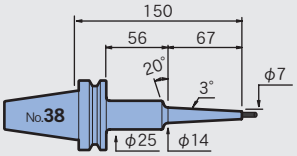
7.9

BT40-SLSA4-120-M67



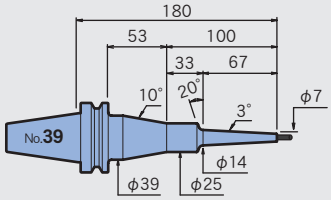
11.7

BT40-SLSA4-150-M67



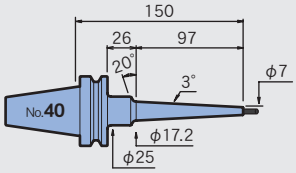
12.8

BT40-SLSA4-180-M67



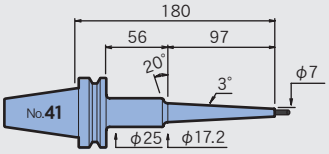
12.8

BT40-SLSA4-150-M97



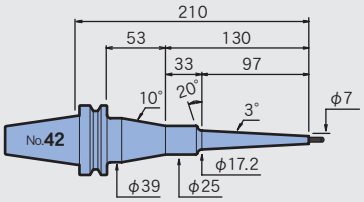
16.5

BT40-SLSA4-180-M97



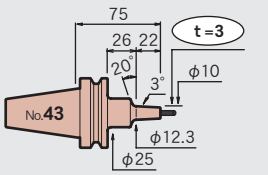
18.3

BT40-SLSA4-210-M97



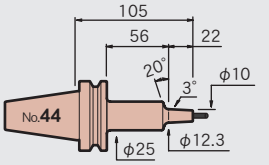
18.2

BT40-SLRA4-75-M22



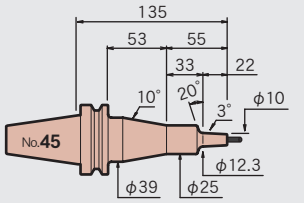
1.7

BT40-SLRA4-105-M22



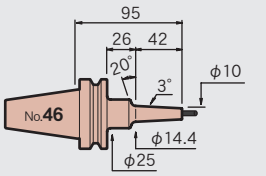
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BT40-SLRA4-135-M22



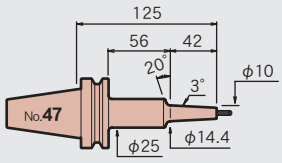
2.2

BT40-SLRA4-95-M42



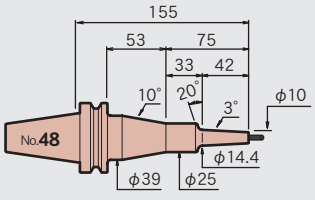
3.1

BT40-SLRA4-125-M42



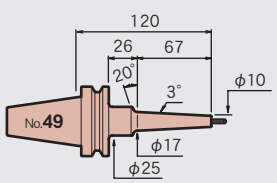
3.8

BT40-SLRA4-155-M42



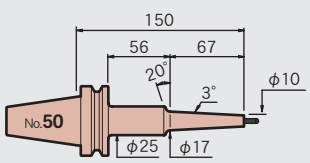
3.8

BT40-SLRA4-120-M67



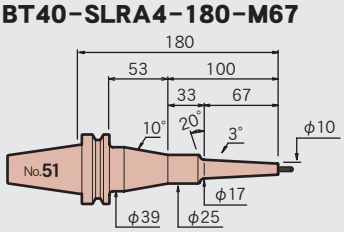
5.1

BT40-SLRA4-150-M67



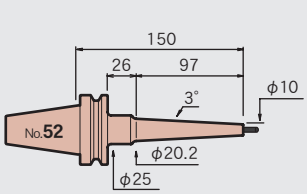
6.3

BT40-SLRA4-180-M67



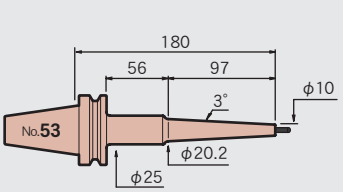
6.2

BT40-SLRA4-150-M97



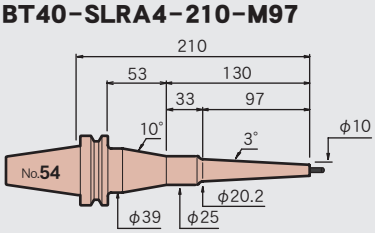
7.7

BT40-SLRA4-180-M97



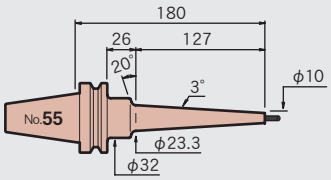
9.5

BT40-SLRA4-210-M97



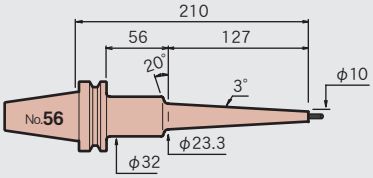
9.4

BT40-SLRA4-180-M127



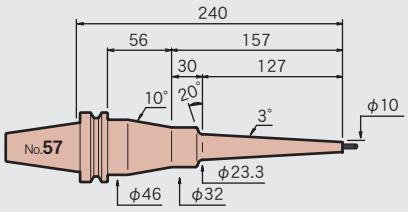
9.3

BT40-SLRA4-210-M127



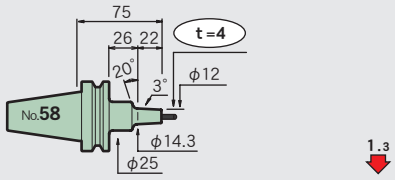
10.3

BT40-SLRA4-240-M127



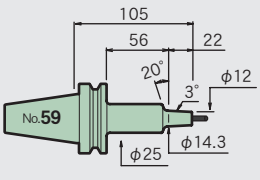
10.4

BT40-SLFB4-75-M22



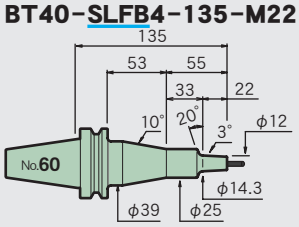
1.3

BT40-SLFB4-105-M22



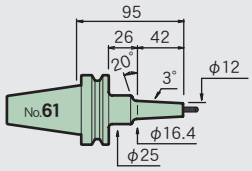
1.8

BT40-SLFB4-135-M22



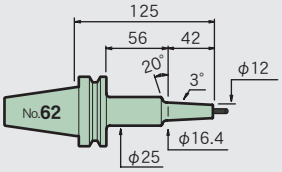
1.8

BT40-SLFB4-95-M42



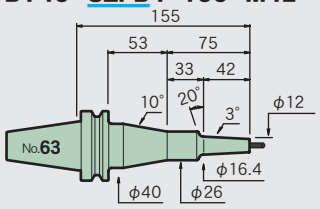
2.2

BT40-SLFB4-125-M42



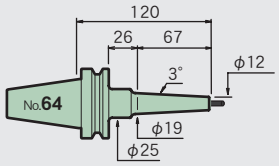
2.9

BT40-SLFB4-155-M42



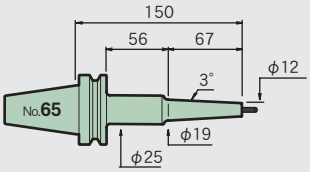
2.9

BT40-SLFB4-120-M67



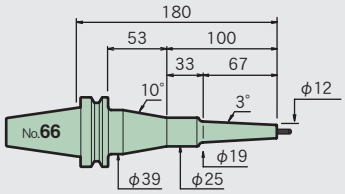
3.5

BT40-SLFB4-150-M67



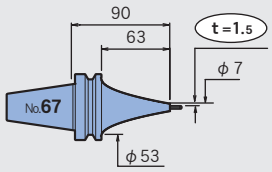
4.7

BT40-SLFB4-180-M67



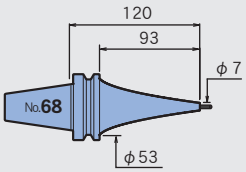
4.7

BT40-SLSA4-90 CV



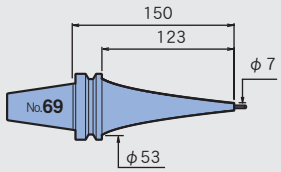
1.8

BT40-SLSA4-120 CV



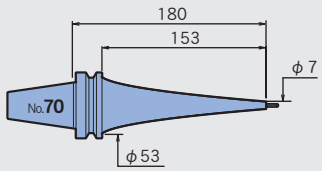
2.7

BT40-SLSA4-150 CV



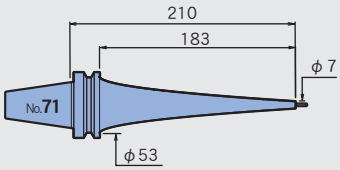
4.0

BT40-SLSA4-180 CV



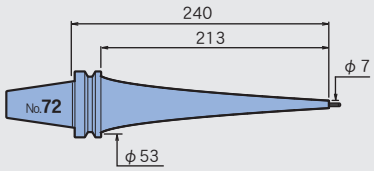
6.6

BT40-SLSA4-210 CV



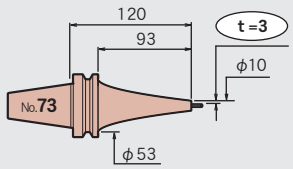
11.6

BT40-SLSA4-240 CV



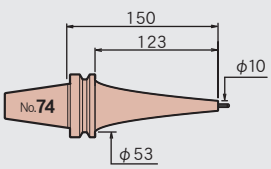
14.0

BT40-SLRA4-120 CV



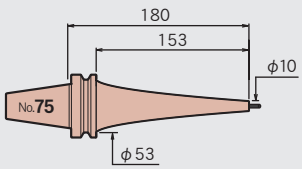
1.9

BT40-SLRA4-150 CV



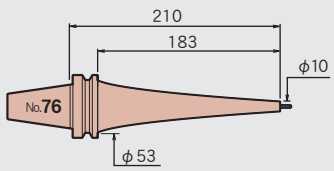
2.9

BT40-SLRA4-180 CV



4.2

BT40-SLRA4-210 CV

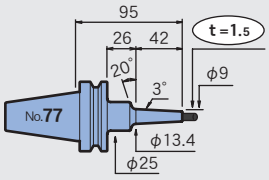


5.7

BT40 S=1:7

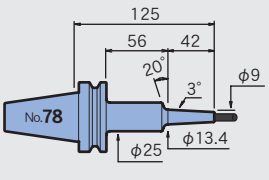
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BT40-SLSA6-95-M42



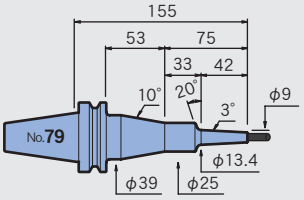
4.8

BT40-SLSA6-125-M42



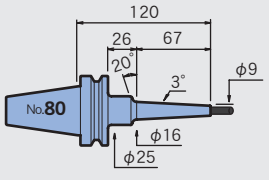
5.6

BT40-SLSA6-155-M42



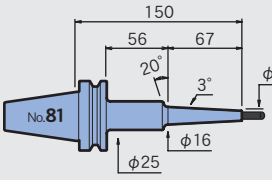
5.6

BT40-SLSA6-120-M67



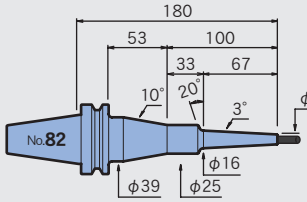
8.0

BT40-SLSA6-150-M67



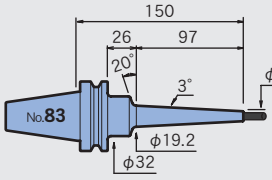
9.2

BT40-SLSA6-180-M67



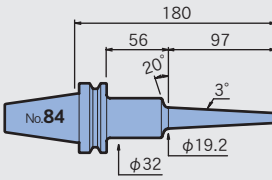
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BT40-SLSA6-150-M97



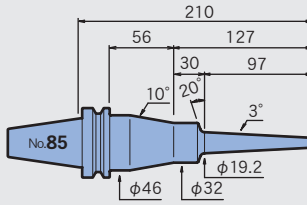
11.0

BT40-SLSA6-180-M97



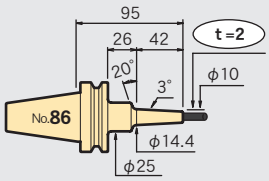
11.7

BT40-SLSA6-210-M97



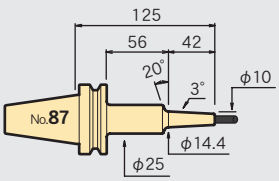
11.7

BT40-SLSB6-95-M42



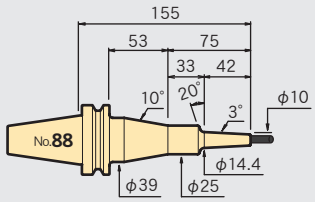
3.6

BT40-SLSB6-125-M42



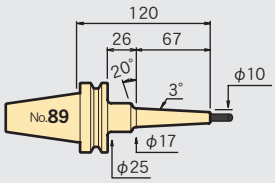
4.5

BT40-SLSB6-155-M42



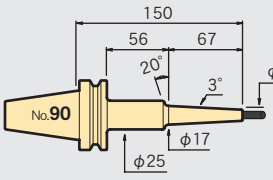
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BT40-SLSB6-120-M67



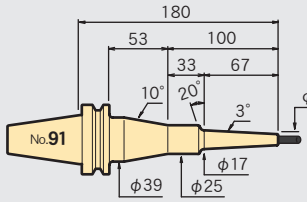
6.1

BT40-SLSB6-150-M67



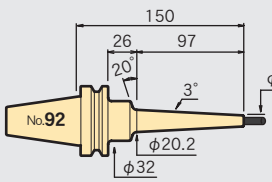
7.4

BT40-SLSB6-180-M67



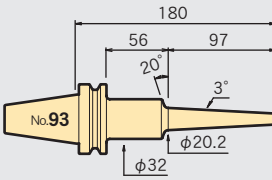
7.4

BT40-SLSB6-150-M97



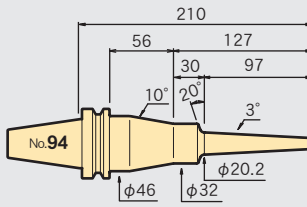
8.5

BT40-SLSB6-180-M97



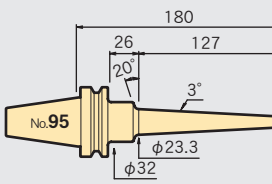
9.2

BT40-SLSB6-210-M97



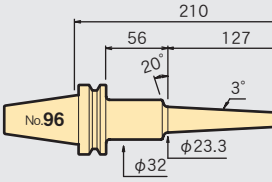
9.2

BT40-SLSB6-180-M127



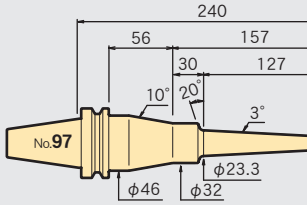
11.0

BT40-SLSB6-210-M127



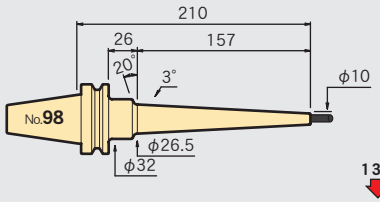
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BT40-SLSB6-240-M127



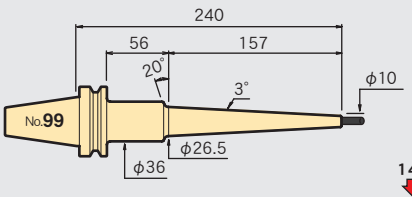
12.0

BT40-SLSB6-210-M157



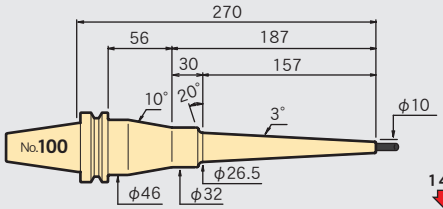
13.2

BT40-SLSB6-240-M157



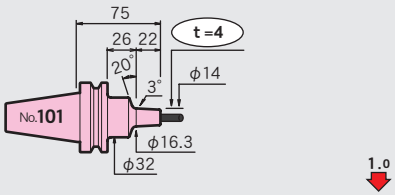
14.5

BT40-SLSB6-270-M157



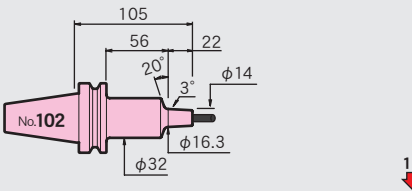
14.6

BT40-SLRB6-75-M22



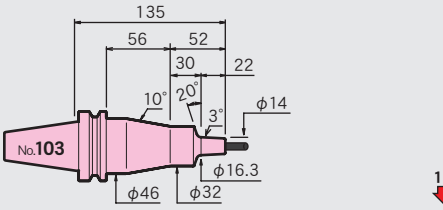
1.0

BT40-SLRB6-105-M22



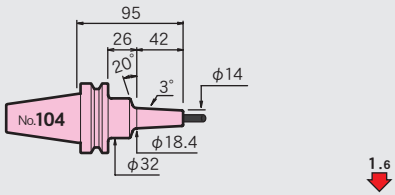
1.2

BT40-SLRB6-135-M22



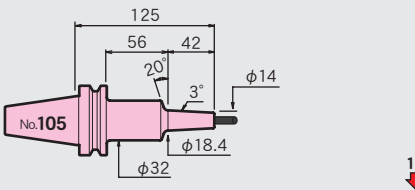
1.2

BT40-SLRB6-95-M42



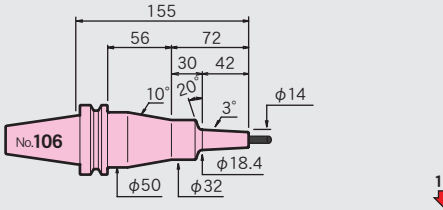
1.6

BT40-SLRB6-125-M42



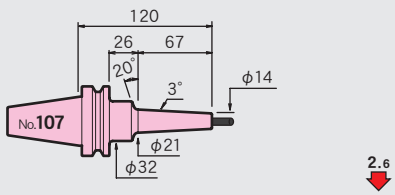
1.9

BT40-SLRB6-155-M42



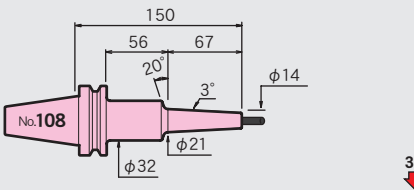
1.9

BT40-SLRB6-120-M67



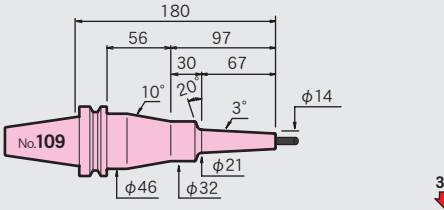
2.6

BT40-SLRB6-150-M67



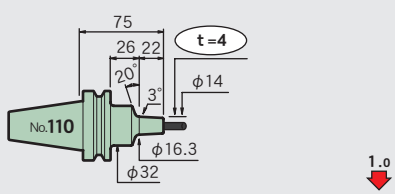
3.0

BT40-SLRB6-180-M67



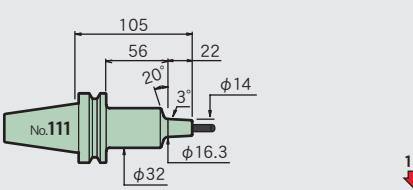
3.1

BT40-SLFB6-75-M22



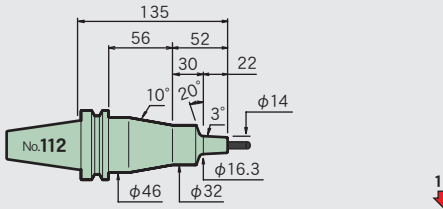
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BT40-SLFB6-105-M22



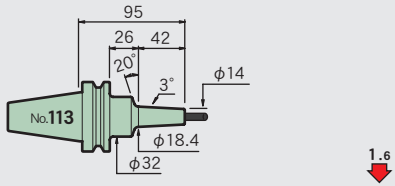
1.2

BT40-SLFB6-135-M22



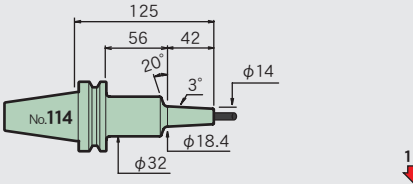
1.2

BT40-SLFB6-95-M42



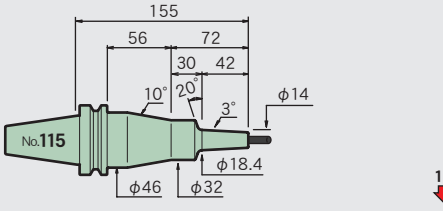
1.6

BT40-SLFB6-125-M42



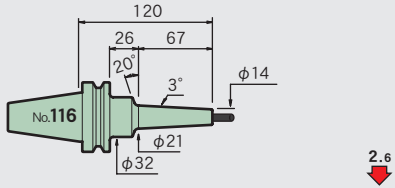
1.9

BT40-SLFB6-155-M42



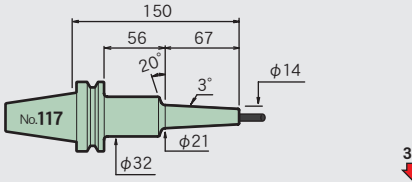
1.9

BT40-SLFB6-120-M67



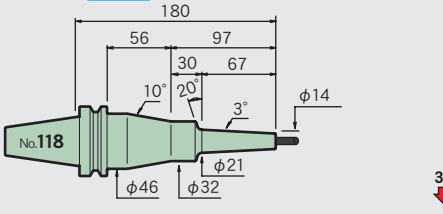
2.6

BT40-SLFB6-150-M67



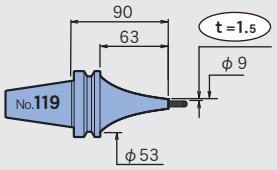
3.0

BT40-SLFB6-180-M67



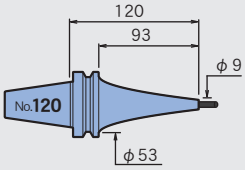
3.1

BT40-SLSA6-90 CV



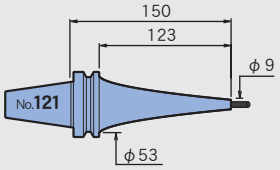
1.6

BT40-SLSA6-120 CV



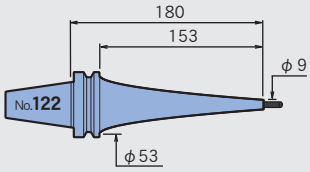
2.3

BT40-SLSA6-150 CV



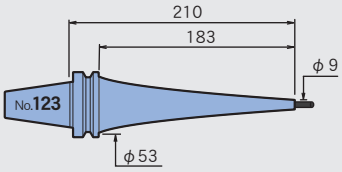
3.6

BT40-SLSA6-180 CV



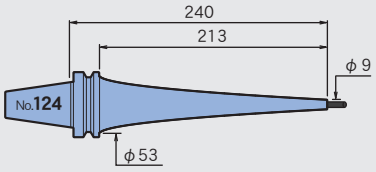
5.7

BT40-SLSA6-210 CV



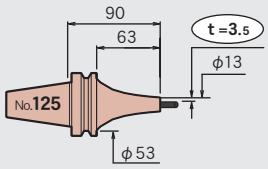
7.3

BT40-SLSA6-240 CV



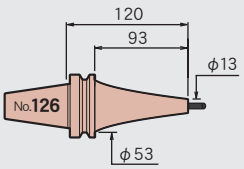
12.0

BT40-SLRA6-90 CV



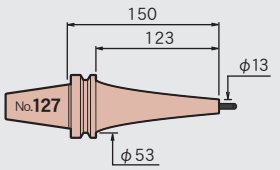
1.2

BT40-SLRA6-120 CV



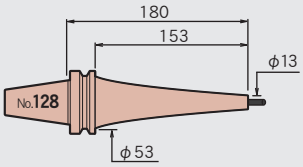
1.7

BT40-SLRA6-150 CV



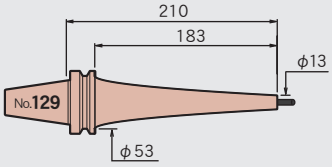
2.1

BT40-SLRA6-180 CV



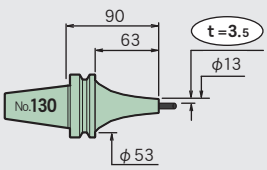
2.8

BT40-SLRA6-210 CV



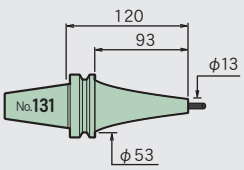
4.8

BT40-SLFA6-90 CV



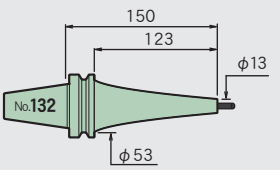
1.2

BT40-SLFA6-120 CV



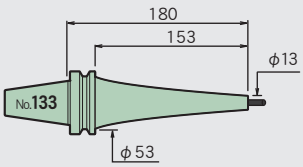
1.7

BT40-SLFA6-150 CV



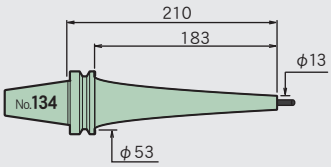
2.1

BT40-SLFA6-180 CV



2.8

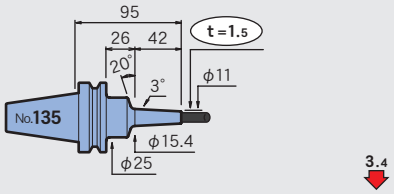
BT40-SLFA6-210 CV



4.8

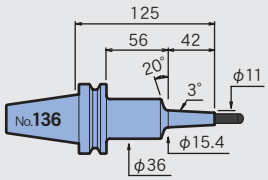
ϕ8

BT40-SLSA8-95-M42



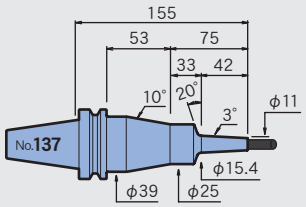
3.4

BT40-SLSA8-125-M42



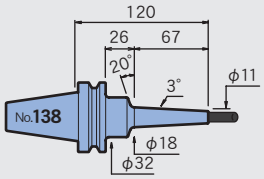
3.4

BT40-SLSA8-155-M42



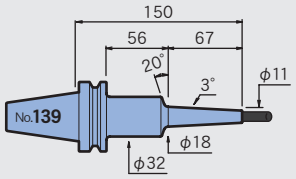
4.3

BT40-SLSA8-120-M67



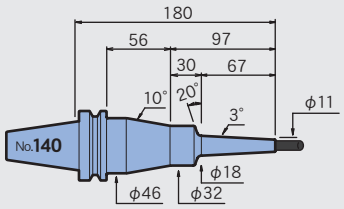
5.4

BT40-SLSA8-150-M67



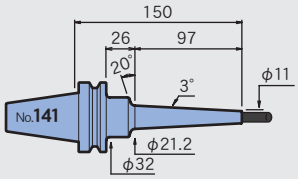
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BT40-SLSA8-180-M67



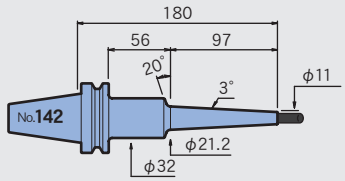
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BT40-SLSA8-150-M97



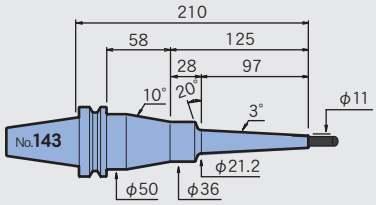
7.9

BT40-SLSA8-180-M97



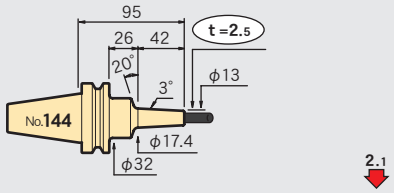
8.7

BT40-SLSA8-210-M97



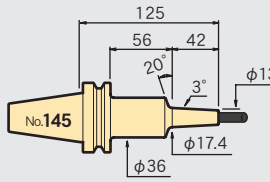
8.4

BT40-SLSB8-95-M42



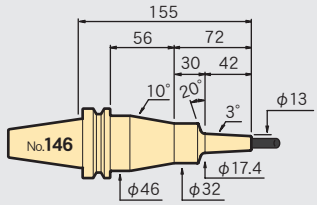
2.1

BT40-SLSB8-125-M42



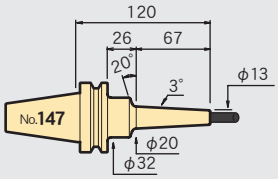
2.3

BT40-SLSB8-155-M42



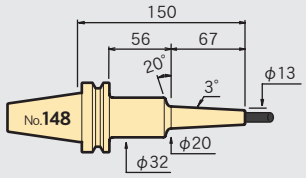
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BT40-SLSB8-120-M67



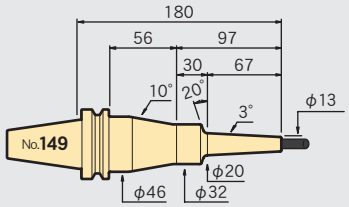
3.5

BT40-SLSB8-150-M67



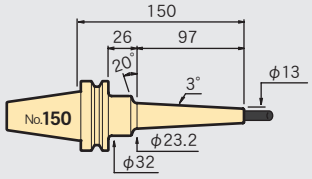
4.0

BT40-SLSB8-180-M67



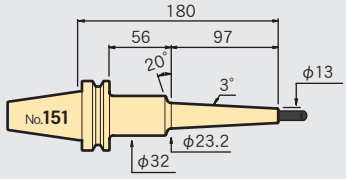
4.0

BT40-SLSB8-150-M97



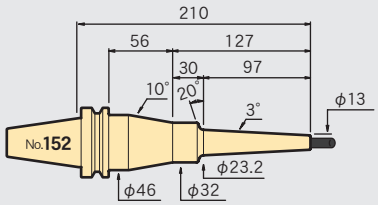
5.2

BT40-SLSB8-180-M97



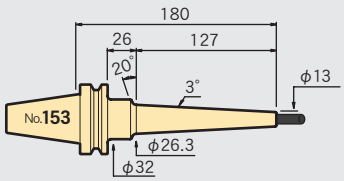
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BT40-SLSB8-210-M97



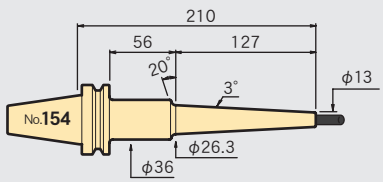
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BT40-SLSB8-180-M127



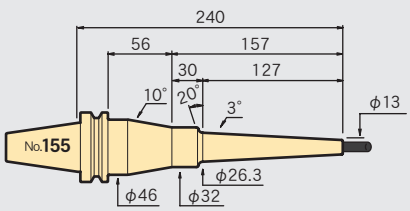
7.0

BT40-SLSB8-210-M127



7.7

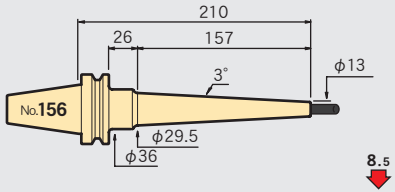
BT40-SLSB8-240-M127



8.1

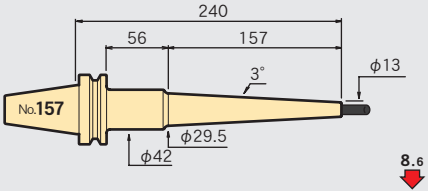
BT40 S=1:7

BT40-SLSB8-210-M157



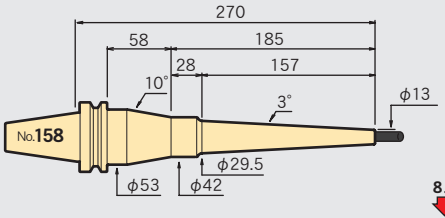
8.5

BT40-SLSB8-240-M157



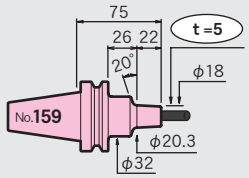
8.6

BT40-SLSB8-270-M157



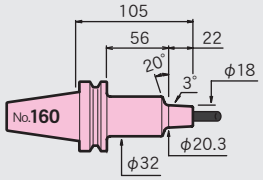
8.7

BT40-SLRB8-75-M22



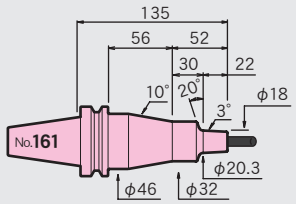
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BT40-SLRB8-105-M22



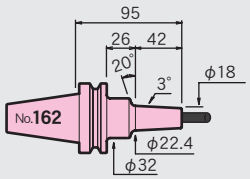
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BT40-SLRB8-135-M22



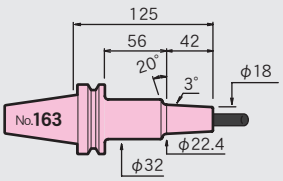
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BT40-SLRB8-95-M42



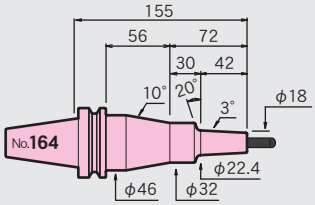
1.1

BT40-SLRB8-125-M42



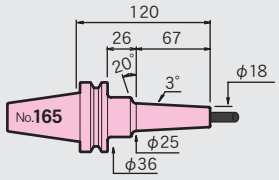
1.4

BT40-SLRB8-155-M42



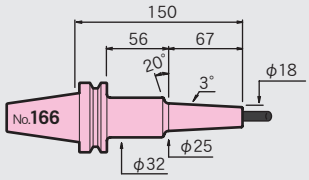
1.5

BT40-SLRB8-120-M67



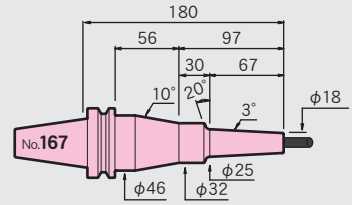
1.7

BT40-SLRB8-150-M67



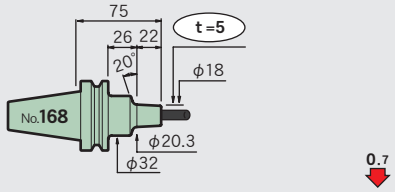
2.2

BT40-SLRB8-180-M67



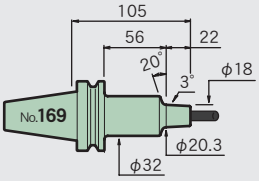
2.2

BT40-SLFB8-75-M22



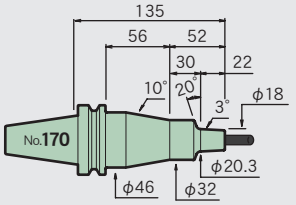
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BT40-SLFB8-105-M22



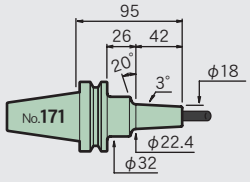
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BT40-SLFB8-135-M22



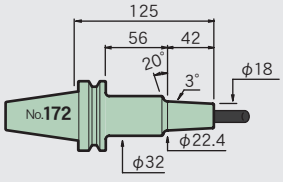
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BT40-SLFB8-95-M42



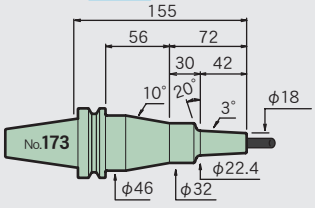
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BT40-SLFB8-125-M42



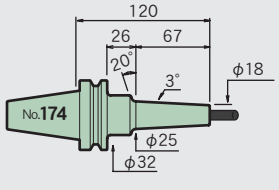
1.4

BT40-SLFB8-155-M42



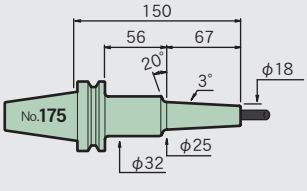
1.5

BT40-SLFB8-120-M67



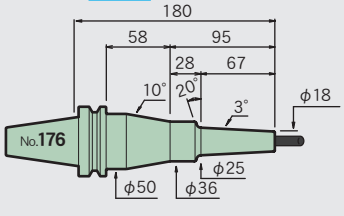
1.7

BT40-SLFB8-150-M67



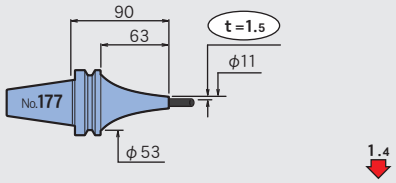
2.2

BT40-SLFB8-180-M67



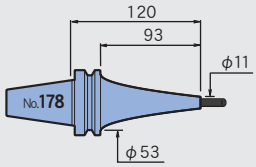
2.0

BT40-SLSA8-90 CV



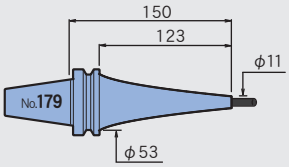
1.4

BT40-SLSA8-120 CV



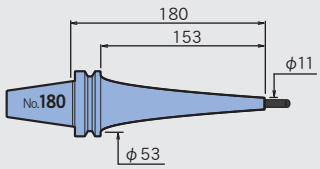
2.0

BT40-SLSA8-150 CV



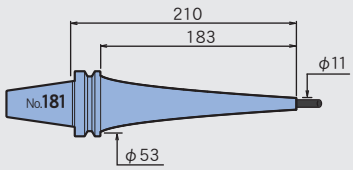
2.7

BT40-SLSA8-180 CV



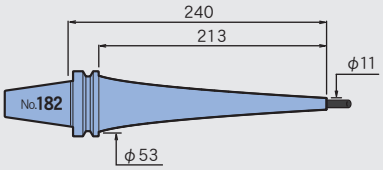
5.0

BT40-SLSA8-210 CV



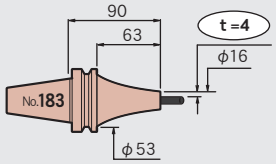
6.6

BT40-SLSA8-240 CV



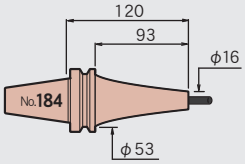
8.3

BT40-SLRA8-90 CV



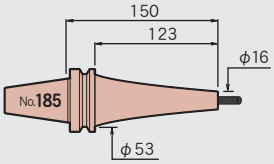
0.7

BT40-SLRA8-120 CV



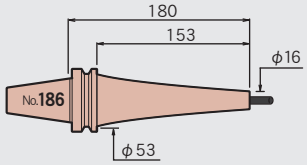
1.2

BT40-SLRA8-150 CV



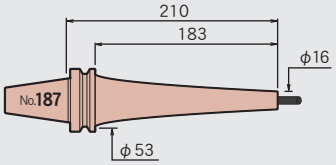
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BT40-SLRA8-180 CV



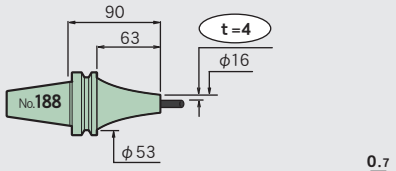
2.6

BT40-SLRA8-210 CV



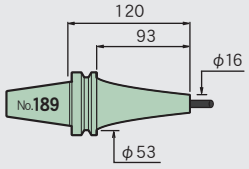
3.5

BT40-SLFA8-90 CV



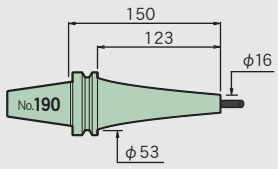
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BT40-SLFA8-120 CV



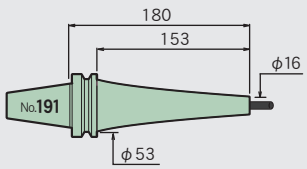
1.2

BT40-SLFA8-150 CV



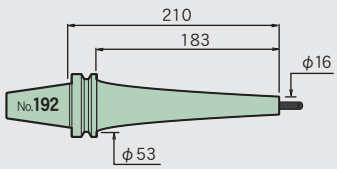
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BT40-SLFA8-180 CV



2.6

BT40-SLFA8-210 CV

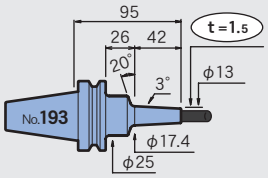


3.5

BT40 **S=1:7**

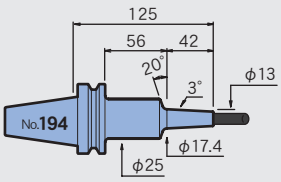
ϕ10

BT40-SLSA10-95-M42



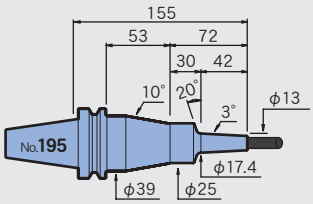
2.6

BT40-SLSA10-125-M42



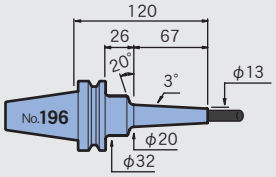
3.6

BT40-SLSA10-155-M42



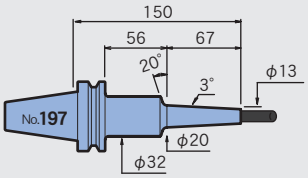
3.6

BT40-SLSA10-120-M67



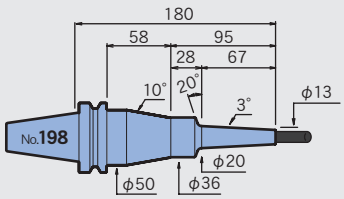
4.0

BT40-SLSA10-150-M67



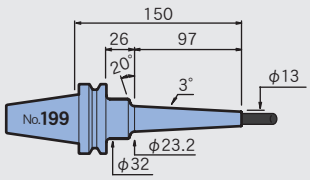
4.6

BT40-SLSA10-180-M67



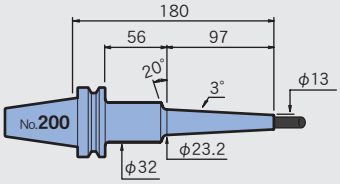
4.4

BT40-SLSA10-150-M97



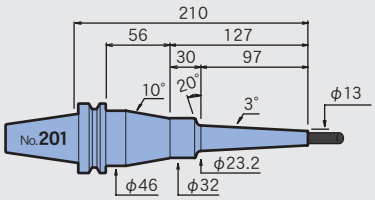
6.0

BT40-SLSA10-180-M97



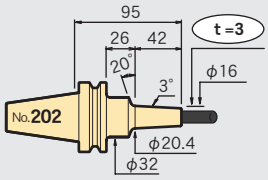
6.9

BT40-SLSA10-210-M97



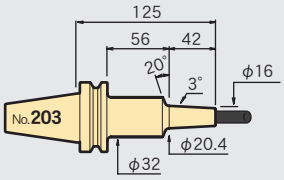
6.9

BT40-SLSB10-95-M42



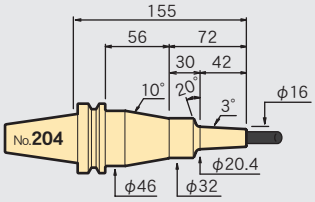
1.4

BT40-SLSB10-125-M42



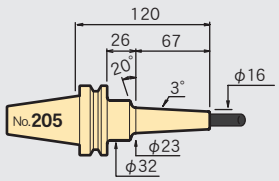
1.8

BT40-SLSB10-155-M42



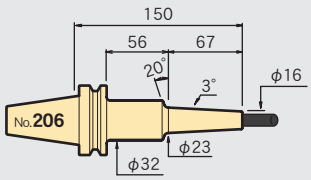
1.9

BT40-SLSB10-120-M67



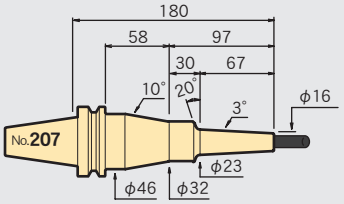
2.4

BT40-SLSB10-150-M67



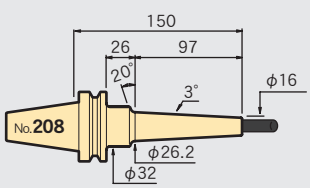
3.0

BT40-SLSB10-180-M67



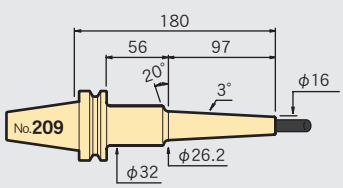
3.0

BT40-SLSB10-150-M97



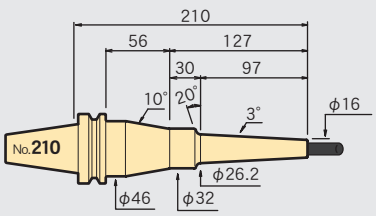
3.6

BT40-SLSB10-180-M97



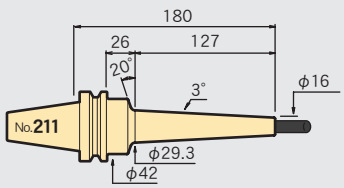
4.5

BT40-SLSB10-210-M97



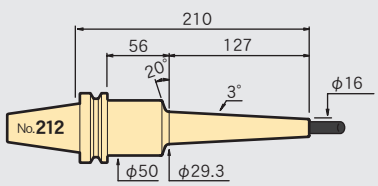
4.5

BT40-SLSB10-180-M127



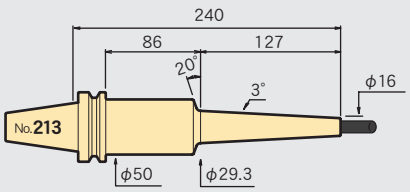
4.5

BT40-SLSB10-210-M127



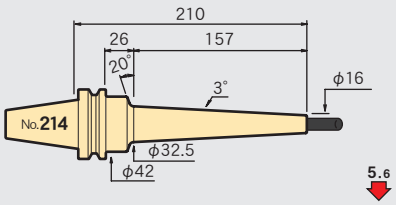
4.7

BT40-SLSB10-240-M127



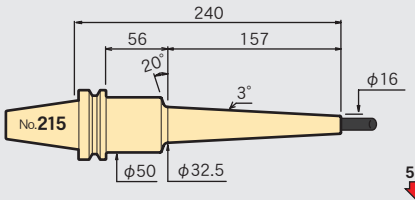
5.0

BT40-SLSB10-210-M157



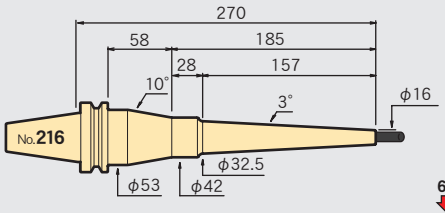
5.6

BT40-SLSB10-240-M157



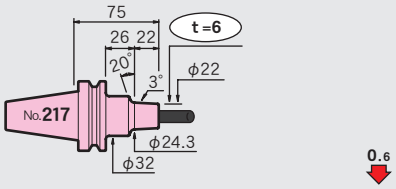
5.8

BT40-SLSB10-270-M157



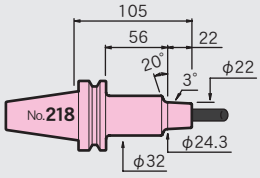
6.3

BT40-SLRB10-75-M22



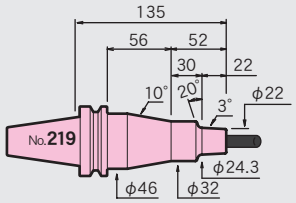
0.6

BT40-SLRB10-105-M22



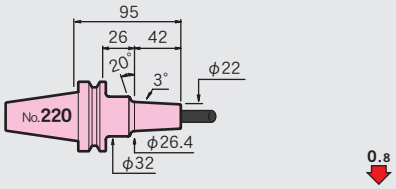
0.8

BT40-SLRB10-135-M22



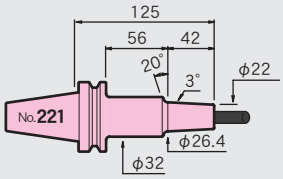
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BT40-SLRB10-95-M42



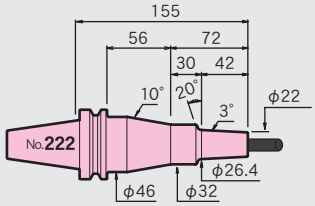
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BT40-SLRB10-125-M42



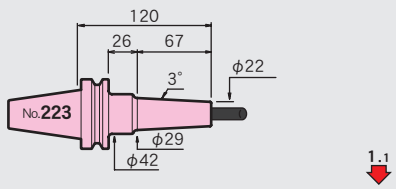
1.2

BT40-SLRB10-155-M42



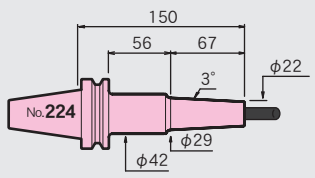
1.3

BT40-SLRB10-120-M67



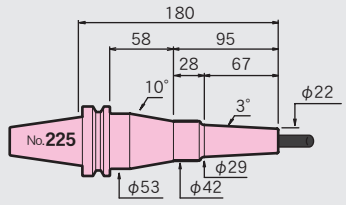
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BT40-SLRB10-150-M67



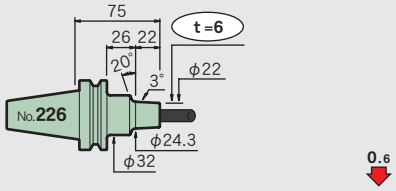
1.3

BT40-SLRB10-180-M67



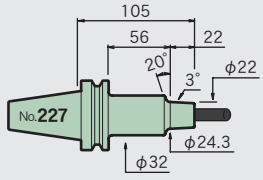
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BT40-SLFB10-75-M22



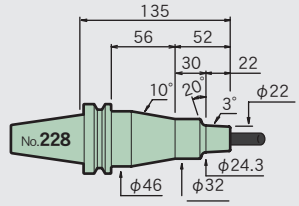
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BT40-SLFB10-105-M22



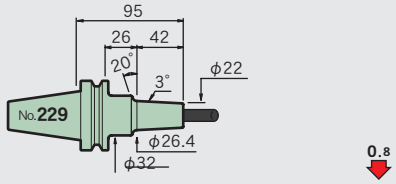
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BT40-SLFB10-135-M22



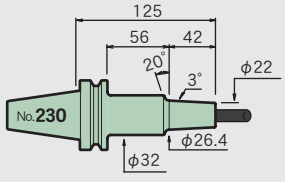
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BT40-SLFB10-95-M42



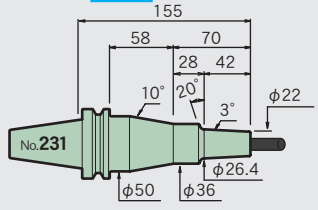
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BT40-SLFB10-125-M42



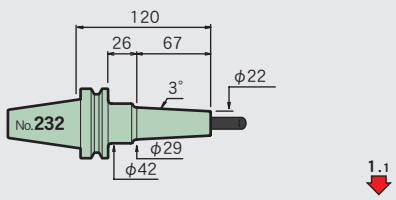
1.2

BT40-SLFB10-155-M42



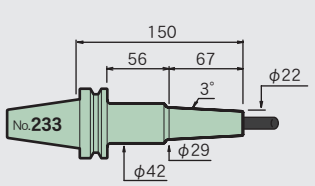
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BT40-SLFB10-120-M67



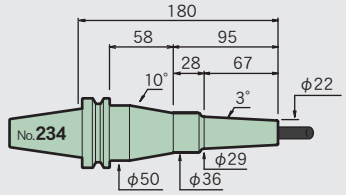
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BT40-SLFB10-150-M67



1.3

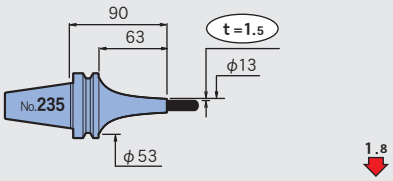
BT40-SLFB10-180-M67



1.6

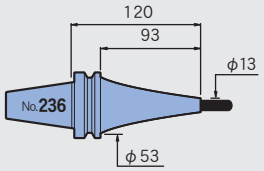
BT40 S=1:7

BT40-SLSA10-90 CV



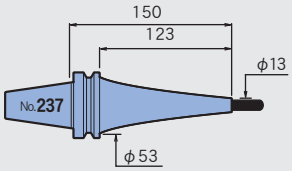
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BT40-SLSA10-120 CV



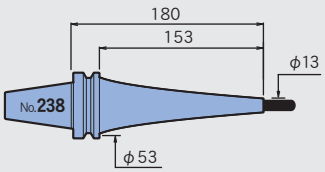
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BT40-SLSA10-150 CV



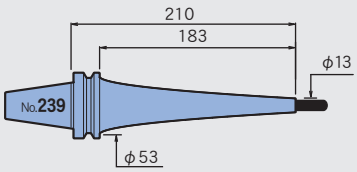
2.2

BT40-SLSA10-180 CV



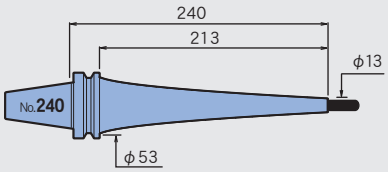
3.4

BT40-SLSA10-210 CV



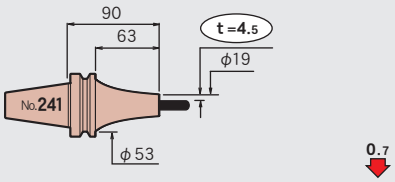
6.0

BT40-SLSA10-240 CV



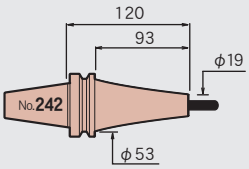
5.8

BT40-SLRA10-90 CV



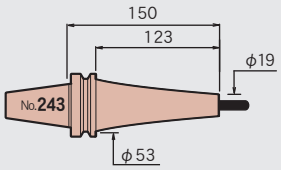
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BT40-SLRA10-120 CV



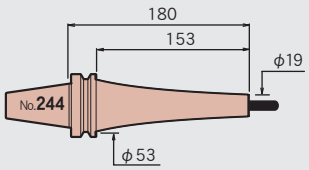
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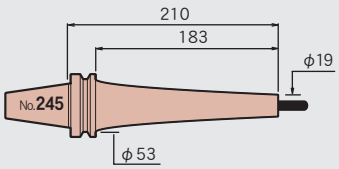
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BT40-SLRA10-180 CV



2.0

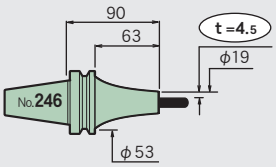
BT40-SLRA10-210 CV



3.1

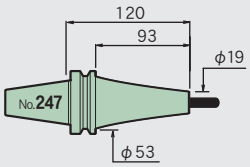
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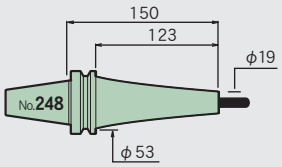
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BT40-SLFA10-120 CV



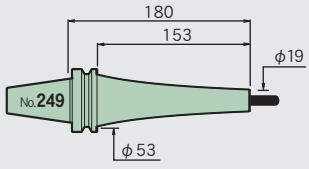
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BT40-SLFA10-150 CV



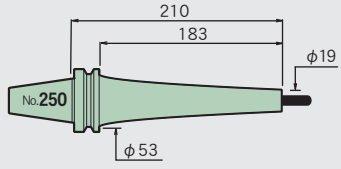
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BT40-SLFA10-180 CV



2.0

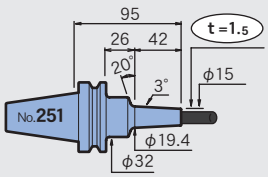
BT40-SLFA10-210 CV



3.1

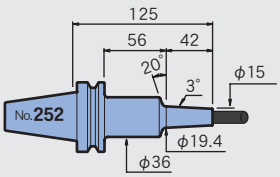
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BT40-SLSA12-95-M42



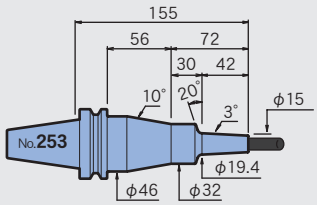
1.8

BT40-SLSA12-125-M42



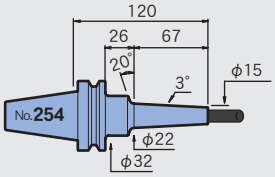
2.3

BT40-SLSA12-155-M42



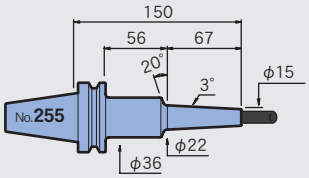
2.3

BT40-SLSA12-120-M67



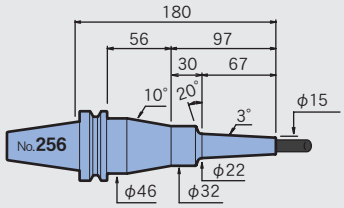
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BT40-SLSA12-150-M67



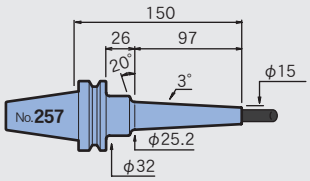
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BT40-SLSA12-180-M67



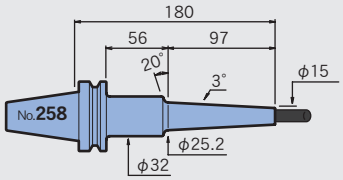
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BT40-SLSA12-150-M97



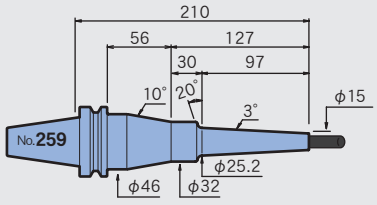
4.9

BT40-SLSA12-180-M97



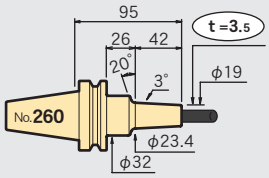
5.8

BT40-SLSA12-210-M97



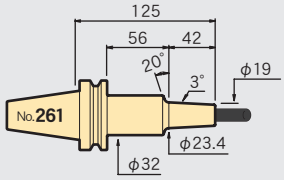
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BT40-SLSB12-95-M42



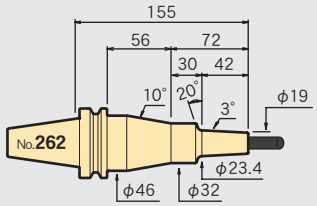
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BT40-SLSB12-125-M42



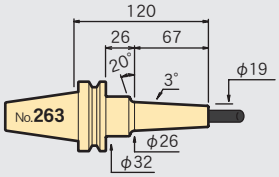
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BT40-SLSB12-155-M42



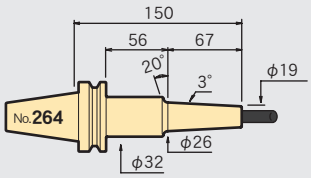
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BT40-SLSB12-120-M67



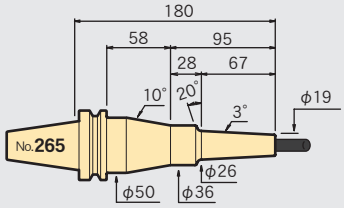
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BT40-SLSB12-150-M67



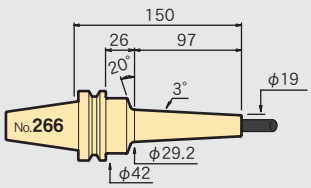
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BT40-SLSB12-180-M67



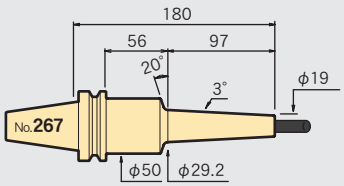
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BT40-SLSB12-150-M97



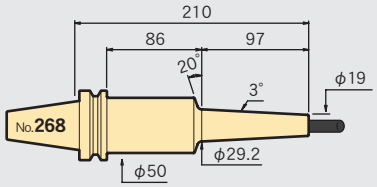
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BT40-SLSB12-180-M97



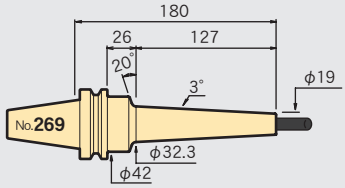
2.6

BT40-SLSB12-210-M97



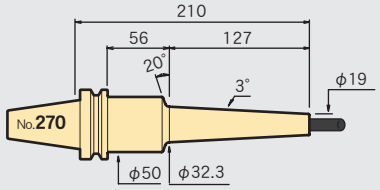
2.9

BT40-SLSB12-180-M127



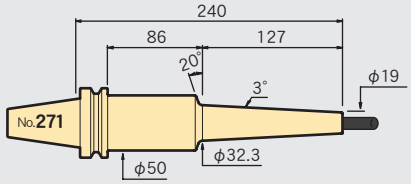
3.3

BT40-SLSB12-210-M127



3.5

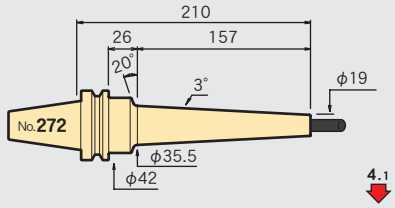
BT40-SLSB12-240-M127



3.8

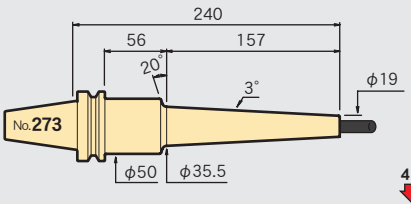
BT40 S=1:7

BT40-SLSB12-210-M157



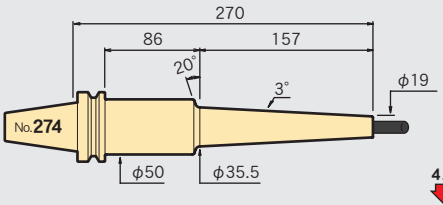
4.1

BT40-SLSB12-240-M157



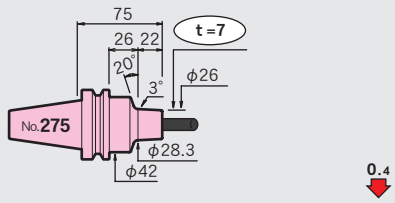
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BT40-SLSB12-270-M157



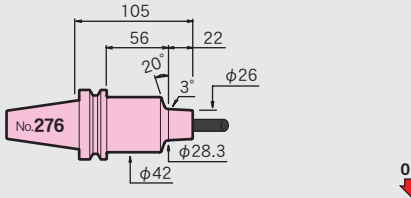
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BT40-SLRB12-75-M22



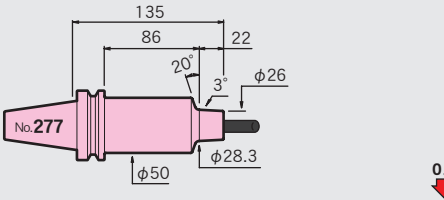
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BT40-SLRB12-105-M22



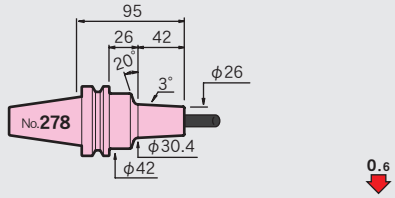
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BT40-SLRB12-135-M22



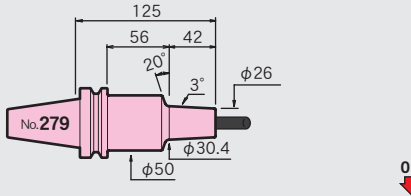
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BT40-SLRB12-95-M42



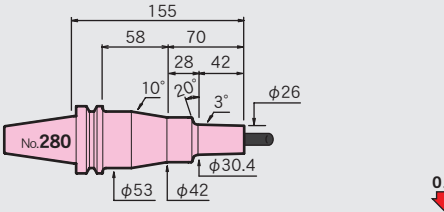
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BT40-SLRB12—125-M42



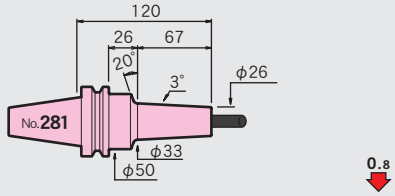
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BT40-SLRB12-155-M42



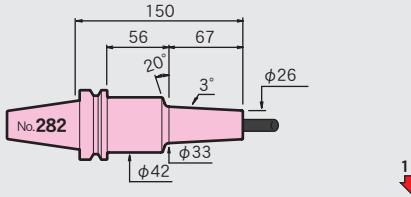
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BT40-SLRB12-120-M67



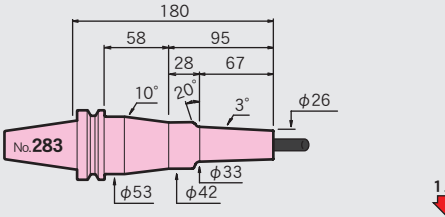
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BT40-SLRB12-150-M67



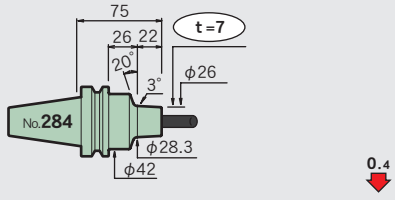
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BT40-SLRB12-180-M67



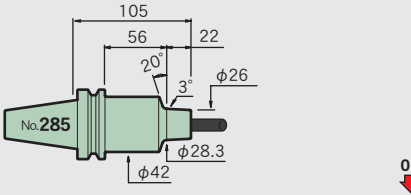
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BT40-SLFB12-75-M22



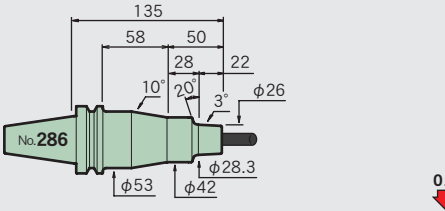
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BT40-SLFB12-105-M22



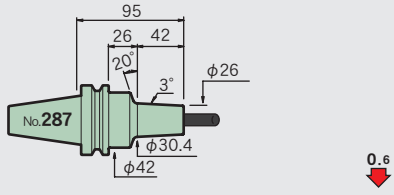
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BT40-SLFB12-135-M22



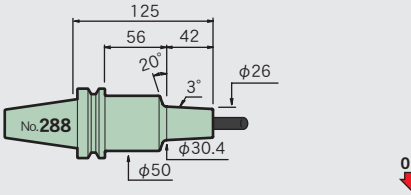
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BT40-SLFB12-95-M42



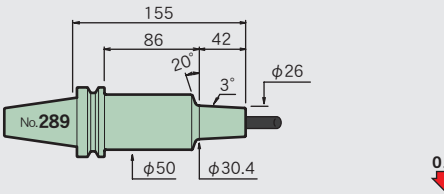
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BT40-SLFB12-125-M42



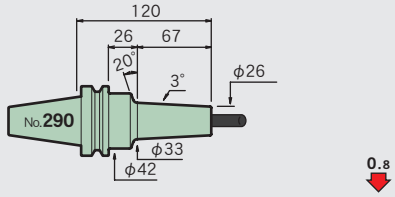
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BT40-SLFB12-155-M42



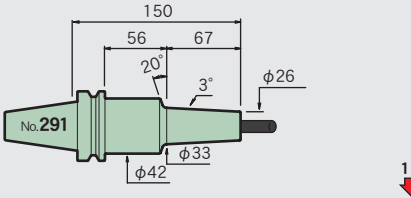
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BT40-SLFB12-120-M67



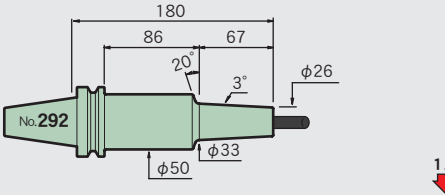
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BT40-SLFB12-150-M67



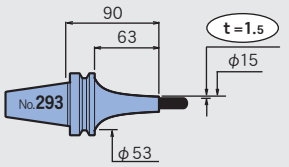
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BT40-SLFB12-180-M67



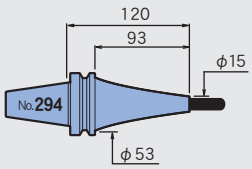
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BT40-SLSA12-90 CV



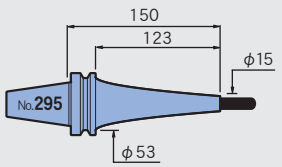
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BT40-SLSA12-120 CV



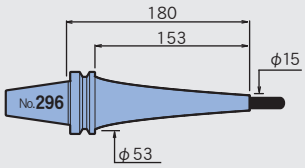
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BT40-SLSA12-150 CV



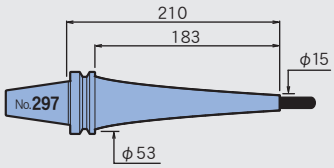
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BT40-SLSA12-180 CV



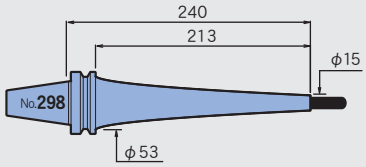
3.3

BT40-SLSA12-210 CV



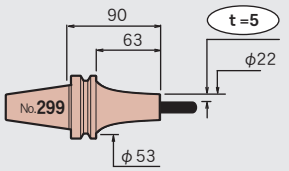
4.6

BT40-SLSA12-240 CV



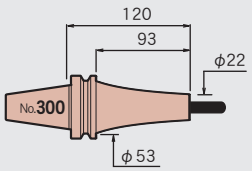
5.5

BT40-SLRA12-90 CV



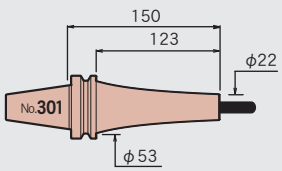
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BT40-SLRA12-120 CV



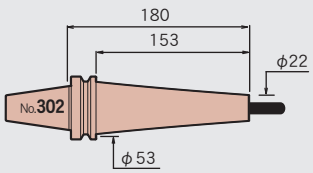
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BT40-SLRA12-150 CV



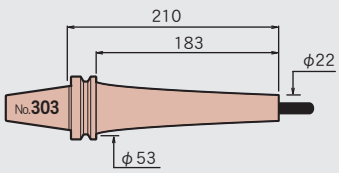
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BT40-SLRA12-180 CV



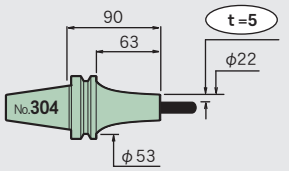
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BT40-SLRA12-210 CV



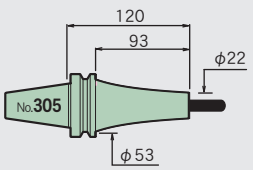
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BT40-SLFA12-90 CV



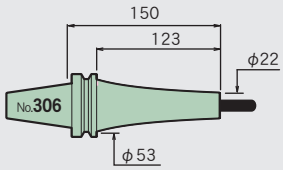
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BT40-SLFA12-120 CV



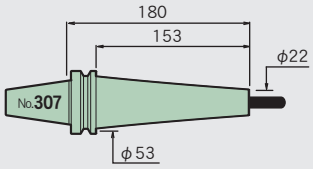
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BT40-SLFA12-150 CV



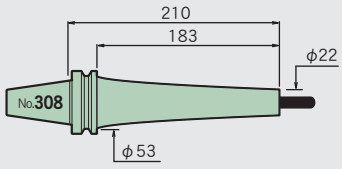
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BT40-SLFA12-180 CV



1.9

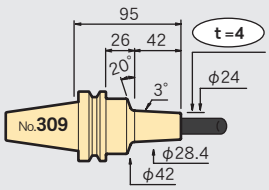
BT40-SLFA12-210 CV



2.8

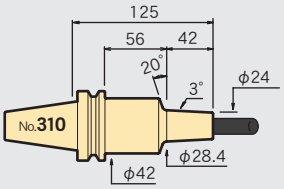
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BT40-SLSB16-95-M42



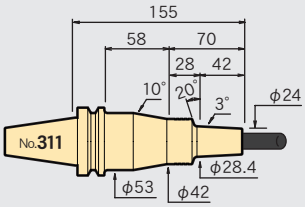
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BT40-SLSB16-125-M42



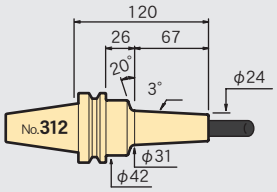
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BT40-SLSB16-155-M42



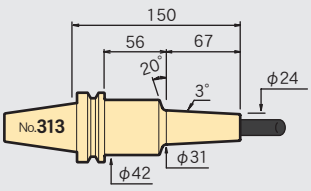
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BT40-SLSB16-120-M67



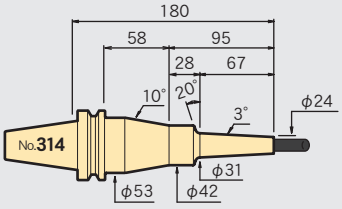
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BT40-SLSB16-150-M67



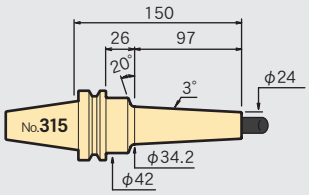
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BT40-SLSB16-180-M67



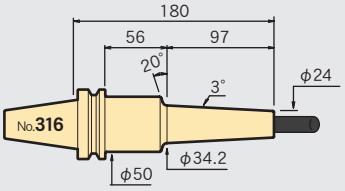
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BT40-SLSB16-150-M97



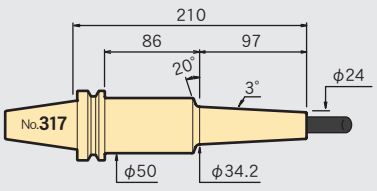
1.7

BT40-SLSB16-180-M97



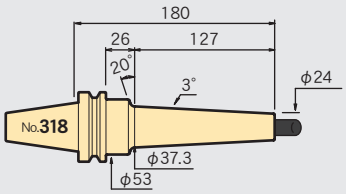
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BT40-SLSB16-210-M97



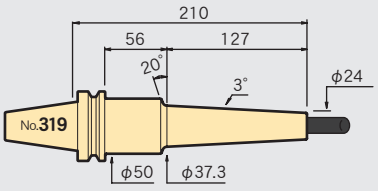
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BT40-SLSB16-180-M127



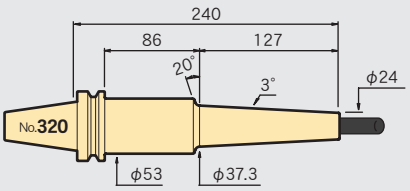
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BT40-SLSB16-210-M127



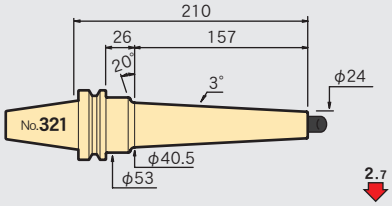
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BT40-SLSB16-240-M127



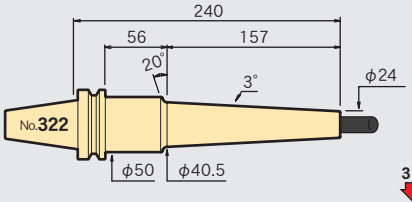
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BT40-SLSB16-210-M157



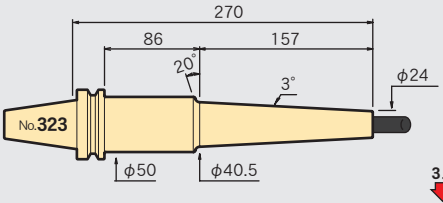
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BT40-SLSB16-240-M157



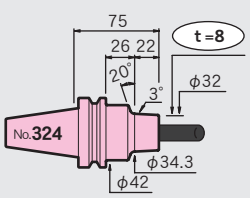
3.1

BT40-SLSB16-270-M157



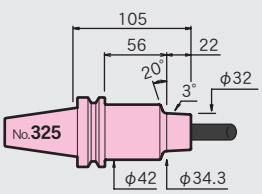
3.5

BT40-SLRB16-75-M22



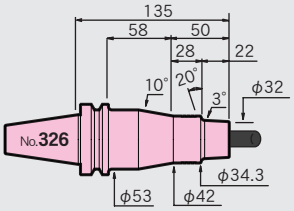
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BT40-SLRB16-105-M22



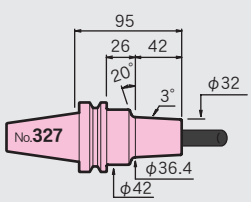
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BT40-SLRB16-135-M22



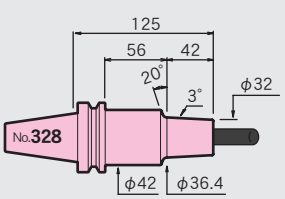
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BT40-SLRB16-95-M42



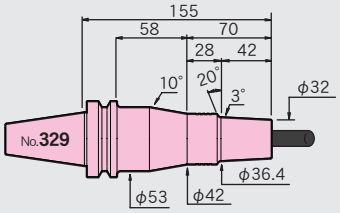
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BT40-SLRB16-125-M42



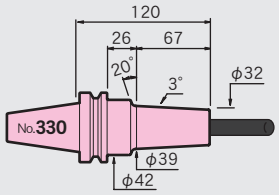
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BT40-SLRB16-155-M42



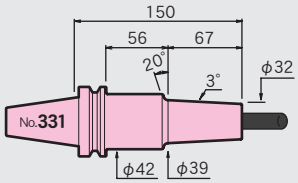
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BT40-SLRB16-120-M67



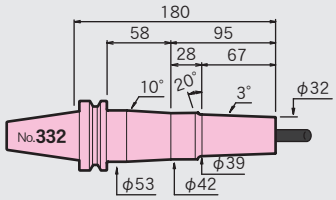
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BT40-SLRB16-150-M67



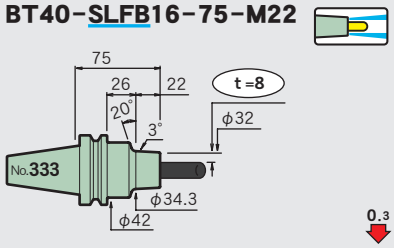
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BT40-SLRB16-180-M67



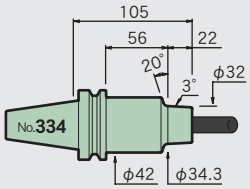
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BT40-SLFB16-75-M22



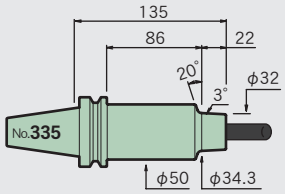
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BT40-SLFB16-105-M22



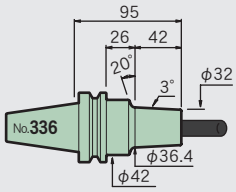
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BT40-SLFB16-135-M22



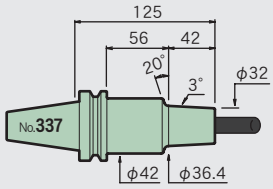
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BT40-SLFB16-95-M42



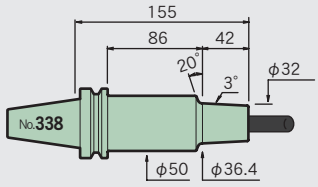
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BT40-SLFB16-125-M42



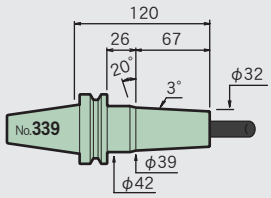
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BT40-SLFB16-155-M42



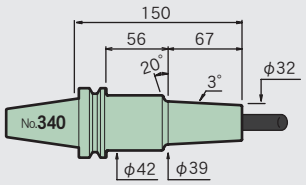
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BT40-SLFB16-120-M67



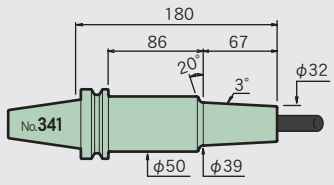
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BT40-SLFB16-150-M67



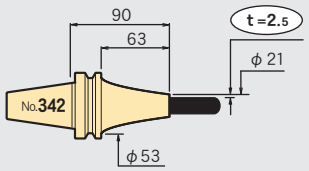
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BT40-SLFB16-180-M67



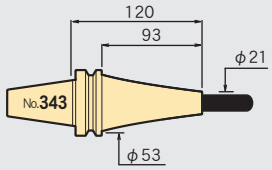
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BT40-SLSB16-90 CV



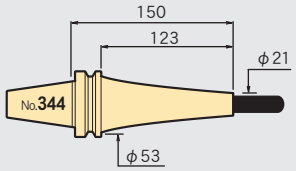
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BT40-SLSB16-120 CV



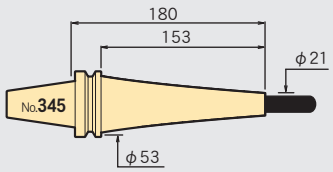
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BT40-SLSB16-150 CV



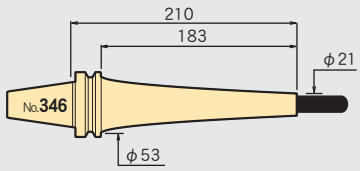
1.5

BT40-SLSB16-180 CV



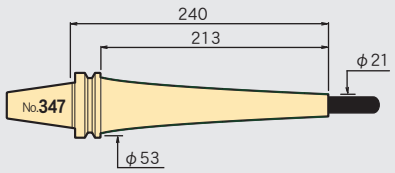
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BT40-SLSB16-210 CV



3.0

BT40-SLSB16-240 CV

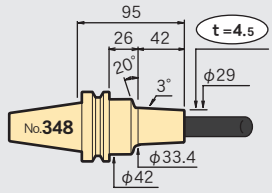


3.7

BT40 **S=1:7**

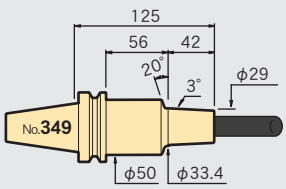
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BT40-SLSB20-95-M42



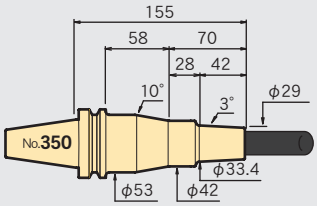
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BT40-SLSB20-125-M42



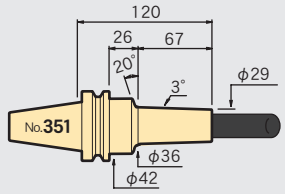
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BT40-SLSB20-155-M42



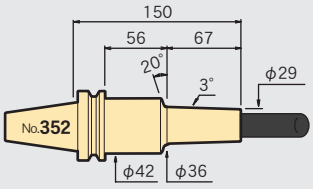
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BT40-SLSB20-120-M67



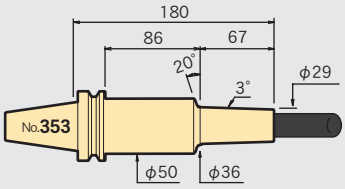
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BT40-SLSB20-150-M67



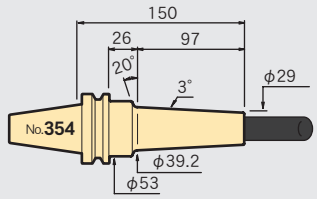
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BT40-SLSB20-180-M67



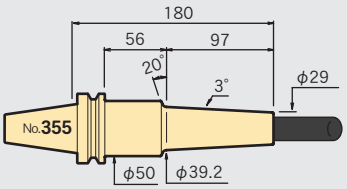
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BT40-SLSB20-150-M97



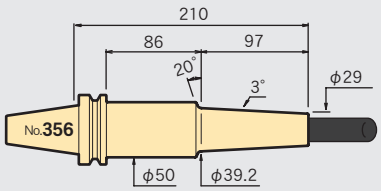
1.2

BT40-SLSB20-180-M97



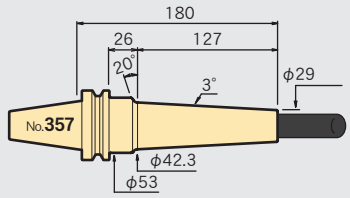
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BT40-SLSB20-210-M97



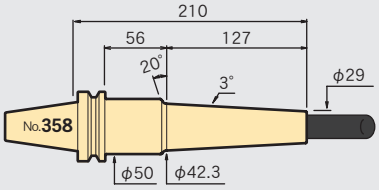
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BT40-SLSB20-180-M127



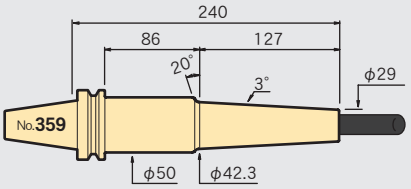
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BT40-SLSB20-210-M127



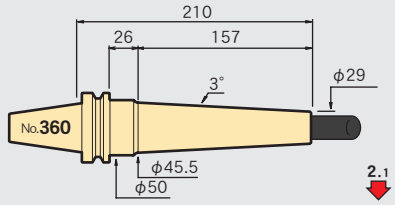
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BT40-SLSB20-240-M127



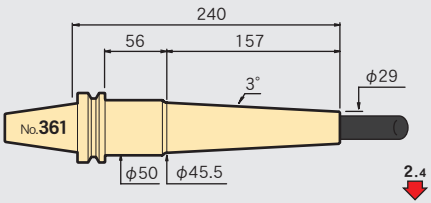
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BT40-SLSB20-210-M157



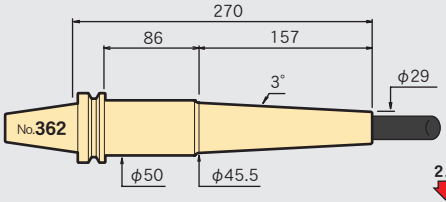
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BT40-SLSB20-240-M157



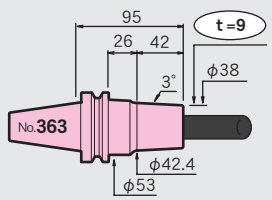
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BT40-SLSB20-270-M157



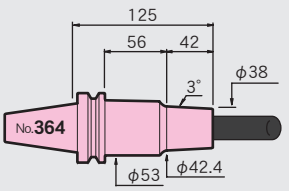
2.9

BT40-SLRB20-95-M42



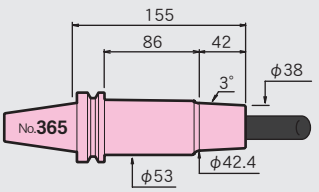
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BT40-SLRB20-125-M42



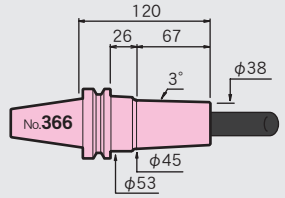
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BT40-SLRB20-155-M42



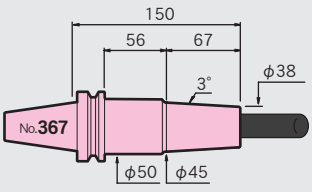
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BT40-SLRB20-120-M67



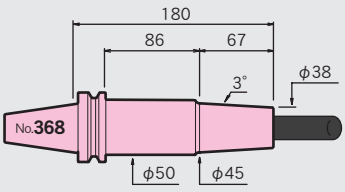
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BT40-SLRB20-150-M67



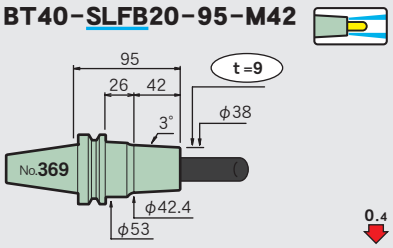
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BT40-SLRB20-180-M67



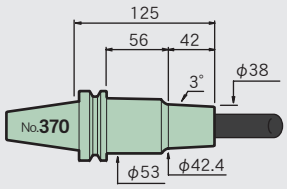
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BT40-SLFB20-95-M42



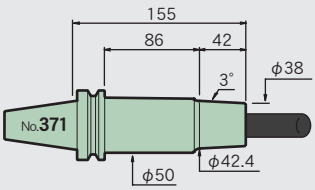
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BT40-SLFB20-125-M42



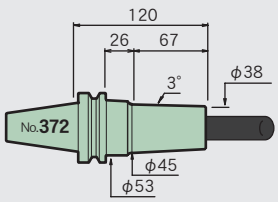
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BT40-SLFB20-155-M42



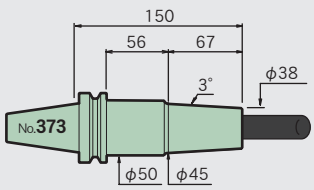
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BT40-SLFB20-120-M67



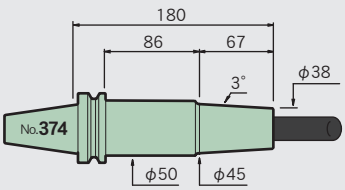
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BT40-SLFB20-150-M67



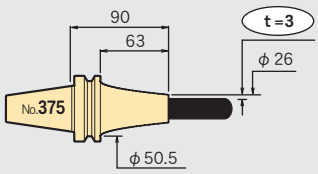
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BT40-SLFB20-180-M67



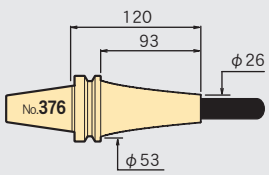
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BT40-SLSB20-90 CV



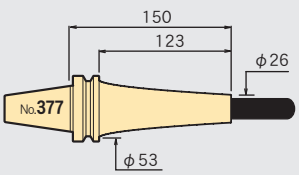
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BT40-SLSB20-120 CV



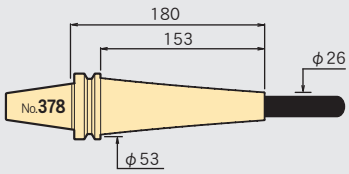
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BT40-SLSB20-150 CV



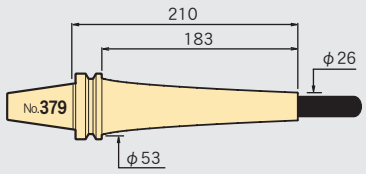
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BT40-SLSB20-180 CV



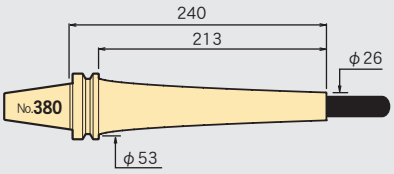
1.8

BT40-SLSB20-210 CV



2.3

BT40-SLSB20-240 CV

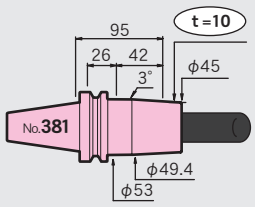


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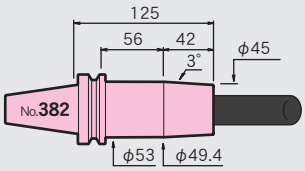
BT40 S=1:7

ϕ25

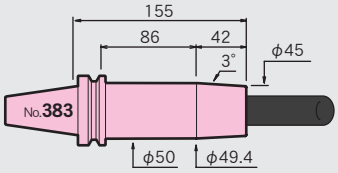
BT40-SLRB25-95-M42



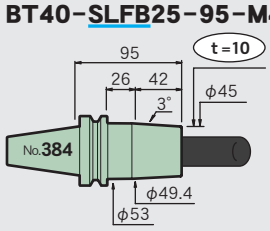
BT40-SLRB25-125-M42



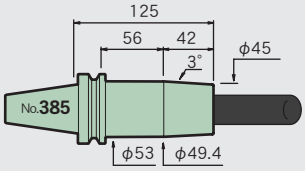
BT40-SLRB25-155-M42



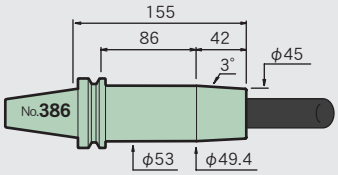
BT40-SLFB25-95-M42



BT40-SLFB25-125-M42

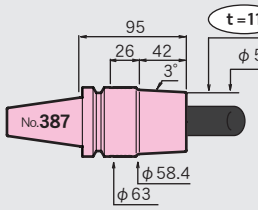


BT40-SLFB25-155-M42



ϕ32

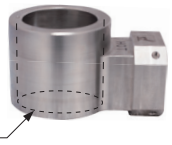
BT40-SLRB32-95-M42



ϕ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70





HEAT ROBO Baby3000S

BT50

MONO 3°



Fig.1

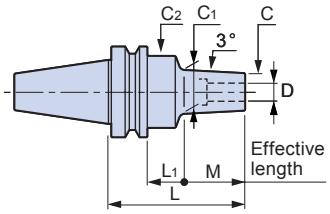
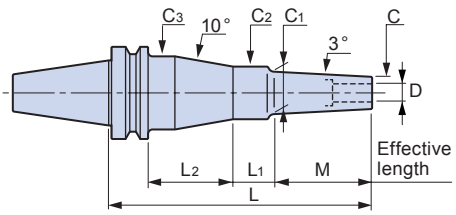


Fig. 2





Compatibility table for HRD-01S

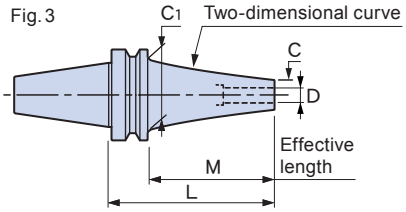
[○] Available [×] Not available

[▲] Usable by raising the heating unit.→P.257

MONO CURVE

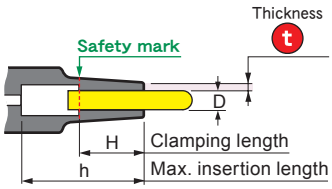


Fig. 3



■**Option**
- Retention knob→P.244

■**Caution**
- Retention knob･･･Use a retention knob with hole, or remove the retention knob and heat it.
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.



CV : Curve

Thickness

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S	○	Scale model
BT50-SLSA3-110-M 42	1	3	6	1.5	110	42	30	—	10.4	25	—	9	165	3.6	4.4	9.1	○	1
-135-M 67					135	67			13				190		5.1	14.7		4
-140-M 42					140	42	60		10.4				195	3.7	4.4	9.8		2
-165-M 67					165	67			13				220		5.2	15.9		5
-M 97						97	30		16.2	26					6	20.8		7
-170-M 42	2				170	42	33	57	10.4		40		225	4.1	4.6	9.9		3
-195-M 67					195	67			13				250		5.4	15.8		6
-M 97	1					97	60	—	16.2		—			3.8	6.1	22.3		8
-225-M 97	2				225		33	57			40		280	4.1	6.2	22.1		9
-SLRA3- 90-M 22	1	3	7.5	2.25	90	22	30	—	9.8	25	—	9	145	3.6	4.6	2.8	○	10
-110-M 42					110	42			11.9	26			165	3.7	4.9	5.4		13
-120-M 22					120	22	60		9.8	25			175		4.7	3.2		11
-135-M 67					135	67	30		14.5	26			190		5.4	9		16
-140-M 42					140	42	60		11.9				195	3.8	5	6		14
-150-M 22	2				150	22	33	57	9.8	25	39		205	4	4.9	3.2		12
-165-M 67	1				165	67	60	—	14.5		—		220	3.8	5.5	10		17
-M 97						97	30		17.7	26				3.7	6.1	13		19
-170-M 42	2				170	42	33	57	11.9		40		225	4.1	5.1	6		15
-195-M 67					195	67			14.5				250		5.7	9.8		18
-M 97	1					97	60	—	17.7		—			3.8	6.2	14.5		20
-M127						127	30		20.8	32					7.7	15.7		22
-225-M 97	2				225	97	33	57	17.7	25	39		280	4.1	6.3	14.4		21
-M127	1					127	60	—	20.8	36	—				7.7	16.3		23
-255-M127	2				255		30	60		32	46		310	4.4	8	16.5		24

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT50-SLFB3- 90-M 22	1	3	9.5	3.25	90	22	30	—	11.8	26	—	9	145	3.6	4.4	1.9	○	25
-110-M 42					110	42			13.9				165	3.7	4.7	3.3		28
-120-M 22					120	22	60		11.8	25			175		4.5	2.4		26
-135-M 67					135	67	30		16.5	26			190		5.4	5.4		31
-140-M 42					140	42	60		13.9	25			195		4.8	4		29
-150-M 22	2				150	22	33	57	11.8		39		205	4	4.6	2.3		27
-165-M 67	1				165	67	60	—	16.5	26	—		220	3.8	5.5	6.4		32
-170-M 42	2				170	42	33	57	13.9	25	39		225	4	4.9	3.9		30
-195-M 67					195	67			16.5				250	4.1	5.7	6.4		33
BT50-SLSA4-110-M 42	1	4	7	1.5	110	42	30	—	11.4	25	—	12	165	3.6	5.1	7.2	○	34
-135-M 67					135	67			14				190		5.2	11.8		37
-140-M 42					140	42	60		11.4				195	3.7		8		35
-165-M 67					165	67			14				220			13		38
-M 97						97	30		17.2						6.1	16.7		40
-170-M 42	2				170	42	33	57	11.4		39		225	4	5.4	7.9		36
-195-M 67					195	67			14				250			12.8		39
-M 97	1					97	60	—	17.2		—			3.8	6.2	18.5		41
-225-M 97	2				225		33	57			39		280	4.1	6.3	18.2		42
-SLRA4- 90-M 22	1	4	10	3	90	22	30	—	12.3	25	—	12	145	3.6	4.7	1.7	○	43
-110-M 42					110	42			14.4				165		5.1	3.1		46
-120-M 22					120	22	60		12.3				175	3.7	4.8	2.2		44
-135-M 67					135	67	30		17	26			190		5.9	5.2		49
-140-M 42					140	42	60		14.4	25			195		5.2	3.9		47
BT50 -150-M 22	2				150	22	33	57	12.3		39		205	4	5	2.2		45
-165-M 67	1				165	67	60	—	17		—		220	3.8	5.9	6.4		50
-M 97						97	30		20.2					3.7	6.8	7.9		52
-170-M 42	2				170	42	33	57	14.4	26	40		225	4.1	5.4	3.7		48
-195-M 67					195	67			17	25	39		250		6.1	6.2		51
-M 97	1					97	60	—	20.2		—			3.8	6.9	9.7		53
-M127						127	30		23.3	32					9.2	9.4		55
-225-M 97	2				225	97	30	60	20.2	25	39		280	4.1	7.1			54
-M127	1					127	60	—	23.3	32	—			4	9.2	10.4		56
-255-M127	2				255		30	60			46		310	4.4	9.5	10.3		57
-SLFB4- 90-M 22	1	4	12	4	90	22	30	—	14.3	26	—	12	145	3.7	4.6	1.4	○	58
-110-M 42					110	42			16.4				165		5	2.2		61
-120-M 22					120	22	60		14.3	25			175		4.6	1.9		59
-135-M 67					135	67	30		19	26			190		5.8	3.6		64
-140-M 42					140	42	60		16.4				195	3.8	5.1	2.9		62
-150-M 22	2				150	22	33	57	14.3	25	39		205	4	4.8	1.8		60
-165-M 67	1				165	67	60	—	19		—		220	3.8	5.9	4.8		65
-170-M 42	2				170	42	33	57	16.4	26	40		225	4.1	5.3	2.8		63
-195-M 67					195	67			19				250	4.2	6.1	4.5		66
-SLSA4-165 CV	3	4	7	1.5	165	127	—	—	85	—	—	12	220	5.2	15.4	1.8	○	67
-195 CV					195	157							250	5.3	15.9	2.6		68
-225 CV					225	187							280	5.5	16.4	3.8		69
-255 CV					255	217							310	5.6	16.9	5.7	▲	70
-285 CV					285	247							340	6.4	19.5	5.9		71
-315 CV					315	277							370	8.3	26	7.7		72
BT50-SLSA6-110-M 42	1	6	9	1.5	110	42	30	—	13.4	25	—	18	165	3.6	5.4	4.8	○	73
-135-M 67					135	67			16				190	3.7	6.4	8.1		76
-140-M 42					140	42	60		13.4				195		5.4	5.7		74
-165-M 67					165	67			16				220	3.8	6.5	9.4		77
-M 97						97	30		19.2	32				3.7	8.3	11		79
-170-M 42	2				170	42	33	57	13.4	26	40		225	4.1	5.6	5.5		75
-195-M 67					195	67			16	25	39		250	4	6.6	9.2		78
-M 97	1					97	60	—	19.2	32	—			3.9	8.2	11.7		80
-225-M 97	2				225		30	60			46		280	4.3	8.5			81

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT50-SLSB6-110-M 42	1	6	10	2	110	42	30	—	14.4	25	—	18	165	3.6	6	3.7	○	82
-135-M 67					135	67			17				190	3.7	7.4	6.2		85
-140-M 42					140	42	60		14.4				195		6.1	4.6		83
-165-M 67					165	67			17				220	3.8	7.4	7.6		86
-M 97						97	30		20.2	32					9.6	8.5		88
-170-M 42	2				170	42	33	57	14.4	25	39		225	4	6.2	4.4		84
-195-M 67					195	67			17				250	4.1	7.6	7.3		87
-M 97	1					97	60	—	20.2	32	—			3.9	9.6	9.2		89
BT50 -M127						127	30		23.3					3.8	11.3	11.1		91
-225-M 97	2				225	97		60	20.2		46		280	4.3	9.9	9.2		90
-M127	1					127	60	—	23.3		—			4	11.2	12.1		92
-M157						157	30		26.5					3.9	13	13.3		94
-255-M127	2				255	127		60	23.3	32	46		310	4.4	11.5	12	▲	93
-M157	1					157	60	—	26.5		—			4.1	12.9	14.7		95
-285-M157	2				285		30	60			46		340	4.5	13.2	14.5		96
-SLRB6- 90-M 22	1	6	14	4	90	22	30	—	16.3	32	—	18	145	3.7	5.5	1	○	97
-110-M 42					110	42			18.4				165		6.6	1.6		100
-120-M 22					120	22	60		16.3				175	3.8	5.5	1.2		98
-135-M 67					135	67	30		21				190		8	2.6		103
-140-M 42					140	42	60		18.4				195	3.9	6.6	1.9		101
-150-M 22	2				150	22	30	60	16.3		46		205	4.2	5.8	1.2		99
-165-M 67	1				165	67	60	—	21		—		220	3.9	8	3.1		104
-170-M 42	2				170	42	30	60	18.4		46		225	4.3	6.9	1.9		102
-195-M 67					195	67			21				250		8.3	3		105
-SLFB6- 90-M 22	1	6	14	4	90	22	30	—	16.3	32	—	18	145	3.7	5.5	1	○	106
 -110-M 42					110	42			18.4				165		6.6	1.6		109
-120-M 22					120	22	60		16.3				175	3.8	5.5	1.2		107
-135-M 67					135	67	30		21				190		8	2.6		112
-140-M 42					140	42	60		18.4				195	3.9	6.6	1.9		110
-150-M 22	2				150	22	30	60	16.3		46		205	4.2	5.8	1.2		108
-165-M 67	1				165	67	60	—	21		—		220	3.9	8	3.1		113
-170-M 42	2				170	42	30	60	18.4		46		225	4.3	6.9	1.9		111
-195-M 67					195	67			21				250		8.3	3		114
-SLSA6-165 CV	3	6	9	1.5	165	127	—	—	85	—	—	18	220	5.1	15.1	1.5	○	115
-195 CV					195	157							250	5.2	15.5	2.4		116
-225 CV					225	187							280	5.7	16.8	2.9		117
-255 CV					255	217							310	5.9	18.4	4	▲	118
-285 CV					285	247							340	6.2	19.5	5.2		119
-315 CV					315	277							370	8.4	26.8	6.9		120
BT50-SLSA8-110-M 42	1	8	11	1.5	110	42	30	—	15.4	25	—	24	165	3.6	6.9	3.5	○	121
-135-M 67					135	67			18	32			190	3.7	8.7	5.4		124
-140-M 42					140	42	60		15.4	25			195		6.9	4.4		122
-165-M 67					165	67			18	32			220	3.9	8.6	5.9		125
-M 97						97	30		21.2					3.8	10.8	7.9		127
-170-M 42	2				170	42	33	57	15.4	25	39		225	4	7.2	4.3		123
-195-M 67					195	67	28	62	18	36	50		250	4.5	8.9	5.7		126
-M 97	1					97	60	—	21.2	32	—			3.9	10.7	8.7		128
-225-M 97	2				225		28	62		36	50		280	4.5	11	8.3		129

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT50-SLSB8-110-M 42	1	8	13	2.5	110	42	30	—	17.4	32	—	24	165	3.7	7.7	2.1	○	130
-135-M 67					135	67			20				190		9.8	3.5		133
-140-M 42					140	42	60		17.4				195	3.8	7.6	2.4		131
-165-M 67					165	67			20				220	3.9	9.8	4		134
-M 97						97	30		23.2					3.8	12.4	5.3		136
-170-M 42	2				170	42		60	17.4		46		225	4.3	7.9	2.4		132
-195-M 67					195	67			20				250		10.1	4		135
BT50 -M 97	1					97	60	—	23.2		—			4	12.3	6.1		137
-M127						127	30		26.3					3.9	14.9	7.1		139
-225-M 97	2				225	97		60	23.2		46		280	4.4	12.6	6		138
-M127	1					127	60	—	26.3		—			4	14.9	8.2		140
-M157						157	30		29.5	42					17.5	8		142
-255-M127	2				255	127		60	26.3	32	46		310	4.5	15.2	8.1	▲	141
-M157	1					157	60	—	29.5	42	—			4.3	17.5	8.5		143
-285-M157	2				285		28	62			56		340	4.9	17.8			144
-SLRB8- 90-M 22	1	8	18	5	90	22	30	—	20.3	32	—	24	145	3.7	6	0.7	×	145
-110-M 42					110	42			22.4				165		7.7	1.1	○	148
-120-M 22					120	22	60		20.3				175	3.8	5.9	0.9	×	146
-135-M 67					135	67	30		25				190		9.8	1.7	○	151
-140-M 42					140	42	60		22.4				195	3.9	7.7	1.4		149
-150-M 22	2				150	22	30	60	20.3		46		205	4.3	6.2	0.9	×	147
-165-M 67	1				165	67	60	—	25		—		220	4	9.8	2.2	○	152
-170-M 42	2				170	42	28	62	22.4	36	50		225	4.5	8	1.3		150
-195-M 67					195	67	30	60	25	32	46		250	4.4	10.1	2.2		153
-SLFB8- 90-M 22	1	8	18	5	90	22	30	—	20.3	32	—	24	145	3.7	6	0.7	×	154
-110-M 42					110	42			22.4				165		7.7	1.1	○	157
-120-M 22					120	22	60		20.3				175	3.8	5.9	0.9	×	155
-135-M 67					135	67	30		25				190		9.8	1.7	○	160
-140-M 42					140	42	60		22.4				195	3.9	7.7	1.4		158
-150-M 22	2				150	22	30	60	20.3		46		205	4.3	6.2	0.9	×	156
-165-M 67	1				165	67	60	—	25		—		220	4	9.8	2.2	○	161
-170-M 42	2				170	42	30	60	22.4		46		225	4.3	8	1.4		159
-195-M 67					195	67			25				250	4.4	10.1	2.2		162
-SLSA8-165 CV	3	8	11	1.5	165	127	—	—	85	—	—	24	220	4.9	14.7	1.4	○	163
-195 CV					195	157							250	5.3	16.1	1.9		164
-225 CV					225	187							280	5.8	17.7	2.3		165
-255 CV					255	217							310		17.9	3.7	▲	166
-285 CV					285	247							340	6	19.1	4.9		167
-315 CV					315	277							370	8.4	28	5		168
-SLRA8-195 CV	3	8	16	4	195	157	—	—	85	—	—	24	250	5.4	17.3	1.1	○	169
-225 CV					225	187							280	5.6	18.3	1.5		170
-255 CV					255	217							310	5.8	19.1	2.2	▲	171
-285 CV					285	247							340	5.9	19.9	3		172
-SLFA8-195 CV	3	8	16	4	195	157	—	—	85	—	—	24	250	5.4	17.3	1.1	○	173
-225 CV					225	187							280	5.6	18.3	1.5		174
-255 CV					255	217							310	5.8	19.1	2.2	▲	175
-285 CV					285	247							340	5.9	19.9	3		176

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg	N	S		Scale model
BT50-SLSA10-110-M 42	1	10	13	1.5	110	42	30	—	17.4	25	—	30	165	3.6	7.9	2.6	○	177
-135-M 67					135	67			20	32			190	3.7	10.4	4		180
-140-M 42					140	42	60		17.4	25			195		7.8	3.7		178
-165-M 67					165	67			20	32			220	3.9	10.4	4.6		181
-M 97						97	30		23.2					3.8	13.6	6		183
-170-M 42	2				170	42	33	57	17.4	25	39		225	4	8.1	3.5		179
-195-M 67					195	67	28	62	20	36	50		250	4.5	10.7	4.3		182
-M 97	1					97	60	—	23.2	32	—			3.9	13.5	6.9		184
-225-M 97	2				225		30	60			46		280	4.4	13.8	6.8	▲	185
-SLSB10-110-M 42	1	10	16	3	110	42	30	—	20.4	32	—	30	165	3.7	8.6	1.4	○	186
-135-M 67					135	67			23				190	3.8	11.7	2.4		189
-140-M 42					140	42	60		20.4				195	3.9	8.6	1.8		187
-165-M 67					165	67			23				220		11.7	3		190
-M 97						97	30		26.2						15.4	3.7		192
-170-M 42	2				170	42	28	62	20.4	36	50		225	4.5	8.9	1.7		188
-195-M 67					195	67	30	60	23	32	46		250	4.3	12	3		191
-M 97	1					97	60	—	26.2		—			4	15.3	4.5		193
-M127						127	30		29.3	42					20			195
-225-M 97	2				225	97		60	26.2	32	46		280	4.4	15.6	4.4	▲	194
-M127	1					127	60	—	29.3	42	—			4.2	20.6	4.9		196
-M157						157	30		32.5					4.1	23.7	5.6		198
-255-M127	2				255	127	28	62	29.3		56		310	4.8	21.1	4.9		197
-M157	1					157	60	—	32.5		—			4.4	24.3	6.1		199
-285-M157	2				285		28	62			56		340	5	24.8			200
-SLRB10- 90-M 22	1	10	22	6	90	22	30	—	24.3	32	—	30	145	3.7	6.2	0.6	×	201
-110-M 42					110	42			26.4				165	3.8	8.7	0.8	○	204
-120-M 22					120	22	60		24.3				175	3.9	6.2		×	202
-135-M 67					135	67	30		29	42			190		11.8	1.1	○	207
-140-M 42					140	42	60		26.4	32			195		8.6	1.2		205
-150-M 22	2				150	22	30	60	24.3		46		205	4.3	6.5	0.8	×	203
-165-M 67	1				165	67	60	—	29	42	—		220	4.1	11.7	1.3	○	208
-170-M 42	2				170	42	28	62	26.4	36	50		225	4.5	8.9	1		206
-195-M 67					195	67		62	29	42	56		250	4.7	12	1.3		209
-SLFB10- 90-M 22	1	10	22	6	90	22	30	—	24.3	32	—	30	145	3.7	6.2	0.6	×	210
-110-M 42					110	42			26.4				165	3.8	8.7	0.8	○	213
-120-M 22					120	22	60		24.3				175	3.9	6.2		×	211
-135-M 67					135	67	30		29	42			190		11.8	1.1	○	216
-140-M 42					140	42	60		26.4	36			195	4	8.6	1		214
-150-M 22	2				150	22	30	60	24.3	32	46		205	4.3	6.5	0.8	×	212
-165-M 67	1				165	67	60	—	29	42	—		220	4.1	11.7	1.3	○	217
-170-M 42	2				170	42	30	60	26.4	32	46		225	4.3	8.9	1.2		215
-195-M 67					195	67	28	62	29	42	56		250	4.7	12	1.3		218
-SLSA10-165 CV	3	10	13	1.5	165	127	—	—	85	—	—	30	220	4.9	14.9	1.2	○	219
-195 CV					195	157							250	5.5	16.9	1.5		220
-225 CV					225	187							280	5.4	16.8	2.4	▲	221
-255 CV					255	217							310	6.1	19.8	2.6		222
-285 CV					285	247							340	6.3	21.2	3.7		223
-315 CV					315	277							370	8.4	28.6	4.6		224

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT50-SLRA10-165 CV	3	10	19	4.5	165	127	—	—	85	—	—	30	220	5.1	15.9	0.7	×	225
-195 CV					195	157							250	5.2	16.6	1.1	○	226
-225 CV					225	187							280	5.9	19.7	1.2	▲	227
-255 CV					255	217							310	6.1	20.3	1.7		228
-285 CV					285	247							340	6.2	21.1	2.4		229
-SLFA10-165 CV	3	10	19	4.5	165	127	—	—	85	—	—	30	220	5.1	15.9	0.7	×	230
-195 CV					195	157							250	5.2	16.6	1.1	○	231
-225 CV					225	187							280	5.9	19.7	1.2	▲	232
-255 CV					255	217							310	6.1	20.3	1.7		233
-285 CV					285	247							340	6.2	21.1	2.4		234
BT50-SLSA12-110-M 42	1	12	15	1.5	110	42	30	—	19.4	32	—	30	165	3.7	9.5	1.9	○	235
-135-M 67					135	67			22				190		13.1	3.3		238
-140-M 42					140	42	60		19.4				195	3.8	9.4	2.3		236
-165-M 67					165	67			22				220	3.9	13	3.9		239
-M 97						97	30		25.2					3.8	17.7	4.9		241
-170-M 42	2				170	42		60	19.4		46		225	4.3	9.7	2.3		237
-195-M 67					195	67			22				250		13.3	3.9		240
-M 97	1					97	60	—	25.2		—			4	17.7	5.9		242
-225-M 97	2				225		30	60			46		280	4.4	18	5.8	▲	243
-SLSB12-110-M 42	1	12	19	3.5	110	42	30	—	23.4	32	—	30	165	3.7	10.4	1.1	○	244
-135-M 67					135	67			26				190	3.8	14.6	1.9		247
-140-M 42					140	42	60		23.4				195	3.9	10.3	1.6		245
-165-M 67					165	67			26				220		14.5	2.5		248
-M 97						97	30		29.2	42					20.5	2.4		250
-170-M 42	2				170	42	28	62	23.4	36	50		225	4.5	10.6	1.3		246
-195-M 67					195	67	30	60	26	32	46		250	4.4	14.8	2.4		249
-M 97	1					97	60	—	29.2	42	—			4.2	21.1	2.7		251
-M127						127	30		32.3					4.1	25.5	3.3		253
-225-M 97	2				225	97	28	62	29.2		56		280	4.8	21.6	2.8	▲	252
-M127	1					127	60	—	32.3		—			4.3	26.1	3.7		254
-M157						157	30		35.5						30.6	4.1		256
-255-M127	2				255	127	28	62	32.3		56		310	4.9	26.7	3.7		255
-M157	1					157	60	—	35.5		—			4.5	31.1	4.7		257
-285-M157	2				285		28	62			56		340	5.1	31.7			258
-SLRB12- 90-M 22	1	12	26	7	90	22	30	—	28.3	42	—	30	145	3.7	9.5	0.4	×	259
-110-M 42					110	42			30.4				165	3.8	11.4	0.6		262
-120-M 22					120	22	60		28.3				175	4	10.1	0.5		260
-135-M 67					135	67	30		33				190		15.5	0.8		265
-140-M 42					140	42	60		30.4				195	4.1	11.9	0.7		263
-150-M 22	2				150	22	28	62	28.3		56		205	4.6	10.7	0.5		261
-165-M 67	1				165	67	60	—	33		—		220	4.2	16.1	1		266
-170-M 42	2				170	42	28	62	30.4		56		225	4.7	12.5	0.7		264
-195-M 67					195	67			33				250	4.8	16.7	1.1		267
-SLFB12- 90-M 22	1	12	26	7	90	22	30	—	28.3	42	—	30	145	3.7	9.5	0.4	×	268
-110-M 42					110	42			30.4				165	3.8	11.4	0.6		271
-120-M 22					120	22	60		28.3				175	4	10.1	0.5		269
-135-M 67					135	67	30		33				190		15.5	0.8		274
-140-M 42					140	42	60		30.4				195	4.1	11.9	0.7		272
-150-M 22	2				150	22	28	62	28.3		56		205	4.6	10.7	0.5		270
-165-M 67	1				165	67	60	—	33		—		220	4.2	16.1	1		275
-170-M 42	2				170	42	28	62	30.4		56		225	4.7	12.5	0.7		273
-195-M 67					195	67			33				250	4.8	16.7	1.1		276

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
BT50-SLSA12-165 CV	3	12	15	1.5	165	127	—	—	84	—	—	30	220	4.8	14.6	1.2	○	277
-195 CV					195	157			85				250	5.6	17.6			278
-225 CV					225	187							280	5.8	18.5	1.8	▲	279
-255 CV					255	217							310	6	19.3	2.6		280
-285 CV					285	247							340	6.2	21.2	3.5		281
-315 CV					315	277							370	8.5	29.2	3.6	○	282
-SLRA12-165 CV	3	12	22	5	165	127	—	—	85	—	—	30	220	5.1	16.1	0.7	×	283
-195 CV					195	157							250	5.6	18	0.8		284
BT50 -225 CV					225	187							280		18.6	1.3	▲	285
-255 CV					255	217							310	5.8	20.7	1.6		286
-285 CV					285	247							340	6.1	22.4	2.1		287
-SLFA12-165 CV	3	12	22	5	165	127	—	—	85	—	—	30	220	5.1	16.1	0.7	×	288
-195 CV					195	157							250	5.6	18	0.8		289
-225 CV					225	187							280		18.6	1.3	▲	290
-255 CV					255	217							310	5.8	20.7	1.6		291
-285 CV					285	247							340	6.1	22.4	2.1		292
BT50-SLSB16-110-M 42	1	16	24	4	110	42	30	—	28.4	42	—	32	165	3.8	15	0.7		293
-135-M 67					135	67			31				190	3.9	21.9	1.1		296
-140-M 42					140	42	60		28.4				195	4	15.6	0.9		294
-165-M 67					165	67			31				220	4.1	22.5	1.4		297
-M 97						97	30		34.2					4	30.2	1.7		299
-170-M 42	2				170	42	28	62	28.4		56		225	4.6	16.2	0.9		295
-195-M 67					195	67			31				250	4.7	23	1.4		298
-M 97	1					97	60	—	34.2		—			4.3	30.7	2		300
-M127						127	30		37.3	53				4.2	38.5	2.1		302
-225-M 97	2				225	97	28	62	34.2	42	56		280	4.9	31.3			301
-M127	1					127	60	—	37.3	53	—			4.6	39	2.3		303
-M157						157	30		40.5					4.4	46.8	2.6		305
-255-M127	2				255	127	28	62	37.3		67		310	5.5	39.6	2.3		304
-M157	1					157	60	—	40.5		—			4.8	47.3	2.8		306
-285-M157	2				285		28	62			67		340	5.7	47.9	2.9		307
-SLRB16- 90-M 22	1	16	32	8	90	22	30	—	34.3	42	—	32	145	3.8	9.6	0.3		308
-110-M 42					110	42			36.4				165	3.9	15.1	0.5		311
-120-M 22					120	22	60		34.3				175	4	10.1			309
-135-M 67					135	67	30		39				190	4.1	22	0.6		314
-140-M 42					140	42	60		36.4				195	4.2	15.7			312
-150-M 22	2				150	22	28	62	34.3		56		205	4.6	10.7	0.5		310
-165-M 67	1				165	67	60	—	39		—		220	4.3	22.6	0.9		315
-170-M 42	2				170	42	28	62	36.4		56		225	4.8	16.2	0.7		313
-195-M 67					195	67			39				250	4.9	23.2	0.9		316
-SLFB16- 90-M 22	1	16	32	8	90	22	30	—	34.3	42	—	32	145	3.8	9.6	0.3		317
-110-M 42					110	42			36.4				165	3.9	15.1	0.5		320
-120-M 22					120	22	60		34.3				175	4	10.1			318
-135-M 67					135	67	30		39				190	4.1	22	0.6		323
-140-M 42					140	42	60		36.4				195	4.2	15.7			321
-150-M 22	2				150	22	28	62	34.3		56		205	4.6	10.7	0.5		319
-165-M 67	1				165	67	60	—	39		—		220	4.3	22.6	0.9		324
-170-M 42	2				170	42	28	62	36.4		56		225	4.8	16.2	0.7		322
-195-M 67					195	67	28		39				250	4.9	23.2	0.9		325
-SLSB16-165 CV	3	16	21	2.5	165	127	—	—	85	—	—	32	220	5.4	17.8	0.6		326
-195 CV					195	157							250		17.7	1.1		327
-225 CV					225	187							280	6.3	21.1	1.2		328
-255 CV					255	217							310	6.1	20.9	2		329
-285 CV					285	247							340	7	24.3			330
-315 CV					315	277							370	8.6	30.9	2.6		331

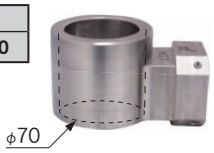
CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S	Scale model
BT50-SLSB20-110-M 42	1	20	29	4.5	110	42	30	—	33.4	42	—	40	165	3.8	16.8	0.5	332
-135-M 67					135	67			36				190	3.9	27.1	0.9	335
-140-M 42					140	42	60		33.4				195	4.1	17.4	0.8	333
-165-M 67					165	67			36				220	4.2	27.7	1.2	336
-M 97						97	30		39.2	53				4.1	39.4	1.1	338
-170-M 42	2				170	42	28	62	33.4	42	56		225	4.7	18	0.8	334
-195-M 67					195	67			36				250	4.8	28.2	1.2	337
-M 97	1					97	60	—	39.2	53	—			4.5	40	1.3	339
-M127						127	30		42.3					4.3	52.6	1.5	341
-225-M 97	2				225	97	28	62	39.2		67		280	5.4	40.6	1.3	340
-M127	1					127	60	—	42.3		—			4.7	53.2	1.8	342
-M157						157	30		45.5					4.6	65	1.7	344
-255-M127	2				255	127	28	62	42.3		67		310	5.6	53.7		343
-M157	1					157	60	—	45.5		—			5	65.5	2.2	345
-285-M157	2				285		28	62			67		340	5.9	66.1		346
-SLRB20-110-M 42	1	20	38	9	110	42	30	—	42.4	53	—	40	165	4	16.9	0.3	347
-135-M 67					135	67			45				190	4.2	27.2	0.4	350
-140-M 42					140	42	60		42.4				195	4.4	17.5		348
-165-M 67					165	67			45				220	4.6	27.8	0.6	351
-170-M 42	2				170	42	28	62	42.4		67		225	5.3	18.1	0.4	349
-195-M 67					195	67			45				250	5.5	28.4	0.6	352
-SLFB20-110-M 42	1	20	38	9	110	42	30	—	42.4	53	—	40	165	4	16.9	0.3	353
-135-M 67					135	67			45				190	4.2	27.2	0.4	356
-140-M 42					140	42	60		42.4				195	4.4	17.5		354
-165-M 67					165	67			45				220	4.6	27.8	0.6	357
-170-M 42	2				170	42	28	62	42.4		67		225	5.3	18.1	0.4	355
-195-M 67					195	67			45				250	5.5	28.4	0.6	358
-SLSB20-165 CV	3	20	26	3	165	127	—	—	85	—	—	40	220	5.4	17.4	0.6	359
-195 CV					195	157							250	6.1	20.8	0.7	360
-225 CV					225	187							280	5.8	20.5	1.2	361
-255 CV					255	217							310	6.7	23.9	1.3	362
-285 CV					285	247							340	7	25.4	1.7	363
-315 CV					315	277							370	8.9	32.4	2.3	364
BT50-SLRB25-110-M 42	1	25	45	10	110	42	30	—	49.4	53	—	45	165	4.1	19	0.3	365
-140-M 42					140		60						195	4.5	19.6	0.4	366
-170-M 42	2				170		28	62			67			5.3	20.2		367
-SLFB25-110-M 42	1	25	45	10	110	42	30	—	49.4	53	—	45	165	4.1	19	0.3	368
-140-M 42					140		60						195	4.5	19.6	0.4	369
-170-M 42	2				170		28	62			67			5.4	20.2		370
BT50-SLRB32-110-M 42	1	32	54	11	110	42	30	—	58.4	63	—	50	160	4.0	11.2	0.2	371
-140-M 42					140		60						171	4.6	13.4	0.3	372
-170-M 42	2				170		28	62			77			5.8	19.6		373

NEW

φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70

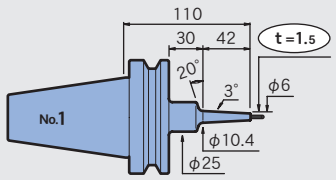




HEAT ROBO Baby3000S

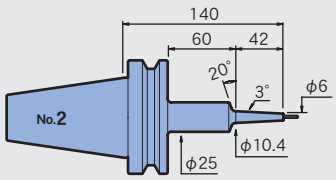
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BT50-SLSA3-110-M42



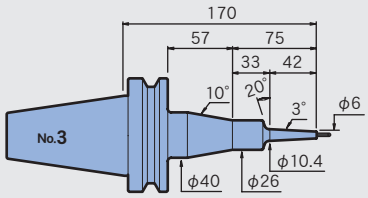
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BT50-SLSA3-140-M42



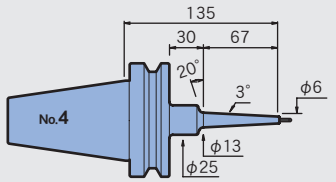
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BT50-SLSA3-170-M42



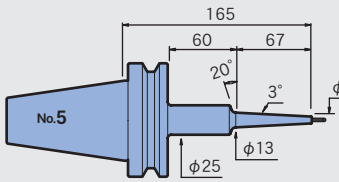
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BT50-SLSA3-135-M67



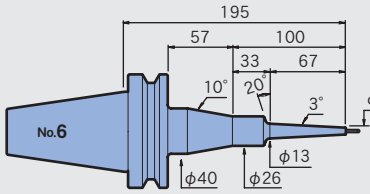
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BT50-SLSA3-165-M67



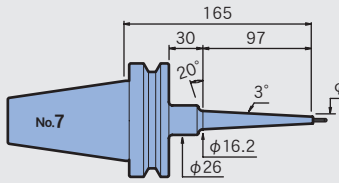
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BT50-SLSA3-195-M67



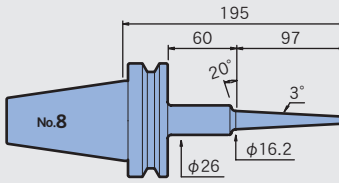
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BT50-SLSA3-165-M97



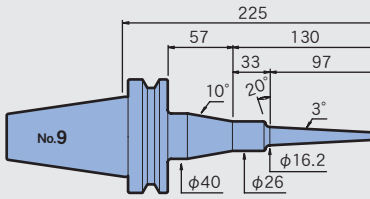
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BT50-SLSA3-195-M97



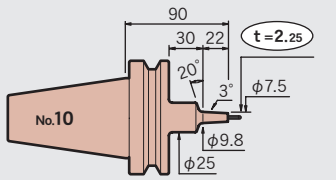
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BT50-SLSA3-225-M97



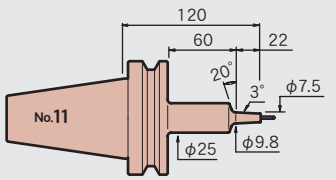
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BT50-SLRA3-90-M22



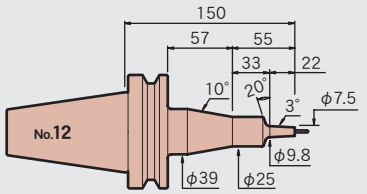
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BT50-SLRA3-120-M22



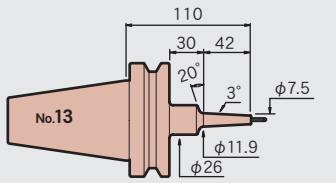
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BT50-SLRA3-150-M22



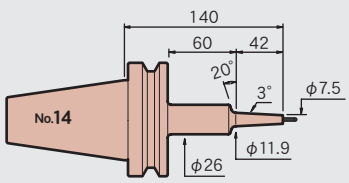
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BT50-SLRA3-110-M42



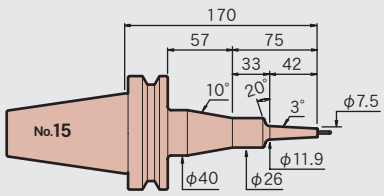
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BT50-SLRA3-140-M42



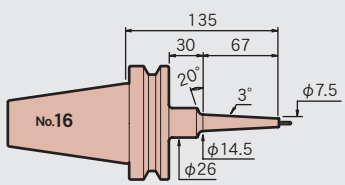
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BT50-SLRA3-170-M42



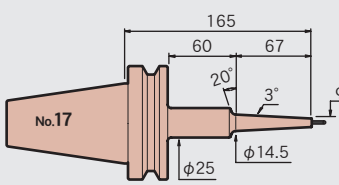
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BT50-SLRA3-135-M67



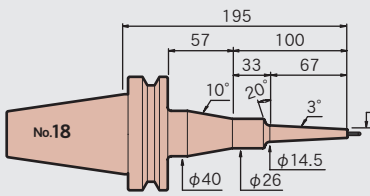
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BT50-SLRA3-165-M67



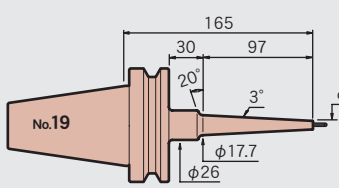
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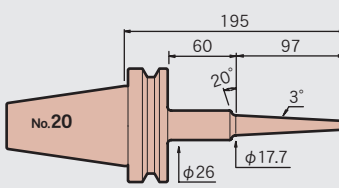
9.8

BT50-SLRA3-165-M97



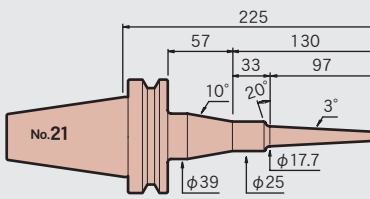
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BT50-SLRA3-195-M97



14.5

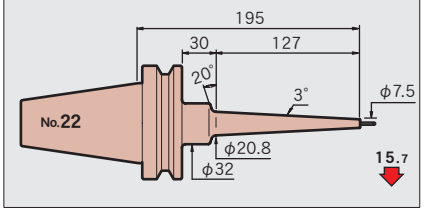
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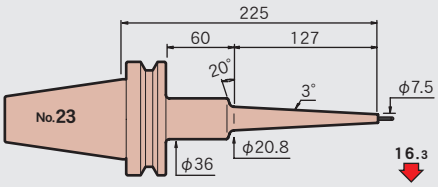
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BT50 S=1:7

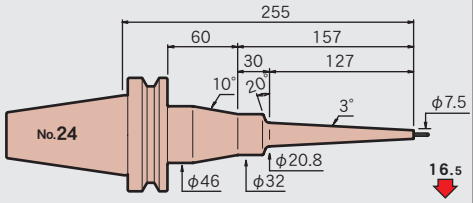
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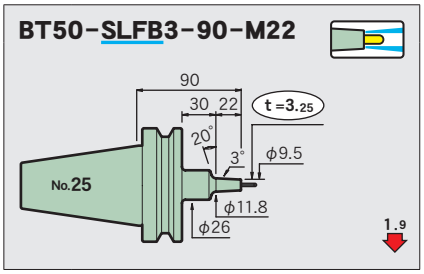
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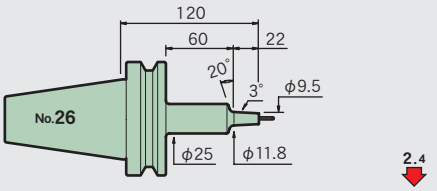
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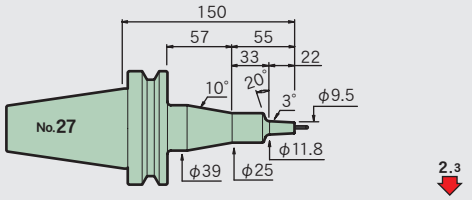
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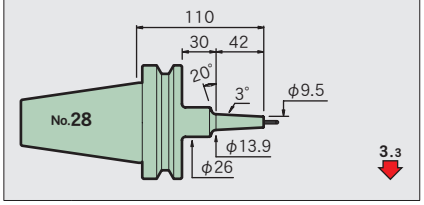
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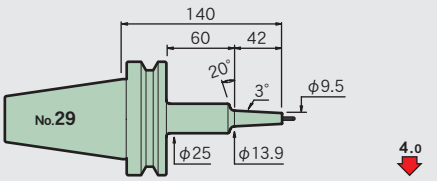
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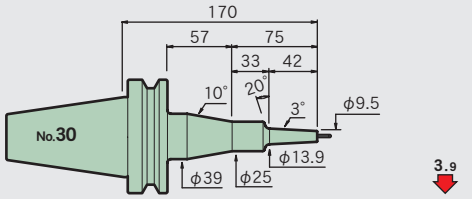
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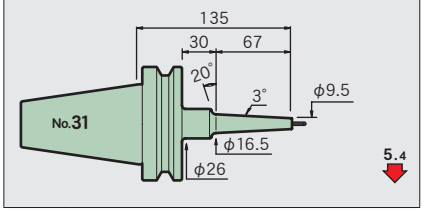
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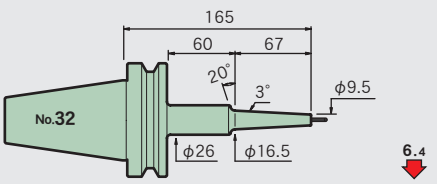
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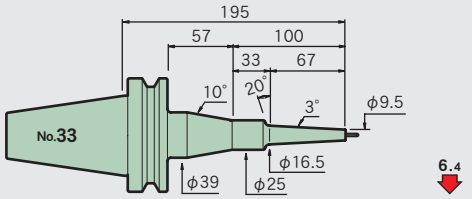
BT50-SLFB3-135-M67



BT50-SLFB3-165-M67

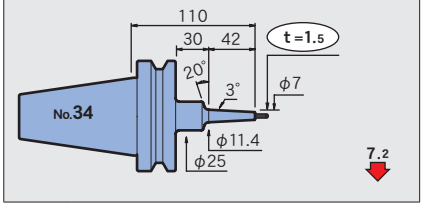


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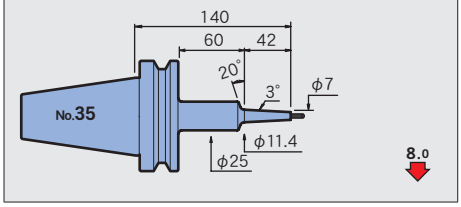
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BT50-SLSA4-110-M42



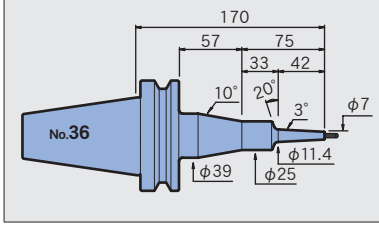
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BT50-SLSA4-140-M42



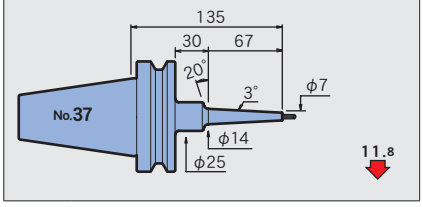
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BT50-SLSA4-170-M42



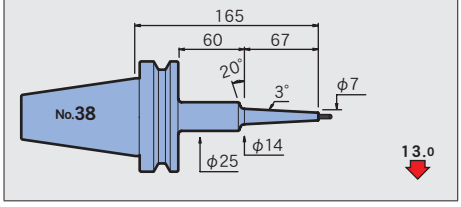
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BT50-SLSA4-135-M67



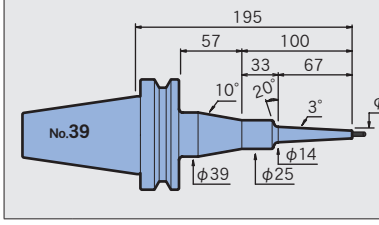
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BT50-SLSA4-165-M67



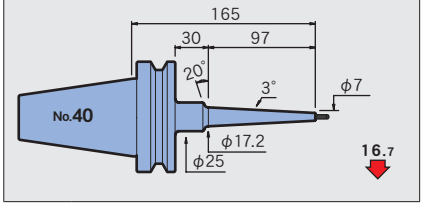
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BT50-SLSA4-195-M67



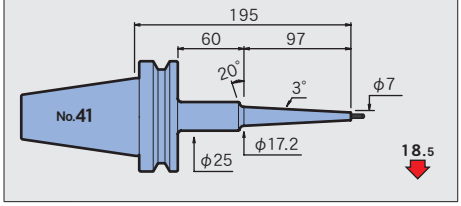
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BT50-SLSA4-165-M97



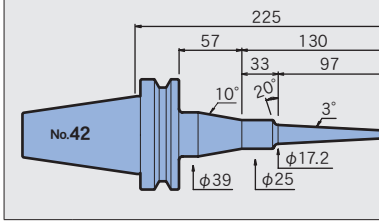
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BT50-SLSA4-195-M97



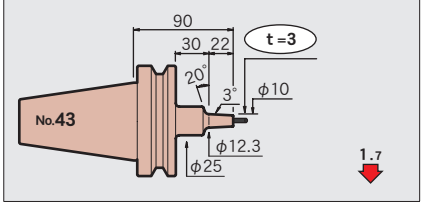
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BT50-SLSA4-225-M97



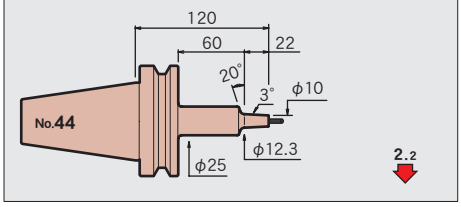
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BT50-SLRA4-90-M22



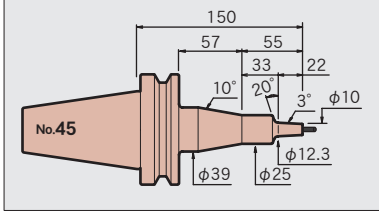
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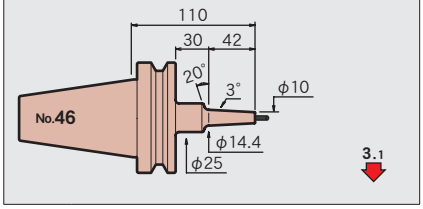
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BT50-SLRA4-150-M22



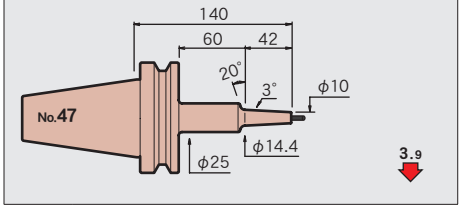
2.2

BT50-SLRA4-110-M42



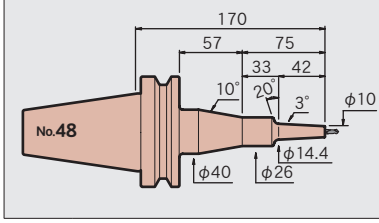
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BT50-SLRA4-140-M42



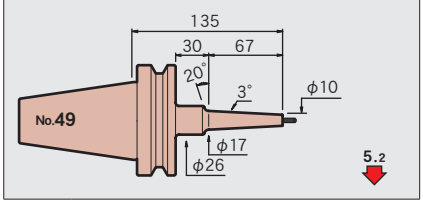
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BT50-SLRA4-170-M42



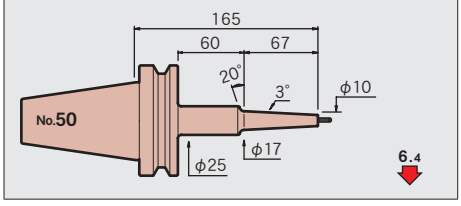
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BT50-SLRA4-135-M67



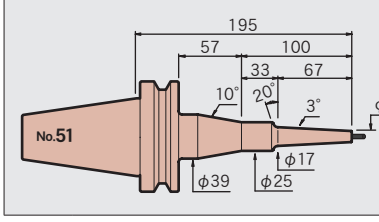
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BT50-SLRA4-165-M67



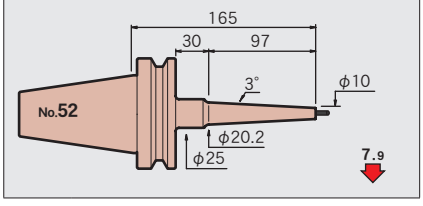
6.4

BT50-SLRA4-195-M67



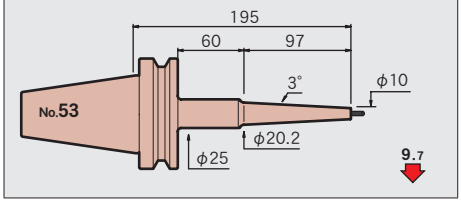
6.2

BT50-SLRA4-165-M97



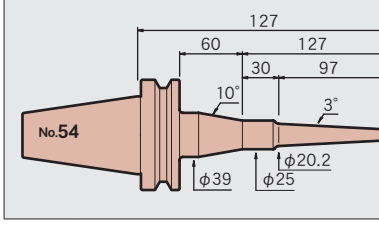
7.9

BT50-SLRA4-195-M97



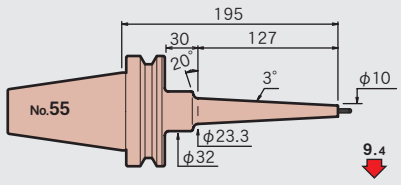
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BT50-SLRA4-225-M97

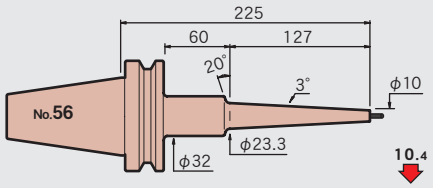


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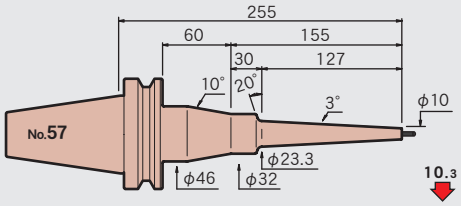
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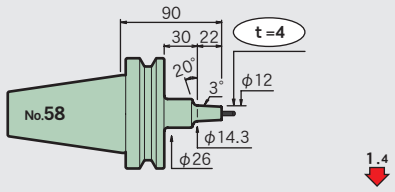
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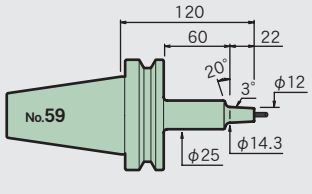
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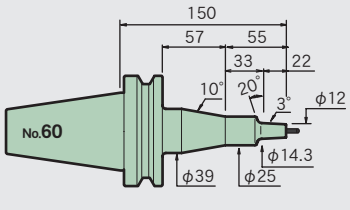
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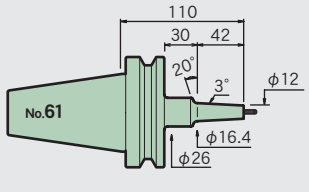
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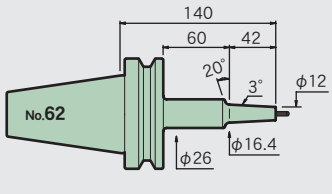
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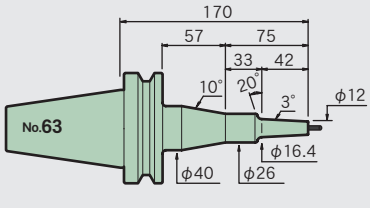
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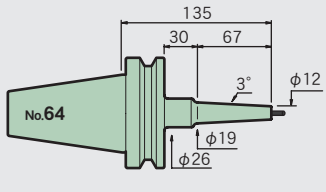
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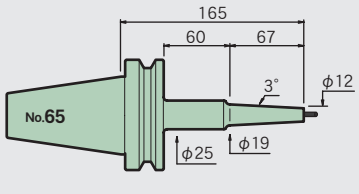
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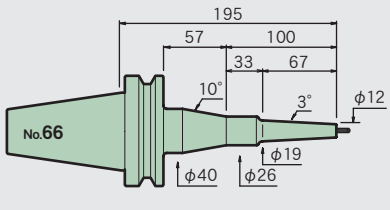
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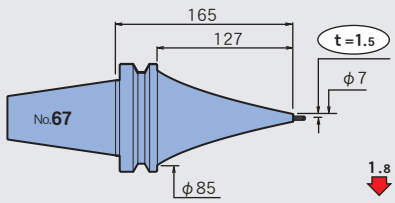
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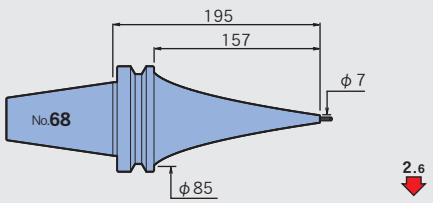
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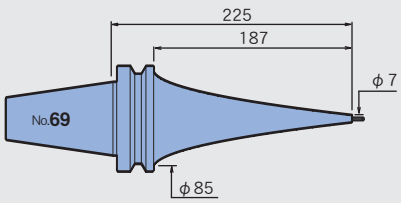
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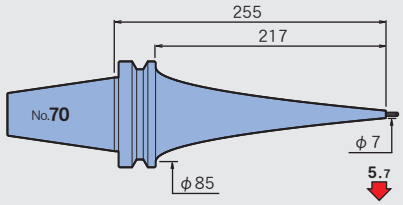
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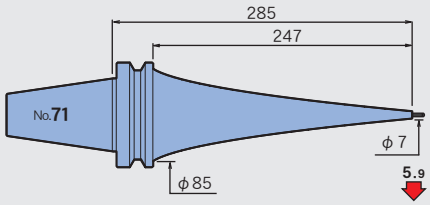
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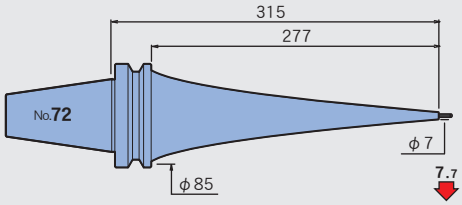
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BT50-SLSA4-285 CV

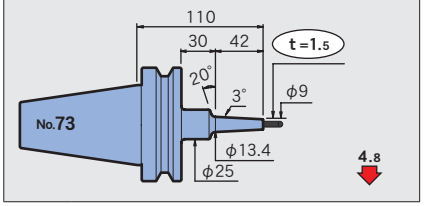


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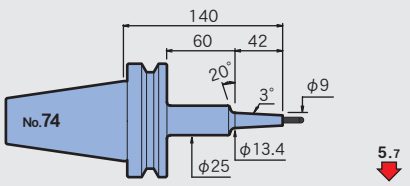


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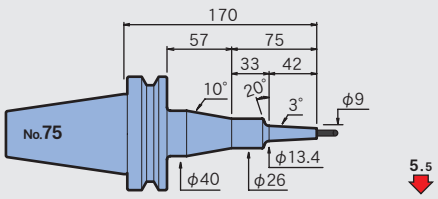
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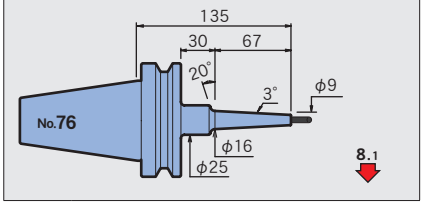
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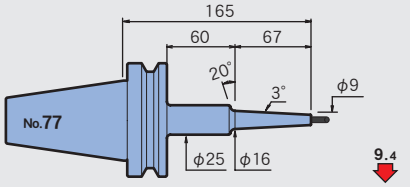
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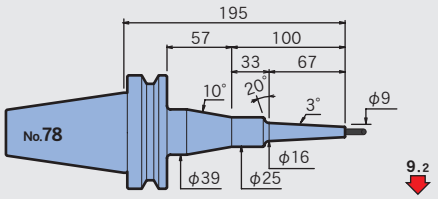
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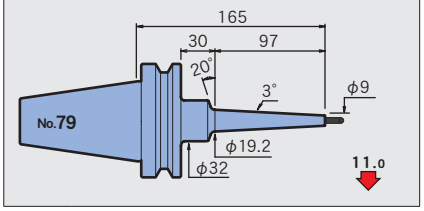
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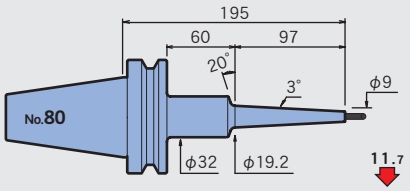
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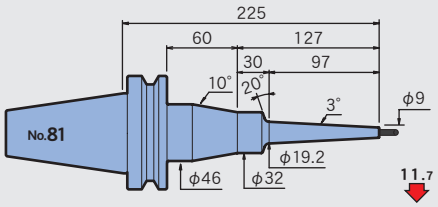
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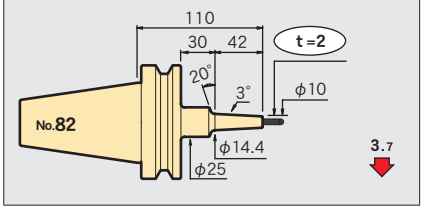
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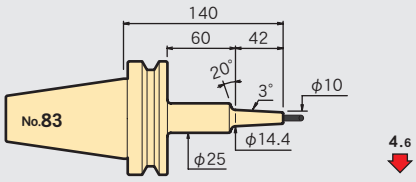
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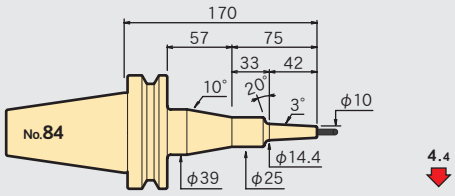
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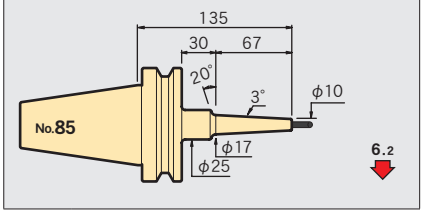
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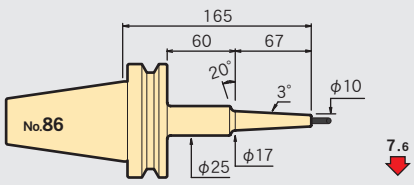
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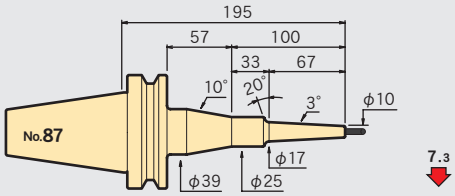
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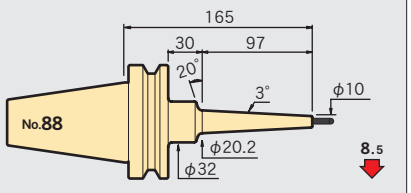
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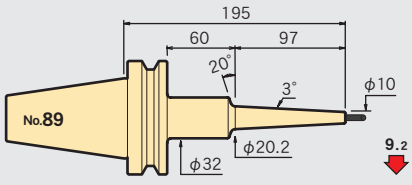
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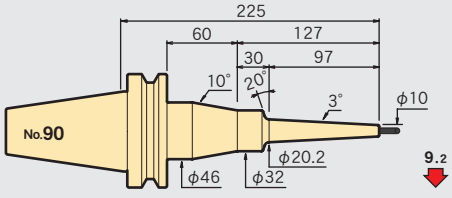
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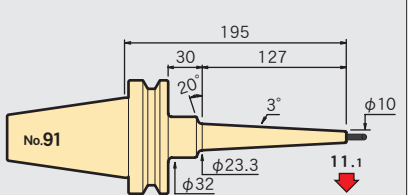
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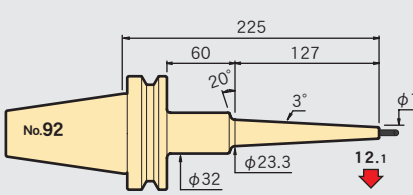
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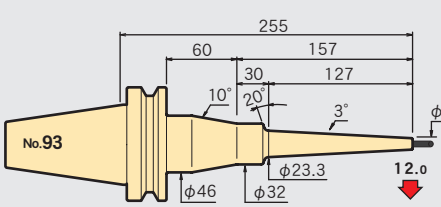
BT50-SLSB6-195-M127



BT50-SLSB6-225-M127

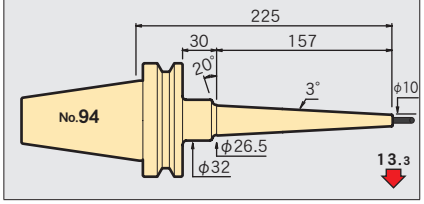


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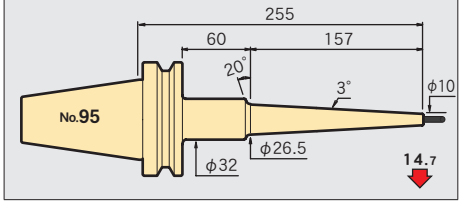


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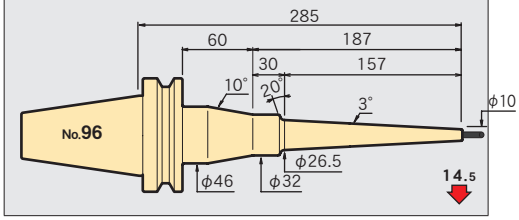
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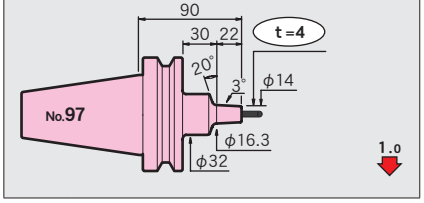
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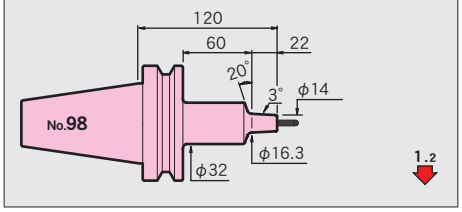
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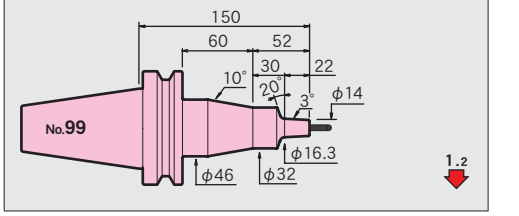
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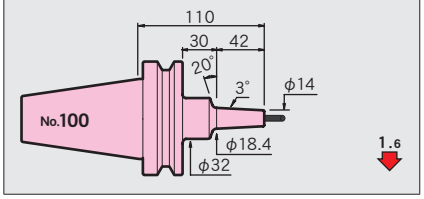
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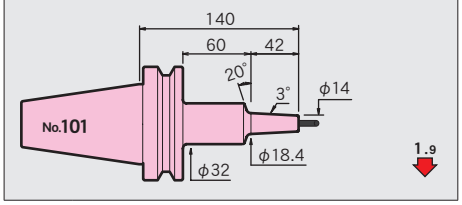
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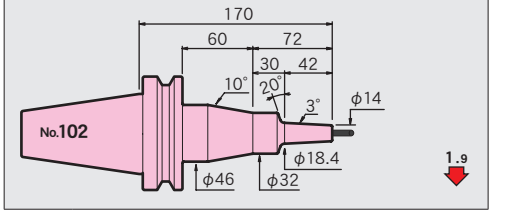
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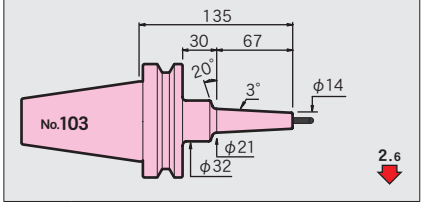
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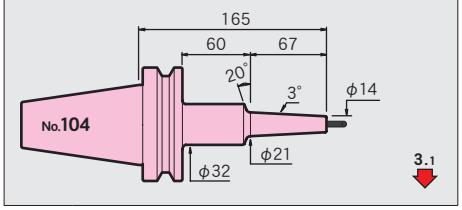
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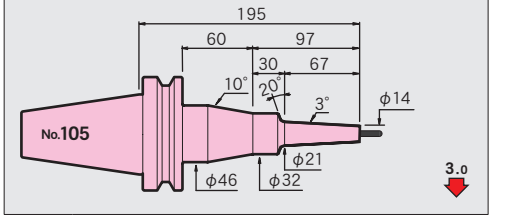
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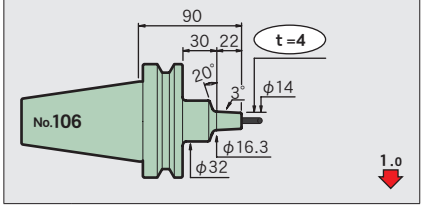
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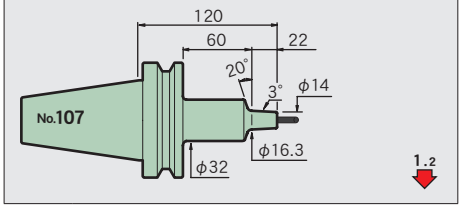
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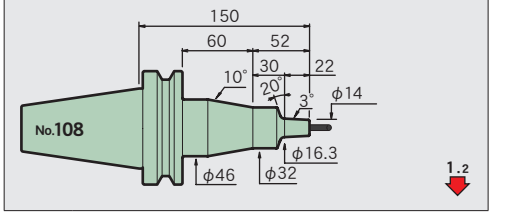
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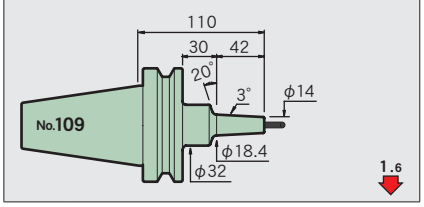
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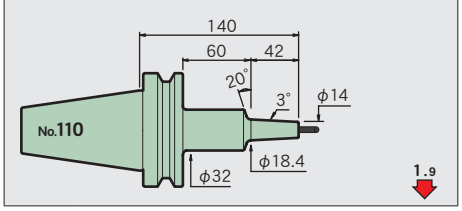
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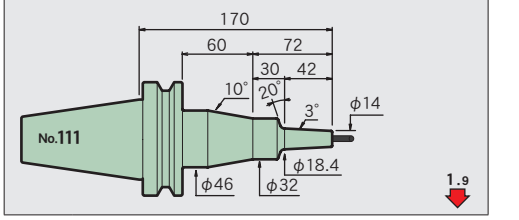
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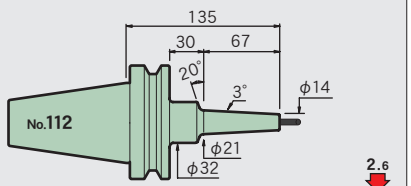
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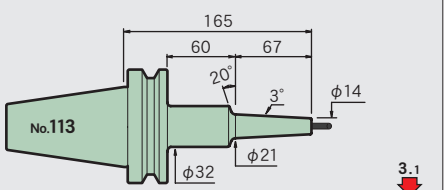
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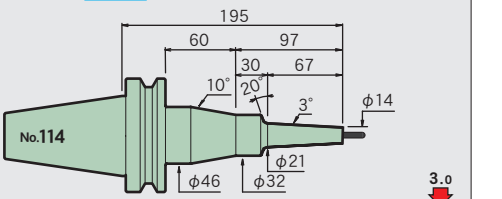
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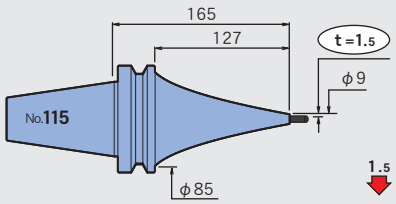
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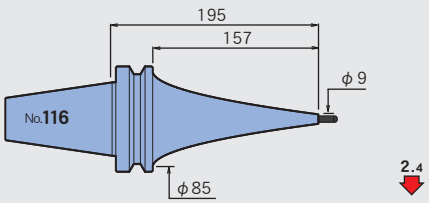
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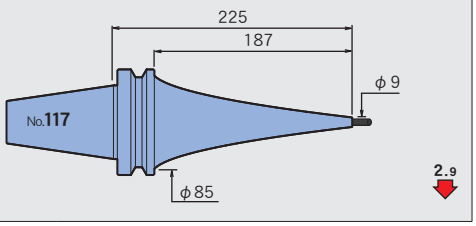
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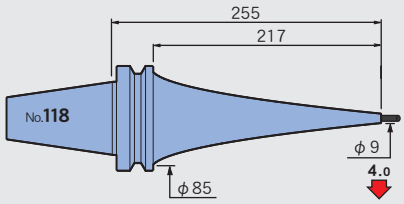
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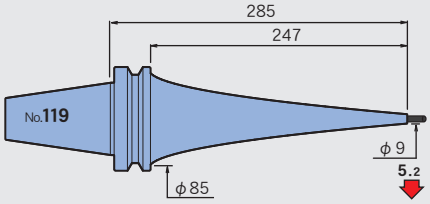
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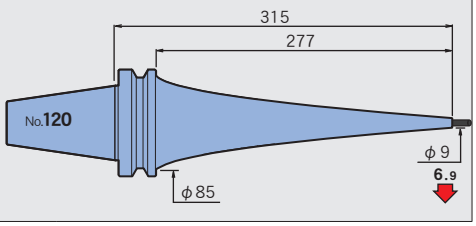
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BT50-SLSA6-285 CV



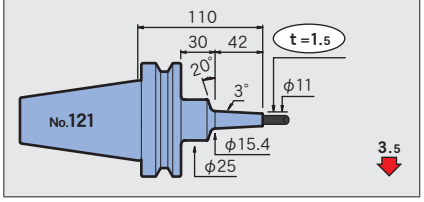
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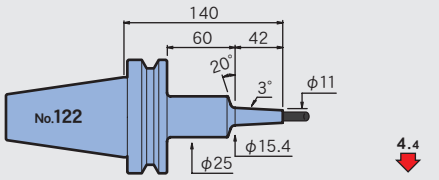
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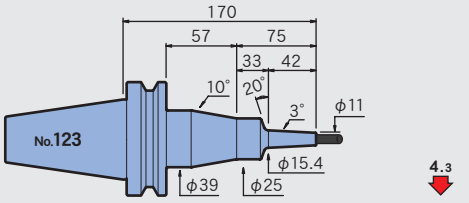
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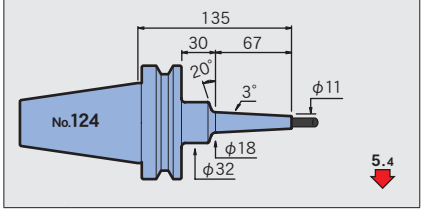
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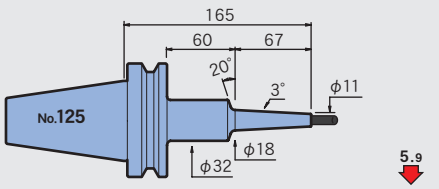
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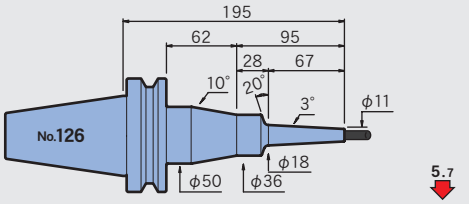
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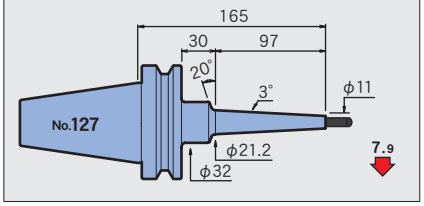
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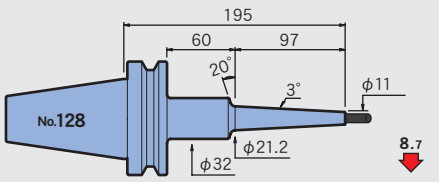
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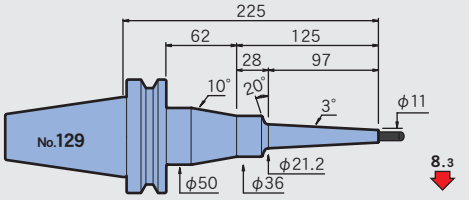
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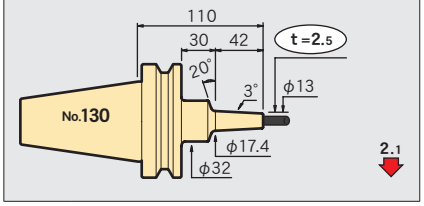
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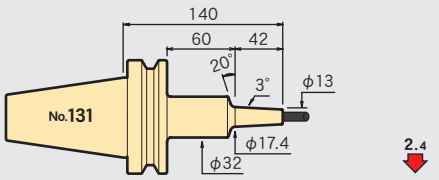
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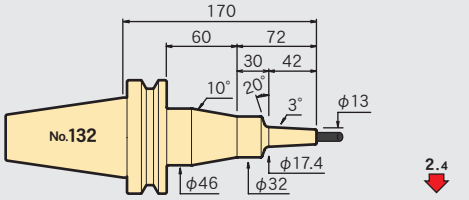
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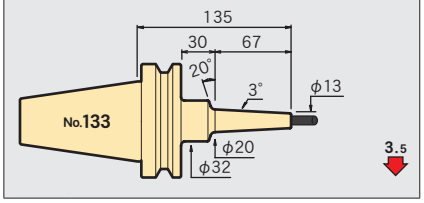
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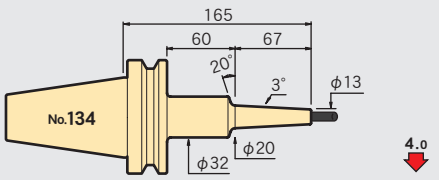
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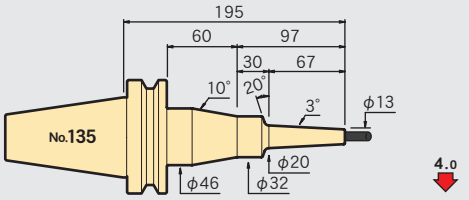
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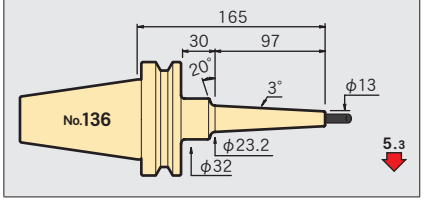
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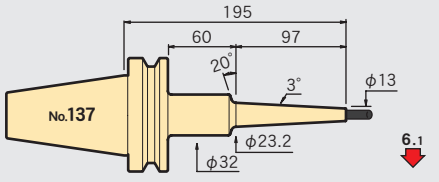
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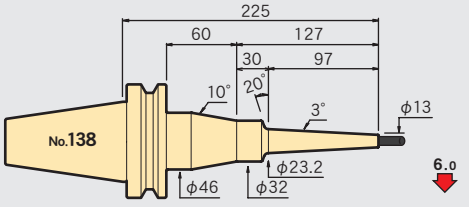
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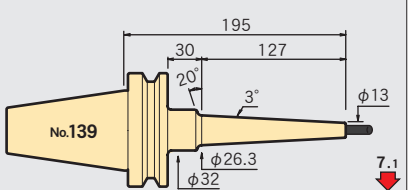
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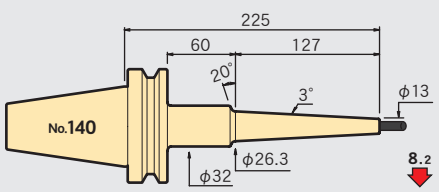
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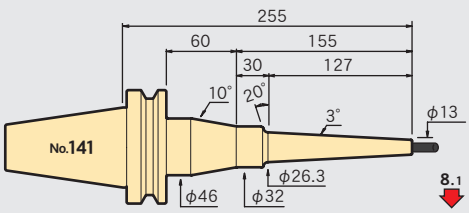
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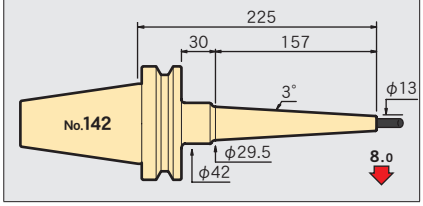
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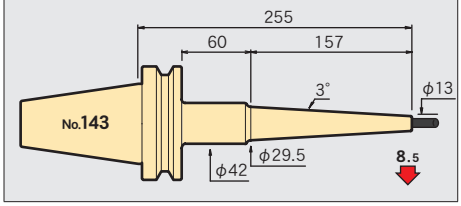
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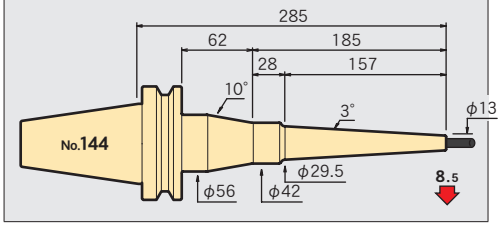
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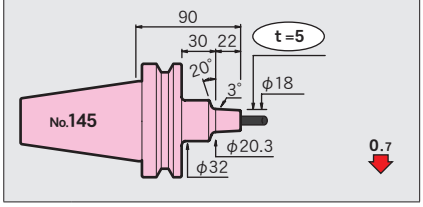
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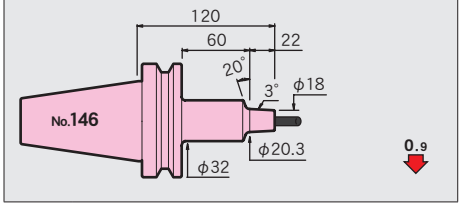
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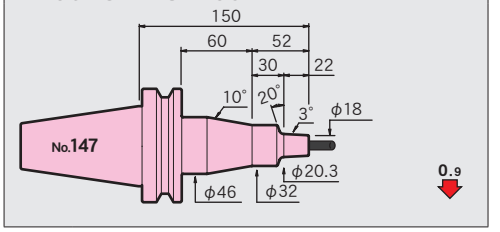
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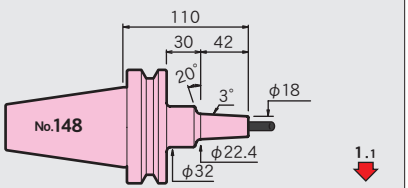
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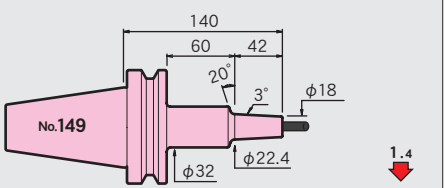
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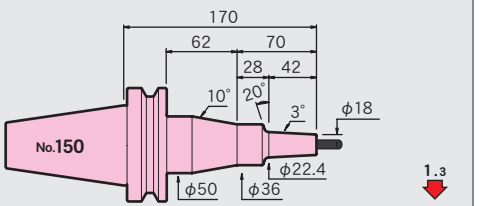
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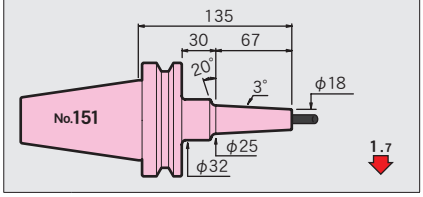
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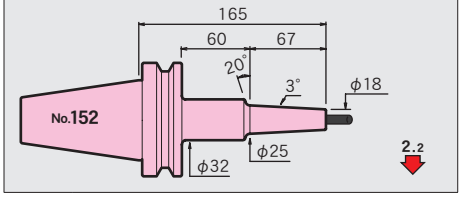
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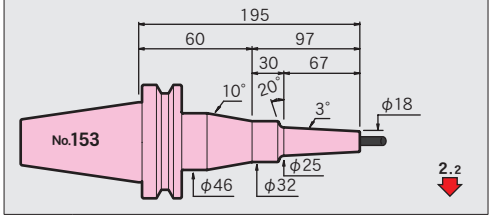
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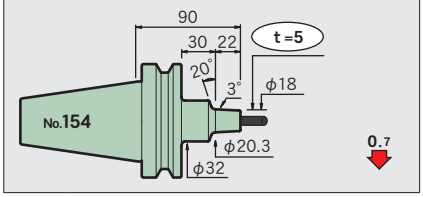
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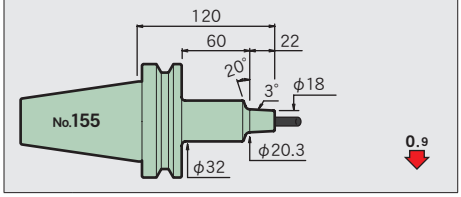
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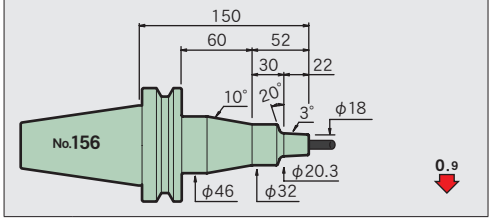
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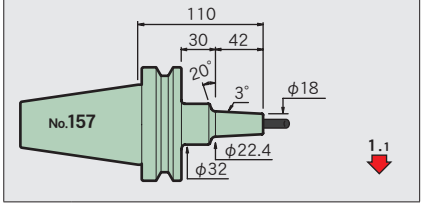
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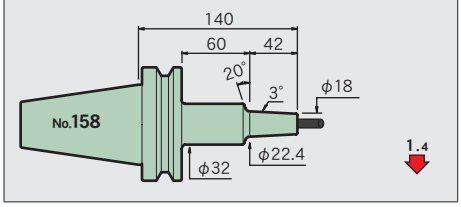
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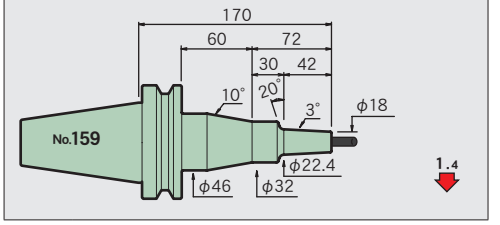
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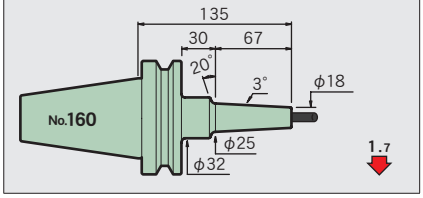
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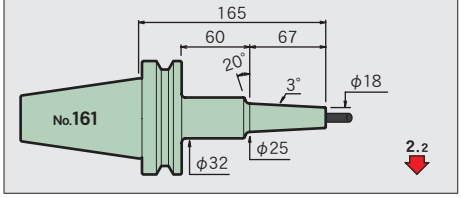
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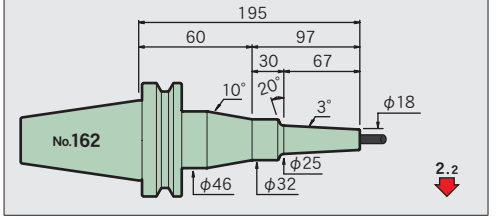
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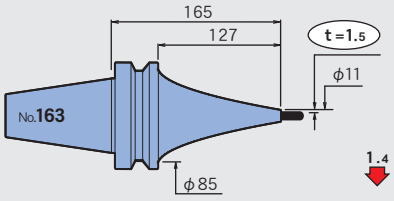
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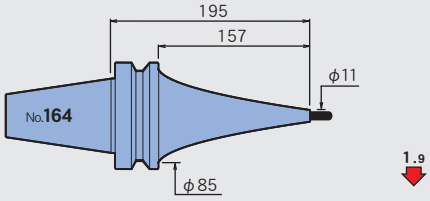
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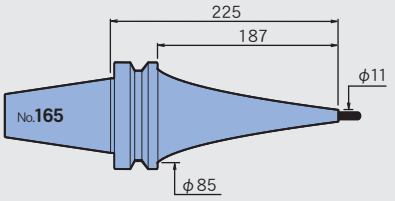
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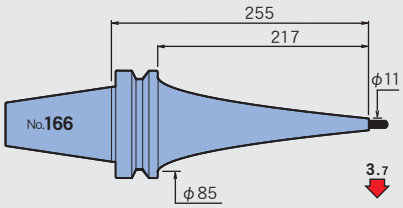
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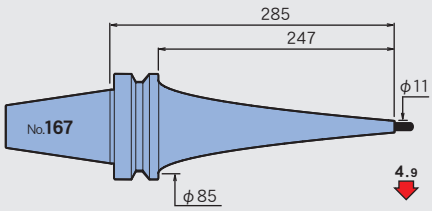
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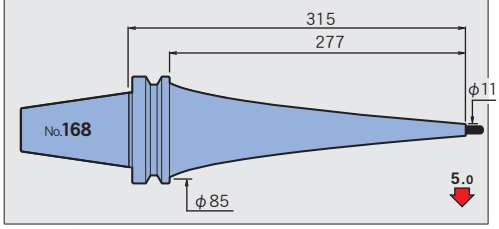
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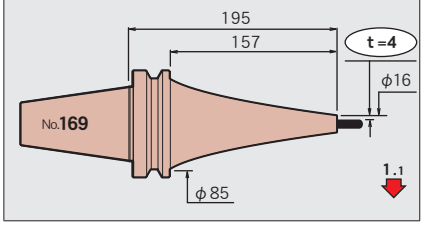
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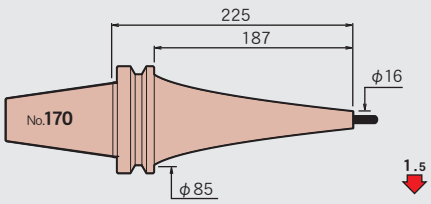
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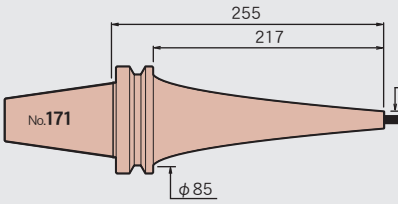
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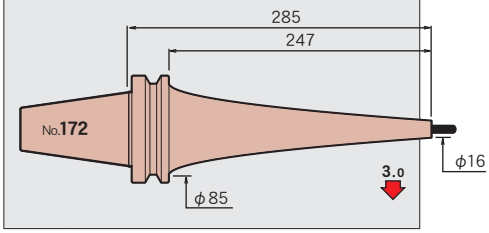
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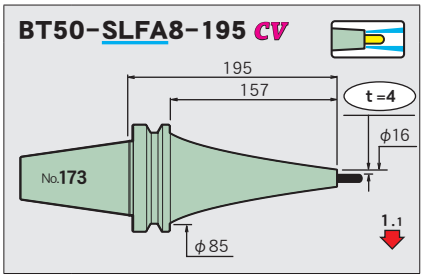
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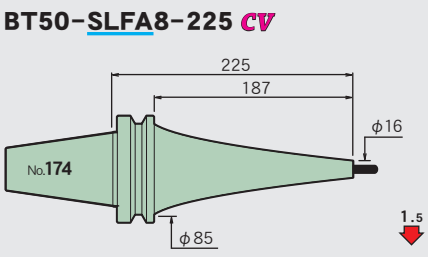
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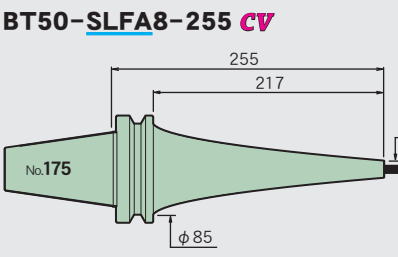
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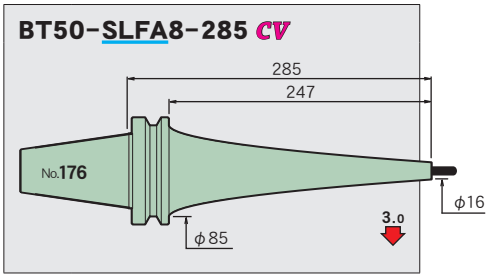
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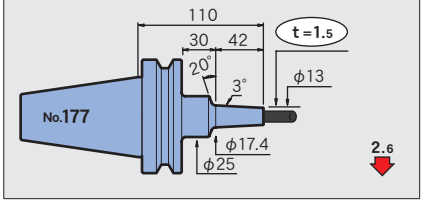


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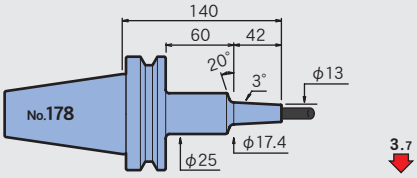


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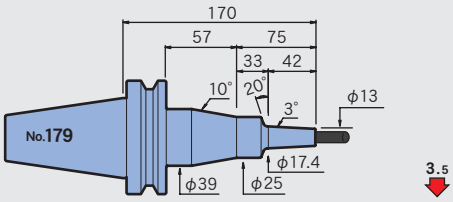
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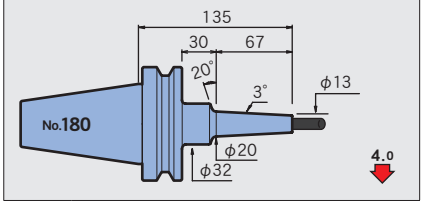
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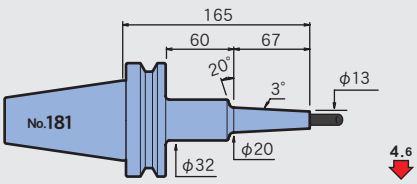
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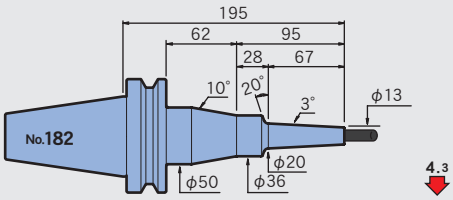
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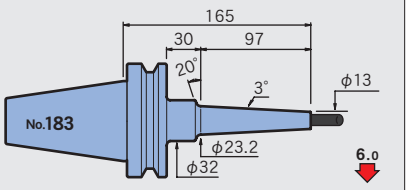
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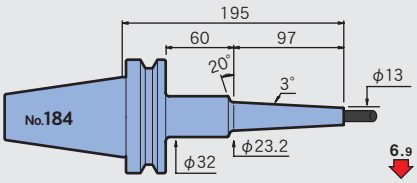
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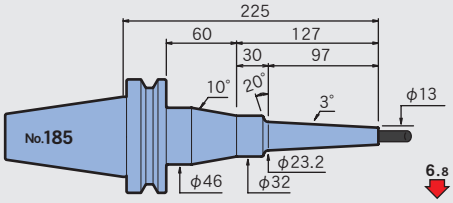
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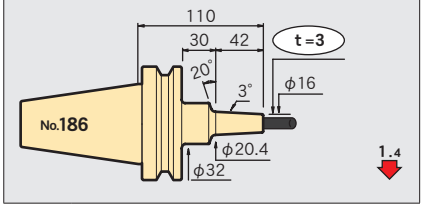
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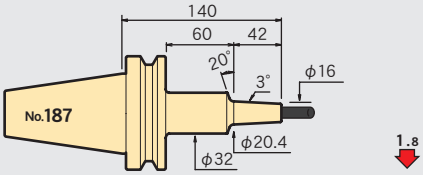
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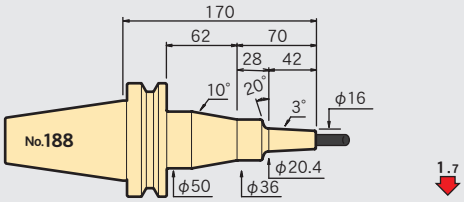
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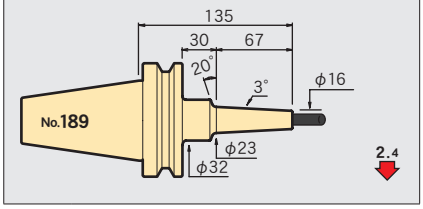
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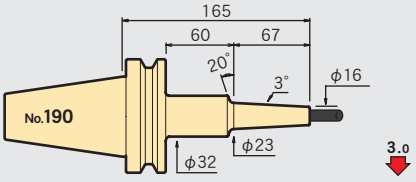
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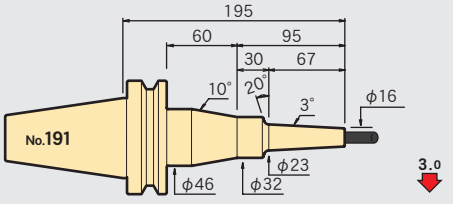
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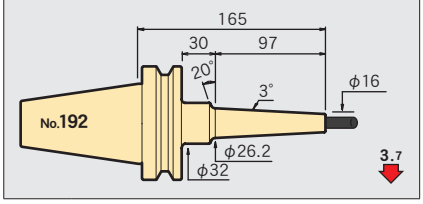
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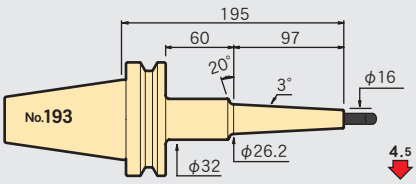
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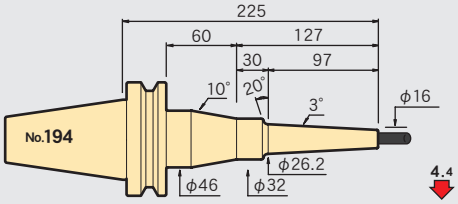
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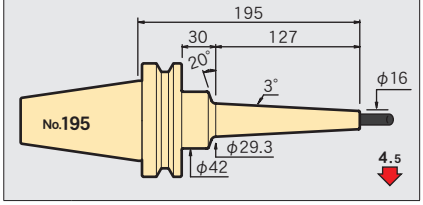
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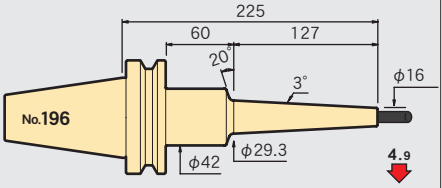
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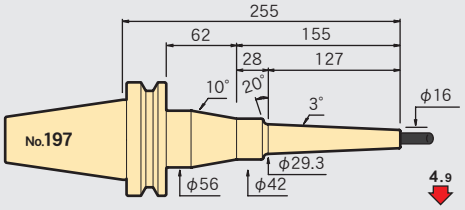
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BT50-SLSB10-225-M127

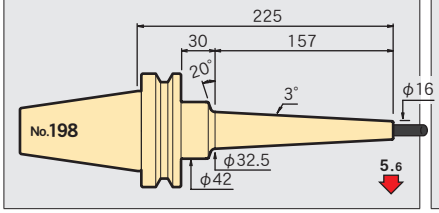


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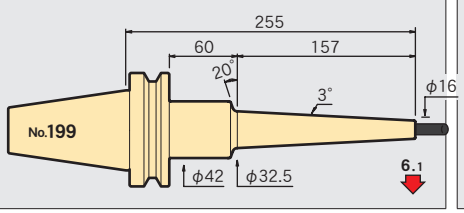


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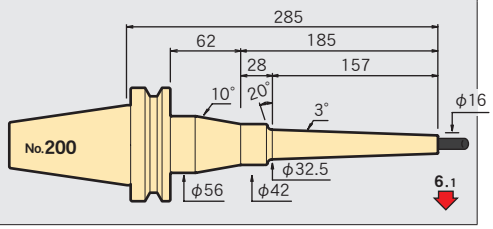
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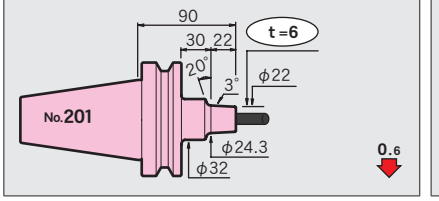
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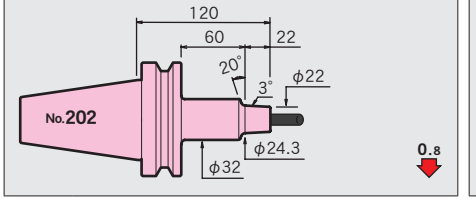
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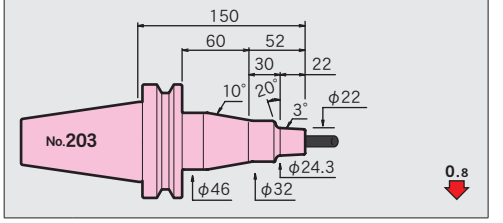
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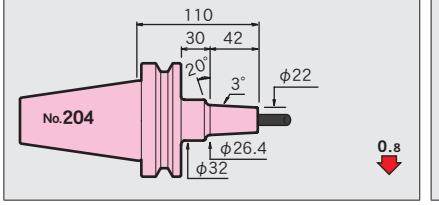
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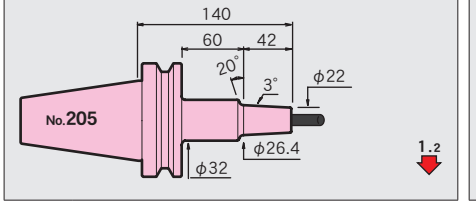
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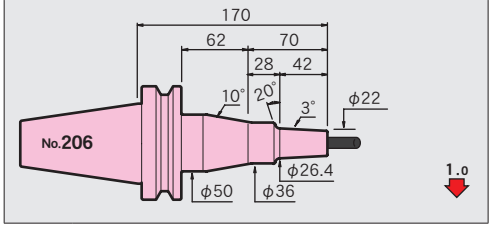
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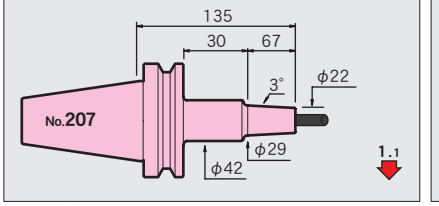
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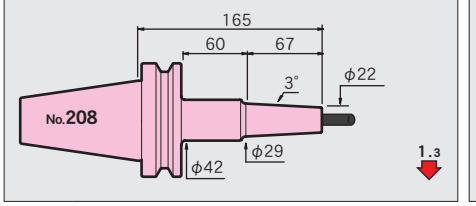
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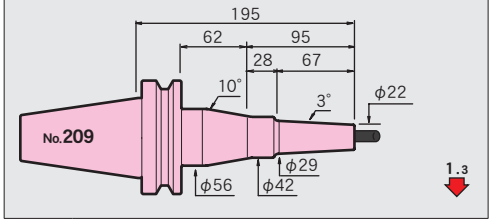
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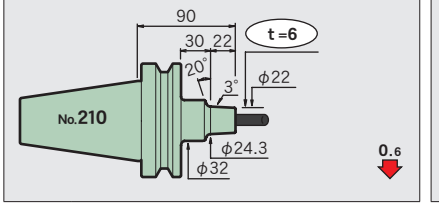
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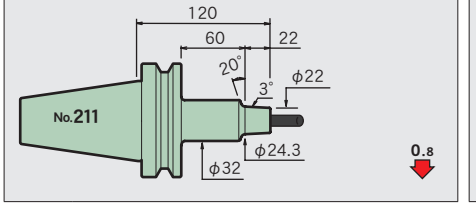
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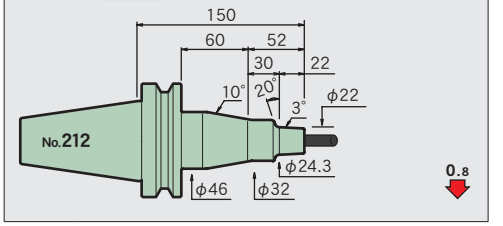
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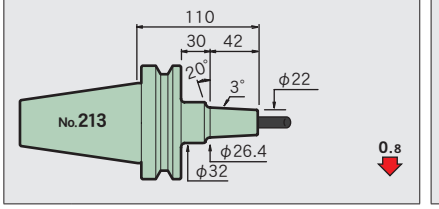
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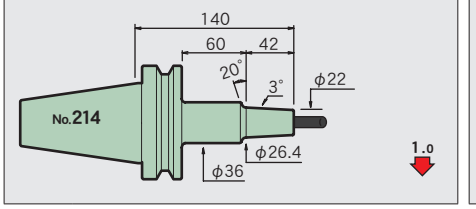
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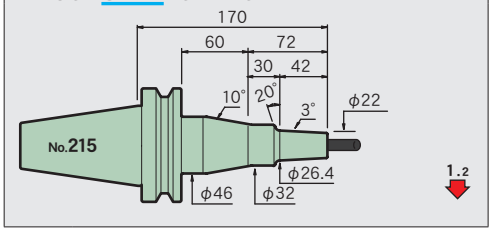
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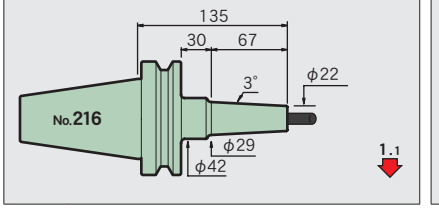
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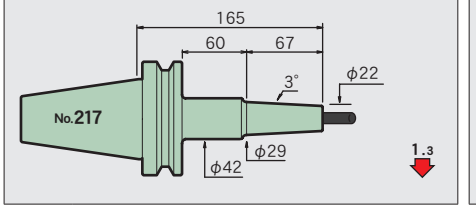
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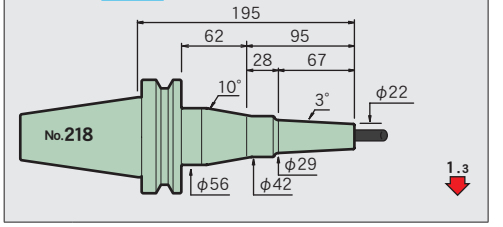
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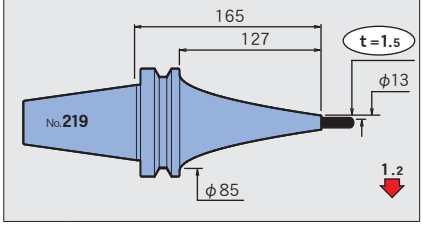
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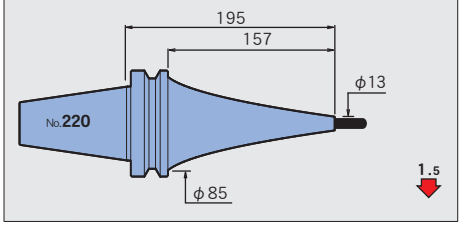
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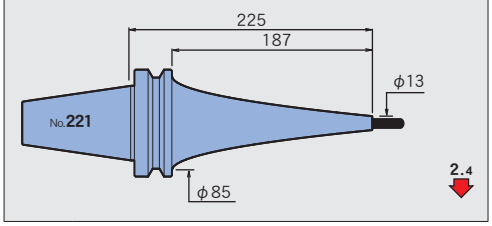
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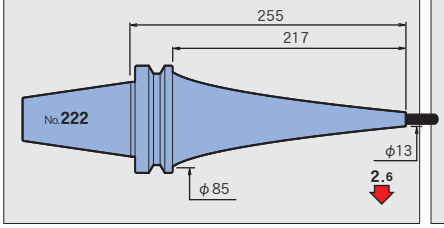
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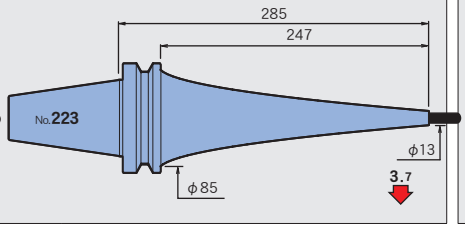
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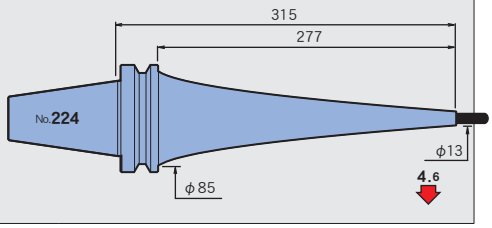
BT50-SLSA10-255 CV



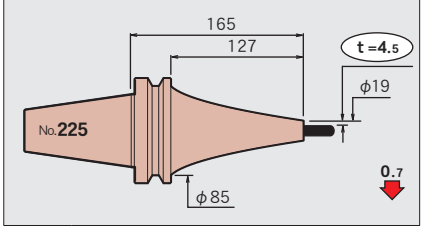
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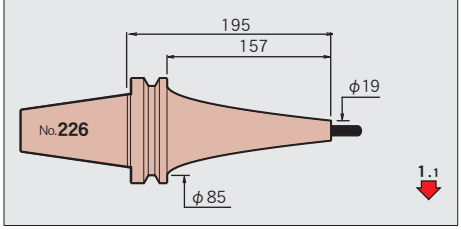
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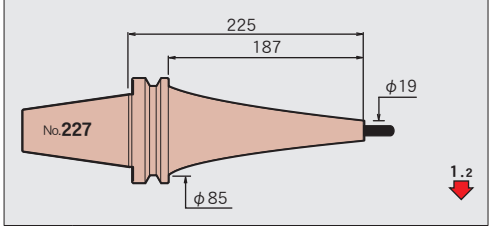
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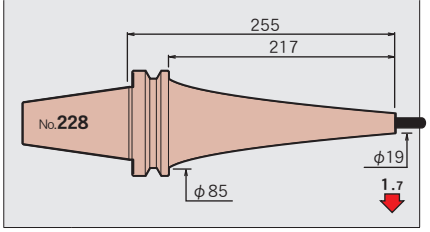
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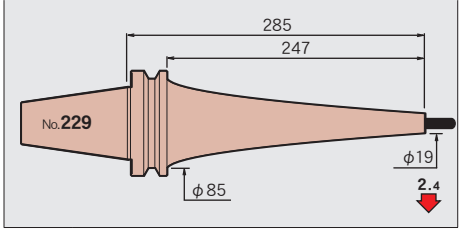
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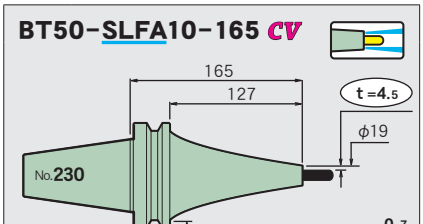
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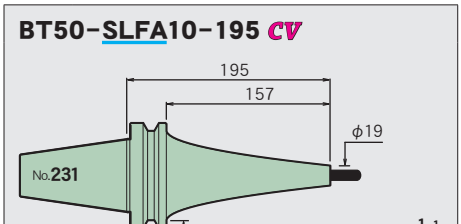
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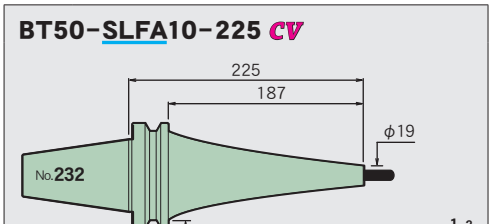
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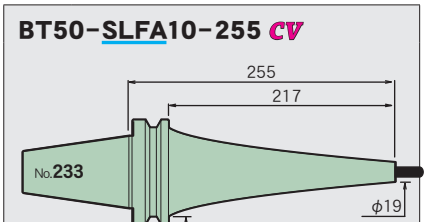
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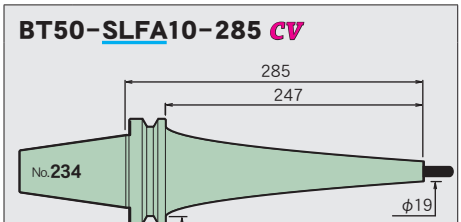
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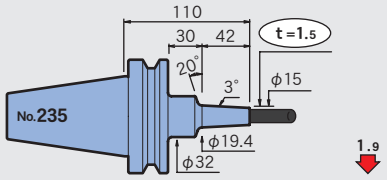
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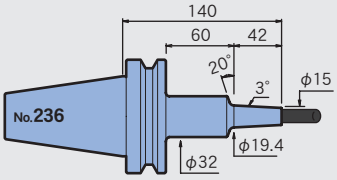
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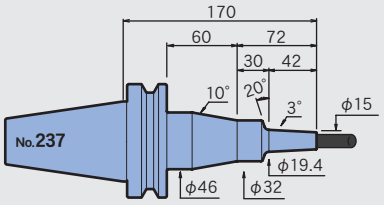
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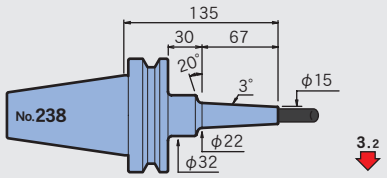
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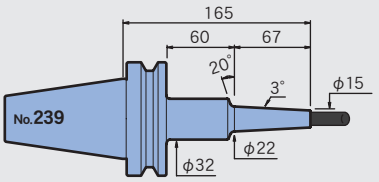
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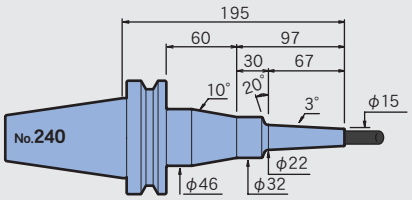
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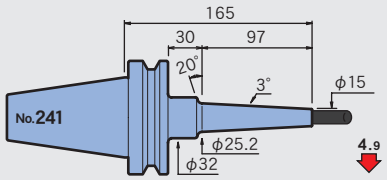
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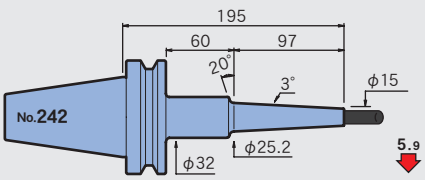
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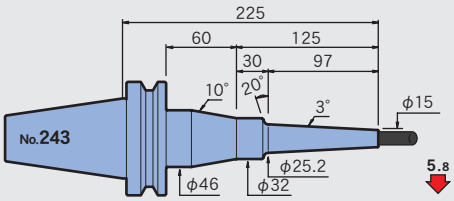
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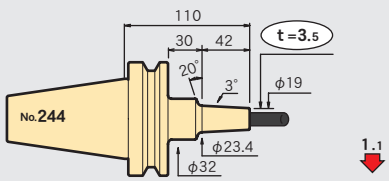
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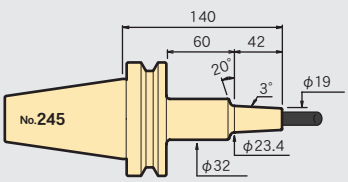
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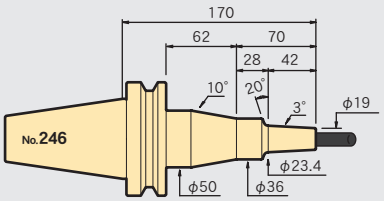
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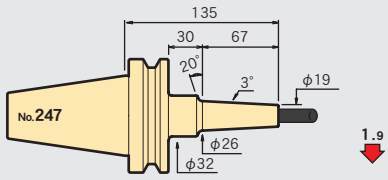
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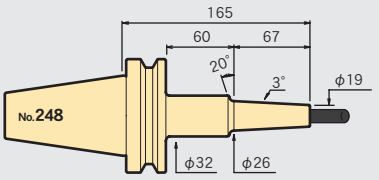
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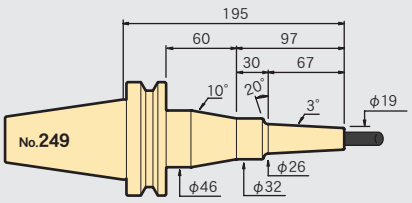
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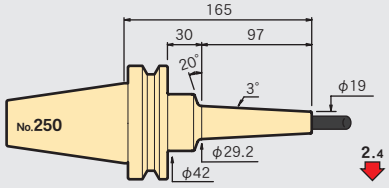
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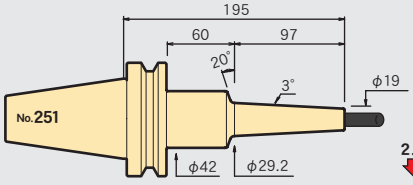
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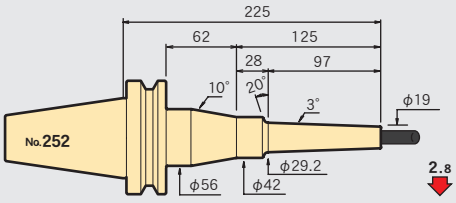
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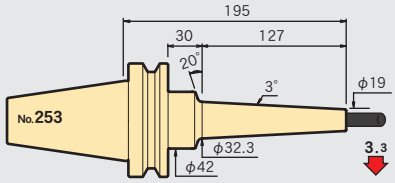
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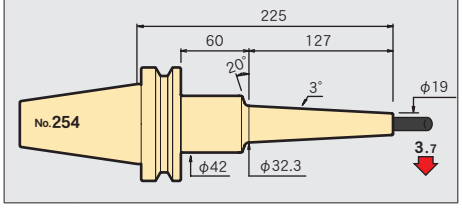
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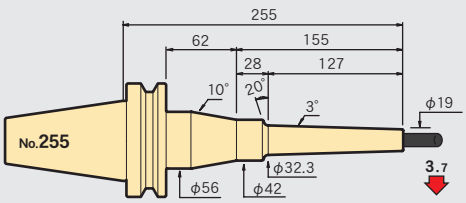
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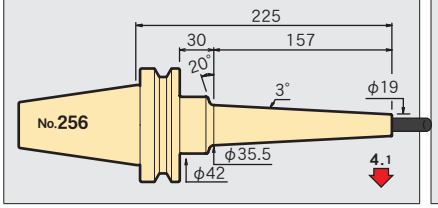
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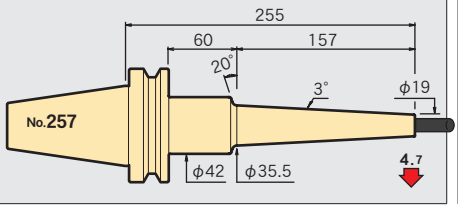
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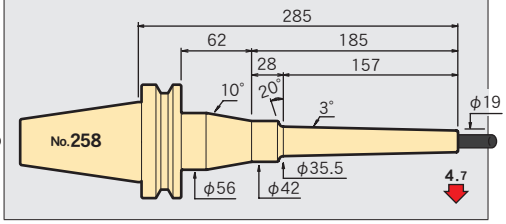
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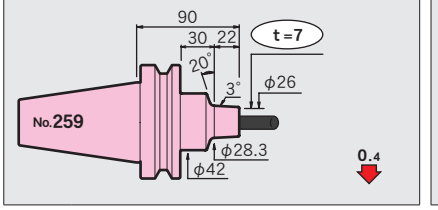
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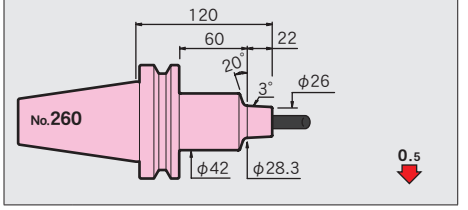
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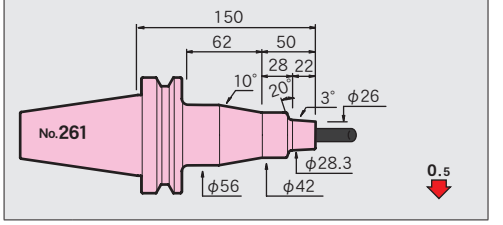
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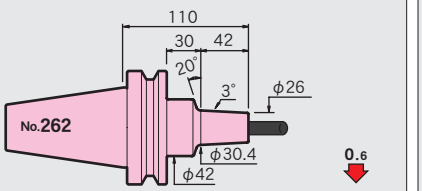
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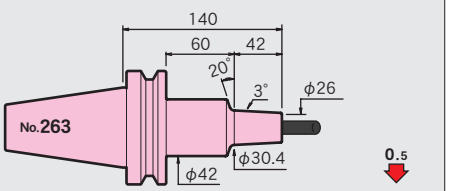
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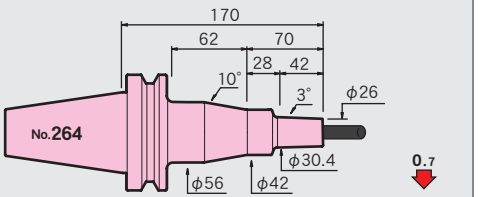
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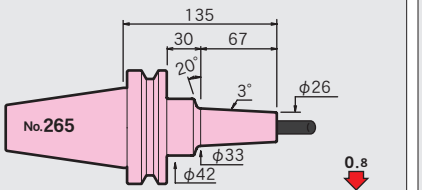
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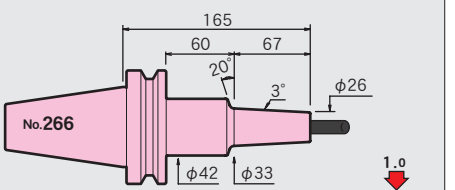
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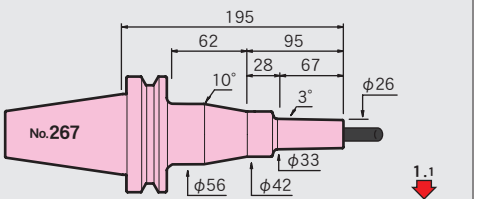
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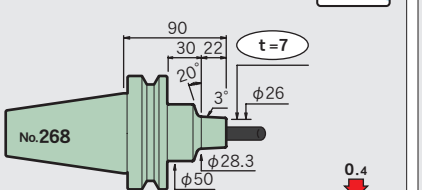
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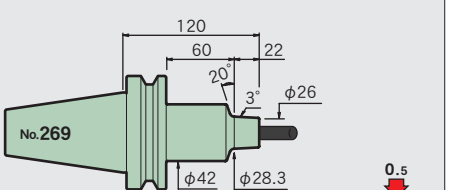
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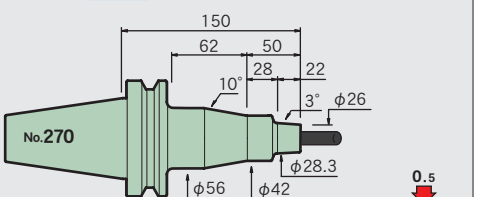
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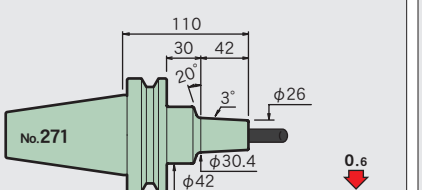
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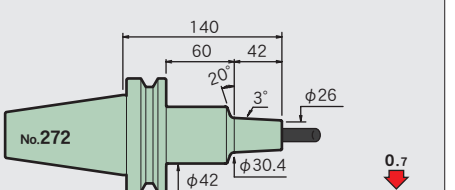
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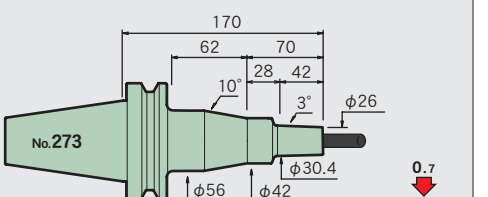
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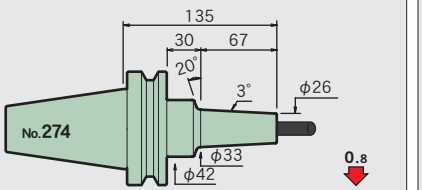
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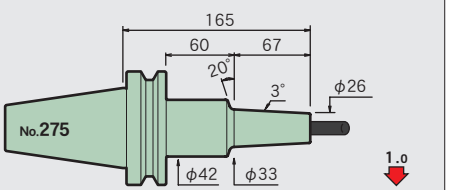
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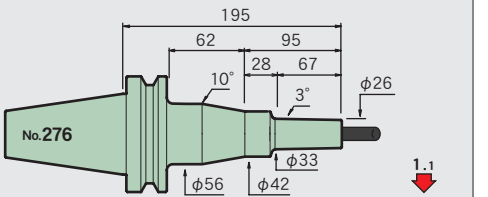
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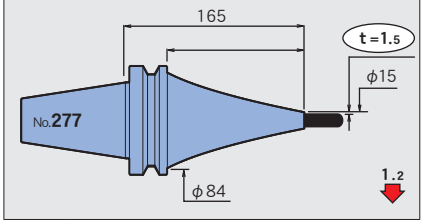


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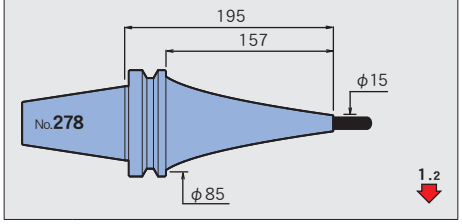


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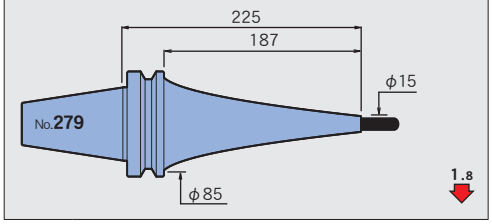
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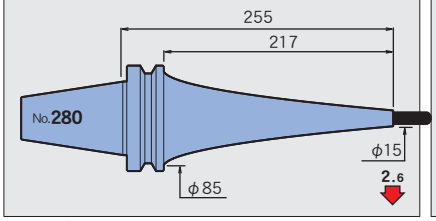
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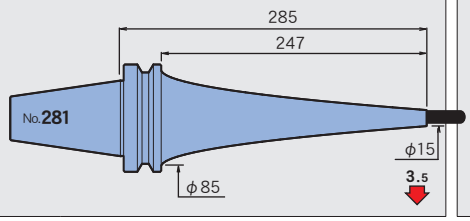
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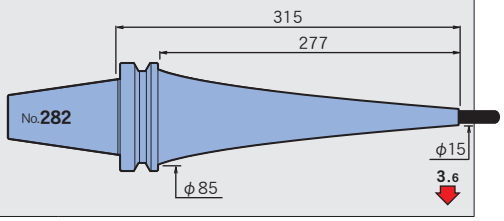
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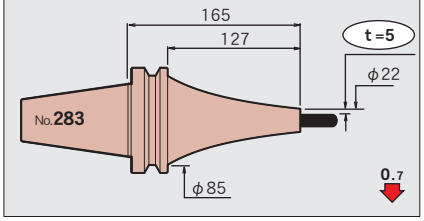
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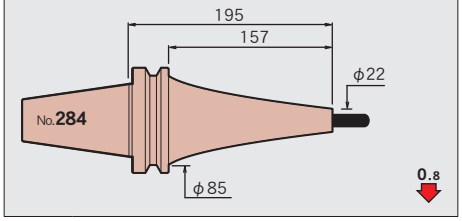
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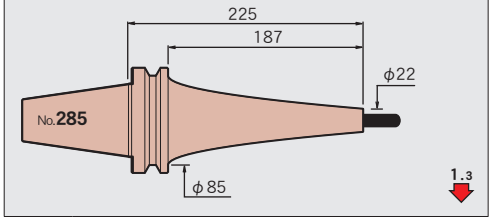
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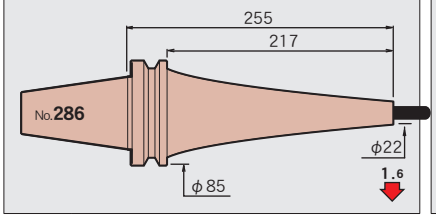
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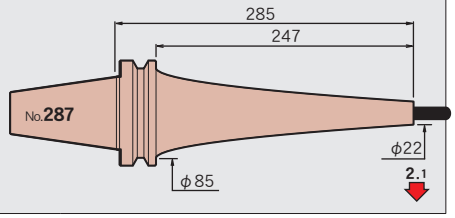
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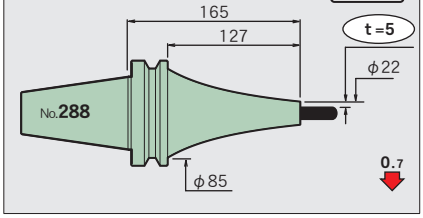
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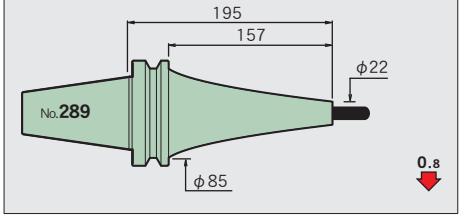
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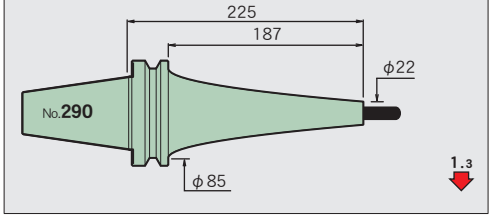
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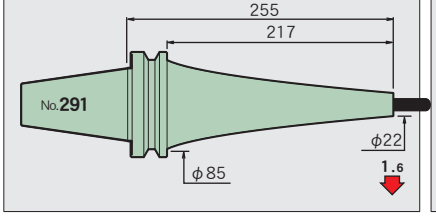
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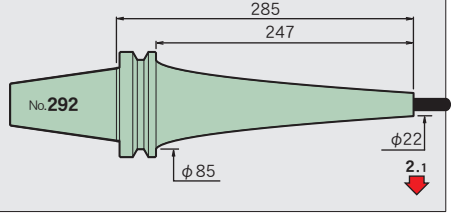
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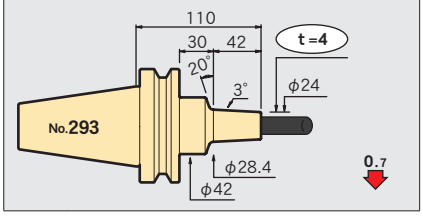


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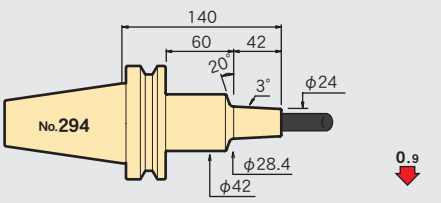


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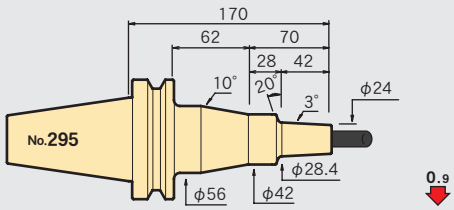
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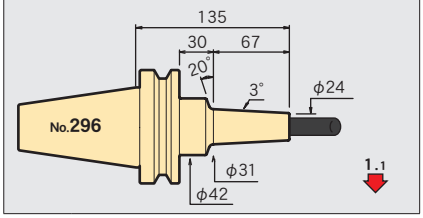
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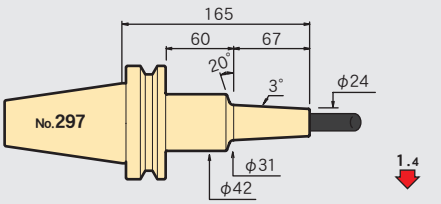
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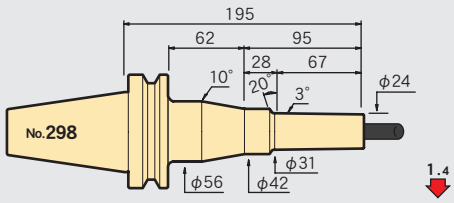
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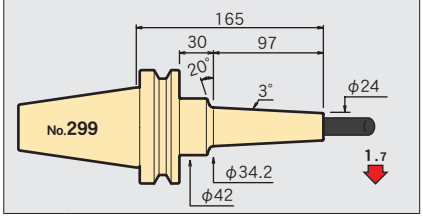
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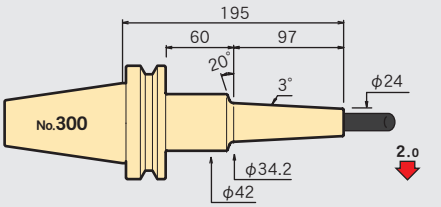
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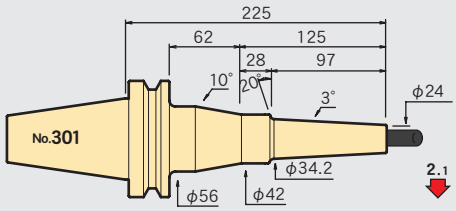
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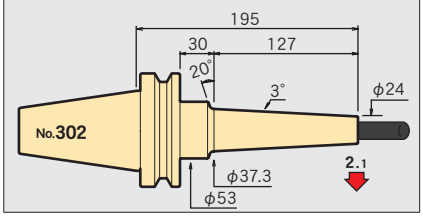
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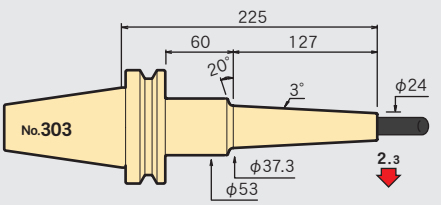
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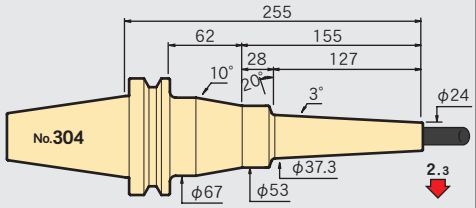
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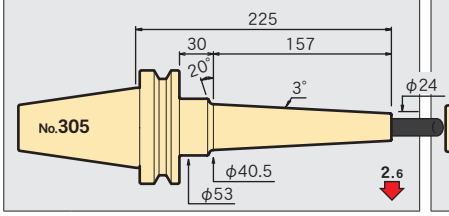
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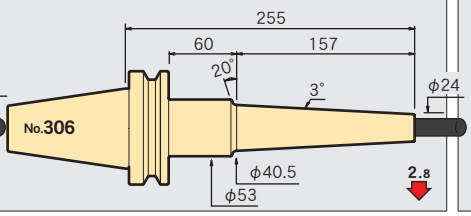
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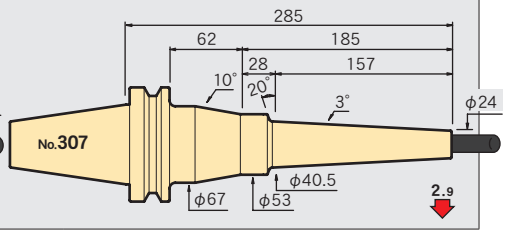
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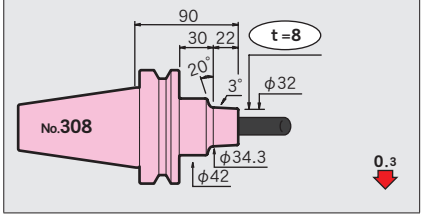
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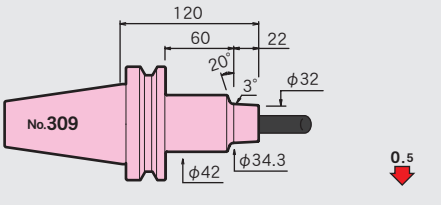
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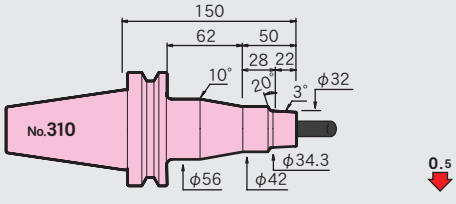
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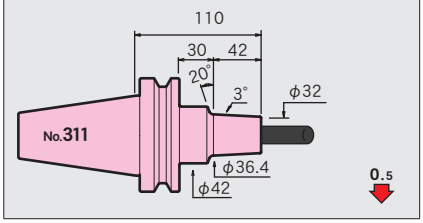
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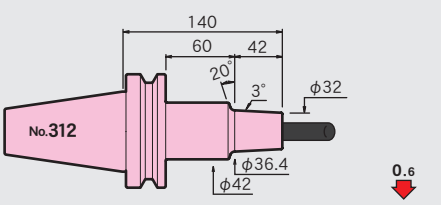
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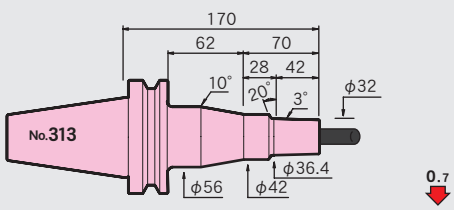
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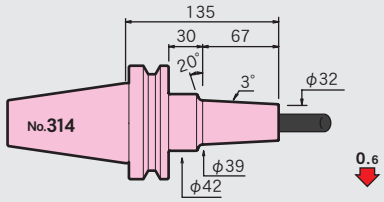


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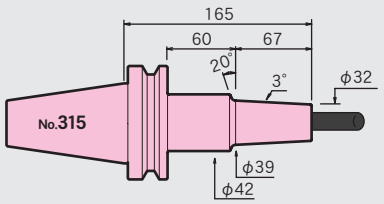


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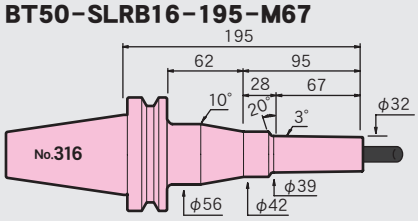
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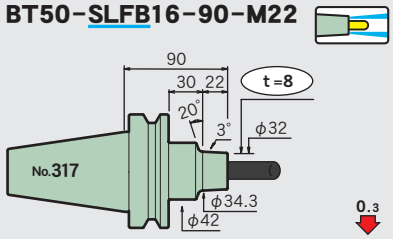
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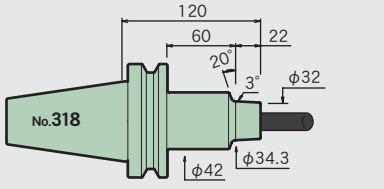
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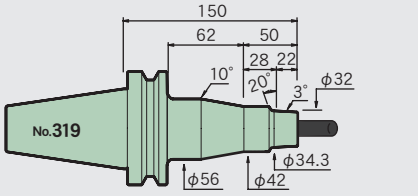
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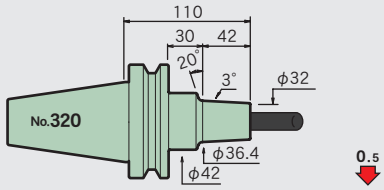
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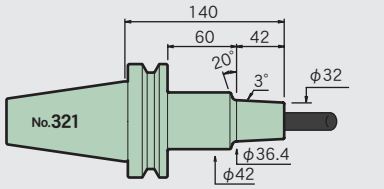
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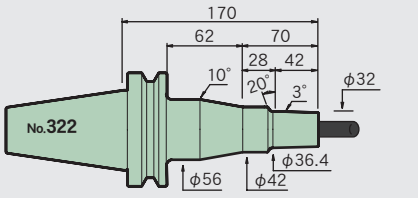
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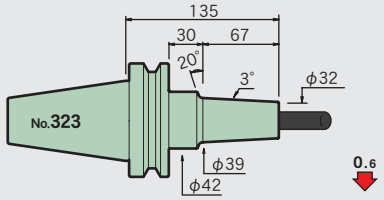
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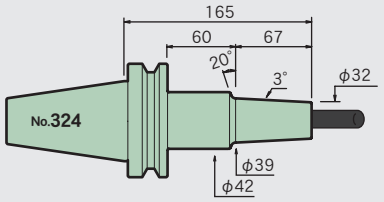
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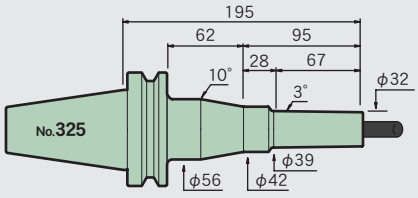
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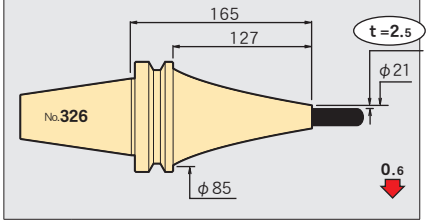
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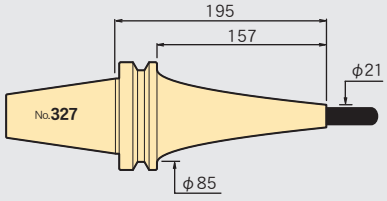
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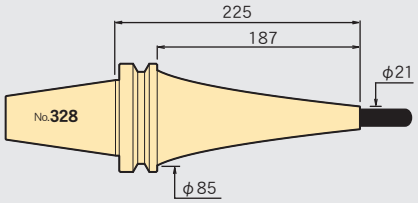
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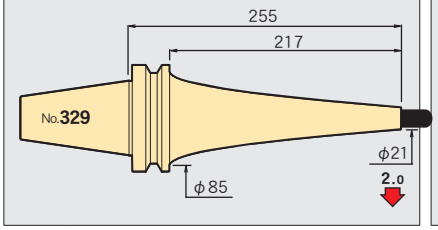
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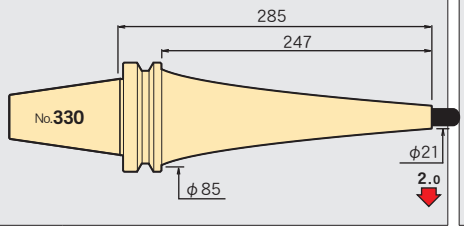
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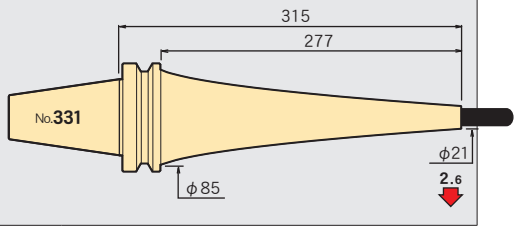
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BT50-SLSB16-285 CV

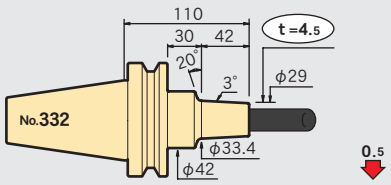


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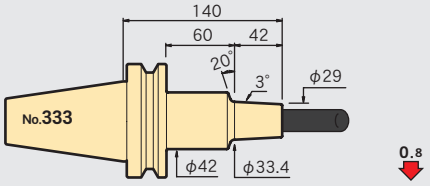


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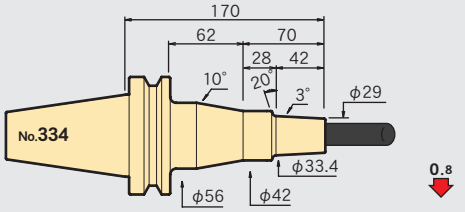
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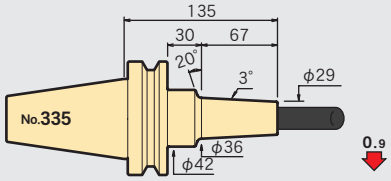
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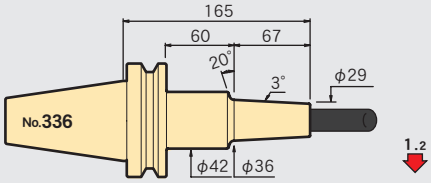
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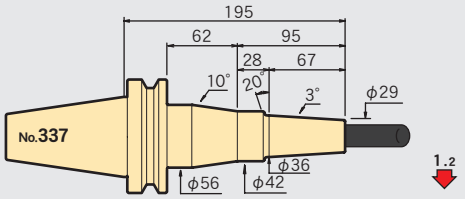
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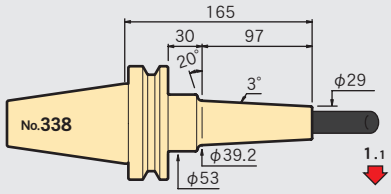
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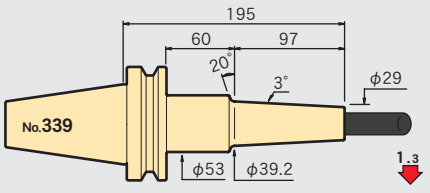
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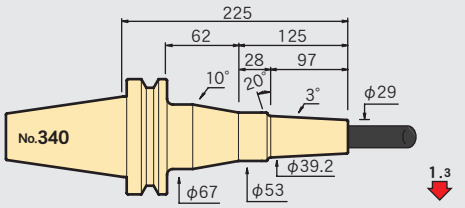
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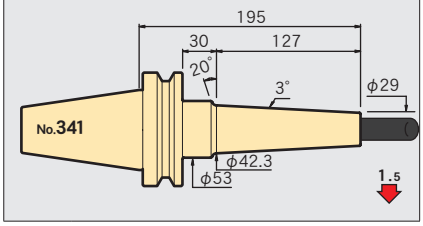
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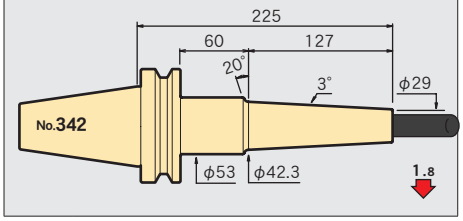
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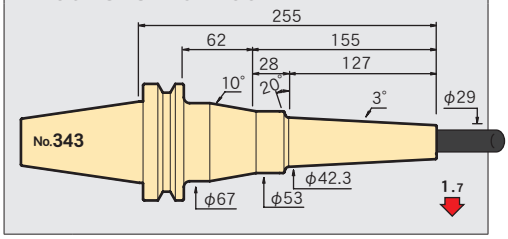
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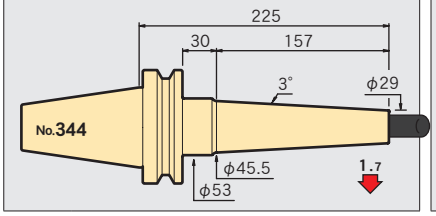
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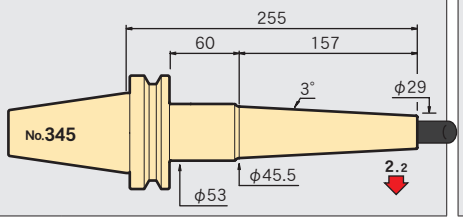
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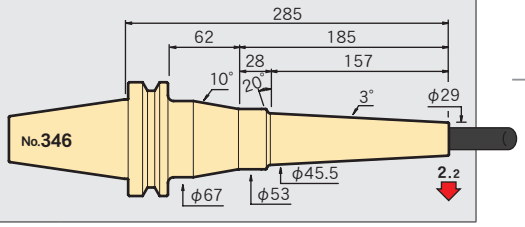
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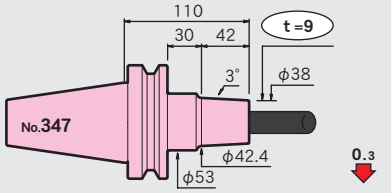
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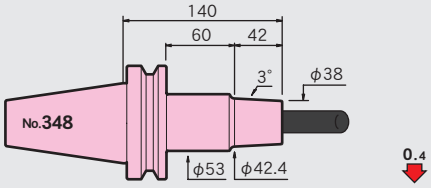
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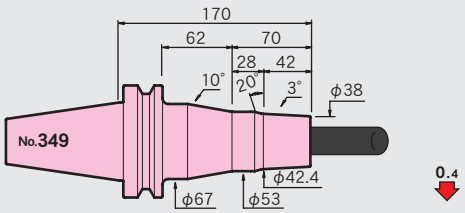
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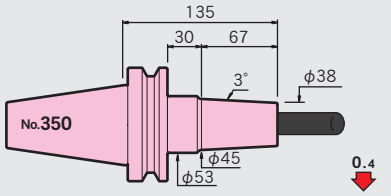
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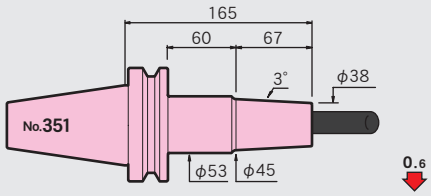
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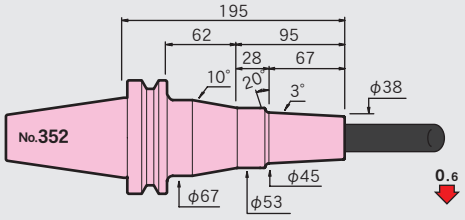
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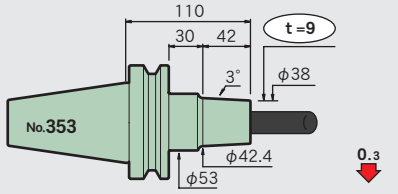


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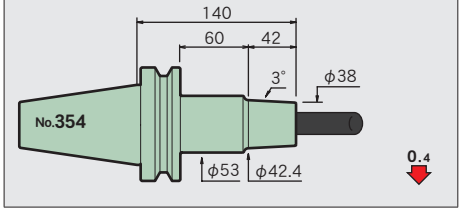


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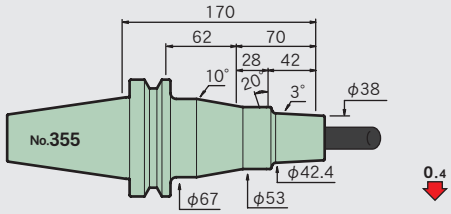
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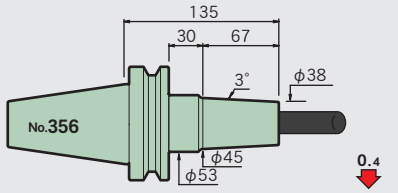
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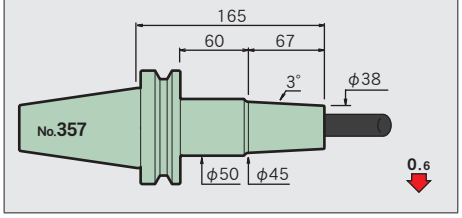
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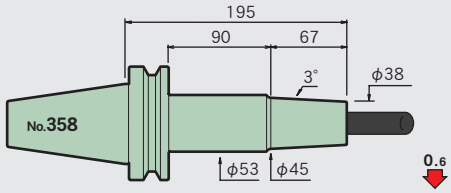
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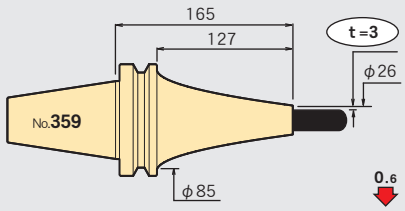
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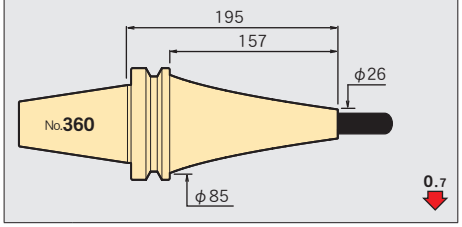
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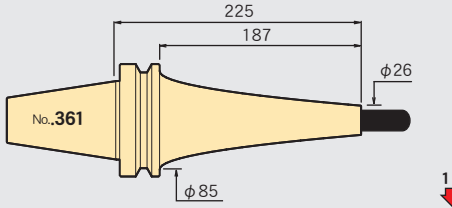
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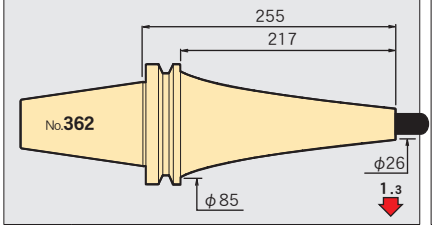
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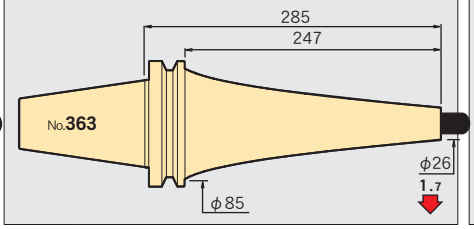
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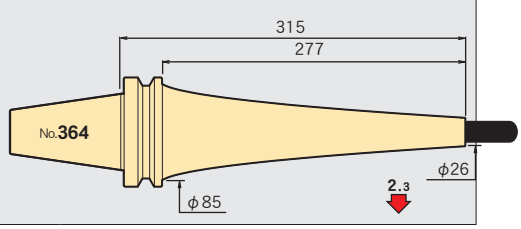
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BT50-SLSB20-285 CV

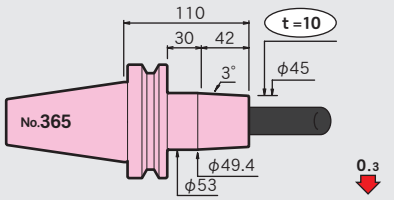


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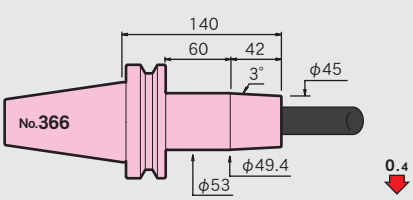


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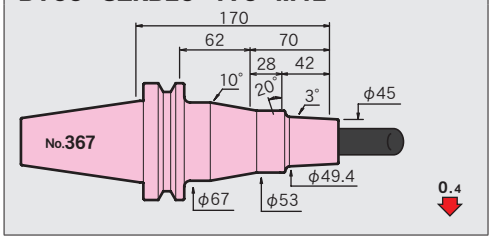
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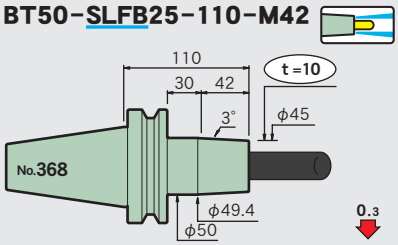
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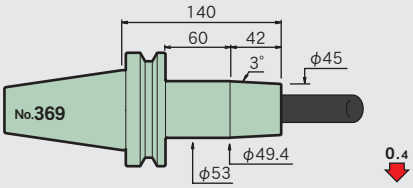
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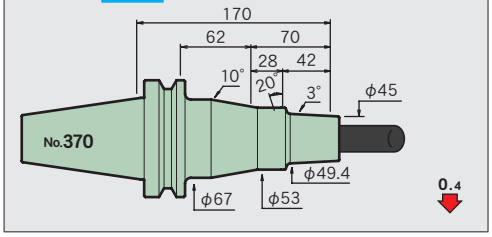
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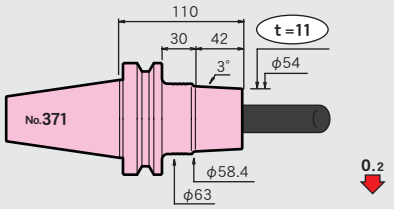


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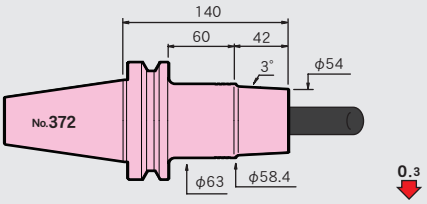


ϕ32

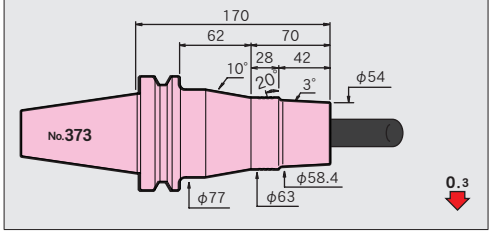
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BT50-SLRB32-140-M42



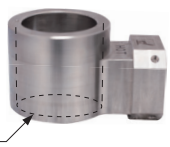
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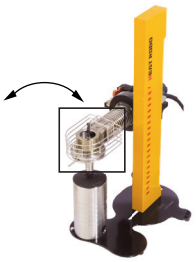


ϕ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70



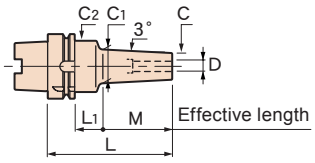


HEAT ROBO Baby3000S

A40

MONO 3°







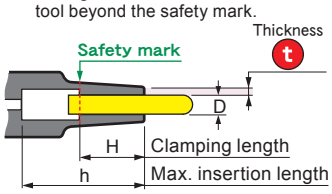
Compatibility table for HRD-01S

[○] Available [×] Not available

■**Std.Access.**
- Coolant duct (fixed type)→P.246

■**Note**
- Swing type coolant ducts are available upon request. For details, please contuct us.

■**Caution**
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.



Thickness

CODE	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg	N	S		Scale model
A40-SLSA3- 60	3	6	1.5	60	22	18	8.3	20	9	44	0.2	1.3	4.8	○	1
- 65-M22				65		23		25			0.3	3	4.5		2
- 85-M42				85	42		10.4			64		3.2	9.1		3
-100-M42				100		38				78		3.3	9.3		4
-SLRA3- 65-M22	3	7.5	2.25	65	22	23	9.8	25	9	44	0.3	3	2.7	○	5
- 85-M42				85	42		11.9			64		3.2	5.3		6
-SLFB3- 65-M22	3	9.5	3.25	65	22	23	11.8	25	9	44	0.3	3	1.2	○	7
- 85-M42				85	42		13.9			64		3.3	3.2		8
A40-SLSA4- 60	4	7	1.5	60	22	18	9.3	20	12	44	0.2	1.4	3.8	○	9
- 65-M22				65		23		25			0.3	3.1	3.5		10
- 80				80	42	18	11.4	20		64	0.2	1.4	7.5		11
- 85-M42				85		23		25			0.3	3.4	7.1		12
-100-M42				100		38				78		3.5	7.4		13
-SLRA4- 65-M22	4	10	3	65	22	23	12.3	25	12	44	0.3	3.1	1.7	○	14
- 85-M42				85	42		14.4			64		3.5	3.1		15
-SLFB4- 65-M22	4	12	4	65	22	23	14.3	25	12	44	0.3	3.2	1.3	○	16
- 85-M42				85	42		16.4			64		3.5	2.2		17
A40-SLSA6- 65-M22	6	9	1.5	65	22	23	11.3	25	18	44	0.3	3.2	2.3	○	18
- 80				80	42	18	13.4	20		54	0.2	1.5	5.1		19
- 85-M42				85		23		25		64	0.3	3.9	4.8		20
-100-M42				100		38				78		4	5.1		21
-SLRA6- 60	6	12	3	60	22	18	14.3	26	18	39	0.3	1.4	1.3	○	22
- 65-M22				65		23		25		44		3.2			23
- 85-M42				85	42		16.4			64		3.9	2.4		24
-SLFB6- 70-M22	6	14	4	70	22	28	16.3	32	18	48	0.4	4.1	1	○	25
- 90-M42				90	42		18.4			68		4.7	1.6		26
A40-SLSA8- 65-M22	8	11	1.5	65	22	23	13.3	25	24	44	0.3	3.2	1.6	○	27
- 85-M42				85	42	23	15.4	25		64		4.3	3.4		28
-100-M42				100		38				78		4.4	3.8		29
-SLRA8- 65-M22	8	14	3	65	22	23	16.3	25	24	44	0.3	3.2	1.1	○	30
- 85-M42				85	42		18.4			64		4.3	2		31
-SLFB8- 70-M22	8	18	5	70	22	28	20.3	32	24	48	0.4	4.1	0.7	×	32
- 90-M42				90	42		22.4			68		5.2	1.1	○	33

SLFB 

MST

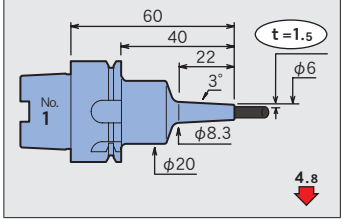
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- 85-M42				85	42		17.4			64		4.6	2.6	
- 90				90		28		26				1.9		
-100-M42				100		38		25		78		4.7	3	
-SLRA10- 65	10	16	3	65	22	23	18.3	26	25	44	0.3	1.6	0.9	○
- 65-M22								25	30			3	1	
- 90-M42				90	42	28	20.4	32		69	0.4	5.4	1.5	
-SLFB10- 70-M22	10	22	6	70	22	28	24.3	32	30	48	0.4	3.9	0.6	×
- 90-M42				90	42		26.4			68	0.5	5.6	0.9	○
A40-SLSA12- 65-M22	12	15	1.5	65	22	23	17.3	25	30	44	0.3	3.3	1.1	○
- 90-M42				90	42	28	19.4	32		68	0.4	6.1	1.9	
-SLRA12- 65-M22	12	20	4	65	22	23	22.3	25	30	44	0.3	3.3	0.8	○
-SLFB12- 70-M22	12	26	7	70	22	28	28.3	32	30	48	0.4	4.2	0.6	×
A40-SLRA16- 65-M22	16	26	5	65	22	23	28.3	33.5	32	43	0.4	2	0.5	
A40-SLRA20- 70-M50	20	32	6	70	50	–	33.5	–	38	48	0.4	2.4	0.6	



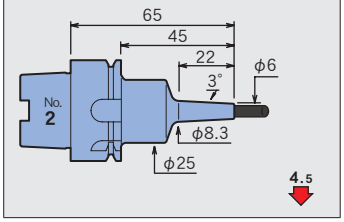
A40 S=1:3

ϕ3

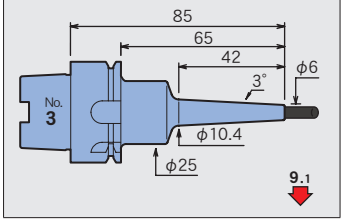
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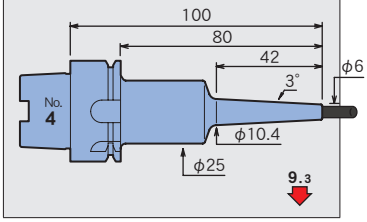
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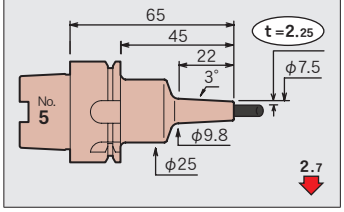
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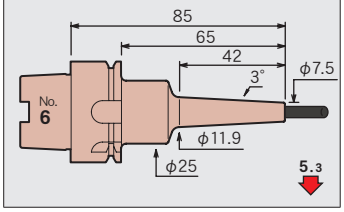
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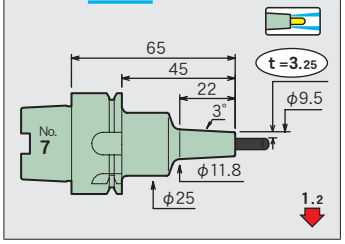
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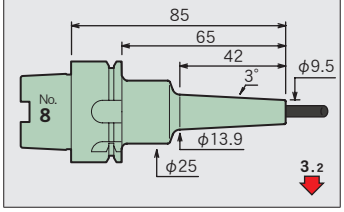
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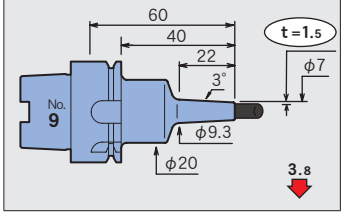


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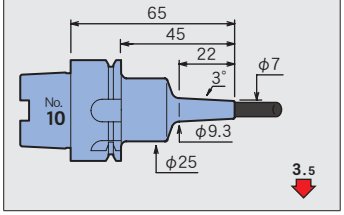


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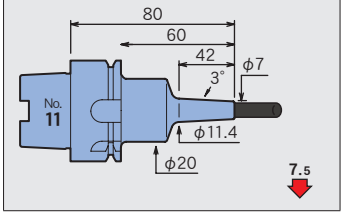
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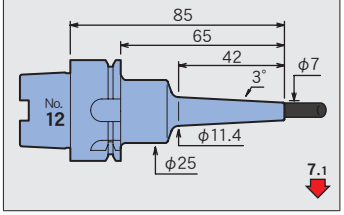
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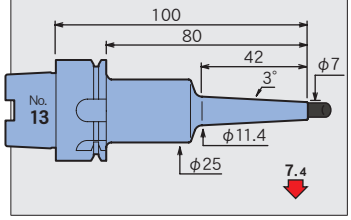
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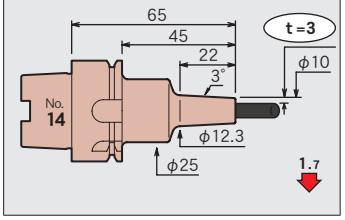
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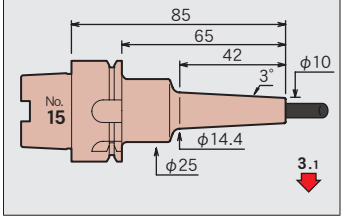
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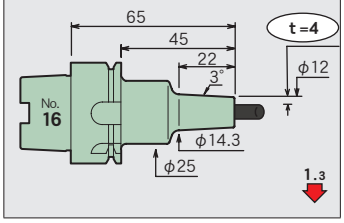
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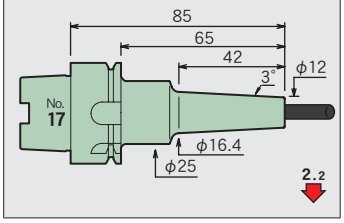
A40-SLRA4-85-M42



A40-SLFB4-65-M22

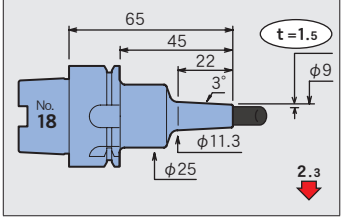


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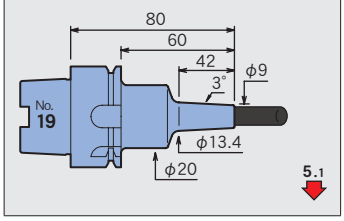


ϕ6

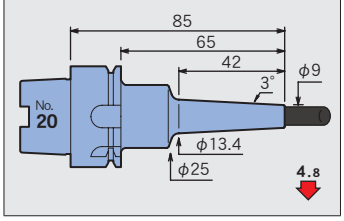
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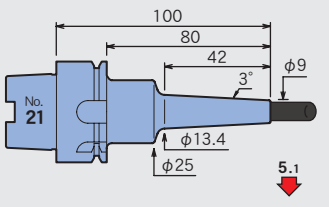
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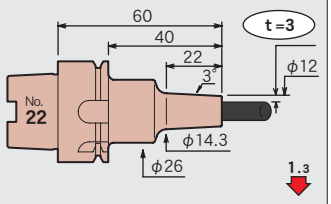
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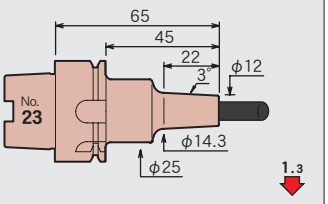
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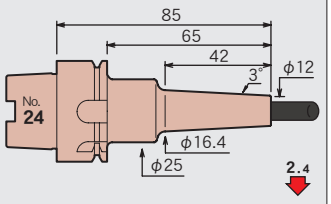
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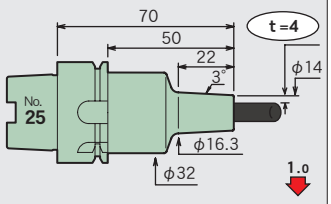
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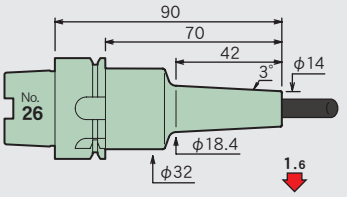
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A40-SLFB6-70-M22

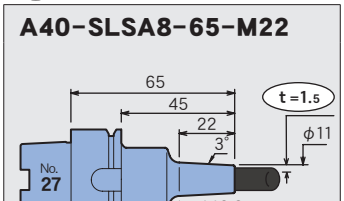


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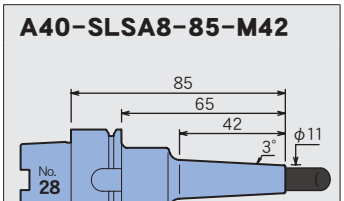


ϕ8

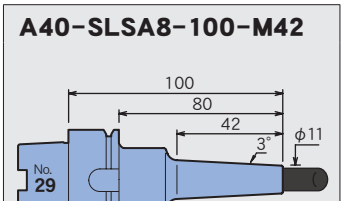
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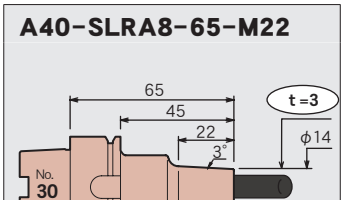
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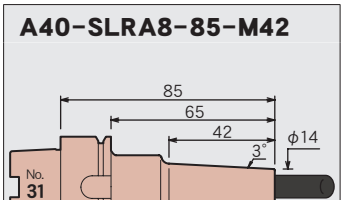
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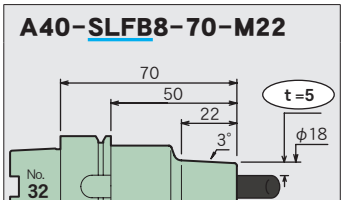
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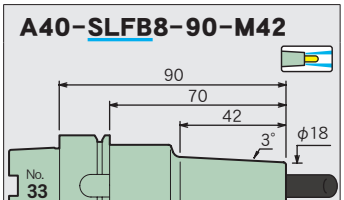
A40-SLRA8-85-M42



A40-SLFB8-70-M22

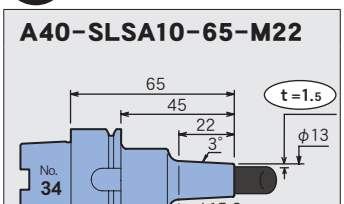


A40-SLFB8-90-M42

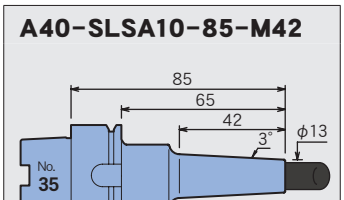


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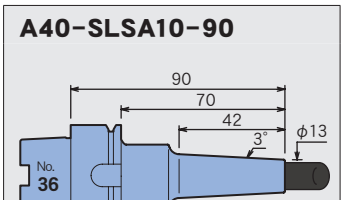
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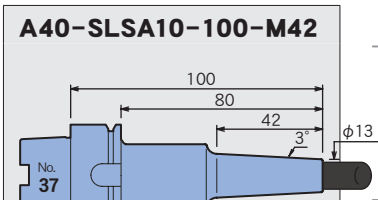
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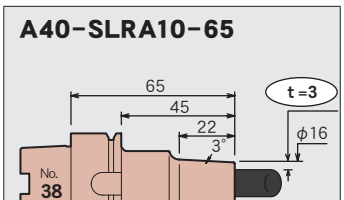
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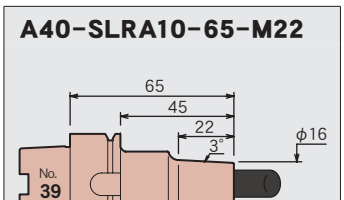
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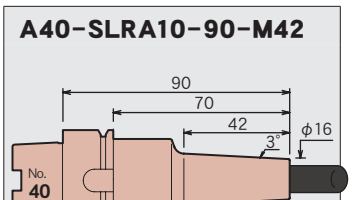
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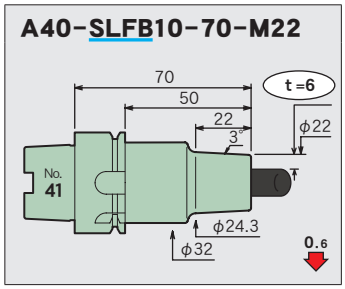


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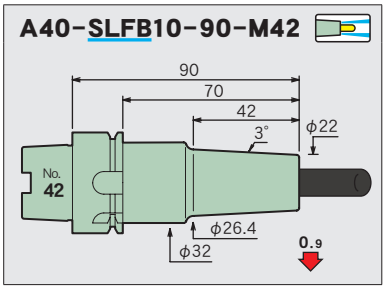


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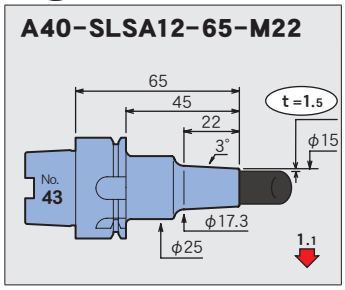
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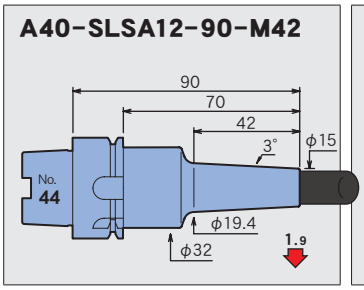
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ϕ12

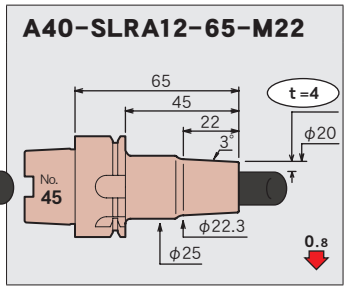
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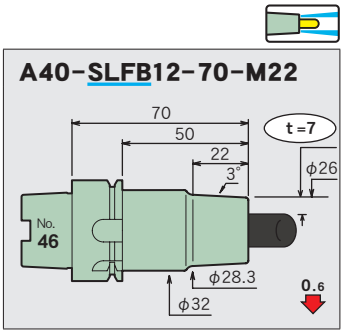
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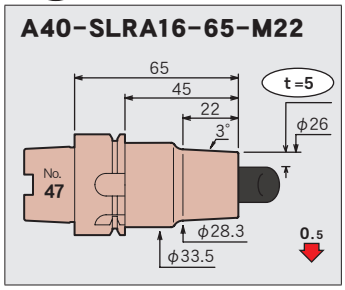


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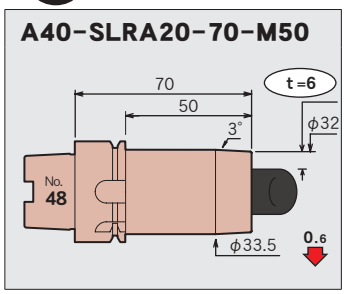
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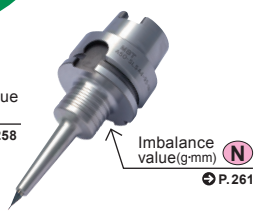


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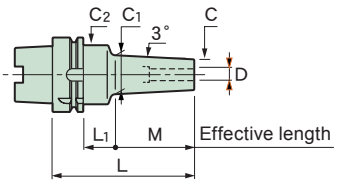
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A50



A50-SLSA4-95-M42





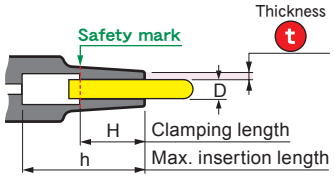
Compatibility table for HRD-01S

[○] Available [×] Not available

■Std.Access.
- Coolant duct (fixed type)→P.246

■Note
- Swing type coolant ducts are available upon request. For details, please contuct us.

■Caution
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.
- The undercut area of the A50M is different from the standards. Please be careful to check for interference with the ATC arm.



Thickness

CODE	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg	N	S		Scale model
A50-SLSA 3- 95-M42	3	6	1.5	95	42	27	10.4	25	9	71	0.5	5.8	9.1	○	1
-125-M42				125		57				101	0.6	6.5	9.8		2
-SLRA 3- 75-M22	3	7.5	2.25	75	22	27	9.8	25	9	51	0.5	6.2	2.8	○	3
- 95-M42				95	42		11.9			71		6.6	5.3		4
-125-M42				125		57				101	0.6	7.3	6		5
A50-SLSA 4- 95-M42	4	7	1.5	95	42	27	11.4	25	12	71	0.5	7	7.2	○	6
-125-M42				125		57				101	0.6	7.7	7.9		7
-SLRA 4- 75-M22	4	10	3	75	22	27	12.3	25	12	51	0.5	6.3	1.7	○	8
- 95-M42				95	42		14.4			71		7	3.1		9
-125-M42				125		57				101	0.6	7.7	3.8		10
A50-SLSA 6- 95-M42	6	9	1.5	95	42	27	13.4	25	18	71	0.5	7.3	4.8	○	11
-125-M42				125		57				101	0.6	8	5.6		12
-SLRB 6- 75-M22	6	14	4	75	22	27	16.3	32	18	50	0.5	7.2	1	○	13
- 95-M42				95	42		18.4			70	0.6	8.9	1.6		14
-125-M42				125		57				100	0.7	10.2	1.9		15
A50-SLSA 8- 95-M42	8	11	1.5	95	42	27	15.4	25	24	71	0.5	9.3	3.4	○	16
-125-M42				125		57				101	0.6	11.8	4.4		17
-SLRB 8- 75-M22	8	18	5	75	22	27	20.3	32	24	50	0.6	7.9	0.7	×	18
- 95-M42				95	42		22.4			70		10.5	1.1	○	19
-125-M42				125		57				100	0.8	11.8	1.5		20
A50-SLSA10- 95-M42	10	13	1.5	95	42	27	17.4	25	30	71	0.5	10.7	2.6	○	21
-125-M42				125		57				101	0.6	12.1	3.7		22
-SLRB10- 75-M22	10	22	6	75	22	27	24.3	32	30	50	0.6	8.3	0.6	×	23
- 95-M42				95	42		26.4			70		11.9	0.9	○	24
-125-M42				125		57				100	0.8	13.3	1.3		25
A50-SLRB12- 75-M22	12	26	7	75	22	27	28.3	42	30	52	0.7	6.2	0.4	×	26
- 95-M42				95	42		30.4			72	0.8	6.3	0.6		27
-125-M42				125		57				98	1	22.9	0.8		28
A50-SLRB16- 75-M22	16	32	8	75	22	27	34.3	42	32	52	0.7	6.3	0.4		29
-105-M22				105		57				78	1	19	0.5		30
A50M-SLRB20- 75-M22※1	20	38	9	75	22	27	40.3	49	40	51	0.8	6.4	0.3		31
-105-M22※1				105		57				76	1.2	15.1	0.4		32

※1 When shrinking the SLRB20 with HEAT ROBO DENJI 5000(HRD-02S), the standard heating coil cannot be used. Please use the heating coil No.4.

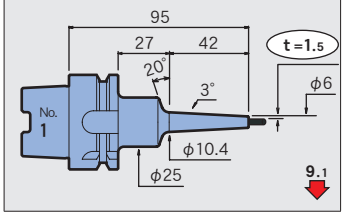
MAKINO J
MAKINO
J3



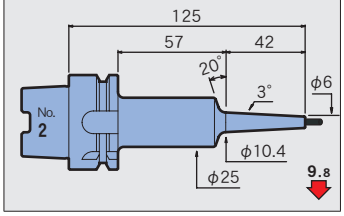
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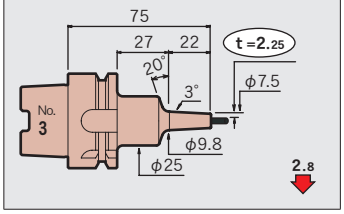
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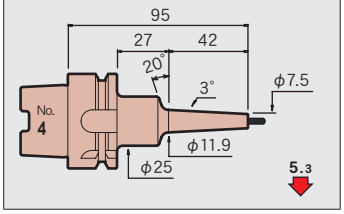
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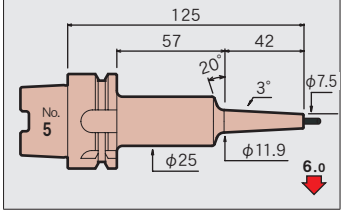
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A50-SLRA3-95-M42

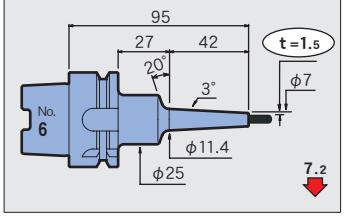


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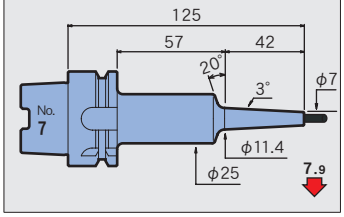


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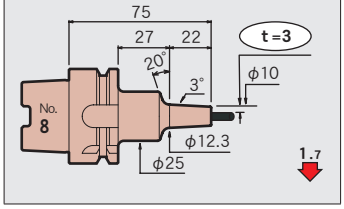
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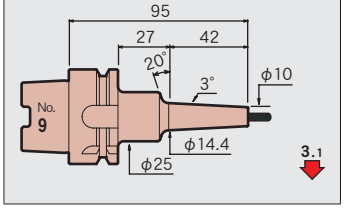
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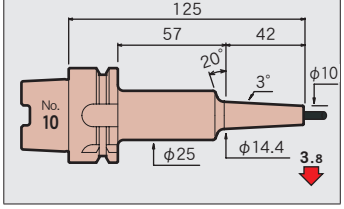
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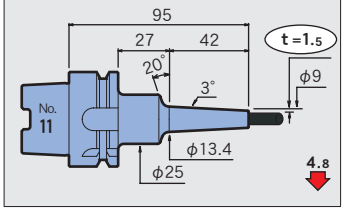


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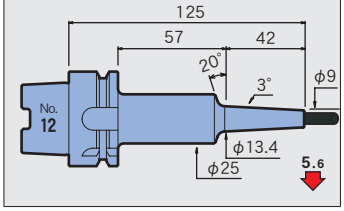


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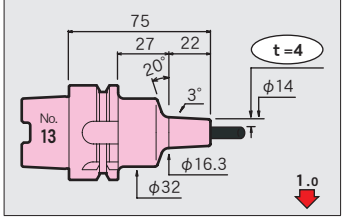
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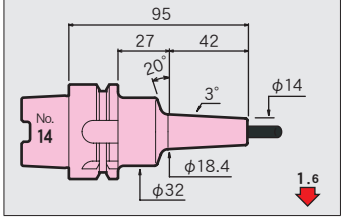
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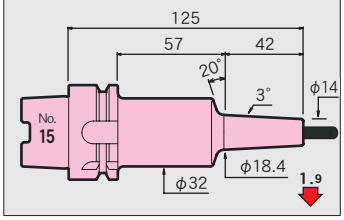
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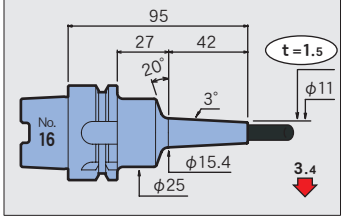


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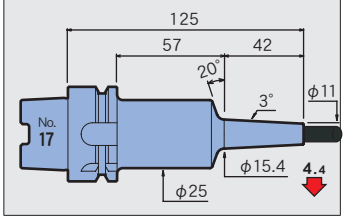


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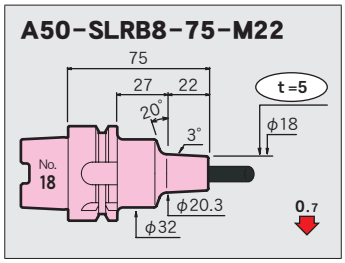
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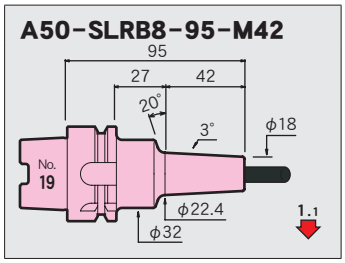
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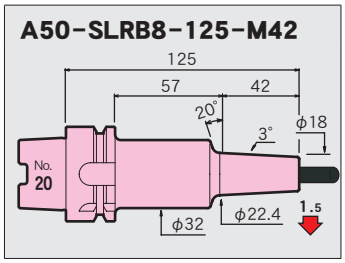
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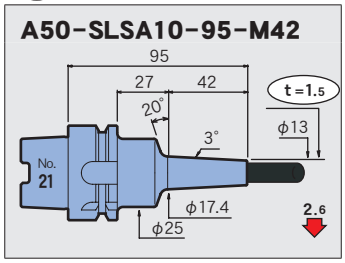


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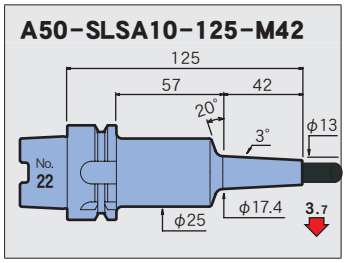


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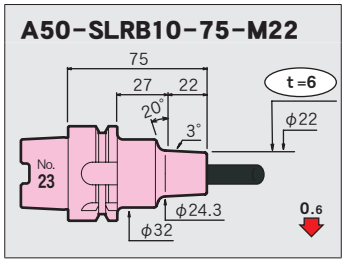
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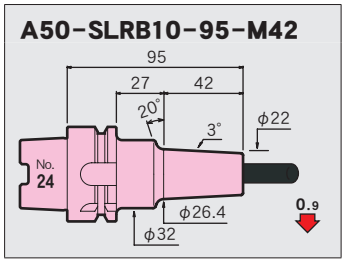
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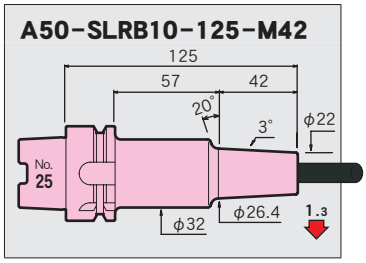
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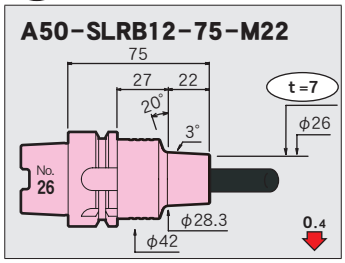


A50-SLRB10-125-M42

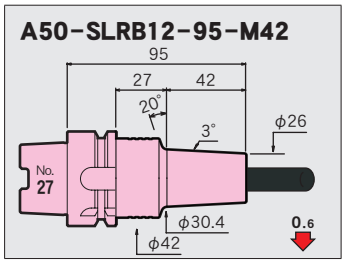


φ12

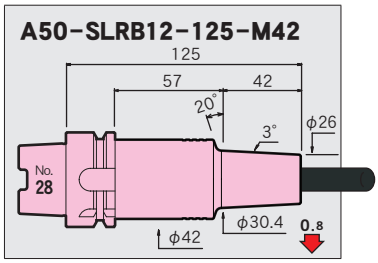
A50-SLRB12-75-M22



A50-SLRB12-95-M42

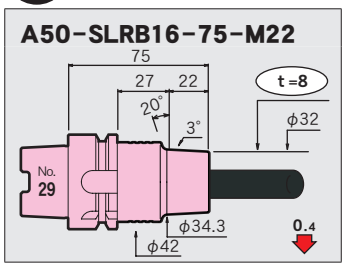


A50-SLRB12-125-M42

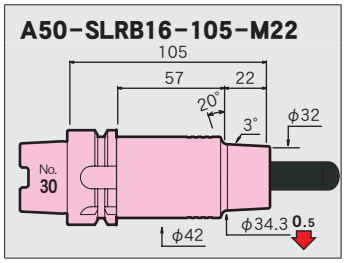


φ16

A50-SLRB16-75-M22

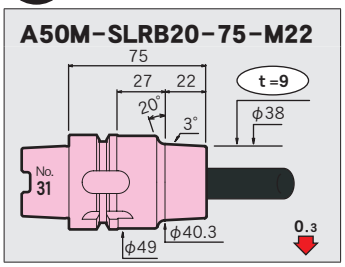


A50-SLRB16-105-M22

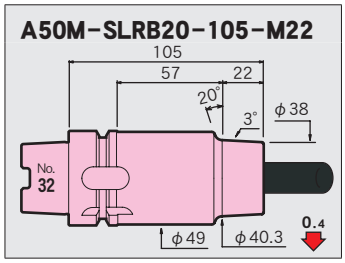


φ20

A50M-SLRB20-75-M22



A50M-SLRB20-105-M22



A63

A63-SLRB12-95-M42



MONO 3°

Rigidity value (μm/kgf) P.258

Imbalance value(g·mm) N P.261

S

Fig. 1

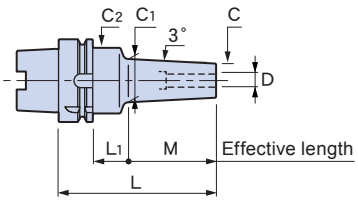
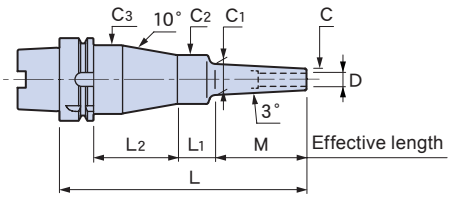


Fig. 2



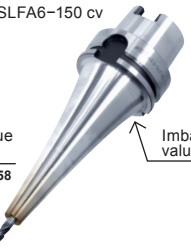


Compatibility table for HRD-01S

[○] Available [×] Not available
[▲] Usable by raising the heating unit.→P.257
[★] Use heating coil No. 2.

A63-SLFA6-150 cv

MONO CURVE

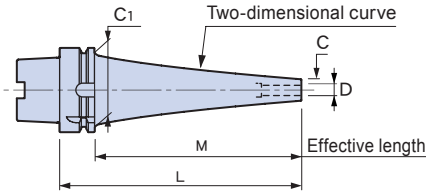


Rigidity value (μm/kgf) P.258

Imbalance value(g·mm) N P.261

S

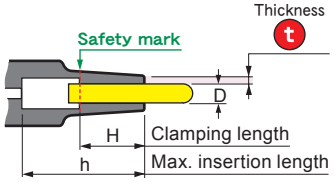
Fig. 3



■**Std.Access.**
- Coolant duct (fixed type) →p.246

■**Note**
- Swing type coolant ducts are available upon request. →P.246

■**Caution**
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.



CV : Curve

Thickness

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg	N	S		Scale model
A63-SLSA3- 95-M 42	1	3	6	1.5	95	42	27	—	10.4	25	—	9	70	0.7	8.1	9.1	○	1
-120-M 67					120	67			13				95	0.8	9.2	14.7		4
-125-M 42					125	42	57		10.4	26			100	0.9	8.2	9.6		2
-150-M 67					150	67			13	25			125	0.8	9.3	15.8		5
-M 97						97	27		16.2						10.5	20.5		7
-155-M 42	2				155	42	33	54	10.4	26	40		130	1.2	8.4	9.9		3
-180-M 67					180	67			13	25	39		155	1.1	9.6	15.7		6
-M 97	1					97	57	—	16.2		—			0.9	10.6	22.2		8
-210-M 97	2				210		33	54		25	39		185	1.2	10.8	22.1		9
-SLRA3- 75-M 22	1	3	7.5	2.25	75	22	27	—	9.8	25	—	9	50	0.7	8.4	2.8	○	10
- 95-M 42					95	42			11.9				70		8.9	5.3		13
-105-M 22					105	22	57		9.8				80	0.8	8.6	3.2		11
-120-M 67					120	67	27		14.5				95		9.6	8.8		16
-125-M 42					125	42	57		11.9				100		9	6		14
-135-M 22	2				135	22	33	54	9.8		39		110	1.1	8.8	3.2		12
-150-M 67	1				150	67	57	—	14.5		—		125	0.9	9.8	9.9		17
-M 97						97	27		17.7					0.8	10.6	12.9		19
-155-M 42	2				155	42	33	54	11.9	25	39		130	1.1	9.2	6		15
-180-M 67					180	67			14.5	26	40		155	1.2	10	9.8		18
-M 97	1					97	57	—	17.7	25	—			0.9	10.8	14.6		20
-M127						127	27		20.8	36					12.6	15.7		22
-210-M 97	2				210	97	33	54	17.7	25	39		185	1.2	11	14.4		21
-M127	1					127	57	—	20.8	32	—		184	1.1	12.8	16.6		23
-240-M127	2				240		30	57			46		214	1.5	13.2	16.5		24

MST

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg	N	S		Scale model
A63-SLFB3- 75-M 22	1	3	9.5	3.25	75	22	27	—	11.8	25	—	9	50	0.7	8.1	1.9	○	25
- 95-M 42					95	42			13.9				70	0.8	8.5	3.2		28
-105-M 22					105	22	57		11.8	26			80	0.9	8.2	2.3		26
-120-M 67					120	67	27		16.5				95	0.8	9.7	5.3		31
-125-M 42					125	42	57		13.9				100	0.9	8.7	3.8		29
-135-M 22	2				135	22	33	54	11.8		40		110	1.2	8.5	2.3		27
-150-M 67	1				150	67	57	—	16.5		—		125	0.9	9.8	6.3		32
-155-M 42	2				155	42	33	54	13.9	25	39		130	1.1	8.9	3.9		30
-180-M 67					180	67			16.5	26	40		155	1.2	10	6.3		33
A63-SLSA4- 95-M 42	1	4	7	1.5	95	42	27	—	11.4	25	—	12	70	0.7	9.2	7.2	○	34
-120-M 67					120	67			14				95	0.8		11.7		37
-125-M 42					125	42	57		11.4				100		9.4	7.9		35
-150-M 67					150	67			14				125	0.9		12.8		38
-M 97						97	27		17.2					0.8	10.6	16.6		40
-155-M 42	2				155	42	33	54	11.4		39		130	1.1	9.6	7.9		36
-180-M 67					180	67			14				155			12.8		39
-M 97	1					97	57	—	17.2		—			0.9	10.8	18.4		41
-210-M 97	2				210		33	54			39		185	1.2	11	18.2		42
-SLRA4- 75-M 22	1	4	10	3	75	22	27	—	12.3	25	—	12	50	0.7	8.6	1.7	○	43
- 95-M 42					95	42			14.4				70	0.8	9.2	3.1		46
-105-M 22					105	22	57		12.3				80		8.7	2.2		44
-120-M 67					120	67	27		17				95		10.3	5.1		49
-125-M 42					125	42	57		14.4				100		9.3	3.8		47
-135-M 22	2				135	22	33	54	12.3		39		110	1.1	8.9	2.2		45
-150-M 67	1				150	67	57	—	17		—		125	0.9	10.4	6.3		50
-M 97						97	27		20.2				124	0.8	11.7	7.7		52
-155-M 42	2				155	42	33	54	14.4		39		130	1.1	9.6	3.8		48
-180-M 67					180	67			17				155	1.2	10.7	6.2		51
-M 97	1					97	57	—	20.2		—		154	0.9	11.8	9.5		53
-M127						127	27		23.3	32				1	14.8	9.4		55
-210-M 97	2				210	97	33	54	20.2	26	40		185	1.3	12.1	9.1		54
-M127	1					127	57	—	23.3	36	—			1.2	15.1	9.9		56
-240-M127	2				240		30	57		32	46		214	1.5	15.4	10.3		57
-SLFB4- 75-M 22	1	4	12	4	75	22	27	—	14.3	25	—	12	50	0.7	8.4	1.3	○	58
- 95-M 42					95	42			16.4				70	0.8	9	2.2		61
-105-M 22					105	22	57		14.3				80		8.5	1.8		59
-120-M 67					120	67	27		19				95		10.3	3.6		64
-125-M 42					125	42	57		16.4				100	0.9	9.1	2.9		62
-135-M 22	2				135	22	33	54	14.3		39		110	1.1	8.7	1.8		60
-150-M 67	1				150	67	57	—	19		—		125	0.9	10.4	4.7		65
-155-M 42	2				155	42	33	54	16.4		39		130	1.1	9.4	2.9		63
-180-M 67					180	67			19				155	1.2	10.6	4.6		66
-SLSA4- 90 CV	3	4	7	1.5	90	64	—	—	53	—	—	12	65	1	9.3	1.8	○	67
-120 CV					120	94							95	1.1	10.1	2.7		68
-150 CV					150	124							125	1.3	11	4		69
-180 CV					180	154							154	1.4	11.6	6.6		70
-210 CV					210	184							185		11.8	11.6		71
-240 CV					240	214							214	1.6	13.1	14		72
-270 CV					270	244							245	2	15.4	11.9		73
-300 CV					300	274							275	2.1	16.3	15.9		74
-SLRA4-120 CV	3	4	10	3	120	94	—	—	53	—	—	12	95	1	8.6	1.9	○	75
-150 CV					150	124							125	1.1	9.3	2.9		76
-180 CV					180	154							155	1.4	10.9	3.3		77
-210 CV					210	184							185		11.3	5.6		78

A63

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S		Scale model
A63-SLSA3/16- 90 CV	3	3/16	.31	.06	3.54	2.52	—	—	2.87	—	—	.59	2.56	1.9	7.6	2	○	79
-120 CV					4.72	3.70							3.74	2.2	8.5	2.6		80
-150 CV					5.91	4.88							4.92	2.5	9.4	4		81
-180 CV					7.09	6.06							6.06	2.7	10.3	6.5		82
-210 CV					8.27	7.24							7.24	3.1	11.8	8.4		83
-240 CV					9.45	8.43							8.43	3.5	12.9	10.6		84
-270 CV					10.63	9.61							9.61	4.0	14.2	13.2		85
-300 CV					11.81	10.79							10.83	4.5	15.1	16.1		86
-SLRA3/16-120 CV	3	3/16	.42	.12	4.72	3.70	—	—	2.87	—	—	.59	3.70	2.2	8.7	1.8	○	87
-150 CV					5.91	4.88							4.88	2.6	10	2.4		88
-180 CV					7.09	6.06							6.10	2.8	10.2	4.3		89
-210 CV					8.27	7.24							7.24	3.1	12	5.7		90
A63-SLSA6- 95-M 42	1	6	9	1.5	95	42	27	—	13.4	25	—	18	70	0.7	9.5	4.8	○	91
-120-M 67					120	67			16				95	0.8	11.1	8		94
-125-M 42					125	42	57		13.4				100		9.7	5.6		92
-150-M 67					150	67			16				125	0.9	11.2	9.3		95
-M 97						97	27		19.2	32			124		13.4	11		97
-155-M 42	2				155	42	33	54	13.4	25	39		130	1.1	9.9	5.6		93
-180-M 67					180	67			16				155		11.5	9.2		96
-M 97	1					97	57	—	19.2	32	—		154	1	13.6	11.7		98
-210-M 97	2				210		30	57			46		184	1.4	14			99
-SLSB6- 95-M 42	1	6	10	2	95	42	27	—	14.4	25	—	18	70	0.7	10.5	3.7	○	100
-120-M 67					120	67			17				95	0.8	12.6	6.2		103
-125-M 42					125	42	57		14.4				100		10.6	4.5		101
-150-M 67					150	67			17				125	0.9	12.7	7.4		104
-M 97						97	27		20.2	32			124		15.4	8.5		106
-155-M 42	2				155	42	33	54	14.4	25	39		130	1.1	10.9	4.4		102
-180-M 67					180	67			17				155		12.9	7.3		105
-M 97	1					97	57	—	20.2	32	—		154	1	15.7	9.2		107
-M127						127	27		23.3					0.9	17.9	11		109
-210-M 97	2				210	97	30	57	20.2		46		184	1.4	16	9.2		108
-M127	1					127	57	—	23.3		—			1.1	18.2	12		110
-M157						157	27		26.5						20.4	13.2		112
-240-M127	2				240	127	30	57	23.3		46		214	1.5	18.5	12		111
-M157	1					157	57	—	26.5		—			1.2	20.7	14.6		113
-270-M157	2				270		30	57			46		244	1.6	21		▲	114
-SLRB6- 75-M 22	1	6	14	4	75	22	27	—	16.3	32	—	18	49	0.8	9.3	1	○	115
- 95-M 42					95	42			18.4				69		10.9	1.6		118
-105-M 22					105	22	57		16.3				79	0.9	9.5	1.2		116
-120-M 67					120	67	27		21				94		13	2.6		121
-125-M 42					125	42	57		18.4				99	1	11.2	1.9		119
-135-M 22	2				135	22	30	57	16.3		46		109	1.3	9.9	1.2		117
-150-M 67	1				150	67	57	—	21		—		124	1	13.2	3		122
-155-M 42	2				155	42	30	57	18.4		46		129	1.4	11.5	1.9		120
-180-M 67					180	67			21				154		13.6	3.1		123
-SLFB6- 75-M 22	1	6	14	4	75	22	27	—	16.3	32	—	18	49	0.8	9.3	1	○	124
- 95-M 42					95	42			18.4				69		10.9	1.6		127
-105-M 22					105	22	57		16.3				79	0.9	9.5	1.2		125
-120-M 67					120	67	27		21				94		13	2.6		130
-125-M 42					125	42	57		18.4				99	1	11.2	1.9		128
-135-M 22	2				135	22	30	57	16.3		46		109	1.3	9.9	1.2		126
-150-M 67	1				150	67	57	—	21		—		124	1	13.2	3		131
-155-M 42	2				155	42	30	57	18.4		46		129	1.4	11.5	1.9		129
-180-M 67					180	67			21				154		13.6	3.1		132

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S		Scale model
A63-SLSA 6- 90 CV	3	6	9	1.5	90	64	—	—	53	—	—	18	65	1	9.4	1.6	○	133
-120 CV					120	94							95	1.1	10.1	2.3		134
-150 CV					150	124							125	1.3	11	3.6		135
-180 CV					180	154							154	1.4	11.7	5.7		136
-210 CV					210	184							184	1.6	13	7.3		137
-240 CV					240	214							214		13.3	12		138
-270 CV					270	244							245	2.1	16.3	8.5	▲	139
-300 CV					300	274							275	2.3	17.2	11.7		140
-SLRA 6- 90 CV	3	6	13	3.5	90	64	—	—	53	—	—	18	65	1	8.3	0.8	★	141
-120 CV					120	94							95	1.1	9.3	1.2		142
-150 CV					150	124							125	1.3	10.1	1.9	○	143
-180 CV					180	154							155	1.4	11.1	2.8		144
-210 CV					210	184							185		11.5	4.8		145
-SLFA 6- 90 CV	3	6	13	3.5	90	64	—	—	53	—	—	18	65	1	8.3	0.8	★	146
-120 CV					120	94							95	1.1	9.3	1.2		147
-150 CV					150	124							125	1.3	10.1	1.9	○	148
-180 CV					180	154							155	1.4	11.1	2.8		149
-210 CV					210	184							185		11.5	4.8		150
A63-SLSA1/4- 90 CV	3	1/4	.37	.06	3.54	2.52	—	—	2.87	—	—	.71	2.56	1.9	7.7	1.6	○	151
-120 CV					4.72	3.70							3.74	2.2	8.5	2.4		152
-150 CV					5.91	4.88							4.92	2.5	9.4	3.7		153
-180 CV					7.09	6.06							6.10	2.8	10.4	5.5		154
-210 CV					8.27	7.24							7.24	3.1	12.1	7.5		155
-240 CV					9.45	8.43							8.43	3.5	13.2	9.6		156
-270 CV					10.63	9.61							9.65	4.1	14.2	11.3	▲	157
-300 CV					11.81	10.79							10.79	4.7	16.9	11.8		158
-SLRA1/4- 90 CV	3	1/4	.53	.14	3.54	2.52	—	—	2.87	—	—	.71	2.52	2.1	8.4	0.8	○	159
-120 CV					4.72	3.70							3.74	2.5	9.2	1.2		160
-150 CV					5.91	4.88							4.92	2.8	10.2	1.9		161
-180 CV					7.09	6.06							6.06	3.1	11.6	2.9		162
-210 CV					8.27	7.24							7.24	3.2	12.2	4.9		163
-SLFA1/4- 90 CV	3	1/4	.53	.14	3.54	2.52	—	—	2.87	—	—	.71	2.52	2.1	8.4	0.8	○	164
-120 CV					4.72	3.70							3.74	2.5	9.2	1.2		165
-150 CV					5.91	4.88							4.92	2.8	10.2	1.9		166
-180 CV					7.09	6.06							6.06	3.1	11.6	2.9		167
-210 CV					8.27	7.24							7.24	3.2	12.2	4.9		168
A63-SLSA8- 95-M 42	1	8	11	1.5	95	42	27	—	15.4	25	—	24	70	0.7	11.4	3.4	○	169
-120-M 67					120	67			18	32			94	0.8	14	5.4		172
-125-M 42					125	42	57		15.4	25			100		11.6	4.3		170
-150-M 67					150	67			18	32			124	1	14.2	5.9		173
-M 97						97	27		21.2					0.9	17.1	7.9		175
-155-M 42	2				155	42	33	54	15.4	25	39		130	1.1	12	4.3		171
-180-M 67					180	67	30	57	18	32	46		154	1.4	14.6	5.9		174
-M 97	1					97	57	—	21.2		—			1	17.4	8.7		176
-210-M 97	2				210		30	57			46		184	1.4	17.7			177
-SLSB8- 95-M 42	1	8	13	2.5	95	42	27	—	17.4	32	—	24	69	0.8	12.5	2.1	○	178
-120-M 67					120	67			20				94	0.9	15.7	3.5		181
-125-M 42					125	42	57		17.4				99	1	12.7	2.4		179
-150-M 67					150	67			20				124		15.9	4		182
-M 97						97	27		23.2					0.9	19.5	5.2		184
-155-M 42	2				155	42	30	57	17.4		46		129	1.4	13.1	2.4		180
-180-M 67					180	67			20				154		16.3	4		183
-M 97	1					97	57	—	23.2		—			1.1	19.8	6		185
-M127						127	27		26.3					1	23.4	7		187
-210-M 97	2				210	97	30	57	23.2		46		184	1.5	20.2	6		186
-M127	1					127	57	—	26.3		—			1.2	23.7	8.1		188
-M157						157	27		29.5	42			185		27.3	8		190
-240-M127	2				240	127	30	57	26.3	32	46		214	1.6	24	8.1	▲	189
-M157	1					157	57	—	29.5	42	—			1.5	27.5	8.6		191
-270-M157	2				270		28	59			53		242	2	27.9	8.7		192

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S		Scale model
A63-SLRB8- 75-M 22	1	8	18	5	75	22	27	—	20.3	32	—	24	49	0.8	10	0.7	×	193
- 95-M 42					95	42			22.4				69	0.9	12.5	1.1	○	196
-105-M 22					105	22	57		20.3				79	1	10.2	0.9	×	194
-120-M 67					120	67	27		25				94	0.9	15.7	1.7	○	199
-125-M 42					125	42	57		22.4				99	1	12.8	1.4		197
-135-M 22	2				135	22	30	57	20.3		46		109	1.4	10.6	1	×	195
-150-M 67	1				150	67	57	—	25		—		124	1.1	16	2.2	○	200
-155-M 42	2				155	42	30	57	22.4		46		129	1.4	13.2	1.4		198
-180-M 67					180	67			25				155	1.5	16.4	2.2		201
-SLFB8- 75-M 22	1	8	18	5	75	22	27	—	20.3	32	—	24	49	0.8	10	0.7	×	202
- 95-M 42					95	42			22.4				69	0.9	12.5	1.1	○	205
-105-M 22					105	22	57		20.3				79	1	10.2	0.9	×	203
-120-M 67					120	67	27		25				94	0.9	15.7	1.7	○	208
-125-M 42					125	42	57		22.4				99	1	12.8	1.4		206
-135-M 22	2				135	22	30	57	20.3		46		109	1.4	10.6	1	×	204
-150-M 67	1				150	67	57	—	25		—		124	1.1	16	2.2	○	209
-155-M 42	2				155	42	30	57	22.4		46		129	1.4	13.2	1.4		207
-180-M 67					180	67			25				154	1.5	16.4	2.2		210
-SLSA 8- 90 CV	3	8	11	1.5	90	64	—	—	53	—	—	24	65	1	9.4	1.4	○	211
-120 CV					120	94							94	1.1	10.3	2		212
-150 CV					150	124							124	1.3	11.5	2.7		213
-180 CV					180	154							155	1.4	11.8	5		214
-210 CV					210	184							184	1.6	13.2	6.6	▲	215
-240 CV					240	214							214	1.8	14.4	8.3		216
-270 CV					270	244							244	2.2	17.2	6.9		217
-300 CV					300	274							274	2.4	18.5	8.9		218
-SLRA 8- 90 CV	3	8	16	4	90	64	—	—	53	—	—	24	65	1	8.4	0.7	○	219
-120 CV					120	94							95	1.2	9.6	1		220
-150 CV					150	124							125	1.4	10.8	1.4		221
-180 CV					180	154							155	1.5	12	2		222
-210 CV					210	184							185	1.6	12.5	3.5		223
-SLFA 8- 90 CV	3	8	16	4	90	64	—	—	53	—	—	24	65	1	8.4	0.7	○	224
-120 CV					120	94							95	1.2	9.6	1		225
-150 CV					150	124							125	1.4	10.8	1.4		226
-180 CV					180	154							155	1.5	12	2		227
-210 CV					210	184							185	1.6	12.5	3.5		228
A63-SLSA5/16- 90 CV	3	5/16	.43	.06	3.54	2.52	—	—	2.87	—	—	.94	2.56	1.9	7.7	1.5	○	229
-120 CV					4.72	3.70							3.70	2.2	8.9	2		230
-150 CV					5.91	4.88							4.88	2.6	10.2	2.8		231
-180 CV					7.09	6.06							6.10	2.7	10.4	5.2		232
-210 CV					8.27	7.24							7.17	3.1	13.6	6		233
-240 CV					9.45	8.43							8.43	3.8	14.5	6.8	▲	234
-270 CV					10.63	9.61							9.65	4.4	15.1	8.5		235
-300 CV					11.81	10.79							10.79	5.0	18.1	9		236
-SLRA5/16- 90 CV	3	5/16	.63	.16	3.54	2.52	—	—	2.87	—	—	.94	2.52	2.1	8.4	0.7	○	237
-120 CV					4.72	3.70							3.70	2.6	9.8	1		238
-150 CV					5.91	4.88							4.88	3.0	11.1	1.5		239
-180 CV					7.09	6.06							6.06	3.4	12.5	2.1		240
-210 CV					8.27	7.24							7.24	3.5	13.4	3.6		241
-SLFA5/16- 90 CV	3	5/16	.63	.16	3.54	2.52	—	—	2.87	—	—	.94	2.52	2.1	8.4	0.7	○	242
-120 CV					4.72	3.70							3.70	2.6	9.8	1		243
-150 CV					5.91	4.88							4.88	3.0	11.1	1.5		244
-180 CV					7.09	6.06							6.06	3.4	12.5	2.1		245
-210 CV					8.27	7.24							7.24	3.5	13.4	3.6		246

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg	N	S		Scale model
A63-SLSA10- 95-M 42	1	10	13	1.5	95	42	27	—	17.4	25	—	30	70	0.8	12.8	2.6	○	247
-120-M 67					120	67			20	32			94		16.6	4		250
-125-M 42					125	42	57		17.4	25			100		13	3.6		248
-150-M 67					150	67			20	32			124	1	16.9	4.6		251
-M 97						97	27		23.2					0.9	21.3	6		253
-155-M 42	2				155	42	33	54	17.4	25	39		130	1.1	13.4	3.5		249
-180-M 67					180	67	30	57	20	32	46		154	1.4	17.3	4.6		252
-M 97	1					97	57	—	23.2	36	—		153	1.2	21.6	6.4		254
-210-M 97	2				210		30	57		32	46		184	1.5	21.9	6.9		255
-SLSB10- 95-M 42	1	10	16	3	95	42	27	—	20.4	32	—	30	69	0.8	13.9	1.4	○	256
-120-M 67					120	67			23				94	0.9	18.5	2.4		259
-125-M 42					125	42	57		20.4				99	1	14.2	1.8		257
-150-M 67					150	67			23				124		18.8	3		260
-M 97						97	27		26.2						24	3.6		262
-155-M 42	2				155	42	28	59	20.4	36	50		128	1.6	14.6	1.7		258
-180-M 67					180	67	30	57	23	32	46		154	1.4	19.2	3		261
-M 97	1					97	57	—	26.2		—			1.1	24.3	4.5		263
-M127						127	27		29.3	42			155	1.2	30.2			265
-210-M 97	2				210	97	28	59	26.2	36	50		180	1.7	24.7	4.1		264
-M127	1					127	57	—	29.3	42	—		182	1.4	31	4.9		266
-M157						157	27		32.5				185	1.3	35.7	5.6		268
-240-M127					240	127	87		29.3				215	2.0	31.8	4.9	▲	267
-M157						157	57		32.5					1.8	36.5	5.8		269
-270-M157	2				270		28	59			53		245	2.1	37.4	6.2		270
SLRB10- 75-M 22	1	10	22	6	75	22	27	—	24.3	32	—	30	49	0.8	10.3	0.6	×	271
- 95-M 42					95	42			26.4				68	0.9	14	0.8	○	274
-105-M 22					105	22	57		24.3				79	1	10.6		×	272
-120-M 67					120	67	27		29	42			94	1.1	18.6	1.1	○	277
-125-M 42					125	42	57		26.4	32			99		14.2	1.2		275
-135-M 22	2				135	22	30	57	24.3		46		109	1.4	10.9	0.9	×	273
-150-M 67	1				150	67	57	—	29	42	—		124	1.3	18.9	1.3	○	278
-155-M 42	2				155	42	30	57	26.4	32	46		129	1.5	14.6	1.2		276
-180-M 67					180	67	28	59	29	42	53		154	1.8	19.2	1.3		279
-SLFB10- 75-M 22	1	10	22	6	75	22	27	—	24.3	32	—	30	49	0.8	10.3	0.6	×	280
- 95-M 42					95	42			26.4				69	0.9	14	0.8	○	283
-105-M 22					105	22	57		24.3				79	1	10.6	0.8	×	281
-120-M 67					120	67	27		29	42			94	1.1	18.6	1.1	○	286
-125-M 42					125	42	57		26.4	32			99		14.2	1.2		284
-135-M 22	2				135	22	30	57	24.3		46		109	1.4	10.9	0.9	×	282
-150-M 67	1				150	67	57	—	29	42	—		124	1.3	18.9	1.3	○	287
-155-M 42	2				155	42	30	57	26.4	32	46		129	1.5	14.6	1.2		285
-180-M 67					180	67	28	59	29	42	53		154	1.8	19.2	1.3		288
-SLSA10- 90 CV	3	10	13	1.5	90	64	—	—	53	—	—	30	65	1	9.4	1.3	○	289
-120 CV					120	94							95	1.3	10.9			290
-150 CV					150	124							125	1.4	11.8	2.2		291
-180 CV					180	154							154	1.6	12.9	3.4		292
-210 CV					210	184							184		13.3	6		293
-240 CV					240	214							212	2.1	16	5.8	▲	294
-270 CV					270	244							244		17.5	6.6		295
-300 CV					300	274							274	2.3	18.7	8.6		296

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S		Scale model
A63-SLRA10- 90 CV	3	10	19	4.5	90	64	—	—	53	—	—	30	65	1	8.5	0.6	×	297
-120 CV					120	94							95	1.2	9.6	0.9	○	298
-150 CV					150	124							125	1.3	10.9	1.4		299
-180 CV					180	154							155	1.5	12.1	2		300
-210 CV					210	184							185	1.6	13.3	3.1		301
-SLFA10- 90 CV	3	10	19	4.5	90	64	—	—	53	—	—	30	65	1	8.5	0.6	×	302
-120 CV					120	94							95	1.2	9.6	0.9	○	303
-150 CV					150	124							125	1.3	10.9	1.4		304
-180 CV					180	154							155	1.5	12.1	2		305
-210 CV					210	184							185	1.6	13.3	3.1		306
A63-SLSA3/8- 90 CV	3	3/8	.49	.06	3.54	2.52	—	—	2.87	—	—	1.18	2.56	1.9	7.7	1.3	○	307
-120 CV					4.72	3.70							3.74	2.2	8.7	2.2		308
-150 CV					5.91	4.88							4.88	2.6	10.4	2.6		309
-180 CV					7.09	6.06							6.06	3.0	11.8	3.6		310
-210 CV					8.27	7.24							7.24	3.4	13.4	4.9		311
-240 CV					9.45	8.43							8.46	4.0	14.2	6	▲	312
-270 CV					10.63	9.61							9.61	4.5	17.1	6.8		313
-300 CV					11.81	10.79							10.79	5.0	18.5	8.8		314
-SLRA3/8- 90 CV	3	3/8	.73	.185	3.54	2.52	—	—	2.87	—	—	1.18	2.52	2.1	8.4	0.7	×	315
-120 CV					4.72	3.70							3.70	2.6	9.7	1	○	316
-150 CV					5.91	4.88							4.88	3.0	11.2	1.4		317
-180 CV					7.09	6.06							6.06	3.4	12.7	2		318
-210 CV					8.27	7.24							7.28	3.8	13.2	2.9		319
-SLFA3/8- 90 CV	3	3/8	.73	.185	3.54	2.52	—	—	2.87	—	—	1.18	2.52	2.1	8.4	0.7	×	320
-120 CV					4.72	3.70							3.70	2.6	9.7	1	○	321
-150 CV					5.91	4.88							4.88	3.0	11.2	1.4		322
-180 CV					7.09	6.06							6.06	3.4	12.7	2		323
-210 CV					8.27	7.24							7.28	3.8	13.2	2.9		324
A63-SLSA12- 95-M 42	1	12	15	1.5	95	42	27	—	19.4	32	—	30	69	0.8	15.2	1.8	○	325
-120-M 67					120	67			22				94		20.6	3.3		328
-125-M 42					125	42	57		19.4				99	1	15.4	2.3		326
-150-M 67					150	67			22				124		20.8	3.9		329
-M 97						97	27		25.2					0.9	27.5	4.9		331
-155-M 42	2				155	42	30	57	19.4		46		129	1.4	15.8	2.3		327
-180-M 67					180	67			22				154		21.2	3.9		330
-M 97	1					97	57	—	25.2		—			1.1	27.8	5.8		332
-210-M 97	2				210		30	57			46		184	1.5	28.2		▲	333
-SLSB12- 95-M 42	1	12	19	3.5	95	42	27	—	23.4	32	—	30	69	0.8	16.5	1.1	○	334
-120-M 67					120	67			26				94	0.9	22.8	1.8		337
-125-M 42					125	42	57		23.4				99	1	16.8	1.5		335
A63 -150-M 67					150	67			26				124	1.1	23.1	2.5		338
-M 97						97	27		29.2	42			125		30.9	2.4		340
-155-M 42	2				155	42	30	57	23.4	32	46		129	1.4	17.2	1.6		336
-180-M 67					180	67			26				154	1.5	23.4	2.5		339
-M 97	1					97	57	—	29.2	42	—		152	1.4	31.7	2.8		341
-M127						127	27		32.3				155	1.3	38.5	3.3		343
-210-M 97					210	97	87		29.2	50			180	1.9	32.6	2.8	▲	342
-M127						127	57		32.3					1.7	39.3	3.5		344
-M157						157	27		35.5	42			185	1.4	46	4.1		346
-240-M127					240	127	87		32.3	50			215	2.1	40.1	3.8		345
-M157						157	57		35.5					1.9	46.8	4.3		347
-270-M157	2				270		28	59		42	53		242	2.2	47.7	4.8		348

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg lbs	N	S		Scale model
A63-SLRB12- 75-M 22	1	12	26	7	75	22	27	—	28.3	42	—	30	50	0.9	14.5	0.4	×	349
- 95-M 42					95	42			30.4				70	1	17.2	0.6		352
-105-M 22					105	22	57		28.3				77	1.2	15.3	0.5		350
-120-M 67					120	67	27		33				95		23.5	0.8		355
-125-M 42					125	42	57		30.4				97	1.3	18	0.7		353
-135-M 22	2				135	22	28	59	28.3		53		107	1.7	16.2	0.6		351
-150-M 67	1				150	67	57	—	33	42	—		122	1.4	24.3	1.1		356
-155-M 42					155	42	87		30.4	50			125	1.8	18.9	0.8		354
-180-M 67	2				180	67	28	59	33	42	53		152	1.9	25.2	1.1		357
-SLFB12- 75-M 22	1	12	26	7	75	22	27	—	28.3	42	—	30	50	0.9	14.5	0.4	×	358
- 95-M 42					95	42			30.4				70	1	17.2	0.6		361
-105-M 22					105	22	57		28.3				77	1.2	15.3	0.5		359
-120-M 67					120	67	27		33				95		23.5	0.8		364
-125-M 42					125	42	57		30.4				97	1.3	18	0.7		362
-135-M 22	2				135	22	28	59	28.3		53		107	1.7	16.2	0.6		360
-150-M 67	1				150	67	57	—	33		—		122	1.4	24.3	1.1		365
-155-M 42					155	42	86		30.4	50			125	1.8	18.9	0.8		363
-180-M 67	2				180	67	28	59	33	42	53		152	1.9	25.2	1.1		366
-SLSA12- 90 CV	3	12	15	1.5	90	64	—	—	53	—	—	30	64	1.1	9.9	0.9	○	367
-120 CV					120	94							94	1.3	11.3	1.2		368
-150 CV					150	124							124	1.4	11.8	2.4		369
-180 CV					180	154							154	1.6	13	3.3		370
-210 CV					210	184							184	1.8	14.3	4.6		371
-240 CV					240	214							212	2.1	16.2	5.5	▲	372
-270 CV					270	244							244	2.3	18.4	5.4		373
-SLRA12- 90 CV	3	12	22	5	90	64	—	—	53	—	—	30	64	1	8.5	0.6	×	374
-120 CV					120	94							94	1.3	10.4	0.7		375
A63 -150 CV					150	124							124	1.5	11.7	1.1	○	376
-180 CV					180	154							154		12.8	1.8		377
-210 CV					210	184							184	1.6	14	2.8		378
-SLFA12- 90 CV	3	12	22	5	90	64	—	—	53	—	—	30	64	1	8.5	0.6	×	379
-120 CV					120	94							94	1.3	10.4	0.7		380
-150 CV					150	124							124	1.5	11.7	1.1	○	381
-180 CV					180	154							154		12.8	1.8		382
-210 CV					210	184							184	1.6	14	2.8		383
A63-SLSA1/2- 90 CV	3	1/2	.62	.06	3.54	2.52	—	—	2.87	—	—	1.18	2.52	2.1	8.4	0.8	○	384
-120 CV					4.72	3.70							3.70	2.5	10	1.2		385
-150 CV					5.91	4.88							4.88		10.9	2.4		386
-180 CV					7.09	6.06							6.06	2.9	12.4	3.4		387
-210 CV					8.27	7.24							7.17	3.5	16.3	3.6		388
-240 CV					9.45	8.43							8.35	4.0	19.1	4.3	▲	389
-270 CV					10.63	9.61							9.53	4.7	20.9	5.1		390
-SLRA1/2- 90 CV	3	1/2	.89	.20	3.54	2.52	—	—	2.87	—	—	1.18	2.44	2.2	9.3	0.5	×	391
-120 CV					4.72	3.70							3.70	2.8	10.6	0.7		392
-150 CV					5.91	4.88							4.88	3.2	12.1	1.1	○	393
-180 CV					7.09	6.06							5.98		15.5	1.9		394
-210 CV					8.27	7.24							7.24	4.4	15.7	2		395
-SLFA1/2- 90 CV	3	1/2	.89	.20	3.54	2.52	—	—	2.87	—	—	1.18	2.44	2.2	9.3	0.5	×	396
-120 CV					4.72	3.70							3.70	2.8	10.6	0.7		397
-150 CV					5.91	4.88							4.88	3.2	12.1	1.1	○	398
-180 CV					7.09	6.06							5.98		15.5	1.9		399
-210 CV					8.27	7.24							7.24	4.4	15.7	2		400

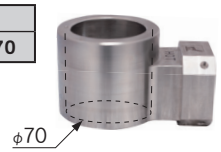
CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S	Scale model
A63-SLSB16- 95-M 42	1	16	24	4	95	42	27	—	28.4	42	—	32	70	1	22.7	0.7	401
-120-M 67					120	67			31				95	1.1	33	1.1	404
-125-M 42					125	42	57		28.4				97	1.2	23.5	0.9	402
-150-M 67					150	67			31				122	1.3	33.8	1.4	405
-M 97						97	27		34.2				125	1.2	45.5	1.7	407
-155-M 42					155	42	87		28.4	50			130	1.7	24.4	0.9	403
-180-M 67	2				180	67	28	59	31	42	53		152	1.8	34.7	1.5	406
-M 97	1					97	57	—	34.2		—			1.4	46.3	2.1	408
A63 -M127						127	27		37.3	53			155	1.5	57.9		410
-210-M 97					210	97	87		34.2	50			185	2	47.1		409
-M127						127	57		37.3	53			181	1.9	58.7	2.3	411
-M157						157	27		40.5				185	1.7	70.3	2.7	413
-240-M127					240	127	87		37.3				211	2.3	59.5	2.6	412
-M157						157	57		40.5	50			215	2.1	71.1	3.1	414
-270-M157					270		87			53			241	2.5	72	3.2	415
-SLRB16- 75-M 22	1	16	32	8	75	22	27	—	34.3	42	—	32	50	1	14.5	0.3	416
- 95-M 42					95	42			36.4				70	1.1	22.8	0.5	419
-105-M 22					105	22	57		34.3				77	1.2	15.3		417
-120-M 67					120	67	27		39				95	1.3	33.2	0.7	422
-125-M 42					125	42	57		36.4				97		23.6		420
-135-M 22	2				135	22	28	59	34.3		53		107	1.7	16.2	0.5	418
-150-M 67	1				150	67	57	—	39		—		122	1.5	34	0.9	423
-155-M 42	2				155	42	28	59	36.4		53		127	1.9	24.5	0.7	421
-180-M 67					180	67			39				152	2	34.9	1	424
-SLFB16- 75-M 22	1	16	32	8	75	22	27	—	34.3	42	—	32	50	1	14.5	0.3	425
- 95-M 42					95	42			36.4				70	1.1	22.8	0.5	428
-105-M 22					105	22	57		34.3				77	1.2	15.3		426
-120-M 67					120	67	27		39				95	1.3	33.2	0.7	431
-125-M 42					125	42	57		36.4				97		23.6		429
-135-M 22	2				135	22	28	59	34.3		53		107	1.7	16.2	0.5	427
-150-M 67	1				150	67	57	—	39	50	—		120		34	0.7	432
-155-M 42					155	42	86		36.4				125	1.9	24.5		430
-180-M 67	2				180	67	28	59	39	42	53		152	2	34.9	1	433
-SLSB16- 90 CV	3	16	21	2.5	90	64	—	—	53	—	—	32	62	1.1	10.5	0.6	434
-120 CV					120	94							92	1.5	12.4	0.8	435
-150 CV					150	124							122	1.6	13.5	1.5	436
-180 CV					180	154							152	1.9	15.4	1.9	437
-210 CV					210	184							182	2.1	16.5	3	438
-240 CV					240	214							212	2.4	18.4	3.7	439
-270 CV					270	244							242	2.7	20.3	4.6	440
A63-SLSB5/8- 90 CV	3	5/8	.82	.10	3.54	2.52	—	—	2.87	—	—	1.26	2.44	2.1	9.3	0.6	441
-120 CV					4.72	3.70							3.62	2.6	11.7	0.8	442
-150 CV					5.91	4.88							4.80	2.9	13.4	1.5	443
-180 CV					7.09	6.06							5.98	3.4	15.8	1.9	444
-210 CV					8.27	7.24							7.17	3.6	17.5	3	445
-240 CV					9.45	8.43							8.35	4.2	19.9	3.7	446
-270 CV					10.63	9.61							9.53	4.8	22.3	4.6	447

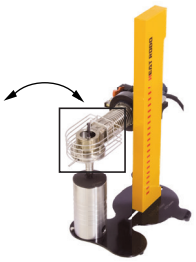
CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg lbs	N	S	Scale model
A63-SLSB20- 95-M 42	1	20	29	4.5	95	42	27	—	33.4	42	—	40	70	1	25.4	0.5	448
-120-M 67					120	67			36				95	1.1	40.8	0.9	451
-125-M 42					125	42	57		33.4				97	1.2	26.2	0.8	449
-150-M 67					150	67			36				122	1.4	41.6	1.2	452
-M 97						97	27		39.2	53			125		59.3	1.1	454
-155-M 42					155	42	87		33.4	50			130	1.8	27.1	0.8	450
-180-M 67	2				180	67	28	59	36	42	53		152	1.9	42.5	1.2	453
-M 97	1					97	57	—	39.2	53	—		151	1.8	60.1	1.3	455
-M127						127	27		42.3				155	1.6	79.1	1.5	457
-210-M 97					210	97	87		39.2				181	2.2	61	1.6	456
-M127						127	57		42.3					2	79.9	1.8	458
-M157						157	27		45.5				185	1.9	97.6	1.9	460
-240-M127					240	127	87		42.3	50			215	2.3	80.7	2.3	459
-M157						157	57		45.5	53			211		98.4	2.2	461
-270-M157					270		87			50			245	2.6	99.3	2.8	462
-SLRB20- 95-M 42	1	20	38	9	95	42	27	—	42.4	53	—	40	70	1.3	25.6	0.3	463
-120-M 67					120	67			45				95	1.5	41	0.5	466
A63 -125-M 42					125	42	57		42.4				96	1.7	26.4	0.4	464
-150-M 67					150	67			45				121	1.9	41.8	0.6	467
-155-M 42					155	42	87		42.4				126	2.1	27.2		465
-180-M 67					180	67			45				151	2.3	42.7	0.8	468
-SLFB20- 95-M 42	1	20	38	9	95	42	27	—	42.4	53	—	40	70	1.3	25.6	0.3	469
-120-M 67					120	67			45				95	1.5	41	0.5	472
-125-M 42					125	42	57		42.4				96	1.7	26.4	0.4	470
-150-M 67					150	67			45	50			120	1.9	41.8	0.7	473
-155-M 42					155	42	87		42.4				125	2	27.2	0.6	471
-180-M 67					180	67			45				150	2.2	42.7	0.9	474
-SLSB20- 90 CV	3	20	26	3	90	64	—	—	51	—	—	40	62	1.2	10.7	0.5	475
-120 CV					120	94			53				92	1.5	12.8	0.8	476
-150 CV					150	124							122	1.7	14.1	1.3	477
-180 CV					180	154							152	2	16.2	1.8	478
-210 CV					210	184							182	2.4	18.2	2.3	479
-240 CV					240	214							212	2.7	20.2	3	480
-270 CV					270	244							242	3.1	22.8	3.4	481
A63-SLSB3/4- 90 CV	3	3/4	.99	.12	3.54	2.52	—	—	2.87	—	—	1.50	2.44	2.1	9.5	0.6	482
-120 CV					4.72	3.70							3.62	2.6	12.2	0.8	483
-150 CV					5.91	4.88							4.80	2.9	14.5	1.4	484
-180 CV					7.09	6.06							5.98	3.4	17.1	1.8	485
-210 CV					8.27	7.24							7.17	3.9	19.8	2.4	486
-240 CV					9.45	8.43							8.35	4.5	22.4	3.1	487
-270 CV					10.63	9.61							9.53	5.0	25	3.9	488
A63-SLRB25- 95-M 42	1	25	45	10	95	42	27	—	49.4	53	—	45	70	1.4	28.7	0.3	489
-125-M 42					125		57						96	1.8	29.5	0.4	490
-155-M 42					155		87						126	2.2	30.4	0.6	491
-SLFB25- 95-M 42	1	25	45	10	95	42	27	—	49.4	53	—	45	70	1.4	28.7	0.3	492
-125-M 42					125		57						96	1.8	29.5	0.4	493
-155-M 42					155		87						126	2.2	30.4	0.6	494
NEW **A63**-SLRB32-110-M 42	1	32	54	11	110	42	42	—	58.4	63	—	50	84	1.8	13.3	0.3	495

ϕ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70



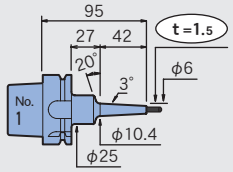


HEAT ROBO Baby3000S

A63 S=1:7

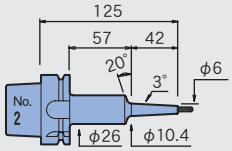
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A63-SLSA3-95-M42



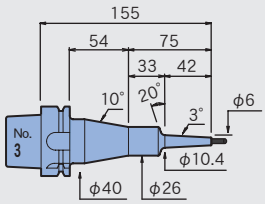
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A63-SLSA3-125-M42



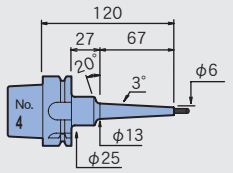
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A63-SLSA3-155-M42



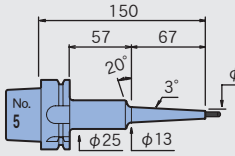
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A63-SLSA3-120-M67



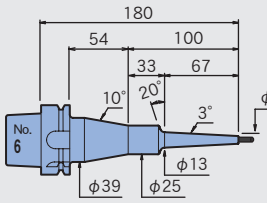
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A63-SLSA3-150-M67



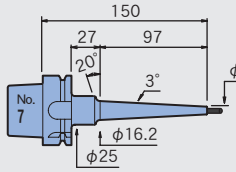
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A63-SLSA3-180-M67



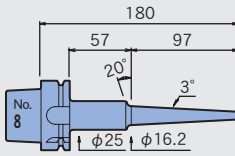
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A63-SLSA3-150-M97



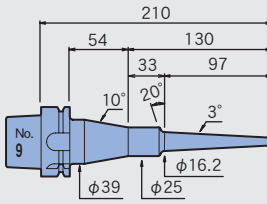
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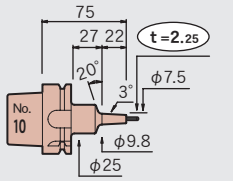
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A63-SLSA3-210-M97



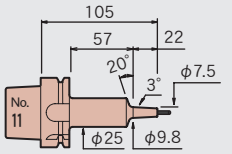
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A63-SLRA3-75-M22



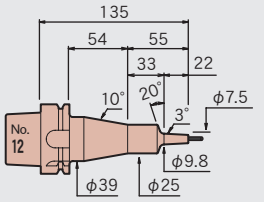
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A63-SLRA3-105-M22



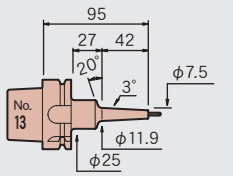
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A63-SLRA3-135-M22



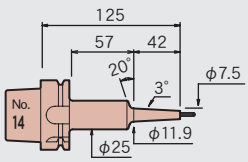
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A63-SLRA3-95-M42



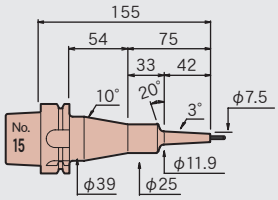
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A63-SLRA3-125-M42



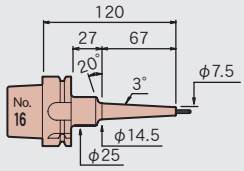
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A63-SLRA3-155-M42



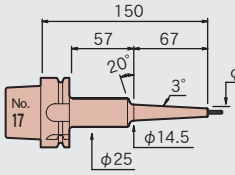
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A63-SLRA3-120-M67



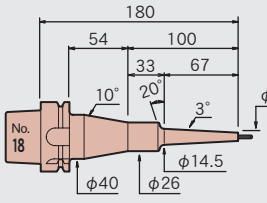
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A63-SLRA3-150-M67



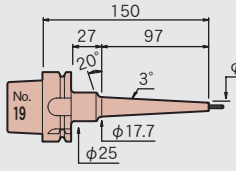
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A63-SLRA3-180-M67



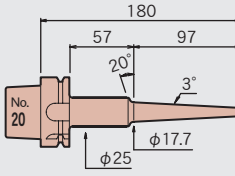
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A63-SLRA3-150-M97



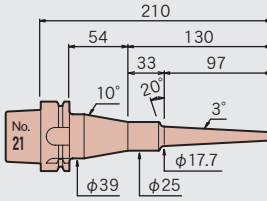
12.9

A63-SLRA3-180-M97



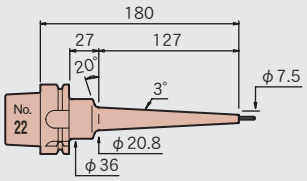
14.6

A63-SLRA3-210-M97



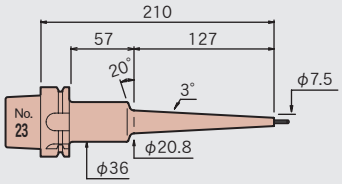
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A63-SLRA3-180-M127



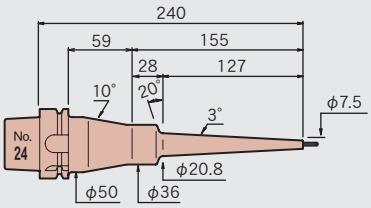
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A63-SLRA3-210-M127



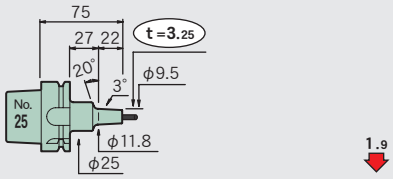
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A63-SLRA3-240-M127



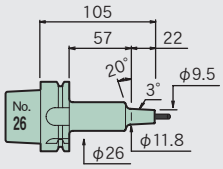
16.3

A63-SLFB3-75-M22



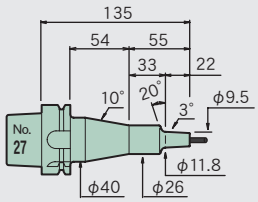
1.9

A63-SLFB3-105-M22



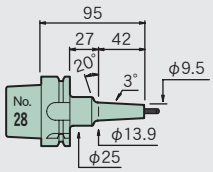
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A63-SLFB3-135-M22



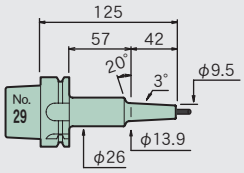
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A63-SLFB3-95-M42



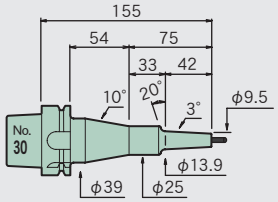
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A63-SLFB3-125-M42



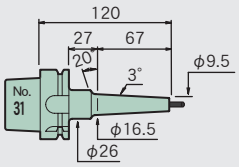
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A63-SLFB3-155-M42



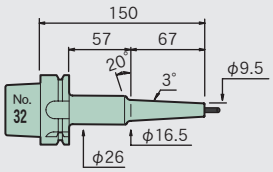
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A63-SLFB3-120-M67



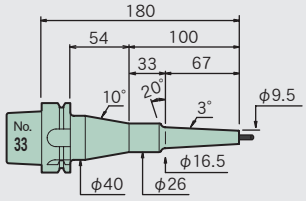
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A63-SLFB3-150-M67



6.3

A63-SLFB3-180-M67

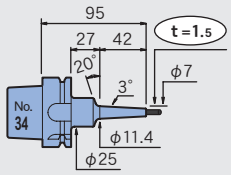


6.3

A63 S=1:7

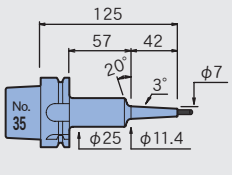
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A63-SLSA4-95-M42



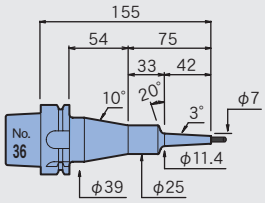
7.2

A63-SLSA4-125-M42



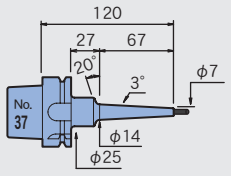
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A63-SLSA4-155-M42



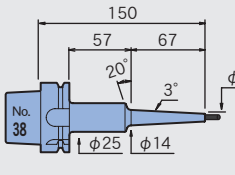
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A63-SLSA4-120-M67



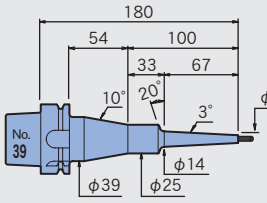
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A63-SLSA4-150-M67



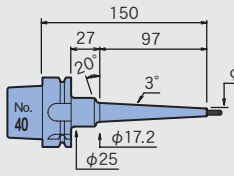
12.8

A63-SLSA4-180-M67



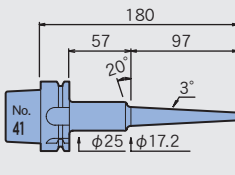
12.8

A63-SLSA4-150-M97



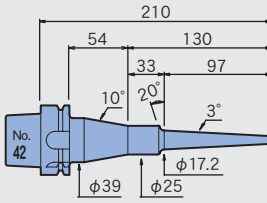
16.6

A63-SLSA4-180-M97



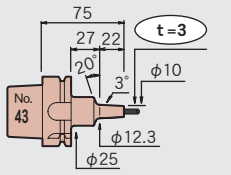
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A63-SLSA4-210-M97



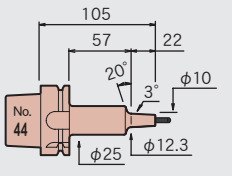
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A63-SLRA4-75-M22



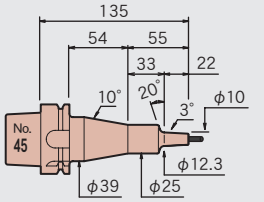
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A63-SLRA4-105-M22



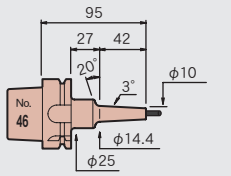
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A63-SLRA4-135-M22



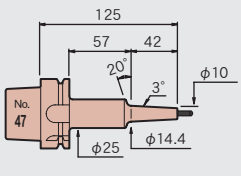
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A63-SLRA4-95-M42



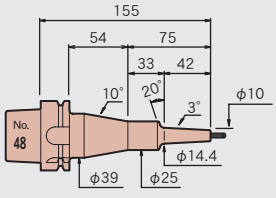
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A63-SLRA4-125-M42



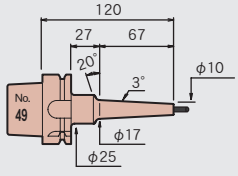
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A63-SLRA4-155-M42



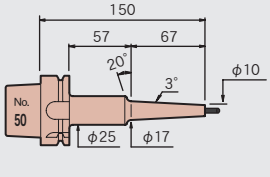
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A63-SLRA4-120-M67



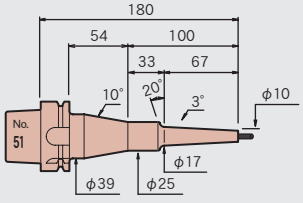
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A63-SLRA4-150-M67



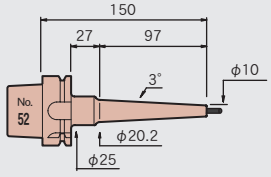
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A63-SLRA4-180-M67



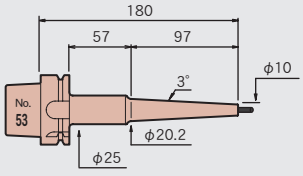
6.2

A63-SLRA4-150-M97



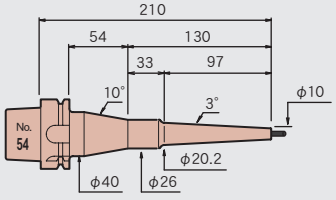
7.7

A63-SLRA4-180-M97



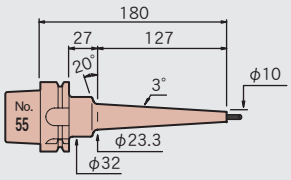
9.5

A63-SLRA4-210-M97



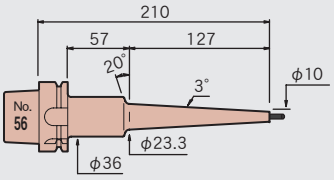
9.1

A63-SLRA4-180-M127



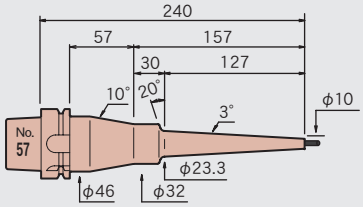
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A63-SLRA4-210-M127



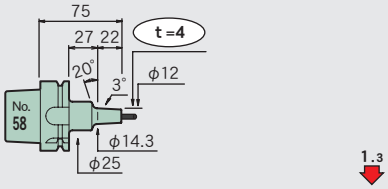
9.9

A63-SLRA4-240-M127



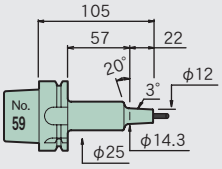
10.3

A63-SLFB4-75-M22



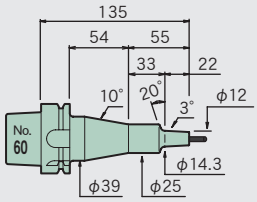
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A63-SLFB4-105-M22



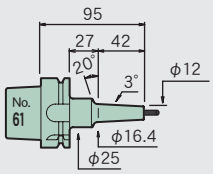
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A63-SLFB4-135-M22



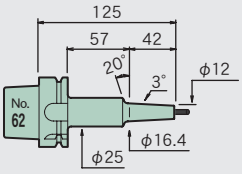
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A63-SLFB4-95-M42



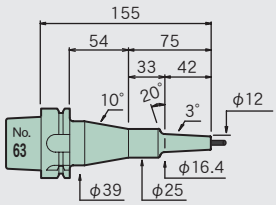
2.2

A63-SLFB4-125-M42



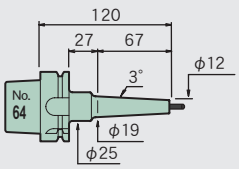
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A63-SLFB4-155-M42



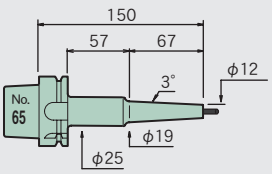
2.9

A63-SLFB4-120-M67



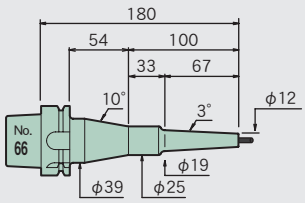
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A63-SLFB4-150-M67



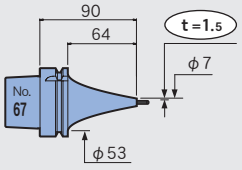
4.7

A63-SLFB4-180-M67



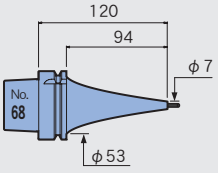
4.6

A63-SLSA4-90 CV



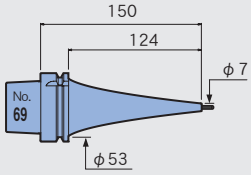
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A63-SLSA4-120 CV



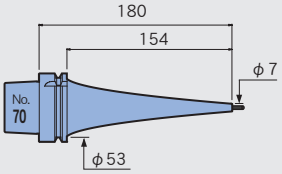
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A63-SLSA4-150 CV



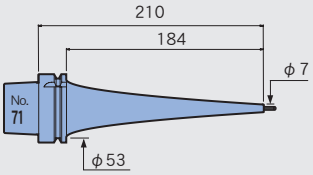
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A63-SLSA4-180 CV



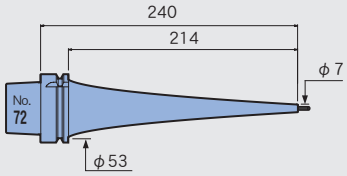
6.6

A63-SLSA4-210 CV



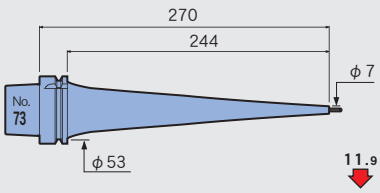
11.6

A63-SLSA4-240 CV



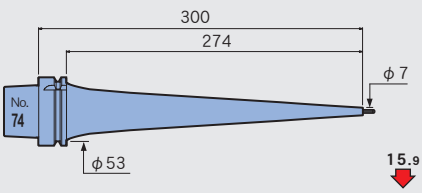
14.0

A63-SLSA4-270 CV



11.9

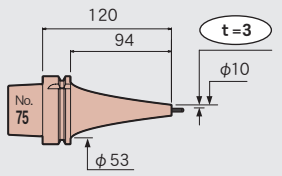
A63-SLSA4-300 CV



15.9

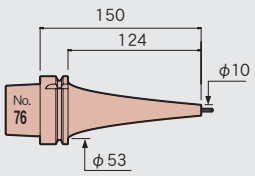
A63 S=1:7

A63-SLRA4-120 CV



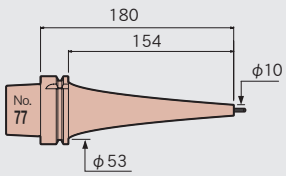
1.9

A63-SLRA4-150 CV



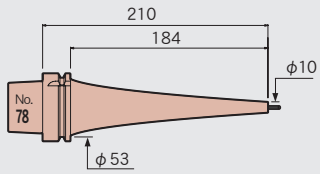
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A63-SLRA4-180 CV



3.3

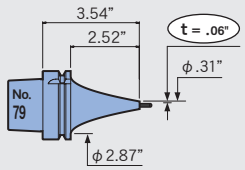
A63-SLRA4-210 CV



5.6

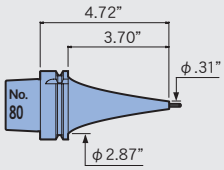
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A63-SLSA3/16-90 CV



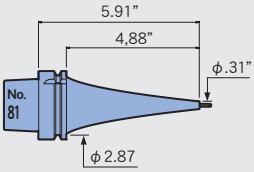
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A63-SLSA3/16-120 CV



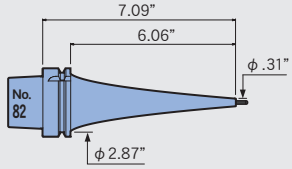
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A63-SLSA3/16-150 CV



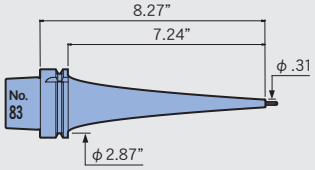
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A63-SLSA3/16-180 CV



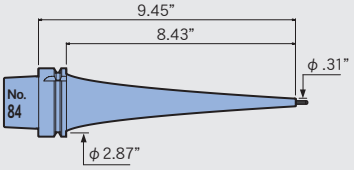
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A63-SLSA3/16-210 CV



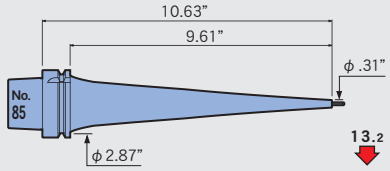
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A63-SLSA3/16-240 CV



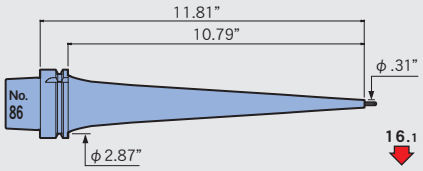
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A63-SLSA3/16-270 CV



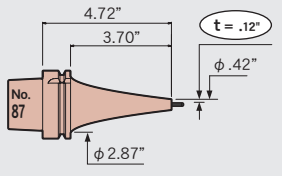
13.2

A63-SLSA3/16-300 CV



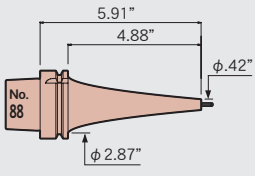
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A63-SLRA3/16-120 CV



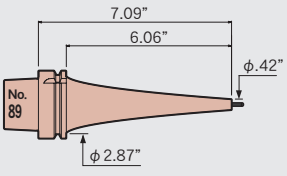
1.8

A63-SLRA3/16-150 CV



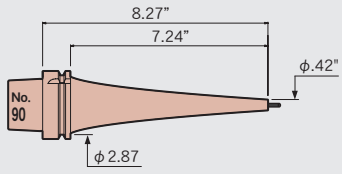
2.4

A63-SLRA3/16-180 CV



3.3

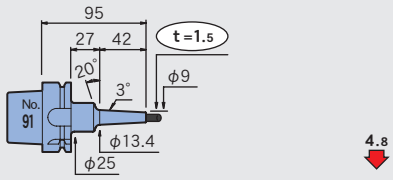
A63-SLRA3/16-210 CV



5.7

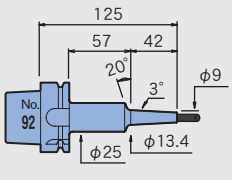
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A63-SLSA6-95-M42



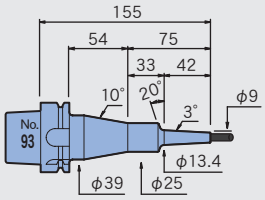
4.8

A63-SLSA6-125-M42



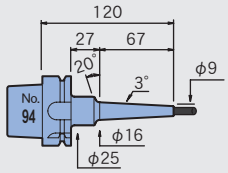
5.6

A63-SLSA6-155-M42



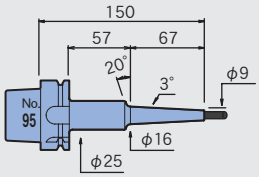
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A63-SLSA6-120-M67



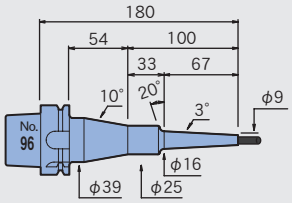
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A63-SLSA6-150-M67



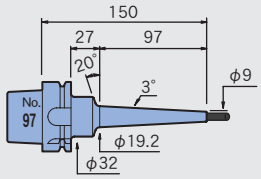
9.3

A63-SLSA6-180-M67



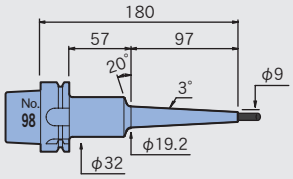
9.2

A63-SLSA6-150-M97



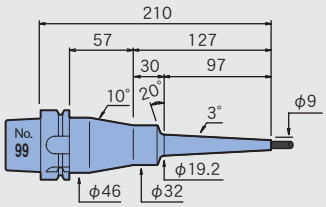
11.0

A63-SLSA6-180-M97



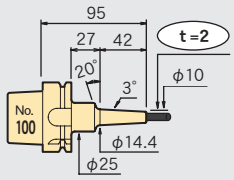
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A63-SLSA6-210-M97



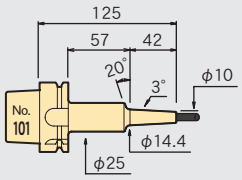
11.7

A63-SLSB6-95-M42



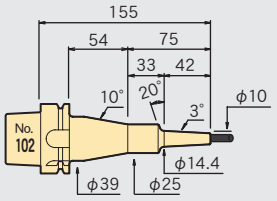
3.7

A63-SLSB6-125-M42



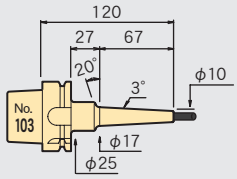
4.5

A63-SLSB6-155-M42



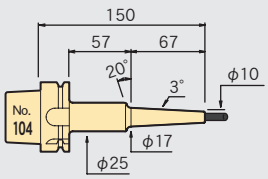
4.4

A63-SLSB6-120-M67



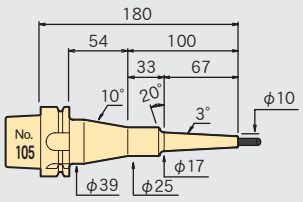
6.2

A63-SLSB6-150-M67



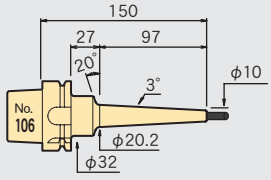
7.4

A63-SLSB6-180-M67



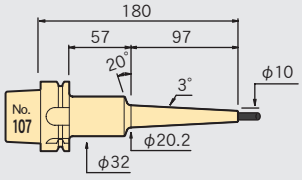
7.3

A63-SLSB6-150-M97



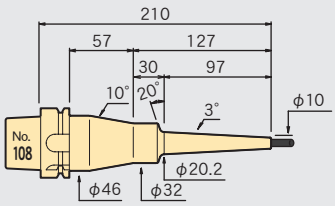
8.5

A63-SLSB6-180-M97



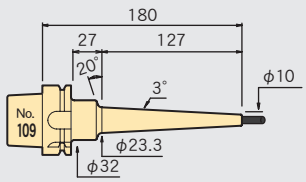
9.2

A63-SLSB6-210-M97



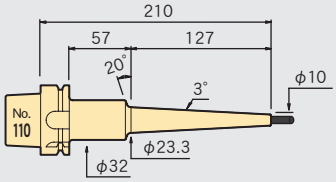
9.2

A63-SLSB6-180-M127



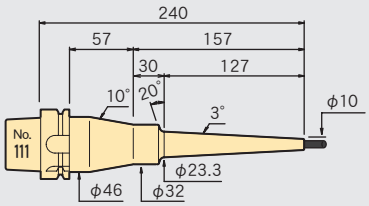
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A63-SLSB6-210-M127



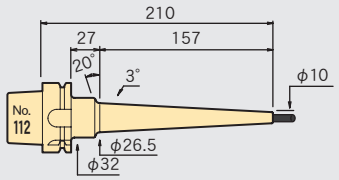
12.0

A63-SLSB6-240-M127



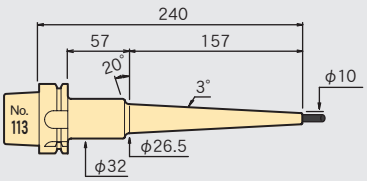
12.0

A63-SLSB6-210-M157



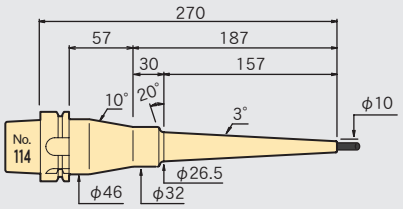
13.2

A63-SLSB6-240-M157



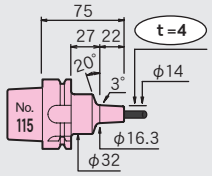
14.6

A63-SLSB6-270-M157



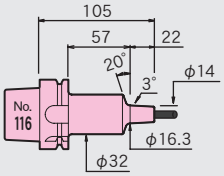
14.6

A63-SLRB6-75-M22



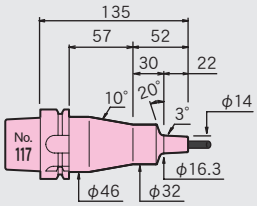
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A63-SLRB6-105-M22



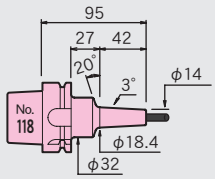
1.2

A63-SLRB6-135-M22



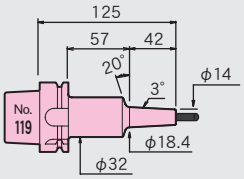
1.2

A63-SLRB6-95-M42



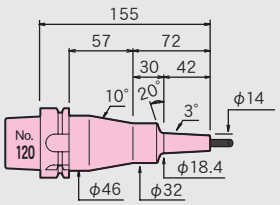
1.6

A63-SLRB6-125-M42



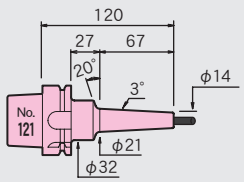
1.9

A63-SLRB6-155-M42



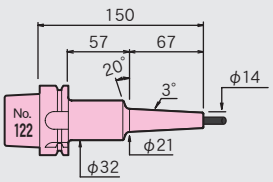
1.9

A63-SLRB6-120-M67



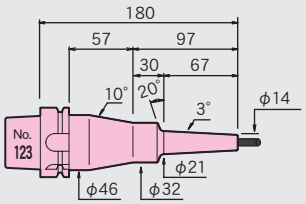
2.6

A63-SLRB6-150-M67



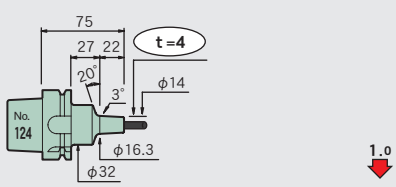
3.0

A63-SLRB6-180-M67



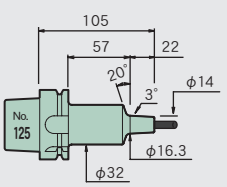
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A63-SLFB6-75-M22



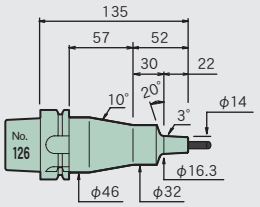
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A63-SLFB6-105-M22



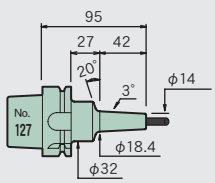
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A63-SLFB6-135-M22



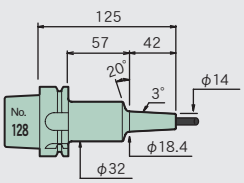
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A63-SLFB6-95-M42



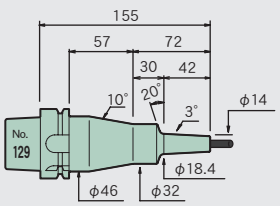
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A63-SLFB6-125-M42



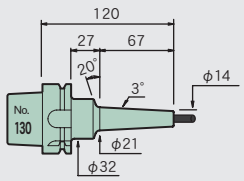
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A63-SLFB6-155-M42



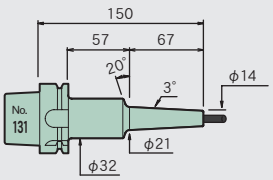
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A63-SLFB6-120-M67



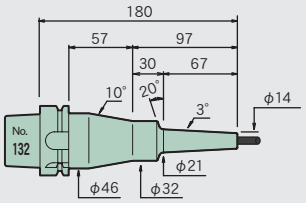
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A63-SLFB6-150-M67



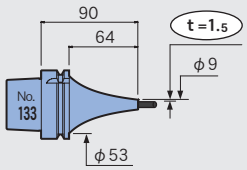
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A63-SLFB6-180-M67



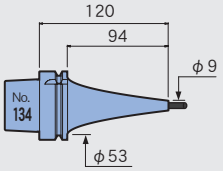
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A63-SLSA6-90 CV



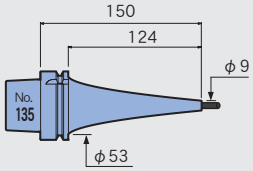
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A63-SLSA6-120 CV



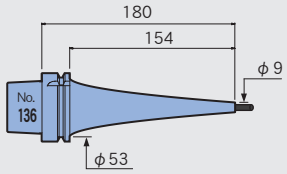
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A63-SLSA6-150 CV



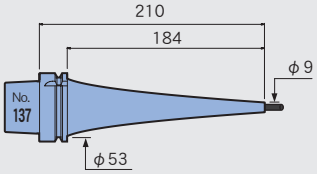
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A63-SLSA6-180 CV



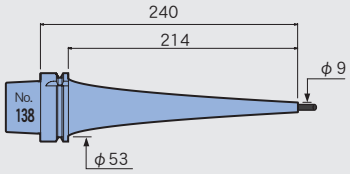
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A63-SLSA6-210 CV



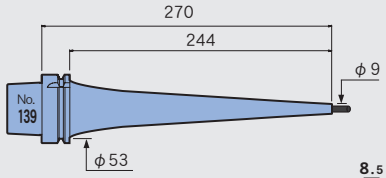
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A63-SLSA6-240 CV



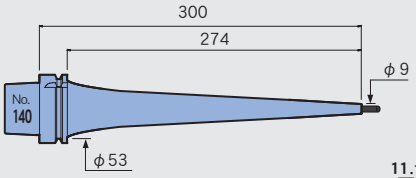
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A63-SLSA6-270 CV



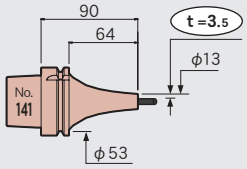
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A63-SLSA6-300 CV



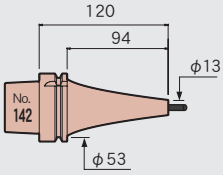
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A63-SLRA6-90 CV



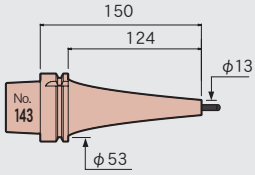
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A63-SLRA6-120 CV



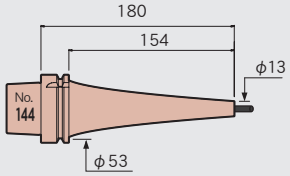
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A63-SLRA6-150 CV



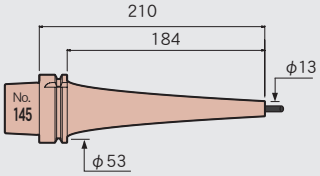
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A63-SLRA6-180 CV



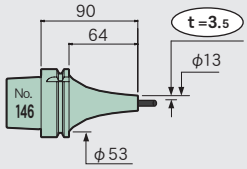
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A63-SLRA6-210 CV



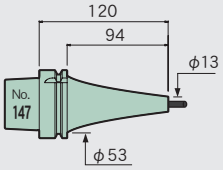
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A63-SLFA6-90 CV



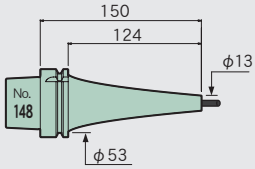
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A63-SLFA6-120 CV



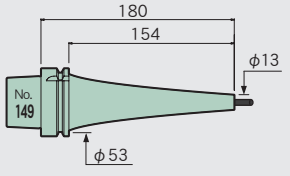
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A63-SLFA6-150 CV



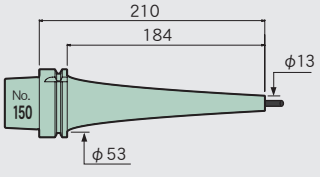
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A63-SLFA6-180 CV



2.8

A63-SLFA6-210 CV

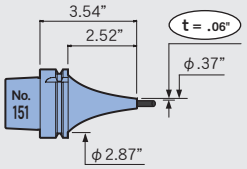


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A63 S=1:7

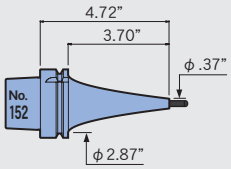
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A63-SLSA1/4-90 CV



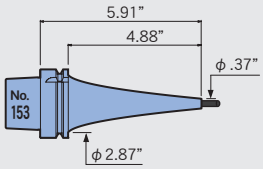
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A63-SLSA1/4-120 CV



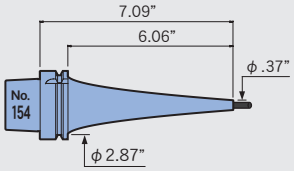
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A63-SLSA1/4-150 CV



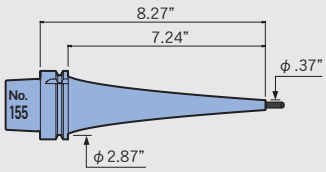
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A63-SLSA1/4-180 CV



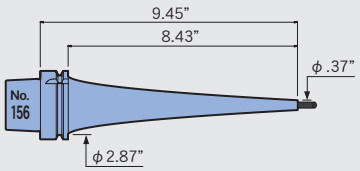
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A63-SLSA1/4-210 CV



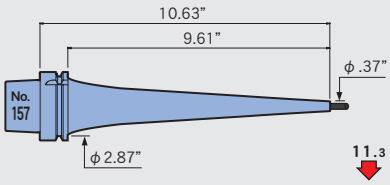
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A63-SLSA1/4-240 CV



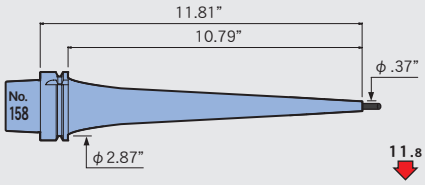
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A63-SLSA1/4-270 CV



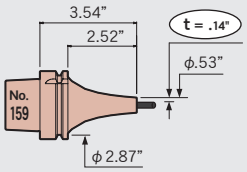
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A63-SLSA1/4-300 CV



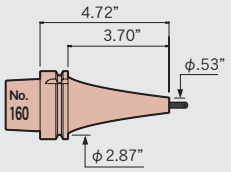
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A63-SLRA1/4-90 CV



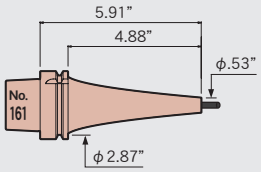
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A63-SLRA1/4-120 CV



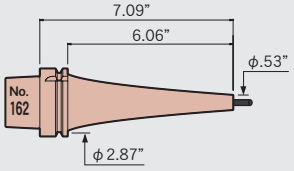
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A63-SLRA1/4-150 CV



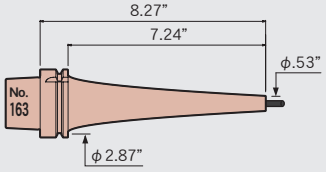
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A63-SLRA1/4-180 CV



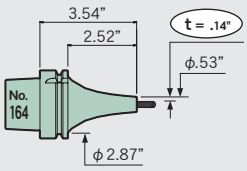
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A63-SLRA1/4-210 CV



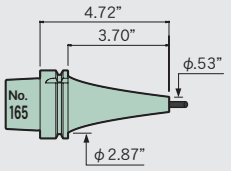
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A63-SLFA1/4-90 CV



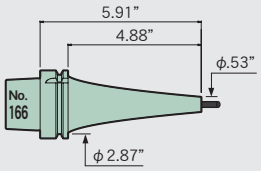
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A63-SLFA1/4-120 CV



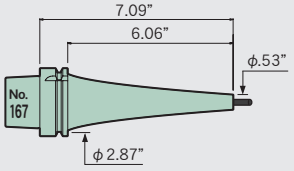
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A63-SLFA1/4-150 CV



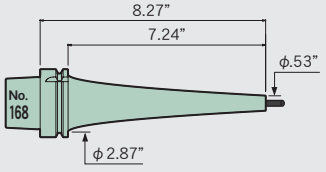
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A63-SLFA1/4-180 CV



2.9

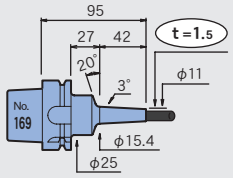
A63-SLFA1/4-210 CV



4.9

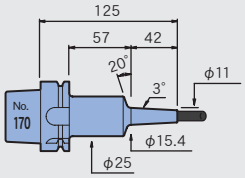
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A63-SLSA8-95-M42



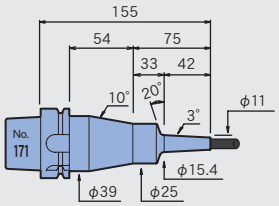
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A63-SLSA8-125-M42



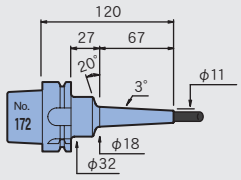
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A63-SLSA8-155-M42



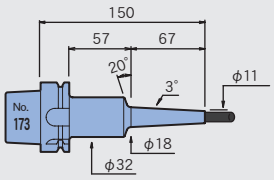
4.3

A63-SLSA8-120-M67



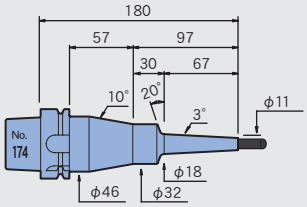
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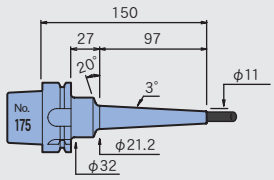
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A63-SLSA8-180-M67



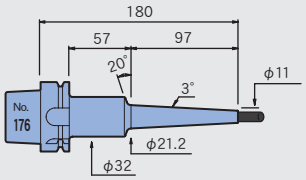
5.9

A63-SLSA8-150-M97



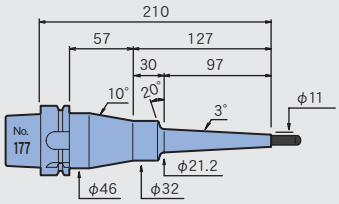
7.9

A63-SLSA8-180-M97



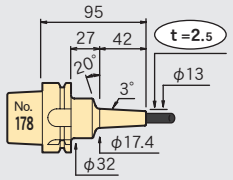
8.7

A63-SLSA8-210-M97



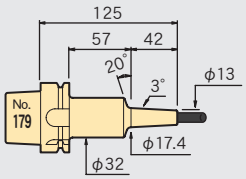
8.7

A63-SLSB8-95-M42



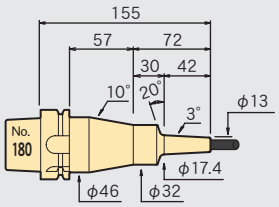
2.1

A63-SLSB8-125-M42



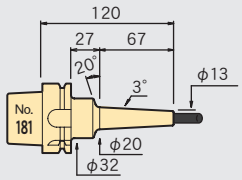
2.4

A63-SLSB8-155-M42



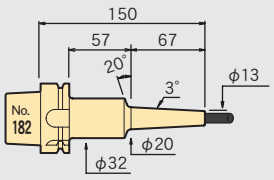
2.4

A63-SLSB8-120-M67



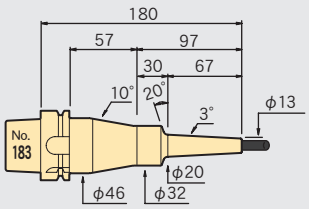
3.5

A63-SLSB8-150-M67



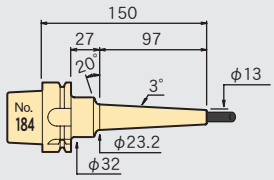
4.0

A63-SLSB8-180-M67



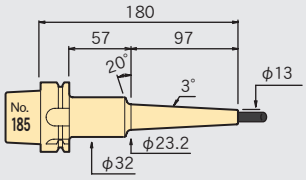
4.0

A63-SLSB8-150-M97



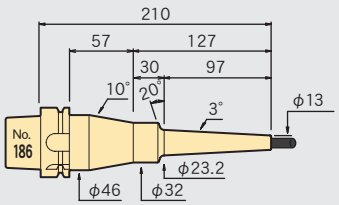
5.2

A63-SLSB8-180-M97



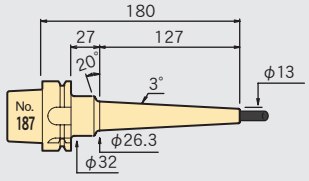
6.0

A63-SLSB8-210-M97



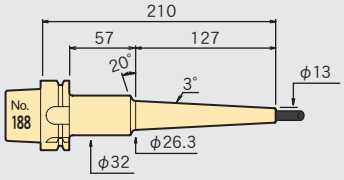
6.0

A63-SLSB8-180-M127



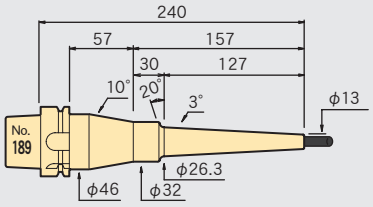
7.0

A63-SLSB8-210-M127



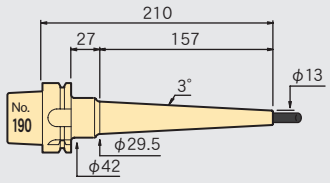
8.0

A63-SLSB8-240-M127



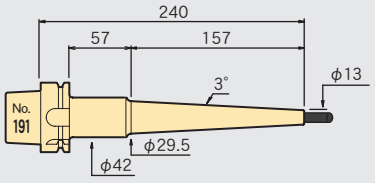
8.1

A63-SLSB8-210-M157



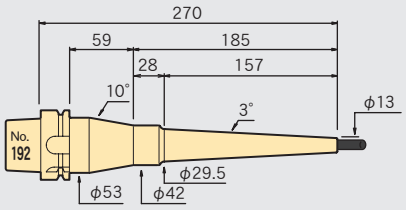
8.0

A63-SLSB8-240-M157



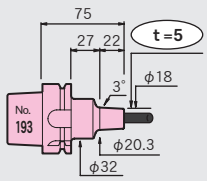
8.6

A63-SLSB8-270-M157



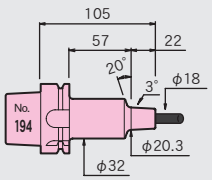
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A63-SLRB8-75-M22



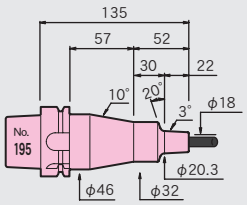
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A63-SLRB8-105-M22



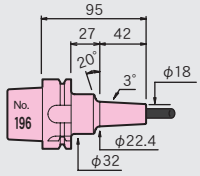
0.9

A63-SLRB8-135-M22



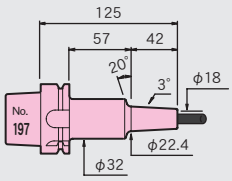
1.0

A63-SLRB8-95-M42



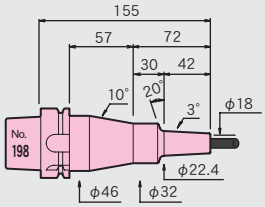
1.1

A63-SLRB8-125-M42



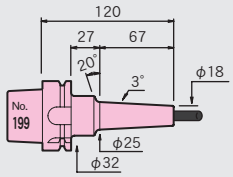
1.4

A63-SLRB8-155-M42



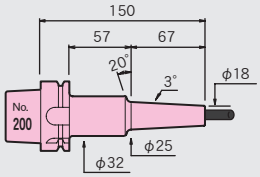
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A63-SLRB8-120-M67



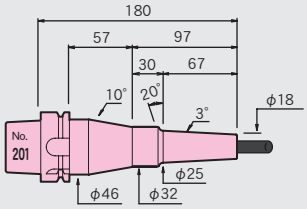
1.7

A63-SLRB8-150-M67



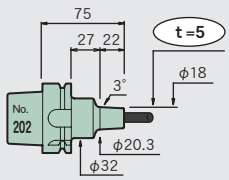
2.2

A63-SLRB8-180-M67



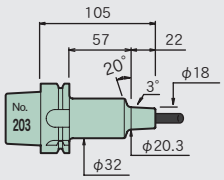
2.2

A63-SLFB8-75-M22



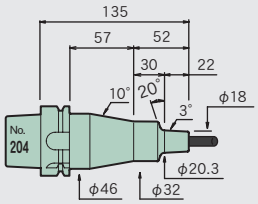
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A63-SLFB8-105-M22



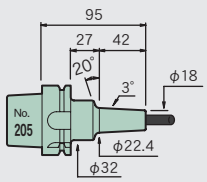
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A63-SLFB8-135-M22



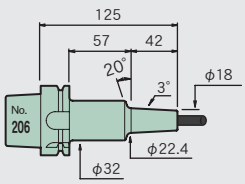
1.0

A63-SLFB8-95-M42



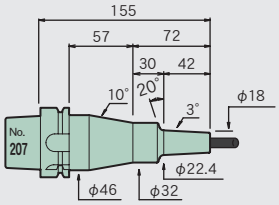
1.1

A63-SLFB8-125-M42



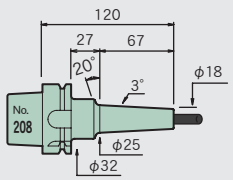
1.4

A63-SLFB8-155-M42



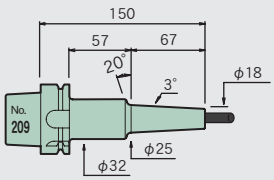
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A63-SLFB8-120-M67



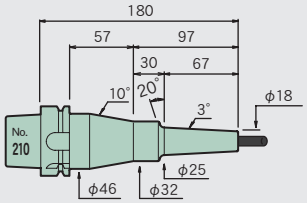
1.7

A63-SLFB8-150-M67



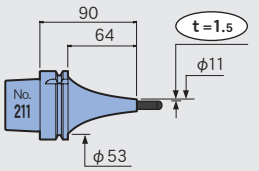
2.2

A63-SLFB8-180-M67



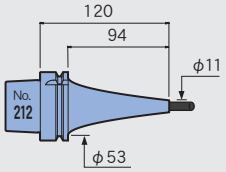
2.2

A63-SLSA8-90 CV



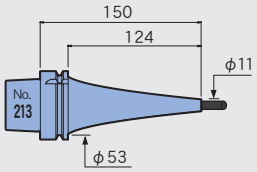
1.4

A63-SLSA8-120 CV



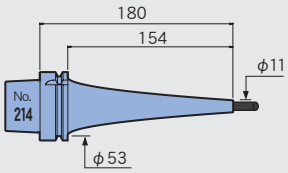
2.0

A63-SLSA8-150 CV



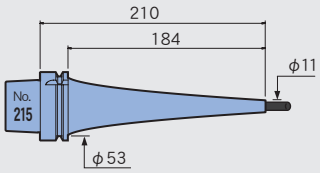
2.7

A63-SLSA8-180 CV



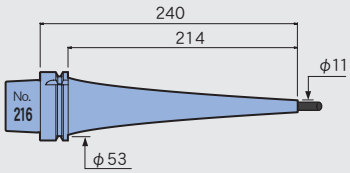
5.0

A63-SLSA8-210 CV



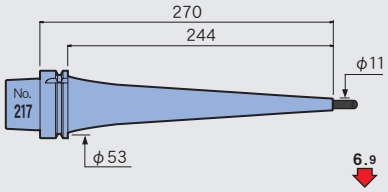
6.6

A63-SLSA8-240 CV



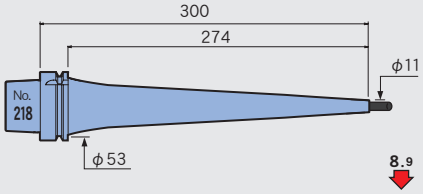
8.3

A63-SLSA8-270 CV



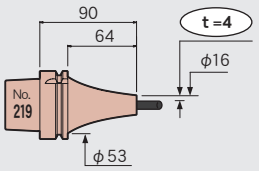
6.9

A63-SLSA8-300 CV



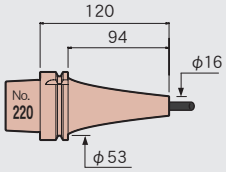
8.9

A63-SLRA8-90 CV



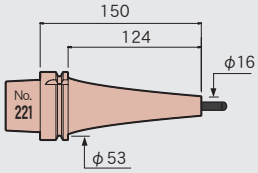
0.7

A63-SLRA8-120 CV



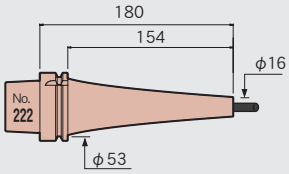
1.0

A63-SLRA8-150 CV



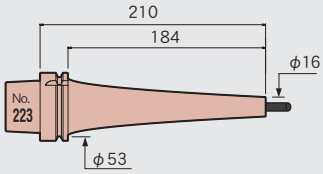
1.4

A63-SLRA8-180 CV



2.0

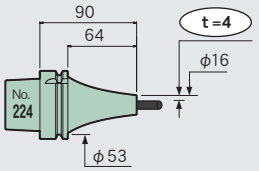
A63-SLRA8-210 CV



3.5

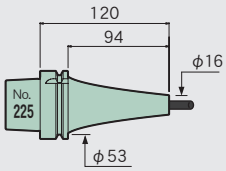
A63-SLFA8-90 CV





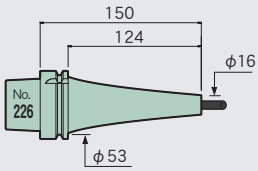
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A63-SLFA8-120 CV



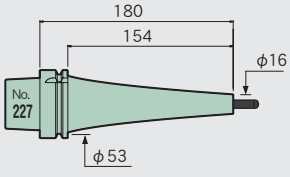
1.0

A63-SLFA8-150 CV



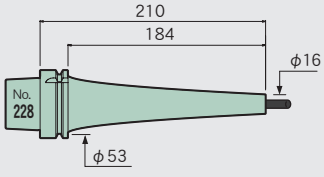
1.4

A63-SLFA8-180 CV



2.0

A63-SLFA8-210 CV

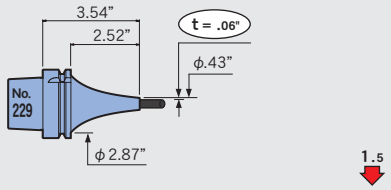


3.5

A63 S=1:7

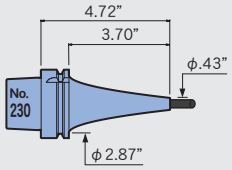
$\phi 5/16$

A63-SLSA5/16-90 CV



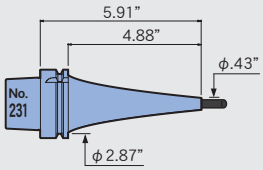
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A63-SLSA5/16-120 CV



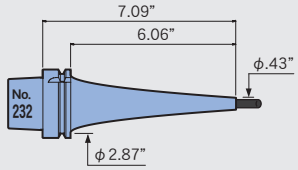
2.0

A63-SLSA5/16-150 CV



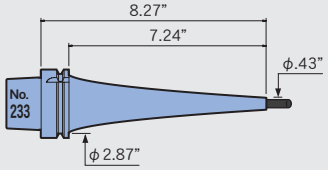
2.8

A63-SLSA5/16-180 CV



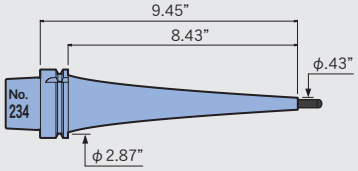
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A63-SLSA5/16-210 CV



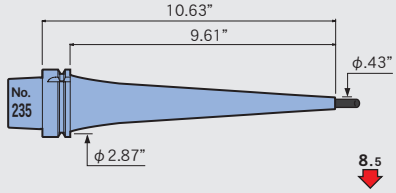
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A63-SLSA5/16-240 CV



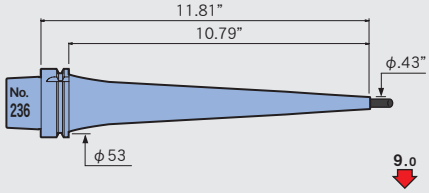
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A63-SLSA5/16-270 CV



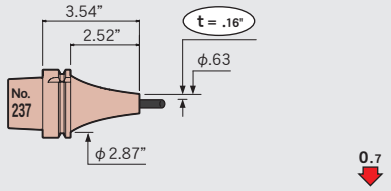
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A63-SLSA5/16-300 CV



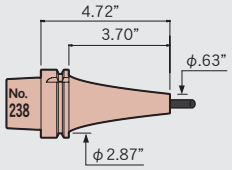
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A63-SLRA5/16-90 CV



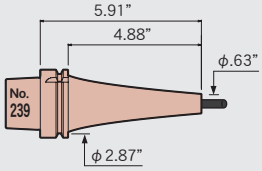
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A63-SLRA5/16-120 CV



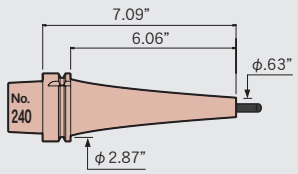
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A63-SLRA5/16-150 CV



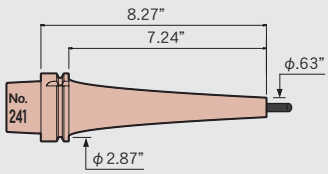
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A63-SLRA5/16-180 CV



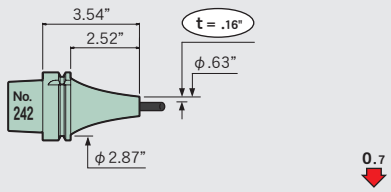
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A63-SLRA5/16-210 CV



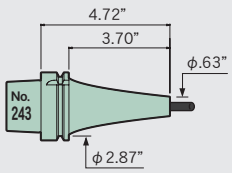
3.6

A63-SLFA5/16-90 CV



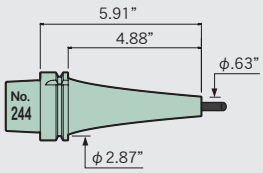
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A63-SLFA5/16-120 CV



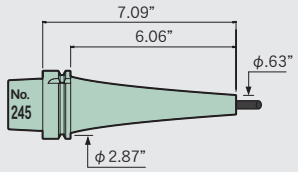
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A63-SLFA5/16-150 CV



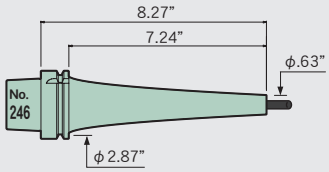
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A63-SLFA5/16-180 CV



2.1

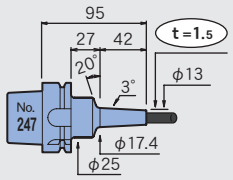
A63-SLFA5/16-210 CV



3.6

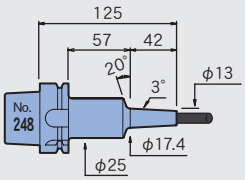
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A63-SLSA10-95-M42



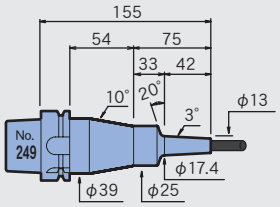
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A63-SLSA10-125-M42



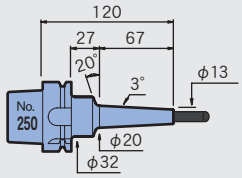
3.6

A63-SLSA10-155-M42



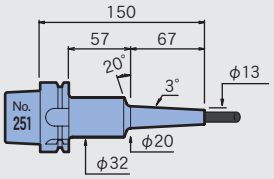
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A63-SLSA10-120-M67



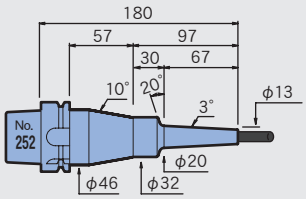
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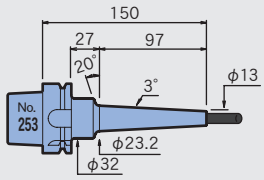
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A63-SLSA10-180-M67



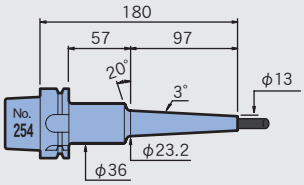
4.6

A63-SLSA10-150-M97



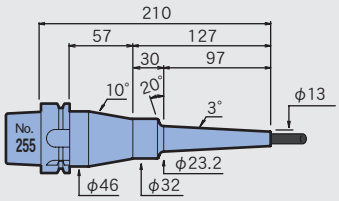
6.0

A63-SLSA10-180-M97



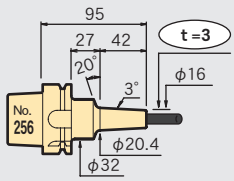
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A63-SLSA10-210-M97



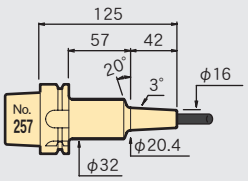
6.9

A63-SLSB10-95-M42



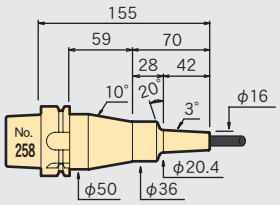
1.4

A63-SLSB10-125-M42



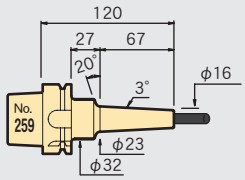
1.8

A63-SLSB10-155-M42



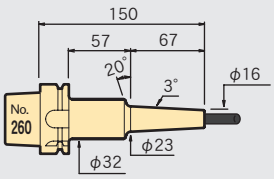
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A63-SLSB10-120-M67



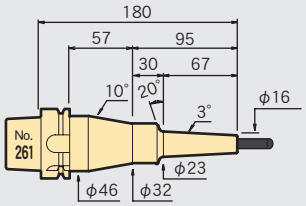
2.4

A63-SLSB10-150-M67



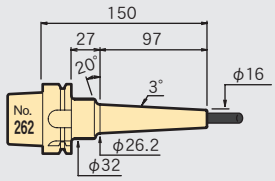
3.0

A63-SLSB10-180-M67



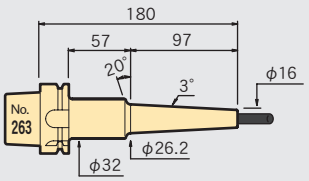
3.0

A63-SLSB10-150-M97



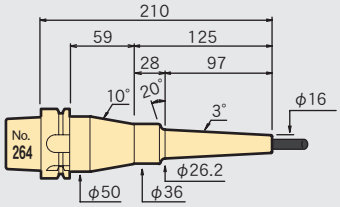
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A63-SLSB10-180-M97



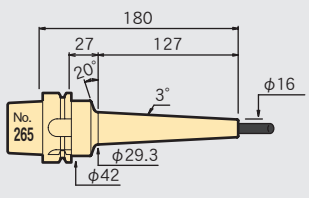
4.5

A63-SLSB10-210-M97



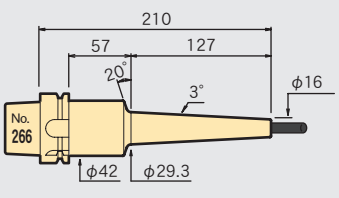
4.1

A63-SLSB10-180-M127



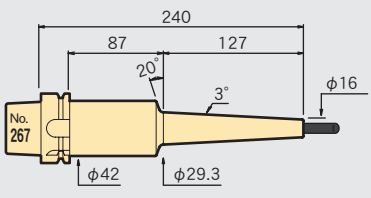
4.5

A63-SLSB10-210-M127



4.9

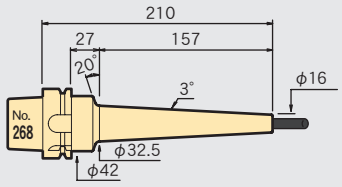
A63-SLSB10-240-M127



4.9

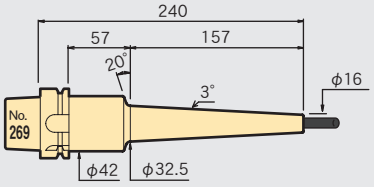
A63 S=1:7

A63-SLSB10-210-M157



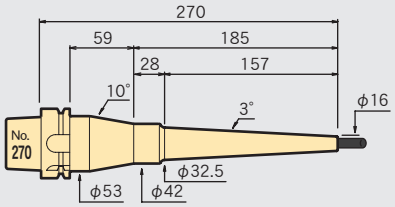
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A63-SLSB10-240-M157



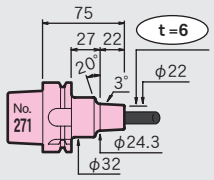
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A63-SLSB10-270-M157



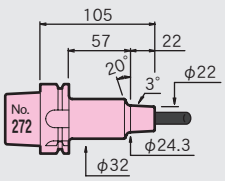
6.2

A63-SLRB10-75-M22



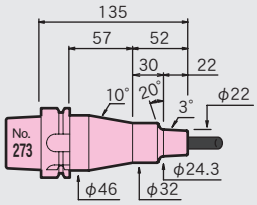
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A63-SLRB10-105-M22



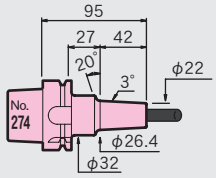
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A63-SLRB10-135-M22



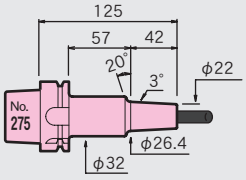
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A63-SLRB10-95-M42



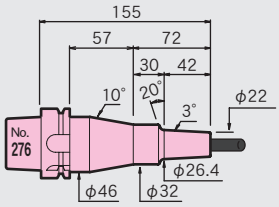
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A63-SLRB10-125-M42



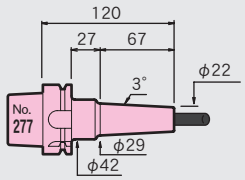
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A63-SLRB10-155-M42



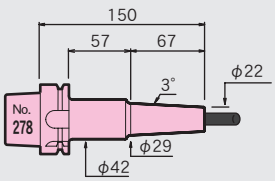
1.2

A63-SLRB10-120-M67



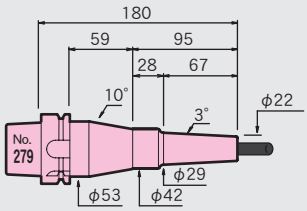
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A63-SLRB10-150-M67



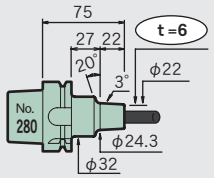
1.3

A63-SLRB10-180-M67



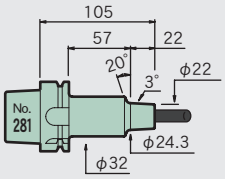
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A63-SLFB10-75-M22



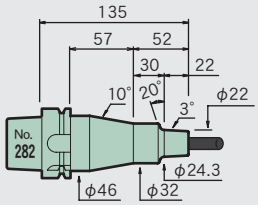
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A63-SLFB10-105-M22



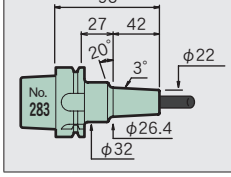
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A63-SLFB10-135-M22



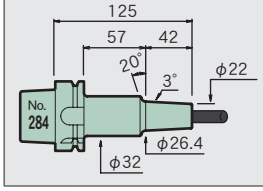
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A63-SLFB10-95-M42



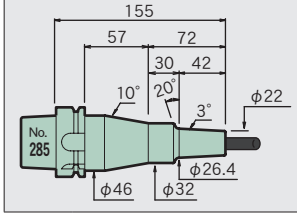
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A63-SLFB10-125-M42



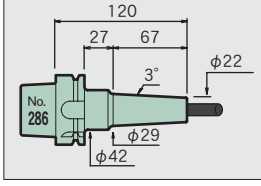
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A63-SLFB10-155-M42



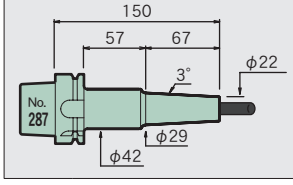
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A63-SLFB10-120-M67



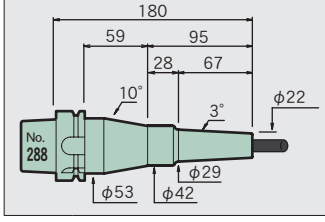
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A63-SLFB10-150-M67



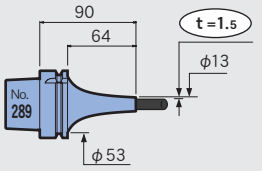
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A63-SLFB10-180-M67



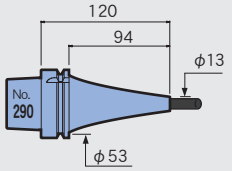
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A63-SLSA10-90 CV



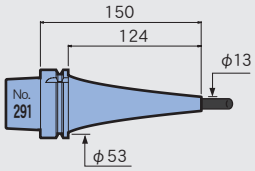
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A63-SLSA10-120 CV



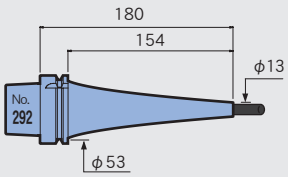
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A63-SLSA10-150 CV



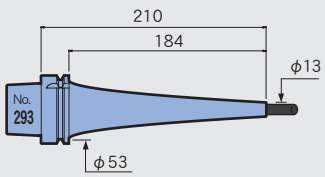
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A63-SLSA10-180 CV



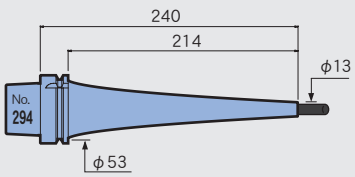
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A63-SLSA10-210 CV



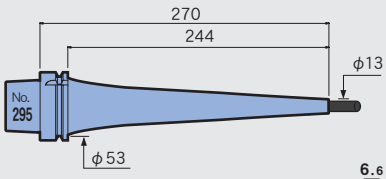
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A63-SLSA10-240 CV



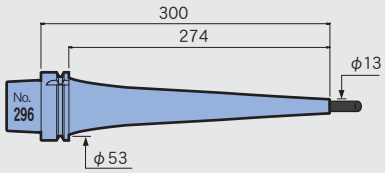
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A63-SLSA10-270 CV



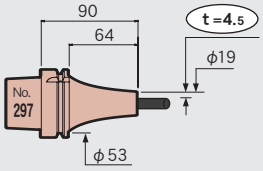
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A63-SLSA10-300 CV



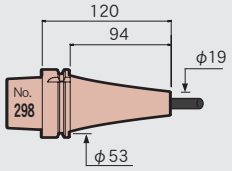
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A63-SLRA10-90 CV



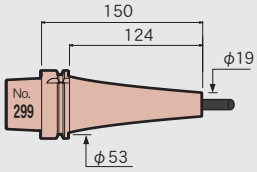
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A63-SLRA10-120 CV



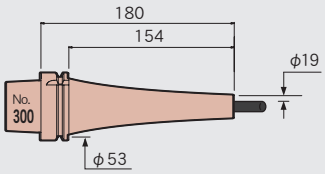
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A63-SLRA10-150 CV



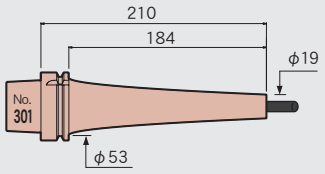
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A63-SLRA10-180 CV



2.0

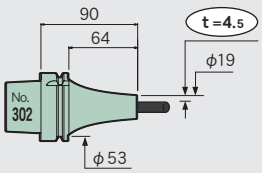
A63-SLRA10-210 CV



3.1

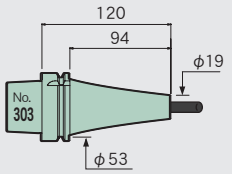
A63-SLFA10-90 CV





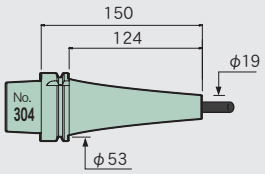
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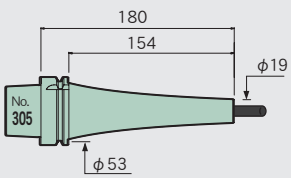
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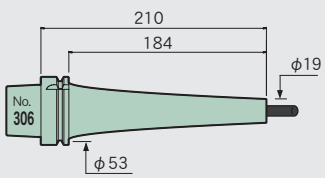
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A63-SLFA10-180 CV



2.0

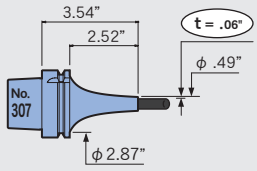
A63-SLFA10-210 CV



3.1

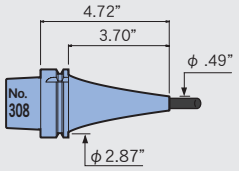
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A63-SLSA3/8-90 CV



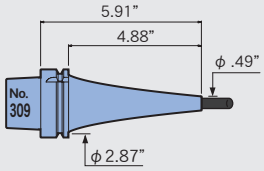
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A63-SLSA3/8-120 CV



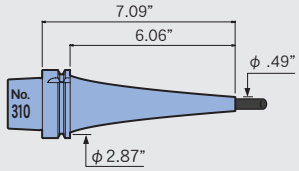
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A63-SLSA3/8-150 CV



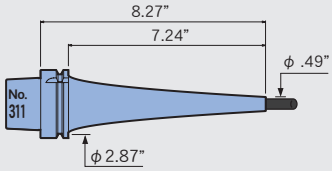
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A63-SLSA3/8-180 CV



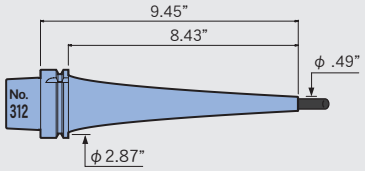
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A63-SLSA3/8-210 CV



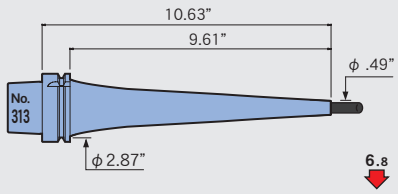
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A63-SLSA3/8-240 CV



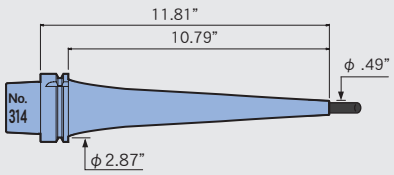
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A63-SLSA3/8-270 CV



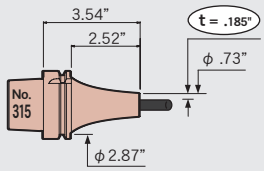
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A63-SLSA3/8-300 CV



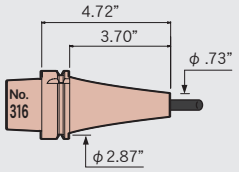
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A63-SLRA3/8-90 CV



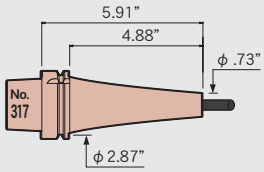
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A63-SLRA3/8-120 CV



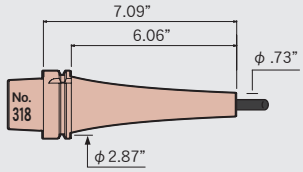
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A63-SLRA3/8-150 CV



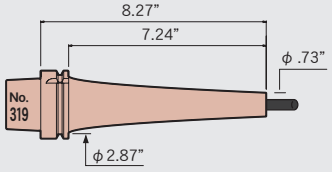
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A63-SLRA3/8-180 CV



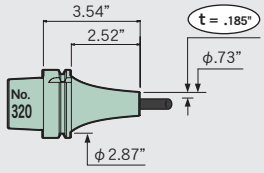
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A63-SLRA3/8-210 CV



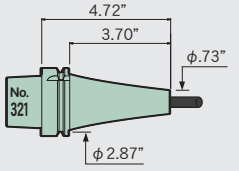
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A63-SLFA3/8-90 CV



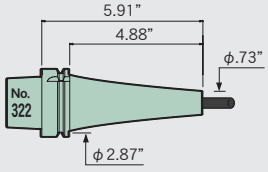
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A63-SLFA3/8-120 CV



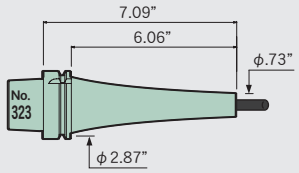
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A63-SLFA3/8-150 CV



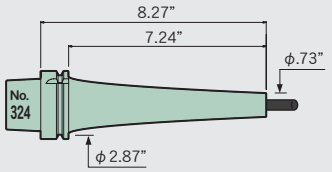
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A63-SLFA3/8-180 CV



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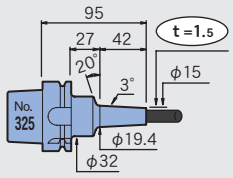
A63-SLFA3/8-210 CV



2.9

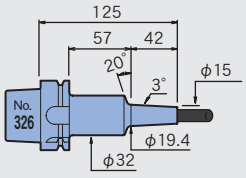
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A63-SLSA12-95-M42



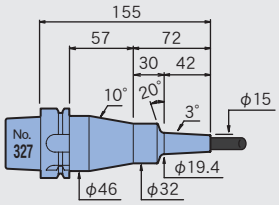
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A63-SLSA12-125-M42



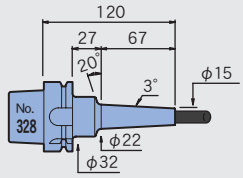
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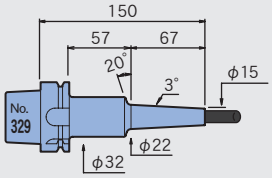
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A63-SLSA12-120-M67



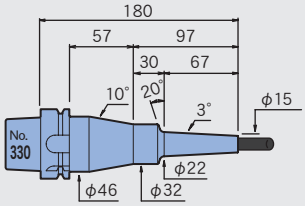
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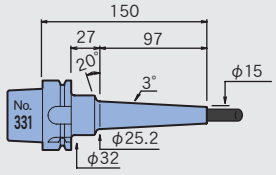
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A63-SLSA12-180-M67



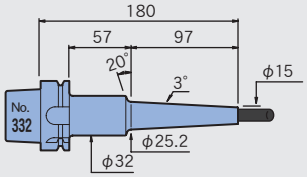
3.9

A63-SLSA12-150-M97



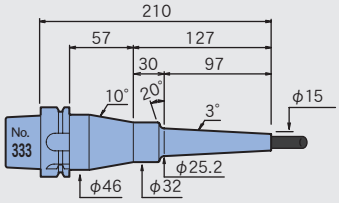
4.9

A63-SLSA12-180-M97



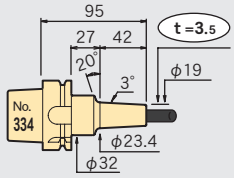
5.8

A63-SLSA12-210-M97



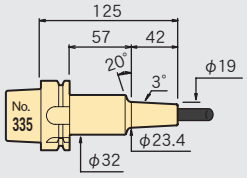
5.8

A63-SLSB12-95-M42



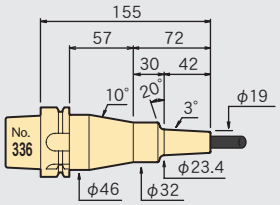
1.1

A63-SLSB12-125-M42



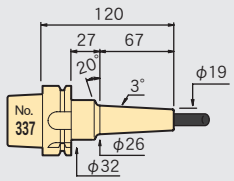
1.5

A63-SLSB12-155-M42



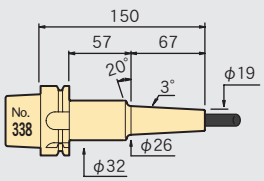
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A63-SLSB12-120-M67



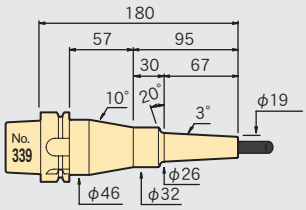
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A63-SLSB12-150-M67



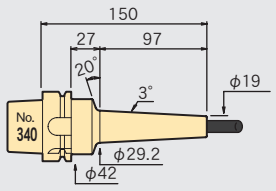
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A63-SLSB12-180-M67



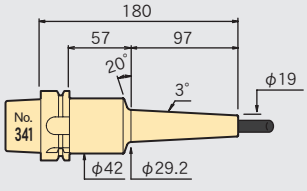
2.5

A63-SLSB12-150-M97



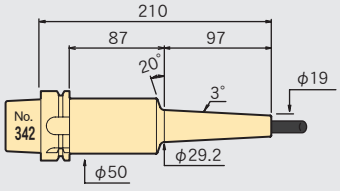
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A63-SLSB12-180-M97



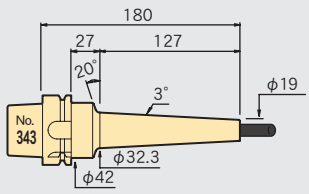
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A63-SLSB12-210-M97



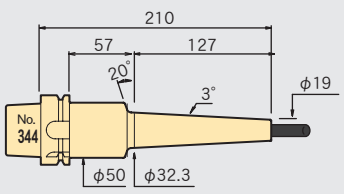
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A63-SLSB12-180-M127



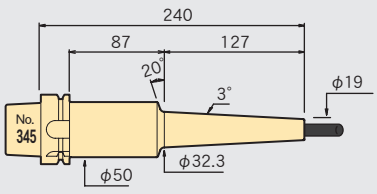
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A63-SLSB12-210-M127



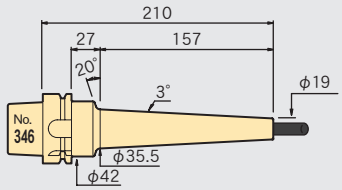
3.5

A63-SLSB12-240-M127



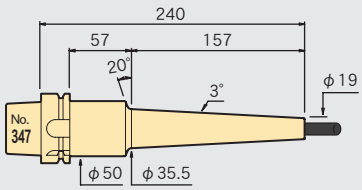
3.8

A63-SLSB12-210-M157



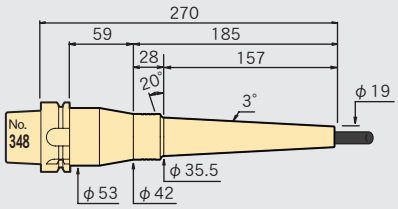
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A63-SLSB12-240-M157



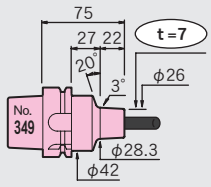
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A63-SLSB12-270-M157



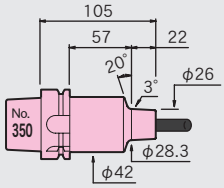
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A63-SLRB12-75-M22



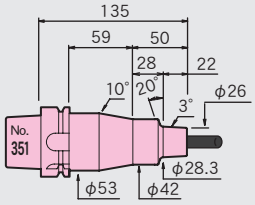
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A63-SLRB12-105-M22



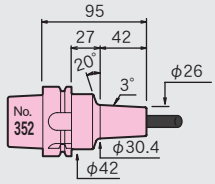
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A63-SLRB12-135-M22



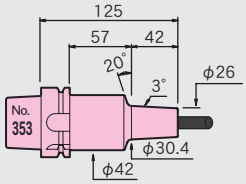
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A63-SLRB12-95-M42



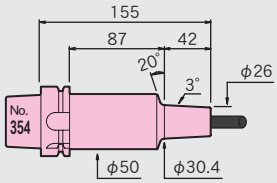
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A63-SLRB12-125-M42



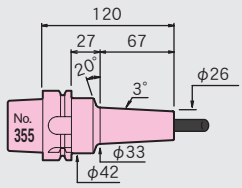
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A63-SLRB12-155-M42



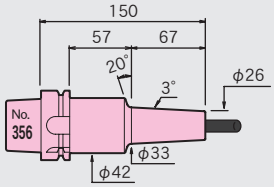
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A63-SLRB12-120-M67



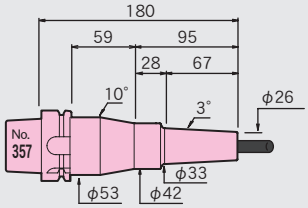
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A63-SLRB12-150-M67



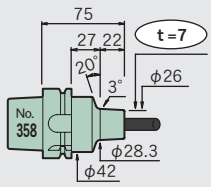
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A63-SLRB12-180-M67



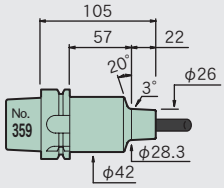
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A63-SLFB12-75-M22



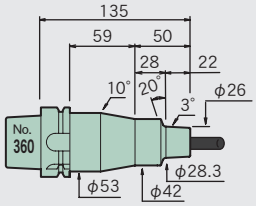
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A63-SLFB12-105-M22



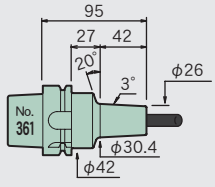
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A63-SLFB12-135-M22



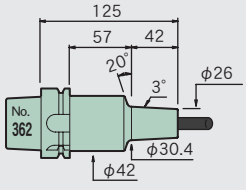
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A63-SLFB12-95-M42



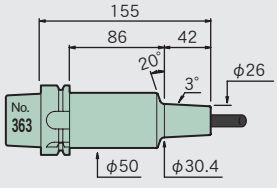
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A63-SLFB12-125-M42



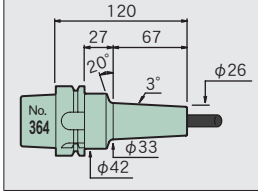
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A63-SLFB12-155-M42



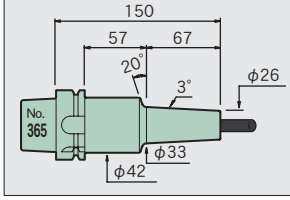
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A63-SLFB12-120-M67



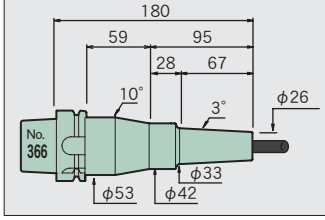
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A63-SLFB12-150-M67



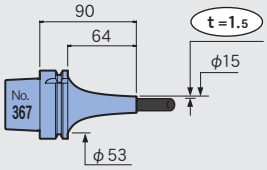
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A63-SLFB12-180-M67



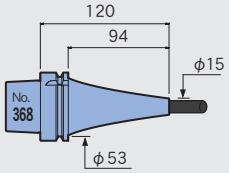
1.1

A63-SLSA12-90 CV



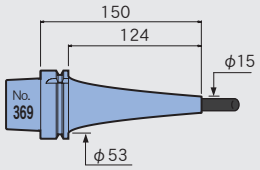
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A63-SLSA12-120 CV



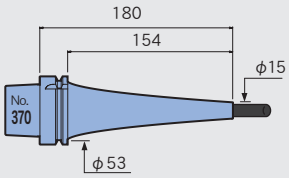
1.2

A63-SLSA12-150 CV



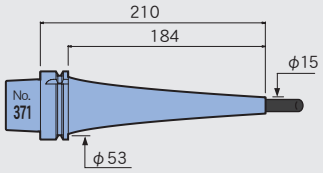
2.4

A63-SLSA12-180 CV



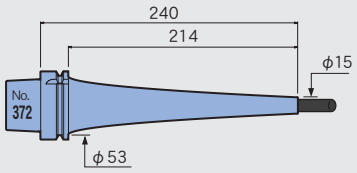
3.3

A63-SLSA12-210 CV



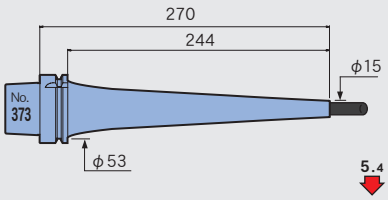
4.6

A63-SLSA12-240 CV



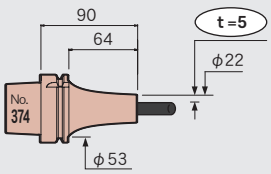
5.5

A63-SLSA12-270 CV



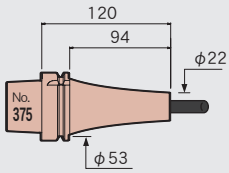
5.4

A63-SLRA12-90 CV



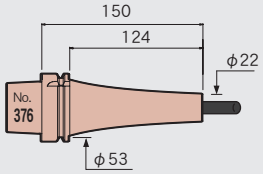
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A63-SLRA12-120 CV



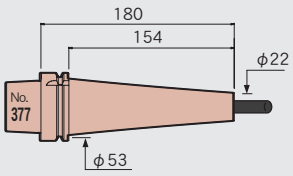
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A63-SLRA12-150 CV



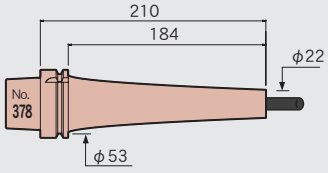
1.1

A63-SLRA12-180 CV



1.8

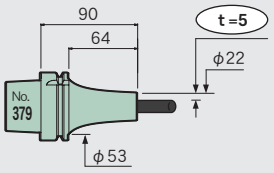
A63-SLRA12-210 CV



2.8

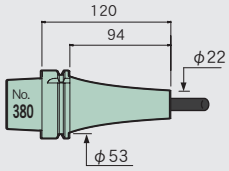
A63-SLFA12-90 CV





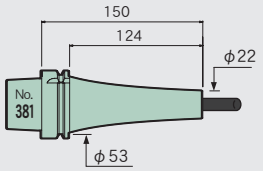
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A63-SLFA12-120 CV



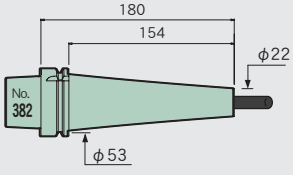
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A63-SLFA12-150 CV



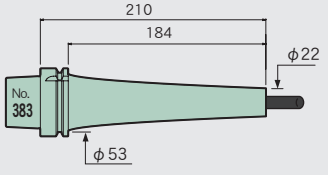
1.1

A63-SLFA12-180 CV



1.8

A63-SLFA12-210 CV

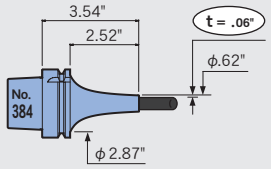


2.8

A63 S=1:7

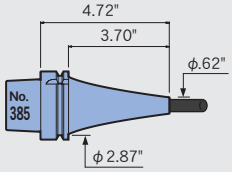
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A63-SLSA1/2-90 CV



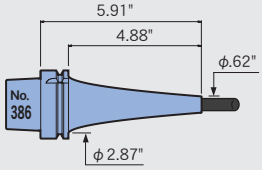
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A63-SLSA1/2-120 CV



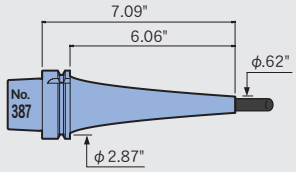
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A63-SLSA1/2-150 CV



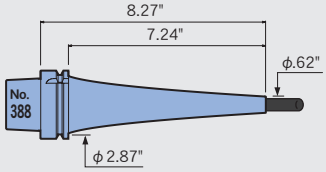
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A63-SLSA1/2-180 CV



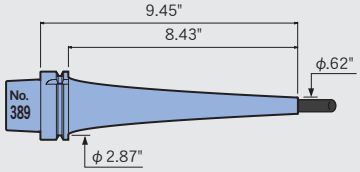
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A63-SLSA1/2-210 CV



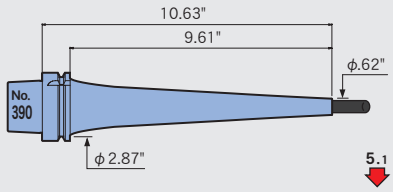
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A63-SLSA1/2-240 CV



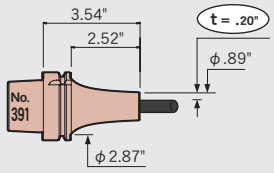
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A63-SLSA1/2-270 CV



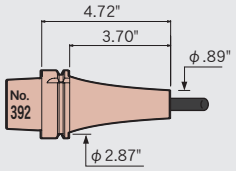
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A63-SLRA1/2-90 CV



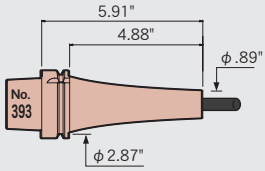
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A63-SLRA1/2-120 CV



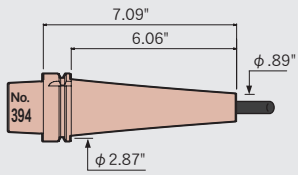
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A63-SLRA1/2-150 CV



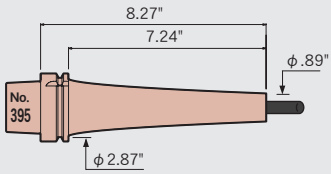
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A63-SLRA1/2-180 CV



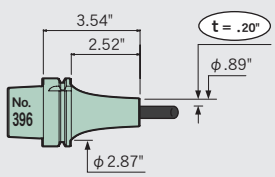
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A63-SLRA1/2-210 CV



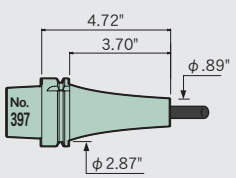
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A63-SLFA1/2-90 CV



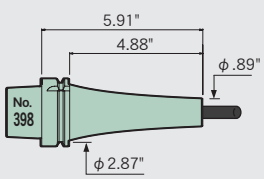
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A63-SLFA1/2-120 CV



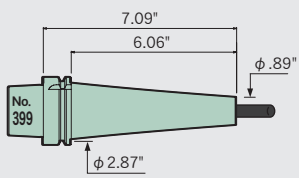
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A63-SLFA1/2-150 CV



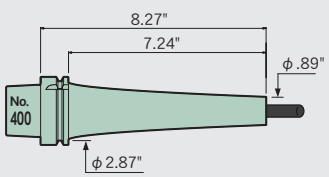
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A63-SLFA1/2-180 CV



1.9

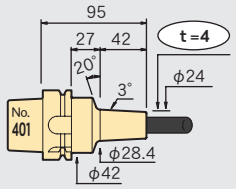
A63-SLFA1/2-210 CV



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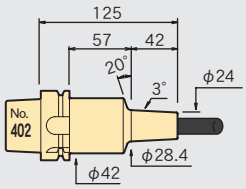
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A63-SLSB16-95-M42



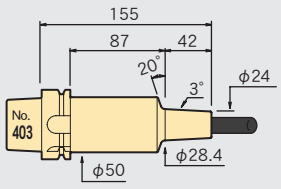
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A63-SLSB16-125-M42



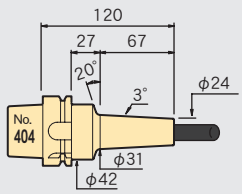
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A63-SLSB16-155-M42



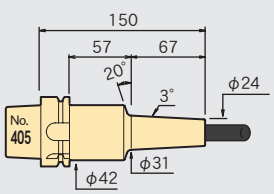
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A63-SLSB16-120-M67



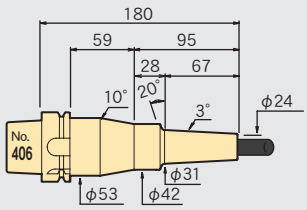
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A63-SLSB16-150-M67



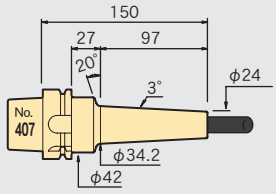
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A63-SLSB16-180-M67



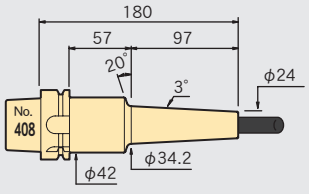
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A63-SLSB16-150-M97



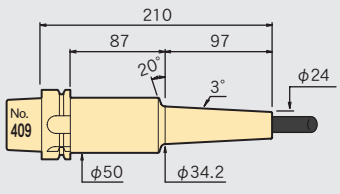
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A63-SLSB16-180-M97



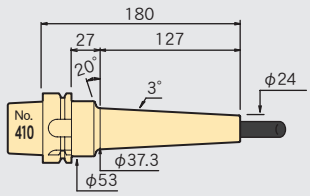
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A63-SLSB16-210-M97



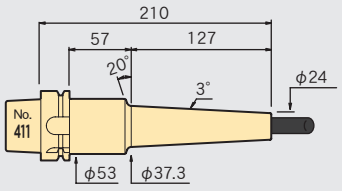
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A63-SLSB16-180-M127



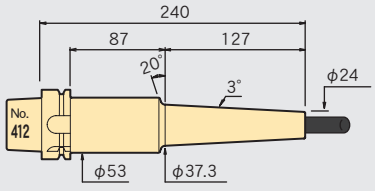
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A63-SLSB16-210-M127



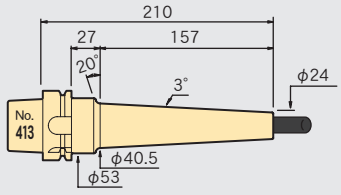
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A63-SLSB16-240-M127



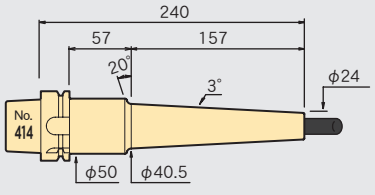
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A63-SLSB16-210-M157



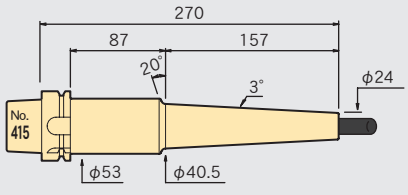
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A63-SLSB16-240-M157



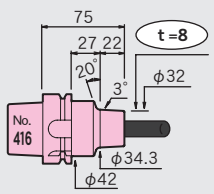
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A63-SLSB16-270-M157



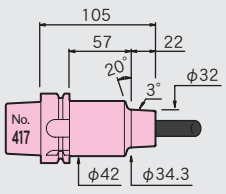
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A63-SLRB16-75-M22



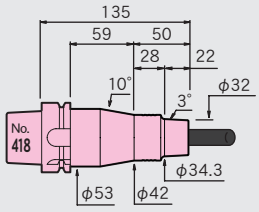
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A63-SLRB16-105-M22



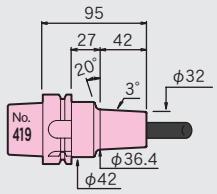
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A63-SLRB16-135-M22



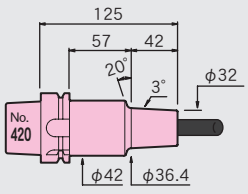
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A63-SLRB16-95-M42



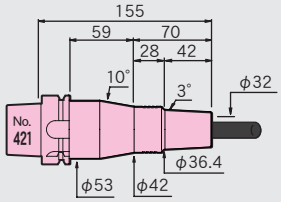
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A63-SLRB16-125-M42



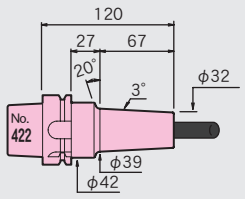
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A63-SLRB16-155-M42



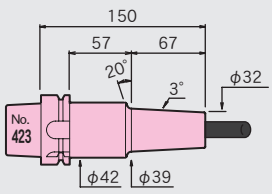
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A63-SLRB16-120-M67



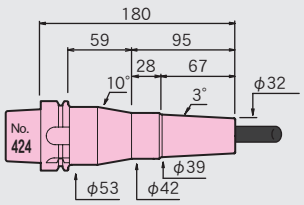
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A63-SLRB16-150-M67



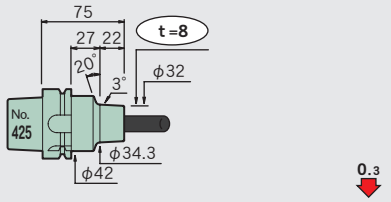
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A63-SLRB16-180-M67



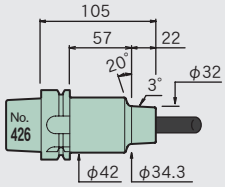
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A63-SLFB16-75-M22



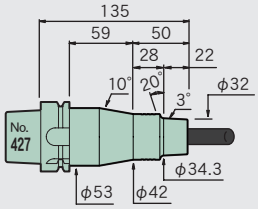
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A63-SLFB16-105-M22



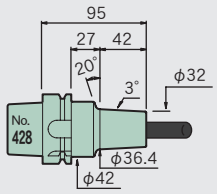
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A63-SLFB16-135-M22



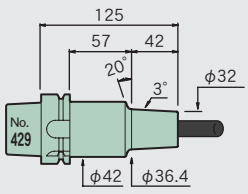
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A63-SLFB16-95-M42



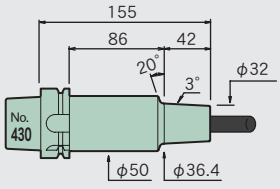
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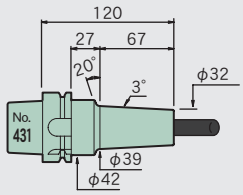
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A63-SLFB16-155-M42



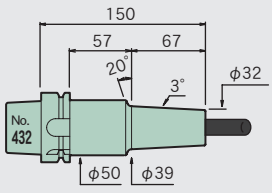
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A63-SLFB16-120-M67



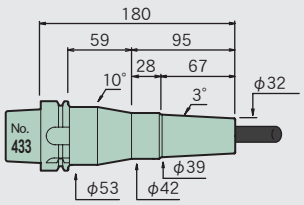
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A63-SLFB16-150-M67



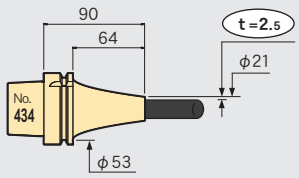
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A63-SLFB16-180-M67



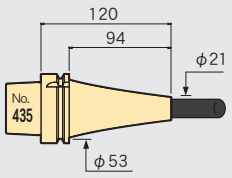
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A63-SLSB16-90 CV



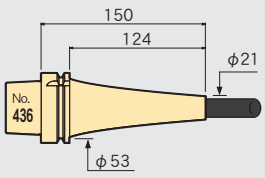
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A63-SLSB16-120 CV



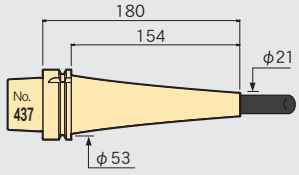
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A63-SLSB16-150 CV



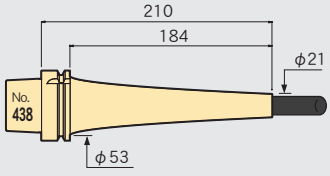
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A63-SLSB16-180 CV



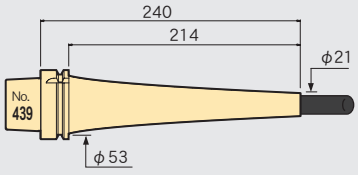
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A63-SLSB16-210 CV



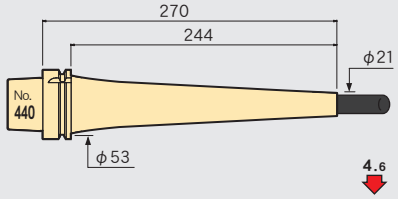
3.0

A63-SLSB16-240 CV



3.7

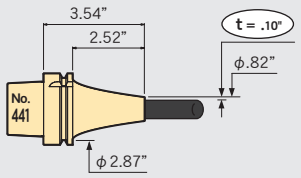
A63-SLSB16-270 CV



4.6

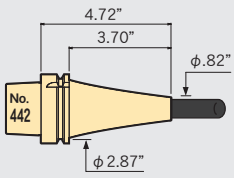
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A63-SLSB5/8-90 CV



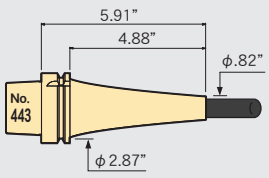
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A63-SLSB5/8-120 CV



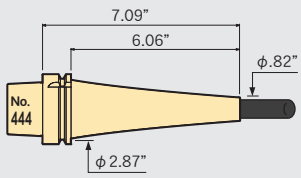
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A63-SLSB5/8-150 CV



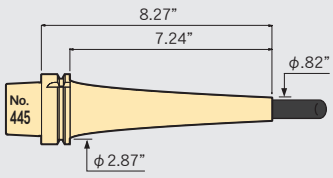
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A63-SLSB5/8-180 CV



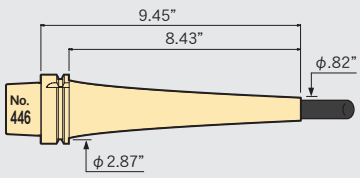
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A63-SLSB5/8-210 CV



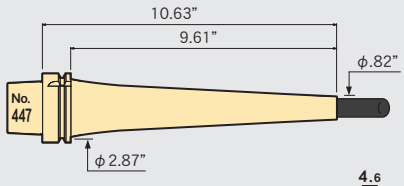
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A63-SLSB5/8-240 CV



3.7

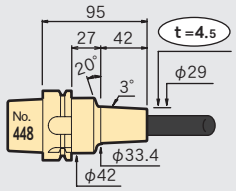
A63-SLSB5/8-270 CV



4.6

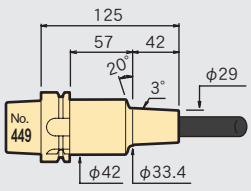
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A63-SLSB20-95-M42



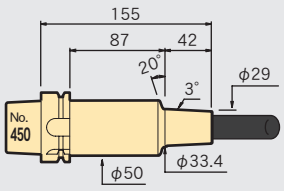
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A63-SLSB20-125-M42



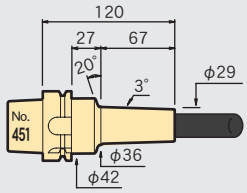
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A63-SLSB20-155-M42



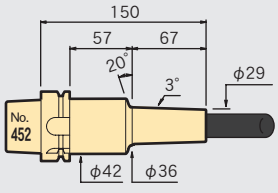
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A63-SLSB20-120-M67



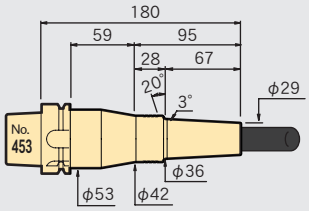
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A63-SLSB20-150-M67



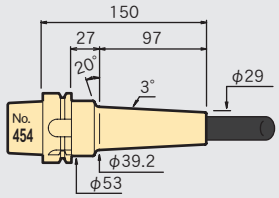
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A63-SLSB20-180-M67



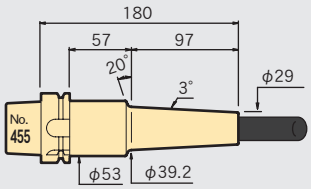
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A63-SLSB20-150-M97



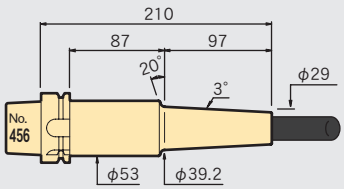
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A63-SLSB20-180-M97



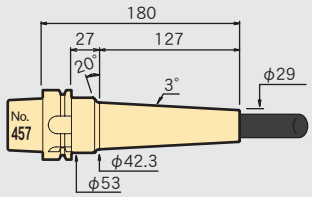
1.3

A63-SLSB20-210-M97



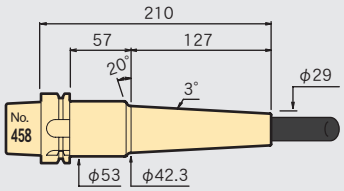
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A63-SLSB20-180-M127



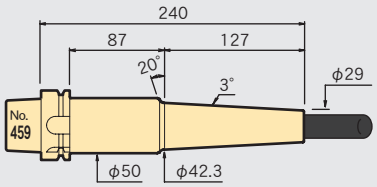
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A63-SLSB20-210-M127



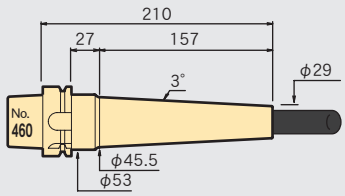
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A63-SLSB20-240-M127



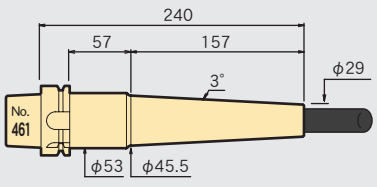
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A63-SLSB20-210-M157



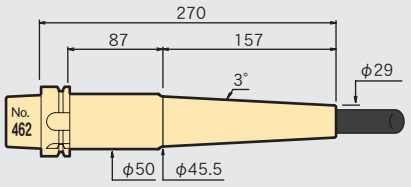
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A63-SLSB20-240-M157



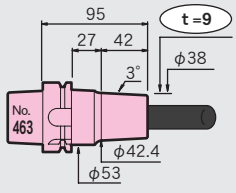
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A63-SLSB20-270-M157



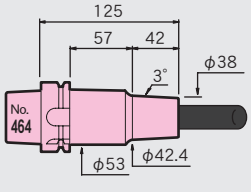
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A63-SLRB20-95-M42



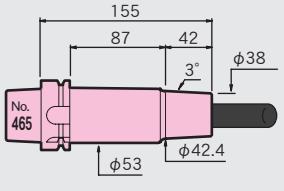
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A63-SLRB20-125-M42



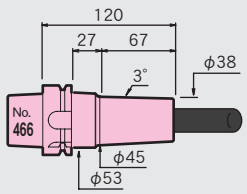
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A63-SLRB20-155-M42



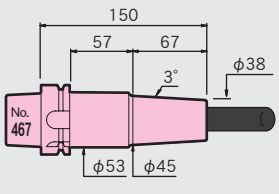
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A63-SLRB20-120-M67



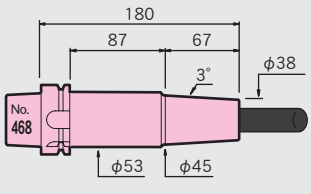
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A63-SLRB20-150-M67



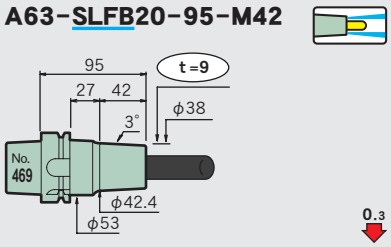
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A63-SLRB20-180-M67



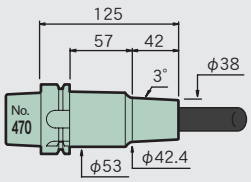
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A63-SLFB20-95-M42



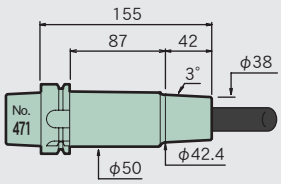
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A63-SLFB20-125-M42



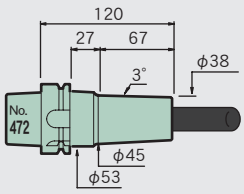
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A63-SLFB20-155-M42



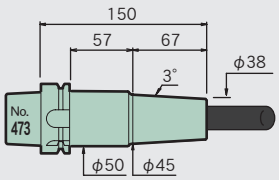
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A63-SLFB20-120-M67



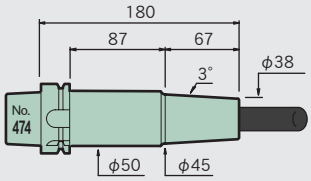
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A63-SLFB20-150-M67



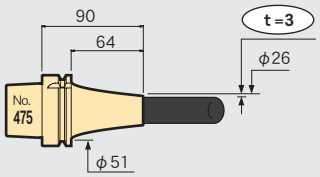
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A63-SLFB20-180-M67



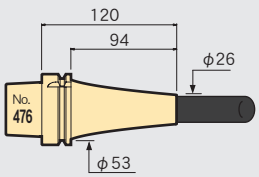
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A63-SLSB20-90 CV



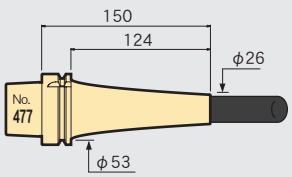
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A63-SLSB20-120 CV



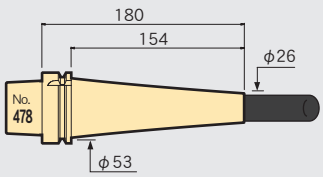
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A63-SLSB20-150 CV



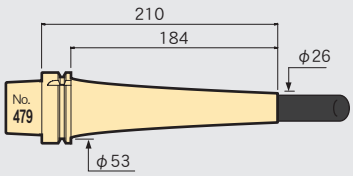
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A63-SLSB20-180 CV



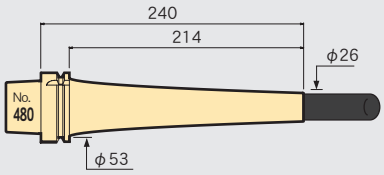
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A63-SLSB20-210 CV



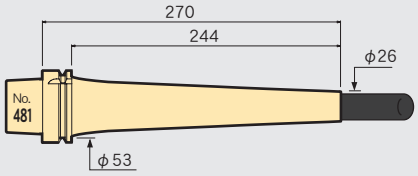
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A63-SLSB20-240 CV



3.0

A63-SLSB20-270 CV

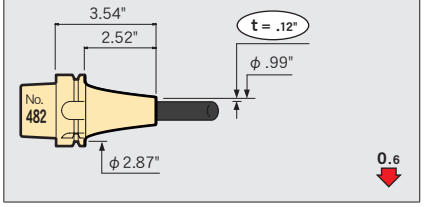


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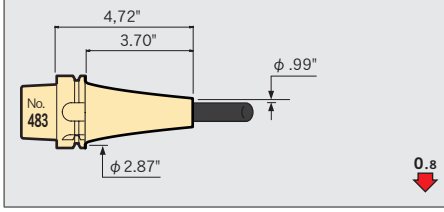
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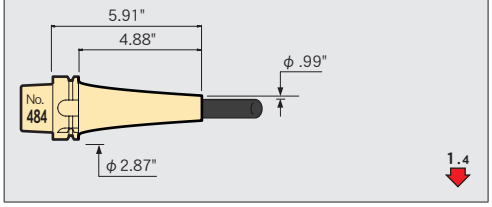
A63-SLSB3/4-90 CV



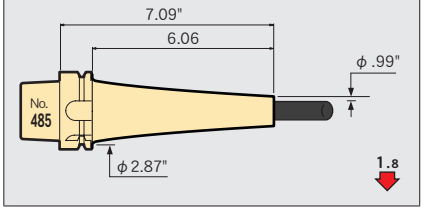
A63-SLSB3/4-120 CV



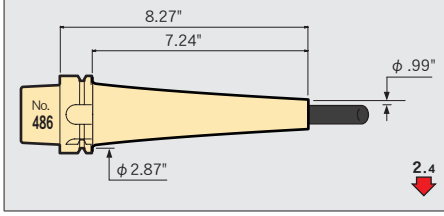
A63-SLSB3/4-150 CV



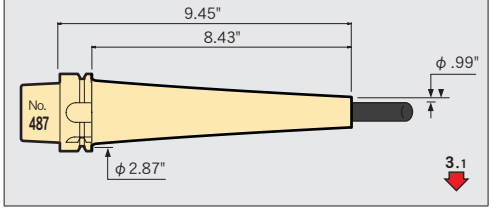
A63-SLSB3/4-180 CV



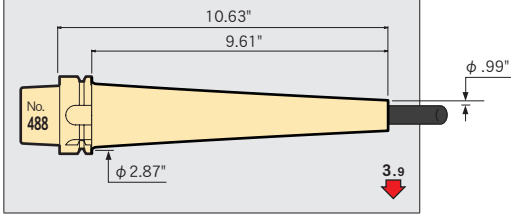
A63-SLSB3/4-210 CV



A63-SLSB3/4-240 CV

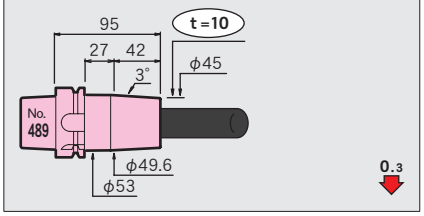


A63-SLSB3/4-270 CV

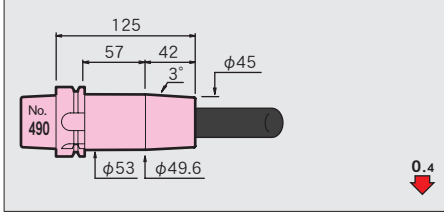


ϕ25

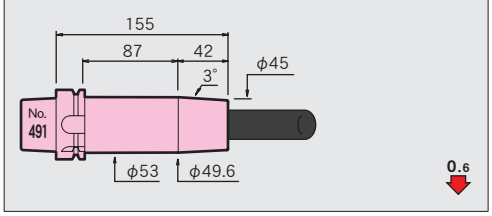
A63-SLRB25-95-M42



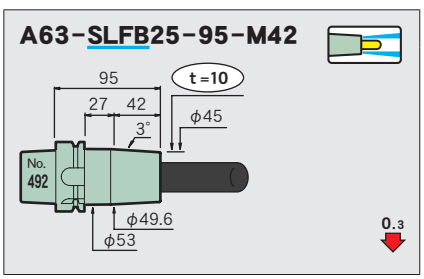
A63-SLRB25-125-M42



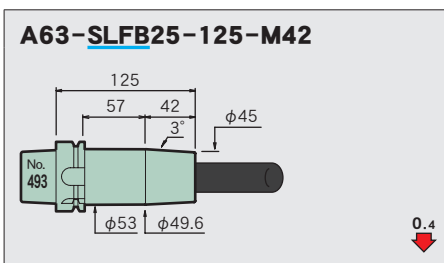
A63-SLRB25-155-M42



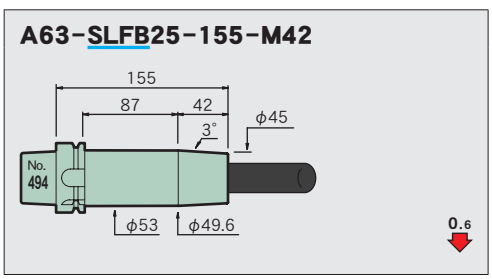
A63-SLFB25-95-M42



A63-SLFB25-125-M42

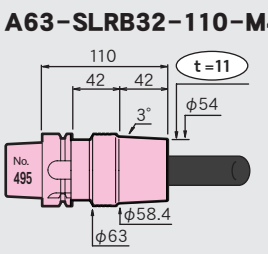


A63-SLFB25-155-M42



ϕ32

A63-SLRB32-110-M42

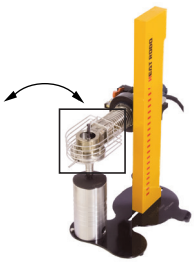


ϕ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70



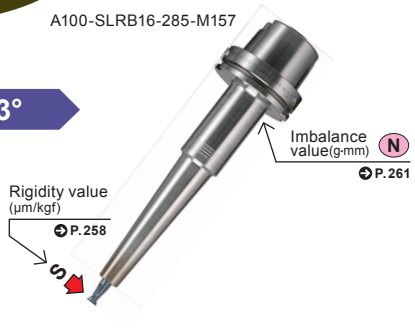


HEAT ROBO Baby3000S

A100

A100-SLRB16-285-M157

MONO 3°



A100−SLSB16−165 cv

MONO CURVE



Fig. 1

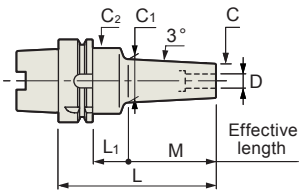
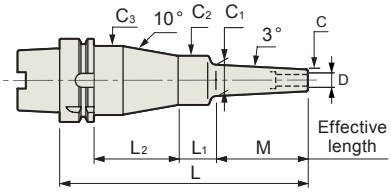


Fig. 2



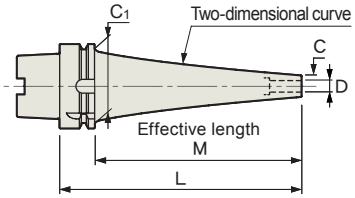


Compatibility table for HRD-01S

[○] Available [×] Not available

[▲] Usable by raising the heating unit.→P.257

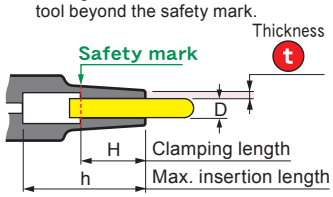
Fig. 3



■**Std.Access.**
- Coolant duct (fixed type) →p.246

■**Note**
- Swing type coolant ducts are available upon request. For details, please contuct us.

■**Caution**
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.



CV : Curve

Thickness

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg	N	S		Scale model
A100-SLSA3-110-M 42	1	3	6	1.5	110	42	39	—	10.4	26	—	9	80	2.2	19.8	9.4	○	1
-135-M 67					135	67			13				105	2.3	20.9	15.1		4
-140-M 42					140	42	69		10.4				110		19.9	10.1		2
-165-M 67					165	67			13	25			136	2.2	21	16		5
-M 97						97	39		16.2	26			135	2.3	22.2	21		7
-170-M 42	2				170	42	33	66	10.4		40		140	2.6	20.2	10		3
-195-M 67					195	67			13				165		21.3	15.9		6
-M 97	1					97	69	—	16.2	25	—		166	2.3	22.3	22.5		8
-225-M 97	2				225		33	66		26	40		195	2.7	22.6	22.2		9
-SLRA3- 90-M 22	1	3	7.5	2.25	90	22	39	—	9.8	26	—	9	60	2.2	20.2	2.9	○	10
-110-M 42					110	42			11.9				80		20.6	5.5		13
-120-M 22					120	22	69		9.8	25			91		20.3	3.3		11
-135-M 67					135	67	39		14.5	26			105	2.3	21.4	9		16
-140-M 42					140	42	69		11.9				110		20.7	6.1		14
-150-M 22	2				150	22	33	66	9.8		40		120	2.6	20.6	3.2		12
-165-M 67	1				165	67	69	—	14.5	25	—		136	2.3	21.5	10.1		17
-M 97						97	39		17.7	26			135		22.4	13.1		19
-170-M 42	2				170	42	33	66	11.9		40		140	2.6	21	6		15
-195-M 67					195	67			14.5				165		21.8	9.9		18
-M 97	1					97	69	—	17.7		—			2.4	22.5	14.7		20
-M127						127	39		20.8	36					24.5	15.8		22
-225-M 97	2				225	97	33	66	17.7	26	40		195	2.7	22.8	14.4		21
-M127	1					127	69	—	20.8	36	—			2.6	24.6	16.4		23
-255-M127	2				255		28	71			50		225	3.2	24.9	16.3		24

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S		Scale model
A100-SLFB3- 90-M 22	1	3	9.5	3.25	90	22	39	—	11.8	26	—	9	60	2.2	19.8	1.9	○	25
-110-M 42					110	42			13.9				80	2.3	20.3	3.3		28
-120-M 22					120	22	69		11.8				90		19.9	2.3		26
-135-M 67					135	67	39		16.5				105		21.4	5.5		31
-140-M 42					140	42	69		13.9	25			111	2.2	20.4	4.1		29
-150-M 22	2				150	22	33	66	11.8	26	40		120	2.6	20.2	2.3		27
-165-M 67	1				165	67	69	—	16.5		—		135	2.4	21.5	6.5		32
-170-M 42	2				170	42	33	66	13.9		40		140	2.6	20.7	3.9		30
-195-M 67					195	67			16.5				165		21.8	6.3		33
A100-SLSA4-110-M 42	1	4	7	1.5	110	42	39	—	11.4	25	—	12	81	2.1	21	7.2	○	34
-135-M 67					135	67			14				106	2.2		11.8		37
-140-M 42					140	42	69		11.4				111		21.1	8		35
-165-M 67					165	67			14				136	2.3		13.1		38
-M 97						97	39		17.2	26			135		22.4	16.9		40
-170-M 42	2				170	42	33	66	11.4		40		140	2.6	21.4	8		36
-195-M 67					195	67			14	25	39		166			12.9		39
-M 97	1					97	69	—	17.2		—			2.3	22.5	18.7		41
-225-M 97	2				225		33	66			39		196	2.6	22.8	18.3		42
-SLRA4- 90-M 22	1	4	10	3	90	22	39	—	12.3	25	—	12	61	2.1	20.3	1.8	○	43
-110-M 42					110	42			14.4	26			80	2.3	21	3.2		46
-120-M 22					120	22	69		12.3	25			91	2.2	20.4	2.3		44
-135-M 67					135	67	39		17				106		22	5.3		49
-140-M 42					140	42	69		14.4				111		21.1	4		47
-150-M 22	2				150	22	33	66	12.3	26	40		120	2.6	20.7	2.2		45
-165-M 67	1				165	67	69	—	17		—		135	2.4	22.1	6.3		50
-M 97						97	39		20.2	25			136	2.2	23.5	7.9		52
-170-M 42	2				170	42	33	66	14.4		39		141	2.6	21.4	3.8		48
-195-M 67					195	67			17				166		22.5	6.3		51
-M 97	1					97	69	—	20.2	26	—		165	2.4	23.5	9.5		53
-M127						127	39		23.3	32			166		26.7	9.6		55
-225-M 97	2				225	97	33	66	20.2	26	40		195	2.7	23.9	9.2		54
-M127	1					127	69	—	23.3	32	—		196	2.6	26.8	10.7		56
-255-M127	2				255		30	69			46		226	3	27.2	10.4		57
-SLFB4- 90-M 22	1	4	12	4	90	22	39	—	14.3	25	—	12	61	2.1	20.1	1.4	○	58
-110-M 42					110	42			16.4	26			80	2.3	20.8	2.3		61
-120-M 22					120	22	69		14.3	25			91	2.2	20.2	1.9		59
-135-M 67					135	67	39		19	26			105	2.3	22	3.7		64
-140-M 42					140	42	69		16.4	25			111		20.8	3.1		62
-150-M 22	2				150	22	33	66	14.3		39		121	2.6	20.5	1.8		60
-165-M 67	1				165	67	69	—	19	26	—		135	2.4	22.1	4.7		65
-170-M 42	2				170	42	33	66	16.4	25	39		141	2.6	21.2	2.9		63
-195-M 67					195	67			19				166		22.4	4.7		66
-SLSA4-165 CV	3	4	7	1.5	165	136	—	—	85	—	—	12	133	3.4	29	2.5	○	67
-195 CV					195	166							163	3.7	30.6	3.3		68
-225 CV					225	196							196	4.3	33	3.8		69
-255 CV					255	226							226	4.4	34.1	5.6		70
-285 CV					285	256							256	4.6	35.5	7.6		71
-315 CV					315	286							286	4.9	37.1	9.8		72
-345 CV					345	316							316	5.2	38.8	12.4		73
A100-SLSA3/16-165 CV	3	.19	.31	.06	6.50	5.35	—	—	3.35	—	—	.59	5.35	7.0	25.2	2.4	○	74
-195 CV					7.68	6.54							6.54	7.6	26.9	3.3		75
-225 CV					8.86	7.72							7.72	8.7	29.1	4		76
-255 CV					10.04	8.90							8.90	9.0	30	6		77
-285 CV					11.22	10.08							10.08	9.4	32.2	8.2	▲	78
-315 CV					12.40	11.26							11.26	10.1	33.6	10.4		79
-345 CV					13.58	12.44							12.44	10.7	35.2	13.1		80

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg lbs	N	S		Scale model
A100-SLSA6-110-M 42	1	6	9	1.5	110	42	39	—	13.4	25	—	18	81	2.1	21.3	4.9	▲	81
-135-M 67					135	67			16				106	2.2	22.8	8.2		84
-140-M 42					140	42	69		13.4				111		21.4	5.8		82
-165-M 67					165	67			16				136	2.3	22.9	9.5		85
-M 97						97	39		19.2	32			135		25.3	11.1		87
-170-M 42	2				170	42	33	66	13.4	25	39		141	2.6	21.7	5.6		83
-195-M 67					195	67			16				166		23.2	9.1		86
-M 97	1					97	69	—	19.2	32	—			2.4	25.4	11.9		88
-225-M 97	2				225		30	69			46		196	2.9	25.7	11.7		89
-SLSB6-110-M 42	1	6	10	2	110	42	39	—	14.4	25	—	18	81	2.1	22.2	3.8	○	90
-135-M 67					135	67			17				106	2.2	24.3	6.3		93
-140-M 42					140	42	69		14.4				111	2.2	22.3	4.7		91
-165-M 67					165	67			17				136	2.3	24.4	7.7		94
-M 97						97	39		20.2	32					27.3	8.6		96
-170-M 42	2				170	42	33	66	14.4	26	40		140	2.6	22.6	4.6		92
-195-M 67					195	67			17	25	39		166		24.7	7.4		95
-M 97	1					97	69	—	20.2	36	—		165		27.4	9.5		97
-M127						127	39		23.3	32			166	2.4	29.8	11.3		99
-225-M 97	2				225	97	28	71	20.2	36	50		195	3.2	27.8	9.3		98
-M127	1					127	69	—	23.3	32	—		196	2.5	29.9	12.4		100
-M157						157	39		26.5						32.3	13.6		102
-255-M127	2				255	127	30	69	23.3		46		226	3	30.3	12.1	▲	101
-M157	1					157	69	—	26.5		—			2.6	32.4	15.1		103
-285-M157	2				285		30	69			46		256	3.1	32.8	14.6		104
-SLRB6- 90-M 22	1	6	14	4	90	22	39	—	16.3	32	—	18	61	2.2	21.1	1	○	105
-110-M 42					110	42			18.4				81	2.3	22.8	1.6		108
-120-M 22					120	22	69		16.3				91	2.4	21.3	1.2		106
-135-M 67					135	67	39		21				106	2.3	24.9	2.7		111
-140-M 42					140	42	69		18.4				111	2.4	22.9	2		109
-150-M 22	2				150	22	30	69	16.3		46		121	2.8	21.6	1.2		107
-165-M 67	1				165	67	69	—	21		—		136	2.5	25	3.2		112
-170-M 42	2				170	42	30	69	18.4		46		141	2.9	23.3	1.9		110
-195-M 67					195	67			21				168	3.2	25.3	2.9		113
-SLFB6- 90-M 22	1	6	14	4	90	22	39	—	16.3	32	—	18	61	2.2	21.1	1	○	114
-110-M 42					110	42			18.4				81	2.3	22.8	1.6		117
-120-M 22					120	22	69		16.3				91	2.4	21.3	1.2		115
-135-M 67					135	67	39		21	36			105		24.9	2.6		120
-140-M 42					140	42	69		18.4	32			111		22.9	2		118
-150-M 22	2				150	22	30	69	16.3		46		121	2.8	21.6	1.2		116
-165-M 67	1				165	67	69	—	21		—		136	2.5	25	3.2		121
-170-M 42	2				170	42	30	69	18.4		46		141	2.9	23.3	1.9		119
-195-M 67					195	67			21				166		25.3	3.1		122
-SLSA6-165 CV	3	6	9	1.5	165	136	—	—	85	—	—	18	136	3.3	28.8	2.1	○	123
-195 CV					195	166							166	4	32	2.3		124
-225 CV					225	196							196	4.1	32.4	3.6		125
-255 CV					255	226							226	4.8	35.9	3.9		126
-285 CV					285	256							256	5	37.4	5.2	▲	127
-315 CV					315	286							286	5.3	38.9	6.8		128
-345 CV					345	316							316	5.6	40.3	8.7		129
A100-SLSA1/4-165 CV	3	1/4	.37	.06	6.50	5.35	—	—	3.35	—	—	.71	5.35	8.0	27.1	1.5	○	130
-195 CV					7.68	6.54							6.54	8.2	27.8	2.5		131
-225 CV					8.86	7.72							7.72	8.4	28.5	3.9		132
-255 CV					10.04	8.90							8.90	9.8	32.7	4.2		133
-285 CV					11.22	10.08							10.08	10.4	34.3	5.6	▲	134
-315 CV					12.40	11.26							11.26	11.0	36.1	7.4		135
-345 CV					13.58	12.44							12.44	11.6	37.5	9.5		136

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model
A100-SLSA8-110-M 42	1	8	11	1.5	110	42	39	—	15.4	36	—	24	80	2.3	23.2	3.2	○	137
-135-M 67					135	67			18	32			106		25.8	5.5		140
-140-M 42					140	42	69		15.4	36			110	2.5	23.4	3.5		138
-165-M 67					165	67			18				135		26	5.8		141
-M 97						97	39		21.2	32			136	2.3	29	8.1		143
-170-M 42	2				170	42	28	71	15.4	36	50		140	3.1	23.7	3.4		139
-195-M 67					195	67	30	69	18	32	46		166	2.9	26.3	5.9		142
-M 97	1					97	69	—	21.2		—			2.5	29.1	8.9		144
-225-M 97	2				225		28	71		36	50		195	3.2	29.5	8.3		145
-SLSB8-110-M 42	1	8	13	2.5	110	42	39	—	17.4	32	—	24	81	2.2	24.3	2.1	○	146
-135-M 67					135	67			20				106	2.3	27.5	3.6		149
-140-M 42					140	42	69		17.4				111	2.4	24.5	2.6		147
-165-M 67					165	67			20				136		27.7	4.2		150
-M 97						97	39		23.2						31.4	5.4		152
-170-M 42	2				170	42	28	71	17.4	36	50		140	3.1	24.8	2.4		148
-195-M 67					195	67	30	69	20	32	46		166	2.9	28	4		151
-M 97	1					97	69	—	23.2		—			2.5	31.5	6.3		153
-M127						127	39		26.3					2.4	35.3	7.3		155
-225-M 97	2				225	97	30	69	23.2		46		196	3	31.9	6		154
-M127	1					127	69	—	26.3		—			2.6	35.4	8.5		156
-M157						157	39		29.5	42					39.1	8.1		158
-255-M127	2				255	127	30	69	26.3	32	46		226	3.1	35.7	8.2	▲	157
-M157	1					157	69	—	29.5	42	—			2.9	39.3	8.7		159
-285-M157	2				285		28	71			56		256	3.6	39.6	8.6		160
-SLRB8- 90-M 22	1	8	18	5	90	22	39	—	20.3	32	—	24	61	2.2	21.8	0.7	×	161
-110-M 42					110	42			22.4				81	2.3	24.4	1.1	○	164
-120-M 22					120	22	69		20.3				91	2.4	22	1	×	162
-135-M 67					135	67	39		25				106		27.6	1.8	○	167
-140-M 42					140	42	69		22.4				111		24.5	1.6		165
-150-M 22	2				150	22	30	69	20.3		46		121	2.9	22.3	1	×	163
-165-M 67	1				165	67	69	—	25		—		136	2.5	27.8	2.4	○	168
-170-M 42	2				170	42	28	71	22.4	36	50		140	3.1	24.9	1.3		166
-195-M 67					195	67	30	69	25	32	46		166	3	28.1	2.2		169
-SLFB8- 90-M 22	1	8	18	5	90	22	39	—	20.3	36	—	24	60	2.3	21.8	0.7	×	170
-110-M 42					110	42			22.4				80		24.4	1.1	○	173
-120-M 22					120	22	69		20.3	32			91	2.4	22	1	×	171
-135-M 67					135	67	39		25	36			105		27.6	1.7	○	176
-140-M 42					140	42	69		22.4				110	2.6	24.5	1.3		174
-150-M 22	2				150	22	30	69	20.3	32	46		121	2.9	22.3	1	×	172
-165-M 67	1				165	67	69	—	25		—		136	2.5	27.8	2.4	○	177
-170-M 42	2				170	42	28	71	22.4	36	50		140	3.1	24.9	1.3		175
-195-M 67					195	67	30	69	25	32	46		166	3	28.1	2.2		178
-SLSA8-165 CV	3	8	11	1.5	165	136	—	—	85	—	—	24	136	3.7	30.7	1.4	○	179
-195 CV					195	166							166		31	2.3		180
-225 CV					225	196							196	4.6	35.3			181
-255 CV					255	226							226		35.9	3.6	▲	182
-285 CV					285	256							256	4.9	37.4	4.8		183
-315 CV					315	286							286	5.7	41.9	5		184
-345 CV					345	316							311	6.1	45.1	6		185
-SLRA8-195 CV	3	8	16	4	195	166	—	—	85	—	—	24	166	3.7	28.5	1.4	○	186
-225 CV					225	196							196	4.4	32.3	1.6		187
-255 CV					255	226							226	4.6	33.6	2.2	▲	188
-285 CV					285	256							256	4.8	34.8	3		189
-SLFA8-195 CV	3	8	16	4	195	166	—	—	85	—	—	24	166	3.7	28.5	1.4	○	190
-225 CV					225	196							196	4.4	32.3	1.6		191
-255 CV					255	226							226	4.6	33.6	2.2	▲	192
-285 CV					285	256							256	4.8	34.8	3		193

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S		Scale model
A100-SLSA5/16-165 CV	3	5/16	.43	.06	6.50	5.35	—	—	3.35	—	—	.94	5.35	7.8	26.6	1.5	○	194
-195 CV					7.68	6.54							6.54	7.9	27.2	2.4		195
-225 CV					8.86	7.72							7.72	9.6	31.2	2.5		196
A100 -255 CV					10.04	8.90							8.90		32.4	3.9	▲	197
-285 CV					11.22	10.08							10.08	10.2	34.2	5.3		198
-315 CV					12.40	11.26							11.26	11.9	38.4	5.4		199
-345 CV					13.58	12.44							12.44	12.3	43.5	6.6		200
-SLRA5/16-195 CV	3	5/16	.63	.16	7.68	6.54	—	—	3.35	—	—	.94	6.54	8.3	28	1.4	○	201
-225 CV					8.86	7.72							7.72	9.7	32.2	1.6		202
-255 CV					10.04	8.90							8.90	10.1	33.5	2.3	▲	203
-285 CV					11.22	10.08							10.08	10.6	35.1	3.1		204
-SLFA5/16-195 CV	3	5/16	.63	.16	7.68	6.54	—	—	3.35	—	—	.94	6.54	8.3	28	1.4	○	205
-225 CV					8.86	7.72							7.72	9.7	32.2	1.6		206
-255 CV					10.04	8.90							8.90	10.1	33.5	2.3	▲	207
-285 CV					11.22	10.08							10.08	10.6	35.1	3.1		208
A100-SLSA10-110-M 42	1	10	13	1.5	110	42	39	—	17.4	25	—	30	81	2.2	24.6	2.7	○	209
-135-M 67					135	67			20	32			106	2.3	28.5	4.1		212
-140-M 42					140	42	69		17.4	25			111	2.2	24.8	3.8		210
-165-M 67					165	67			20	36			135	2.5	28.6	4.4		213
-M 97						97	39		23.2	32			136	2.3	33.2	6.2		215
-170-M 42	2				170	42	28	71	17.4	36	50		140	3.1	25.1	2.5		211
-195-M 67					195	67			20				165		29	4.4		214
-M 97	1					97	69	—	23.2		—			2.6	33.3	6.6		216
-225-M 97	2				225		30	69		32	46		196	3	33.7	6.9	▲	217
-SLSB10-110-M 42	1	10	16	3	110	42	39	—	20.4	32	—	30	81	2.3	25.8	1.2	○	218
-135-M 67					135	67			23				106		30.4	2.5		221
-140-M 42					140	42	69		20.4				111	2.4	25.9	2		219
-165-M 67					165	67			23				136	2.5	30.5	3.2		222
-M 97						97	39		26.2					2.4	35.9	3.8		224
-170-M 42	2				170	42	30	69	20.4		46		141	2.9	26.3	1.9		220
-195-M 67					195	67			23				166		30.9	3		223
-M 97	1					97	69	—	26.2		—			2.6	36.1	4.8		225
-M127						127	39		29.3	42					42.1	4.6		227
-225-M 97	2				225	97	30	69	26.2	32	46		196	3	36.4	4.5	▲	226
-M127	1					127	69	—	29.3	42	—			2.9	42.5	5		228
-M157						157	39		32.5					2.8	47.7	5.7		230
-255-M127					255	127	99		29.3	50			225	3.5	42.8	5		229
-M157						157	69		32.5	42			226	3	48.1	6.2		231
-285-M157					285		99			50			255	3.6	48.4	6.1		232
-SLRB10- 90-M 22	1	10	22	6	90	22	39	—	24.3	32	—	30	61	2.3	22.2	0.6	×	233
-110-M 42					110	42			26.4				81		25.9	0.9	○	236
-120-M 22					120	22	69		24.3				91	2.4	22.3		×	234
-135-M 67					135	67	39		29	42			106	2.5	30.5	1.1	○	239
-140-M 42					140	42	69		26.4	32			111		26	1.4		237
-150-M 22	2				150	22	28	71	24.3	36	50		120	3.1	22.7	0.7	×	235
-165-M 67	1				165	67	69	—	29		—		135	2.7	30.6	1.6	○	240
-170-M 42	2				170	42	28	71	26.4		50		140	3.2	26.3	1		238
-195-M 67					195	67			29	42	56		166	3.5	31	1.3		241
-SLFB10- 90-M 22	1	10	22	6	90	22	39	—	24.3	32	—	30	61	2.3	22.2	0.6	×	242
-110-M 42					110	42			26.4				81		25.9	0.9	○	245
-120-M 22					120	22	69		24.3	32			91	2.4	22.3	0.9	×	243
-135-M 67					135	67	39		29	36			105	2.5	30.5	1.2	○	248
-140-M 42					140	42	69		26.4				110	2.6	26	1.1		246
-150-M 22	2				150	22	30	69	24.3	32	46		121	2.9	22.7	0.9	×	244
-165-M 67	1				165	67	69	—	29	36	—		135	2.7	30.6	1.6	○	249
-170-M 42	2				170	42	30	69	26.4	32	46		141	2.9	26.3	1.3		247
-195-M 67					195	67	28	71	29	42	56		166	3.5	31	1.3		250

CODE	Fig.	ϕD	ϕC	t	L	M	L1	L2	ϕC1	ϕC2	ϕC3	H	h	Kg lbs	N	S		Scale model
A100-SLSA10-165 CV	3	10	13	1.5	165	136	—	—	85	—	—	30	136	3.5	29.4	1.4	○	251
-195 CV					195	166							166	4.3	33.6	1.5		252
-225 CV					225	196							196	4.2	33.4	2.4		253
-255 CV					255	226							226	4.5	34.3	3.5	▲	254
-285 CV					285	256							251	5.1	38.3	3.6		255
-315 CV					315	286							286		39.9	4.8		256
-345 CV					345	316							311	5.9	42.7	5.5		257
-SLRA10-165 CV	3	10	19	4.5	165	136	—	—	85	—	—	30	136	3.5	27.6	1	○	258
-195 CV					195	166							166	4	30.1	1.1		259
-225 CV					225	196							196	4.1	31.1	1.6		260
-255 CV					255	226							226	4.9	35.3	1.7	▲	261
-285 CV					285	256							256	5	36.2	2.4		262
-SLFA10-165 CV	3	10	19	4.5	165	136	—	—	85	—	—	30	136	3.5	27.6	1	○	263
-195 CV					195	166							166	4	30.1	1.1		264
-225 CV					225	196							196	4.1	31.1	1.6		265
-255 CV					255	226							226	4.9	35.3	1.7	▲	266
-285 CV					285	256							256	5	36.2	2.4		267
A100-SLSA3/8-165 CV	3	3/8	.49	.06	6.50	5.35	—	—	3.35	—	—	1.18	5.35	7.5	26	1.4	○	268
-195 CV					7.68	6.54							6.54	9.2	30	1.5		269
-225 CV					8.86	7.72							7.72		30.4	2.5		270
-255 CV					10.04	8.90							8.90	9.4	32.2	3.8	▲	271
-285 CV					11.22	10.08							10.08	10.5	38.4	4		272
-315 CV					12.40	11.26							11.26	11.6	38.2	5.2		273
-345 CV					13.58	12.44							12.44	12.2	44	6.2		274
-SLRA3/8-165 CV	3	3/8	.73	.18	6.50	5.35	—	—	3.35	—	—	1.18	5.35	8.5	28.9	0.8	○	275
-195 CV					7.68	6.54							6.54	8.8	30.1	1.1		276
-225 CV					8.86	7.72							7.72	9.2	31.3	1.6		277
-255 CV					10.04	8.90							8.90	10.9	35.5	1.7	▲	278
-285 CV					11.22	10.08							10.08	11.3	36.6	2.4		279
-SLFA3/8-165 CV	3	3/8	.73	.18	6.50	5.35	—	—	3.35	—	—	1.18	5.35	8.5	28.9	0.8	○	280
-195 CV					7.68	6.54							6.54	8.8	30.1	1.1		281
-225 CV					8.86	7.72							7.72	9.2	31.3	1.6		282
-255 CV					10.04	8.90							8.90	10.9	35.5	1.7	▲	283
-285 CV					11.22	10.08							10.08	11.3	36.6	2.4		284
A100-SLSA12-110-M 42	1	12	15	1.5	110	42	39	—	19.4	32	—	30	79	2.2	27	1.9	○	285
-135-M 67					135	67			22				104	2.3	32.5	3.4		288
-140-M 42					140	42	69		19.4				109	2.4	27.2	2.4		286
-165-M 67					165	67			22				134		32.6	4.1		289
-M 97						97	39		25.2					2.3	39.4	5.1		291
-170-M 42	2				170	42	28	71	19.4	36	50		135	3.1	27.5	2.1		287
-195-M 67					195	67	30	69	22	32	46		164	2.9	32.9	3.9		290
-M 97	1					97	69	—	25.2	36	—		160	2.7	39.6	5.5		292
-225-M 97	2				225		30	69		32	46		194	3	39.9	5.8	▲	293
-SLSB12-110-M 42	1	12	19	3.5	110	42	39	—	23.4	32	—	30	79	2.3	28.4	1.2	○	294
-135-M 67					135	67			26				104		34.7	2		297
-140-M 42					140	42	69		23.4				109	2.4	28.5	1.7		295
-165-M 67					165	67			26				134	2.5	34.8	2.7		298
-M 97						97	39		29.2	42			133	2.6	42.9	2.5		300
-170-M 42	2				170	42	28	71	23.4	36	50		135	3.1	28.9	1.4		296
-195-M 67					195	67	30	69	26	32	46		164	3	35.2	2.5		299
-M 97	1					97	69	—	29.2	50	—		160	3.1	43.2	2.6		301
-M127						127	39		32.3	42			163	2.7	50.4	3.3		303
-225-M 97					225	97	99		29.2	50			190	3.4	43.6	2.8	▲	302
-M127						127	69		32.3	42			192	3	50.8	3.8		304
-M157						157	39		35.5				193	2.9	58	4.2		306
-255-M127	2				255	127	28	71	32.3		56		222	3.6	51.1	3.7		305
-M157	1					157	69	—	35.5		—			3.1	58.3	4.8		307
-285-M157	2				285		28	71		42	56		252	3.7	58.7	4.7		308

A100

CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S		Scale model
A100-SLRB12- 90-M 22	1	12	26	7	90	22	39	—	28.3	42	—	30	58	2.4	26.5	0.4	×	309
-110-M 42					110	42			30.4				78	2.5	29.2	0.6		312
-120-M 22					120	22	69		28.3				87	2.6	26.8	0.5		310
-135-M 67					135	67	39		33				103		35.5	0.9		315
-140-M 42					140	42	69		30.4				107	2.7	29.6	0.8		313
-150-M 22					150	22	99		28.3	50			117	3.3	27.2	0.5		311
-165-M 67					165	67	69		33	42			132	2.9	35.8	1.1		316
-170-M 42					170	42	99		30.4	50			135	3.3	29.9	0.8		314
-195-M 67	2				195	67	28	71	33	42	56		162	3.5	36.2	1.1		317
-SLFB12- 90-M 22	1	12	26	7	90	22	39	—	28.3	42	—	30	58	2.4	26.5	0.4	×	318
-110-M 42					110	42			30.4				78	2.5	29.2	0.6		321
-120-M 22					120	22	69		28.3				87	2.6	26.8	0.5		319
-135-M 67					135	67	39		33	50			100	2.7	35.5	0.8		324
-140-M 42					140	42	69		30.4				105	3	29.6	0.6		322
-150-M 22	2				150	22	28	71	28.3	42	56		117	3.3	27.2	0.5		320
-165-M 67	1				165	67	69	—	33		—		132	2.9	35.8	1.1		325
-170-M 42					170	42	99		30.4	50			135	3.3	29.9	0.8		323
-195-M 67	2				195	67	28	71	33	42	56		162	3.5	36.2	1.1		326
-SLSA12-165 CV	3	12	15	1.5	165	136	—	—	85	—	—	30	133	4.2	34.1	1.2	○	327
-195 CV					195	166							163	4.1	33.6			328
-225 CV					225	196							175	4.8	38.3	1.8		329
-255 CV					255	226							190		37.8	2.6	▲	330
-285 CV					285	256							251	5.5	42.5	3.5		331
-315 CV					315	286							281	5.9	44.6	4.3		332
-345 CV					345	316							311	6.2	46.7	5.3		333
-SLRA12-165 CV	3	12	22	5	165	136	—	—	85	—	—	30	133	3.6	27.9	0.8	×	334
-195 CV					195	166							163	4.4	32.2			335
-225 CV					225	196							159		32.7	1.3	○	336
-255 CV					255	226							221	4.6	36.1	1.6	▲	337
-285 CV					285	256							251	5	38.5	2.1		338
-SLFA12-165 CV	3	12	22	5	165	136	—	—	85	—	—	30	133	3.6	27.9	0.8	×	339
-195 CV					195	166							163	4.4	32.2			340
-225 CV					225	196							159		32.7	1.3	○	341
-255 CV					255	226							221	4.6	36.1	1.6	▲	342
-285 CV					285	256							251	5	38.5	2.1		343
A100-SLSA1/2-165 CV	3	1/2	.62	.06	6.50	5.35	—	—	3.35	—	—	1.18	5.28	7.5	26.8	1.2	○	344
-195 CV					7.68	6.54							6.46	9.2	31.2	1.3		345
-225 CV					8.86	7.72							6.89	9.6	32.7	1.9		346
-255 CV					10.04	8.90							7.48	10.1	34.2	2.8	▲	347
-285 CV					11.22	10.08							9.92	10.2	39.6	3.8		348
-315 CV					12.40	11.26							11.10	11.0	42.4	4.7		349
-345 CV					13.58	12.44							12.28	11.8	45.9	5.9		350
-SLRA1/2-165 CV	3	1/2	.89	.20	6.50	5.35	—	—	3.35	—	—	1.18	5.20	8.8	31.7	0.6	×	351
-195 CV					7.68	6.54							5.71	9.4	31.5	0.9		352
-225 CV					8.86	7.72								11.2	35.8	1.0	○	353
-255 CV					10.04	8.90							8.74	12.1	42.1	1.1	▲	354
-285 CV					11.22	10.08							9.92	10.8	41.0	2.2		355
-SLFA1/2-165 CV	3	1/2	.89	.20	6.50	5.35	—	—	3.35	—	—	1.18	5.20	8.8	31.7	0.6	×	356
-195 CV					7.68	6.54							5.71	9.4	31.5	0.9		357
-225 CV					8.86	7.72								11.2	35.8	1.0	○	358
-255 CV					10.04	8.90							8.74	12.1	42.1	1.1	▲	359
-285 CV					11.22	10.08							9.92	10.8	41.0	2.2		360

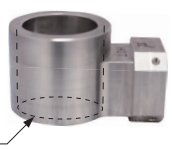
CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg lbs	N	S	Scale model
A100-SLSB16-110-M 42	1	16	24	4	110	42	39	—	28.4	42	—	32	78	2.4	34.7	0.7	361
-135-M 67					135	67			31				103	2.5	45	1.2	364
-140-M 42					140	42	69		28.4				107	2.7	35	0.9	362
-165-M 67					165	67			31				132	2.8	45.4	1.4	365
-M 97						97	39		34.2				133	2.7	57.4	1.7	367
-170-M 42					170	42	99		28.4	50			135	3.2	35.4	0.9	363
-195-M 67					195	67			31				160	3.3	45.7	1.4	366
-M 97						97	69		34.2	42			162	2.9	57.8	2.1	368
-M127						127	39		37.3	50			160	3	69.8	2.2	370
-225-M 97					225	97	99		34.2				190	3.5	58.1	2.1	369
-M127						127	69		37.3	53				3.4	70.2	2.3	371
-M157						157	39		40.5				193	3.3	82.3	2.6	373
-255-M127	2				255	127	28	71	37.3		67		220	4.3	70.6	2.3	372
-M157	1					157	69	—	40.5		—			3.7	82.6	2.9	374
-285-M157	2				285		28	71			67		250	4.6	83		375
-SLRB16- 90-M 22	1	16	32	8	90	22	39	—	34.3	42	—	32	58	2.4	26.5	0.4	376
-110-M 42					110	42			36.4				78	2.5	34.8	0.5	379
-120-M 22					120	22	69		34.3				87	2.7	26.9		377
-135-M 67					135	67	39		39				103		45.2	0.7	382
-140-M 42					140	42	69		36.4				107	2.8	35.2		380
-150-M 22					150	22	99		34.3	50			115	3.2	27.2	0.5	378
-165-M 67					165	67	69		39	42			132	3	45.5	1	383
-170-M 42	2				170	42	28	71	36.4		56		137	3.5	35.5	0.7	381
-195-M 67					195	67			39				162	3.6	45.9	0.9	384
-SLFB16- 90-M 22	1	16	32	8	90	22	39	—	34.3	42	—	32	58	2.4	26.5	0.4	385
-110-M 42					110	42			36.4				78	2.5	34.8	0.5	388
-120-M 22					120	22	69		34.3				87	2.7	26.9		386
-135-M 67					135	67	39		39				103		45.2	0.7	388
-140-M 42					140	42	69		36.4				107	2.8	35.2		391
-150-M 22	2				150	22	28	71	34.3		56		117	3.4	27.2	0.5	387
-165-M 67	1				165	67	69	—	39		—		132	3	45.5	1	392
-170-M 42					170	42	99		36.4	50			135	3.4	35.5	0.7	390
-195-M 67	2				195	67	28	71	39	42	56		162	3.6	45.9	0.9	393
-SLSB16-165 CV	3	16	21	2.5	165	136	—	—	85	—	—	32	131	4.2	34.2	0.6	394
-195 CV					195	166							161	4	33.7	1.1	395
-225 CV					225	196							191	4.8	38.4	1.2	396
-255 CV					255	226							221	4.7	38	2	397
-285 CV					285	256							251	5.5	42.6		398
-315 CV					315	286							281	5.9	44.8	2.6	399
-345 CV					345	316							311	6.2	46.9	3.3	400
A100-SLSB5/8-165 CV	3	5/8	.82	.10	6.50	5.35	—	—	3.35	—	—	1.26	5.20	8.8	31.9	0.6	401
-195 CV					7.68	6.54							6.38	8.6	32.6	1.2	402
-225 CV					8.86	7.72							7.56	10.4	37.6		403
-255 CV					10.04	8.90							8.74	10.1	38.3	2.0	404
-285 CV					11.22	10.08							9.92	11.9	43.4	2.2	405
-315 CV					12.40	11.26							11.10	12.7	46.3	2.8	406
-345 CV					13.58	12.44							12.28	13.5	49.1	3.5	407
A100-SLSB20-110-M 42	1	20	29	4.5	110	42	39	—	33.4	42	—	40	78	2.5	37.4	0.6	408
-135-M 67					135	67			36				103		52.8	0.9	411
-140-M 42					140	42	69		33.4				107	2.7	37.8	0.8	409
-165-M 67					165	67			36				132	2.8	53.2	1.2	412
-M 97						97	39		39.2	53			133	2.9	71.3	1.1	414

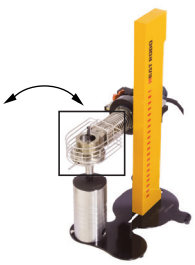
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A100-SLSB20-170-M 42	2	20	29	4.5	170	42	28	71	33.4	42	56	40	137	3.4	38.1	0.8	410
-195-M 67					195	67			36				162	3.5	53.5	1.2	413
-M 97	1					97	69	—	39.2	53	—			3.3	71.7	1.3	415
-195-M127						127	39		42.3				163	3.2	91	1.5	417
-225-M 97	2				225	97	28	71	39.2		67		190	4.3	72	1.3	416
A100 -M127	1					127	69	—	42.3	50	—			3.5	91.4	1.9	418
-M157						157	39		45.5	53			193		109.6		420
-255-M127					255	127	99		42.3	50			220	3.8	91.8	2.3	419
-M157						157	69		45.5	53				3.9	109.9	2.2	421
-285-M157	2				285		28	71			67		250	4.8	110.3		422
-SLRB20-110-M 42	1	20	38	9	110	42	39	—	42.4	53	—	40	78	2.8	37.5	0.3	423
-135-M 67					135	67			45				103	3.1	53	0.5	426
-140-M 42					140	42	69		42.4				105	3.2	37.9	0.4	424
-165-M 67					165	67			45				130	3.5	53.3	0.6	427
-170-M 42	2				170	42	28	71	42.4	53	67		135	4.1	38.2	0.4	425
-195-M 67					195	67			45				160	4.4	53.7	0.6	428
-SLFB20-110-M 42	1	20	38	9	110	42	39	—	42.4	53	—	40	78	2.8	37.5	0.3	429
-135-M 67					135	67			45				103	3.1	53	0.5	432
-140-M 42					140	42	69		42.4				105	3.2	37.9	0.4	430
-165-M 67					165	67			45				130	3.5	53.3	0.6	433
-170-M 42	2				170	42	28	71	42.4		67		135	4.1	38.2	0.4	431
-195-M 67	1				195	67	99	—	45	50	—		160	3.7	53.7	0.9	434
-SLSB20-165 CV	3	20	26	3	165	136	—	—	85	—	—	40	132	4	33.6	0.6	435
-195 CV					195	166							161	4.9	38.1	0.7	436
-225 CV					225	196							191	4.6	37.4	1.2	437
-255 CV					255	226							221	5.5	42.1	1.3	438
-285 CV					285	256							251	5.2	41.2	2.1	439
-315 CV					315	286							281	6.1	46	2.3	440
-345 CV					345	316							311	6.4	47.9	2.9	441
A100-SLSB3/4-165 CV	3	3/4	.99	.12	6.50	5.35	—	—	3.35	—	—	1.50	5.20	8.6	31.5	0.6	442
-195 CV					7.68	6.54							6.38	10.4	36.6	0.7	443
-225 CV					8.86	7.72							7.56	10.0	37.5	1.2	444
-255 CV					10.04	8.90							8.74	11.7	42.6	1.3	445
-285 CV					11.22	10.08							9.92	11.4	43.5	2.2	446
-315 CV					12.40	11.26							11.10	13.1	48.6	2.3	447
-345 CV					13.58	12.44							12.28	13.8	51.6	3.0	448
A100-SLRB25-110-M 42	1	25	45	10	110	42	39	—	49.6	53	—	45	78	2.9	40.7	0.3	449
-140-M 42					140		69						105	3.3	41	0.4	450
-170-M 42	2				170		28	71			67		135	4.2	41.4		451
-SLFB25-110-M 42	1	25	45	10	110	42	39	—	49.6	53	—	45	78	2.9	40.7	0.3	452
-140-M 42					140		69			50			105	3.2	41	0.5	453
-170-M 42	2				170		28	71		53	67		135	4.2	41.4	0.4	454
A100-SLRB32-110-M42	1	32	54	11	110	42	39	—	58.4	63	—	50	77	3.2	26.9	0.2	455
-140-M42					140		69						107	3.7	33.4	0.3	456
NEW -170-M42	2				170		28	71			77		132	4.9	42.8		457

φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70

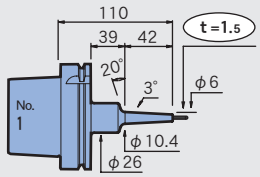




HEAT ROBO Baby3000S

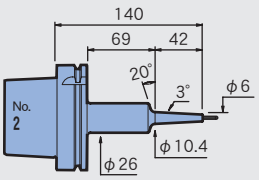
φ3

A100-SLSA3-110-M42



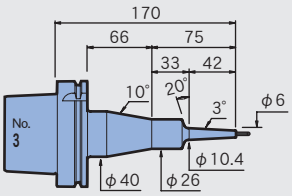
9.4

A100-SLSA3-140-M42



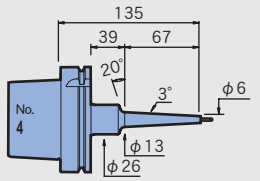
10.1

A100-SLSA3-170-M42



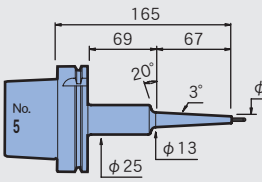
10.0

A100-SLSA3-135-M67



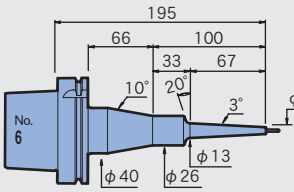
15.1

A100-SLSA3-165-M67



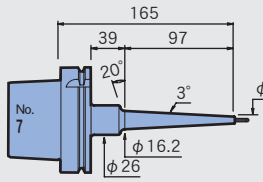
16.0

A100-SLSA3-195-M67



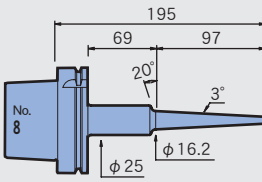
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A100-SLSA3-165-M97



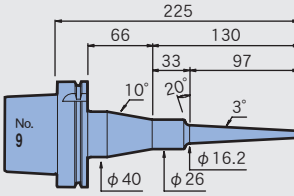
21.0

A100-SLSA3-195-M97



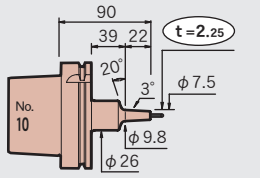
22.5

A100-SLSA3-225-M97



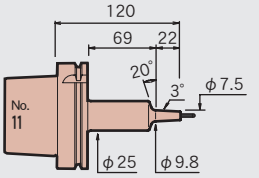
22.2

A100-SLRA3-90-M22



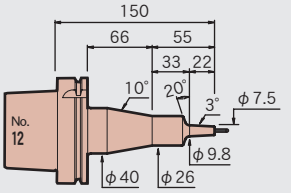
2.9

A100-SLRA3-120-M22



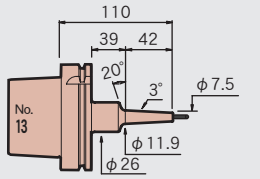
3.3

A100-SLRA3-150-M22



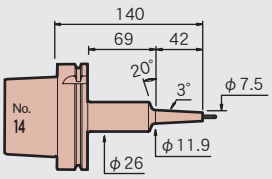
3.2

A100-SLRA3-110-M42



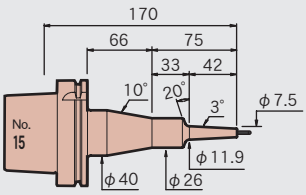
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A100-SLRA3-140-M42



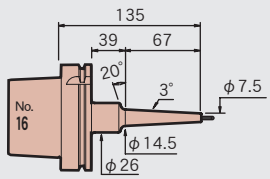
6.1

A100-SLRA3-170-M42



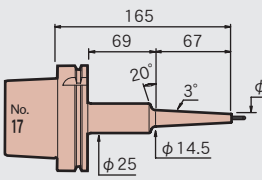
6.0

A100-SLRA3-135-M67



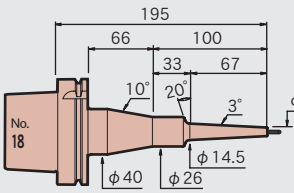
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A100-SLRA3-165-M67



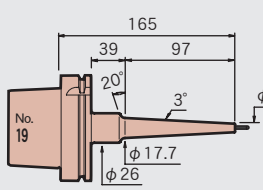
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A100-SLRA3-195-M67



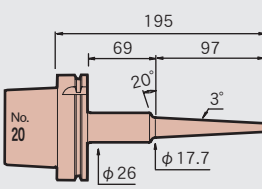
9.9

A100-SLRA3-165-M97



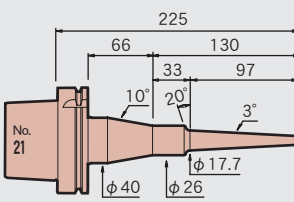
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A100-SLRA3-195-M97



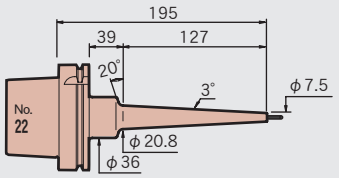
14.7

A100-SLRA3-225-M97



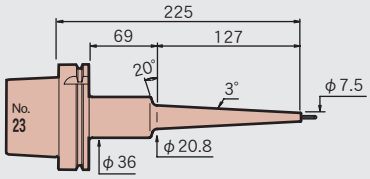
14.4

A100-SLRA3-195-M127



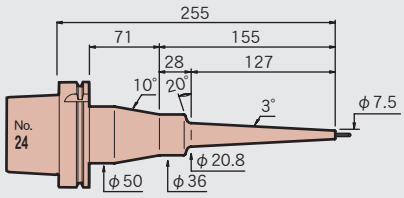
15.8

A100-SLRA3-225-M127



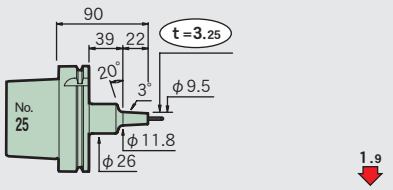
16.4

A100-SLRA3-255-M127



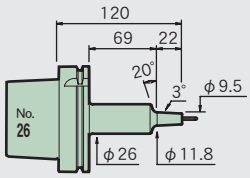
16.3

A100-SLFB3-90-M22



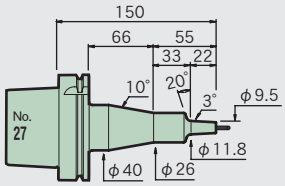
1.9

A100-SLFB3-120-M22



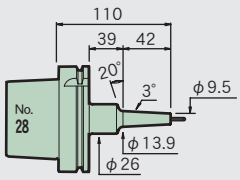
2.3

A100-SLFB3-150-M22



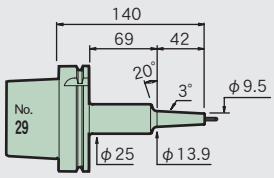
2.3

A100-SLFB3-110-M42



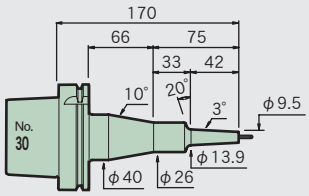
3.3

A100-SLFB3-140-M42



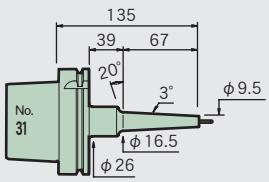
4.1

A100-SLFB3-170-M42



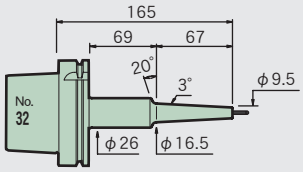
3.9

A100-SLFB3-135-M67



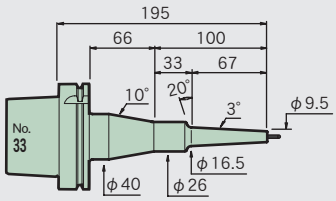
5.5

A100-SLFB3-165-M67



6.5

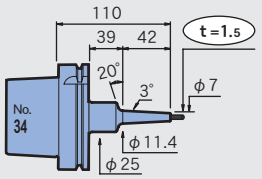
A100-SLFB3-195-M67



6.3

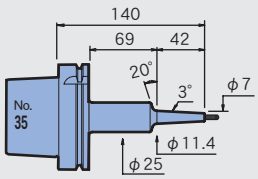
φ4

A100-SLSA4-110-M42



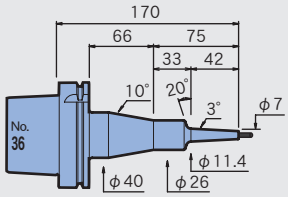
7.2

A100-SLSA4-140-M42



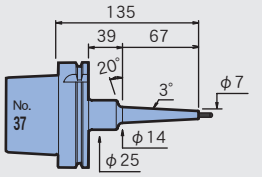
8.0

A100-SLSA4-170-M42



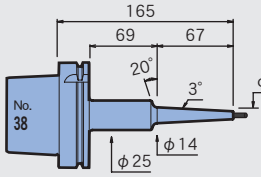
8.0

A100-SLSA4-135-M67



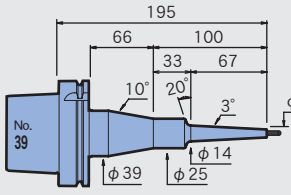
11.8

A100-SLSA4-165-M67



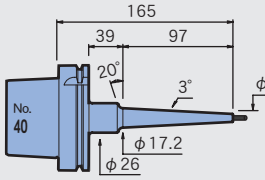
13.1

A100-SLSA4-195-M67



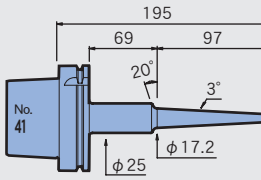
12.9

A100-SLSA4-165-M97



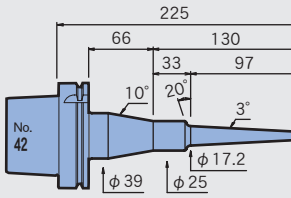
16.9

A100-SLSA4-195-M97



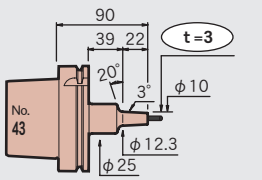
18.7

A100-SLSA4-225-M97



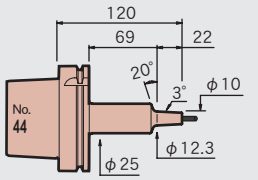
18.3

A100-SLRA4-90-M22



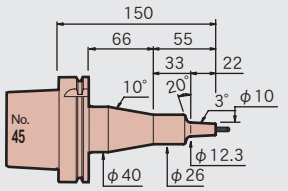
1.8

A100-SLRA4-120-M22



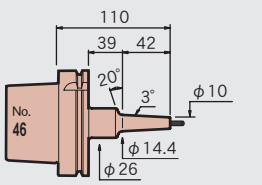
2.3

A100-SLRA4-150-M22



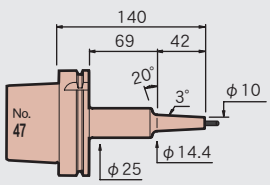
2.2

A100-SLRA4-110-M42



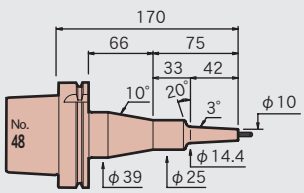
3.2

A100-SLRA4-140-M42



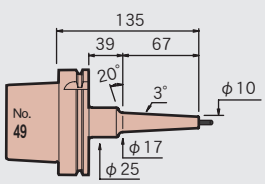
4.0

A100-SLRA4-170-M42



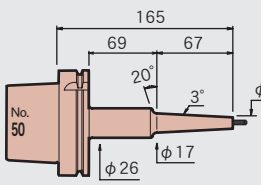
3.8

A100-SLRA4-135-M67



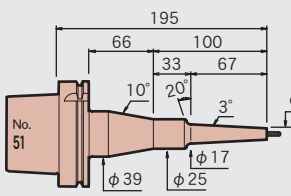
5.3

A100-SLRA4-165-M67



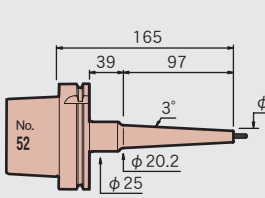
6.3

A100-SLRA4-195-M67



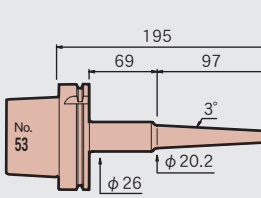
6.3

A100-SLRA4-165-M97



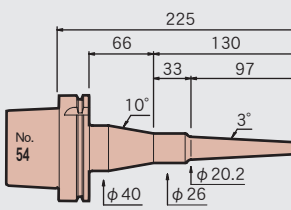
7.9

A100-SLRA4-195-M97



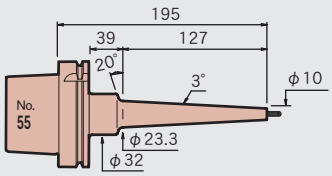
9.5

A100-SLRA4-225-M97



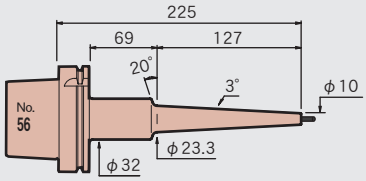
9.2

A100-SLRA4-195-M127



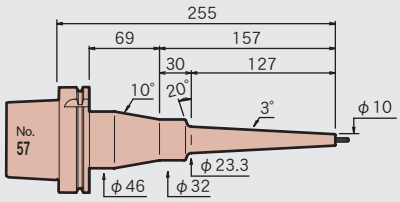
9.6

A100-SLRA4-225-M127



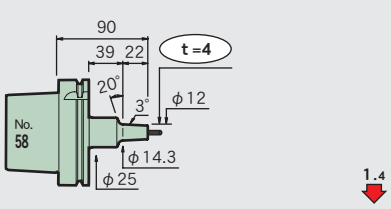
10.7

A100-SLRA4-255-M127



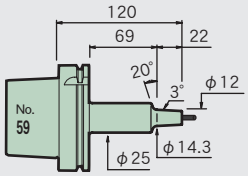
10.4

A100-SLFB4-90-M22



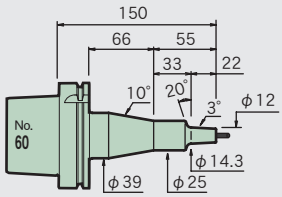
1.4

A100-SLFB4-120-M22



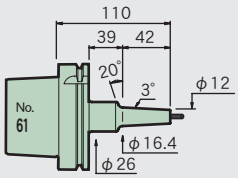
1.9

A100-SLFB4-150-M22



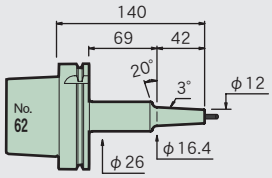
1.8

A100-SLFB4-110-M42



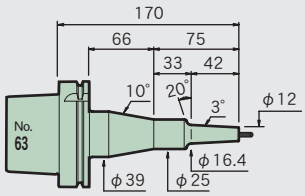
2.3

A100-SLFB4-140-M42



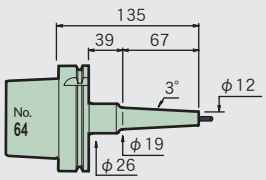
3.1

A100-SLFB4-170-M42



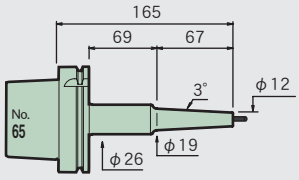
2.9

A100-SLFB4-135-M67



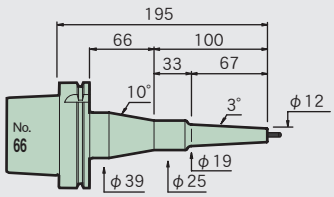
3.7

A100-SLFB4-165-M67



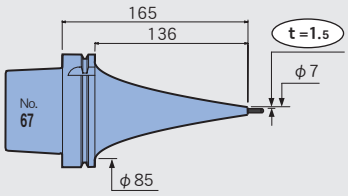
4.7

A100-SLFB4-195-M67



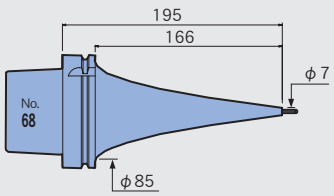
4.7

A100-SLSA4-165 CV



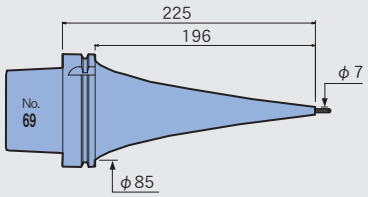
2.5

A100-SLSA4-195 CV



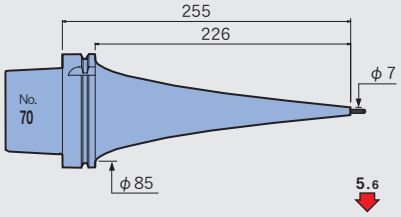
3.3

A100-SLSA4-225 CV



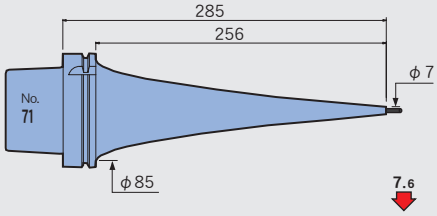
3.8

A100-SLSA-255 CV



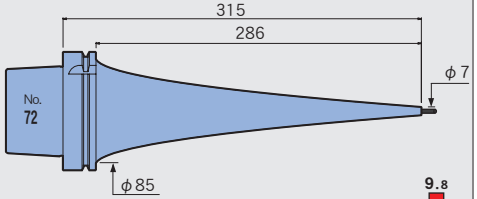
5.6

A100-SLSA4-285 CV



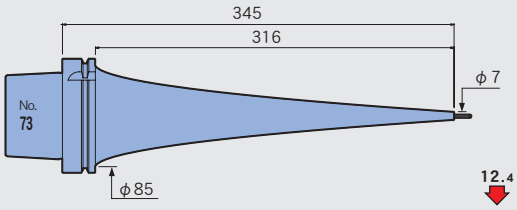
7.6

A100-SLSA4-315 CV



9.8

A100-SLSA4-345 CV

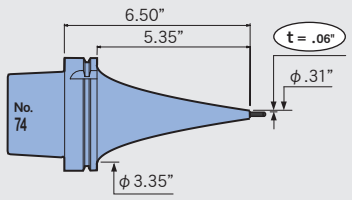


12.4

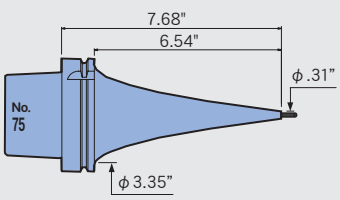
A100 S=1:7

$\phi \frac{3}{16}$

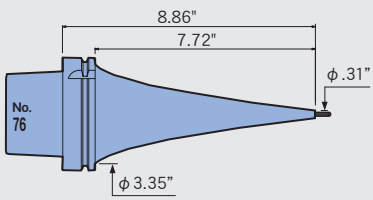
A100-SLSA3/16-165 CV



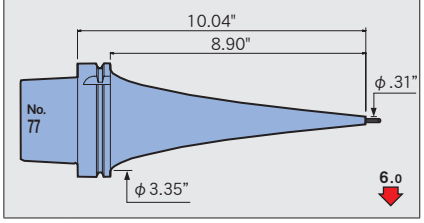
A100-SLSA3/16-195 CV



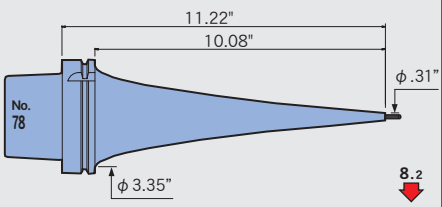
A100-SLSA3/16-225 CV



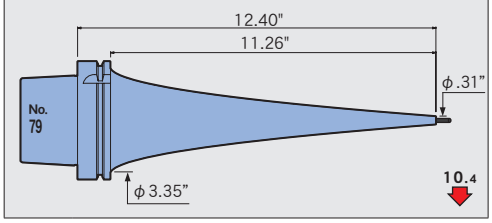
A100-SLSA3/16-255 CV



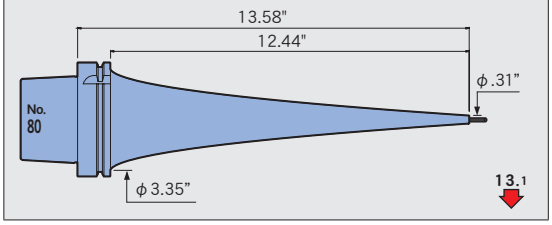
A100-SLSA3/16-285 CV



A100-SLSA3/16-315 CV

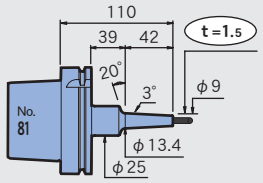


A100-SLSA3/16-345 CV



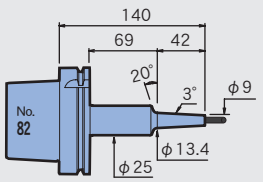
φ6

A100-SLSA6-110-M42



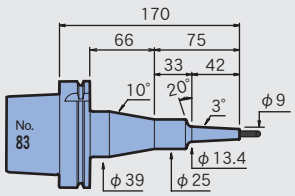
4.9

A100-SLSA6-140-M42



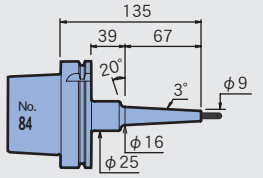
5.8

A100-SLSA6-170-M42



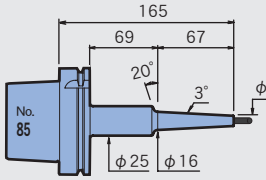
5.6

A100-SLSA6-135-M67



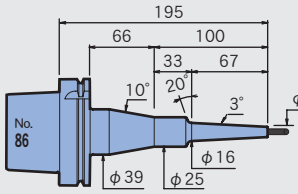
8.2

A100-SLSA6-165-M67



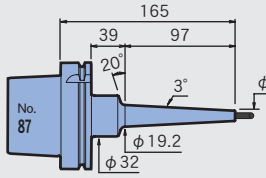
9.5

A100-SLSA6-195-M67



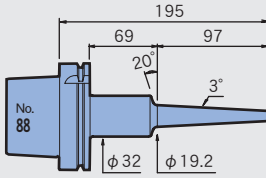
9.1

A100-SLSA6-165-M97



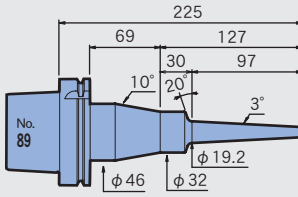
11.1

A100-SLSA6-195-M97



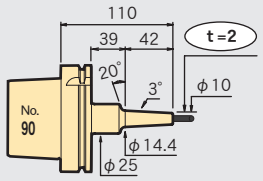
11.9

A100-SLSA6-225-M97



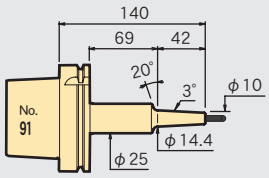
11.7

A100-SLSB6-110-M42



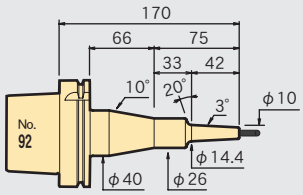
3.8

A100-SLSB6-140-M42



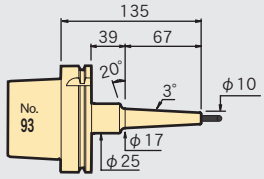
4.7

A100-SLSB6-170-M42



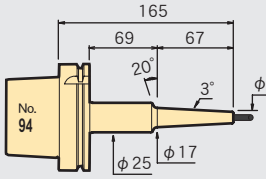
4.6

A100-SLSB6-135-M67



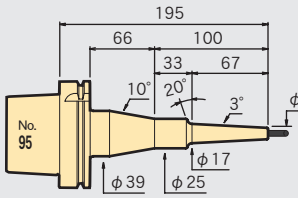
6.3

A100-SLSB6-165-M67



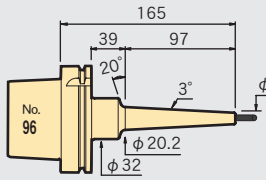
7.7

A100-SLSB6-195-M67



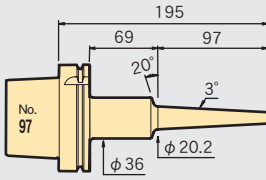
7.4

A100-SLSB6-165-M97



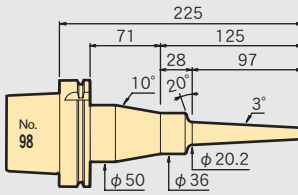
8.6

A100-SLSB6-195-M97



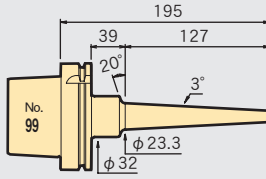
9.5

A100-SLSB6-225-M97



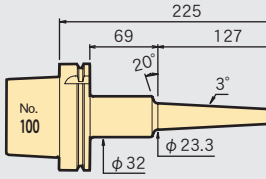
9.3

A100-SLSB6-195-M127



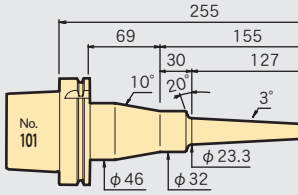
11.3

A100-SLSB6-225-M127



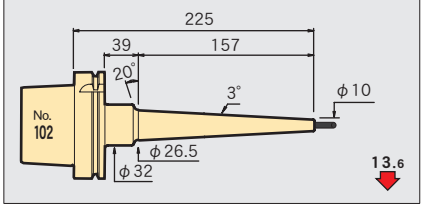
12.4

A100-SLSB6-255-M127



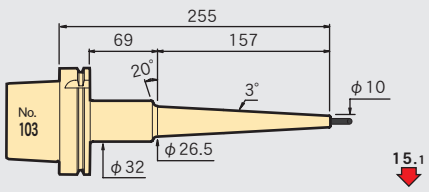
12.1

A100-SLSB6-225-M157



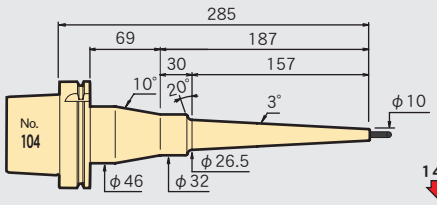
13.6

A100-SLSB6-255-M157



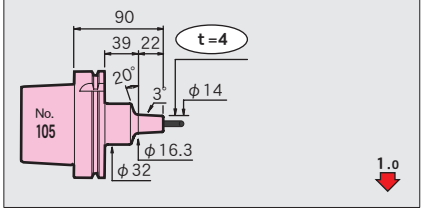
15.1

A100-SLSB6-285-M157



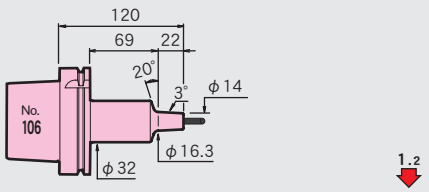
14.6

A100-SLRB6-90-M22



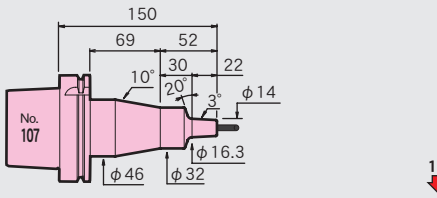
1.0

A100-SLRB6-120-M22



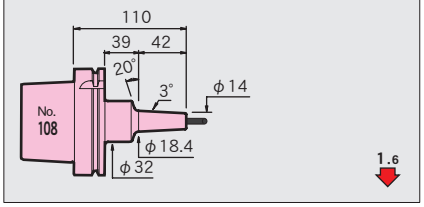
1.2

A100-SLRB6-150-M22



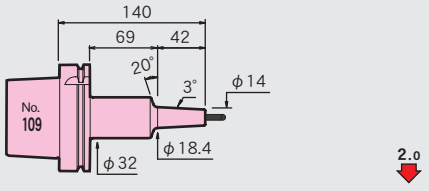
1.2

A100-SLRB6-110-M42



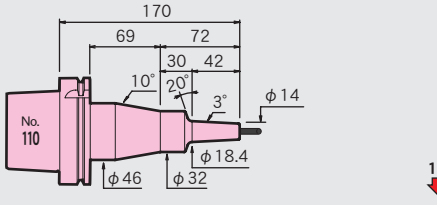
1.6

A100-SLRB6-140-M42



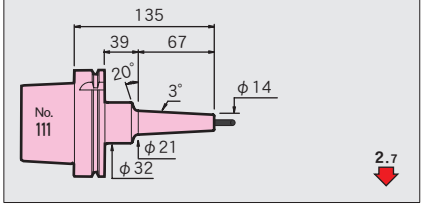
2.0

A100-SLRB6-170-M42



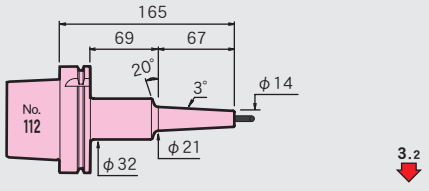
1.9

A100-SLRB6-135-M67



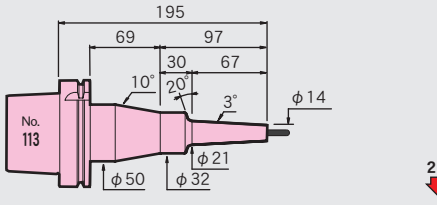
2.7

A100-SLRB6-165-M67



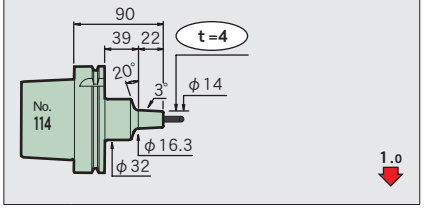
3.2

A100-SLRB6-195-M67



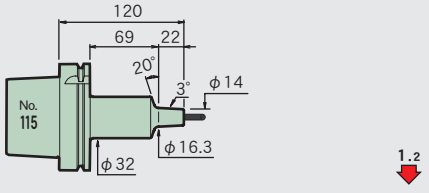
2.9

A100-SLFB6-90-M22



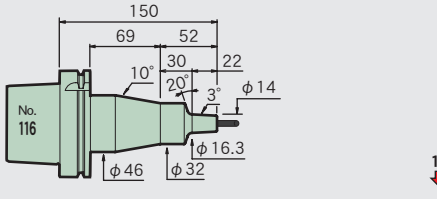
1.0

A100-SLFB6-120-M22



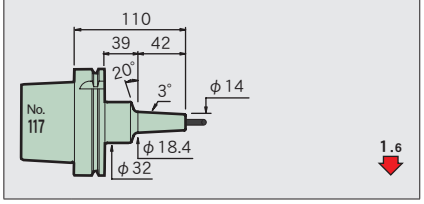
1.2

A100-SLFB6-150-M22



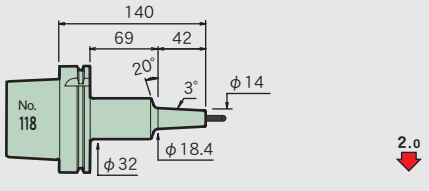
1.2

A100-SLFB6-110-M42



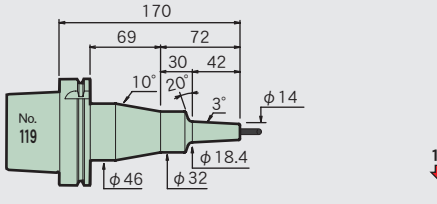
1.6

A100-SLFB6-140-M42



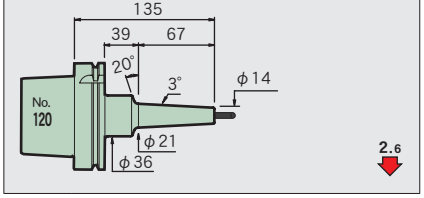
2.0

A100-SLFB6-170-M42



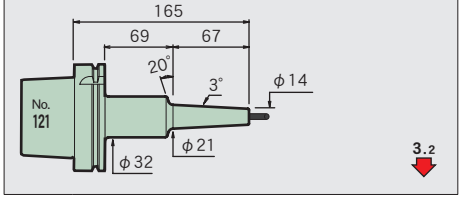
1.9

A100-SLFB6-135-M67



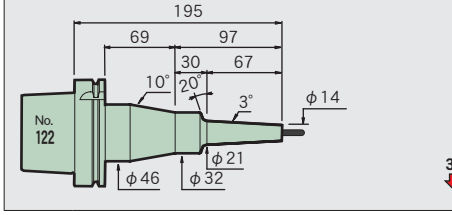
2.6

A100-SLFB6-165-M67



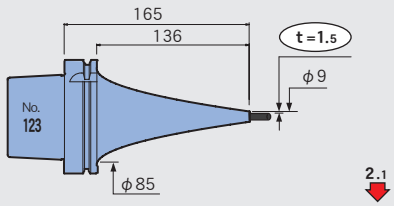
3.2

A100-SLFB6-195-M67

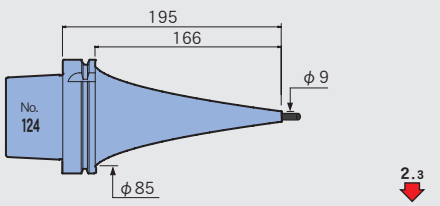


3.1

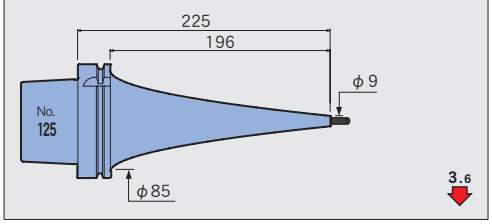
A100-SLSA6-165 CV



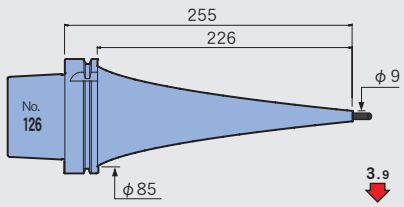
A100-SLSA6-195 CV



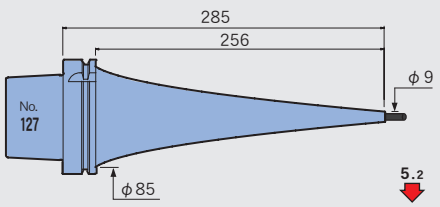
A100-SLSA6-225 CV



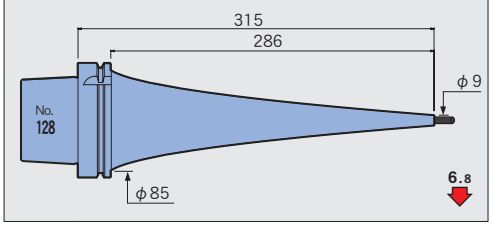
A100-SLSA6-255 CV



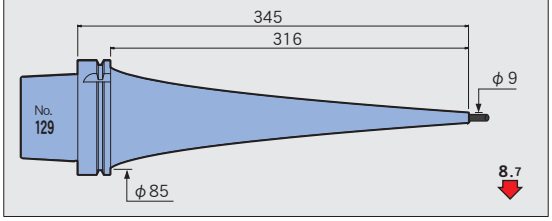
A100-SLSA6-285 CV



A100-SLSA6-315 CV



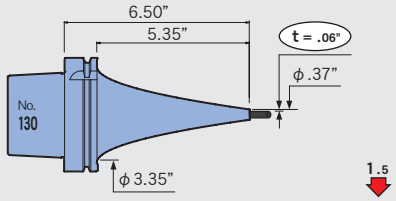
A100-SLSA6-345 CV



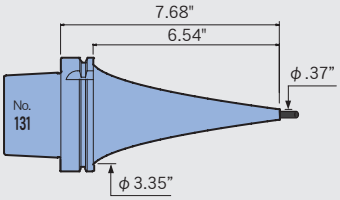
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$\phi 1/4$

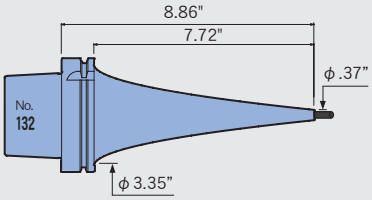
A100-SLSA1/4-165 CV



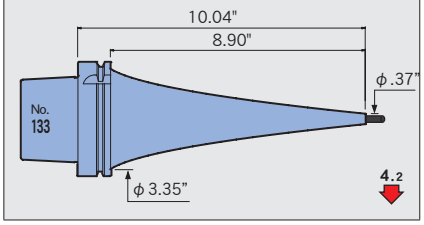
A100-SLSA1/4-195 CV



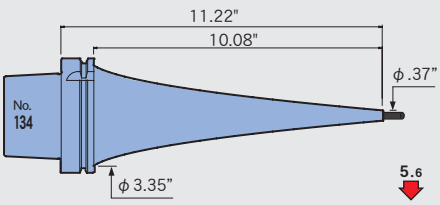
A100-SLSA1/4-225 CV



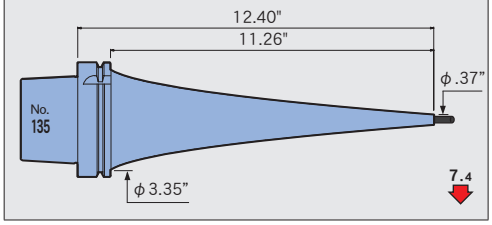
A100-SLSA1/4-255 CV



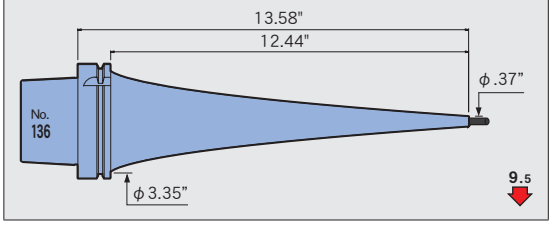
A100-SLSA1/4-285 CV



A100-SLSA1/4-315 CV

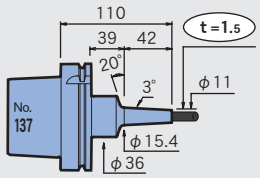


A100-SLSA1/4-345 CV



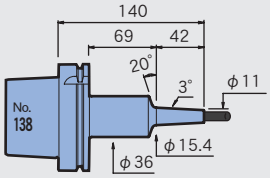
φ8

A100-SLSA8-110-M42



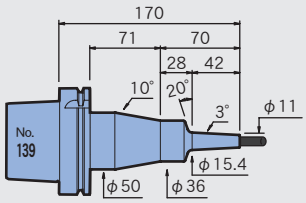
3.2

A100-SLSA8-140-M42



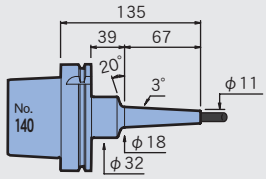
3.5

A100-SLSA8-170-M42



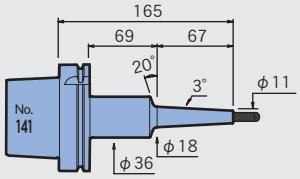
3.4

A100-SLSA8-135-M67



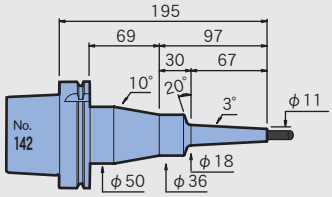
5.5

A100-SLSA8-165-M67



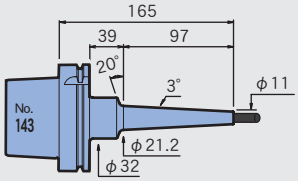
5.8

A100-SLSA8-195-M67



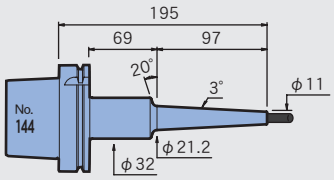
5.9

A100-SLSA8-165-M97



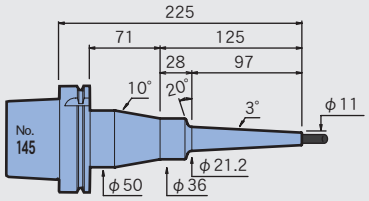
8.1

A100-SLSA8-195-M97



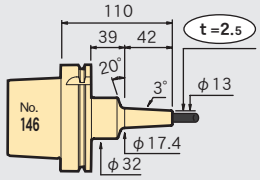
8.9

A100-SLSA8-225-M97



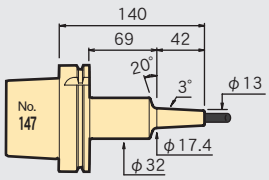
8.3

A100-SLSB8-110-M42



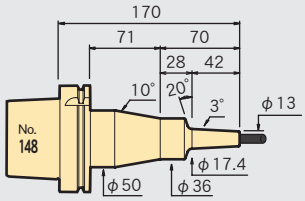
2.1

A100-SLSB8-140-M42



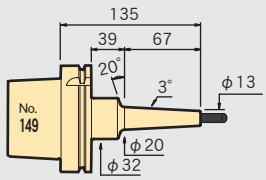
2.6

A100-SLSB8-170-M42



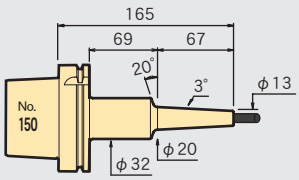
2.4

A100-SLSB8-135-M67



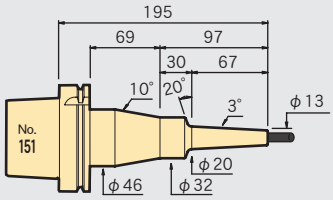
3.6

A100-SLSB8-165-M67



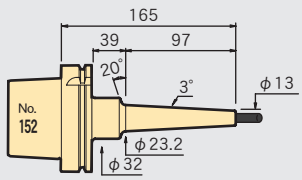
4.2

A100-SLSB8-195-M67



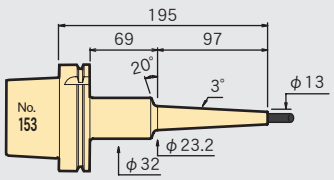
4.0

A100-SLSB8-165-M97



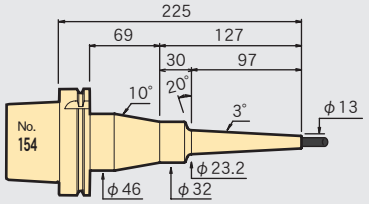
5.4

A100-SLSB8-195-M97



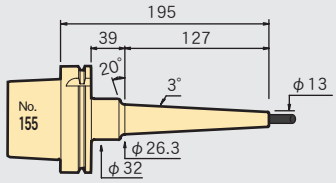
6.3

A100-SLSB8-225-M97



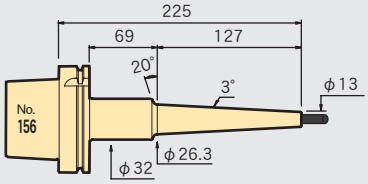
6.0

A100-SLSB8-195-M127



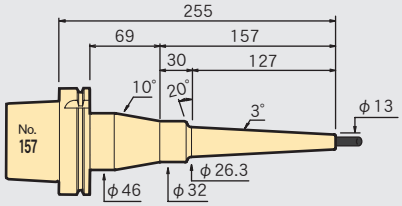
7.3

A100-SLSB8-225-M127



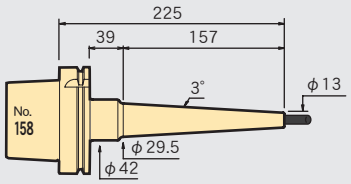
8.5

A100-SLSB8-255-M127



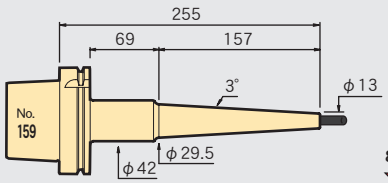
8.2

A100-SLSB8-225-M157



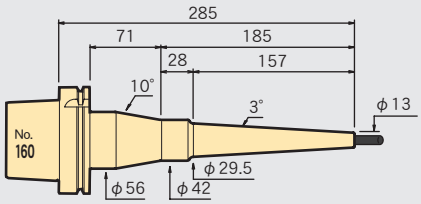
8.1

A100-SLSB8-255-M157



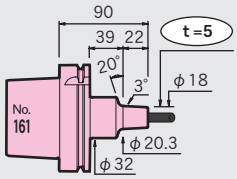
8.7

A100-SLSB8-285-M157



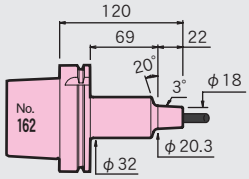
8.6

A100-SLRB8-90-M22



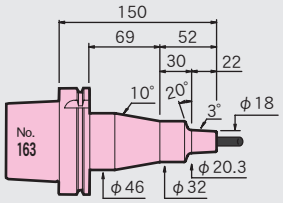
0.7

A100-SLRB8-120-M22



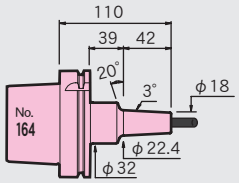
1.0

A100-SLRB8-150-M22



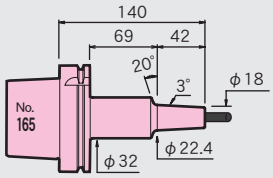
1.0

A100-SLRB8-110-M42



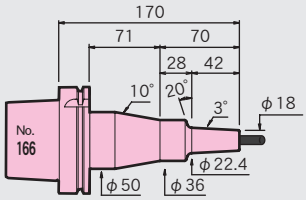
1.1

A100-SLRB8-140-M42



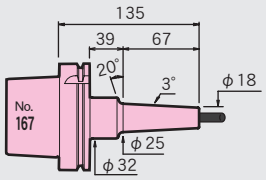
1.6

A100-SLRB8-170-M42



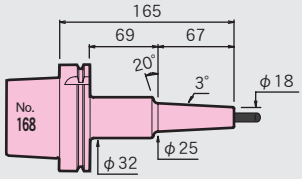
1.3

A100-SLRB8-135-M67



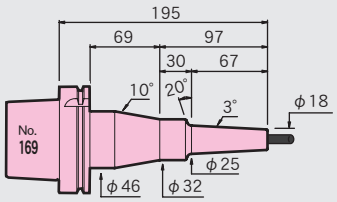
1.8

A100-SLRB8-165-M67



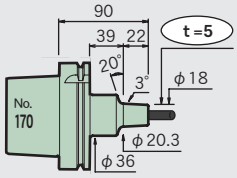
2.4

A100-SLRB8-195-M67



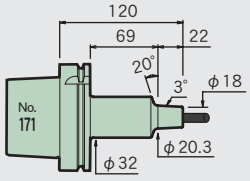
2.2

A100-SLFB8-90-M22



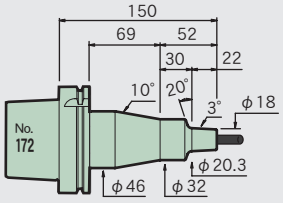
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A100-SLFB8-120-M22



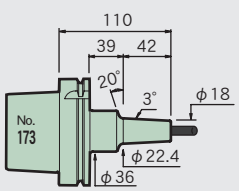
1.0

A100-SLFB8-150-M22



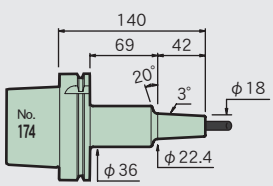
1.0

A100-SLFB8-110-M42



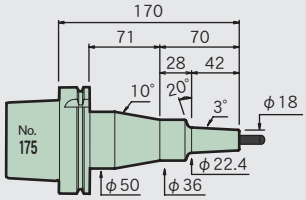
1.1

A100-SLFB8-140-M42



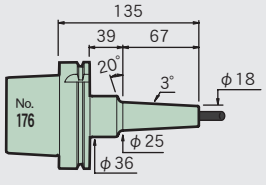
1.3

A100-SLFB8-170-M42



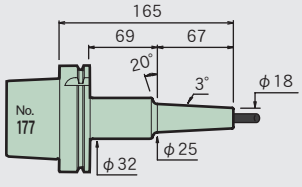
1.3

A100-SLFB8-135-M67



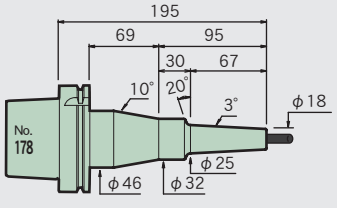
1.7

A100-SLFB8-165-M67



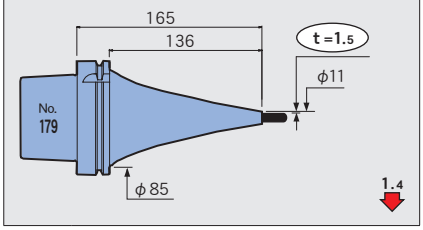
2.4

A100-SLFB8-195-M67

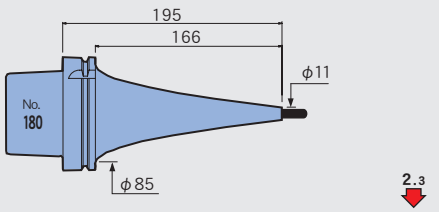


2.2

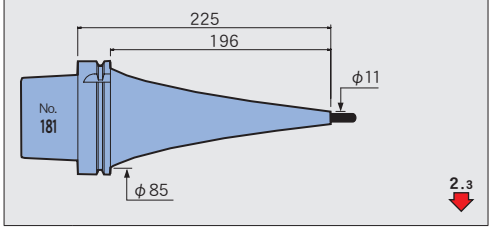
A100-SLSA8-165 CV



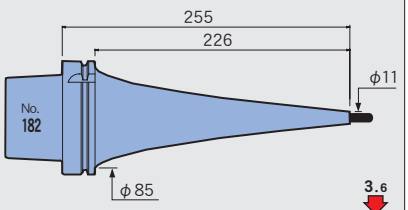
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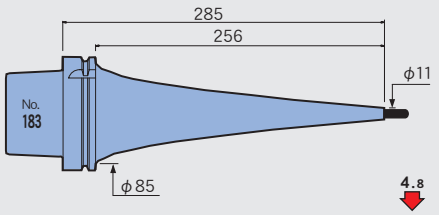
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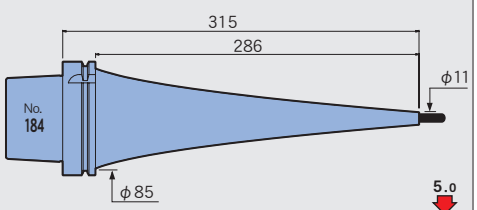
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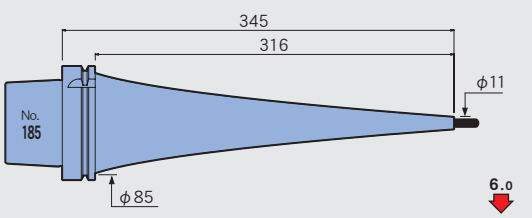
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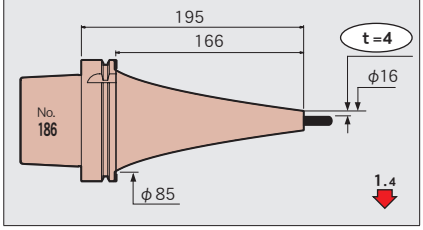
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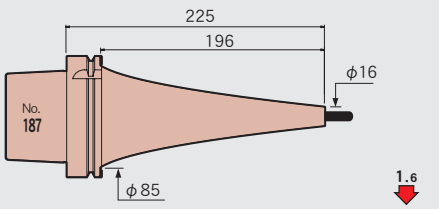
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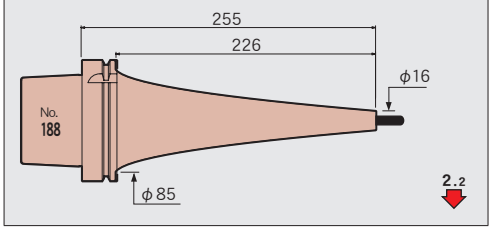
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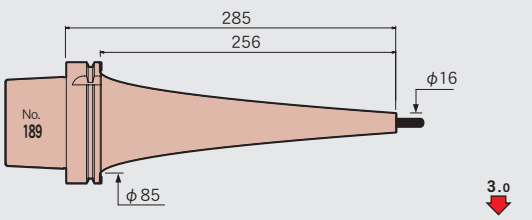
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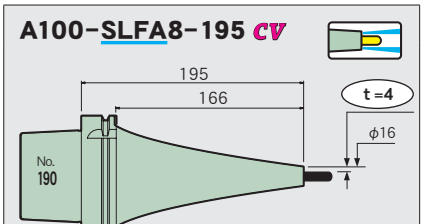
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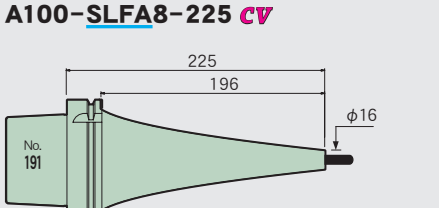
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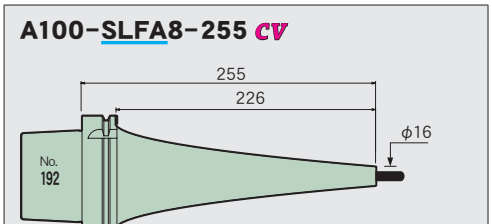
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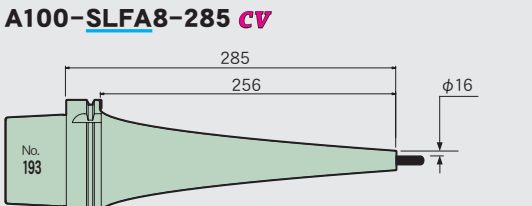
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A100-SLFA8-255 CV



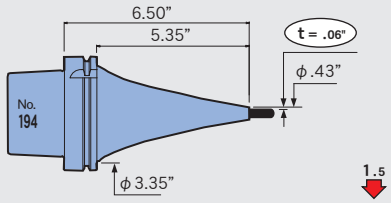
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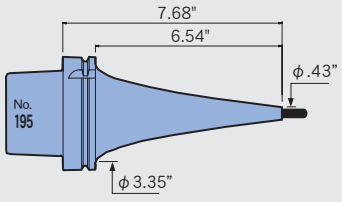
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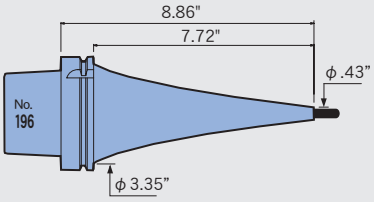
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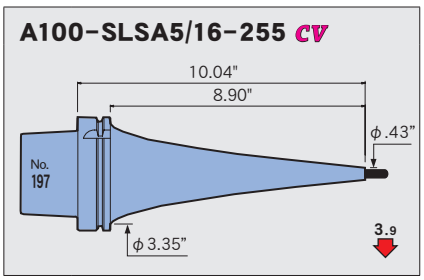
A100-SLSA5/16-195 CV



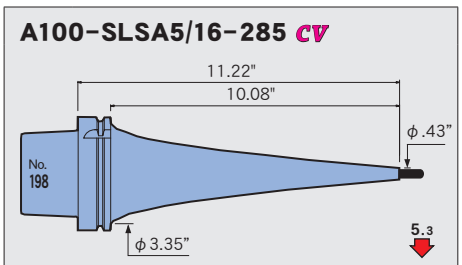
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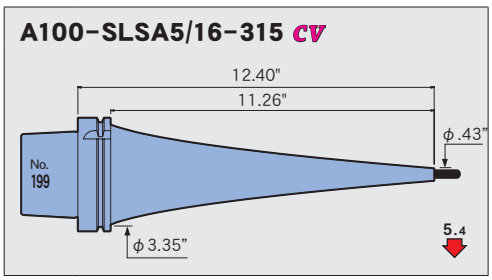
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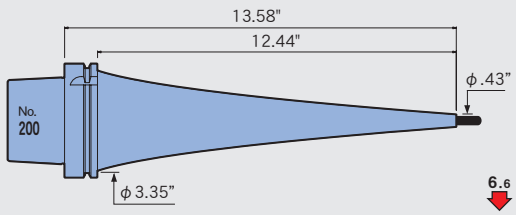
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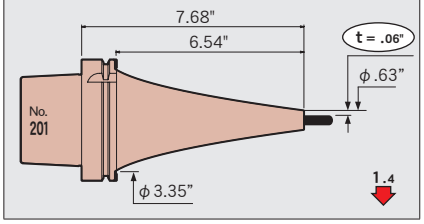
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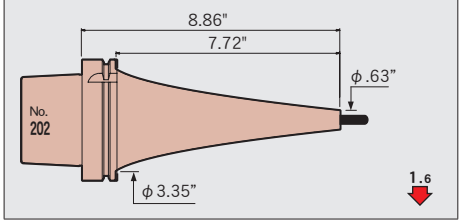
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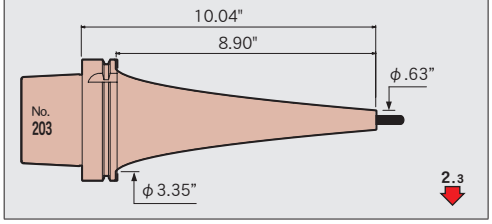
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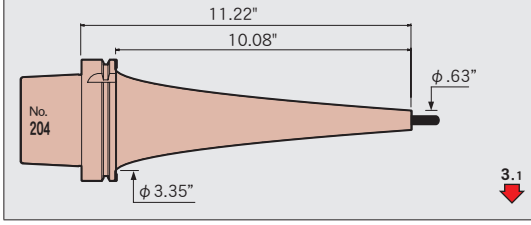
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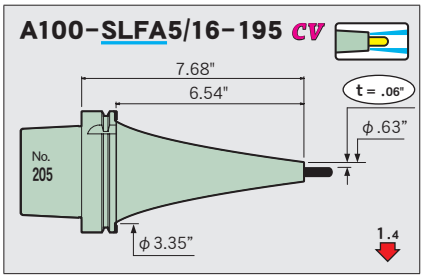
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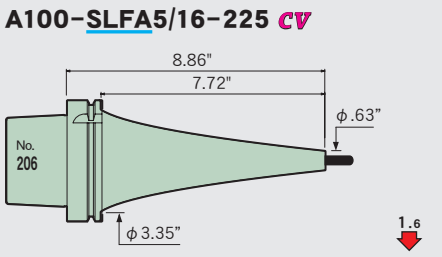
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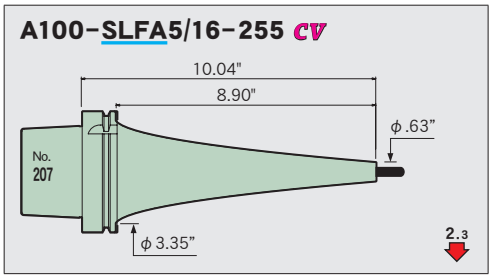
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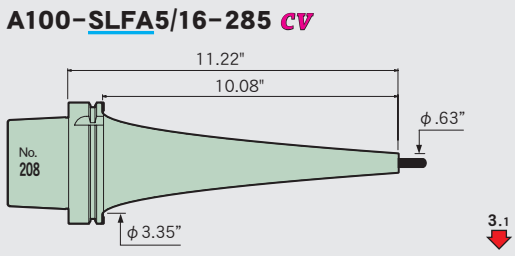
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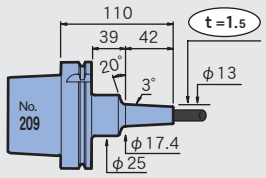


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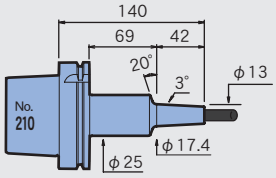
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A100-SLSA10-110-M42



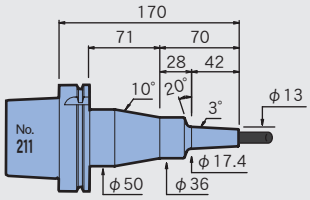
2.7

A100-SLSA10-140-M42



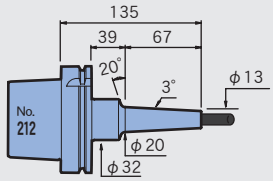
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A100-SLSA10-170-M42



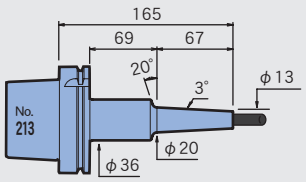
2.5

A100-SLSA10-135-M67



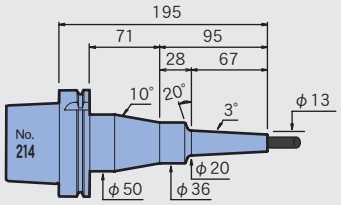
4.1

A100-SLSA10-165-M67



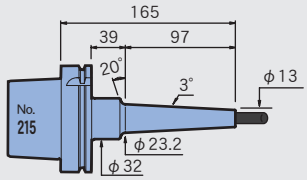
4.4

A100-SLSA10-195-M67



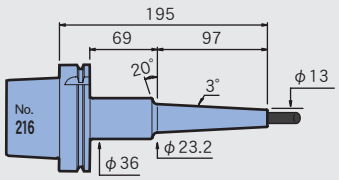
4.4

A100-SLSA10-165-M97



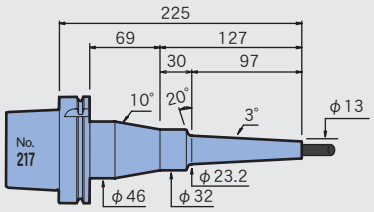
6.2

A100-SLSA10-195-M97



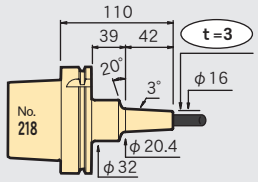
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A100-SLSA10-225-M97



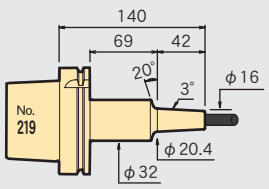
6.9

A100-SLSB10-110-M42



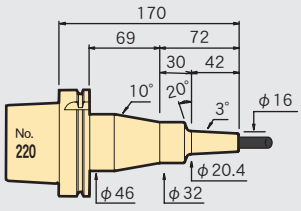
1.2

A100-SLSB10-140-M42



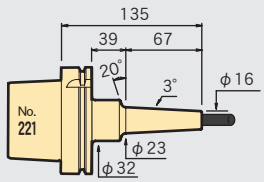
2.0

A100-SLSB10-170-M42



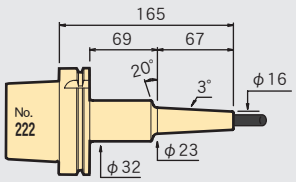
1.9

A100-SLSB10-135-M67



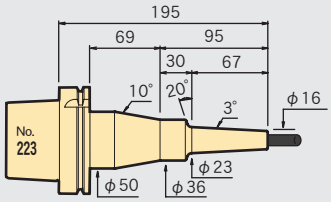
2.5

A100-SLSB10-165-M67



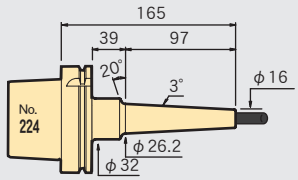
3.2

A100-SLSB10-195-M67



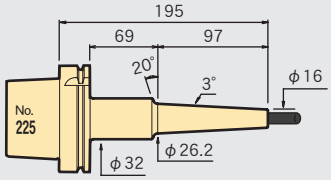
3.0

A100-SLSB10-165-M97



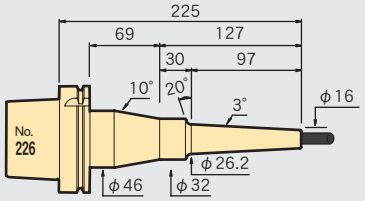
3.8

A100-SLSB10-195-M97



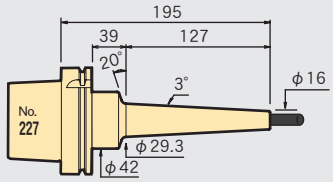
4.8

A100-SLSB10-225-M97



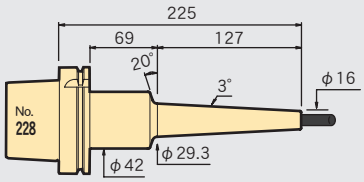
4.5

A100-SLSB10-195-M127



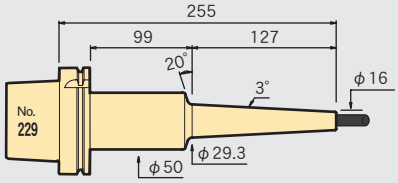
4.6

A100-SLSB10-225-M127



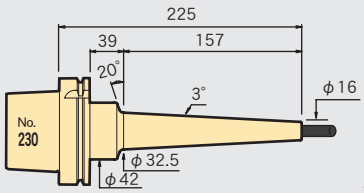
5.0

A100-SLSB10-255-M127



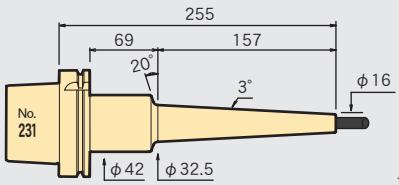
5.0

A100-SLSB10-225-M157



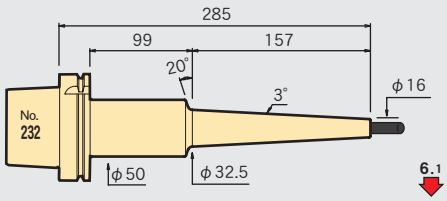
5.7

A100-SLSB10-255-M157



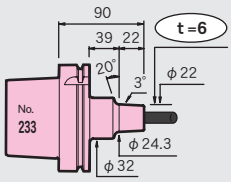
6.2

A100-SLSB10-285-M157



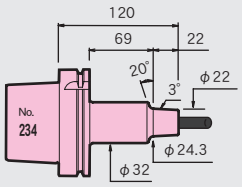
6.1

A100-SLRB10-90-M22



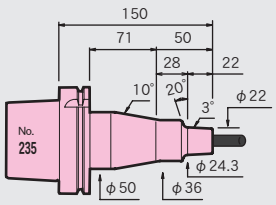
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A100-SLRB10-120-M22



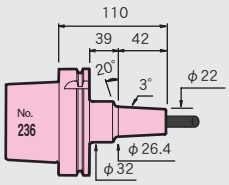
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A100-SLRB10-150-M22



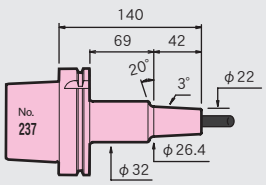
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A100-SLRB10-110-M42



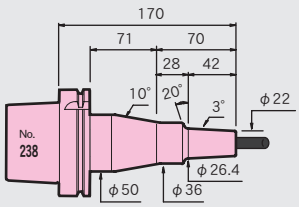
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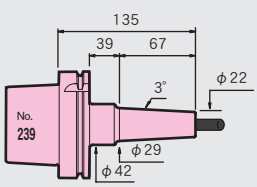
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A100-SLRB10-170-M42



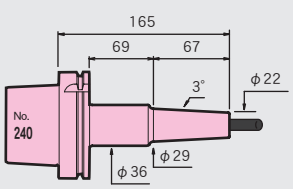
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A100-SLRB10-135-M67



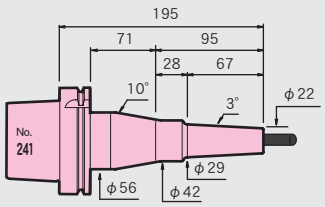
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A100-SLRB10-165-M67



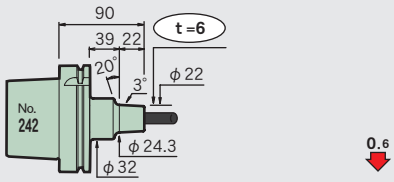
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A100-SLRB10-195-M67



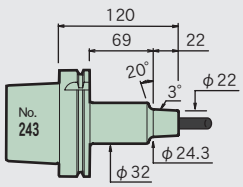
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A100-SLFB10-90-M22



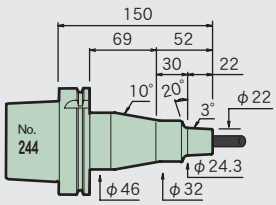
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A100-SLFB10-120-M22



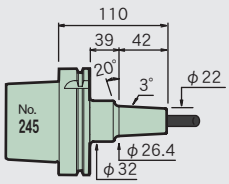
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A100-SLFB10-150-M22



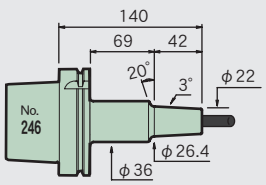
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A100-SLFB10-110-M42



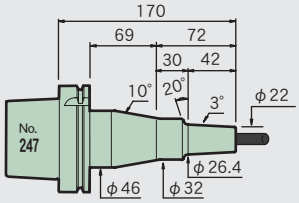
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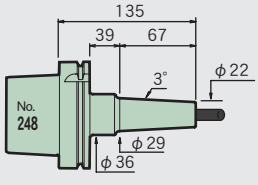
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A100-SLFB10-170-M42



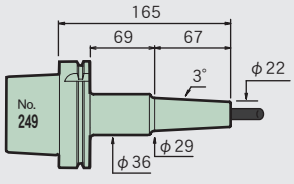
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A100-SLFB10-135-M67



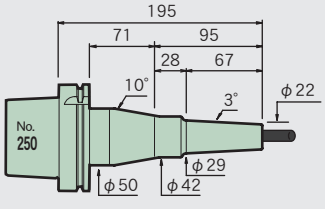
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A100-SLFB10-165-M67



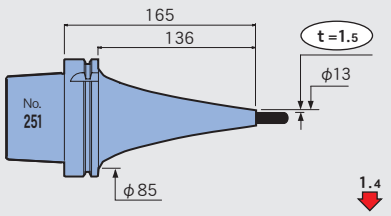
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A100-SLFB10-195-M67

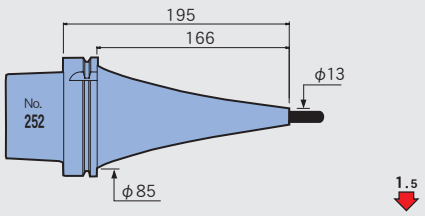


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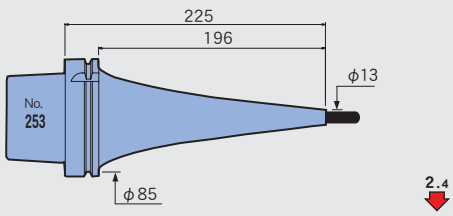
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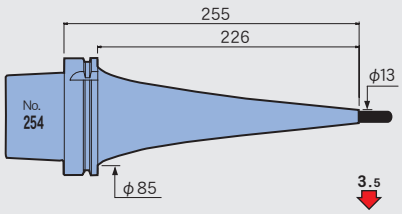
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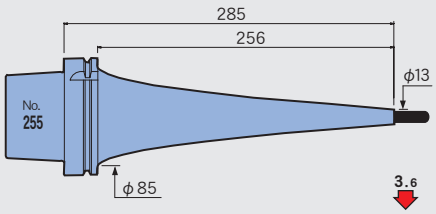
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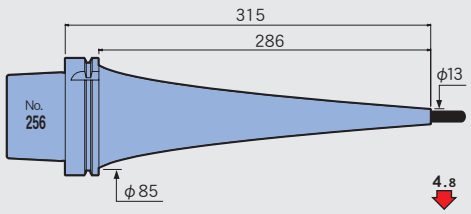
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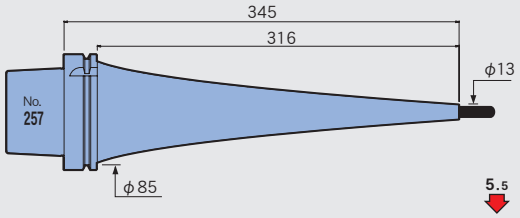
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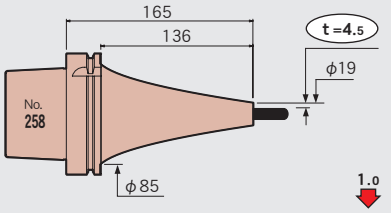
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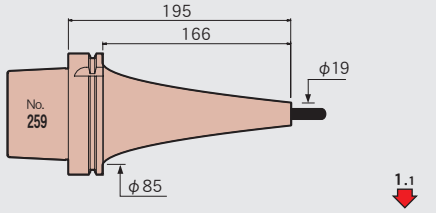
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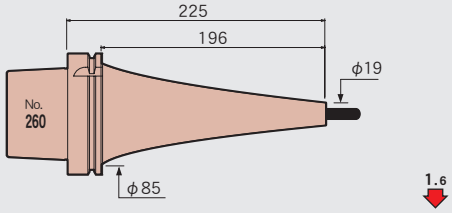
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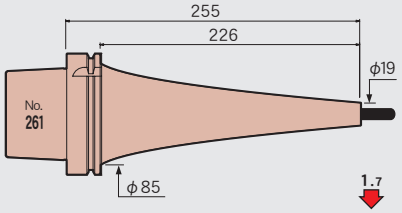
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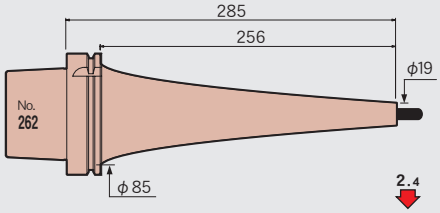
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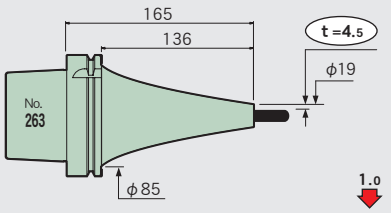
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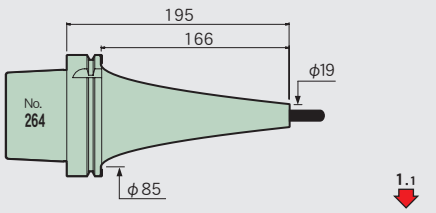
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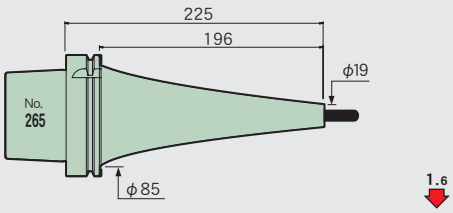
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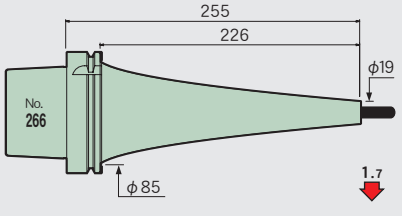
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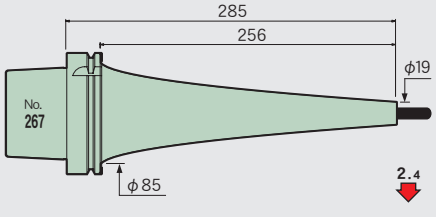
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A100-SLFA10-255 CV



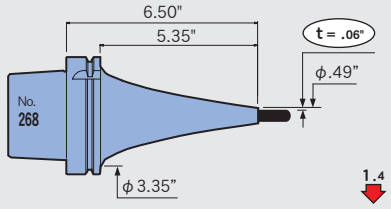
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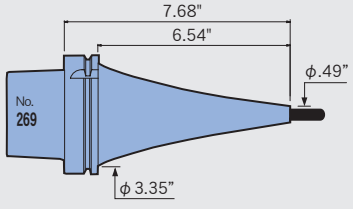
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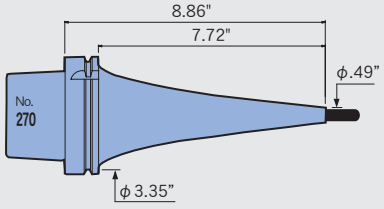
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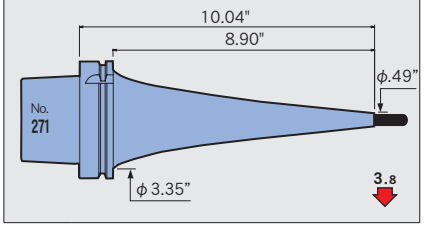
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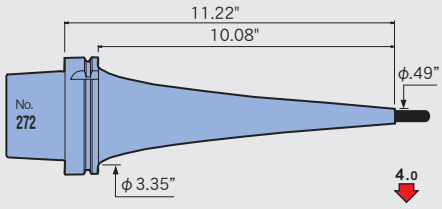
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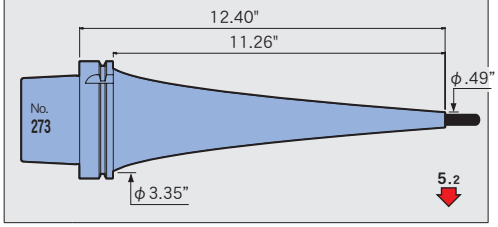
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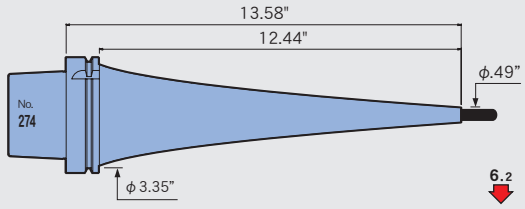
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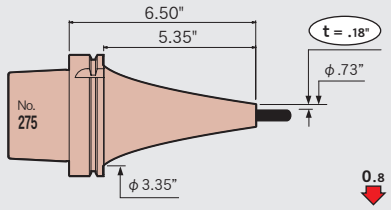
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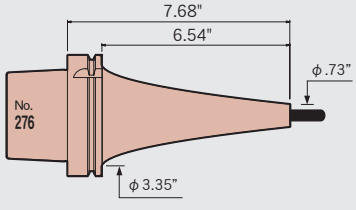
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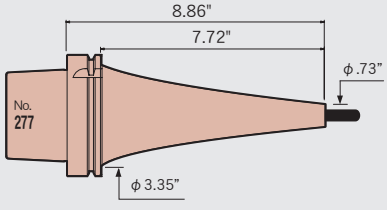
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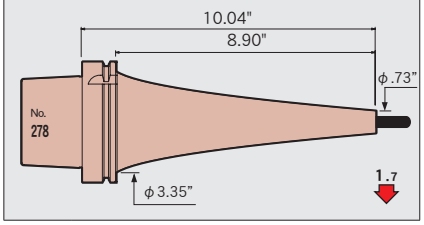
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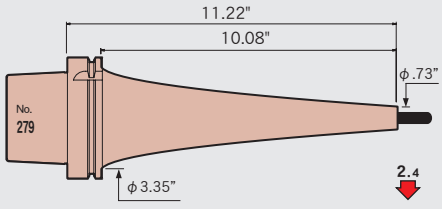
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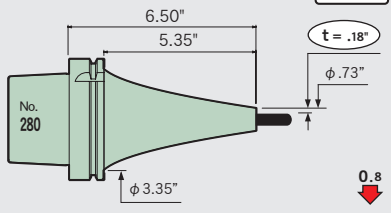
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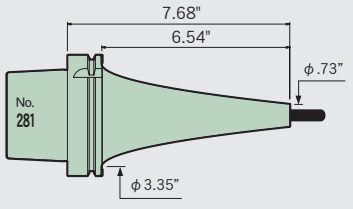
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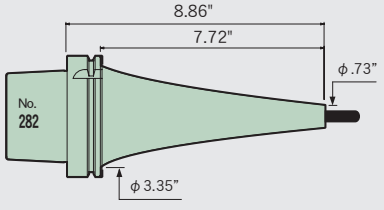
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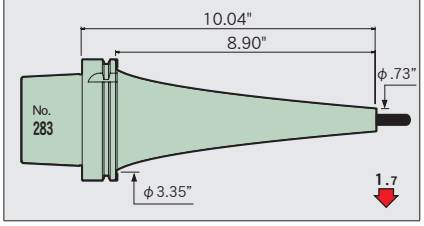
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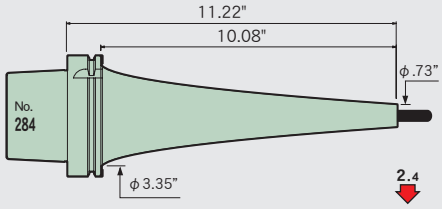
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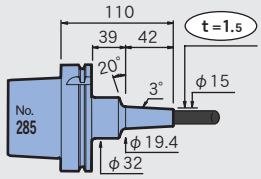


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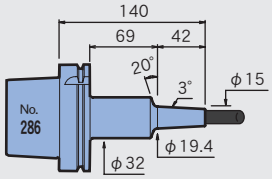
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A100-SLSA12-110-M42



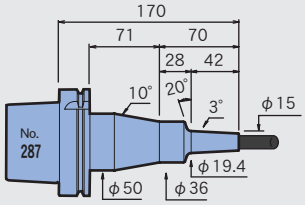
1.9

A100-SLSA12-140-M42



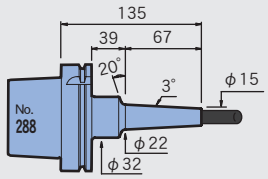
2.4

A100-SLSA12-170-M42



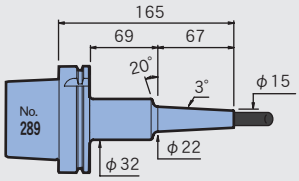
2.1

A100-SLSA12-135-M67



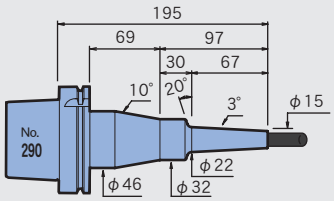
3.4

A100-SLSA12-165-M67



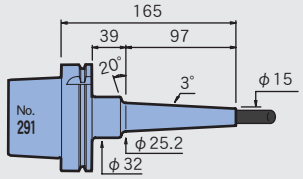
4.1

A100-SLSA12-195-M67



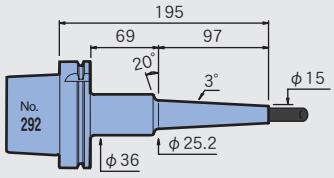
3.9

A100-SLSA12-165-M97



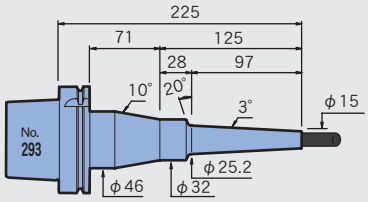
5.1

A100-SLSA12-195-M97



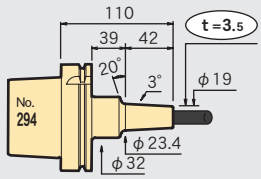
5.5

A100-SLSA12-225-M97



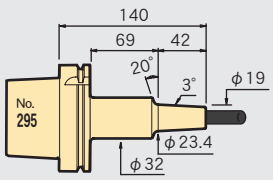
5.8

A100-SLSB12-110-M42



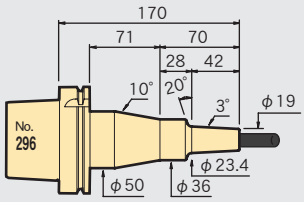
1.2

A100-SLSB12-140-M42



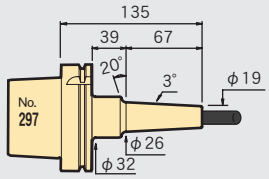
1.7

A100-SLSB12-170-M42



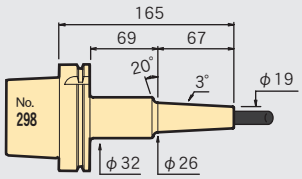
1.4

A100-SLSB12-135-M67



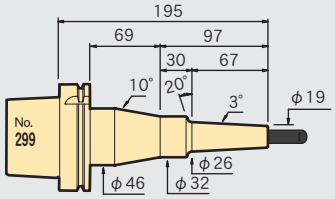
2.0

A100-SLSB12-165-M67



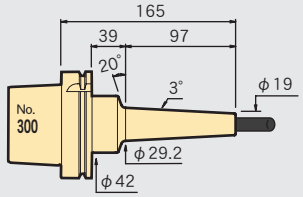
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A100-SLSB12-195-M67



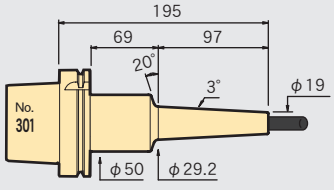
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A100-SLSB12-165-M97



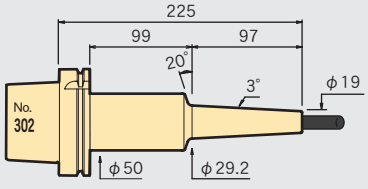
2.5

A100-SLSB12-195-M97



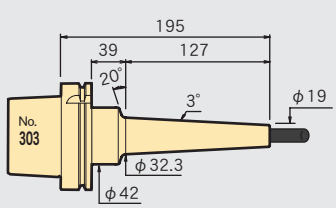
2.6

A100-SLSB12-225-M97



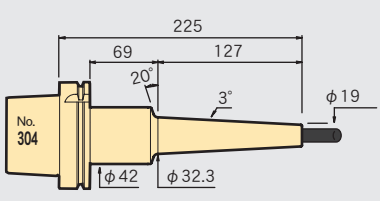
2.8

A100-SLSB12-195-M127



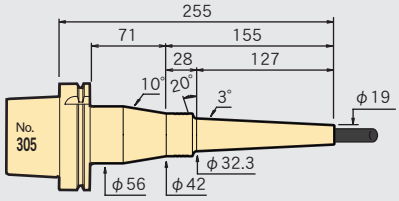
3.3

A100-SLSB12-225-M127



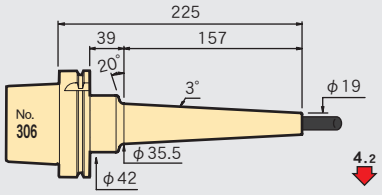
3.8

A100-SLSB12-255-M127

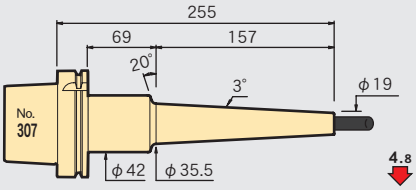


3.7

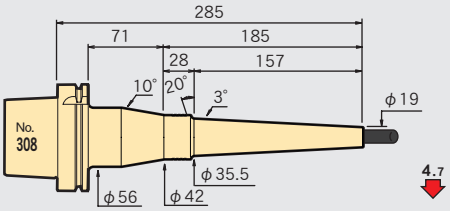
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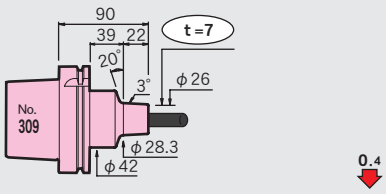
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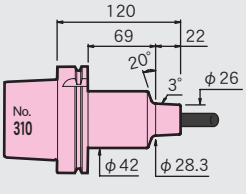
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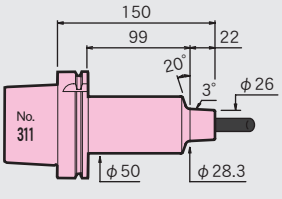
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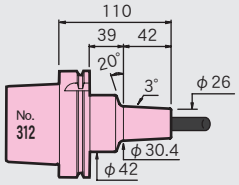
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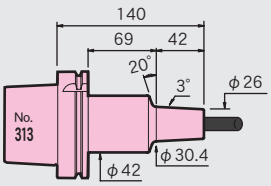
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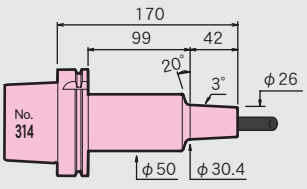
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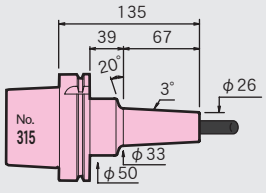
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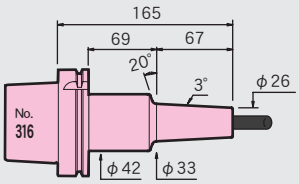
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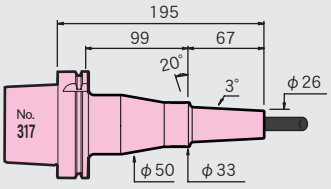
A100-SLRB12-135-M67



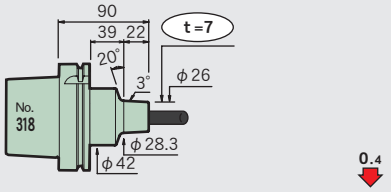
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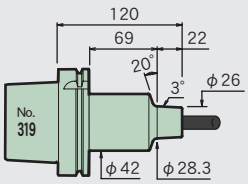
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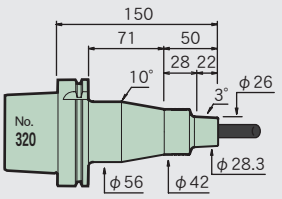
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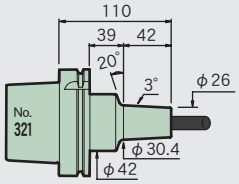
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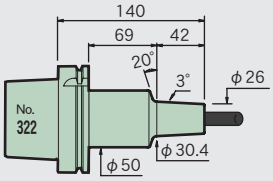
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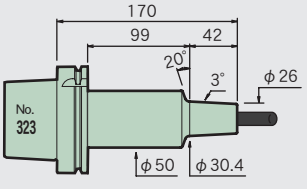
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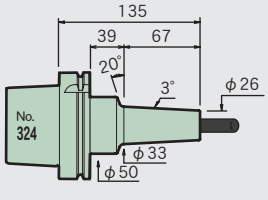
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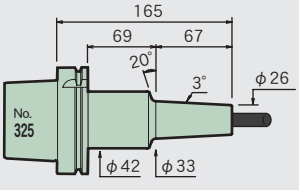
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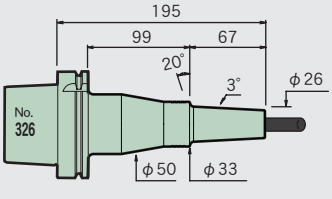
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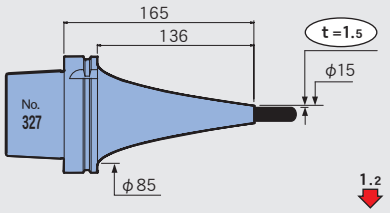
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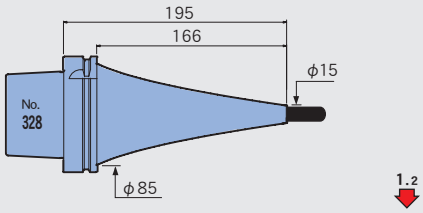
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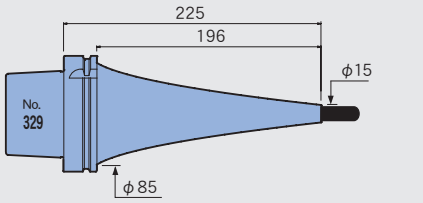
A100-SLSA12-165 CV



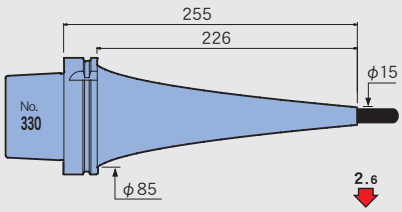
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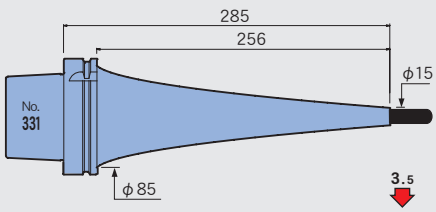
A100-SLSA12-225 CV



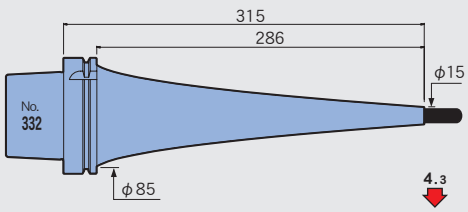
A100-SLSA12-255 CV



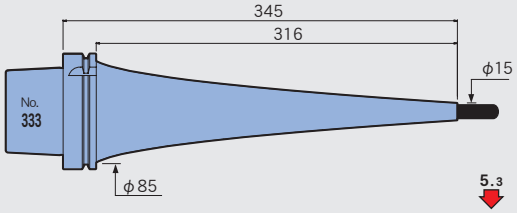
A100-SLSA12-285 CV



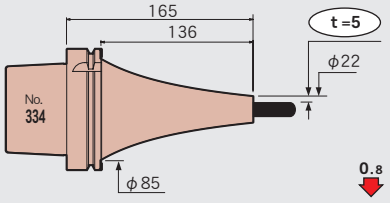
A100-SLSA12-315 CV



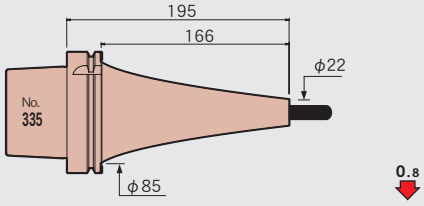
A100-SLSA12-345 CV



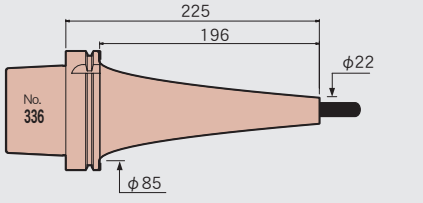
A100-SLRA12-165 CV



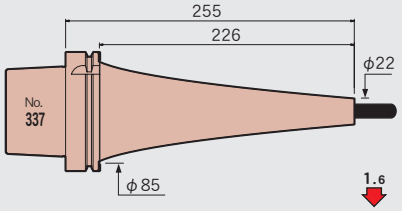
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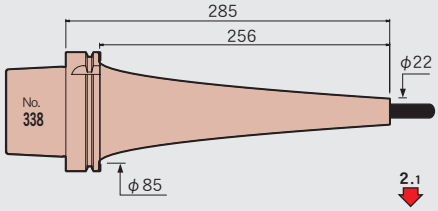
A100-SLRA12-225 CV



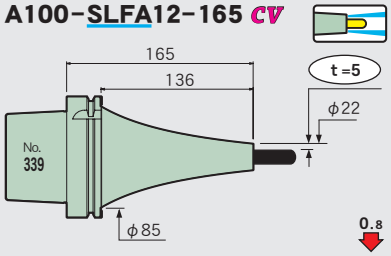
A100-SLRA12-255 CV



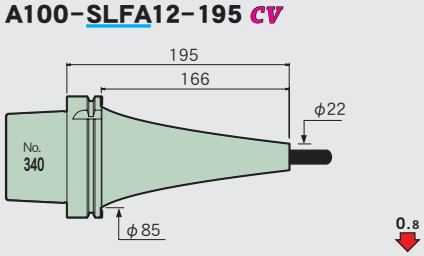
A100-SLRA12-285 CV



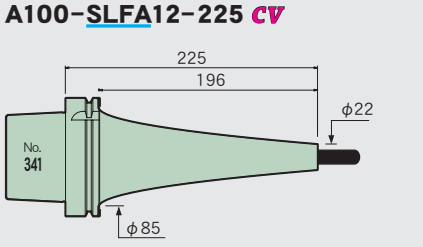
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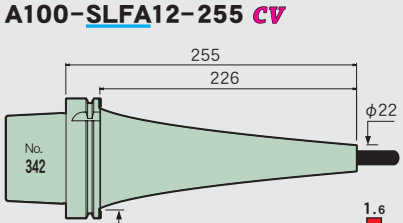
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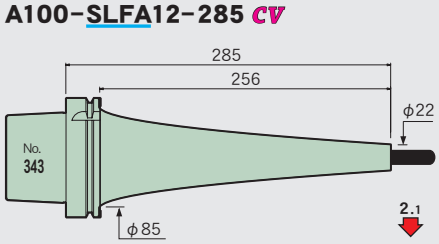
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A100-SLFA12-255 CV



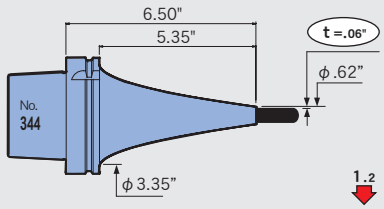
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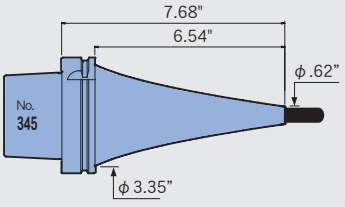
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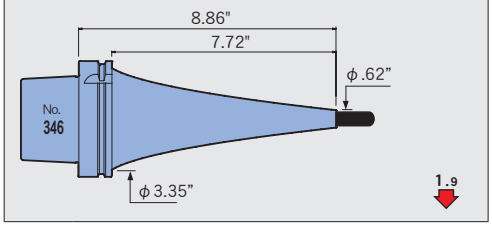
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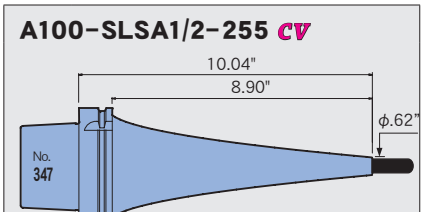
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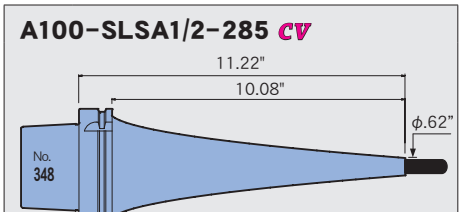
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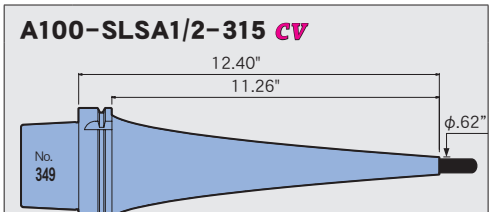
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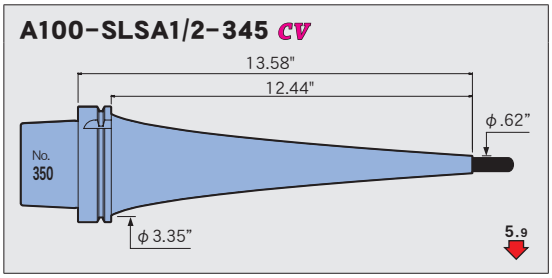
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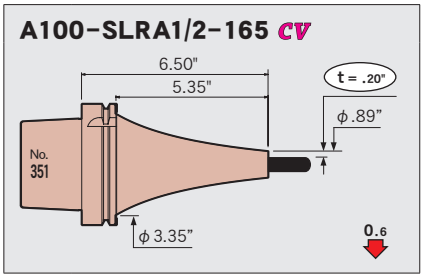
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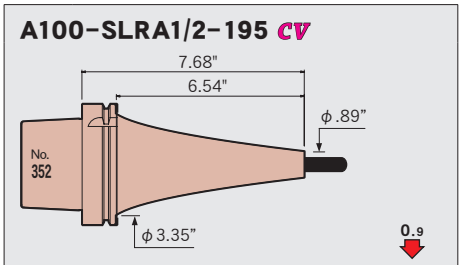
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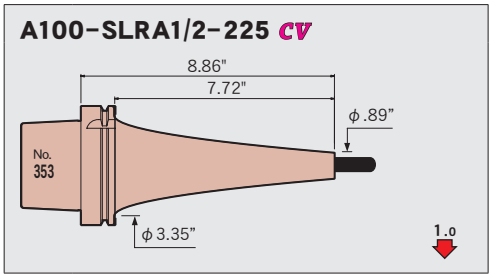
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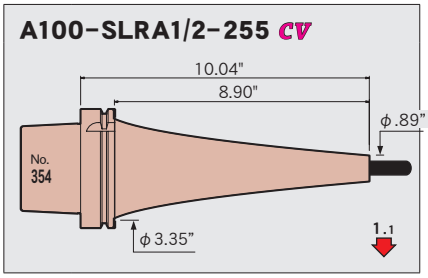
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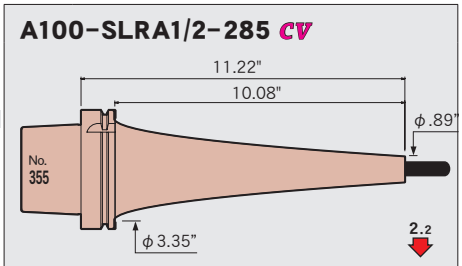
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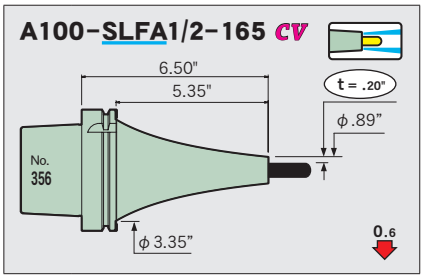
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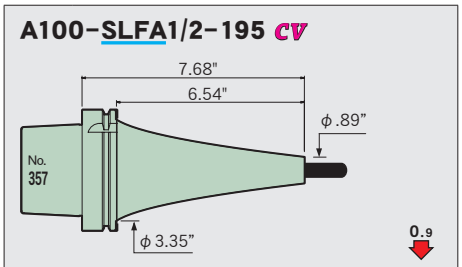
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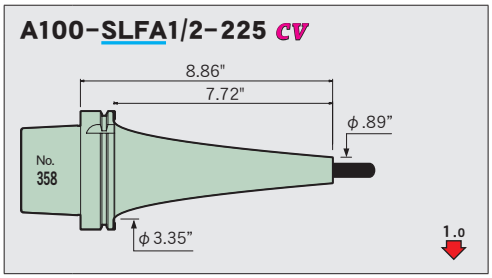
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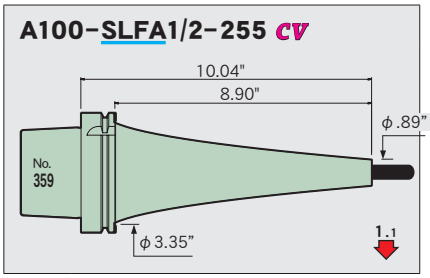
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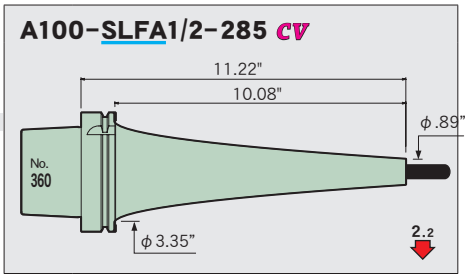
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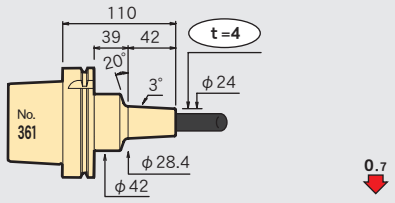


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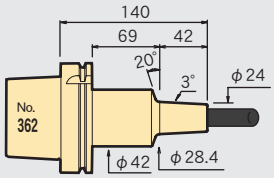
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A100-SLSB16-110-M42



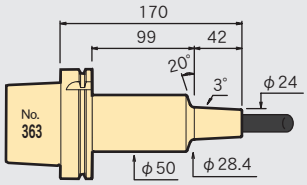
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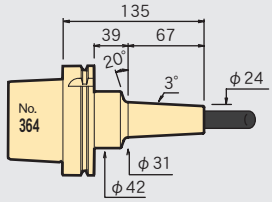
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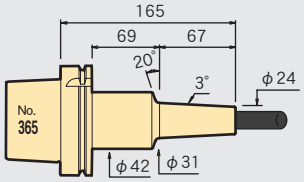
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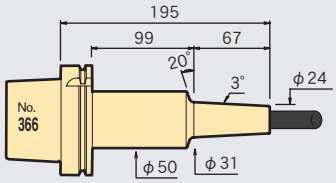
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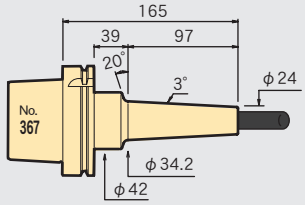
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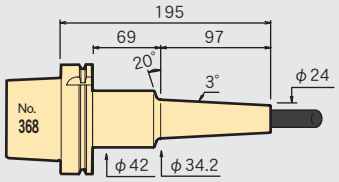
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A100-SLSB16-165-M97



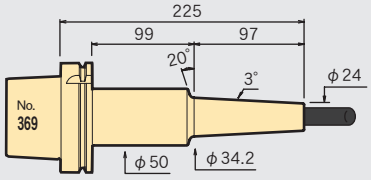
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A100-SLSB16-195-M97



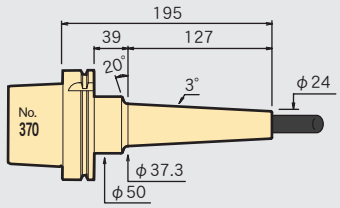
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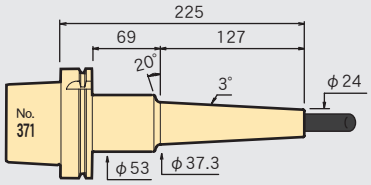
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A100-SLSB16-195-M127



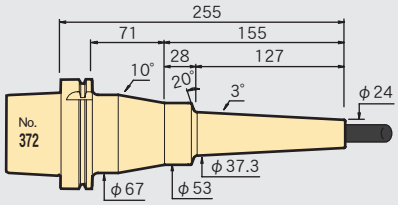
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A100-SLSB16-225-M127



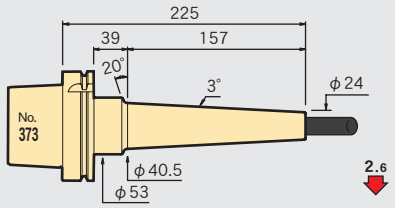
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A100-SLSB16-255-M127



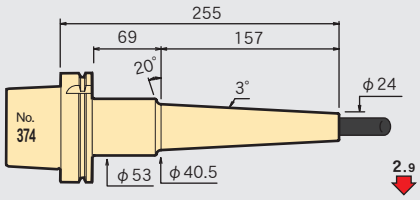
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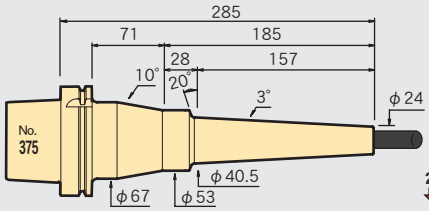
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A100-SLSB16-255-M157



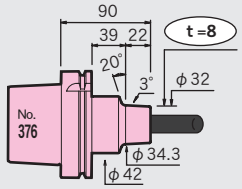
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A100-SLSB16-285-M157



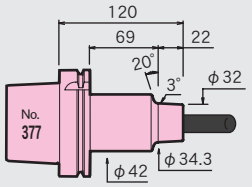
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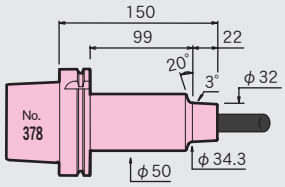
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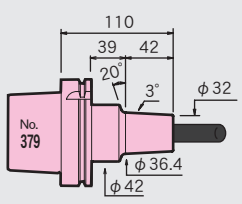
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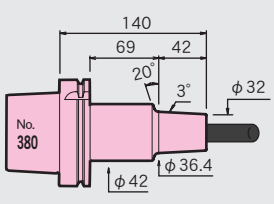
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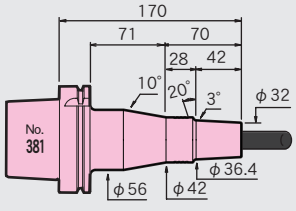
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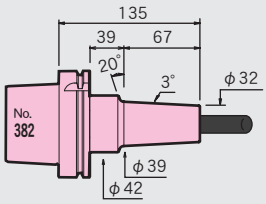
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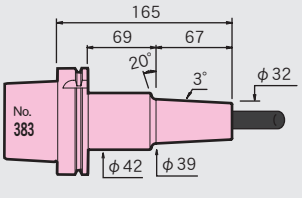


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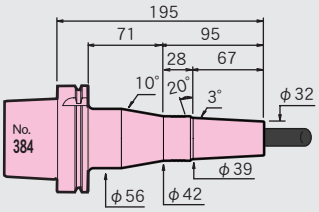
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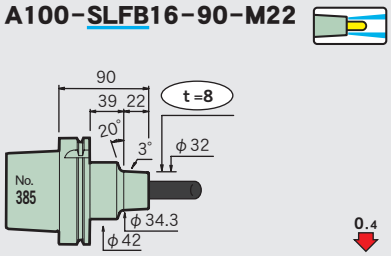
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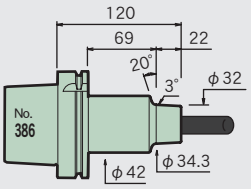
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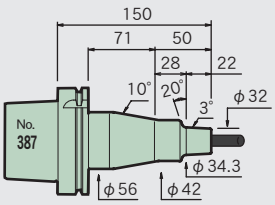
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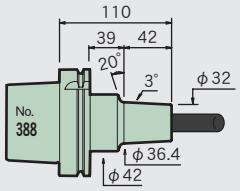
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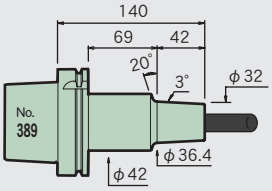
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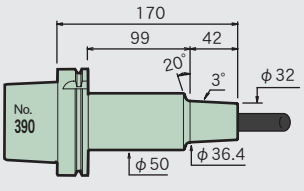
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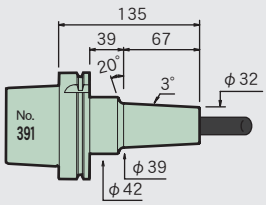
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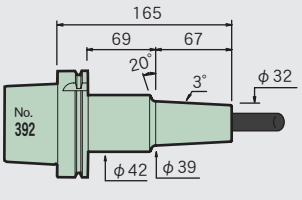
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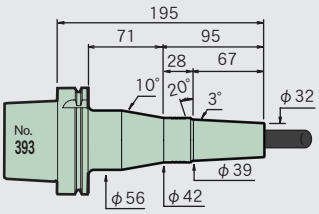
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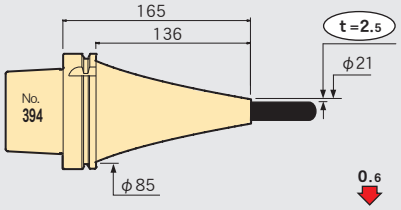
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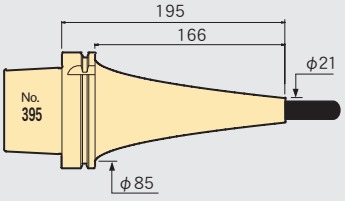
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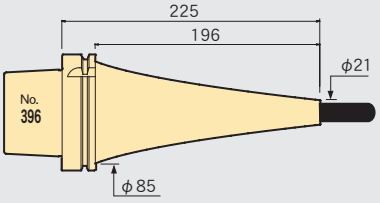
A100-SLSB16-165 CV



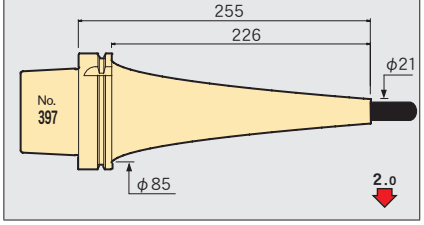
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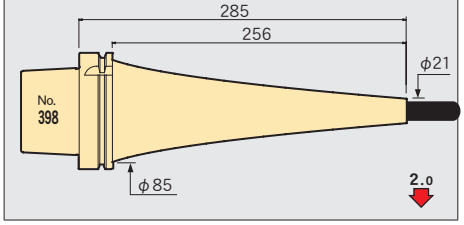
A100-SLSB16-225 CV



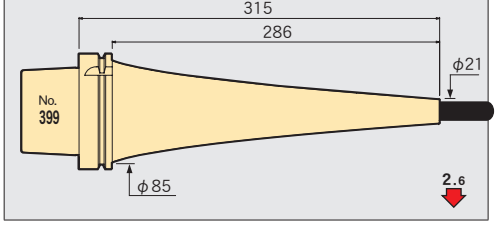
A100-SLSB16-255 CV



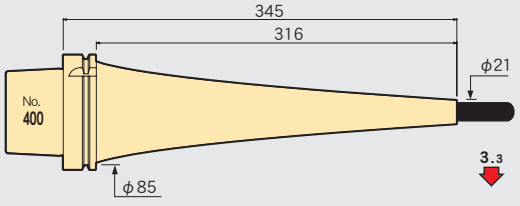
A100-SLSB16-285 CV



A100-SLSB16-315 CV

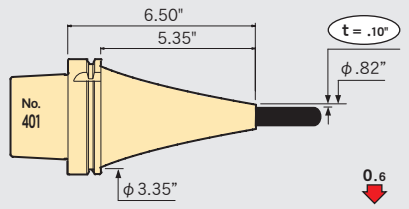


A100-SLSB16-345 CV

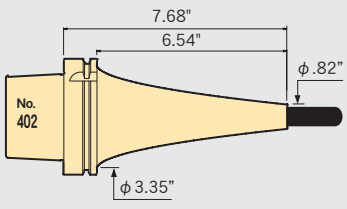


ϕ5/8

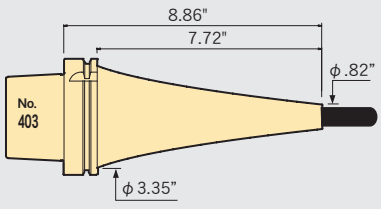
A100-SLSB5/8-165 CV



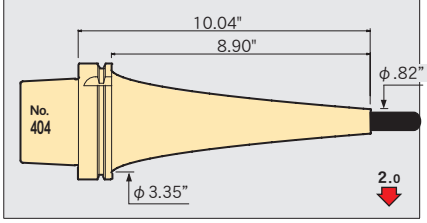
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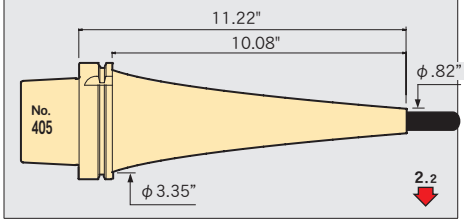
A100-SLSB5/8-225 CV



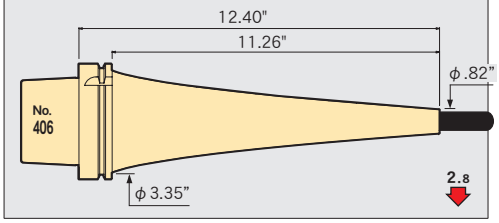
A100-SLSB5/8-255 CV



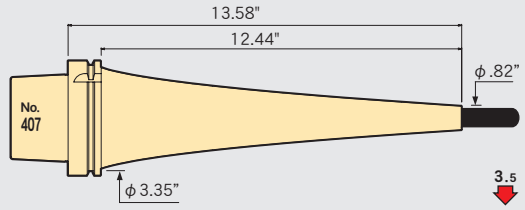
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A100-SLSB5/8-315 CV



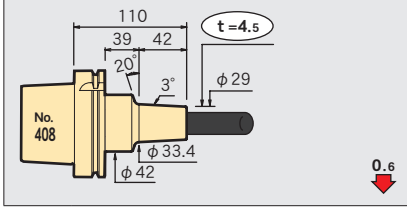
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A100 S=1:7

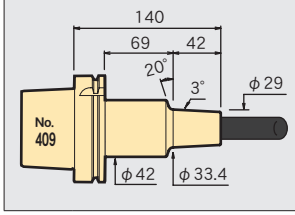
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A100-SLSB20-110-M42



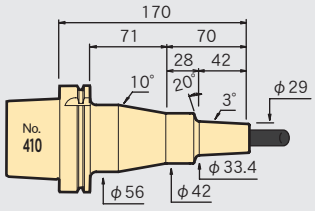
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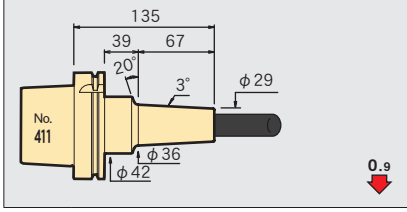
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A100-SLSB20-170-M42



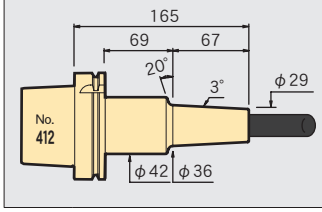
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A100-SLSB20-135-M67



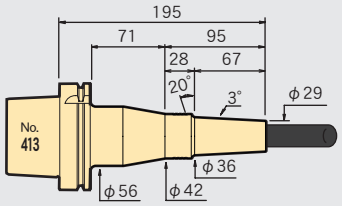
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A100-SLSB20-165-M67



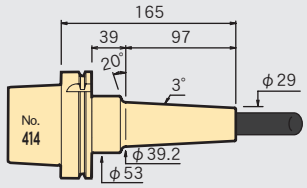
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A100-SLSB20-195-M67



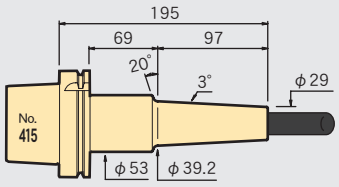
1.2

A100-SLSB20-165-M97



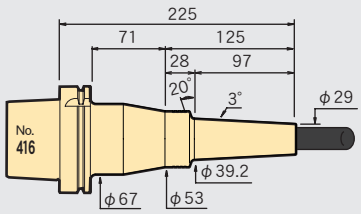
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A100-SLSB20-195-M97



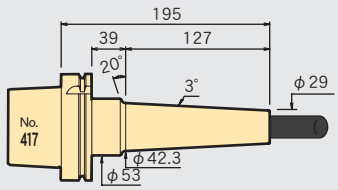
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A100-SLSB20-225-M97



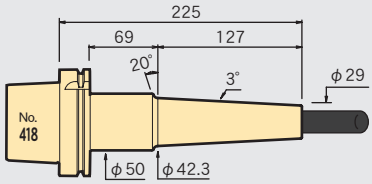
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A100-SLSB20-195-M127



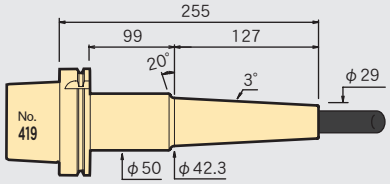
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A100-SLSB20-225-M127



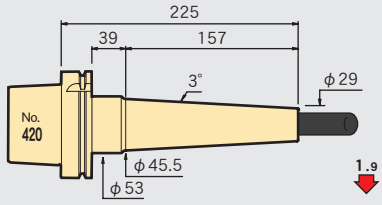
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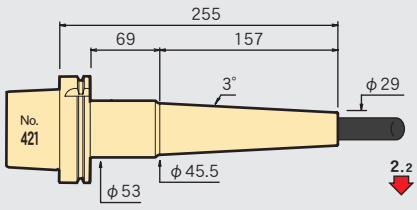
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A100-SLSB20-225-M157



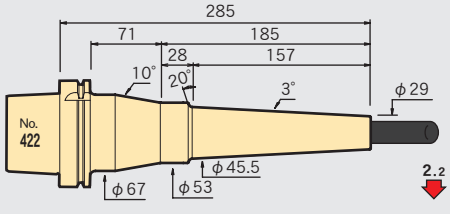
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A100-SLSB20-255-M157



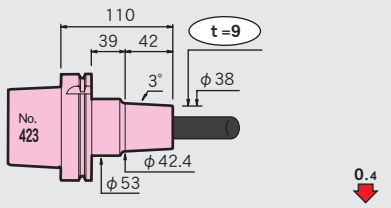
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A100-SLSB20-285-M157



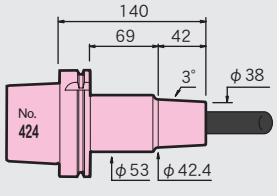
2.2

A100-SLRB20-110-M42



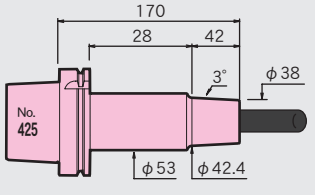
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A100-SLRB20-140-M42



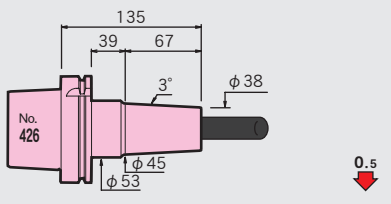
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A100-SLRB20-170-M42



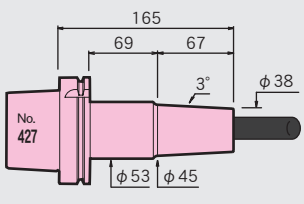
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A100-SLRB20-135-M67



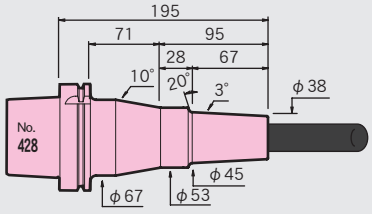
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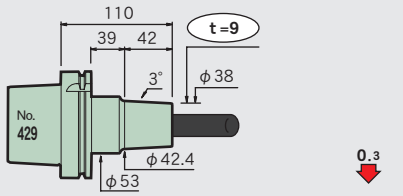
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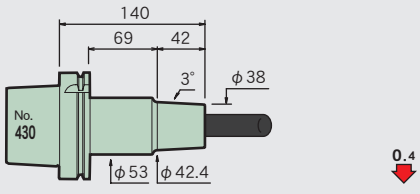


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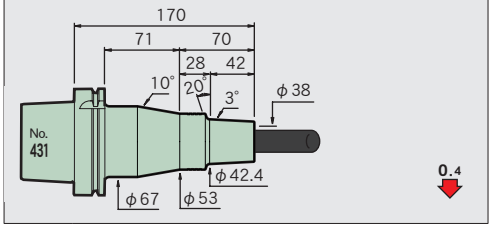
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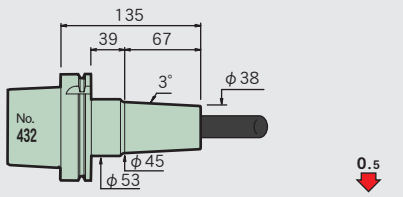
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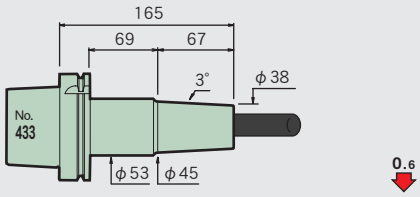
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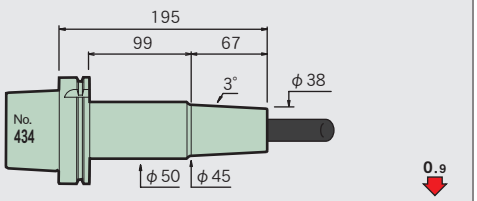
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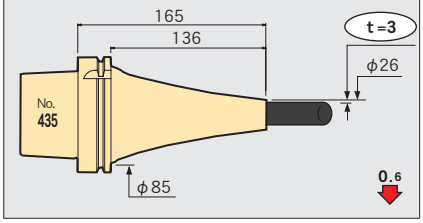
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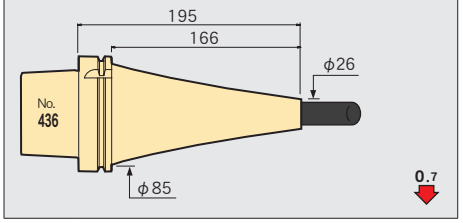
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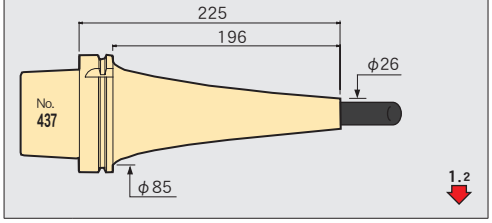
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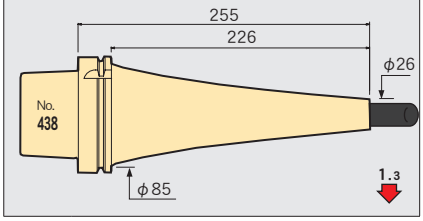
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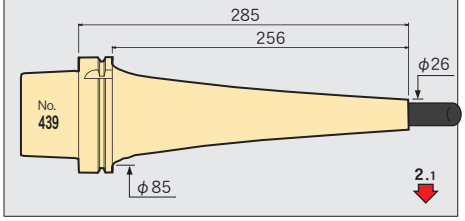
A100-SLSB20-225 CV



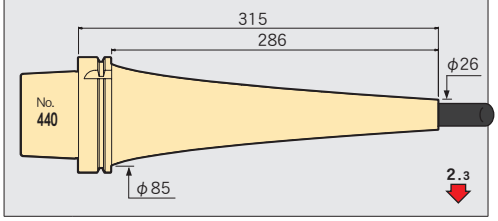
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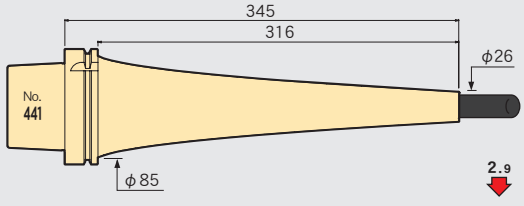
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A100-SLSB20-315 CV



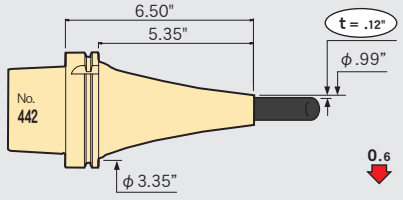
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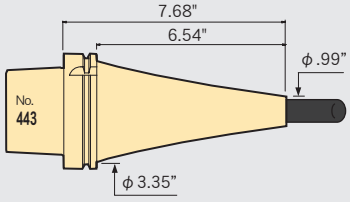
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ϕ3/4

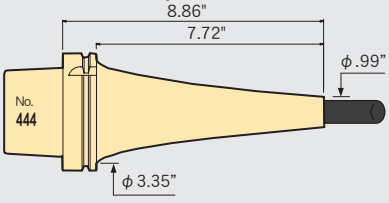
A100-SLSB3/4-165 CV



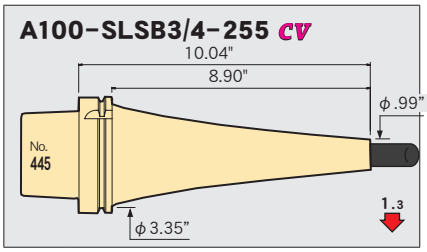
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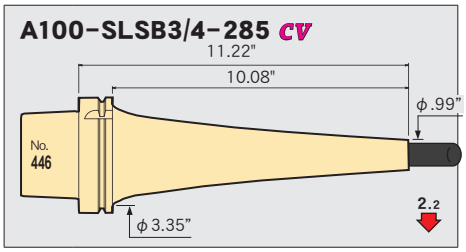
A100-SLSB3/4-225 CV



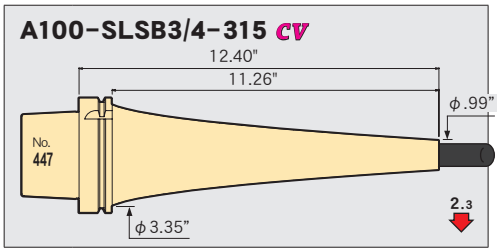
A100-SLSB3/4-255 CV



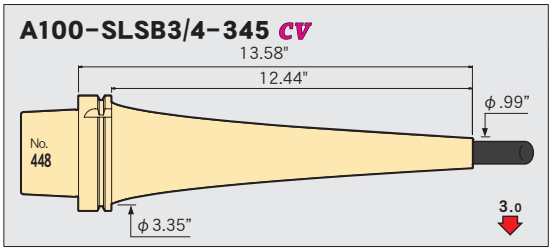
A100-SLSB3/4-285 CV



A100-SLSB3/4-315 CV

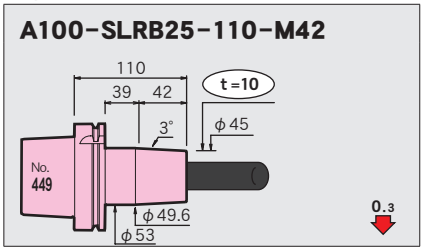


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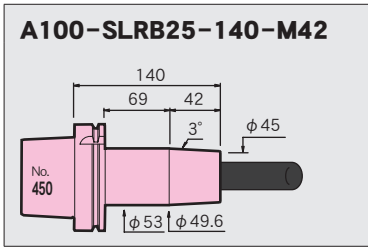


ϕ25

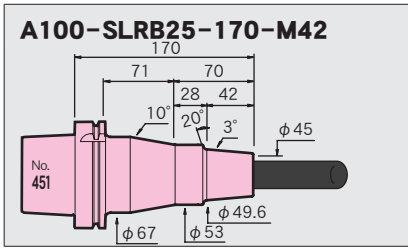
A100-SLRB25-110-M42



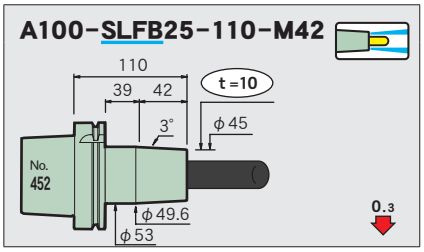
A100-SLRB25-140-M42



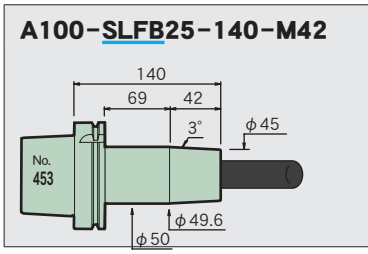
A100-SLRB25-170-M42



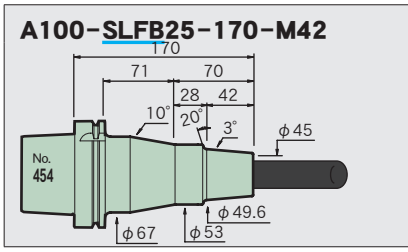
A100-SLFB25-110-M42



A100-SLFB25-140-M42

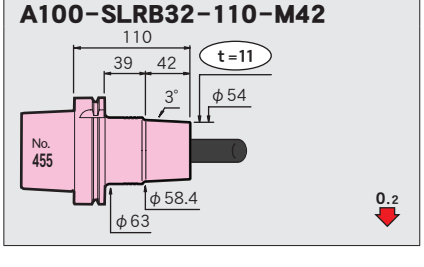


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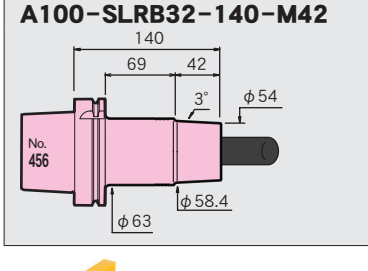


ϕ32

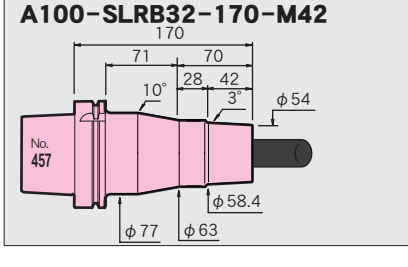
A100-SLRB32-110-M42



A100-SLRB32-140-M42



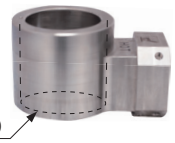
A100-SLRB32-170-M42

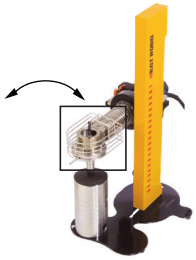


ϕ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70





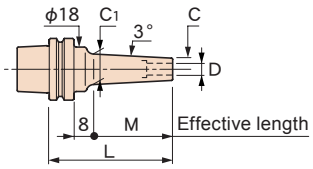
HEAT ROBO Baby3000S

E25

MONO 3°

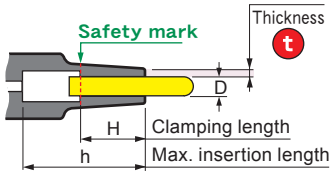
E25-SLSA3-50





■Caution

- The coolant duct is not sold with a holder. Consult us if you need it.
- Setting cutters···Be sure to insert the tool beyond the safety mark.



Thickness

CODE	ϕD	ϕC	t	L	M	L1	ϕC1	H	h	Kg	N	S	Scale model
E25-SLSA3-35	3	6	1.5	35	17	8	7.8	9	29	0.06	0.37	3.6	1
-50				50	32		9.4		44		0.39	7	2
-SLRA3-35		7.5	2.25	35	17		9.3		29		0.37	2.3	3
E25-SLSA3.175-35	3.175	6.175	1.5	35	17	8	8	9	29	0.06	0.37	3.5	4
-50				50	32		9.6		44		0.39	6.6	5
E25-SLSA4-35	4	7	1.5	35	17	8	8.8	12	29	0.06	0.38	2.8	6
-50				50	32		10.4		44		0.4	5.3	7
-SLRA4-35		10	3	35	17		11.8		29		0.38	1.4	8
E25-SLSA5-35	5	8	1.5	35	17	8	9.8	15	26	0.06	0.38	2.2	9
E25-SLSA6-35	6	9	1.5	35	17	8	10.8	18	26	0.05	0.38	1.8	10
-50				50	32		12.4		39	0.07	0.43	3.6	11
-SLRA6-35		12	3	35	17		13.8		26		0.39	1.1	12

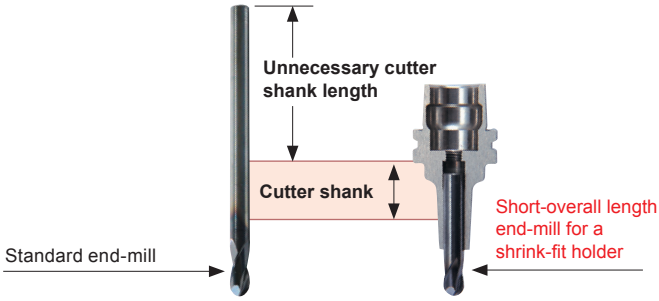
A short carbide end-mill for the shrink-fit holder

The shrink-fit holder doesn't need standard length cutting tools, because it has shorter insertion length.

A short end-mill for the shrink-fit holder P.262

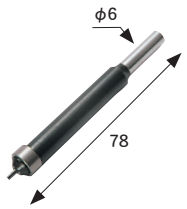
Short shank → The shortest cutter projection

Short cutting flute → Increase rigidity



Centering bar

To identify workpiece datum position



CODE
ST6—CEB102

Cleaning tool

Use when cleaning the machine spindle taper. Replaceable leather strip.



CODE
SCT—E25

■ Std. Access. ●Spare leather set

Measuring instrument tool holder

Use when centering a workpiece. The spring collet (C10-6-P) and the centering bar (ST6-CEB102) are required and sold separately. Fasten nuts by hand.



CODE
E25—CEH10—37

■ Caution ●Not usable for machining.

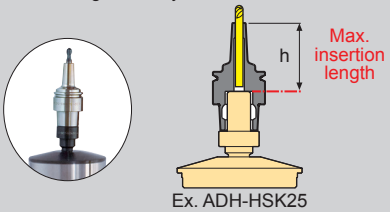
Holder stand

P.13



⚠ Be aware of max. insertion length (h)!

If you insert cutter beyond the max. insertion length (h), the machine spindle might not be able to clamp the holder properly and thus damage the spindle. Please use our exclusive adapter to recognize the max. insertion length when you shrink-fit.



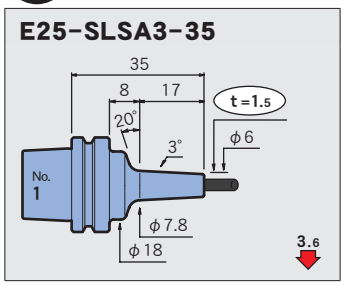
SODICK	UH430L/UH650L TT1-400A/OPM250L
MITSUI SEIKI	VL30
ROKU-ROKU	MEGA-SS Series Android



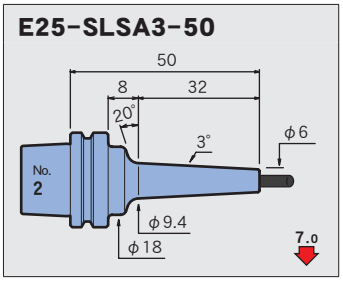
E25 **S=1:2**

ϕ3

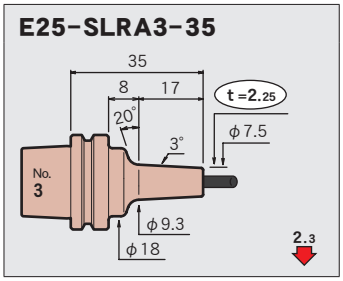
E25-SLSA3-35



E25-SLSA3-50

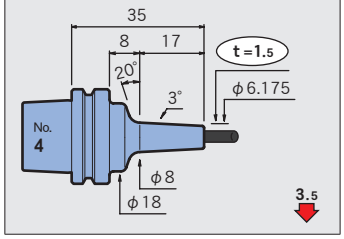


E25-SLRA3-35

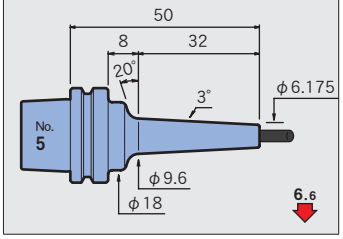


ϕ3.175

E25-SLSA3.175-35

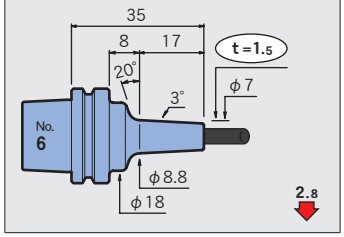


E25-SLSA3.175-50

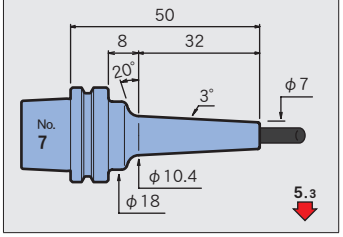


ϕ4

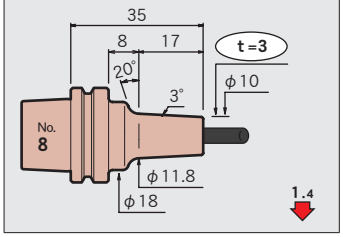
E25-SLSA4-35



E25-SLSA4-50

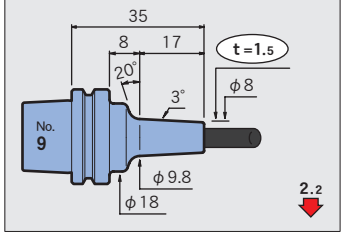


E25-SLRA4-35



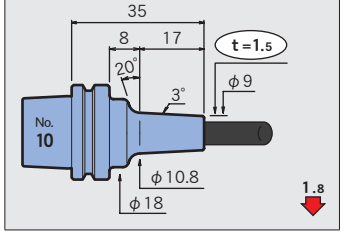
ϕ5

E25-SLSA5-35

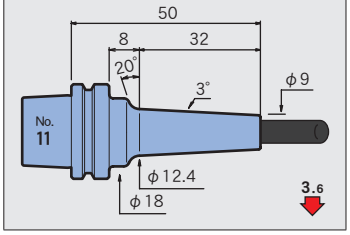


ϕ6

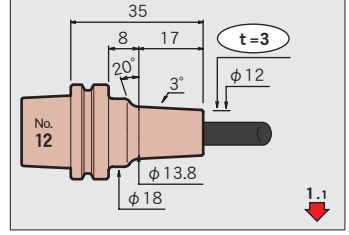
E25-SLSA6-35



E25-SLSA6-50



E25-SLRA6-35



MONO 3°

E32-SLRA4-50-M22

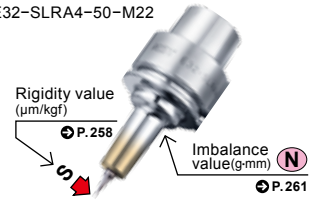


Fig. 1

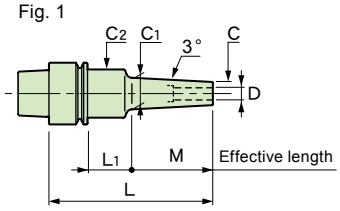
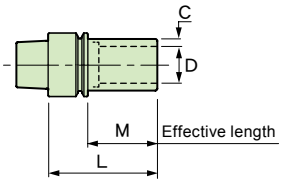


Fig. 2



MONO CURVE

E32-SLSA4-90 cv

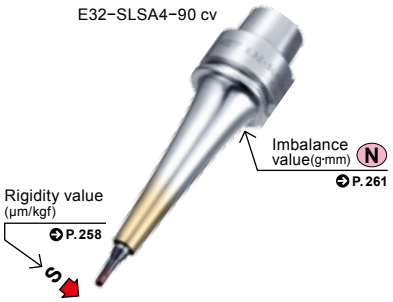
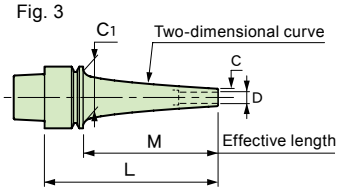
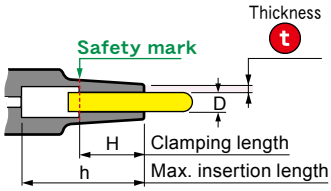


Fig. 3



■Caution
- The coolant duct is not sold with a holder. Consult us if you need it.
- Setting cutters···Be sure to insert the tool beyond the safety mark.



CV: Curve

Thickness

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg lbs	N	S	Scale model
E32-SLSA3-50-M22	1	3	6	1.5	50	22	8	8.3	20	9	42	0.1	0.4	4.7	1
-70-M42					70	42		10.4			62	0.2		9.5	2
-85-M42					85		23		25		77		0.8	9.4	3
-SLRA3-50-M22	1	3	7.5	2.25	50	22	8	9.8	20	9	42	0.1	0.4	2.8	4
-70-M42					70	42		11.9			62	0.2		5.3	5
-85-M42					85		23		25		77		0.8	5.5	6
E32-SLSA3.175-50-M22	1	3.175	6.175	1.5	50	22	8	8.5	20	9	42	0.1	0.4	4.4	7
E32-SLSA4-50-M22	1	4	7	1.5	50	22	8	9.3	20	12	42	0.1	0.4	3.6	8
-70-M42					70	42		11.4			62	0.2		7.3	9
-85-M42					85		23		25		77		0.8	7.4	10
-SLRA4-50-M22	1	4	10	3	50	22	8	12.3	20	12	42	0.2	0.4	1.7	11
-70-M42					70	42		14.4			62		0.5	3.1	12
-85-M42					85		23		25		77		0.9	3.2	13
-SLSA4-60 CV	3	4	7	1.5	60	40	—	26	—	12	43	0.2	0.6	2.4	14
-90 CV					90	70					73		0.8	6.1	15
E32-SLSA3/16-60 CV	3	3/16	.31	.06	2.37	1.58	—	1.02	—	.59	1.69	0.4	0.6	2.4	16
-90 CV					3.55	2.76					2.87	0.5	0.8	2.2	17
E32-SLSA6-70-M42	1	6	9	1.5	70	42	8	13.4	20	18	62	0.2	0.5	4.8	18
-SLRA6-50-M22	1	6	12	3	50	22	8	14.3	26	18	39	0.2	0.5	1.2	19
-70-M42					70	42		16.4			62			2.4	20
-85-M42					85		23		25		77		0.9	2.5	21
-SLSA6-60 CV	3	6	9	1.5	60	40	—	26	—	18	43	0.2	0.7	1.9	22
-90 CV					90	70					73		0.9	4.9	23
E32-SLSA1/4-60 CV	3	1/4	.37	.06	2.37	1.58	—	1.02	—	.71	1.69	0.4	0.7	1.9	24
-90 CV					3.55	2.76					2.87	0.5	0.9	4.9	25
E32-SLRA8-50-M22	1	8	14	3	50	22	8	16.3	26	24	39	0.2	0.5	1	26
-85-M42					85	42	23	18.4	25		48		0.9	2.1	27
-SLSA8-60 CV	3	8	11	1.5	60	40	—	26	—	24	38	0.2	0.7	1.6	28
-90 CV					90	70							1	4	29

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg lbs	N	S	Scale model
E32-SLSA5/16-60 CV	3	5/16	.43	.06	2.37	1.58	—	1.02	—	.94	1.89	0.4	0.7	1.6	30
-90 CV					3.55	2.76					2.36	0.5	1	4	31
E32-SLRA10-55-M22	1	10	16	3	55	22	13	18.3	26	25	44	0.2	0.6	0.9	32
-SLSA10-60 CV	3	10	13	1.5	60	40	—	26	—	30	48	0.2	0.8	1.4	33
-90 CV					90	70					60		1.1	3.5	34
E32-SLSA3/8-60 CV	3	3/8	.49	.06	2.37	1.58	—	1.02	—	1.18	1.89	0.4	0.8	1.4	35
-90 CV					3.55	2.76					2.36	0.5	1.1	3.5	36
E32-SLRA12-55-M22	1	12	20	4	55	22	13	22.3	26	30	44	0.2	0.7	0.7	37
E32-SLRA16-55-M35	2	16	26	5	55	35	—	—	—	32	44	0.2	0.6	0.7	38

Cleaning tool

Use when cleaning the machine spindle taper. Replaceable leather strip.



CODE
SCT—E32

■ Std. Access. •Spare leather set

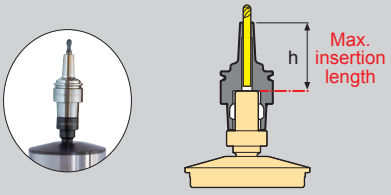
Holder stand

P.13



Be aware of max. insertion length (h)!

If you insert cutter beyond the max. insertion length (h), the machine spindle might not be able to clamp the holder properly and thus damage the spindle. Please use our exclusive adapter to recognize the max. insertion length when you shrink-fit.



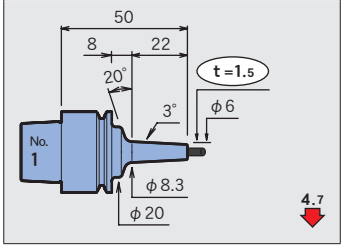
Ex. ADH-HSK32

SUGINO	Xion-Ⅲ、Xion-Ⅱ-5AX
SODICK	UH430L、UH650L
DMG MORI	HSC 20 linear
MAKINO	V22、V33*i*、iQ300
MITSUI SEIKI	VL30
MITSUBISHI	μV1
YASDA	YMC430

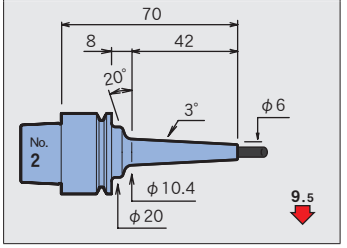


ϕ3

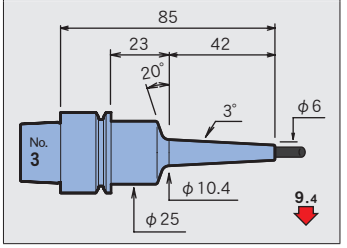
E32-SLSA3-50-M22



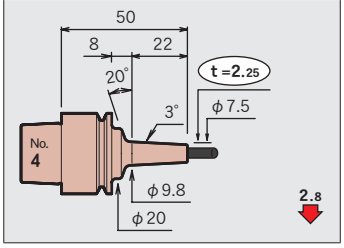
E32-SLSA3-70-M42



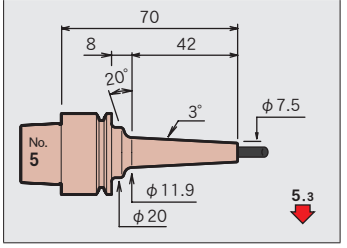
E32-SLSA3-85-M42



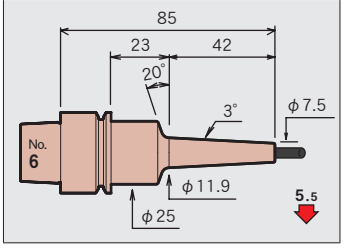
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E32-SLRA3-70-M42

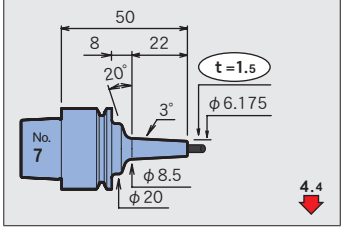


E32-SLRA3-85-M42



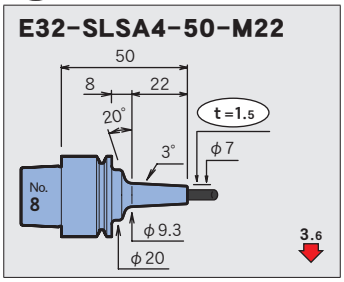
ϕ3.175

E32-SLSA3.175-50-M22

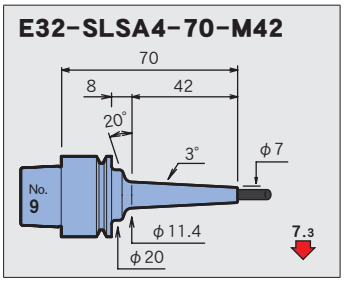


ϕ4

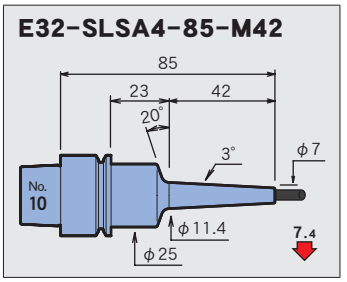
E32-SLSA4-50-M22



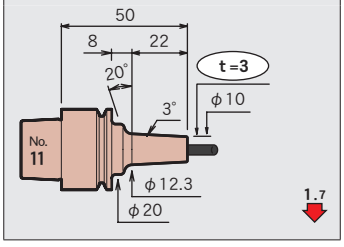
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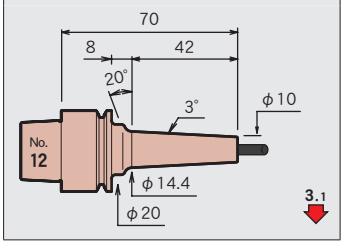
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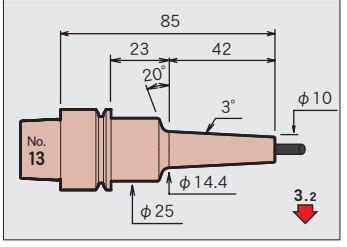
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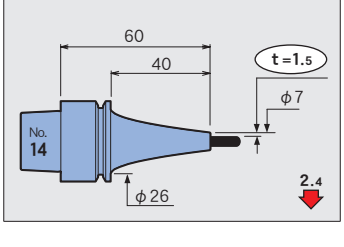
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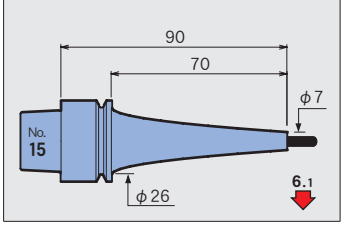
E32-SLRA4-85-M42



E32-SLSA4-60 CV



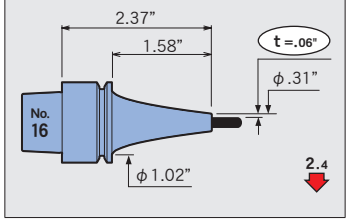
E32-SLSA4-90 CV



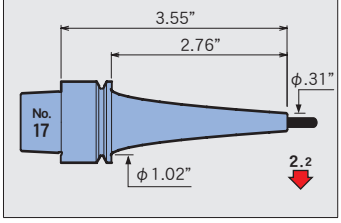
E32 S=1:3

ϕ3/16

E32-SLSA3/16-60 CV

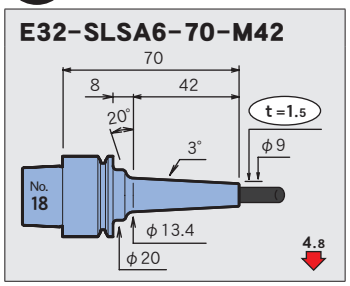


E32-SLSA3/16-90 CV

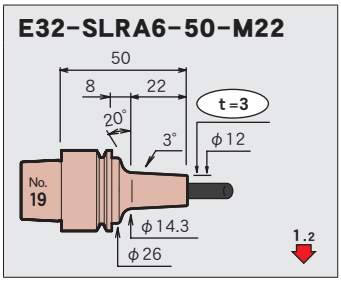


ϕ6

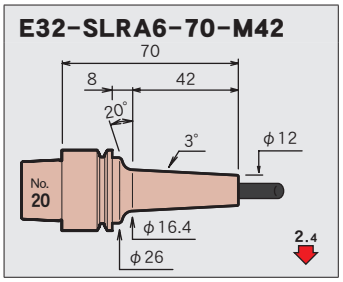
E32-SLSA6-70-M42



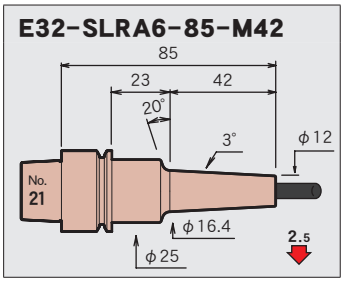
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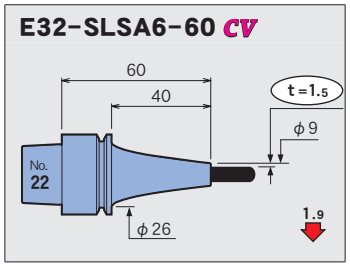
E32-SLRA6-70-M42



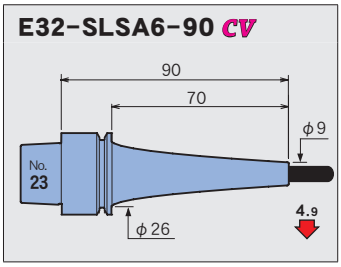
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E32-SLSA6-60 CV

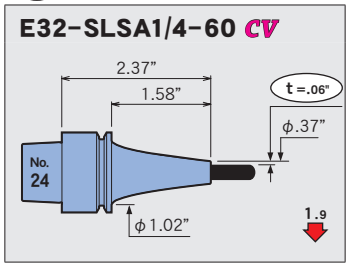


E32-SLSA6-90 CV

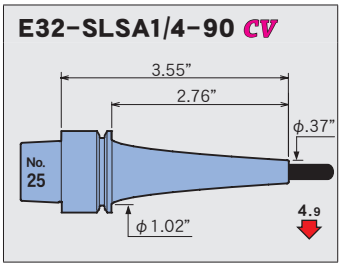


ϕ1/4

E32-SLSA1/4-60 CV

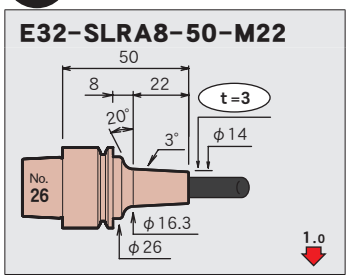


E32-SLSA1/4-90 CV

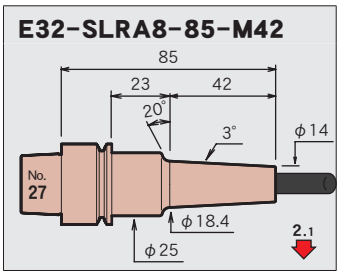


ϕ8

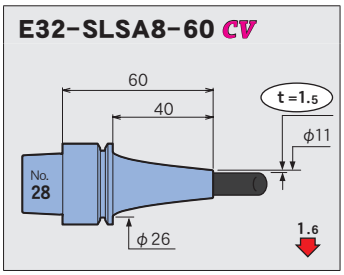
E32-SLRA8-50-M22



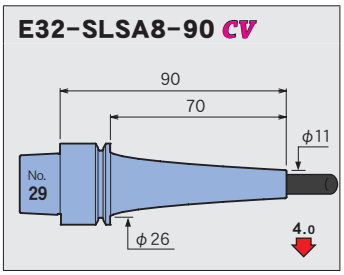
E32-SLRA8-85-M42



E32-SLSA8-60 CV

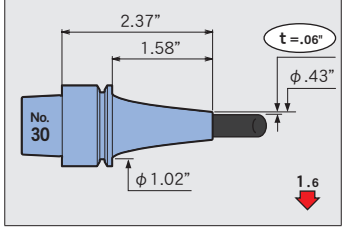


E32-SLSA8-90 CV

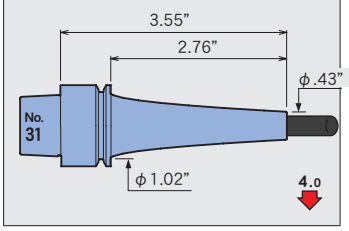


ϕ5/16

E32-SLSA5/16-60 CV

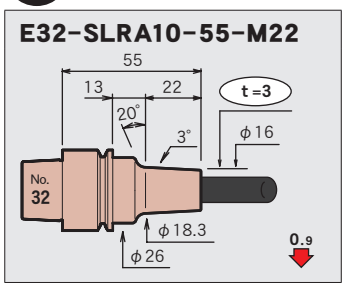


E32-SLSA5/16-90 CV

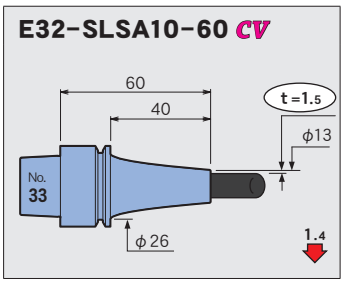


ϕ10

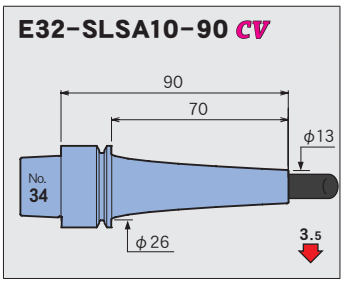
E32-SLRA10-55-M22



E32-SLSA10-60 CV

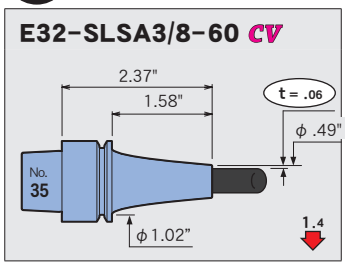


E32-SLSA10-90 CV

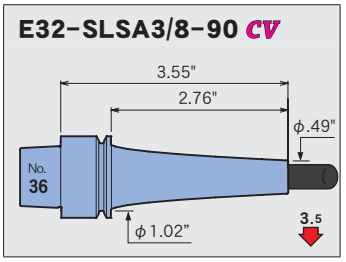


ϕ3/8

E32-SLSA3/8-60 CV

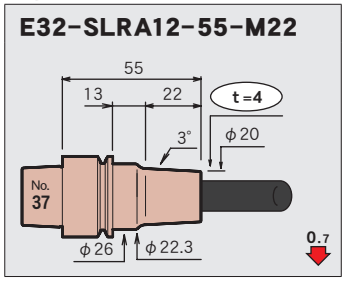


E32-SLSA3/8-90 CV



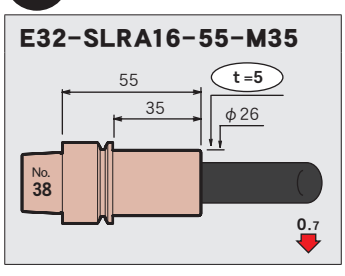
ϕ12

E32-SLRA12-55-M22



ϕ16

E32-SLRA16-55-M35



E40

MONO 3°



Fig. 1

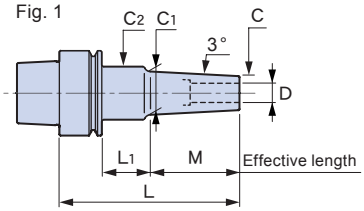
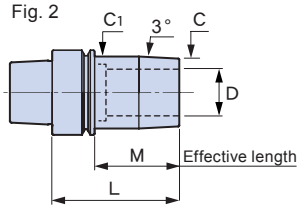


Fig. 2



MONO CURVE

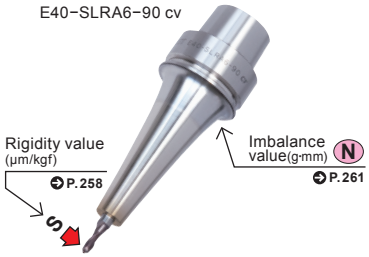
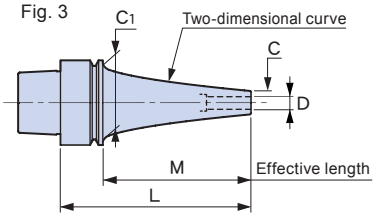
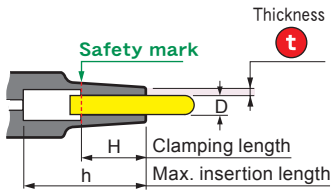


Fig. 3



■Caution
- The coolant duct is not sold with a holder. Consult us if you need it.
- Setting cutters···Be sure to insert the tool beyond the safety mark.



CV : Curve

Thickness

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg lbs	N	S	Scale model
E40-SLSA3- 50-M22	1	3	6	1.5	50	22	8	8.3	20	9	42	0.2	0.7	4.6	1
- 70-M42					70	42		10.4			62			9.4	2
- 85-M42					85		23		25		69	0.3	1.1	9.3	3
-110-M67					110	67		13			94		2.2	15	4
-SLRA3- 50-M22	1	3	7.5	2.25	50	22	8	9.8	20	9	42	0.2	0.7	2.8	5
- 70-M42					70	42		11.9			62			5.3	6
- 85-M42					85		23		25		69	0.3	1.1	5.4	7
-110-M67					110	67		14.5			94			9	8
E40-SLSA3.175-50-M22	1	3.175	6.175	1.5	50	22	8	8.5	20	9	42	0.2	0.7	4.4	9
E40-SLSA4- 50-M22	1	4	7	1.5	50	22	8	9.3	20	12	42	0.2	0.7	3.6	10
- 70-M42					70	42		11.4			62			7.2	11
- 85-M42					85		23		25		74	0.3	1.1	7.3	12
-110-M67					110	67		14			99		1.2	11.9	13
-SLRA4- 50-M22	1	4	10	3	50	22	8	12.3	20	12	42	0.2	0.7	1.6	14
- 70-M42					70	42		14.4			62	0.3		3	15
- 85-M42					85		23		25		69		1.1	3.1	16
-110-M67					110	67		17			94		1.2	5.2	17
-SLSA4- 90 CV	3	4	7	1.5	90	70	—	34	—	12	74	0.3	1.5	2.9	18
-120 CV					120	100					104	0.4	1.8	6.5	19
-150 CV					150	130					134	0.5	2.4	8.6	20
-SLRA4- 90 CV	3	4	10	3	90	70	—	34	—	12	74	0.4	1.6	2	21
-120 CV					120	100					104		1.9	4.2	22
E40-SLSA3/16- 90 CV	3	3/16	.31	.06	3.55	2.76	—	1.34	—	0.59	2.91	0.8	1.7	2.9	23
-120 CV					4.73	3.94					4.09		1.9	6.5	24
-150 CV					5.91	5.12					5.28	1.1	2.6	8.6	25
-SLRA3/16- 90 CV	3	3/16	.42	.12	3.55	2.76	—	1.34	—	0.59	2.91	0.8	1.7	2	26
-120 CV					4.73	3.94					4.09	0.9	2	4.2	27
E40-SLSA6- 50-M22	1	6	9	1.5	50	22	8	11.3	20	18	39	0.2	0.7	2.2	28
- 70-M42					70	42		13.4			54			4.7	29
- 85-M42					85		23		25		69	0.3	1.1	4.9	30
-110-M67					110	67		16			94		1.2	8	31

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg lbs	N	S	Scale model
E40-SLRA6- 50-M22	1	6	12	3	50	22	8	14.3	26	18	39	0.2	0.7	1.2	32
- 70-M42					70	42		16.4			54	0.3	0.8	2.3	33
- 85-M42					85		23		25		69		1.2	2.5	34
-110-M67					110	67		19			94	0.4		4.1	35
-SLSA6- 90 CV	3	6	9	1.5	90	70	—	34	—	18	74	0.3	1.6	2.5	36
-120 CV					120	100					104	0.4	1.9	5.6	37
-150 CV					150	130					134	0.5	2.5	7.7	38
-SLRA6- 90 CV	3	6	13	3.5	90	70	—	34	—	18	74	0.4	1.7	1.7	39
-120 CV					120	100					104	0.5	2.4	2.6	40
E40-SLSA1/4- 90 CV	3	1/4	.37	.06	3.55	2.76	—	1.34	—	0.71	2.91	0.8	1.7	2.5	41
-120 CV					4.73	3.94					4.09	0.9	2	5.6	42
-150 CV					5.91	5.12					5.28	1.1	2.6	7.7	43
-SLRA1/4- 90 CV	3	1/4	.53	.14	3.55	2.76	—	1.34	—	0.71	2.91	0.8	1.8	1.7	44
-120 CV					4.73	3.94					4.09	1.0	2.5	2.6	45
E40-SLSA8- 60-M22	1	8	11	1.5	60	22	18	13.3	26	24	49	0.3	1	1.5	46
- 80-M42					80	42		15.4			64			3.3	47
-100-M42					100		38		25		84		1.5	3.8	48
-SLRA8- 50-M22	1	8	14	3	50	22	8	16.3	26	20	39	0.2	0.7	0.9	49
- 85-M42					85	42	23	18.4	25	24	69	0.3	1.2	2.1	50
-100-M42					100		38				84	0.4	1.5	2.4	51
-SLSA8- 90 CV	3	8	11	1.5	90	70	—	34	—	24	74	0.3	1.7	2.2	52
-120 CV					120	100					104	0.4	2	3.4	53
-150 CV					150	130					134	0.5	3	5.1	54
-SLRA8- 90 CV	3	8	16	4	90	70	—	34	—	24	74	0.4	1.8	1.6	55
-120 CV					120	100					104	0.5	2.5	2.4	56
E40-SLSA5/16- 90 CV	3	5/16	.43	.06	3.55	2.76	—	1.34	—	0.94	2.91	0.8	1.7	2.2	57
-120 CV					4.73	3.94					4.09	0.9	2.1	3.4	58
-150 CV					5.91	5.12					5.28	1.1	2.8	5.1	59
-SLRA5/16- 90 CV	3	5/16	.63	.16	3.55	2.76	—	1.34	—	0.94	2.91	0.9	2.2	1.6	60
-120 CV					4.73	3.94					4.09	1.1	2.6	2.4	61
E40-SLSA10- 60-M22	1	10	13	1.5	60	22	18	15.3	26	30	49	0.3	1	1.2	62
- 80-M42					80	42		17.4			64		1.1	2.4	63
-100-M42					100		38		25		89		1.5	3.1	64
-SLRA10- 55-M22	1	10	16	3	55	22	13	18.3	26	25	44	0.3	0.9	0.8	65
- 85-M42					85	42	23	20.4	25	30	64		1.2	1.7	66
-100-M42					100		38					0.4	1.6	2.2	67
-SLSA10- 90 CV	3	10	13	1.5	90	70	—	34	—	30	74	0.3	1.7	2	68
-120 CV					120	100					104	0.4	2.4	3.2	69
-150 CV					150	130					134	0.5	3.1	5	70
-SLRA10- 90 CV	3	10	19	4.5	90	70	—	34	—	30	74	0.4	2.1	1.1	71
-120 CV					120	100					104	0.5	2.9	2	72
E40-SLSA3/8- 90 CV	3	3/8	.49	.06	3.55	2.76	—	1.34	—	1.18	2.91	0.8	1.8	2	73
-120 CV					4.73	3.94					4.09	1.0	2.5	3.2	74
-150 CV					5.91	5.12					5.28	1.2	3.2	5	75
-SLRA3/8- 90 CV	3	3/8	.73	.185	3.55	2.76	—	1.34	—	1.18	2.91	0.9	2.3	1.1	76
-120 CV					4.73	3.94					4.09	1.2	3	2	77
E40-SLRA12- 55-M22	1	12	20	4	55	22	13	22.3	26	25	44	0.3	1	0.6	78
- 85-M42					85	42	23	24.4	32	30	74	0.4	1.6	1.1	79
E40-SLRA16- 55-M22	1	16	26	5	55	22	13	28.3	34	32	44	0.3	1.2	0.4	80
E40-SLRA20- 60-M40	2	20	32	6	60	40	—	34	—	38	49	0.4	1.6	0.4	81

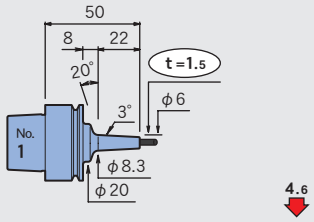
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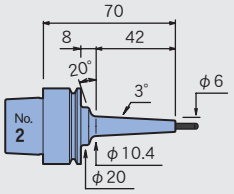
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φ3

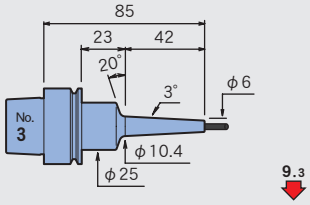
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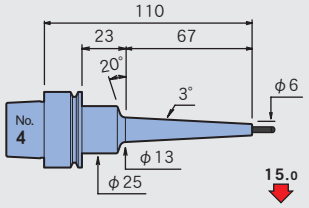
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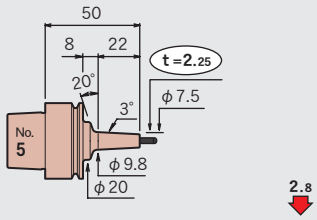
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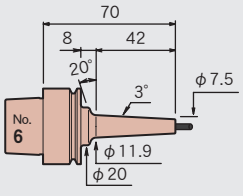
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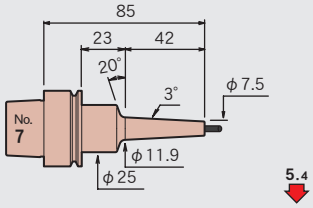
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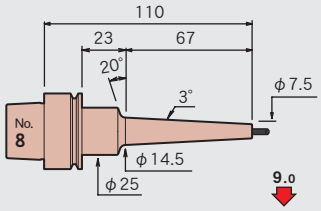
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E40-SLRA3-85-M42

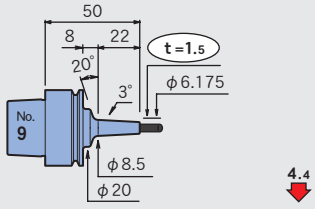


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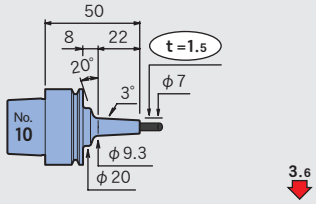
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E40-SLSA3.175-50-M22

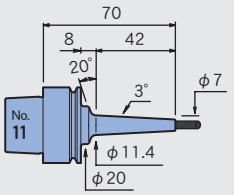


φ4

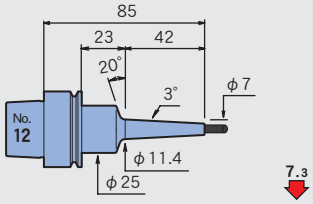
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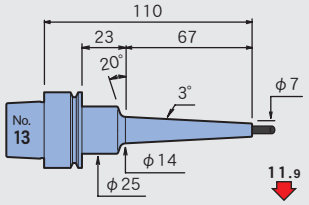
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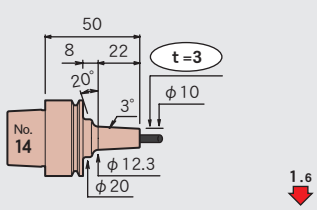
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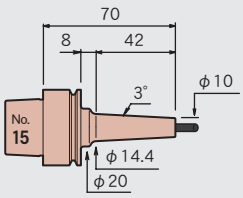
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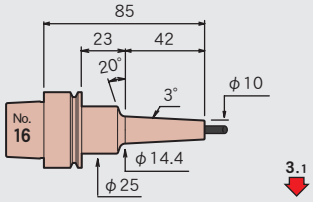
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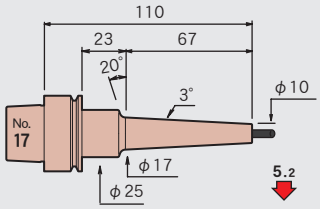
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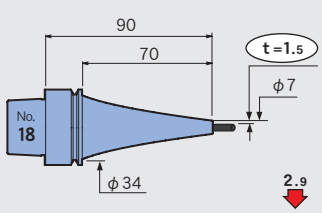
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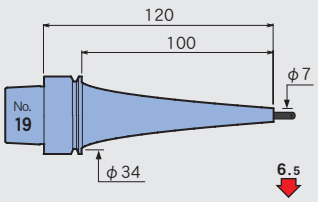
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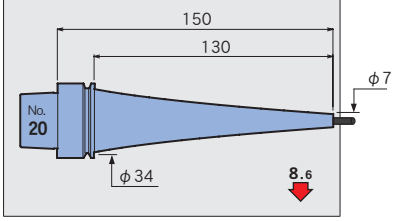
E40-SLSA4-90 CV



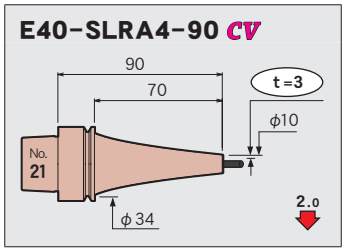
E40-SLSA4-120 CV



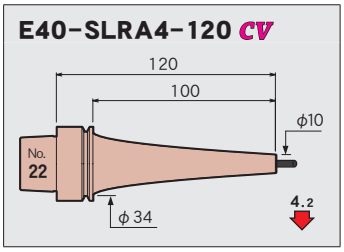
E40-SLSA4-150 CV



E40-SLRA4-90 CV

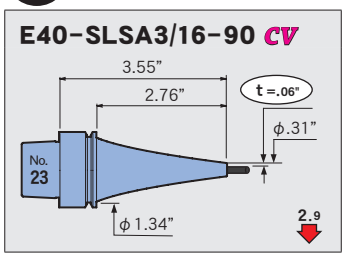


E40-SLRA4-120 CV

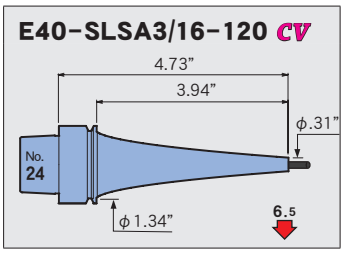


ϕ3/16

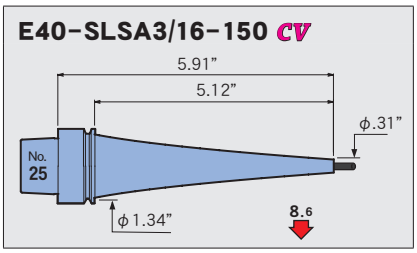
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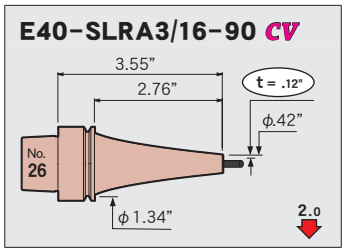
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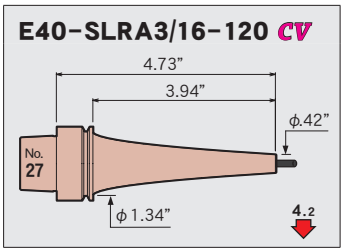
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E40-SLRA3/16-90 CV

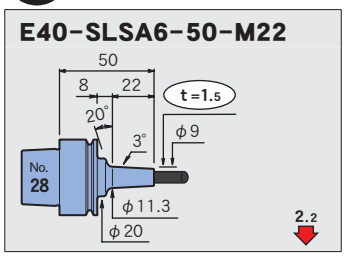


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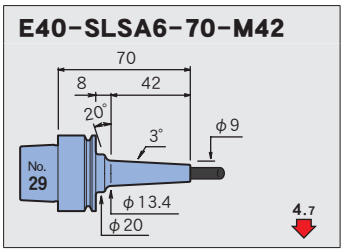


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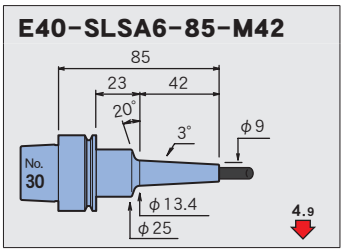
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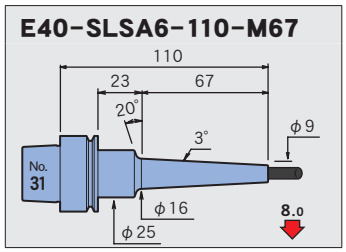
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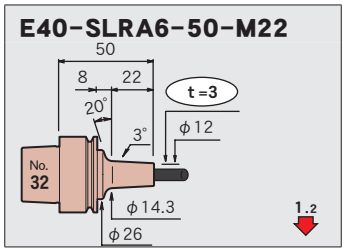
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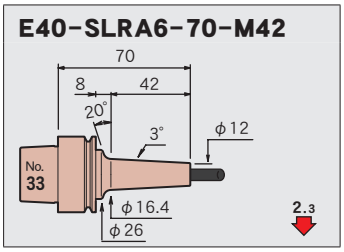
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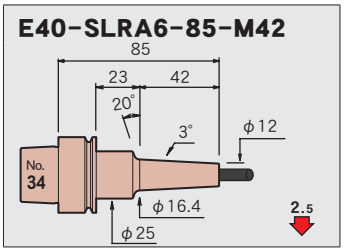
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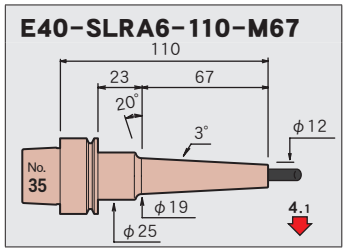
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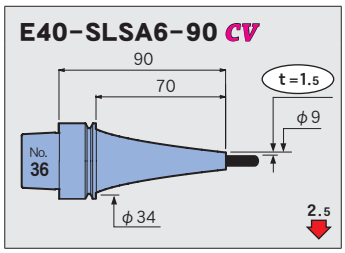
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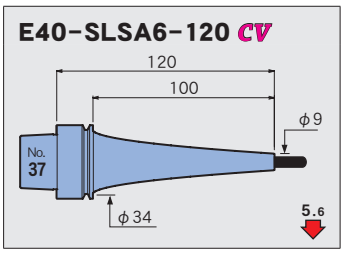
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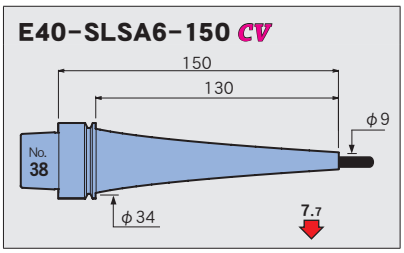
E40-SLSA6-90 CV



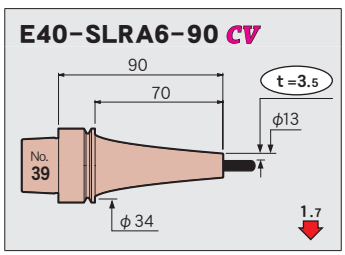
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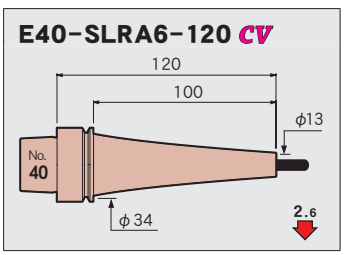
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E40-SLRA6-90 CV



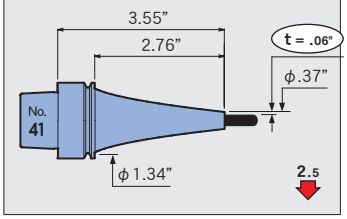
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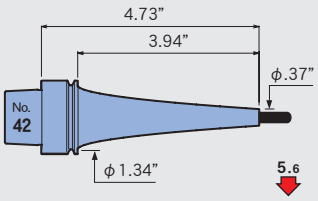
E40 S=1:4

ϕ1/4

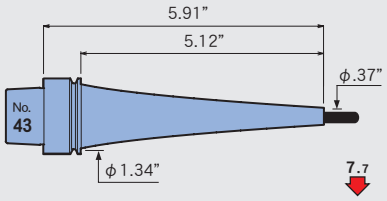
E40-SLSA1/4-90 CV



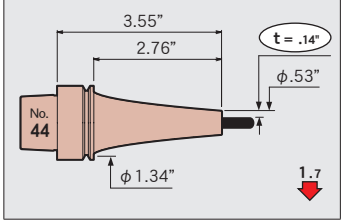
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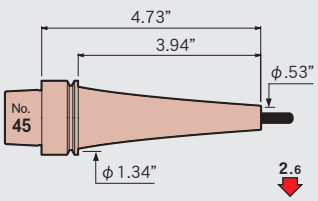
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E40-SLRA1/4-90 CV

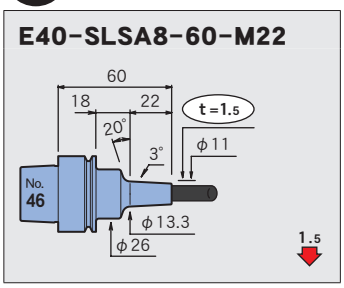


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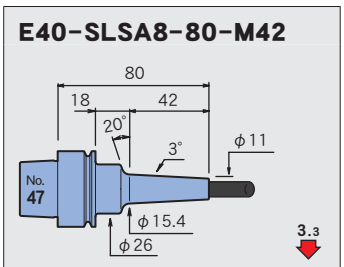


ϕ8

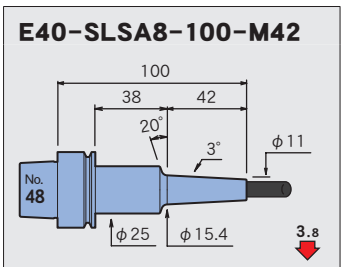
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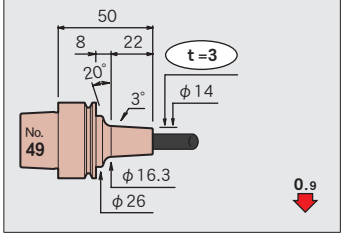
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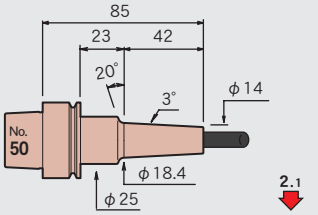
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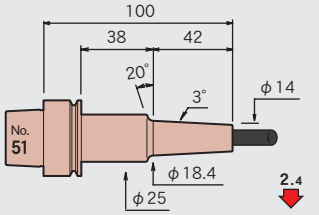
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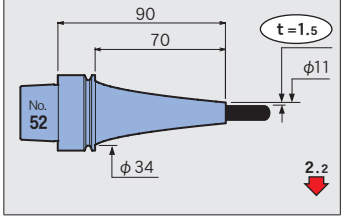
E40-SLRA8-85-M42



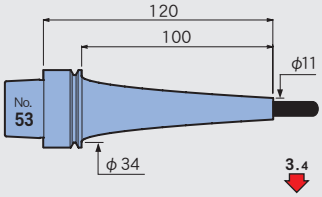
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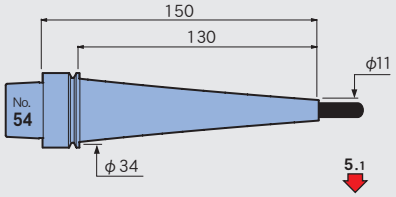
E40-SLSA8-90 CV



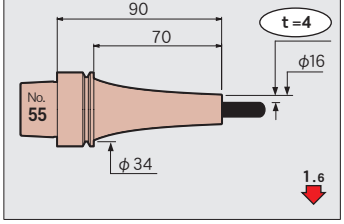
E40-SLSA8-120 CV



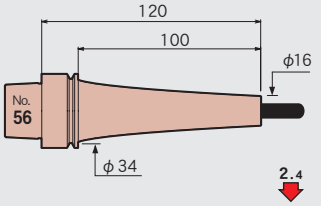
E40-SLSA8-150 CV



E40-SLRA8-90 CV

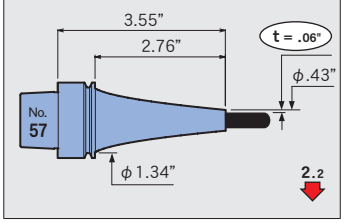


E40-SLRA8-120 CV

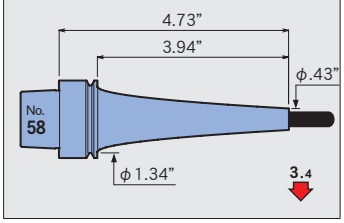


ϕ5/16

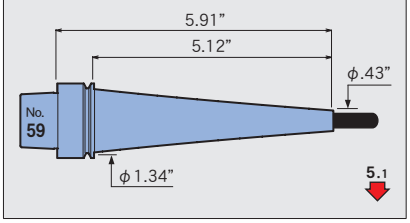
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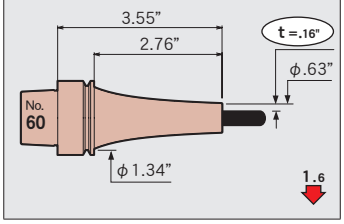
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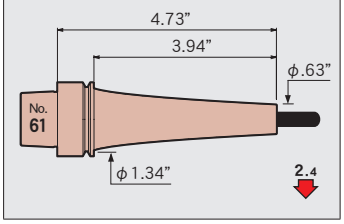
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E40-SLRA5/16-90 CV

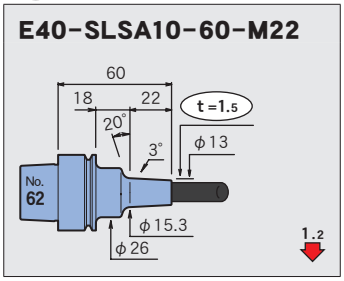


E40-SLRA5/16-120 CV

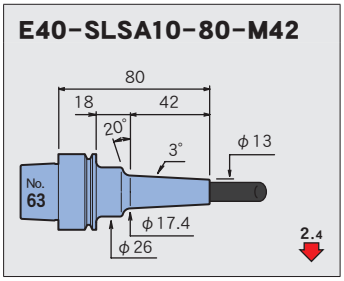


ϕ10

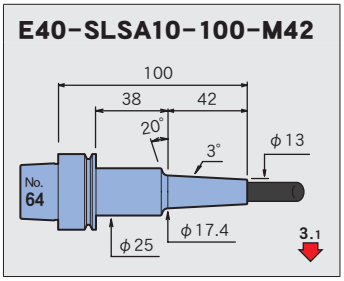
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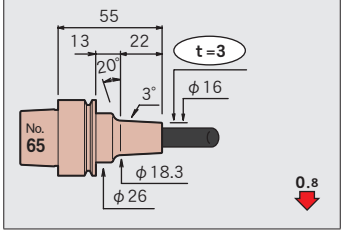
E40-SLSA10-80-M42



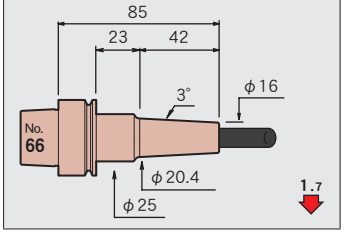
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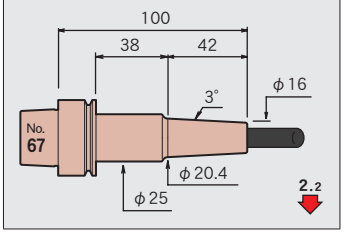
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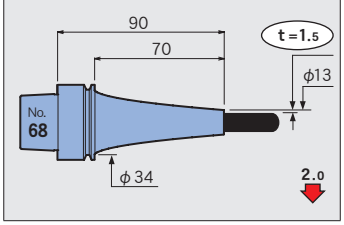
E40-SLRA10-85-M42



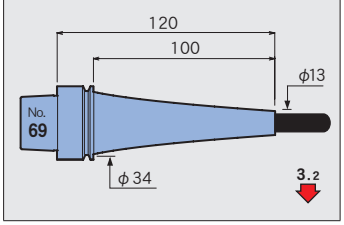
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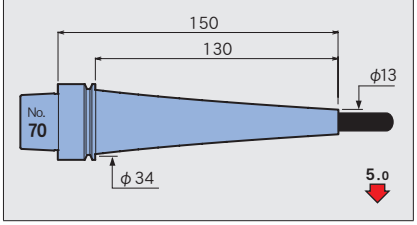
E40-SLSA10-90 CV



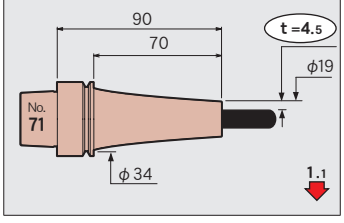
E40-SLSA10-120 CV



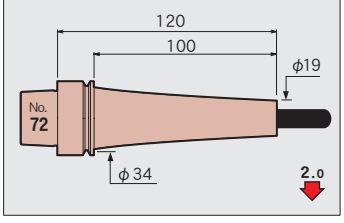
E40-SLSA10-150 CV



E40-SLRA10-90 CV



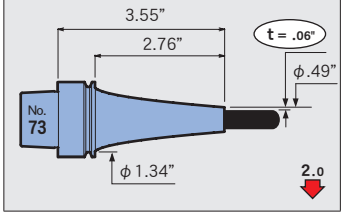
E40-SLRA10-120 CV



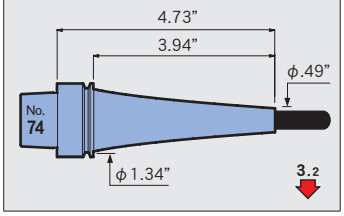
E40 S=1:4

ϕ 3/8

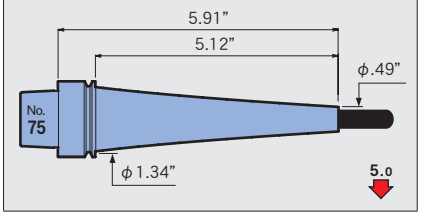
E40-SLSA3/8-90 CV



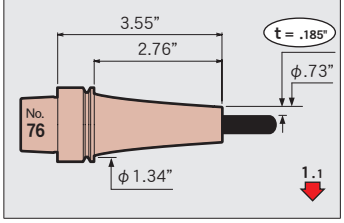
E40-SLSA3/8-120 CV



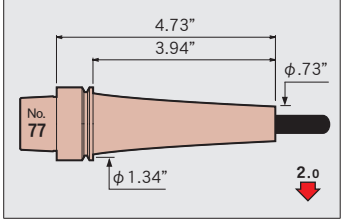
E40-SLSA3/8-150 CV



E40-SLRA3/8-90 CV

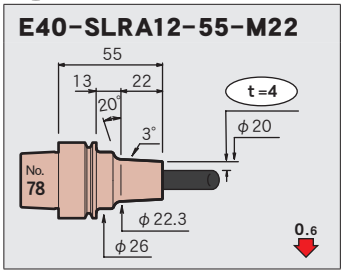


E40-SLRA3/8-120 CV

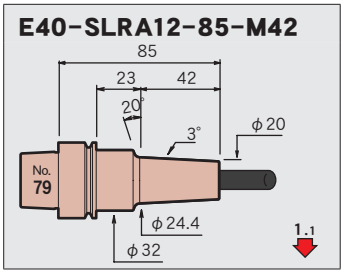


ϕ 12

E40-SLRA12-55-M22

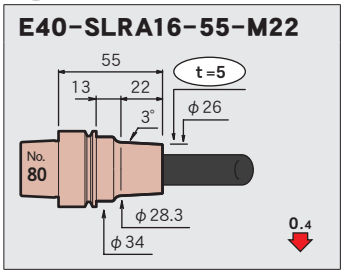


E40-SLRA12-85-M42



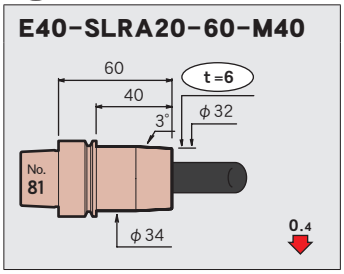
ϕ 16

E40-SLRA16-55-M22



ϕ 20

E40-SLRA20-60-M40



E50

MONO 3°

E50-SLSA8-65-M22

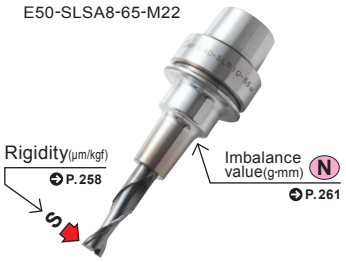
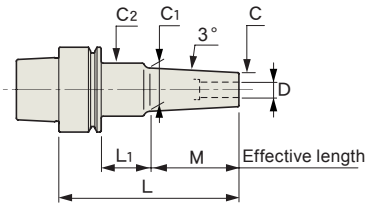


Fig. 1

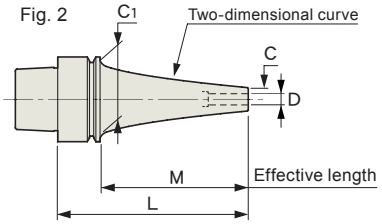


MONO CURVE

E50-SLSA6-150 cv



Fig. 2



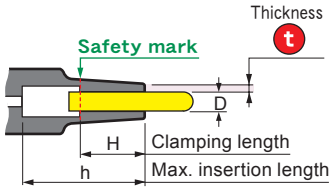


Compatibility table for HRD-01S

[○] Available [×] Not available

■Caution

- The coolant duct is not sold with a holder. Consult us if you need it.
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.



CV: Curve

Thickness

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg lbs	N	S		Scale model
E50-SLSA3- 60-M22	1	3	6	1.5	60	22	12	8.3	20	9	50	0.4	1.3	4.7	○	1
- 75-M22					75		27		25		61	0.5		4.5		2
- 80-M42					80	42	12	10.4	20		70			9.3		3
- 95-M42					95		27		25		81		1.7	9.1		4
-SLRA3- 75-M22	1	3	7.5	2.25	75	22	27	9.8	25	9	61	0.5	1.7	2.8	○	5
- 95-M42					95	42		11.9			81			5.3		6
-120-M67					120	67		14.5			106		1.8	8.9		7
-150-M97					150	97		17.7			136	0.6		12.9		8
-SLFB3- 75-M22	1	3	9.5	3.25	75	22	27	11.8	25	9	61	0.5	1.8	1.9	○	9
E50-SLSA4- 75-M22	1	4	7	1.5	75	22	27	9.3	25	12	61	0.5	1.3	3.6	○	10
- 95-M42					95	42		11.4			81		1.8	7.2		11
-SLRA4- 75-M22	1	4	10	3	75	22	27	12.3	25	12	61	0.5	1.7	1.7	○	12
- 95-M42					95	42		14.4			81		1.8	3.1		13
-120-M67					120	67		17			106	0.6		5.2		14
-150-M97					150	97		20.2			135	0.7	2.2	7.8		15
-SLFB4- 75-M22	1	4	12	4	75	22	27	14.3	25	12	61	0.5	1.9	1.4	○	16
-SLSA4- 90 CV	2	4	7	1.5	90	64	—	42	—	12	74	0.6	2.2	1.8	○	17
-120 CV					120	94					104		2.6	4.2		18
-150 CV					150	124					134	0.7	3.3	6		19
-180 CV					180	154					164	0.8	3.5	12		20
-SLRA4-120 CV	2	4	10	3	120	94	—	42	—	12	104	0.7	2.8	2.7	○	21
-150 CV					150	124					134	0.8	3.4	4.1		22
E50-SLSA3/16- 90 CV	2	3/16	.31	.06	3.55	2.52	—	1.65	—	0.59	2.83	1.4	2.6	1.7	○	23
-120 CV					4.73	3.71					4.02	1.4	2.8	4.2		24
-150 CV					5.91	4.89					5.20	1.7	3.5	6		25
-180 CV					7.09	6.07					6.38	1.7	3.7	12		26
-SLRA3/16-120 CV	2	3/16	.42	.12	4.73	3.71	—	1.65	—	0.59	4.02	1.6	3.4	2.7	○	27
-150 CV					5.91	4.89					5.20	1.7	3.6	4.1		28

SLFB 

CODE	Fig.	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg lbs	N	S		Scale model
E50-SLSA6- 75-M22	1	6	9	1.5	75	22	27	11.3	25	18	61	0.5	1.3	2.3	○	29
- 95-M42					95	42		13.4			81		1.6	4.8		30
-120-M67					120	67		16			106		1.8	8.1		31
-150-M97					150	97		19.2	32		135	0.6	2.3	11		32
-SLSB6- 95-M42	1	6	10	2	95	42	27	14.4	25	18	81	0.5	1.8	3.7	○	33
-120-M67					120	67		17			106	0.6		6.2		34
-150-M97					150	97		20.2	32		135	0.7	2.3	8.5		35
-SLRA6- 75-M22	1	6	12	3	75	22	27	14.3	25	18	61	0.5	1.5	1.3	○	36
- 95-M42					95	42		16.4			81		1.8	2.5		37
-120-M67					120	67		19			106	0.6	1.9	4.1		38
-SLRB6- 95-M42	1	6	14	4	95	42	27	18.4	32	18	80	0.6	2.2	1.6	○	39
-SLFB6- 75-M22	1	6	14	4	75	22	27	16.3	32	18	60	0.6	2.1	1	○	40
-SLSA6- 90 CV	2	6	9	1.5	90	64	—	42	—	18	74	0.6	2.3	1.6	○	41
-120 CV					120	94					104		2.7	3.5		42
-150 CV					150	124					134	0.7	3.4	5.4		43
-180 CV					180	154					164	0.9	4.2	7.6		44
-SLRA6-120 CV	2	6	13	3.5	120	94	—	42	—	18	104	0.8	3.3	1.8	○	45
-150 CV					150	124					132	0.9	4	2.7		46
E50-SLSA1/4- 90 CV	2	1/4	.37	.06	3.55	2.52	—	1.65	—	0.71	2.83	1.4	2.6	1.6	○	47
-120 CV					4.73	3.71					4.02	1.4	2.9	3.5		48
-150 CV					5.91	4.89					5.20	1.7	3.6	5.4		49
-180 CV					7.09	6.07					6.38	1.9	4.3	7.6		50
-SLRA1/4-120 CV	2	1/4	.53	.14	4.73	3.71	—	1.65	—	0.71	4.02	1.6	3.4	1.8	○	51
-150 CV					5.91	4.89					5.20	2	4.2	2.7		52
E50-SLSA8- 65-M22	1	8	11	1.5	65	22	17	13.3	26	24	49	0.5	1.5	1.5	○	53
- 75-M22					75		27	15.4	25		61		1.6	1.6		54
- 85-M42					85	42	17		26		67			3.2		55
- 95-M42					95		27		25		81	0.5	2.2	3.5		56
E50 -120-M67					120	67		18	32		105	0.6	2.3	5.4		57
-150-M97					150	97		21.2			132	0.7	2.4	8.1		58
-SLSB8- 95-M42	1	8	13	2.5	95	42	27	17.4	32	24	80	0.6	2.2	2.1	○	59
-120-M67					120	67		20			105	0.6	2.3	3.5		60
-150-M97					150	97		23.2			135	0.7	2.4	5.3		61
-SLRA8- 60-M22	1	8	14	3	60	22	12	16.3	26	24	44	0.5	1.4	0.9	○	62
- 75-M22					75		27		25		61		1.5	1.1		63
- 95-M42					95	42		18.4			81		1.8	2		64
-SLRB8- 95-M42	1	8	18	5	95	42	27	22.4	32	24	80	0.6	2.2	1.1	○	65
-120-M67					120	67		25			105	0.7	2.3	1.7		66
-SLFB8- 75-M22	1	8	18	5	75	22	27	20.3	32	24	60	0.6	2.2	0.7	×	67
-SLSA8- 90 CV	2	8	11	1.5	90	64	—	42	—	24	74	0.6	2.5	1.4	○	68
-120 CV					120	94					104	0.7	3.2	2.2		69
-150 CV					150	124					134		3.5	4.9		70
-180 CV					180	154					164	0.8	4.2	7.1		71
-SLRA8-120 CV	2	8	16	4	120	94	—	42	—	24	102	0.8	3.8	1.3	○	72
-150 CV					150	124					132	0.9	4	2.7		73
E50-SLSA5/16- 90 CV	2	5/16	.43	.06	3.55	2.52	—	1.65	—	0.94	2.83	1.4	2.6	1.4	○	74
-120 CV					4.73	3.71					4.02	1.6	3.4	2.2		75
-150 CV					5.91	4.89					5.20	1.7	3.6	4.9		76
-180 CV					7.09	6.07					6.38	1.9	4.4	7.1		77
-SLRA5/16-120 CV	2	5/16	.63	.16	4.73	3.71	—	1.65	—	0.94	4.02	1.8	4	1.3	○	78
-150 CV					5.91	4.89					5.20	1.9	4.2	2.7		79

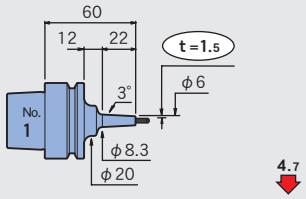


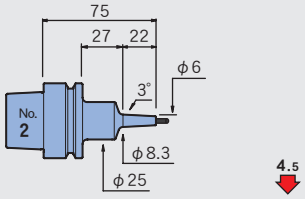
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E50-SLSA10- 65-M22	1	10	13	1.5	65	22	17	15.3	26	30	49	0.5	1.5	1.1	○	80
- 75-M22					75		27		25		61		1.6	1.3		81
- 85-M42					85	42	17	17.4	26		64			2.4		82
E50 - 95-M42					95		27		25		81		2.2	2.6		83
-120-M67					120	67		20	32		105	0.6	2.3	4.1		84
-150-M97					150	97		23.2			64	0.7	2.5	6.2		85
-SLSB10- 95-M42	1	10	16	3	95	42	27	20.4	32	30	80	0.6	2.2	1.5	○	86
-120-M67					120	67		23			105	0.7	2.4	2.4		87
-150-M97					150	97		26.2			135		2.5	3.7		88
-SLRA10- 75-M22	1	10	16	3	75	22	27	18.3	25	30	60	0.6	1.5	1	○	89
-SLRB10- 95-M42	1	10	22	6	95	42	27	26.4	32	30	80	0.7	2.3	0.9	○	90
-120-M67					120	67		29	42		107	0.8	3.2	1.1		91
-SLFB10- 75-M22	1	10	22	6	75	22	27	24.3	32	30	60	0.6	2.2	0.6	×	92
-SLSA10- 90 CV	2	10	13	1.5	90	64	—	42	—	30	74	0.6	2.5	1.3	○	93
-120 CV					120	94					104	0.7	3.3	2.1		94
-150 CV					150	124					134	0.8	4.1	3.4		95
-180 CV					180	154					162		4.3	6.9		96
-SLRA10-150 CV	2	10	19	4.5	150	124	—	42	—	30	132	0.9	4.4	2.2	○	97
E50-SLSA3/8- 90 CV	2	3/8	.49	.06	3.55	2.52	—	1.65	—	1.18	2.83	1.4	2.6	1.3	○	98
-120 CV					4.73	3.71					4.02	1.6	3.4	2.1		99
-150 CV					5.91	4.89					5.20	1.9	4.2	3.4		100
-180 CV					7.09	6.07					6.38	1.9	4.5	6.9		101
-SLRA3/8-150 CV	2	3/8	.73	.185	5.91	4.89	—	1.65	—	1.18	5.20	2.0	4.7	2.2	○	102
E50-SLSA12- 65-M22	1	12	15	1.5	65	22	17	17.3	26	25	49	0.5	1.6	0.9	○	103
- 75-M22					75		27		25	30	60		1.7	1.1		104
- 95-M42					95	42		19.4	32		80		2.2	1.9		105
-120-M67					120	67		22			105	0.6	2.4	3.3		106
-SLSB12- 95-M42	1	12	19	3.5	95	42	27	23.4	32	30	80	0.6	2.3	1.2	○	107
-120-M67					120	67		26			105	0.7	2.5	1.9		108
-150-M97					150	97		29.2			135	0.9	3.5	2.5		109
-SLRA12- 75-M22	1	12	20	4	75	22	27	22.3	25	30	62	0.6	1.6	0.9	○	110
-SLRB12- 95-M42	1	12	26	7	95	42	27	30.4	42	30	82	0.8	3.1	0.6	×	111
-120-M67					120	67		33			107	0.9	3.3	0.9		112
-SLFB12- 75-M22	1	12	26	7	75	22	27	28.3	42	30	62	0.7	3	0.4	×	113
E50-SLSB16- 95-M42	1	16	24	4	95	42	27	28.4	42	32	82	0.7	3.2	0.7		114
-120-M67					120	67		31			107	0.8	3.5	1.2		115
-SLRA16- 60-M22	1	16	26	5	60	22	12	28.3	34	32	44	0.6	1.7	0.4		116
-SLRB16- 75-M22	1	16	32	8	75	22	27	34.3	42	32	62	0.7	3	0.4		117
-SLFB16- 75-M22	1	16	32	8	75	22	27	34.3	42	32	62	0.7	3	0.4		118
E50-SLSB20- 95-M42	1	20	29	4.5	95	42	27	33.4	42	40	82	0.7	3.3	0.6		119
-SLRA20- 65-M22	1	20	32	6	65	22	17	34.3	40	38	49	0.6	2.2	0.3		120

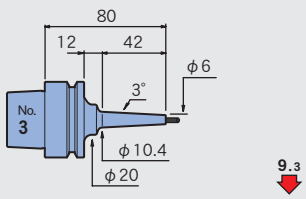
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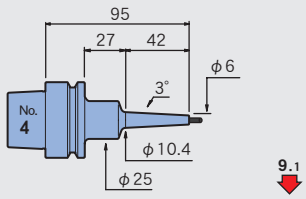
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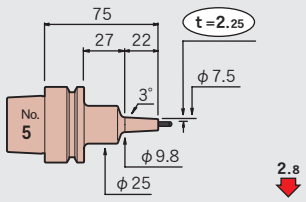
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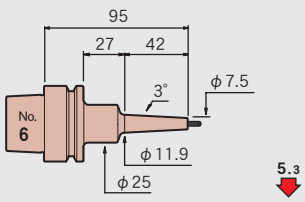
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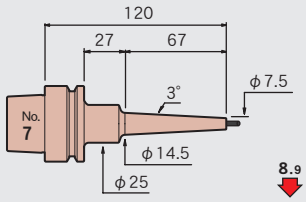
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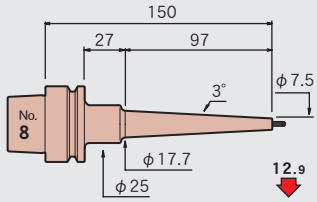
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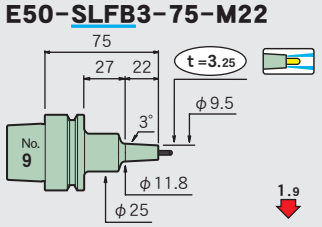
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E50-SLRA3-75-M22


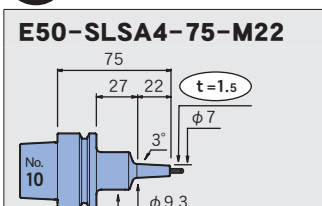
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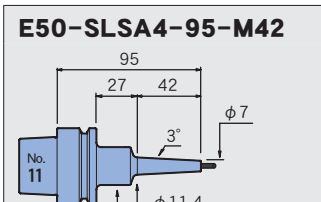
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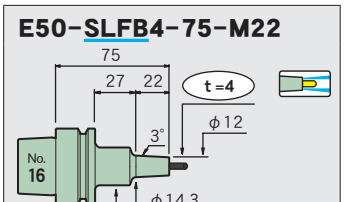
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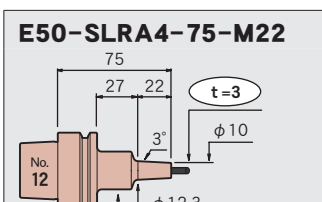
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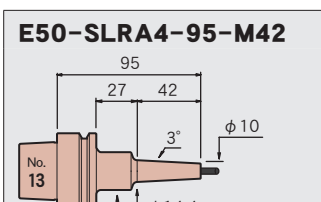
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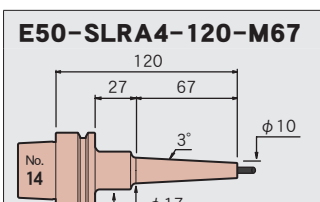
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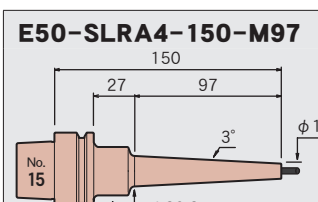
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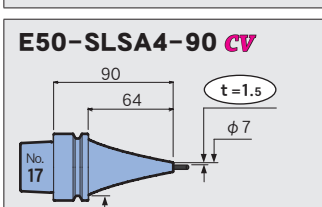
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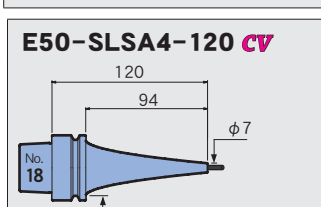
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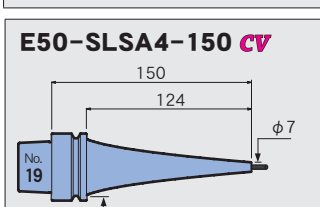
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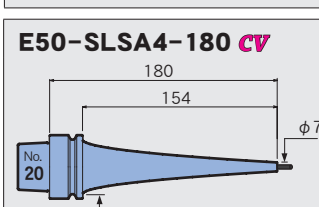
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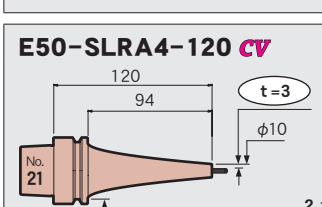
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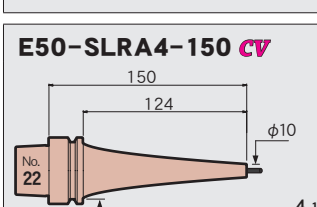
E50-SLSA4-90 CV


E50-SLSA4-120 CV


E50-SLSA4-150 CV


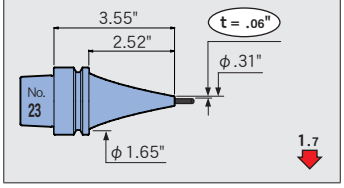
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E50-SLRA4-120 CV


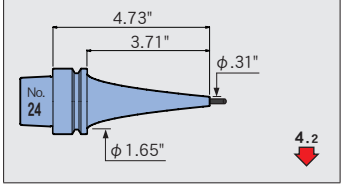
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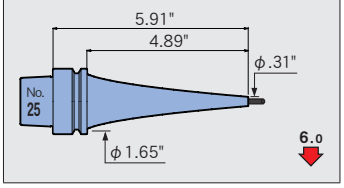
E50-SLSA3/16-90 CV



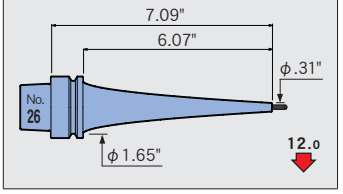
E50-SLSA3/16-120 CV



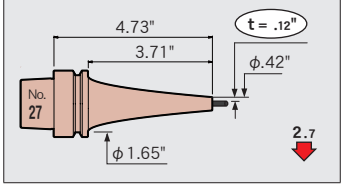
E50-SLSA3/16-150 CV



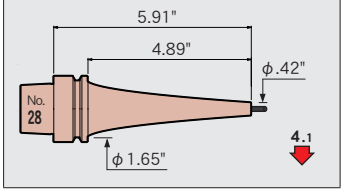
E50-SLSA3/16-180 CV



E50-SLRA3/16-120 CV

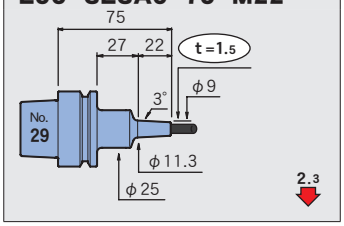


E50-SLRA3/16-150 CV

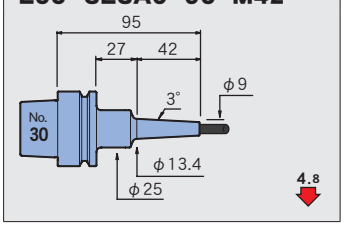


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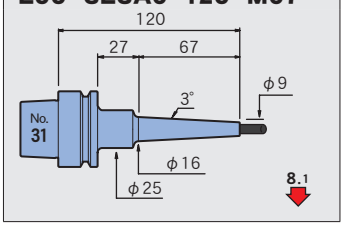
E50-SLSA6-75-M22



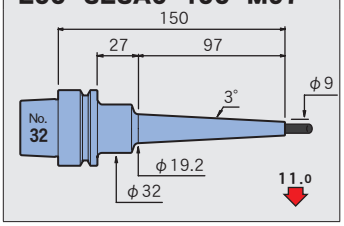
E50-SLSA6-95-M42



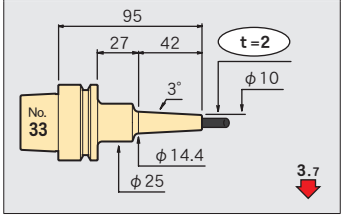
E50-SLSA6-120-M67



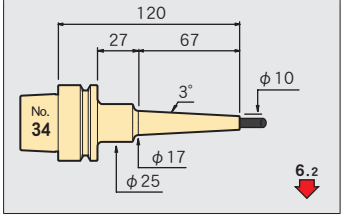
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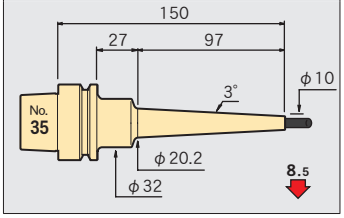
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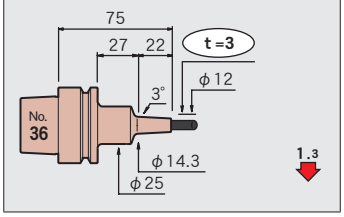
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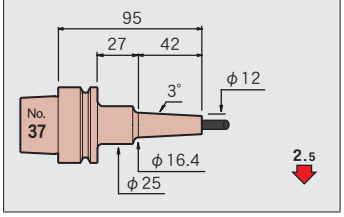
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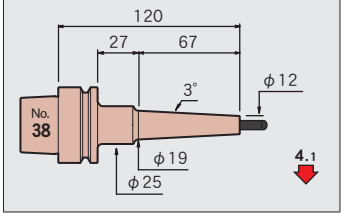
E50-SLRA6-75-M22



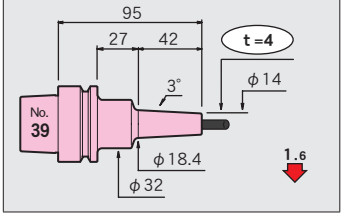
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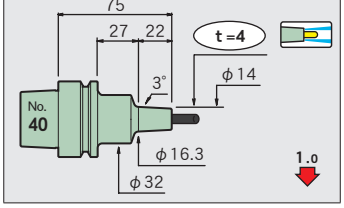
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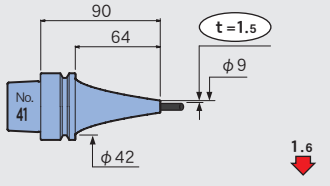
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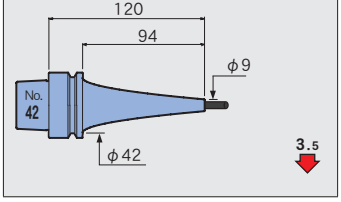
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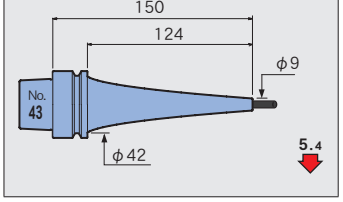
E50-SLSA6-90 CV



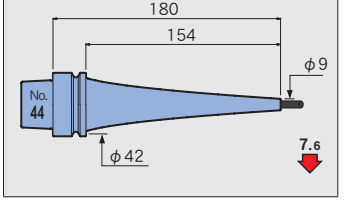
E50-SLSA6-120 CV



E50-SLSA6-150 CV

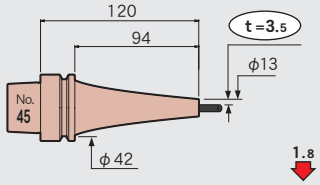


E50-SLSA6-180 CV

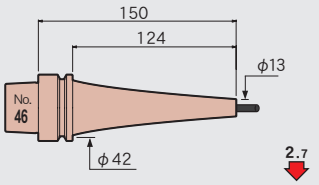


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E50-SLRA6-120 CV

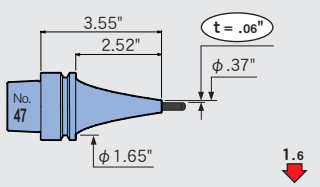


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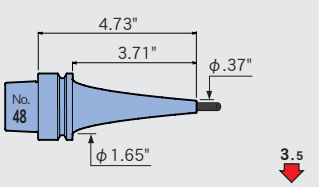


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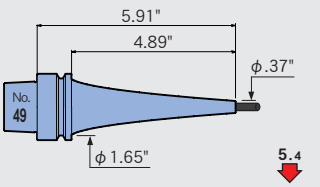
E50-SLSA1/4-90 CV



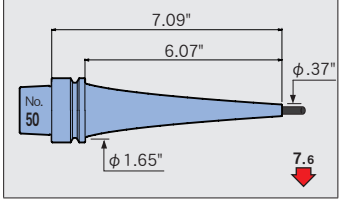
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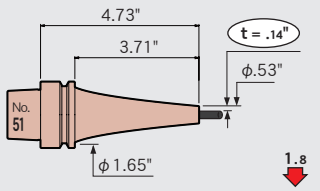
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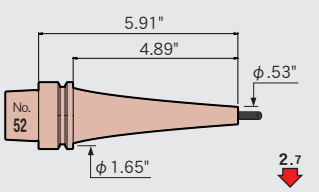
E50-SLSA1/4-180 CV



E50-SLRA1/4-120 CV

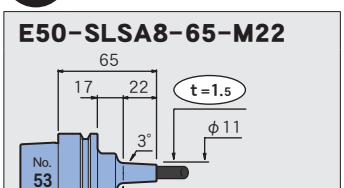


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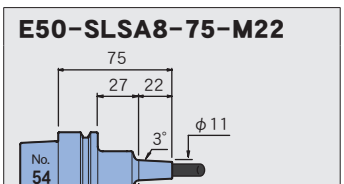


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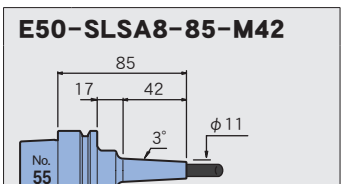
E50-SLSA8-65-M22



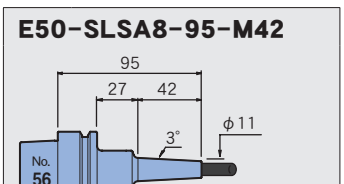
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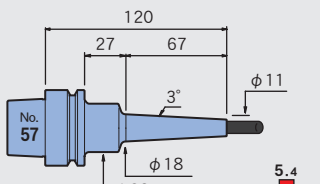
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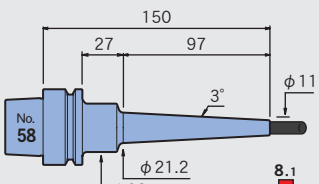
E50-SLSA8-95-M42



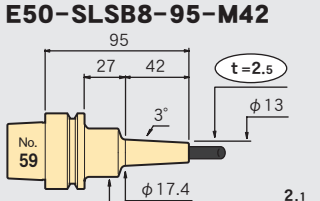
E50-SLSA8-120-M67



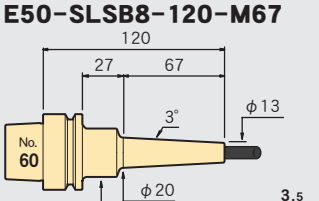
E50-SLSA8-150-M97



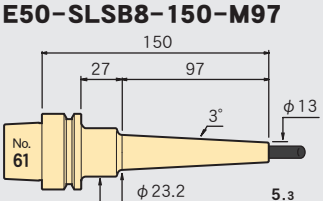
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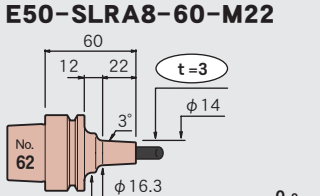
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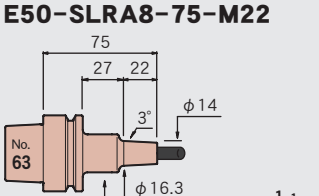
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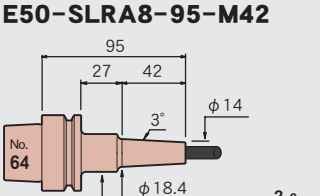
E50-SLRA8-60-M22



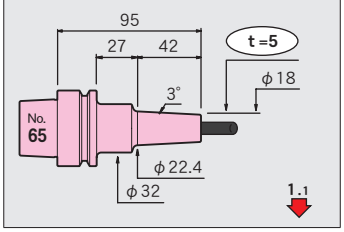
E50-SLRA8-75-M22



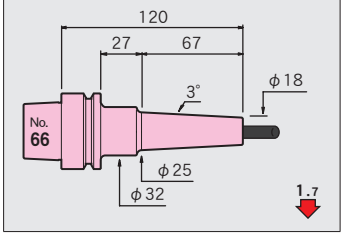
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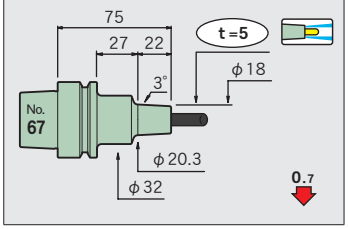
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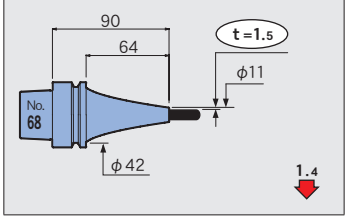
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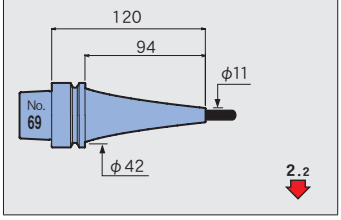
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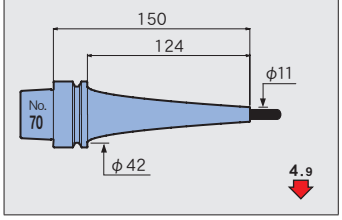
E50-SLSA8-90 CV



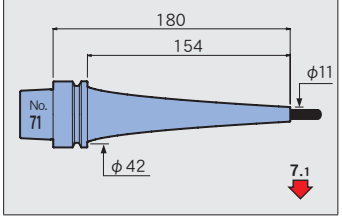
E50-SLSA8-120 CV



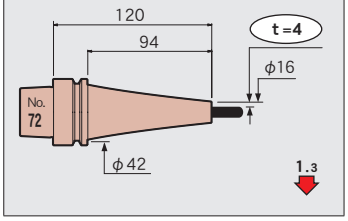
E50-SLSA8-150 CV



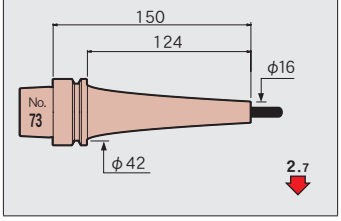
E50-SLSA8-180 CV



E50-SLRA8-120 CV

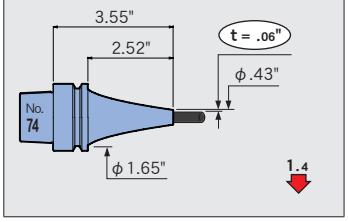


E50-SLRA8-150 CV

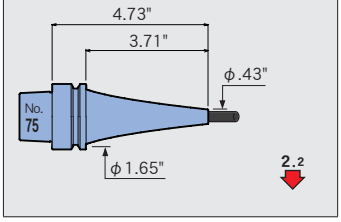


φ5/16

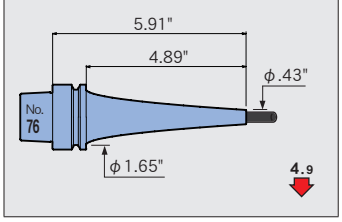
E50-SLSA5/16-90 CV



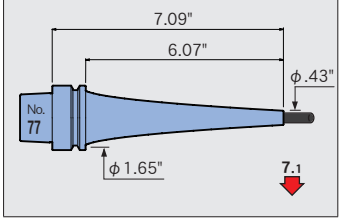
E50-SLSA5/16-120 CV



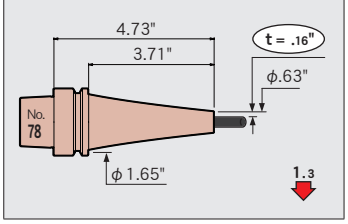
E50-SLSA5/16-150 CV



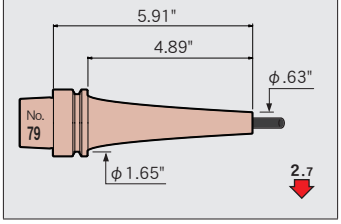
E50-SLSA5/16-180 CV



E50-SLRA5/16-120 CV



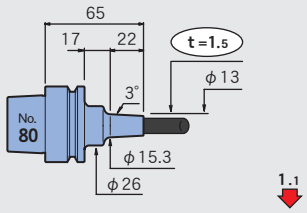
E50-SLRA5/16-150 CV



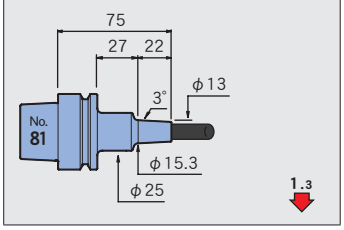
E50 S=1:5

ϕ10

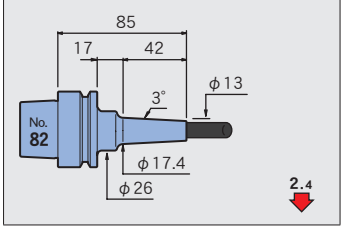
E50-SLSA10-65-M22



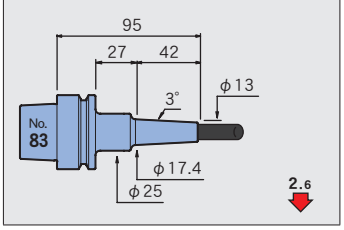
E50-SLSA10-75-M22



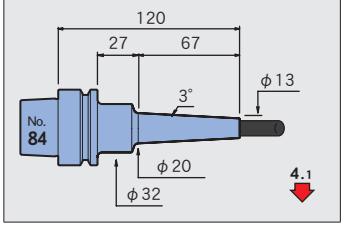
E50-SLSA10-85-M42



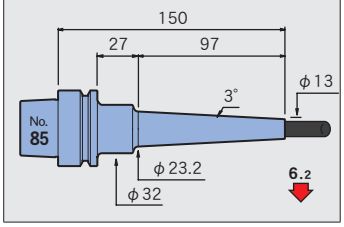
E50-SLSA10-95-M42



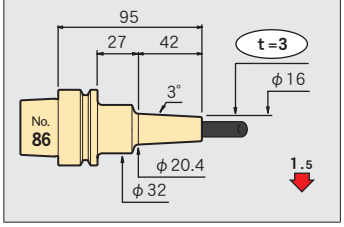
E50-SLSA10-120-M67



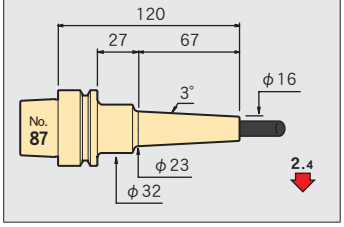
E50-SLSA10-150-M97



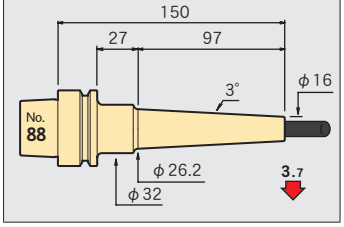
E50-SLSB10-95-M42



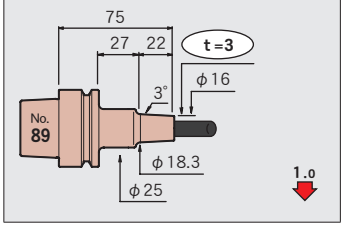
E50-SLSB10-120-M67



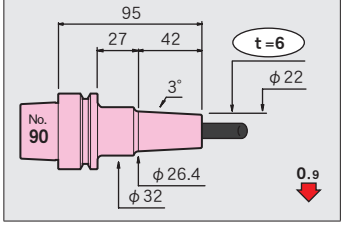
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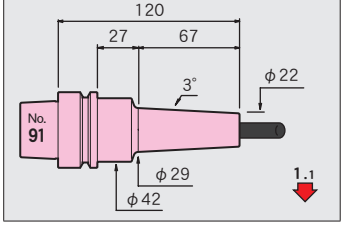
E50-SLRA10-75-M22



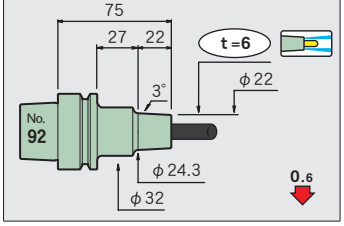
E50-SLRB10-95-M42



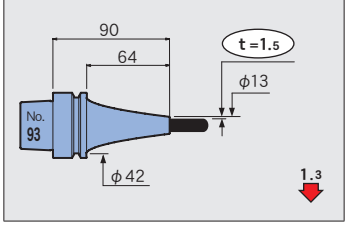
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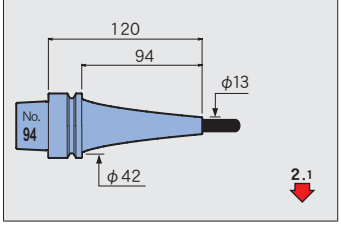
E50-SLFB10-75-M22



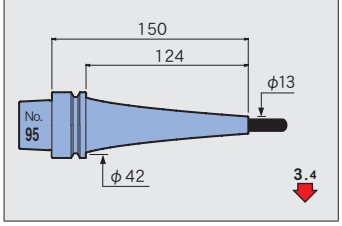
E50-SLSA10-90 CV



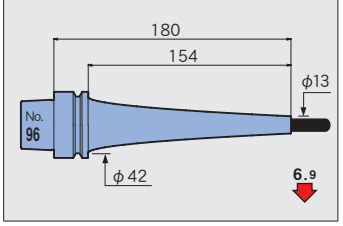
E50-SLSA10-120 CV



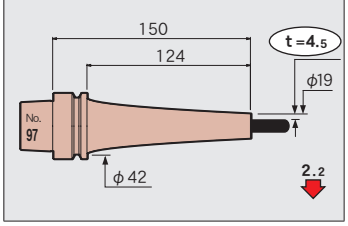
E50-SLSA10-150 CV



E50-SLSA10-180 CV

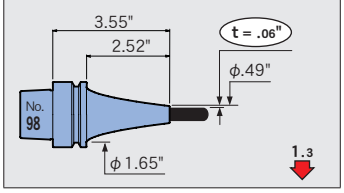


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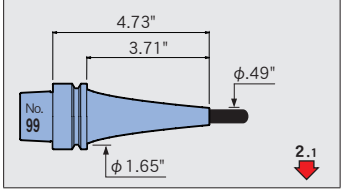


ϕ3/8

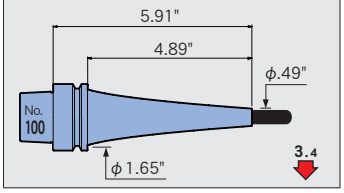
E50-SLSA3/8-90 CV



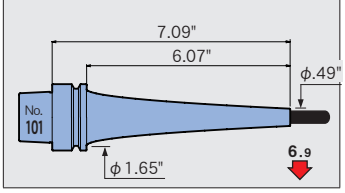
E50-SLSA3/8-120 CV



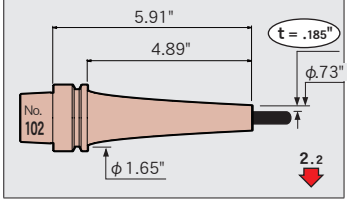
E50-SLSA3/8-150 CV



E50-SLSA3/8-180 CV

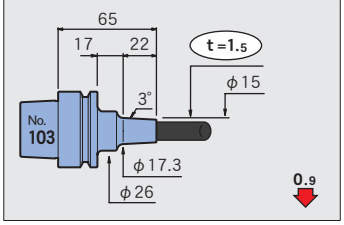


E50-SLRA3/8-150 CV

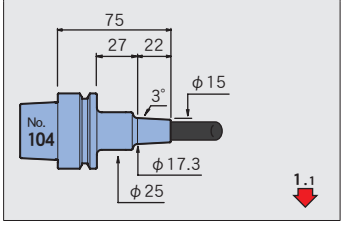


ϕ12

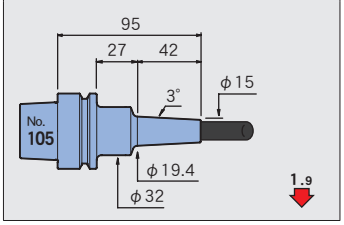
E50-SLSA12-65-M22



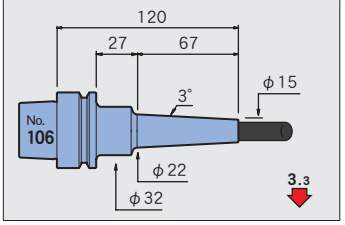
E50-SLSA12-75-M22



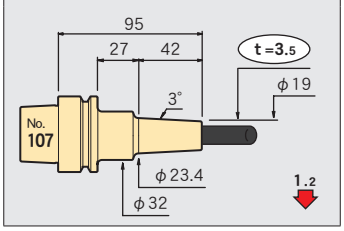
E50-SLSA12-95-M42



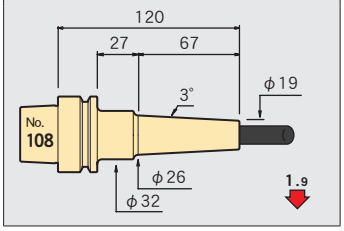
E50-SLSA12-120-M67



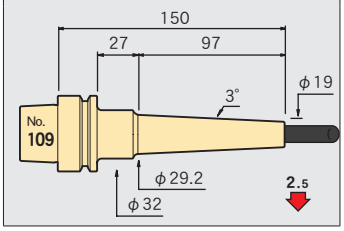
E50-SLSB12-95-M42



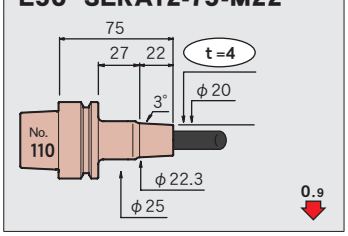
E50-SLSB12-120-M67



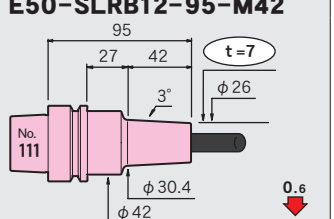
E50-SLSB12-150-M97



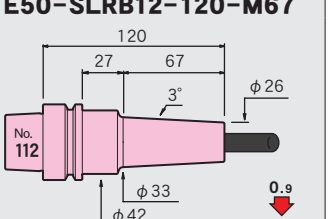
E50-SLRA12-75-M22



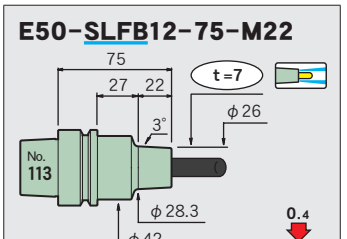
E50-SLRB12-95-M42



E50-SLRB12-120-M67



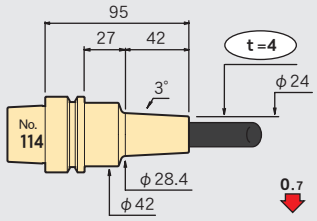
E50-SLFB12-75-M22



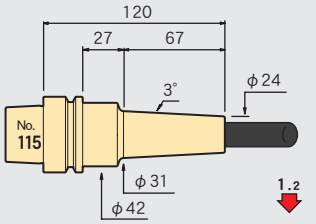
E50 S=1:5

ϕ16

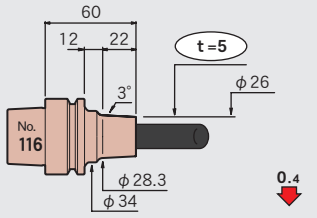
E50-SLSB16-95-M42



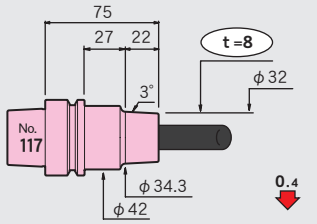
E50-SLSB16-120-M67



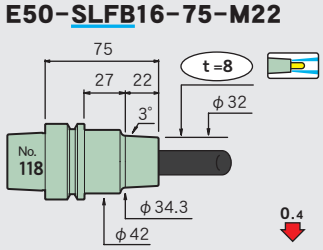
E50-SLRA16-60-M22



E50-SLRB16-75-M22

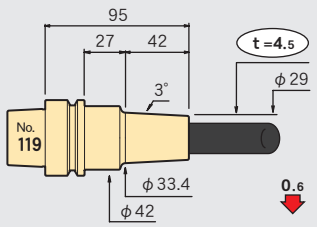


E50-SLFB16-75-M22

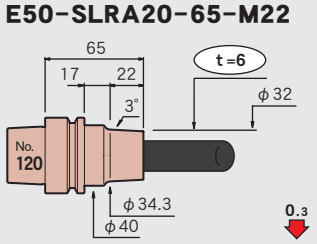


ϕ20

E50-SLSB20-95-M42



E50-SLRA20-65-M22



F63

MONO 3°

F63-SLRA4-70-M22

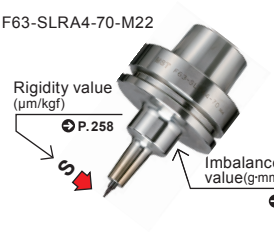
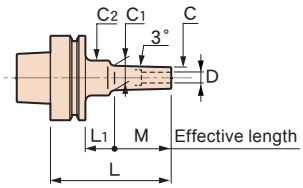


Fig.1

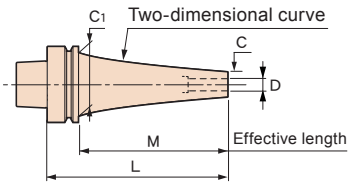


MONO CURVE

F63-SLRA6-120cv



Fig.2





Compatibility table for HRD-01S

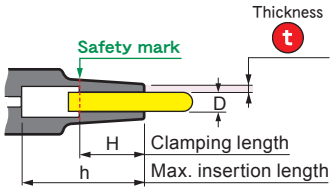
[○] Available [×] Not available

[▲] Usable by raising the heating unit.→P.257

[★] Use heating coil No. 2.

■**Caution**

- The coolant duct is not sold with a holder. Consult us if you need it.
- Setting cutters••• Be sure to insert the tool beyond the safety mark.



CV : Curve

Thickness

CODE	Fig.	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg	N	S		Scale model
F63-SLSA3- 75-M37	1	3	6	1.5	75	37	12	9.9	26	9	58	0.7	1.5	8	○	1
- 95-M42					95	42	27	10.4	25		78		1.8	9.1		2
-SLRA3- 70-M22	1	3	7.5	2.25	70	22	22	9.8	26	9	53	0.7	1.7	2.8	○	3
- 75-M22					75		27		25		54		1.8			4
- 95-M42					95	42		11.9			78		1.9	5.3		5
-SLFB3- 75-M22	1	3	9.5	3.25	75	22	27	11.8	25	9	58	0.7	1.9	1.9	○	6
- 95-M42					95	42		13.9			78	0.8	2	3.2		7
-120-M67					120	67		16.5			103			5.4		8
F63-SLSA4- 95-M42	1	4	7	1.5	95	42	27	11.4	25	12	78	0.7	1.9	7.2	○	9
-SLRA4- 75-M22	1	4	10	3	75	22	27	12.3	25	12	58	0.7	1.8	1.7	○	10
- 95-M42					95	42		14.4			78	0.8	1.9	3.1		11
-SLFB4- 75-M22	1	4	12	4	75	22	27	14.3	25	12	58	0.7	2	1.3	○	12
- 95-M42					95	42		16.4			78	0.8		2.2		13
-120-M67					120	67		19			103		2.1	3.6		14
-SLSA4- 90 CV	2	4	7	1.5	90	64	—	53	—	12	65	0.9	2.7	1.8	○	15
-120 CV					120	94					95	1	3.6	2.7		16
-150 CV					150	124					125	1.2	4.4	4		17
-180 CV					180	154					154	1.3	5	6.6		18
-210 CV					210	184					185		5.3	11.6		19
-240 CV					240	214					214	1.6	6.5	14		20
-270 CV					270	244					245	1.9	8.8	11.9		21
-300 CV					300	274					275	2	9.7	15.9		22
-SLRA4-120 CV	2	4	10	3	120	94	—	53	—	12	95	1	3.6	1.9	○	23
-150 CV					150	124					125	1.1	4.4	2.9		24
-180 CV					180	154					155	1.4	6	3.3		25
-210 CV					210	184					185	1.5	6.2	5.6		26

SLFB 

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg lbs	N	S		Scale model
F63-SLSA3/16- 90 CV	2	3/16	.31	.06	3.54	2.52	—	2.09	—	.59	2.56	2	2.8	2.0	○	27
-120 CV					4.72	3.70					3.74	2.3	3.6	2.6		28
-150 CV					5.91	4.88					4.92	2.6	4.5	4.0		29
F63 -180 CV					7.09	6.06					6.06	2.7	5.2	6.5		30
-210 CV					8.27	7.24					7.24	3.2	6.4	8.4		31
-240 CV					9.45	8.43					8.43	3.6	7.6	10.6		32
-270 CV					10.63	9.61					9.61	4	8.9	13.2		33
-300 CV					11.81	10.79					10.83	4.5	10	16.1		34
-SLRA3/16-120 CV	2	3/16	.42	.12	4.72	3.70	—	2.09	—	.59	3.70	2.3	3.8	1.8	○	35
-150 CV					5.91	4.88					4.88	2.7	5	2.4		36
-180 CV					7.09	6.06					6.10	2.8	5.3	4.3		37
-210 CV					8.27	7.24					7.24	2.8	5.8	5.7		38
F63-SLSA6- 75-M37	1	6	9	1.5	75	37	12	12.9	26	18	58	0.7	1.5	4	○	39
- 95-M42					95	42	27	13.4	25		78	0.7	1.9	4.8		40
-SLSB6- 95-M42	1	6	10	2	95	42	27	14.4	25	18	78	0.7	1.9	3.7	○	41
-SLRA6- 75-M22	1	6	12	3	75	22	27	14.3	25	18	58	0.7	1.8	1.3	○	42
- 95-M42					95	42		16.4			78	0.8	1.9	2.4		43
-SLFB6- 75-M22	1	6	14	4	75	22	27	16.3	32	18	58	0.8	2.2	1	○	44
-SLSA6- 90 CV	2	6	9	1.5	90	64	—	53	—	18	65	0.9	2.8	1.6	○	45
-120 CV					120	94					95	1	3.6	2.3		46
-150 CV					150	124					125	1.2	4.4	3.6		47
-180 CV					180	154					154	1.3	5.2	5.7		48
-210 CV					210	184					184	1.5	6.4	7.3		49
-240 CV					240	214					214	1.6	6.7	12		50
-270 CV					270	244					245	2	9.7	8.5	▲	51
-300 CV					300	274					275	2.2	10.6	11.7		52
-SLRA6- 90 CV	2	6	13	3.5	90	64	—	53	—	18	65	1	3.4	0.8	★	53
-120 CV					120	94					95	1.2	4.3	1.2		54
-150 CV					150	124					125	1.3	5.2	1.9	○	55
-180 CV					180	154					155	1.4	6.1	2.8		56
-210 CV					210	184					185	1.5	6.6	4.8		57
-SLFA6- 90 CV	2	6	13	3.5	90	64	—	53	—	18	65	1	3.4	0.8	★	58
-120 CV					120	94					95	1.2	4.3	1.2		59
-150 CV					150	124					125	1.3	5.2	1.9	○	60
-180 CV					180	154					155	1.4	6.1	2.8		61
-210 CV					210	184					185	1.5	6.6	4.8		62
F63-SLSA1/4- 90 CV	2	1/4	.37	.06	3.54	2.52	—	2.09	—	.71	2.56	2	2.9	1.6	○	63
-120 CV					4.72	3.70					3.74	2.2	3.6	2.4		64
-150 CV					5.91	4.88					4.92	2.5	4.5	3.7		65
-180 CV					7.09	6.06					6.10	2.8	5.4	5.5		66
-210 CV					8.27	7.24					7.24	3.4	7.2	7.5		67
-240 CV					9.45	8.43					8.43	3.6	7.8	9.6		68
-270 CV					10.63	9.61					9.65	4.2	9.1	11.3	▲	69
-300 CV					11.81	10.79					10.79	4.7	11.2	11.8		70
-SLRA1/4- 90 CV	2	1/4	.53	.14	3.54	2.52	—	2.09	—	.71	2.52	2.2	3.5	0.8	★	71
-120 CV					4.72	3.70					3.74	2.6	4.4	1.2		72
-150 CV					5.91	4.88					4.92	2.8	5.3	1.9	○	73
-180 CV					7.09	6.06					6.06	3.1	6.4	2.9		74
-210 CV					8.27	7.24					7.24	3.2	6.8	4.9		75



CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg lbs	N	S		Scale model
F63-SLFA1/4- 90 CV	2	1/4	.53	.14	3.54	2.52	—	2.09	—	.71	2.52	2.2	3.5	0.8	★	76
-120 CV					4.72	3.70					3.74	2.6	4.4	1.2		77
-150 CV					5.91	4.88					4.92	2.8	5.3	1.9	○	78
-180 CV					7.09	6.06					6.06	3.1	6.4	2.9		79
-210 CV					8.27	7.24					7.24	3.2	6.8	4.9		80
F63-SLSA8- 95-M42	1	8	11	1.5	95	42	27	15.4	25	24	78	0.7	1.9	3.4	○	81
-SLSB8- 95-M42	1	8	13	2.5	95	42	27	17.4	32	24	78	0.8	2.3	2.1	○	82
-SLRA8- 75-M22	1	8	14	3	75	22	27	16.3	25	24	58	0.7	1.9	1.1	○	83
- 95-M42					95	42		18.4			78	0.8		2		84
-SLFB8- 75-M22	1	8	18	5	75	22	27	20.3	32	24	58	0.8	2.2	0.7	×	85
-SLSA8- 90 CV	2	8	11	1.5	90	64	—	53	—	24	65	0.9	2.9	1.4	○	86
-120 CV					120	94					94	1.1	3.8	2		87
-150 CV					150	124					124	1.3	5	2.7		88
-180 CV					180	154					155		5.2	5		89
F63 -210 CV					210	184					184	1.5	6.6	6.6	▲	90
-240 CV					240	214					214	1.8	7.8	8.3		91
-270 CV					270	244					244	2.1	10.7	6.9		92
-300 CV					300	274					274	2.3	11.9	8.9		93
-SLRA8- 90 CV	2	8	16	4	90	64	—	53	—	24	65	1	3.4	0.7	○	94
-120 CV					120	94					95	1.2	4.6	1		95
-150 CV					150	124					125	1.4	5.9	1.4		96
-180 CV					180	154					155	1.6	7	2		97
-210 CV					210	184					185		7.6	3.5		98
-SLFA8- 90 CV	2	8	16	4	90	64	—	53	—	24	65	1	3.4	0.7	○	99
-120 CV					120	94					95	1.2	4.6	1		100
-150 CV					150	124					125	1.4	5.9	1.4		101
-180 CV					180	154					155	1.6	7	2		102
-210 CV					210	184					185		7.6	3.5		103
F63-SLSA5/16- 90 CV	2	5/16	.43	.06	3.54	2.52	—	2.09	—	.94	2.56	2	2.9	1.5	○	104
-120 CV					4.72	3.70					3.70	2.2	3.8	2.0		105
-150 CV					5.91	4.88					4.88	2.7	5.1	2.8		106
-180 CV					7.09	6.06					6.10	2.8	5.4	5.2		107
-210 CV					8.27	7.24					7.17	3.2	7.4	6.0	▲	108
-240 CV					9.45	8.43					8.43	3.9	8.9	6.8		109
-270 CV					10.63	9.61					9.65	4.5	10	8.5		110
-300 CV					11.81	10.79					10.79	5	12.3	9.0		111
-SLRA5/16- 90 CV	2	5/16	.63	.16	3.54	2.52	—	2.09	—	.94	2.52	2.2	3.5	0.7	○	112
-120 CV					4.72	3.70					3.70	2.6	4.8	1.0		113
-150 CV					5.91	4.88					4.88	3	6.1	1.5		114
-180 CV					7.09	6.06					6.06	3.5	7.3	2.1		115
-210 CV					8.27	7.24					7.24	3.5	7.8	3.6		116
-SLFA5/16- 90 CV	2	5/16	.63	.16	3.54	2.52	—	2.09	—	.94	2.52	2.2	3.5	0.7	○	117
-120 CV					4.72	3.70					3.70	2.6	4.8	1.0		118
-150 CV					5.91	4.88					4.88	3	6.1	1.5		119
-180 CV					7.09	6.06					6.06	3.5	7.3	2.1		120
-210 CV					8.27	7.24					7.24	3.5	7.8	3.6		121
F63-SLSA10-95-M42	1	10	13	1.5	95	42	27	17.4	25	30	74	0.8	2	2.6	○	122
-SLSB10-95-M42	1	10	16	3	95	42	27	20.4	32	30	74	0.8	2.3	1.4	○	123
-SLRA10-75-M22	1	10	16	3	75	22	27	18.3	25	30	54	0.8	1.9	1	○	124
-SLFB10-75-M22	1	10	22	6	75	22	27	24.3	32	30	54	0.8	2.3	0.6	×	125



CODE	Fig.	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg lbs	N	S		Scale model
F63-SLSA10- 90 CV	2	10	13	1.5	90	64	—	53	—	30	65	0.9	2.9	1.3	○	126
-120 CV					120	94					95	1.2	4.4			127
-150 CV					150	124					125	1.3	5.2	2.2		128
-180 CV					180	154					154	1.5	6.3	3.4		129
-210 CV					210	184					184	1.6	6.8	6		130
-240 CV					240	214					212	2	9.4	5.8	▲	131
-270 CV					270	244					244	2.1	10.9	6.6		132
-300 CV					300	274					274	2.3	12.2	8.5		133
-SLRA10- 90 CV	2	10	19	4.5	90	64	—	53	—	30	65	1	3.5	0.6	×	134
-120 CV					120	94					95	1.2	4.6	0.9	○	135
-150 CV					150	124					125	1.4	5.8	1.4		136
-180 CV					180	154					155	1.6	7.2	2		137
-210 CV					210	184					185		8	3.1		138
-SLFA10- 90 CV	2	10	19	4.5	90	64	—	53	—	30	65	1	3.5	0.6	×	139
-120 CV					120	94					95	1.2	4.6	0.9	○	140
-150 CV					150	124					125	1.4	5.8	1.4		141
-180 CV					180	154					155	1.6	7.2	2		142
-210 CV					210	184					185		8	3.1		143
F63-SLSA3/8- 90 CV	3	3/8	.49	.06	3.54	2.52	—	2.09	—	1.18	2.56	2	2.9	1.3	○	144
-120 CV					4.72	3.70					3.74	2.3	3.8	2.2		145
-150 CV					5.91	4.88					4.88	2.6	5.2	2.6		146
-180 CV					7.09	6.06					6.06	3.1	6.4	3.6		147
-210 CV					8.27	7.24					7.24	3.5	7.8	4.9		148
-240 CV					9.45	8.43					8.46	4.1	9	6.0	▲	149
-270 CV					10.63	9.61					9.61	4.6	11.2	6.8		150
-300 CV					11.81	10.79					10.79	5	12.5	8.8		151
-SLRA3/8- 90 CV	3	3/8	.73	.185	3.54	2.52	—	2.09	—	1.18	2.52	2.2	3.5	0.7	×	152
-120 CV					4.72	3.70					3.70	2.6	4.8	1.0	○	153
-150 CV					5.91	4.88					4.88	3	6.1	1.4		154
-180 CV					7.09	6.06					6.06	3.4	7.4	2.0		155
-210 CV					8.27	7.24					7.28	3.9	8.3	2.9		156
-SLFA3/8- 90 CV	3	3/8	.73	.185	3.54	2.52	—	2.09	—	1.18	2.52	2.2	3.5	0.7	×	157
-120 CV					4.72	3.70					3.70	2.6	4.8	1.0	○	158
-150 CV					5.91	4.88					4.88	3	6.1	1.4		159
-180 CV					7.09	6.06					6.06	3.4	7.4	2.0		160
-210 CV					8.27	7.24					7.28	3.9	8.3	2.9		161
F63-SLSA12- 95-M42	1	12	15	1.5	95	42	27	19.4	32	30	74	0.8	2.3	1.8	○	162
-SLSB12- 95-M42	1	12	19	3.5	95	42	27	23.4	32	30	74	0.8	2.4	1.1	○	163
-SLRA12- 75-M22	1	12	20	4	75	22	27	22.3	25	30	54	0.9	2.1	0.8	○	164
-SLFB12- 75-M22	1	12	26	7	75	22	27	28.3	42	30	54	0.9	3	0.4	×	165
-SLSA12- 90 CV	2	12	15	1.5	90	64	—	53	—	30	64	1	3.4	0.9	○	166
-120 CV					120	94					94	1.2	4.7	1.2		167
-150 CV					150	124					124	1.3	5.2	2.4		168
-180 CV					180	154					154	1.5	6.5	3.3		169
-210 CV					210	184					184	1.7	7.7	4.6		170
-240 CV					240	214					212	2	9.6	5.5	▲	171
-270 CV					270	244					244	2.2	11.8	5.4		172
-SLRA12- 90 CV	2	12	22	5	90	64	—	53	—	30	64	1	3.6	0.6	×	173
-120 CV					120	94					94	1.3	5.5	0.7		174
-150 CV					150	124					124	1.5	6.7	1.1	○	175
-180 CV					180	154					154	1.6	7.5	1.8		176
-210 CV					210	184					184	1.7	8.5	2.8		177

SLFA
SLFB

CODE	Fig.	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg lbs	N	S		Scale model
F63-SLFA12- 90 CV	2	12	22	5	90	64	—	53	—	30	64	1	3.6	0.6	×	178
-120 CV					120	94					94	1.3	5.5	0.7		179
-150 CV					150	124					124	1.5	6.7	1.1	○	180
-180 CV					180	154					154	1.6	7.5	1.8		181
-210 CV					210	184					184	1.7	8.5	2.8		182
F63-SLSA1/2- 90 CV	3	1/2	.62	.06	3.54	2.52	—	2.09	—	1.18	2.52	2.1	3.6	0.8	○	183
-120 CV					4.72	3.70					3.70	2.5	4.9	1.2		184
-150 CV					5.91	4.88					4.88	2.6	5.3	2.4		185
-180 CV					7.09	6.06					6.06	3	6.7	3.4		186
-210 CV					8.27	7.24					7.17	3.6	9.3	3.6		187
-240 CV					9.45	8.43					8.35	4.1	11.5	4.3	▲	188
-270 CV					10.63	9.61					9.53	4.7	13.3	5.1		189
-SLRA1/2- 90 CV	3	1/2	.89	.20	3.54	2.52	—	2.09	—	1.18	2.44	2.2	4	0.5	×	190
-120 CV					4.72	3.70					3.70	2.9	5.7	0.7		191
-150 CV					5.91	4.88					4.88	3.3	7	1.1	○	192
-180 CV					7.09	6.06					5.98	3.3	8.3	1.9		193
-210 CV					8.27	7.24					7.24	4.4	10.4	2.0		194
-SLFA1/2- 90 CV	3	1/2	.89	.20	3.54	2.52	—	2.09	—	1.18	2.44	2.2	4	0.5	×	195
-120 CV					4.72	3.70					3.70	2.9	5.7	0.7		196
-150 CV					5.91	4.88					4.88	3.3	7	1.1	○	197
-180 CV					7.09	6.06					5.98	3.3	8.3	1.9		198
-210 CV					8.27	7.24					7.24	4.4	10.4	2.0		199
-SLFB16- 75-M22	1	16	32	8	75	22	27	34.3	42	32	54	1	3.1	0.3		200
F63-SLSB16- 90 CV	2	16	21	2.5	90	64	—	53	—	32	62	1.1	3.9	0.6		201
-120 CV					120	94					92	1.4	5.8	0.8		202
-150 CV					150	124					122	1.5	6.9	1.5		203
-180 CV					180	154					152	1.9	8.8	1.9		204
-210 CV					210	184					182	2	9.9	3		205
-240 CV					240	214					212	2.3	11.8	3.7		206
-270 CV					270	244					242	2.7	13.7	4.6		207
F63-SLSB5/8- 90 CV	3	5/8	.82	.10	3.54	2.52	—	2.09	—	1.26	2.44	2.1	3.9	0.6		208
-120 CV					4.72	3.70					3.62	2.7	5.9	0.8		209
-150 CV					5.91	4.88					4.80	2.9	7	1.5		210
-180 CV					7.09	6.06					5.98	3.5	9	1.9		211
-210 CV					8.27	7.24					7.17	3.7	10.1	3.0		212
-240 CV					9.45	8.43					8.35	4.3	12.1	3.7		213
-270 CV					10.63	9.61					9.53	4.8	14.1	4.6		214
-SLFB20- 75-M22※1	1	20	38	9	75	22	27	40.3	50	40	53	1.1	3.6	0.3		215
F63-SLSB20- 90 CV	2	20	26	3	90	64	—	51	—	40	62	1.1	4.2	0.5		216
-120 CV					120	94		53			92	1.4	6.2	0.8		217
-150 CV					150	124					122	1.6	7.6	1.3		218
-180 CV					180	154					152	2	9.6	1.8		219
-210 CV					210	184					182	2.3	11.6	2.3		220
-240 CV					240	214					212	2.6	13.7	3		221
-270 CV					270	244					242	3.1	16.3	3.4		222
F63-SLSB3/4- 90 CV	3	3/4	.99	.12	3.54	2.52	—	2.09	—	1.50	2.44	2.2	4.1	0.6		223
-120 CV					4.72	3.70					3.62	2.7	6.3	0.8		224
-150 CV					5.91	4.88					4.80	2.9	7.6	1.4		225
-180 CV					7.09	6.06					5.98	3.5	9.7	1.8		226
-210 CV					8.27	7.24					7.17	4	11.8	2.4		227
-240 CV					9.45	8.43					8.35	4.5	14	3.1		228
-270 CV					10.63	9.61					9.53	5.1	16.1	3.9		229
F63-SLFB25- 75-M22	1	25	45	10	75	22	27	47.3	50	45	53	1.1	3.7	0.2		230

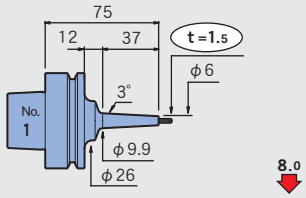


※1 When shrinking the SLFB20 with HEAT ROBO DENJI 5000(HRD-02S), the standard heating coil cannot be used. Please use the heating coil No.4.

F63 S=1:5

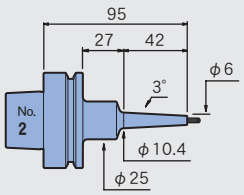
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F63-SLSA3-75-M37



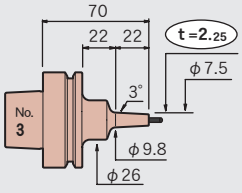
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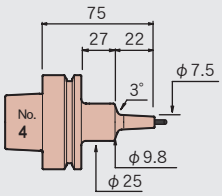
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F63-SLRA3-70-M22



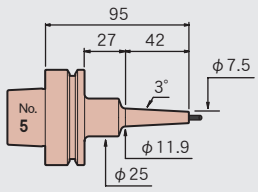
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F63-SLRA3-75-M22



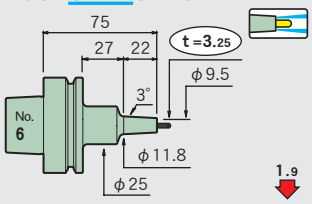
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F63-SLRA3-95-M42



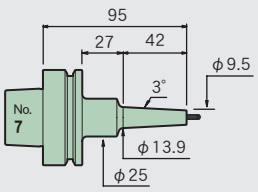
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F63-SLFB3-75-M22



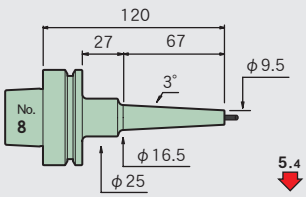
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F63-SLFB3-95-M42



3.2

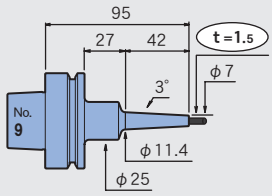
F63-SLFB3-120-M67



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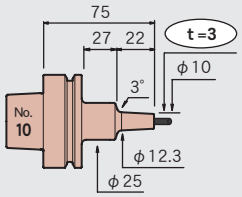
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F63-SLSA4-95-M42



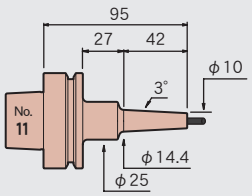
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F63-SLRA4-75-M22



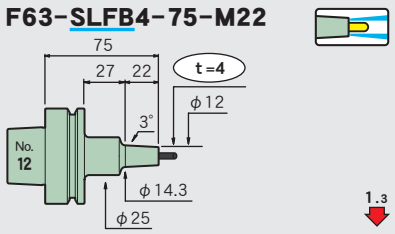
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F63-SLRA4-95-M42



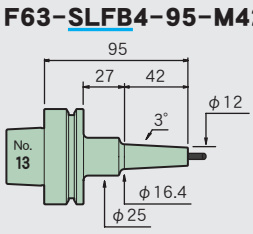
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F63-SLFB4-75-M22



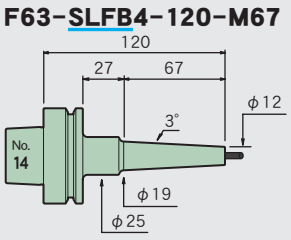
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F63-SLFB4-95-M42



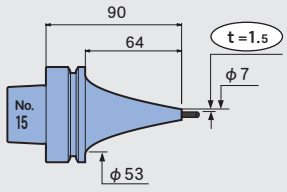
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F63-SLFB4-120-M67



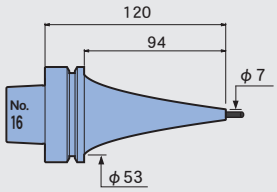
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F63-SLSA4-90 CV



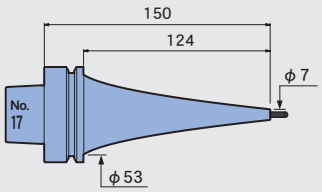
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F63-SLSA4-120 CV



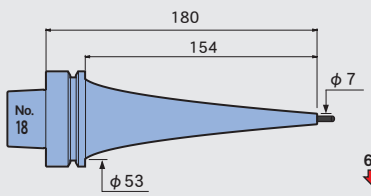
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F63-SLSA4-150 CV



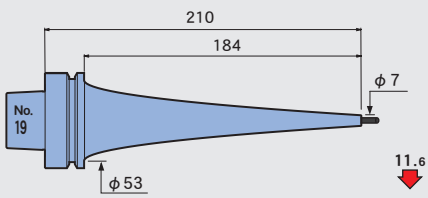
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F63-SLSA4-180 CV



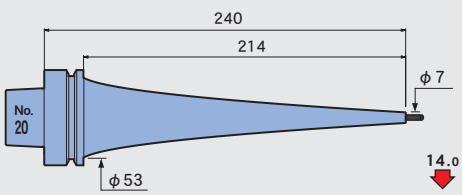
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F63-SLSA4-210 CV



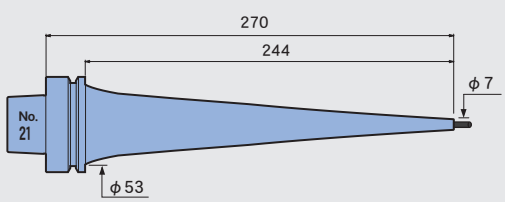
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F63-SLSA4-240 CV



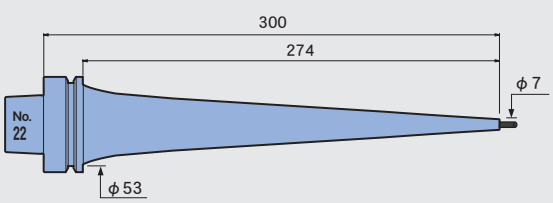
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F63-SLSA4-270 CV



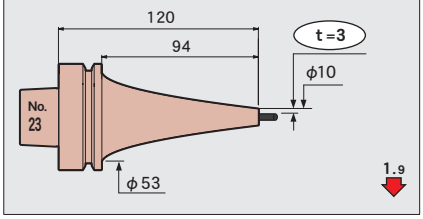
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F63-SLSA4-300 CV

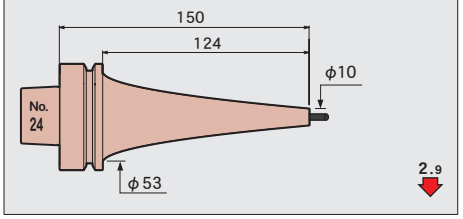


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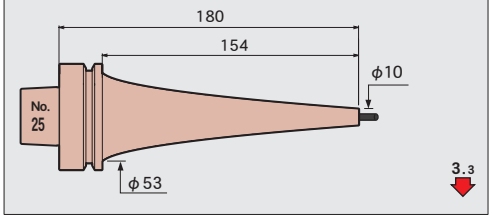
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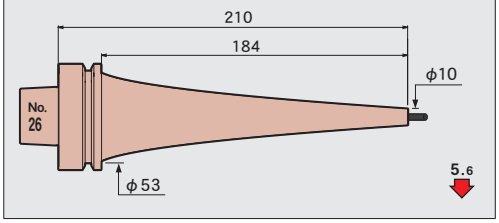
F63-SLRA4-150 CV



F63-SLRA4-180 CV

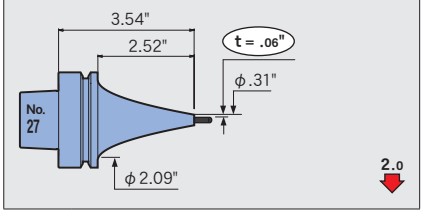


F63-SLRA4-210 CV

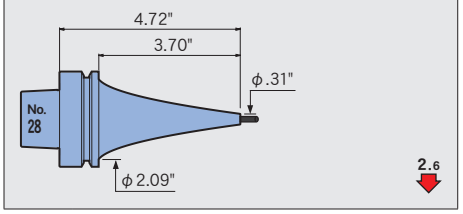


ϕ3/16

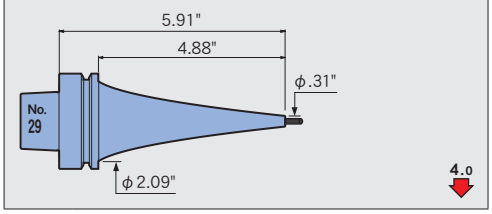
F63-SLSA3/16-90 CV



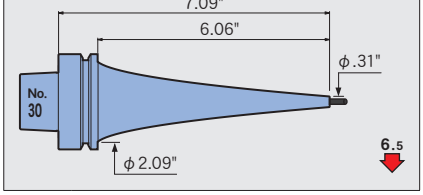
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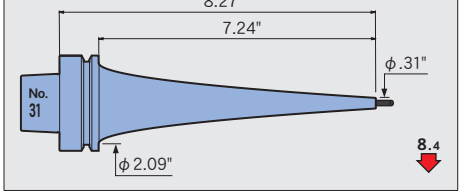
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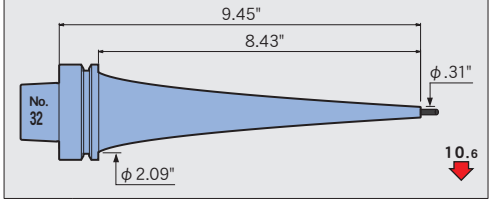
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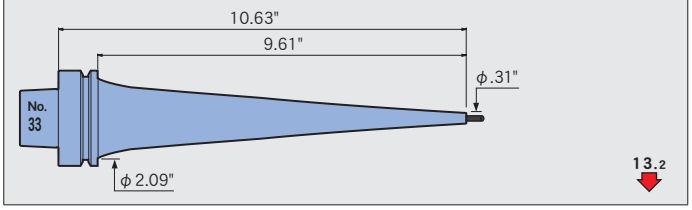
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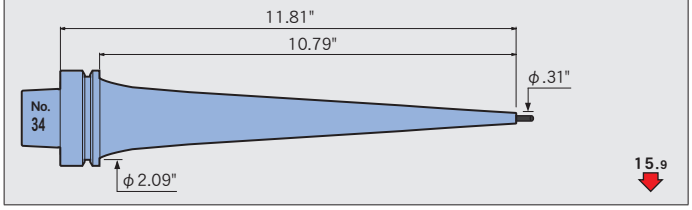
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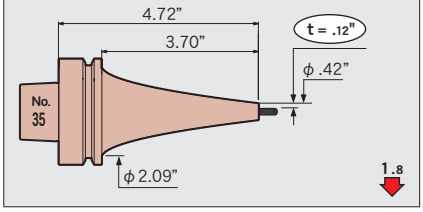
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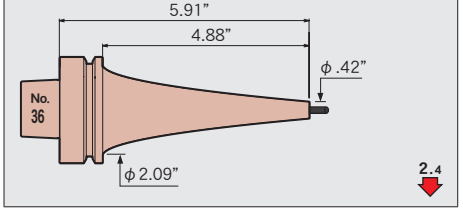
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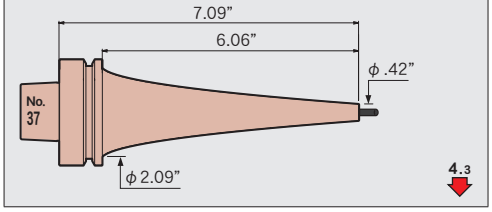
F63-SLRA3/16-120 CV



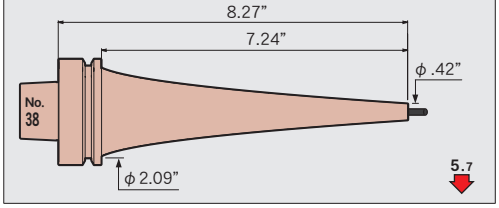
F63-SLRA3/16-150 CV



F63-SLRA3/16-180 CV



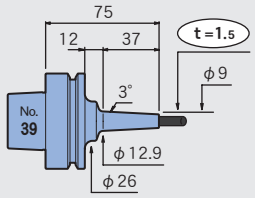
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F63 S=1:5

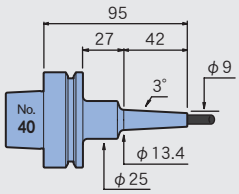
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F63-SLSA6-75-M37



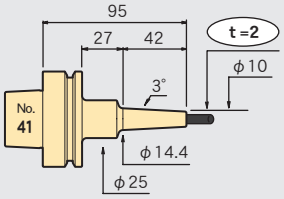
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F63-SLSA6-95-M42



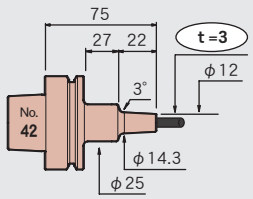
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F63-SLSB6-95-M42



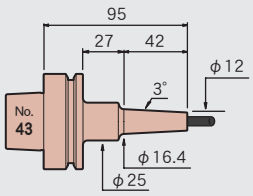
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F63-SLRA6-75-M22



1.3

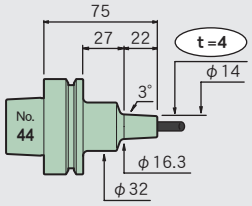
F63-SLRA6-95-M42



2.4

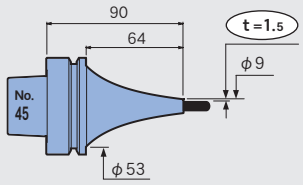
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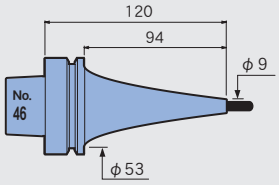
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F63-SLSA6-90 CV



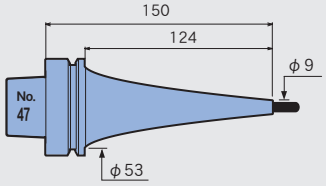
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F63-SLSA6-120 CV



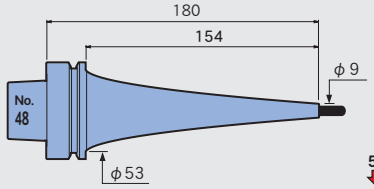
2.3

F63-SLSA6-150 CV



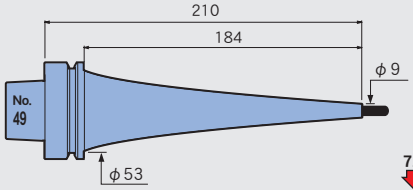
3.6

F63-SLSA6-180 CV



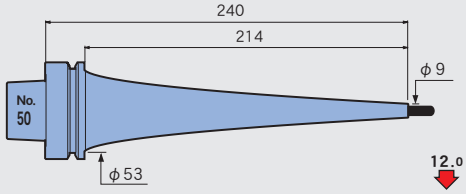
5.7

F63-SLSA6-210 CV



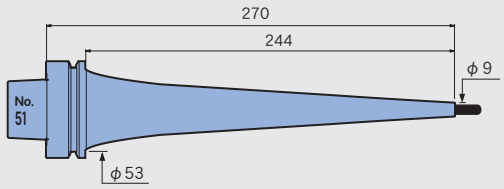
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F63-SLSA6-240 CV



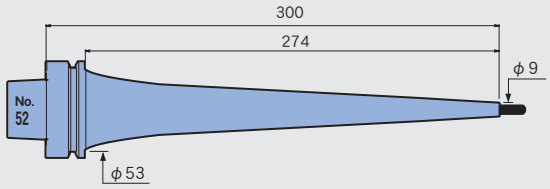
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F63-SLSA6-270 CV



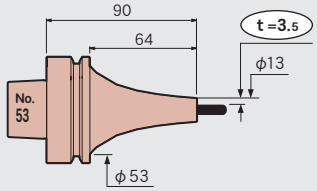
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F63-SLSA6-300 CV



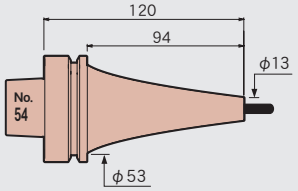
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F63-SLRA6-90 CV



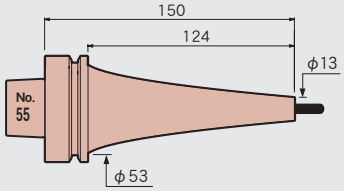
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F63-SLRA6-120 CV



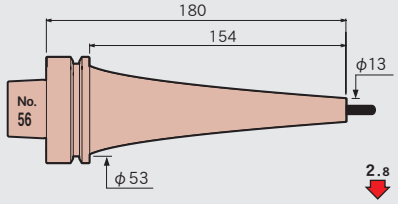
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F63-SLRA6-150 CV



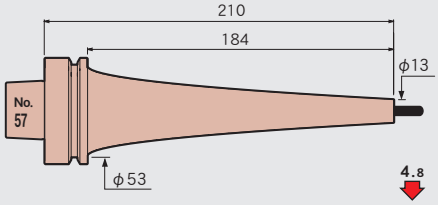
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F63-SLRA6-180 CV



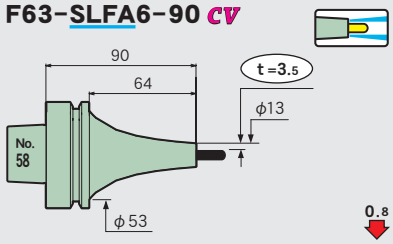
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F63-SLRA6-210 CV

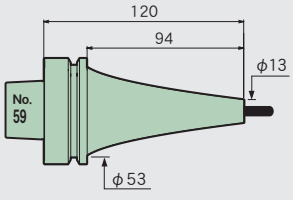


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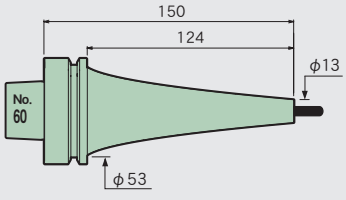
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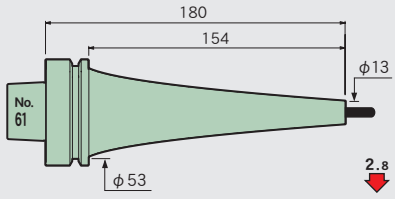
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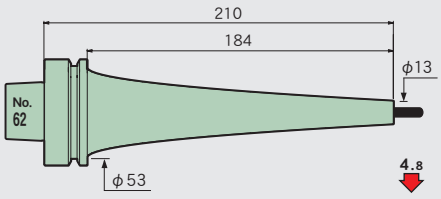
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F63-SLFA6-180 CV

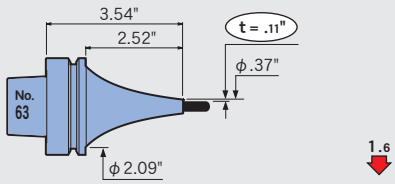


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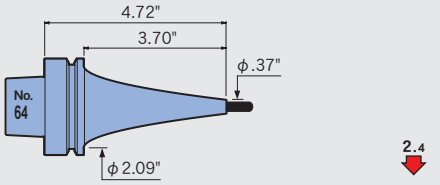


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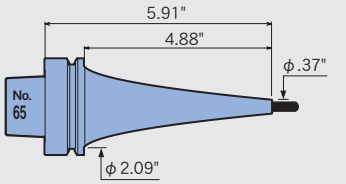
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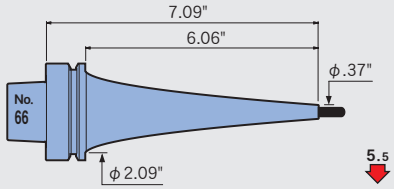
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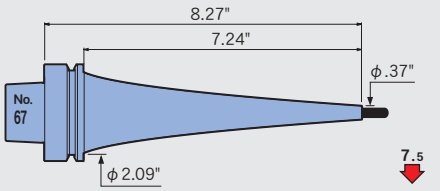
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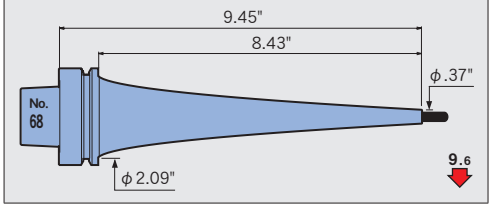
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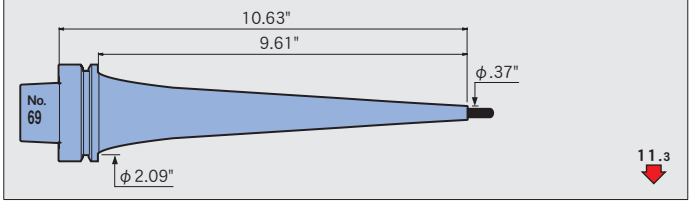
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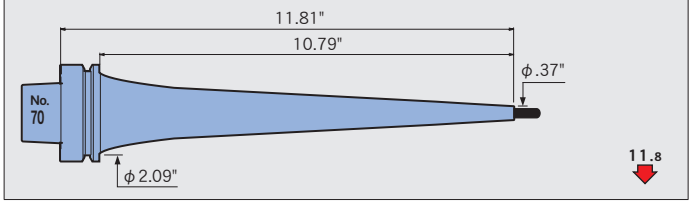
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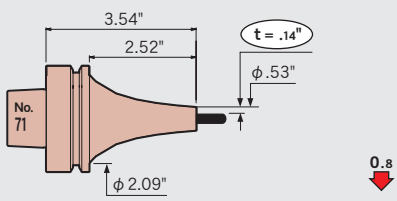
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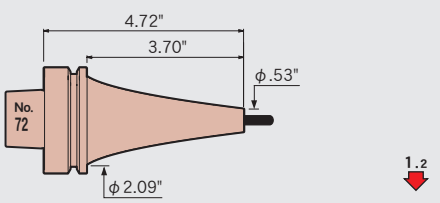
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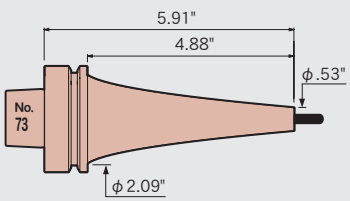
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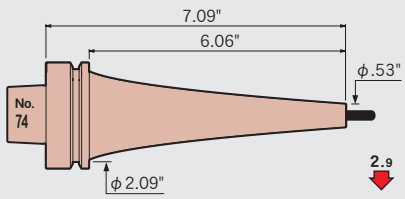
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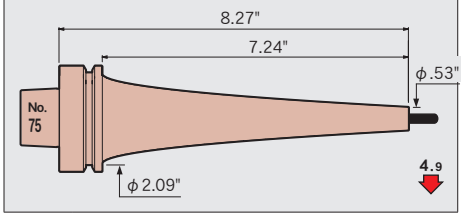
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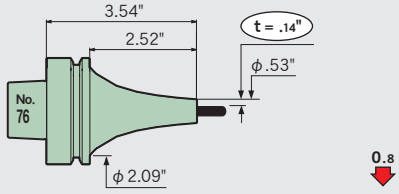


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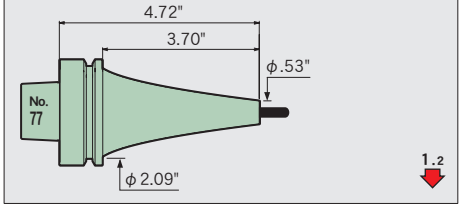


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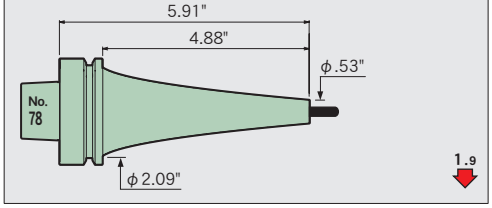
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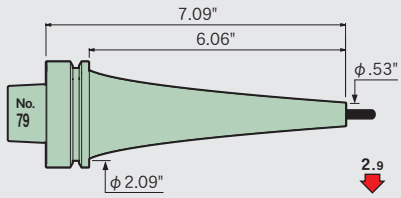
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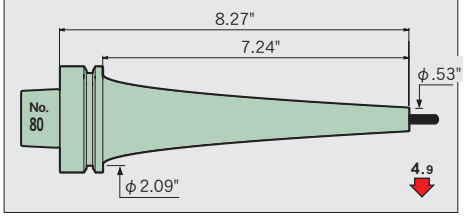
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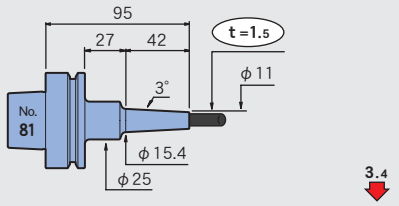


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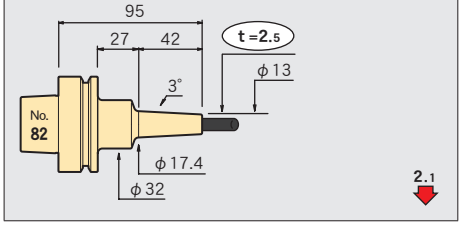


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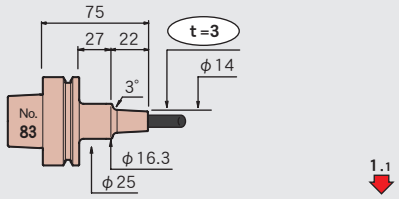
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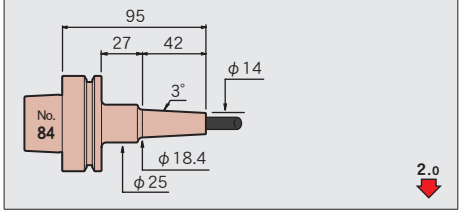
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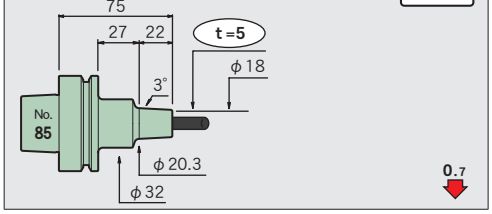
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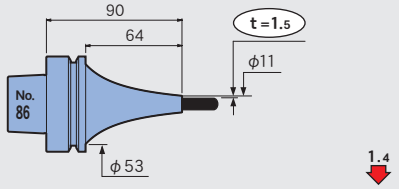
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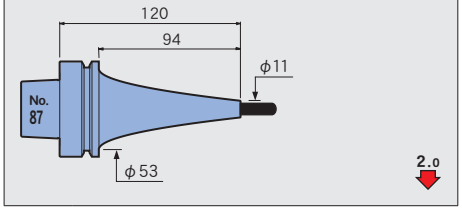
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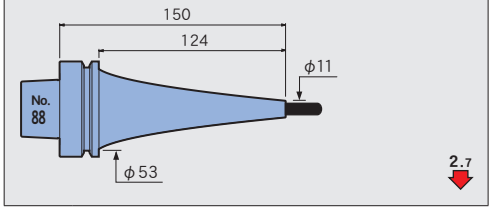
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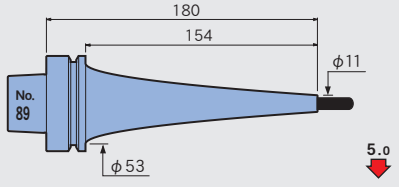
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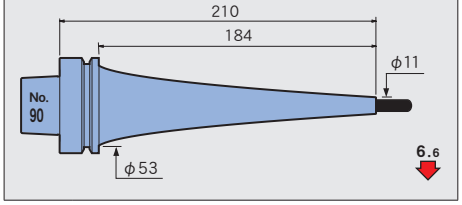
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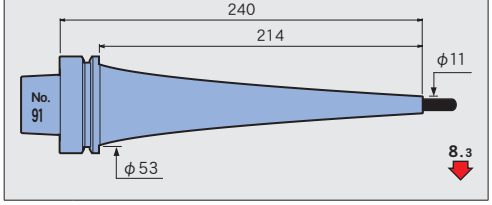
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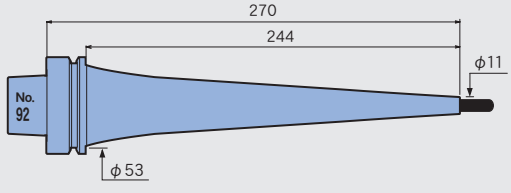
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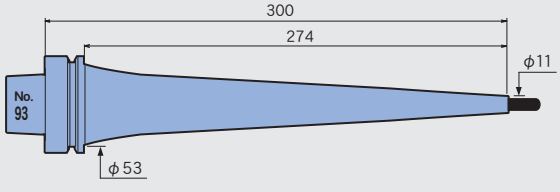
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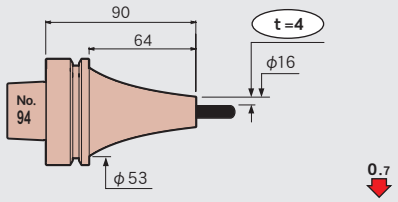
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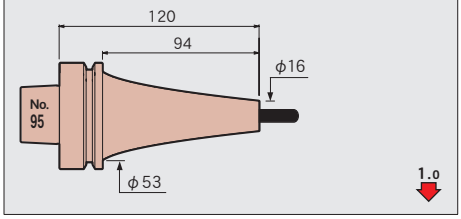
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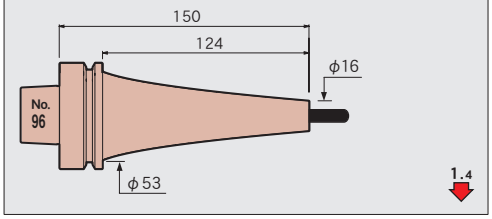
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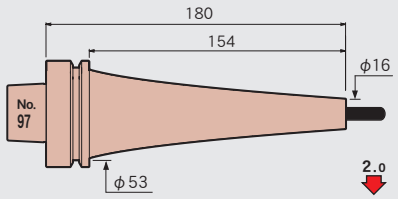
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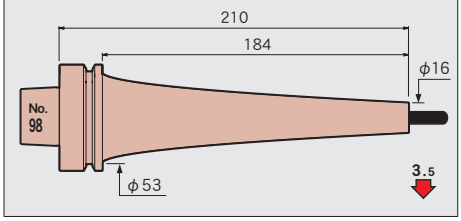
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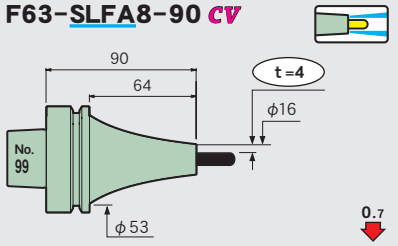
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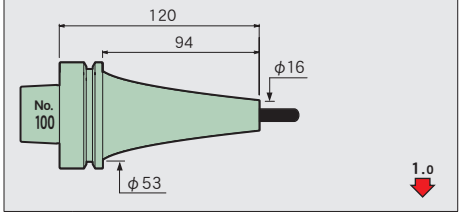
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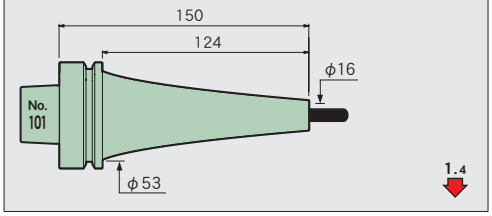
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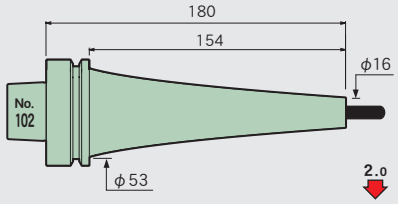
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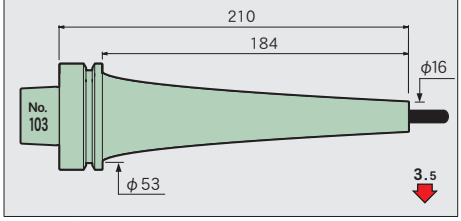
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F63-SLFA8-180 CV

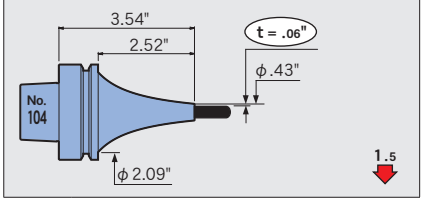


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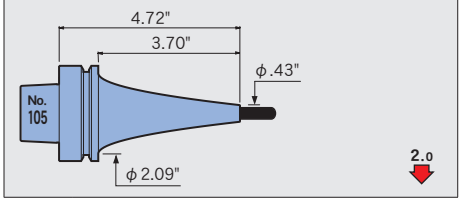


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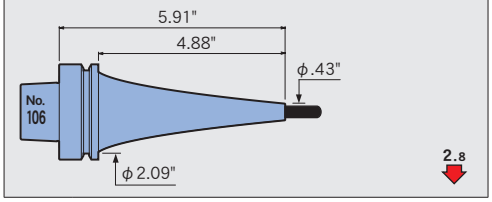
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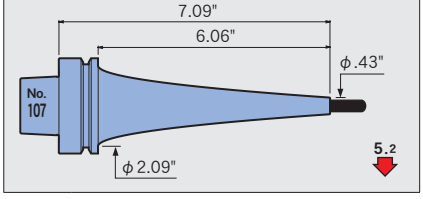
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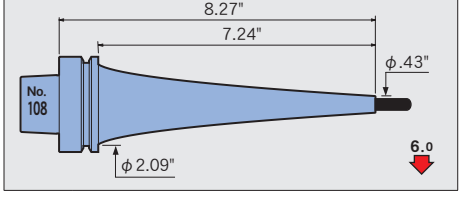
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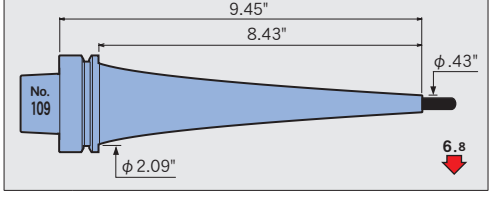
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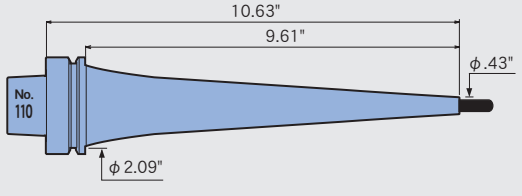
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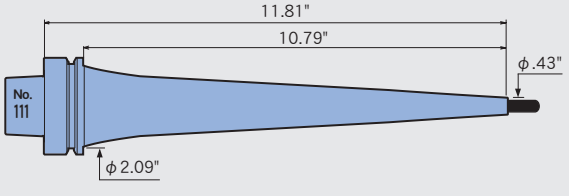
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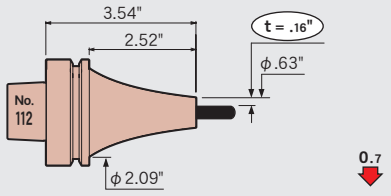
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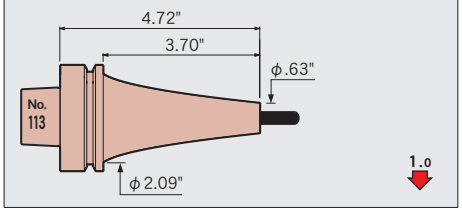
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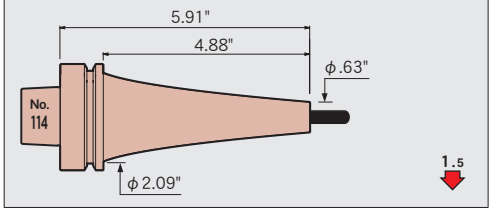
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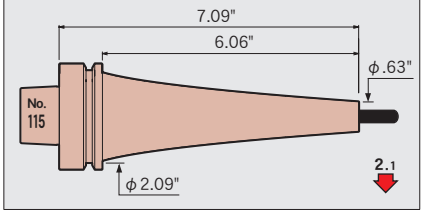
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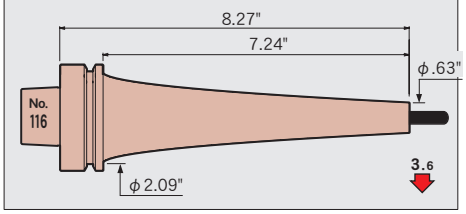
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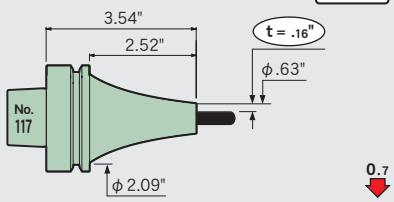
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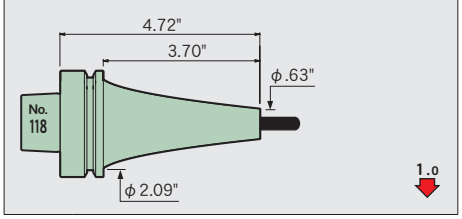
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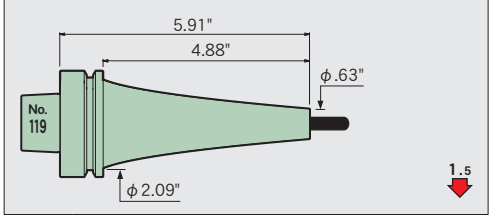
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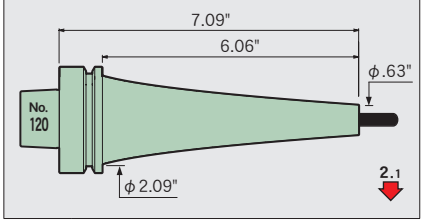
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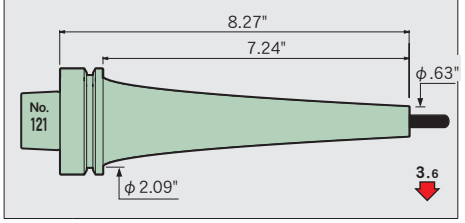
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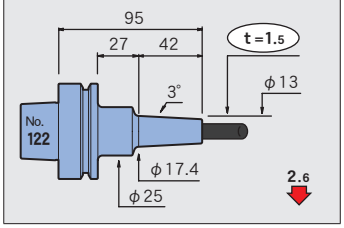


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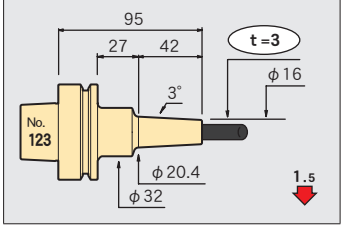


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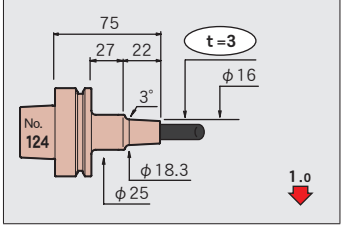
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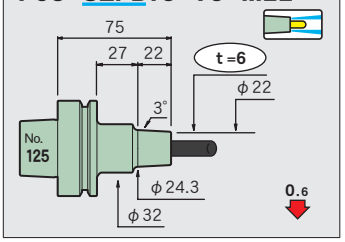
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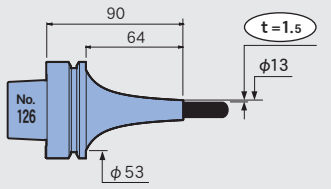
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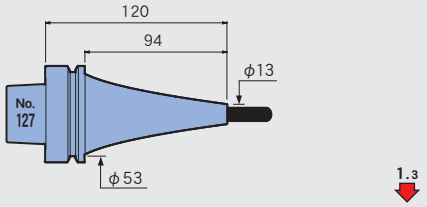
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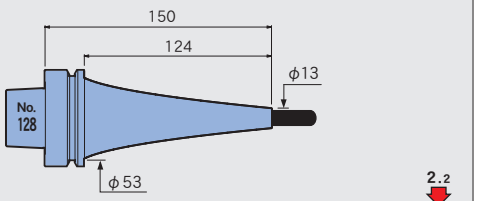
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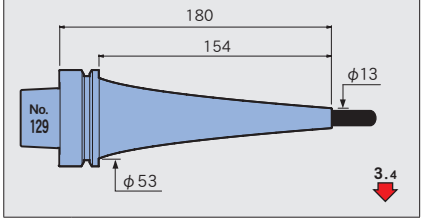
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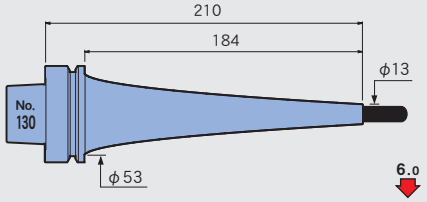
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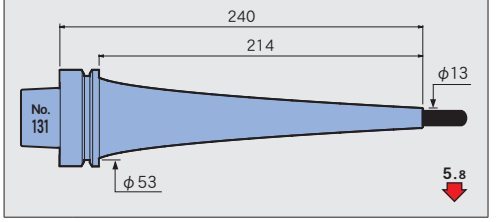
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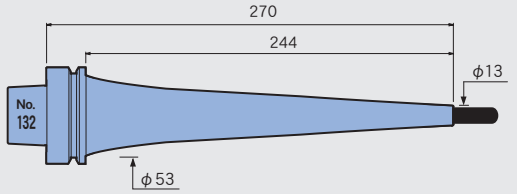
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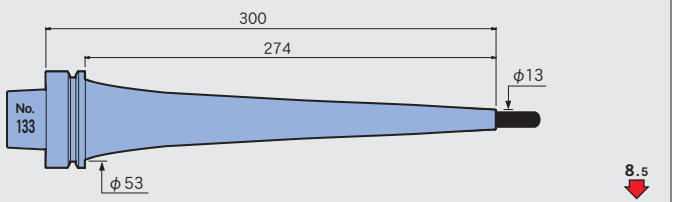
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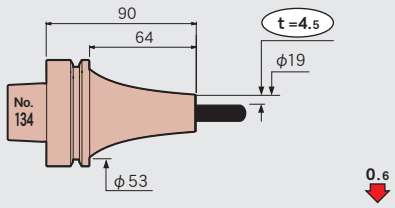
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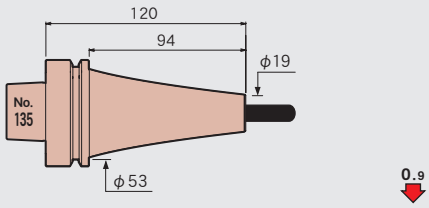
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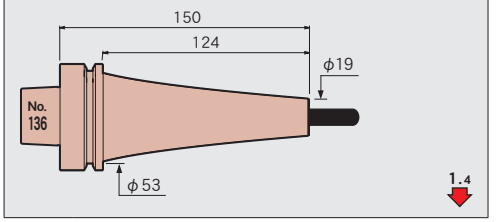
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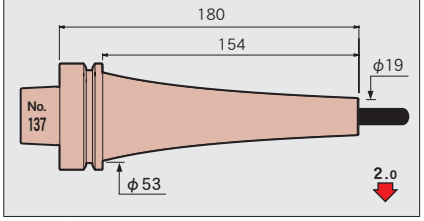
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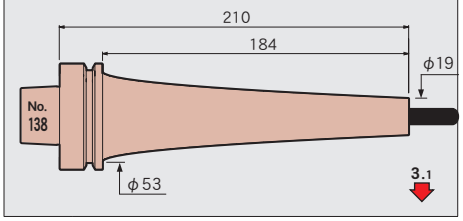
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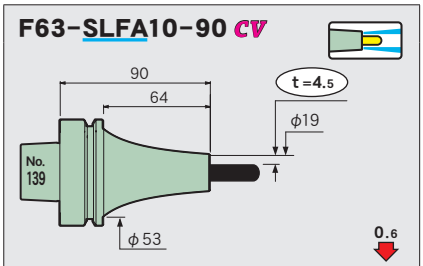
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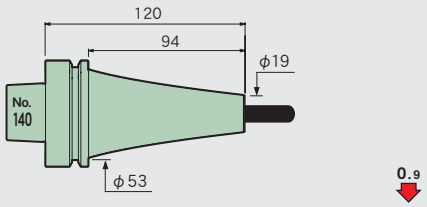
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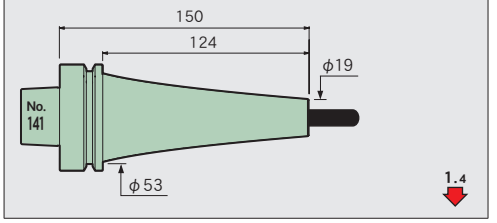
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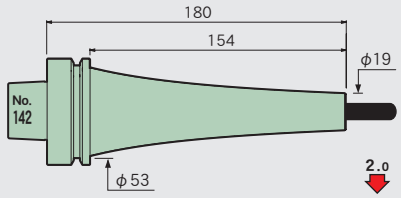


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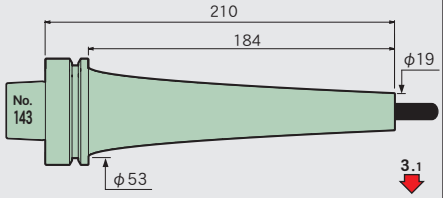


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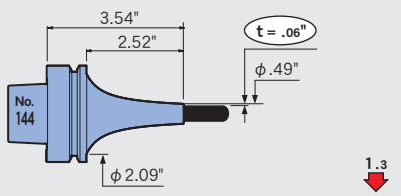


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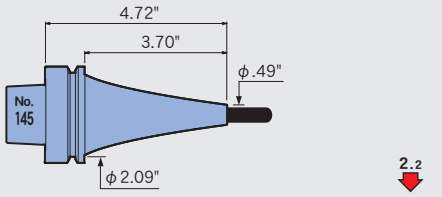


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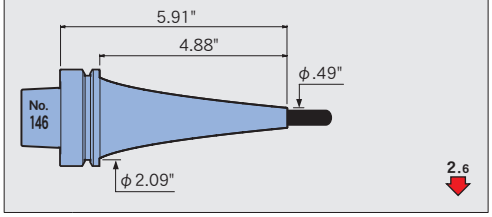
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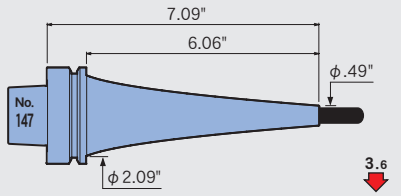
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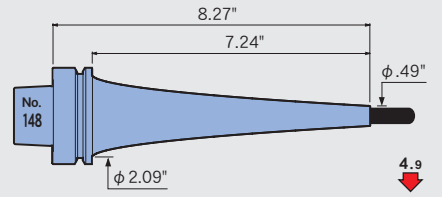
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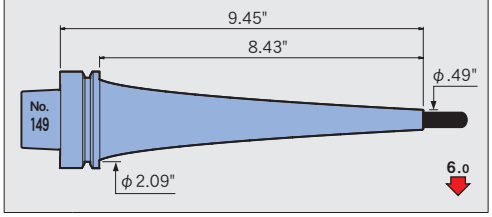
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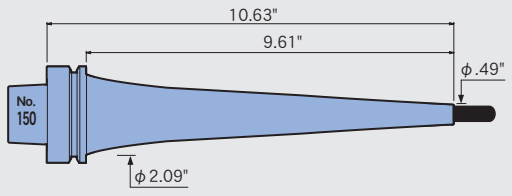
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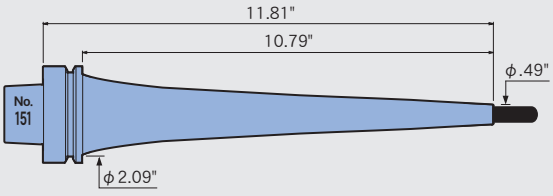
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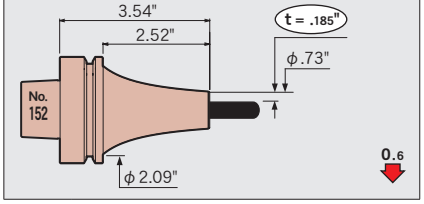
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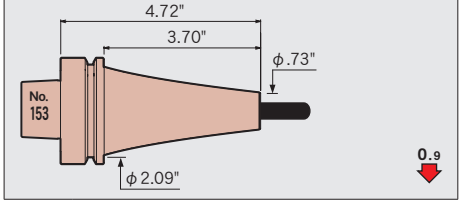
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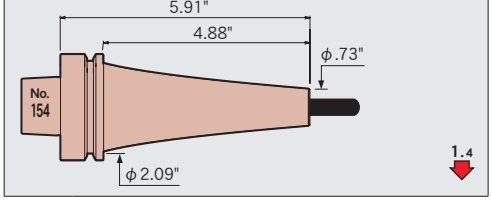
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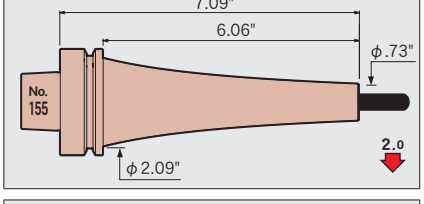
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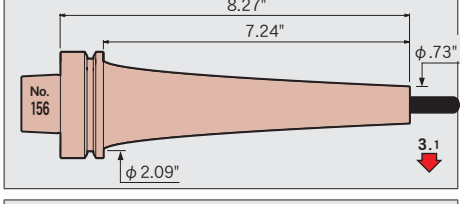
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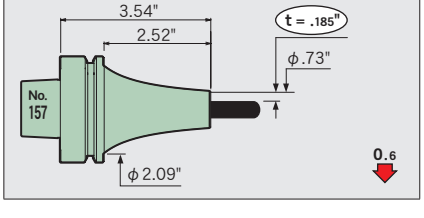
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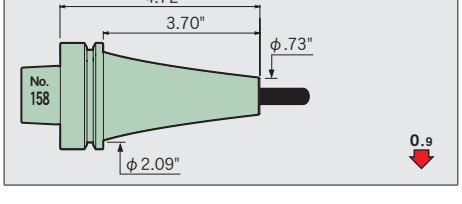
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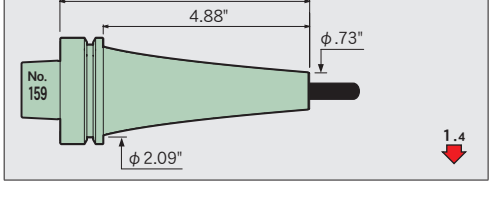
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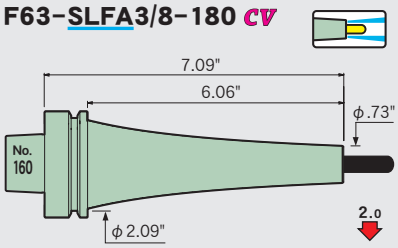
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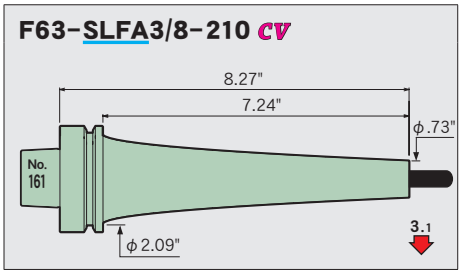
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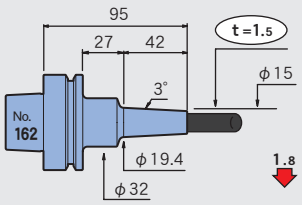


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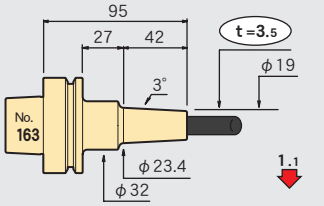


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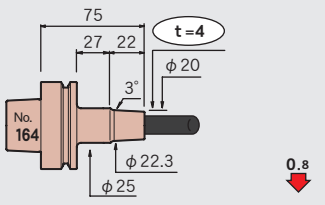
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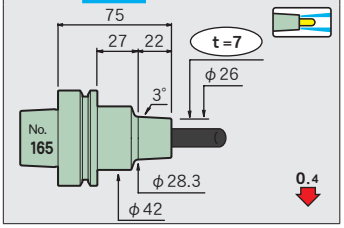
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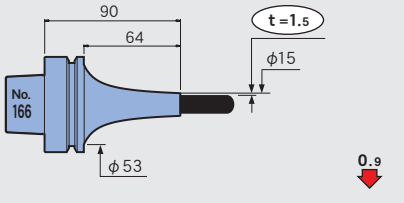
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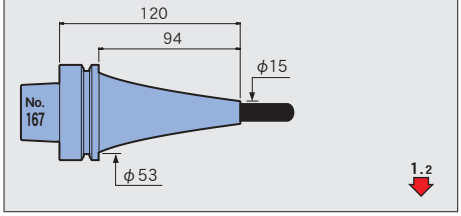
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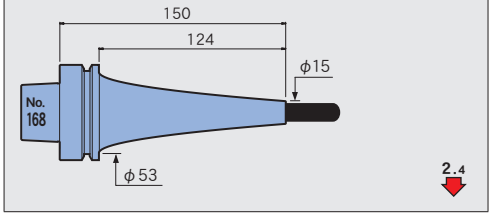
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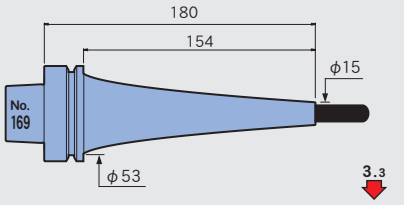
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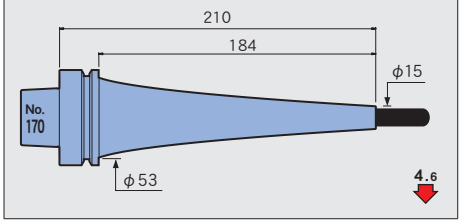
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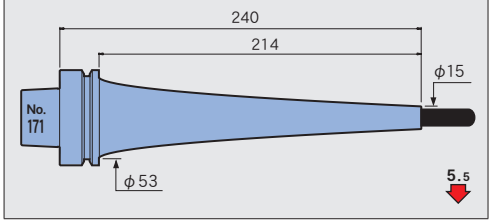
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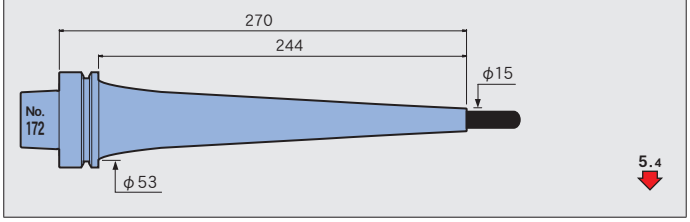
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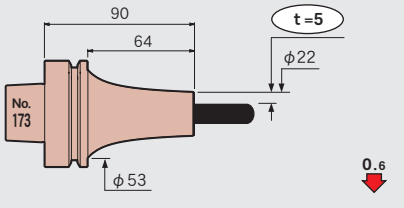
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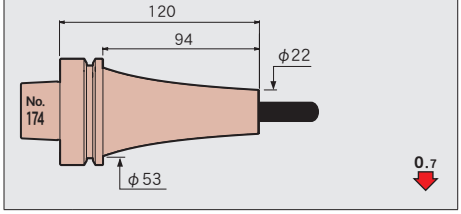
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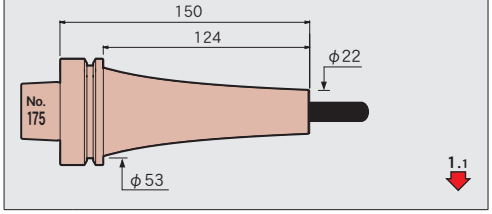
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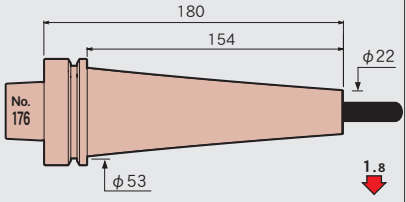
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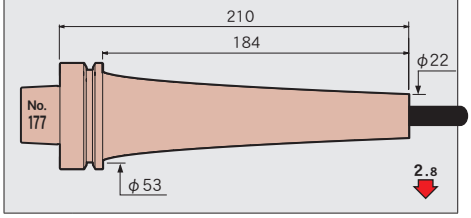
F63-SLRA12-150 CV



F63-SLRA12-180 CV

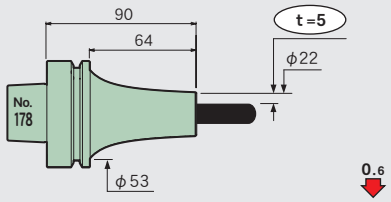


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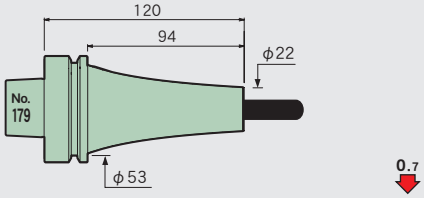


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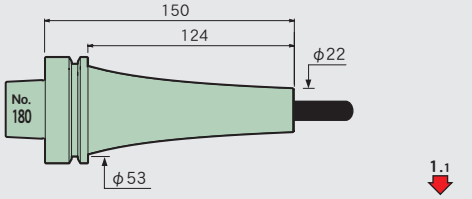
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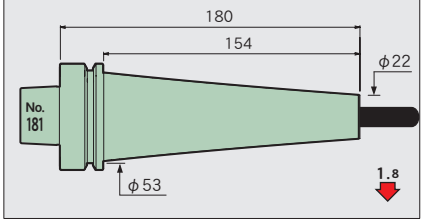
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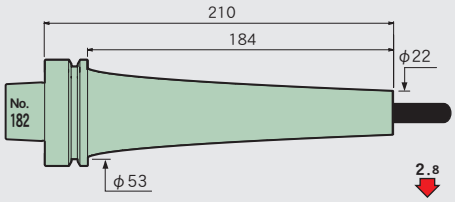
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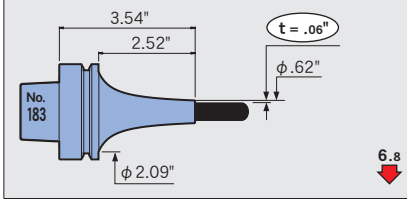


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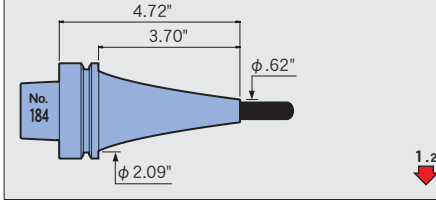


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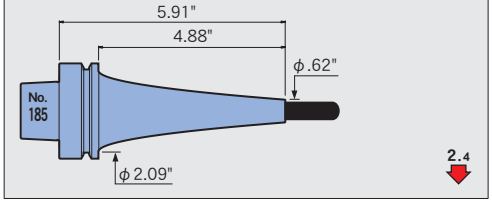
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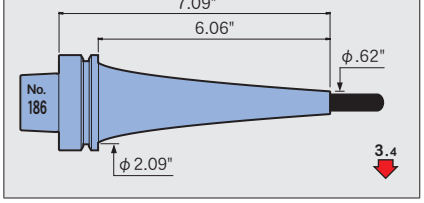
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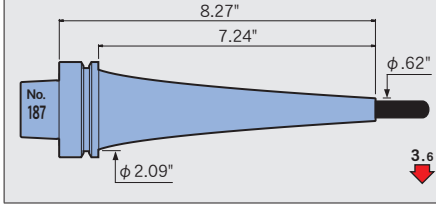
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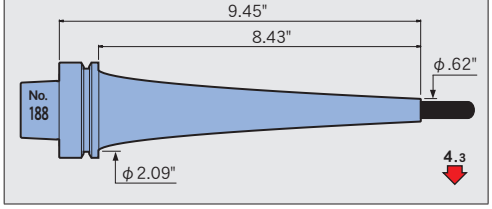
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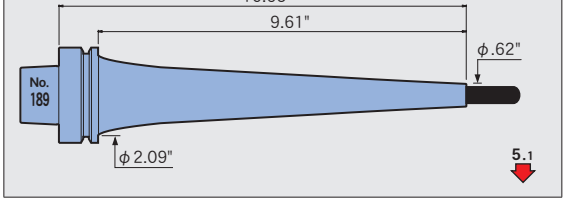
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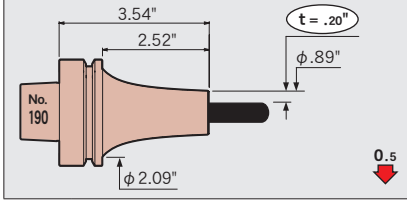
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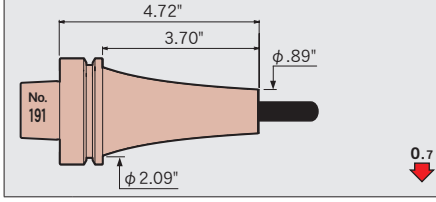
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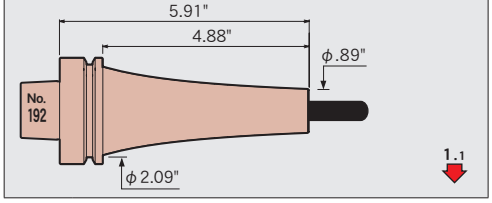
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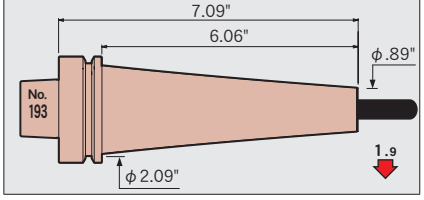
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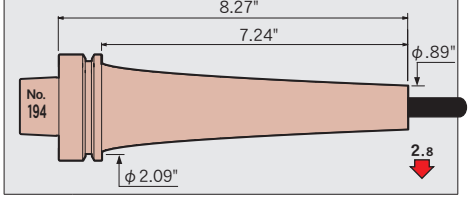
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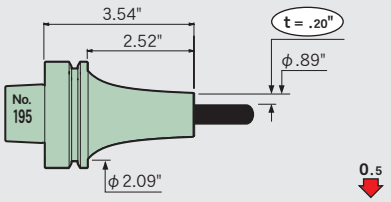
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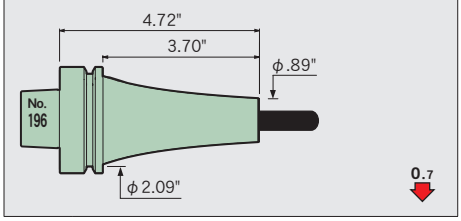
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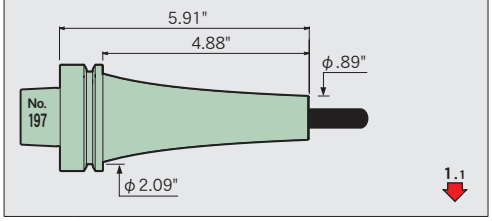
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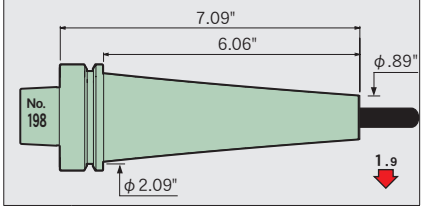
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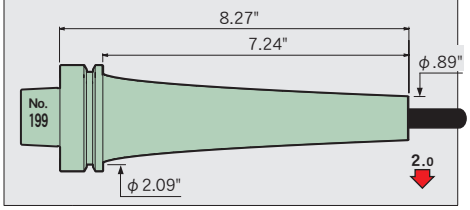
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F63-SLFA1/2-180 CV

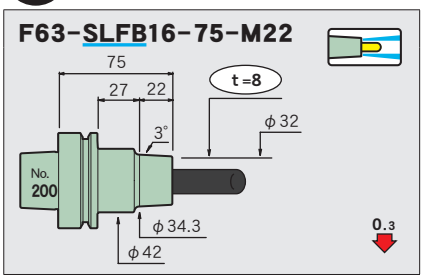


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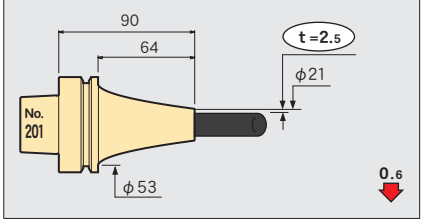


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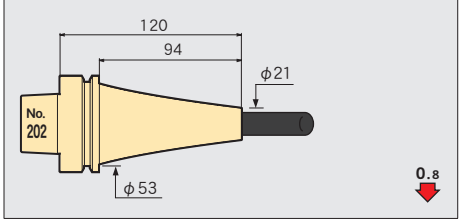
F63-SLFB16-75-M22



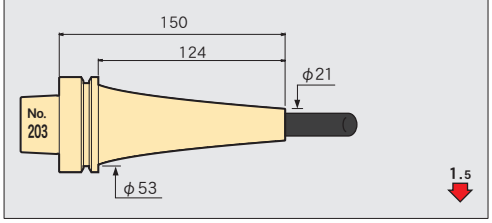
F63-SLSB16-90 CV



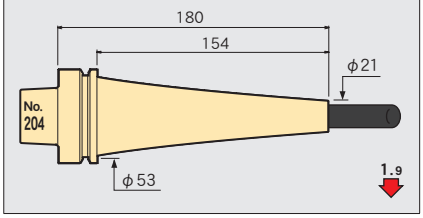
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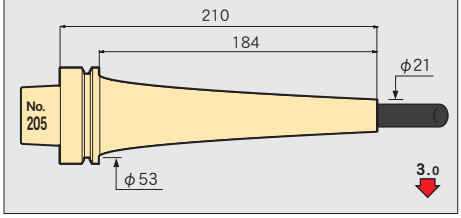
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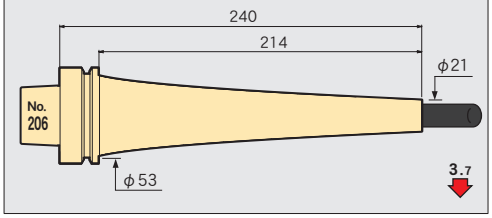
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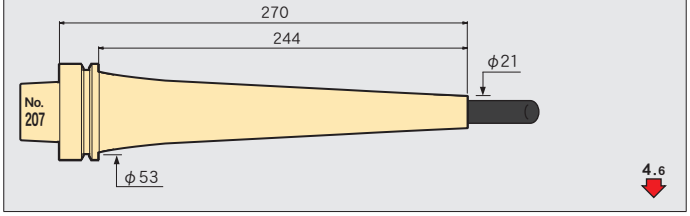
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F63-SLSB16-240 CV



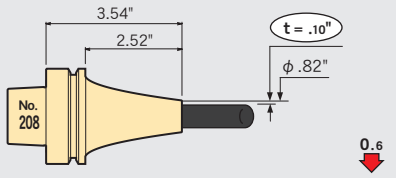
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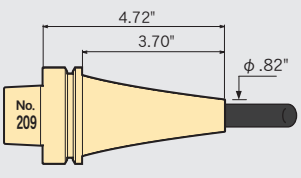
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ϕ 5/8

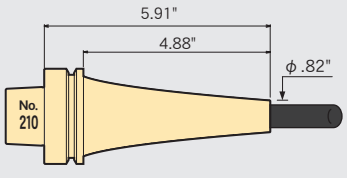
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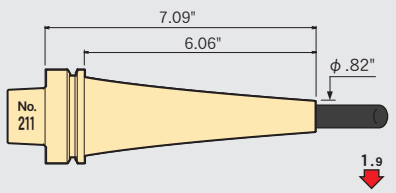
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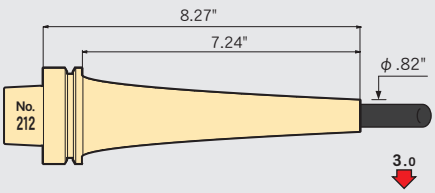
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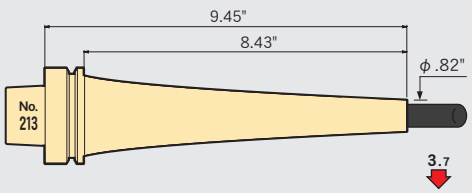
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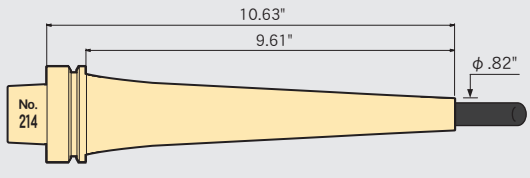
F63-SLSB5/8-210 CV



F63-SLSB5/8-240 CV

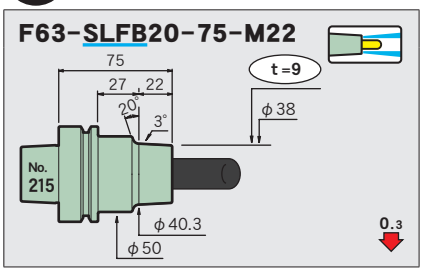


F63-SLSB5/8-270 CV

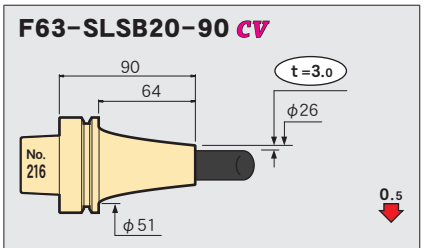


ϕ 20

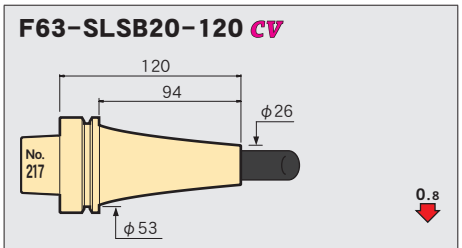
F63-SLFB20-75-M22



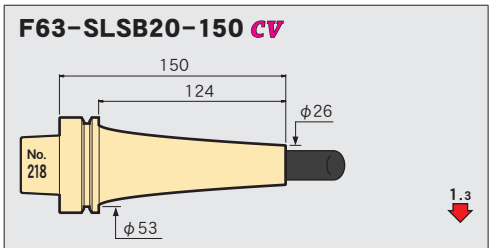
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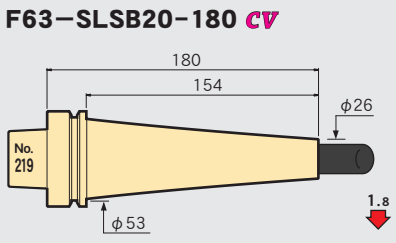
F63-SLSB20-120 CV



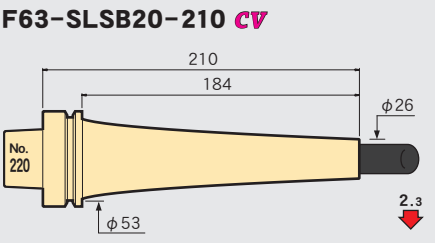
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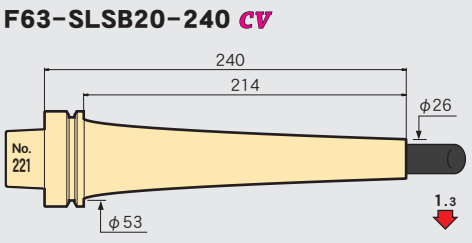
F63-SLSB20-180 CV



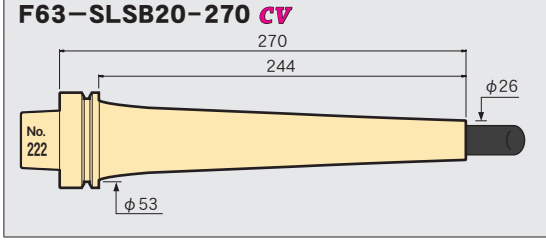
F63-SLSB20-210 CV



F63-SLSB20-240 CV

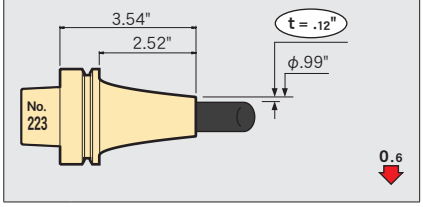


F63-SLSB20-270 CV

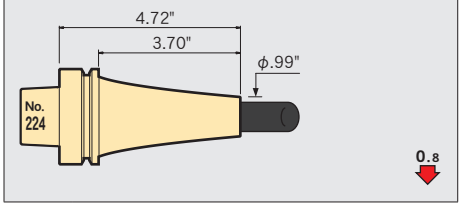


ϕ3/4

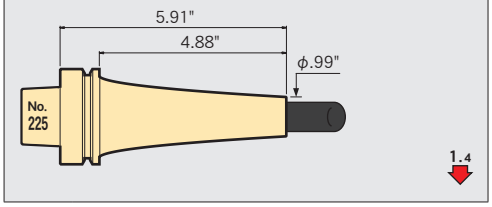
F63-SLSB3/4-90 CV



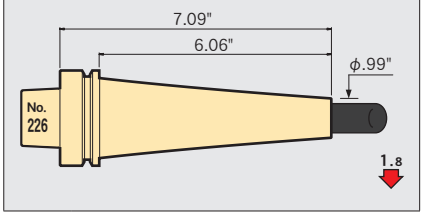
F63-SLSB3/4-120 CV



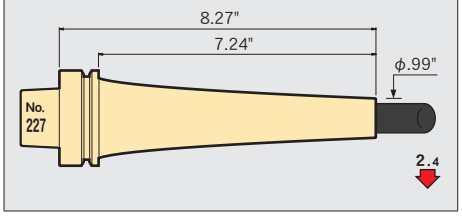
F63-SLSB3/4-150 CV



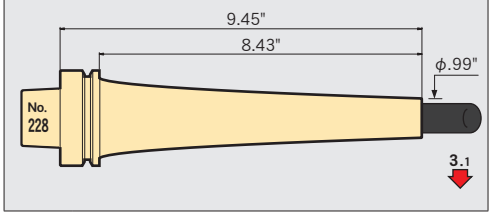
F63-SLSB3/4-180 CV



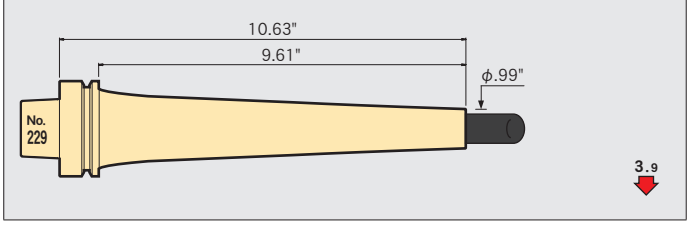
F63-SLSB3/4-210 CV



F63-SLSB3/4-240 CV

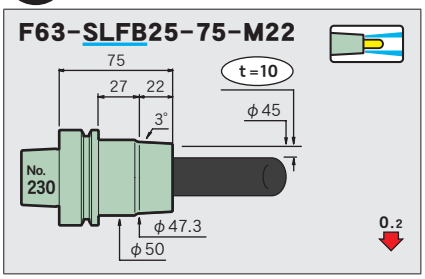


F63-SLSB3/4-270 CV



ϕ25

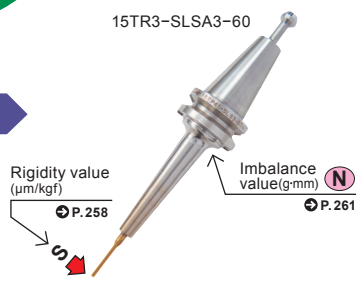
F63-SLFB25-75-M22

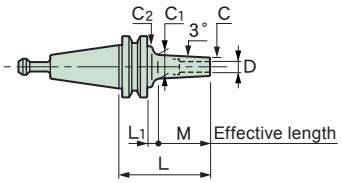


15T

MONO 3°

15TR3-SLSA3-60



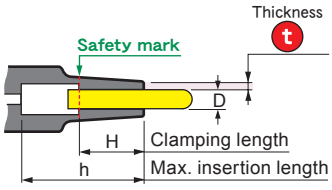




Compatibility table for HRD-01S

[○] Available [×] Not available

■Caution
・Setting cutters･･･Be sure to insert the tool beyond the safety mark.



BROTHER TC-20A TC-20B



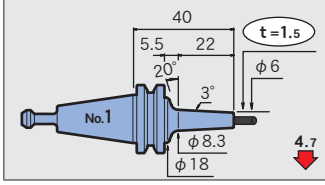
Thickness

CODE	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg	N	S		Scale model
15TR3-SLSA 3-40	3	6	1.5	40	22	5.5	8.3	18	9	46	0.1	0.3	4.7	○	1
-60				60	42		10.4			66			9.3		2
15TR3-SLSA3.175-40	3.175	6.175	1.5	40	22	5.5	8.5	18	9	46	0.1	0.3	4.4	○	3
-60				60	42		10.6			66			8.8		4
15TR3-SLSA 4-40	4	7	1.5	40	22	5.5	9.3	18	12	46	0.1	0.3	3.6	○	5
-60				60	42		11.4			66			7.3		6
15TR3-SLSA 5-40	5	8	1.5	40	22	5.5	10.3	18	15	46	0.1	0.3	2.9	○	7
-60				60	42		12.4			66			5.9		8
15TR3-SLSA 6-60	6	9	1.5	60	42	5.5	13.4	18	18	66	0.1	0.4	4.9	○	9
-SLRA 6-35		12	3	35	19.6	2.9	14.1	—		46		0.2	1.2		10
15TR3-SLRA 8-35	8	14	3	35	19.6	2.9	16.1	—	20	51	0.1	0.3	0.9	×	11
15TR3-SLRA10-35	10	16	3	35	19.6	2.9	18.1	—	20	51	0.1	0.4	0.8	×	12

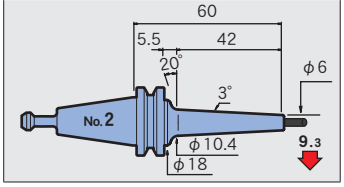
S=1:3

φ3

15TR3-SLSA3-40

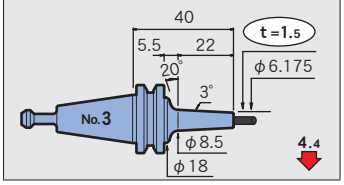


15TR3-SLSA3-60

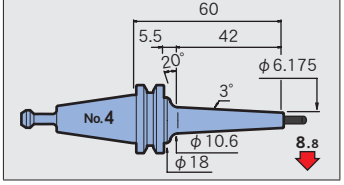


φ3.175

15TR3-SLSA3.175-40

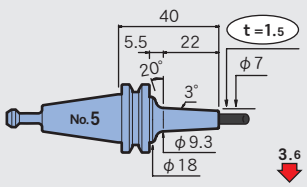


15TR3-SLSA3.175-60

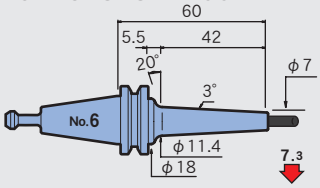


φ4

15TR3-SLSA4-40

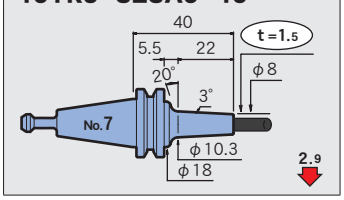


15TR3-SLSA4-60

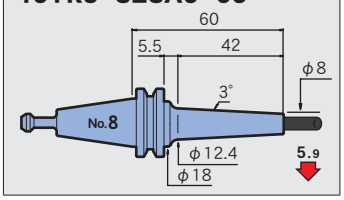


φ5

15TR3-SLSA5-40

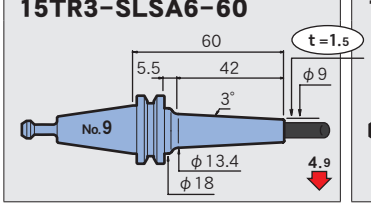


15TR3-SLSA5-60

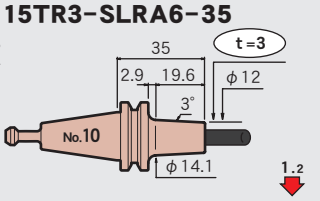


φ6

15TR3-SLSA6-60

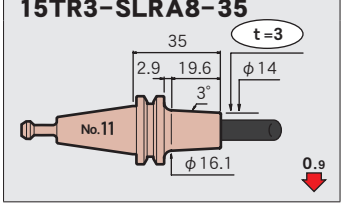


15TR3-SLRA6-35



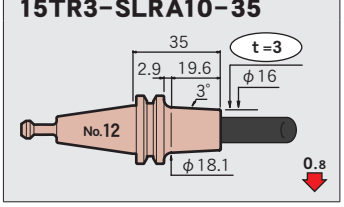
φ8

15TR3-SLRA8-35



φ10

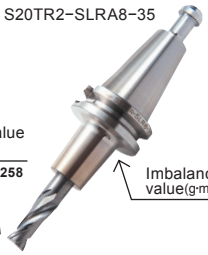
15TR3-SLRA10-35



S20T

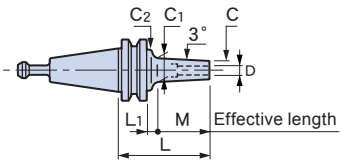
MONO 3°

S20TR2-SLRA8-35



Rigidity value (μm/kgf) P.258

Imbalance value(g·mm) N P.261



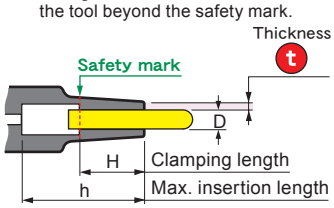


Compatibility table for HRD-01S

[○] Available [×] Not available

■Caution

• Setting cutters···Be sure to insert the tool beyond the safety mark.



SUGINO

Xion-II-5AX
NSV9
V9



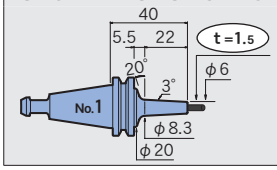
Thickness

CODE	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg	N	S		Scale model
S20TR2-SLSA 3-40	3	6	1.5	40	22	5.5	8.3	20	9	46	0.1	0.4	4.6	○	1
-60				60	42		10.4			66			9.2		2
S20TR2-SLSA3.175-40	3.175	6.175	1.5	40	22	5.5	8.5	20	9	46	0.1	0.4	4.4	○	3
-60				60	42		10.6			66			8.8		4
S20TR2-SLSA 4-40	4	7	1.5	40	22	5.5	9.3	20	12	46	0.1	0.4	3.6	○	5
-60				60	42		11.4			66			7.2		6
S20TR2-SLSA 5-40	5	8	1.5	40	22	5.5	10.3	20	15	46	0.1	0.4	2.8	○	7
-60				60	42		12.4			66		0.5	5.8		8
S20TR2-SLSA 6-60	6	9	1.5	60	42	5.5	13.4	20	18	66	0.1	0.5	4.7	○	9
-SLRA 6-35		12	3	35	19.6	2.9	14.1	—		46		0.3	1.1		10
S20TR2-SLRA 8-35	8	14	3	35	19.6	2.9	16.1	—	20	51	0.1	0.4	0.9	×	11
S20TR2-SLRA10-35	10	16	3	35	19.6	2.9	18.1	—	20	51	0.1	0.5	0.8	×	12
S20TR2-SLRA12-45	12	20	4	45	32.5	—	23.4	—	30	51	0.2	0.6	0.8	×	13

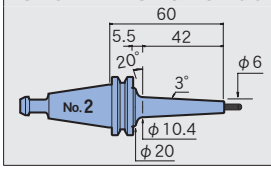
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ϕ3

S20TR2-SLSA3-40

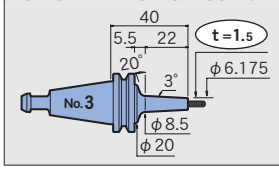


S20TR2-SLSA3-60

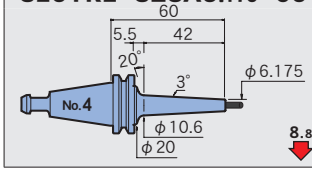


ϕ3.175

S20TR2-SLSA3.175-40

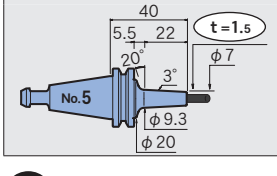


S20TR2-SLSA3.175-60

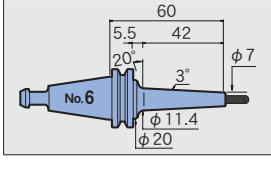


ϕ4

S20TR2-SLSA4-40

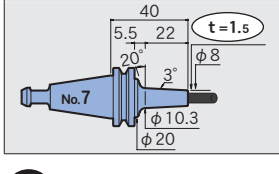


S20TR2-SLSA4-60

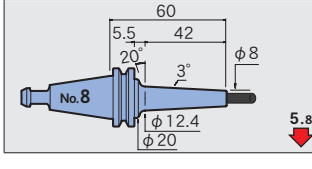


ϕ5

S20TR2-SLSA5-40

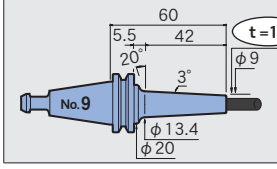


S20TR2-SLSA5-60

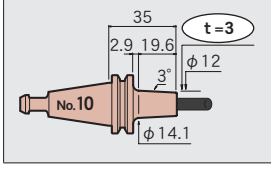


ϕ6

S20TR2-SLSA6-60

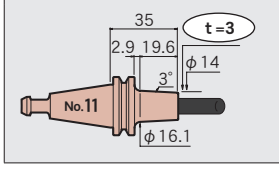


S20TR2-SLRA6-35



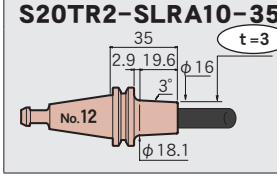
ϕ8

S20TR2-SLRA8-35



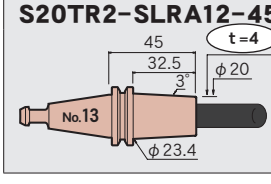
ϕ10

S20TR2-SLRA10-35



ϕ12

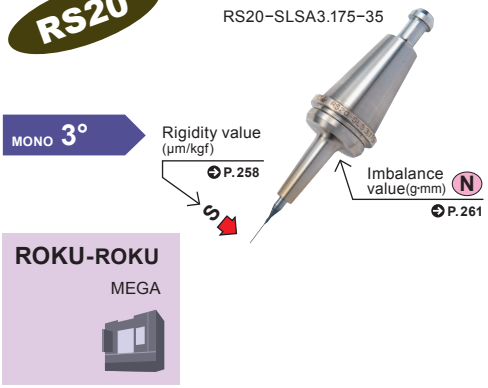
S20TR2-SLRA12-45

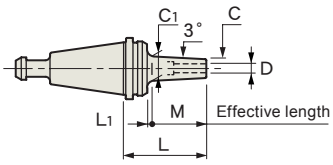


RS20

MONO 3°

ROKU-ROKU
MEGA



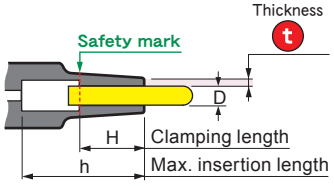




Compatibility table for HRD-01S

[○] Available [×] Not available

■Caution
・Setting cutters…Be sure to insert the tool beyond the safety mark.

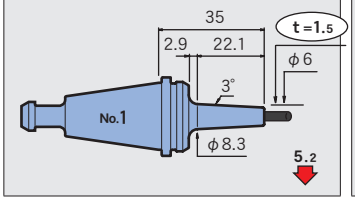


Thickness

CODE	ϕD	ϕC	t	L	M	L1	ϕC1	H	h	Kg	N	S		Scale model
RS20-SLSA 3-35	3	6	1.5	35	22.1	2.9	8.3	9	46	0.1	0.2	5.2	○	1
-SLSA 3.175-35	3.175	6.175	1.5	35	22.1	2.9	8.5	9	46	0.1	0.2	4.9	○	2
-SLSA 4-35	4	7	1.5	35	22.1	2.9	9.3	12	46	0.1	0.2	4	○	3
-SLSA 5-35	5	8	1.5	35	22.1	2.9	10.3	15	46	0.1	0.2	3.2	○	4
-SLRA 6-30	6	12	3	30	17.1	2.9	13.8	18	46	0.1	0.2	1.1	×	5
-SLRA 8-30	8	14	3	30	17.2	2.8	15.8	20	51	0.1	0.3	0.9	×	6
-SLRA10-30	10	16	3	30	17.6	2.4	17.9	20	51	0.1	0.4	0.7	×	7

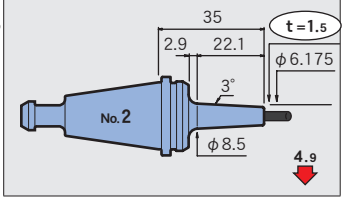
ϕ3

RS20-SLSA3-35



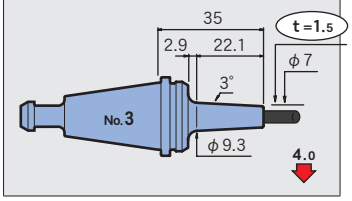
ϕ3.175

RS20-SLSA3.175-35



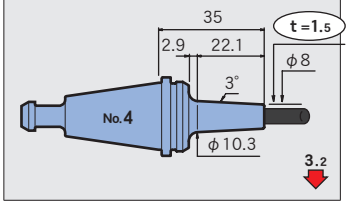
ϕ4

RS20-SLSA4-35



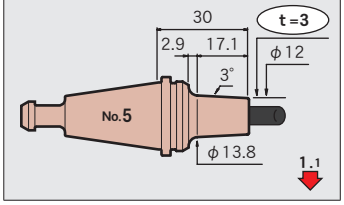
ϕ5

RS20-SLSA5-35



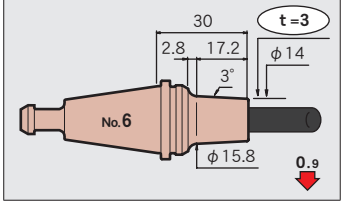
ϕ6

RS20-SLRA6-30



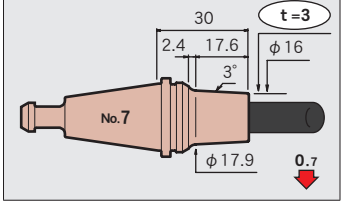
ϕ8

RS20-SLRA8-30



ϕ10

RS20-SLRA10-30

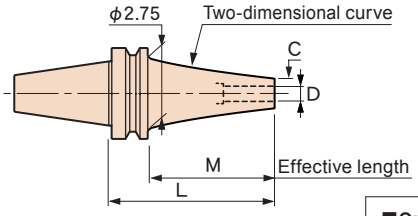


CT50

CT50-SLSA1/4-225 cv

MONO CURVE







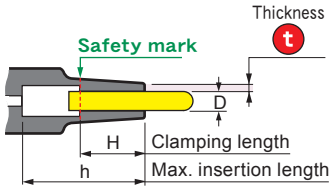
Compatibility table for HRD-01S

[○] Available [×] Not available

[▲] Usable by raising the heating unit.→P.257

■Option
- Retention knob

■Caution
- Retention knob···Use a retention knob with hole, or remove the retention knob and heat it.
- Setting cutters···Be sure to insert the tool beyond the safety mark.



CV: Curve

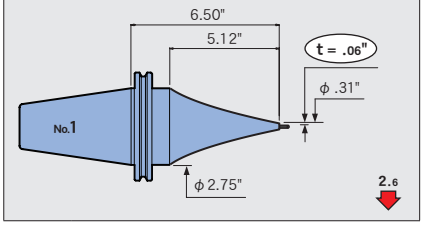
Thickness

CODE	ϕD	ϕC	t	L	M	H	h	lbs	N	S		Scale model
CT50-SLSA3/16-165 CV	3/16	.31	.06	6.50	5.12	.59	8.66	8.4	13.7	2.6	○	1
-195 CV				7.68	6.30		9.84	8.7	14.7	4		2
-225 CV				8.86	7.48		11.02	9.1	15.7	5.9		3
-255 CV				10.04	8.66		12.20	9.4	17.4	8.2	▲	4
-285 CV				11.22	9.84		13.39	10.0	18.9	10.5		5
-315 CV				12.40	11.02		14.57	10.5	20.5	13.3		6
CT50-SLSA1/4 -165 CV	1/ 4	.37	.06	6.50	5.12	.71	8.66	8.5	13.1	2.4	○	7
-195 CV				7.68	6.30		9.84	9.6	16	2.5		8
-225 CV				8.86	7.48		11.02	10.0	16.9	3.9		9
-255 CV				10.04	8.66		12.20		19.2	5.6	▲	10
-285 CV				11.22	9.84		13.39	10.5	20.8	7.4		11
-315 CV				12.40	11.02		14.57	11.1	22.4	9.5		12
CT50-SLSA5/16-165 CV	5/16	.49	.06	6.50	5.12	.94	8.66	9.0	15.2	1.5	○	13
-195 CV				7.68	6.30		9.84	9.3	16.2	2.4		14
-225 CV				8.86	7.48		11.02	9.4	17.5	3.9		15
-255 CV				10.04	8.66		12.20	9.9	19.1	5.2	▲	16
-285 CV				11.22	9.84		13.39	10.8	21.6	6		17
-315 CV				12.40	11.02		14.57	11.7	23.9	7.1		18
-SLRA5/16-195 CV	5/16	.63	.16	7.68	6.30	.94	9.84	9.6	17	1.5	○	19
-225 CV				8.86	7.48		11.02	10.8	19.9	1.6		20
-255 CV				10.04	8.66		12.20	10.9	20.4	2.6	▲	21
-285 CV				11.22	9.84		13.39	11.6	23.5	3.2		22
-SLFA5/16-195 CV	5/16	.63	.16	7.68	6.30	.94	9.84	9.6	17	1.5	○	23
 -225 CV				8.86	7.48		11.02	10.8	19.9	1.6		24
-255 CV				10.04	8.66		12.20	10.9	20.4	2.6	▲	25
-285 CV				11.22	9.84		13.39	11.6	23.5	3.2		26
CT50-SLSA3/8 -165 CV	3/ 8	.49	.06	6.50	5.12	1.18	8.66	8.9	14.9	1.5	○	27
-195 CV				7.68	6.30		9.84	9.1	15.8	2.4		28
-225 CV				8.86	7.48		11.02	9.3	16.7	3.8	▲	29
-255 CV				10.04	8.66		12.20	9.8	19.3	5		30
-285 CV				11.22	9.84		13.39	11.0	22.5	5.2		31
-315 CV				12.40	11.02		14.57	11.5	24.4	6.9		32

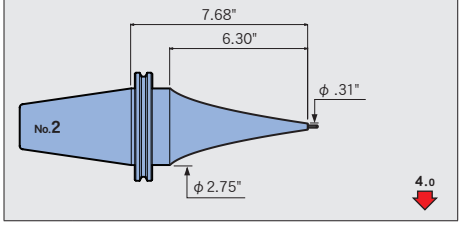
CODE	ϕD	ϕC	t	L	M	H	h	lbs	N	S		Scale model
CT50-SLRA3/8-165 CV	3/8	.73	.18	6.50	5.12	1.18	8.66	8.8	15.4	1	×	33
-195 CV				7.68	6.30		9.84	9.2	16.9	1.5	○	34
-225 CV				8.86	7.48		11.02	10.1	18.5	1.9	▲	35
-255 CV				10.04	8.66		12.20		20.1	3		36
-285 CV				11.22	9.84		13.39	11.3	23.3	3.3		37
-SLFA3/8-165 CV	3/8	.73	.18	6.50	5.12	1.18	8.66	8.8	15.4	1	×	38
 -195 CV				7.68	6.30		9.84	9.2	16.9	1.5	○	39
-225 CV				8.86	7.48		11.02	10.1	18.5	1.9	▲	40
-255 CV				10.04	8.66		12.20		20.1	3		41
-285 CV				11.22	9.84		13.39	11.3	23.3	3.3		42
CT50-SLSA1/2-165 CV	1/2	.62	.06	6.50	5.12	1.18	8.66	8.9	15.8	1.2	○	43
-195 CV				7.68	6.30		9.84	9.3	17.5	1.9		44
-225 CV				8.86	7.48		11.02	9.8	19.1	2.7		45
-255 CV				10.04	8.66		12.20	10.3	20.8	3.8	▲	46
-285 CV				11.22	9.84		13.39	10.7	26.5	4.7		47
-315 CV				12.40	11.02		14.57	11.4	28.8	5.2		48
-SLRA1/2-165 CV	1/2	.89	.20	6.50	5.12	1.18	8.66	9.2	16.4	0.8	×	49
-195 CV				7.68	6.30		9.84	9.5	17.8	1.3		50
-225 CV				8.86	7.48		11.02	10.7	21	1.4	○	51
-255 CV				10.04	8.66		12.20	11.0	22.4	2.1	▲	52
-285 CV				11.22	9.84		13.39	11.9	29.6	2.3		53
-SLFA1/2-165 CV	1/2	.89	.20	6.50	5.12	1.18	8.66	9.2	16.4	0.8	×	54
 -195 CV				7.68	6.30		9.84	9.5	17.8	1.3		55
-225 CV				8.86	7.48		11.02	10.7	21	1.4	○	56
-255 CV				10.04	8.66		12.20	11.0	22.4	2.1	▲	57
-285 CV				11.22	9.84		13.39	11.9	29.6	2.3		58
CT50-SLSB5/8-165 CV	5/8	.82	.10	6.50	5.12	1.26	8.66	8.6	17.5	1.1		59
-195 CV				7.68	6.30		9.84	9.3	20.2	1.5		60
-225 CV				8.86	7.48		11.02	9.9	22.9	2		61
-255 CV				10.04	8.66		12.20	10.1	24.3	3.1		62
-285 CV				11.22	9.84		13.39	10.7	27	3.9		63
-315 CV				12.40	11.02		14.57	11.4	29.7	4.8		64
CT50-SLSB3/4-165 CV	3/4	.99	.12	6.50	5.12	1.50	8.66	9.1	19	0.8		65
-195 CV				7.68	6.30		9.84	9.7	21.9	1.2		66
-225 CV				8.86	7.48		11.02	9.8	23.9	1.8		67
-255 CV				10.04	8.66		12.20	10.4	26.8	2.5		68
-285 CV				11.22	9.84		13.39	11.1	29.7	3.2		69
-315 CV				12.40	11.02		14.57	11.7	32.6	4.1		70

ϕ3/16

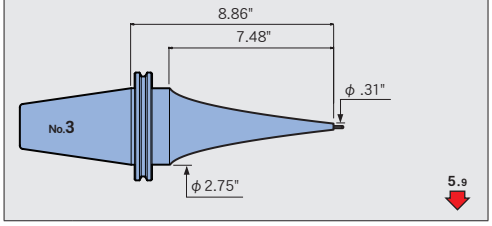
CT50-SLSA3/16-165 CV



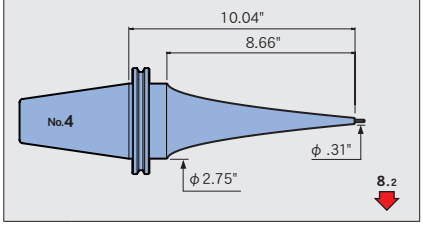
CT50-SLSA3/16-195 CV



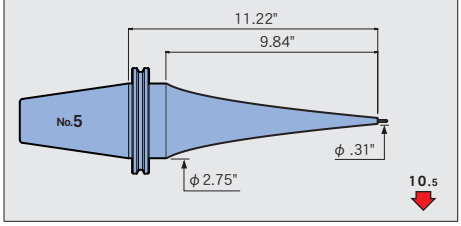
CT50-SLSA3/16-225 CV



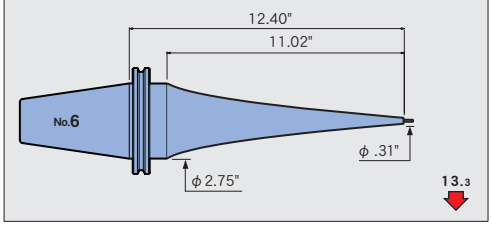
CT50-SLSA3/16-255 CV



CT50-SLSA3/16-285 CV

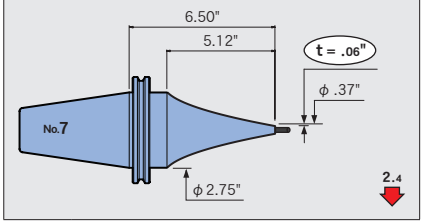


CT50-SLSA3/16-315 CV

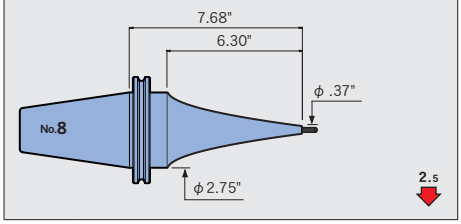


ϕ1/4

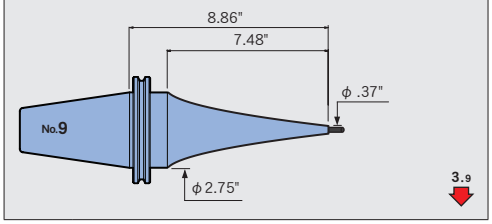
CT50-SLSA1/4-165 CV



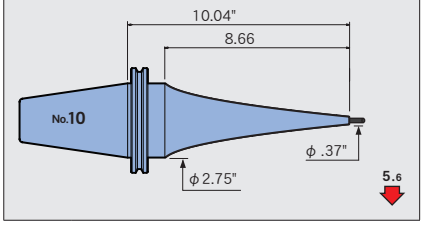
CT50-SLSA1/4-195 CV



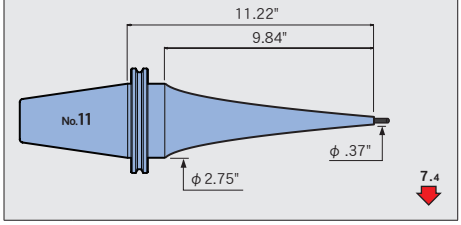
CT50-SLSA1/40-225 CV



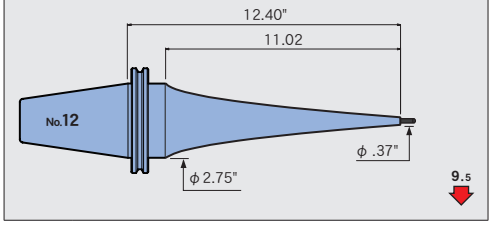
CT50-SLSA1/4-255 CV



CT50-SLSA1/4-285 CV

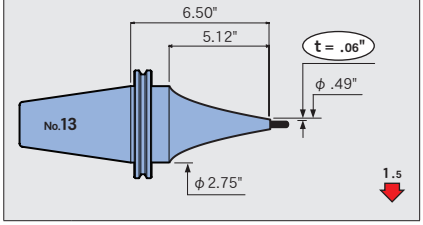


CT50-SLSA1/4-315 CV

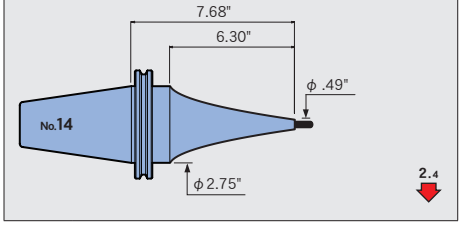


ϕ5/16

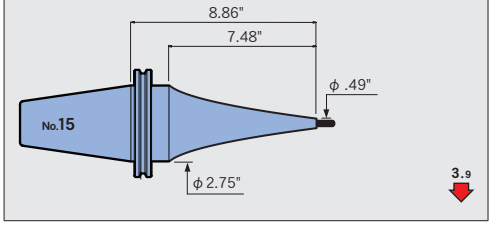
CT50-SLSA5/16-165 CV



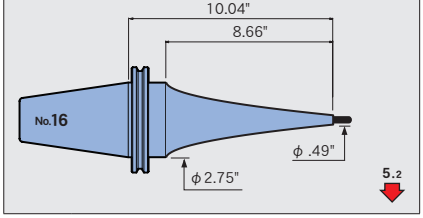
CT50-SLSA5/16-195 CV



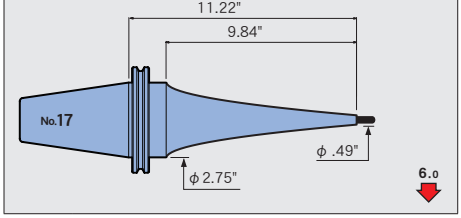
CT50-SLSA5/16-225 CV



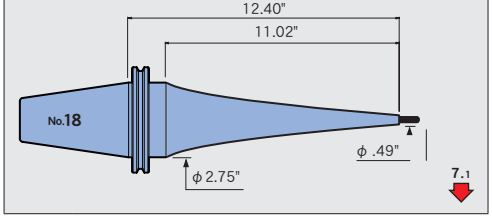
CT50-SLSA5/16-255 CV



CT50-SLSA5/16-855 CV

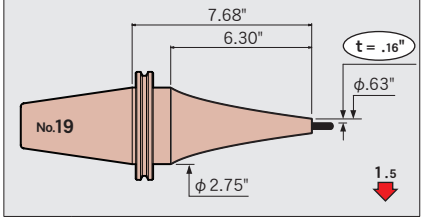


CT50-SLSA5/16-315 CV

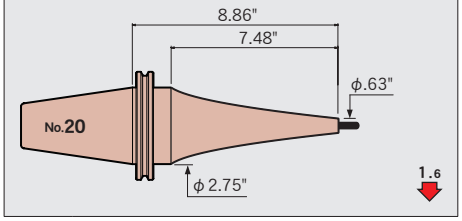


CT50 S=1:7

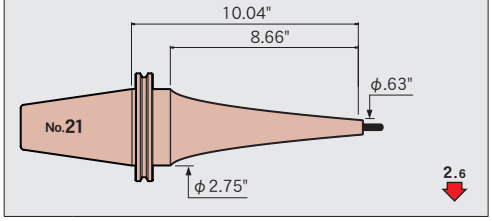
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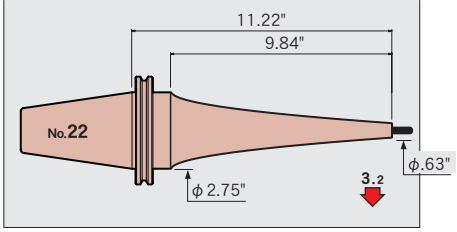
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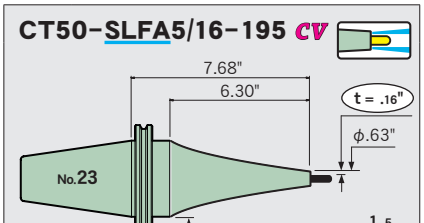
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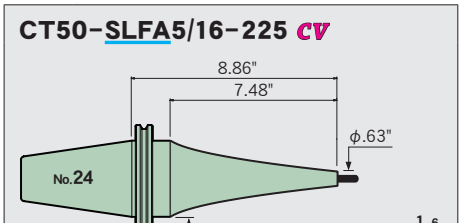
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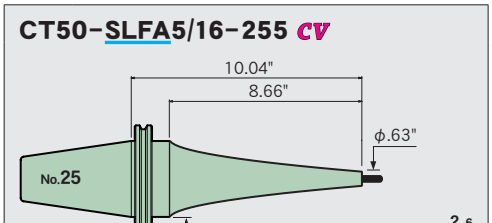
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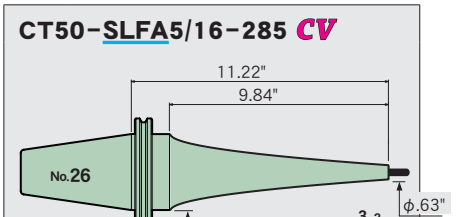
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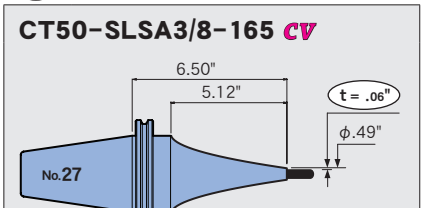


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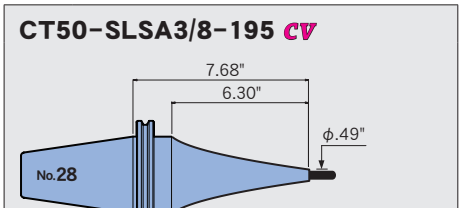


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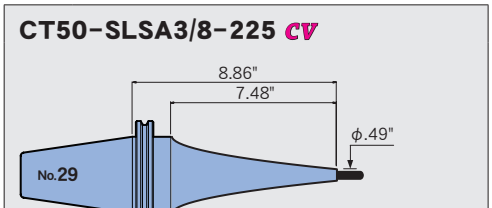
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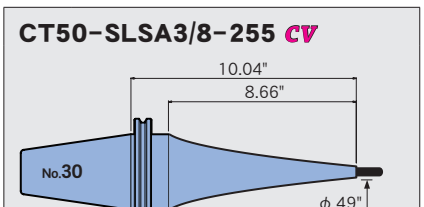
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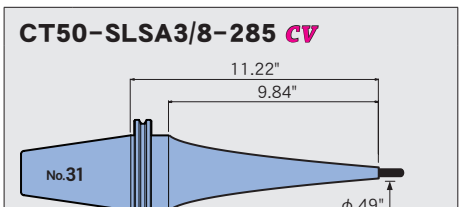
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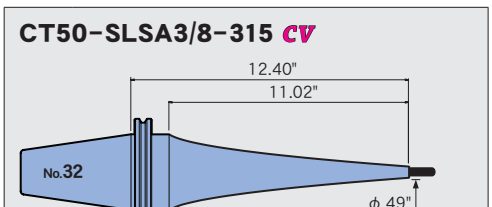
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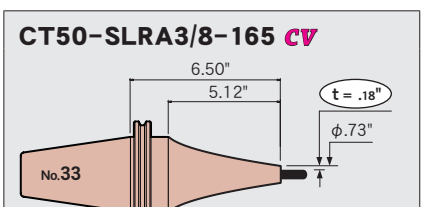
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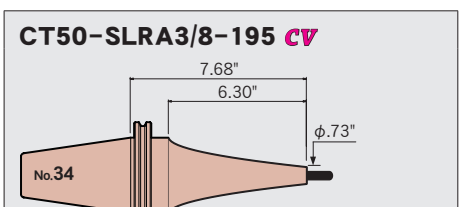
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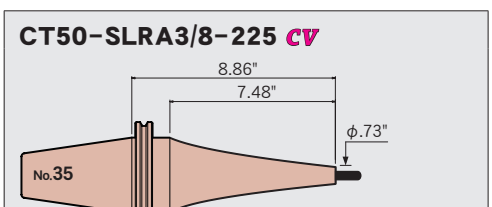
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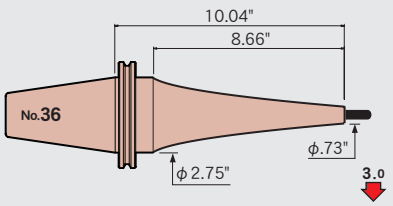
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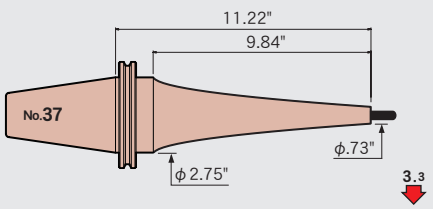
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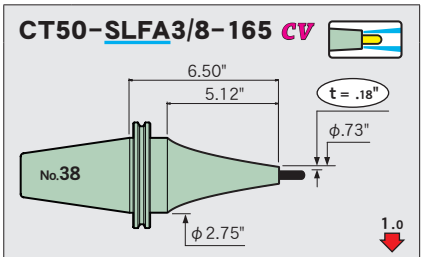
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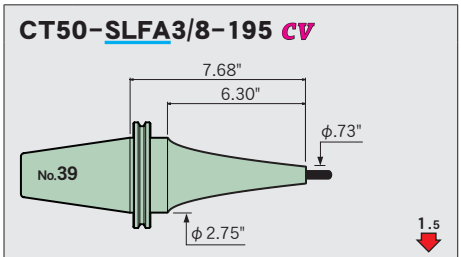
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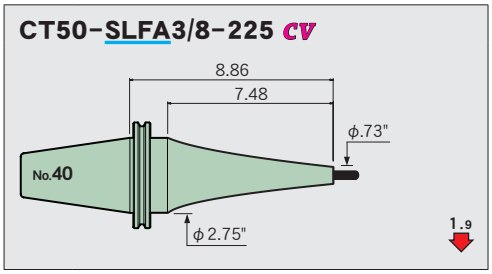
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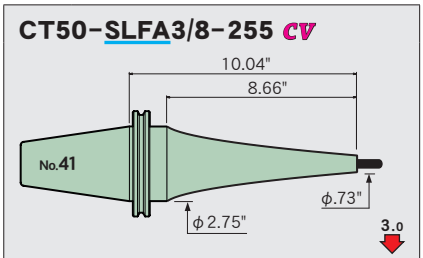
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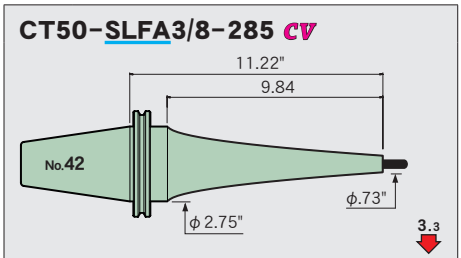
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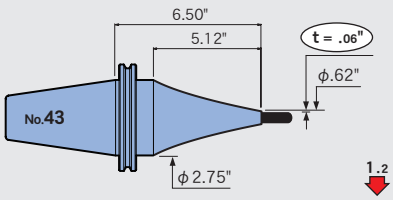


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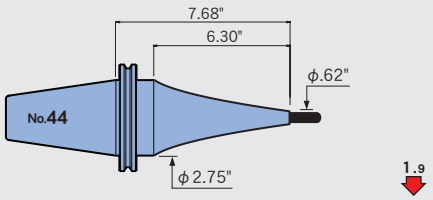


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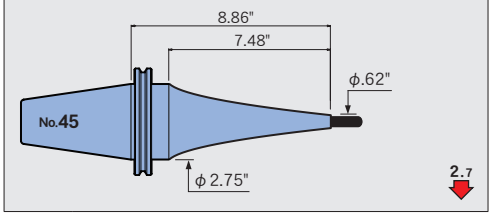
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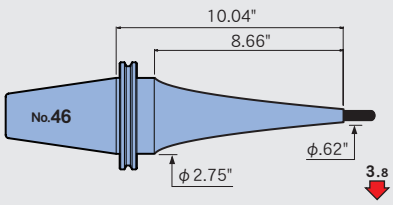
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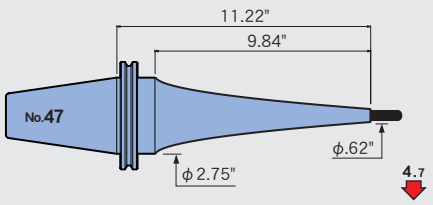
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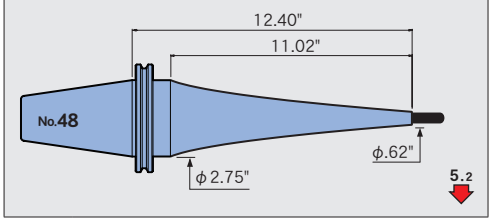
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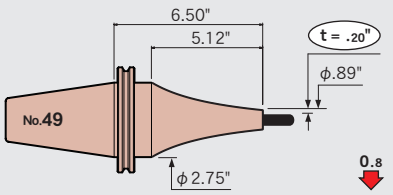
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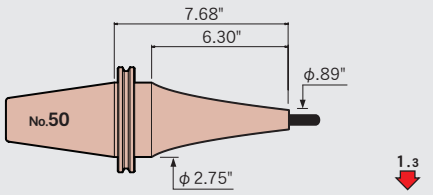
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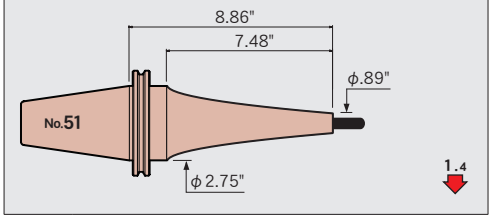
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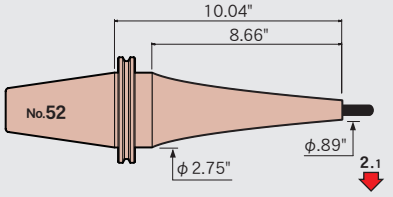
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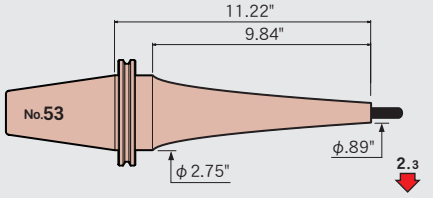
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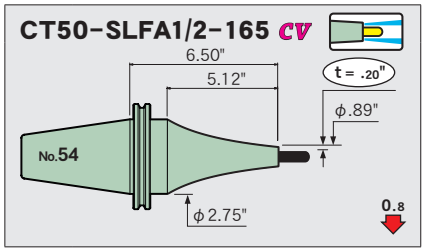


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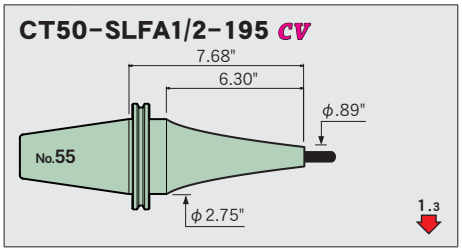


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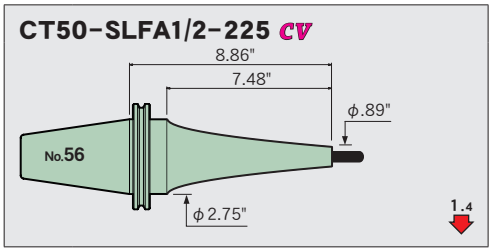
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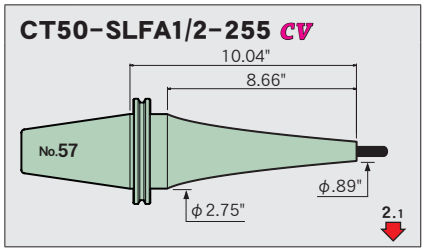
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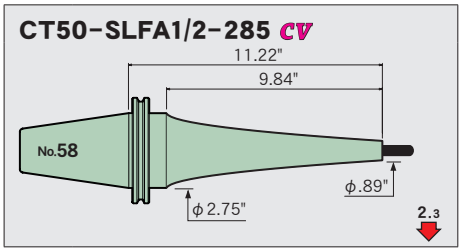
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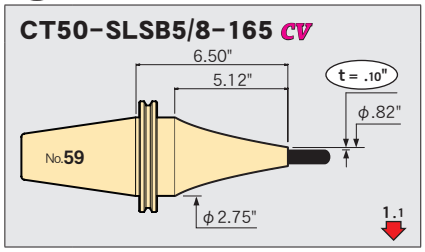


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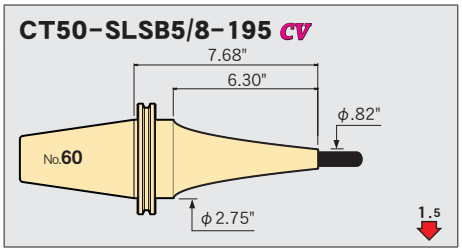


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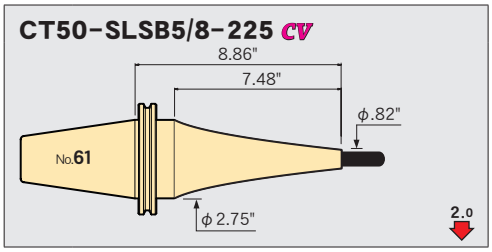
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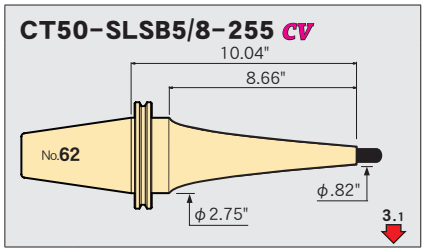
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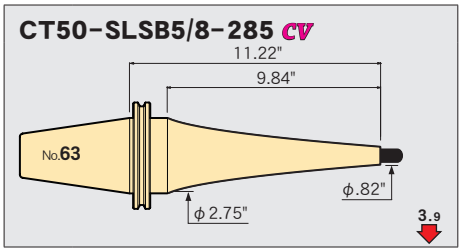
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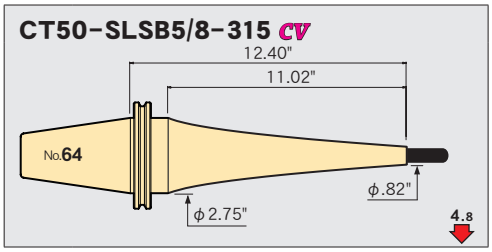
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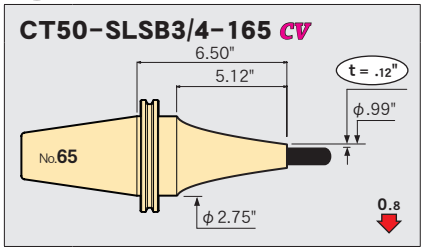


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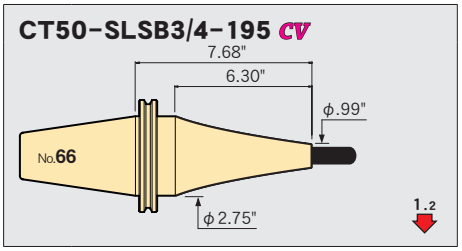


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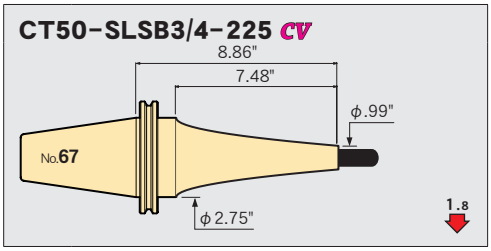
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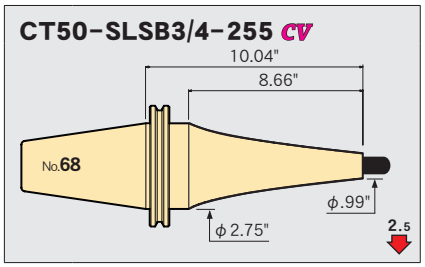
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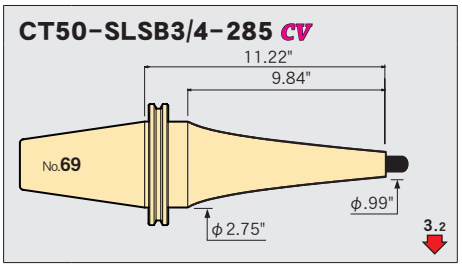
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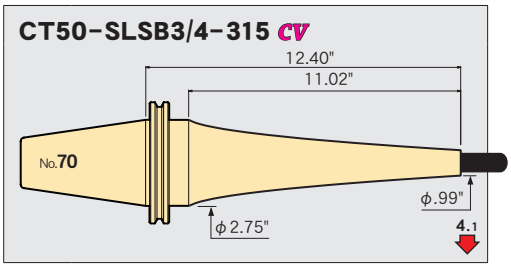
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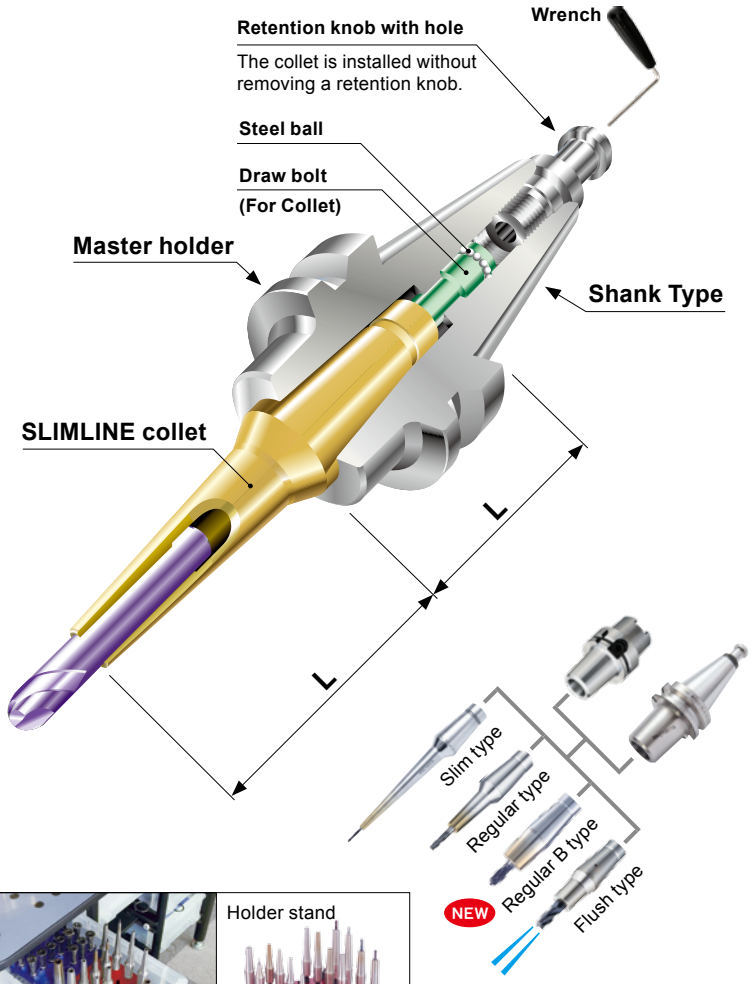
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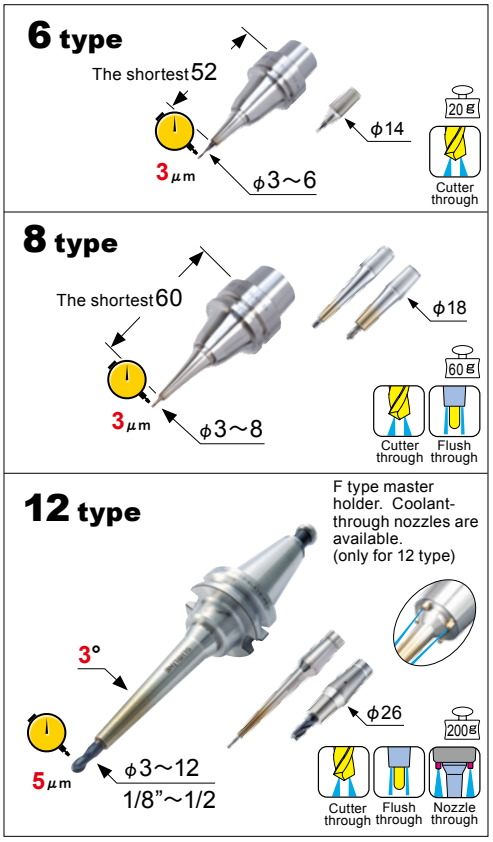


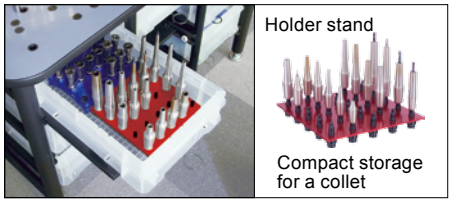
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2 PIECE type







MASTER HOLDER

BT40 – SL K 12 – 45 F

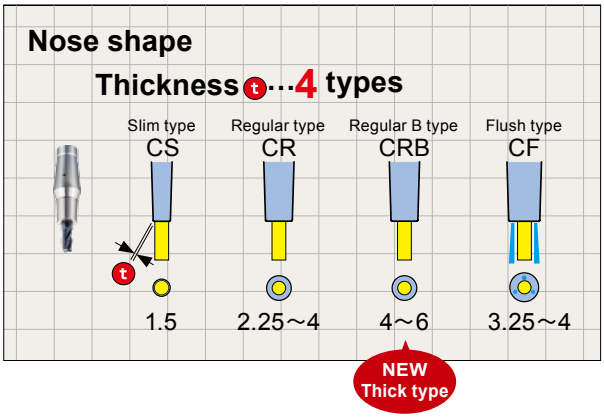
Shank Type | SLIMLINE | Type | L | Coolant-through

PAGE			Inch
214	6 type	BT30 HSK-A40, A50 HSK-E32, E40, E50	–
215	8 type	BT30, BT40 HSK-A40, A50, A63 HSK-E40, E50, F63	–
216	12 type	BT30, BT40, BT50 HSK-A50, A63, A100 HSK-E50, F63 CT40, CT50 DN40, DN50	○

SLIMLINE COLLET

CS 12 – 3 – 110

Collet type | φD | L



Master holder 6 type



Fig. 1

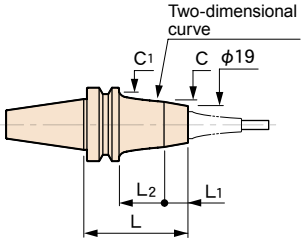
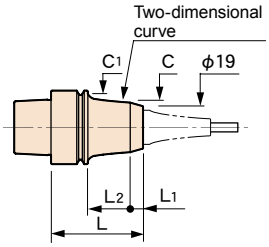


Fig. 2



CODE	Fig.	L	L1	L2	ϕC	ϕC1	Kg	N
BT30-SLK 6-35-MAS1	1	35	13	—	—	34	0.5	1.4
-MAS2								
-65-MAS1		65	15	28	25.1		0.6	2.2
-MAS2								
A40 -SLK 6-37	1	37	17	—	—	34	0.2	3
50		50	7	23	23.5		0.3	3.9
A50 -SLK 6-42	2	42	16	—	—	42	0.4	5.3
55		55	7	22	24.6		0.5	6.4
E32 -SLK 6-37	2	37	7	10	26	—	0.2	1.3
-50		50		23				2.2
E40 -SLK 6-37	2	37	17	—	—	34	0.3	1.7
-50		50	7	23	23.5			2.6
E50 -SLK 6-42	2	42	16	—	—	42	0.5	3.4
-55		55	7	22	24.6		0.6	4.4

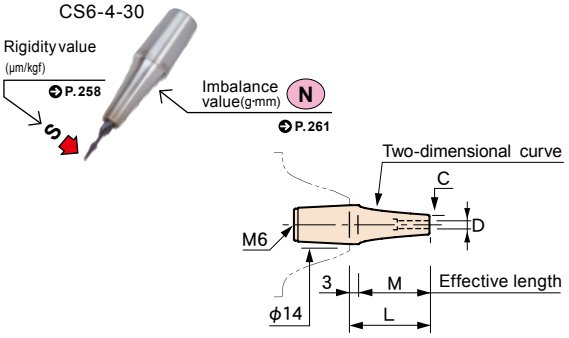
■Option
- ●SLIMLINE collet 6 type
- ●Wrench.

■Std.Access.
- ●Coolant duct (HSK-A)
- ●Retention knob (BT30)→P.244

■Note
- ● A dedicated retention knob is supplied with the BT30 as a standard accessory. When ordering,specify machine maker and model number. To replace the retention knob, please contact us.

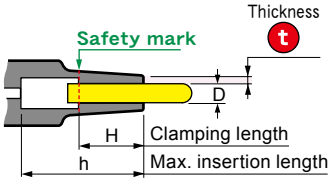
■Caution
- ● If the SLIMLINE collet can't be removed from a master holder, follow the procedure on P.256.
- ● HSK-E shank doesn't come with a coolant duct and cannot be attached. Consult us if you need it.

SLIMLINE collet 6 type



■Note
- ● S refers to the deflection value of an E32-SLK6-37 and the SLIMLINE collet 6 type combination. The values are comparable for any shank combination.

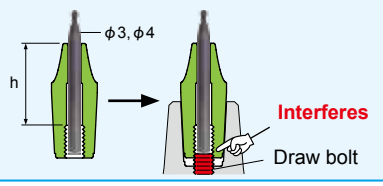
■Caution
- ●Setting cutters…Be sure to insert the tool beyond the safety mark.

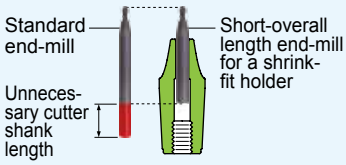


CODE	ϕD	ϕC	t (Thickness)	L	M	H	S	N	g	h
CS6-3-15	3	6	1.5	15	12	9	1.5	0.1	20	24
-30				30	27		3.2	0.2	30	39
-45				45	42		9	0.3	40	54
CR6-3-30	3	7.5	2.25	30	27	9	1.3	0.1	30	39
-45				45	42		6.2	0.3	40	54
CS6-4-15	4	7	1.5	15	12	12	1.2	0.1	30	24
-30				30	27		2.8	0.2		39
-45				45	42		7.9	0.4	40	54
CR6-4-30	4	10	3	30	27	12	1	0.1	30	39
-45				45	42		4.4	0.5	50	54
CS6-6-15	6	9	1.5	15	12	15	1	0.1	20	24
-30				30	27		2.4	0.3	30	35
-45				45	42		6.5	0.5	40	
CR6-6-30	6	12	3	30	27	15	0.8	0.2	20	35
-45				45	42		4	0.6		

⚠ Don't insert the cutter shank to the max. insertion length (h).

If the cutting tool shank face touches the bottom of the holder, the collet will not be installed properly and it may cause poor accuracy. Be sure to pay attention to this by using CS6 and CS8 with L = 15 and 25, because their "h" dimension is very short. We recommend you use the short overall length tool for SLIMLINE (6 type•8 type) because its insertion length is short.
When cutting off a tool shank, please remove any burrs on the cutting surface of the tool shank carefully.





Wrench (both for 6 and 8 type)

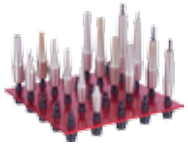
Used for clamping of master holders (type 6 & type 8) and SLIMLINE collet (type 6 & type 8).



CODE	
TW- 4	HSK-A, E, F、BT40
DW-14	BT30

Holder stand

P.13



Master holder 8 type

E40-SLK8-55



Fig. 1

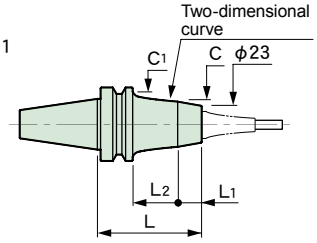
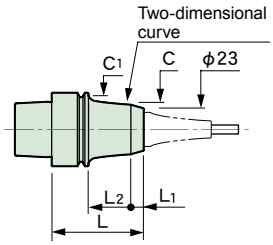


Fig. 2



CODE	Fig.	L	L1	L2	ϕC	ϕC1	Kg	N
BT30-SLK8-35-MAS1	1	35	13	—	—	34	0.4	1.5
BT30-SLK8-35-MAS2								
BT30-SLK8-65-MAS1		65	15	28	27.5		0.6	2.3
BT30-SLK8-65-MAS2								
BT40-SLK8-40	2	40	13	—	—	53	1	1.8
BT40-SLK8-70		70	15	28	31.2		1.2	2.5
A40-SLK8-50	2	50	7	23	27	34	0.3	2.5
A40-SLK8-70		70	15	35	27.3		0.4	3.3
A50-SLK8-55	2	55	7	22	28.1	42	0.5	4
A50-SLK8-75		75	15	34	28.7		0.6	4.8
A63-SLK8-55	2	55	7	22	29.5	53	0.8	5.7
A63-SLK8-75		75	15	34	30.5		0.9	5.9
E40-SLK8-50	2	50	7	23	27	34	0.3	2.1
E40-SLK8-70		70	15	35	27.3		0.4	2.9
E50-SLK8-55	2	55	7	22	28.1	42	0.6	2.7
E50-SLK8-75		75	15	34	28.7		0.7	3.5
F63M-SLK8-55	2	55	7	22	29.5	53	0.8	4.4
F63M-SLK8-75		75	15	34	30.5		1	5.2

■**Option**
- SLIMLINE collet 8 type
- Wrench

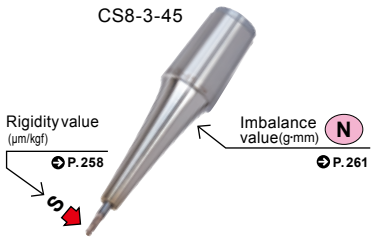
■**Std.Access.**
- Coolant duct (HSK-A)
- Retention knob (BT30)→p.244

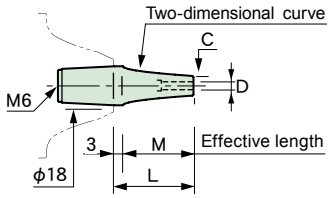
■**Note**
- A dedicated retention knob is supplied with the BT30 as a standard accessory. When ordering,specify machine maker and model number. To replace the retention knob, please contact us.

■**Caution**
- If the SLIMLINE collet can't be removed from a master holder, follow the procedure on p.256.
- HSK-E shank doesn't come with a coolant duct and cannot be attached. Consult us if you need it.

SLIMLINE collet 8 type

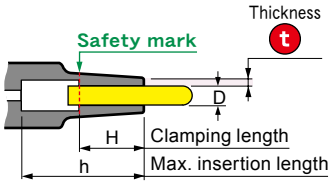
CS8-3-45





■**Note**
- S refers to the deflection value of an E40-SLK8-50 and SLIMLINE collet type 8 combination. The values are comparable for any shank combination.

■**Caution**
- Setting cutters···Be sure to insert the tool beyond the safety mark.



CODE	ϕD	ϕC	t (Thickness)	L	M	H	S	N	g	h
CS8-3-25	3	6	1.5	25	22	9	2.1	0.2	60	37.5
CS8-3-45				45	42		4.8	0.4	70	57.5
CS8-3-65				65	62		10.3	0.6	80	77.5
CR8-3-45	3	7.5	2.25	45	42	9	3.6	0.5	70	57.5
CR8-3-65				65	62		7.4	0.7	90	77.5
CF8-3-45	3	9.5	3.25	45	42	9	2.8	0.5	80	57.5
CF8-3-65				65	62		5.3	0.8	100	77.5
CS8-4-25	4	7	1.5	25	22	12	1.8	0.3	60	37.5
CS8-4-45				45	42		4.4	0.5	70	57.5
CS8-4-65				65	62		9.2	0.6	80	77.5
CR8-4-45	4	10	3	45	42	12	2.7	0.6	80	57.5
CR8-4-65				65	62		5.3	0.8	100	77.5
CF8-4-45	4	12	4	45	42	12	2.3	0.7	90	57.5
CF8-4-65				65	62		4.2	0.9	110	77.5
CS8-6-25	6	9	1.5	25	22	15	1.5	0.3	60	35
CS8-6-45				45	42		3.7	0.6	80	
CS8-6-65				65	62		7.6	0.8	90	
CR8-6-45	6	12	3	45	42	15	2.5	0.7	90	35
CR8-6-65				65	62		4.8	1	110	
CF8-6-45	6	14	4	45	42	15	2.1	0.8	100	35
CF8-6-65				65	62		3.9	1.1	120	
CS8-8-25	8	11	1.5	25	22	20	1.4	0.4	60	37
CS8-8-45				45	42		3.3	0.7	70	49
CR8-8-45	8	14	3	45	42	20	2.4	0.8	90	49
CF8-8-45	8	16	4	45	42	20	2.1	1.1	110	49

CF

Master holder 12 type

BT40-SLK12-75

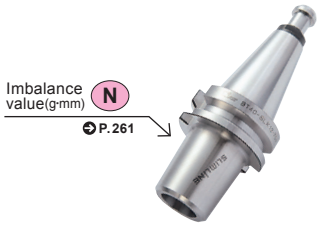


Fig. 1

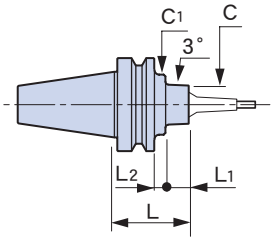
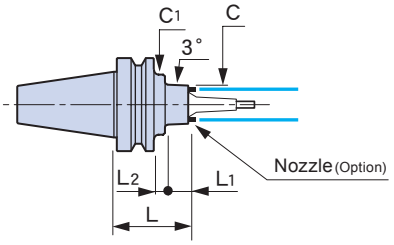


Fig. 2



A63-SLK12-75F



Fig. 3

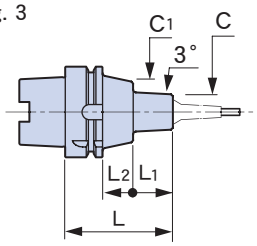
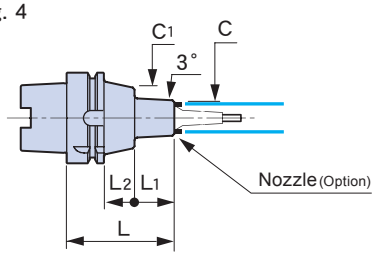
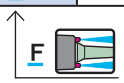


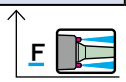
Fig. 4



CODE	Fig.	L	ϕC	L1	L2	ϕC1	Kg	N
BT30-SLK12- 35-MAS1	1	35	38	13	—	—	0.4	1
-MAS2								
BT40-SLK12- 45	1	45	38	18	—	—	1.1	1.4
- 45F	2		41					1.6
- 75	1	75	38	48			1.4	
- 75F	2		41					1.8
-135F		135		108			2.2	3.2
BT50-SLK12- 75	1	75	38	25	12	65	4	4.7
- 75F	2		41					4.9
-105F		105		55			4.4	5.3
-135F		135		85			4.7	5.7
-225	1	225	38	175			6.4	14.8
-315		315		225	52		11	31.3
A50-SLK12- 75	3	75	38	49	—	—	0.8	4.8
A63-SLK12- 75	3	75	38	49	—	—	1	5
- 75F	4		41				1.1	5.5
-135	3	135	38	109			1.7	8.5
-135F	4		41				1.9	8.6
A100-SLK12-105	3	105	38	43	33	65	3.4	41.3
-105F	4		41				3.5	41.5
-135F		135		73			3.8	42.2
-225	3	225	38	163			5.4	36.3
-315		315		253			6.4	46.5
E50-SLK12- 75	3	75	38	49	—	—	0.8	2.9
F63M-SLK12- 75	3	75	38	49	—	—	1	3.4
DN40AD-SLK12- 45	1	45	38	13.8	12.1	45	1	4.6
- 45F	2		41	7.9	18			4.3
- 75	1	75	38	43.8	12.1		1.3	5.8
- 75F	2		41	55.9	—			5.5
DN50AD-SLK12- 75	1	75	38	40	15.9	70	3.4	12.6
- 75F	2						3.5	12.3
-135F		135	41	100			4.3	19



CODE	Fig.	L	ϕ C	L1	L2	ϕ C1	lbs	N
CT40-SLK12- 45	1	1.77	1.61	1.02	—	1.75	2.4	2.4
- 45F	2						2.2	2.8
- 75	1	2.95	1.50	2.20			2.9	3.5
- 75F	2		1.61				3.1	3.9
-135F		5.31		4.56			4.6	6.8
CT50-SLK12- 75	1	2.95	1.50	1.57	.63	2.75	7.5	7.9
- 75F	2		1.61				7.7	8.3
-105F		4.13		2.76			8.6	11.3
-135F		5.31		3.94			9.5	14.4
-225	1	8.86	1.50	7.48			12.6	23
-315		12.40		8.86	2.79		17.6	28



■**Option**
- ●SLIMLINE collet 12type
- ●Wrench (W-135)
- ●Nozzles (nozzle model: NOZ)
- ●Retention knob (BT40, 50/ CT/ DN)

■**Std.Access.**
- ●Coolant duct, (HSK-A)
- ●Retention knob (BT30)

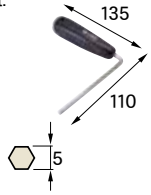
■**Note**
- ● A dedicated retention knob is supplied with the BT30 as a standard accessory. When ordering,specify machine maker and model number. To replace the retention knob, please contact us.

■**Caution**
- ● If the SLIMLINE collet can't be removed from a master holder, follow the procedure on p.256.
- ● HSK-E and F shank don't come with a coolant duct and cannot be attached. Consult us if you need it.

Wrench

Required for clamping the master holder and SLIMLINE collet.

CODE
W-135

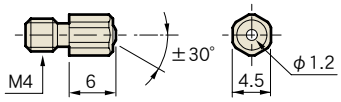


■**Note**
- ● To fasten the BT30, use a commercially available 14 mm single-ended wrench.

Nozzle (For F-type)

CODE	Q'ty
NOZ-M4-12	12
-60	60





■**Std. Access.**
- ● Tightening wrench

■**Note**
- ● Four nozzles are required on the flush type master holder.

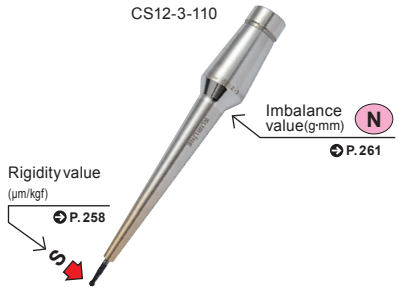
Retention knob with hole

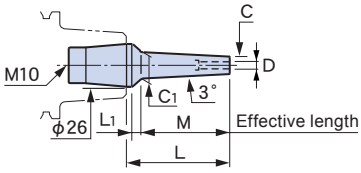
There is no need to remove a retention knob with 6mm coolant-through hole when tightening or loosening SLIMLINE collet.





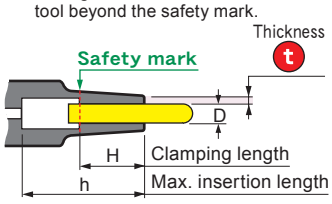
SLIMLINE collet 12 type





■Note
- S refers to the deflection value of an BT40-SLK12-45 and the SLIMLINE collet 12 type combination. The values below are comparable for any shank combination.

■Caution
- Setting cutters···Be sure to insert the tool beyond the safety mark.



Thickness

CODE	φD	φC	t	L	M	L1	φC1	H	S	N	Kg lbs	h
CS12- 3- 35	3	6	1.5	35	22	9.5	8.4	10	4.8	0.5	0.2	60
- 55				55	42		10.5		9.5			80
- 80				80	67		13.1		15	0.7		105
-110				110	97		16.2		20.6	0.8		135
CR12- 3- 35	3	7.5	2.25	35	22	9.5	9.9	10	2.9	0.5	0.2	60
- 55				55	42		12		5.5			80
- 80				80	67		14.6		8.9	0.7		105
CF12- 3- 35	3	9.5	3.25	35	22	9.5	11.9	10	1.9	0.5	0.2	60
- 55				55	42		14		3.3	0.6		80
- 80				80	67		16.6		5.3	0.8		105
CS12-3.175- 35	3.175	6.175	1.5	35	22	9.5	8.5	10	4.6	0.5	0.2	60
- 55				55	42		10.6		9			80
- 80				80	67		13.2		14.3	0.7		105
-110				110	97		16.4		19.7	0.8		135
CS12-1/8- 35	1/8	.24	.059	1.38	.87	.37	.33	.39	4.4	0.5	0.35	2.56
- 55				2.17	1.65		.42		8.7	0.6	0.37	3.35
- 80				3.15	2.64		.52		14	0.7	0.42	4.33
-110				4.33	3.82		.64		19.3	0.9	0.49	5.51
CR12-1/8- 35	1/8	.36	.118	1.38	.87	.37	.45	.39	2	0.5	0.37	2.56
-55				2.17	1.65		.53		3.5	0.6	0.42	3.35
-80				3.15	2.64		.64		5.7	0.8	0.49	4.33
CF12-1/8- 35	1/8	.38	.128	1.38	.87	.37	.47	.39	1.8	0.6	0.40	2.56
-55				2.17	1.65		.55		3.1	0.7	0.42	3.35
-80				3.15	2.64		.66		5.1	0.9	0.49	4.33
CS12- 4- 35	4	7	1.5	35	22	9.5	9.4	12	3.8	0.5	0.2	60
- 55				55	42		11.5		7.5			80
- 80				80	67		14.1		11.9	0.7		105
-110				110	97		17.2		16.6	0.9		135
CR12- 4- 35	4	10	3	35	22	9.5	12.4	12	1.7	0.5	0.2	60
- 55				55	42		14.5		3.1	0.6		80
- 80				80	67		17.1		5.1	0.8		105
CF12- 4- 35	4	12	4	35	22	9.5	14.4	12	1.3	0.6	0.2	60
- 55				55	42		16.5		2.2	0.8		80
- 80				80	67		19.1		3.4	0.9		105
CS12-3/16- 35	3/16	.31	.059	1.38	.87	.37	.40	.59	3.1	0.6	0.35	2.56
- 55				2.17	1.65		.48		6.2	0.7	0.37	3.35
- 80				3.15	2.64		.58		10.3	0.8	0.42	4.33
-110				4.33	3.82		.71		14.2	1	0.53	5.51
CR12-3/16- 35	3/16	.42	.118	1.38	.87	.37	.51	.59	1.5	0.6	0.37	2.56
- 55				2.17	1.65		.60		2.7	0.7	0.42	3.35
- 80				3.15	2.64		.70		4.5	0.9	0.51	4.33

CODE	ϕD	ϕC	t	L	M	L_1	$ϕC_1$	H	S	N	Kg lbs	h
CF12-3/16 - 35	3/16	.50	.157	1.38	.87	.37	.59	.59	1.2	0.7	0.40	2.56
-55				2.17	1.65		.68		1.9	0.8	0.46	3.35
-80				3.15	2.64		.78		3.1	1	0.55	4.33
CS12- 5- 35	5	8	1.5	35	22	9.5	10.4	15	3	0.5	0.2	60
- 55				55	42		12.5		6	0.6		80
- 80				80	67		15.1		9.7	0.8		105
-110				110	97		18.2		13.6	1		135
CS12- 6- 35	6	9	1.5	35	22	9.5	11.4	18	2.4	0.5	0.2	60
- 55				55	42		13.5		4.9	0.7		80
- 80				80	67		16.1		8	0.8		105
-110				110	97		19.2		11.4	1		135
CR12- 6- 35	6	12	3	35	22	9.5	14.4	18	1.3	0.6	0.2	60
- 55				55	42		16.5		2.4	0.7		80
- 80				80	67		19.1		3.9	0.9		105
CRB12-6- 35	6	14	4	35	22	9.5	16.3	18	1.0	0.7	0.2	60
NEW - 55				55	42		18.0		1.7	0.8		80
- 80				80	67		21.0		2.7	1.0	0.3	105
CF12- 6- 35	6	14	4	35	22	9.5	16.4	18	1	0.7	0.2	60
- 55				55	42		18.5		1.7	0.9		80
- 80				80	67		21.1		2.7		0.3	105
CS12-1/4- 35	1/4	.37	.059	1.38	.87	.37	.46	.71	2.2	0.6	0.35	2.56
- 55				2.17	1.65		.54		4.5	0.7	0.40	3.35
- 80				3.15	2.64		.64		7.4	0.9	0.46	4.33
-110				4.33	3.82		.77		10.5	1.1	0.57	5.51
CR12-1/4- 35	1/4	.49	.118	1.38	.87	.37	.58	.71	1.2	0.6	0.40	2.56
-55				2.17	1.65		.66		2.2	0.8	0.44	3.35
-80				3.15	2.64		.76		3.7	1	0.55	4.33
CF12-1/4- 35	1/4	.56	.157	1.38	.87	.37	.66	.71	1	0.8	0.42	2.56
-55				2.17	1.65		.74		1.9	0.9	0.49	3.35
-80				3.15	2.64		.84		2.6	1.1	0.60	4.33
CS12- 7- 35	7	10	1.5	35	22	9.5	12.4	20	2	0.6	0.2	60
- 55				55	42		14.5		4.1	0.7		80
- 80				80	67		17.1		6.8	0.9		105
-110				110	97		20.2		9.7	1.2	0.3	135
CS12-5/16- 35	5/16	.43	.059	1.38	.87	.37	.52	.98	1.6	0.6	0.37	2.56
- 55				2.17	1.65		.60		3.3	0.8	0.40	3.35
- 80				3.15	2.64		.71		5.6	1	0.49	4.33
-110				4.33	3.82		.83		8.1	1.2	0.62	5.51
CR12-5/16 -35	5/16	.55	.118	1.38	.87	.37	.64	.98	1	0.7	0.40	2.56
-55				2.17	1.65		.72		1.9	0.8	0.46	3.35
-80				3.15	2.64		.83		3.1	1	0.57	4.33
CF12-5/16 -35	5/16	.55	.118	1.38	.87	.37	.64	.98	1	0.7	0.40	2.56
-55				2.17	1.65		.72		1.9	0.8	0.46	3.35
-80				3.15	2.64		.83		3.1	1	0.57	4.33
CS12- 8- 35	8	11	1.5	35	22	9.5	13.4	25	1.6	0.6	0.2	60
- 55				55	42		15.5		3.4	0.7		80
- 80				80	67		18.1		5.6	0.9		105
-110				110	97		21.2		8.2	1.2	0.3	135
CR12- 8- 35	8	14	3	35	22	9.5	16.4	25	1.1	0.6	0.2	60
- 55				55	42		18.5		1.9	0.8		80
- 80				80	67		21.1		3.1	1	0.3	105
CRB12- 8- 35	8	18	5	35	22	9.5	20.3	25	0.7	0.7	0.2	60
NEW - 55				55	42	6.5	22.4		1.1	0.9		80
- 80				80	—	—	—		1.8		0.3	105
CF12- 8- 35	8	16	4	35	22	9.5	18.4	25	0.9	0.8	0.2	60
- 55				55	42		20.5		1.4	1		80
- 80				80	67		23.1		2.3	1.2	0.3	105

CODE	ϕD	ϕC	t	L	M	L_1	$ϕC_1$	H	S	N	Kg lbs	h
CS12- 9- 35	9	12	1.5	35	22	9.5	14.4	30	1.4	0.7	0.2	60
- 55				55	42		16.5		2.9	0.9		
- 80				80	67		19.1		4.8	1.1		
-110				110	97		22.2		7.1	1.3	0.3	
CS12-3/8- 35	3/8	.49	.059	1.38	.87	.37	.58	1.18	1.3	0.7	0.35	2.36
- 55				2.17	1.65		.67		2.6	0.8	0.42	
- 80				3.15	2.64		.77		4.4	1	0.51	
-110				4.33	3.82		.89	.98	6.4	1.3	0.66	
CR12-3/8 -35	3/8	.61	.118	1.38	.87	.37	.70	1.18	0.9	0.7	0.40	2.36
-55				2.17	1.65		.78		1.6	0.9	0.49	
-80				3.15	2.64		.89		2.6	1.1	0.62	
CF12-3/8 -35	3/8	.69	.157	1.38	.87	.37	.78	1.18	0.8	0.9	0.42	2.36
-55				2.17	1.65		.86		1.3	1.1	0.53	
-80				3.15	2.64		.97		2	1.3	0.68	
CS12-10- 35	10	13	1.5	35	22	9.5	15.4	30	1.3	0.8	0.2	60
- 55				55	42		17.5		2.5	0.9		
- 80				80	67		20.1		4.3	1.1		
-110				110	97		23.2		6.2	1.4	0.3	
CR12-10- 35	10	16	3	35	22	9.5	18.4	30	0.9	0.7	0.2	60
- 55				55	42		20.5		1.6	0.9		
- 80				80	67		23.1		2.6	1.1	0.3	
CRB12-10- 35	10	22	6	35	22	9.5	24.3	30	0.6	0.9	0.2	60
NEW - 55				55	—	—	25.5		0.9		0.3	
NEW - 80				80					1.5	1.1	0.4	
CF12-10- 35	10	18	4	35	22	9.5	20.4	30	0.7	0.9	0.2	60
- 55				55	42		22.5		1.1	1.1		
- 80				80	—	—	—		1.9	1	0.3	
CS12-11- 35	11	14	1.5	35	22	9.5	16.4	30	1.1	0.9	0.2	60
- 55				55	42		18.5		2.3	1		
- 80				80	67		21.1		3.8	1.3		
-110				110	97		24.2		5.6	1.5	0.3	
CS12-12- 35	12	15	1.5	35	22	9.5	17.4	30	1	1	0.2	60
- 55				55	42		19.5		2.1	1.1		
- 80				80	67		22.1		3.5	1.4		
-110				110	—	—	—		5	1.3	0.3	
CR12-12- 35	12	20	4	35	22	9.5	22.4	30	0.7	0.9	0.2	60
- 55				55	42		24.5		1.1	1.1		
- 80				80	—	—	25.5		1.9	1	0.3	
CF12-12- 35	12	20	4	35	22	9.5	22.4	30	0.7	1	0.2	60
- 55				55	42		24.5		1.1	1.2		
- 80				80	—	—	—		1.9	1.1	0.3	
CS12-1/2- 35	1/2	.62	.059	1.38	.87	.37	.71	1.18	0.9	0.9	0.33	2.36
- 55				2.17	1.65		.79		1.9	1.1	0.42	
- 80				3.15	2.64		.89		3.1	1.3	0.55	
-110				4.33	3.68	.50	1		4.8	1.7	0.77	
CR12-1/2 -35	1/2	.81	.157	1.38	.87	.37	.91	1.18	0.6	1	0.42	2.36
-55				2.17	1.99	—	—		1.1	0.9	0.55	
-80				3.15	1.80	1.20	1		1.8	2.2	0.75	
CF12-1/2 -35	1/2	.81	.157	1.38	.87	.37	.91	1.18	0.6	1.1	0.40	2.36
-55				2.17	1.99	—	—		1.1	1	0.55	
-80				3.15	1.80	1.20	1		1.8	2.3	0.75	

Holder stand

Stands for SLIMLINE COLLETS, STRAIGHT arbor and compact holders (HSK-E25, E32).
Selectable from four colors. Convenient to make arrangements by color-coding, etc.

CODE	Colors	Front face	Back face	Storage capacity
SDKT-RE	Red	SLIMLINE collet STRAIGHT arbor	Small shank holders (HSK-E25/E32)	25 pieces each
-BL	Blue			
-GR	Green			
-GD	Gold			



Size: 190×190[mm]

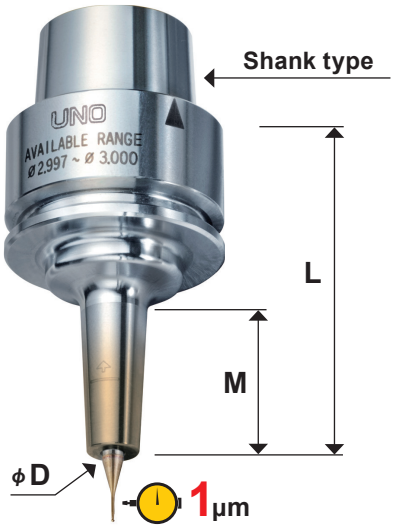


Front face



Back face

UNO



Run-out accuracy **1μm**

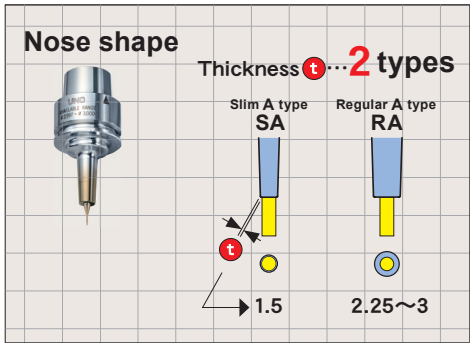


E32 – SL SA 3 – 50 – M22 UNO

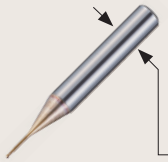
- E32 — Shank type
- SL — SLIMLINE
- SA — Nose shape
- 3 — ϕD
- 50 — L
- M22 — Effective length
- UNO — UNO / BLACK UNO

UNO
- E25
- E32
- E40
- E50
- F63

BLACK UNO
- E25
- E32



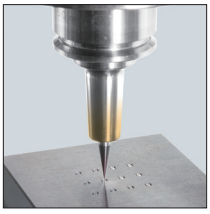
Required cutter shank tolerance



- ϕD=h4 tolerance
- Roundness = 0.3μm
- Cylindricality = 0.5μm

Recommended cutting tools

OSG
株式会社イワタツール IWATA TOOL Co., Ltd.
NS TOOL
住友電工 SUMITOMO ELECTRIC
MOLDINO The Edge To Innovation
KYOWA
UNION TOOL
EISEN

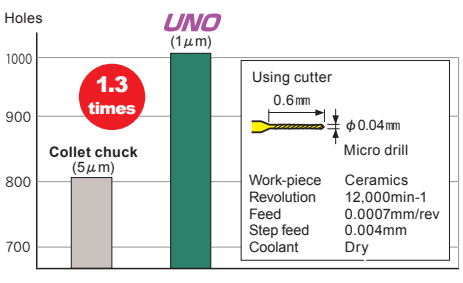




It allows superior finishing surface quality and extends the tool life of micro-cutting tools.

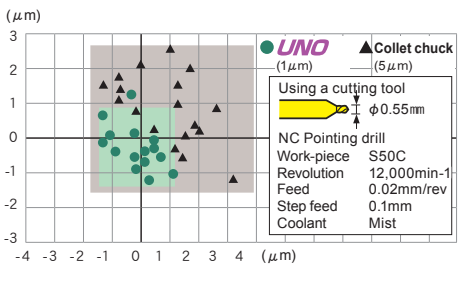
Runout accuracy / Tool life

Number of machined small-diameter holes



Positioning accuracy

Dispersion of run-out of drill and hole positioning accuracy



Eye-mark (▲) at the highest run-out direction.

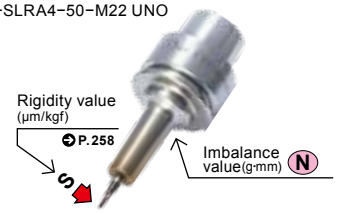
We inspect all the holders and mark "▲" at the highest run-out point.

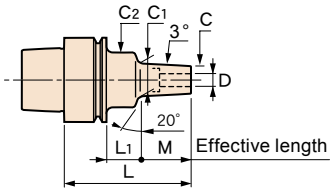


Delivered with the accuracy inspection sheet.

UNO

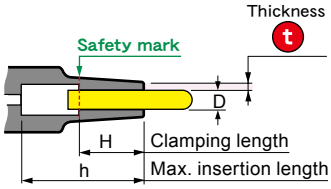
E32-SLRA4-50-M22 UNO





■Note
- SLIMLINE UNO is available for other shank designs and internal bore sizes not listed in this chart. For more information, please contact us.

■Caution
- HSK-E and F shank don't come with a coolant duct and cannot be attached. Consult us if you need it.
- Setting cutters･･･Be sure to insert the tool beyond the Safety mark.

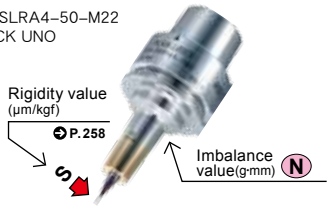


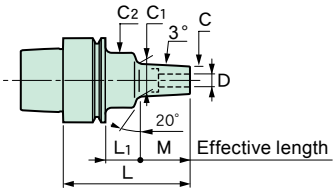
Thickness

CODE	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg	N	S
E25-SLRA3-35 UNO	3	7.5	2.25	35	17	8	9.3	18	9	29	0.05	0.37	2.3
-SLRA4-35 UNO	4	10	3				11.8		12		0.06	0.38	1.4
-SLSA3.175-35 UNO	3.175	6.175	1.5				8		9		0.05	0.37	3.5
E32-SLRA3-50-M22 UNO	3	7.5	2.25	50	22	8	9.8	20	9	42	0.14	0.4	2.8
-SLRA4-50-M22 UNO	4	10	3				12.3		12	35	0.15		1.7
-SLSA3.175-50-M22 UNO	3.175	6.175	1.5				8.5		9	42	0.14		4.4
E40-SLRA3-50-M22 UNO	3	7.5	2.25	50	22	8	9.8	20	9	42	0.2	0.7	2.8
-SLRA4-50-M22 UNO	4	10	3				12.3		12				1.6
-SLSA3.175-50-M22 UNO	3.175	6.175	1.5				8.5		9				4.4
E50-SLRA3-75-M22 UNO	3	7.5	2.25	75	22	27	9.8	25	9	65	0.5	1.7	2.8
-SLRA4-75-M22 UNO	4	10	3				12.3		12				1.7
F63-SLRA3-75-M22 UNO	3	7.5	2.25	75	22	27	9.8	25	9	54	0.7	1.8	2.8
-SLRA4-75-M22 UNO	4	10	3				12.3		12	58			1.7

BLACK UNO

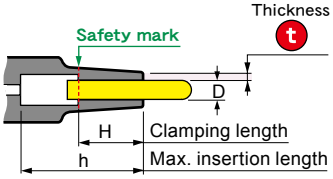
E32-SLRA4-50-M22
BLACK UNO





■Note
- ϕ6 cutter shank is available upon request.

■Caution
- HSK-E shank doesn't come with a coolant duct and cannot be attached. Consult us if you need it.
- Setting cutters･･･Be sure to insert the tool beyond the Safety mark.



Thickness

CODE	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg	N	S
E25-SLRA3-35 BLACK UNO	3	7.5	2.25	35	17	8	9.3	18	9	29	0.05	0.37	2.3
-SLRA4-35 BLACK UNO	4	10	3				11.8		12		0.06	0.38	1.4
-SLSA3.175-35 BLACK UNO	3.175	6.175	1.5				8		9		0.05	0.37	3.5
E32-SLRA3-50-M22 BLACK UNO	3	7.5	2.25	50	22	8	9.8	20	9	42	0.14	0.4	2.8
-SLRA4-50-M22 BLACK UNO	4	10	3				12.3		12	35	0.15		1.7
-SLSA3.175-50-M22 BLACK UNO	3.175	6.175	1.5				8.5		9	42	0.14		4.4

Holder stand
P.13

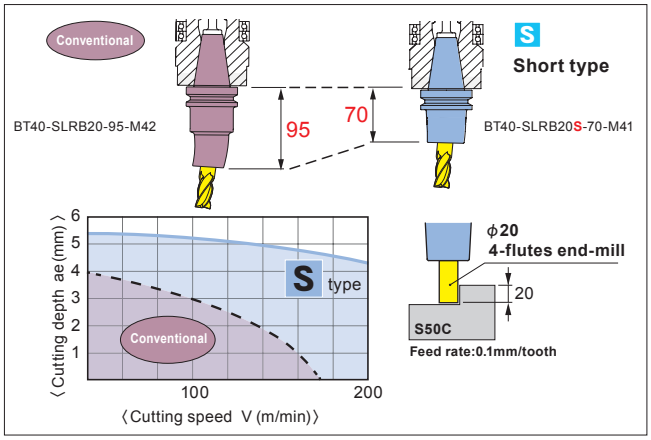


HYPER VERSION

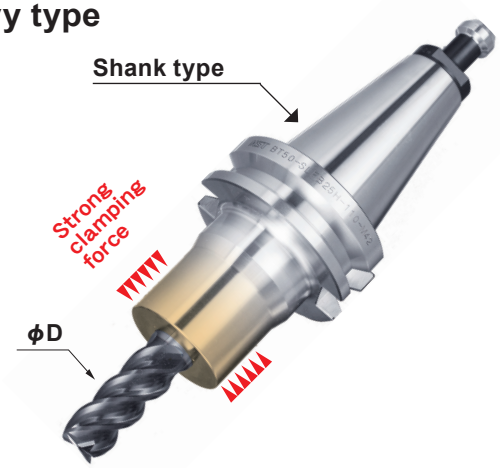
S Short type



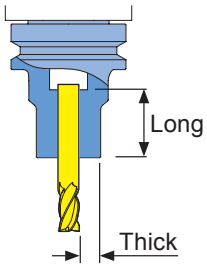
Machining efficiency 2 times
(Compared to conventional holders.)



H Heavy type



High gripping force 1.4 times
(Compared to conventional holders.)



BT40 – SL RB 20 S – 60 – M42

- BT40: Shank type
- SL: SLIMLINE
- RB: Nose shape
- 20: ϕD
- S: HYPER VERSION
- 60: L
- M42: Effective length

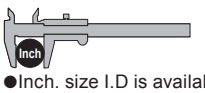
S Short type

BT30
BT40
A63

H Heavy type

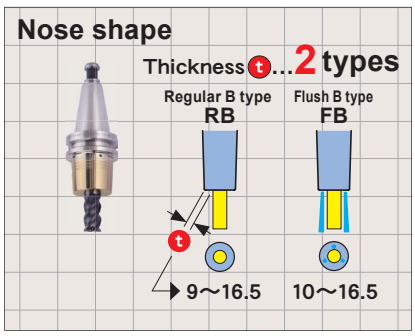
BT40
BT50
A63
A100

●DIN and CAT. shank products are available upon request.

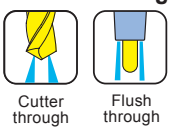


●Inch. size I.D is available upon request.

Nose shape



Coolant-through



Short type

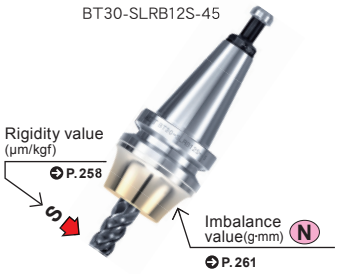




Fig. 1

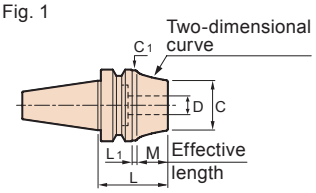


Fig. 2

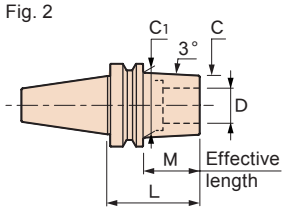


Fig. 3

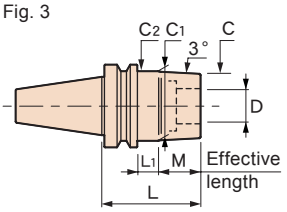


Fig. 4

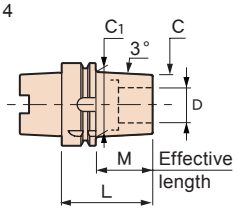
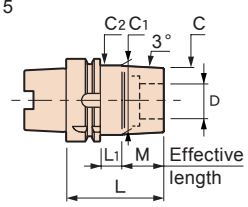


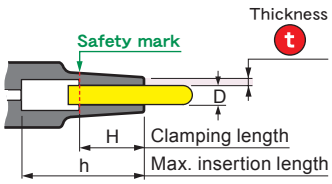
Fig. 5



■**Option**
- Retention knob (BT)→P.244

■**Std. Access.**
- Coolant duct (fixed type), (HSK-A63)→P.246

■**Note**
- Swing type coolant ducts are available upon request(HSK-A63).→P.246



■**Caution**
- Retention knob･･･Use a retention knob with hole, or remove the retention knob and heat it.(BT)
- Setting cutters･･･Be sure to insert the tool beyond the Safety mark.
- As for MST SLIMLINE, please use HEAT ROBO DENJI 5000S (HRD-02S) or HEAT ROBO Baby 3000S (HRB-03S).
- For HEAT ROBO DENJI 5000 (HRD-02S), please prepare coil No.6 (HRD2-CL6).
- Remove the coolant duct before heating the holder when you use the hot air heater. (HSK-A)

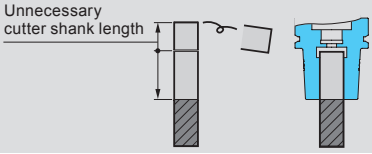
Thickness

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	ϕC2	H	h	Kg	N	S
BT30-SLRB10S-45	1	10	28	9	45	20	3	45	—	21	68	0.5	1.0	0.4
NEW -SLRB12S-45		12	32	10						22	61		1.2	0.3
-SLRB16S-45		16	38	11						25	57		1.5	
BT40-SLRB12S-60-M28	2	12	32	10	60	28	—	35	—	27	95	1.1	1.9	0.3
-SLFB12S-60-M28														
-SLRB16S-65-M33		16	38	11	65	33		41.5		30	85	1.2	2.8	
-SLFB16S-65-M33														
-SLRB20S-70-M41		20	45	12.5	70	41		49.4		36	100	1.3	4.1	0.2
-SLFB20S-70-M41														
-SLRB25S-75-M30	3	25	49	12	75	30	18	52.2	53	42		1.4	5.4	
-SLFB25S-75-M30														
A63 -SLRB12S-60-M29	4	12	32	10	60	29	—	35.1	—	27	35	0.8	8.3	0.3
-SLFB12S-60-M29														
-SLRB16S-65-M34		16	38	11	65	34		41.6		30	40	1	9.2	
-SLFB16S-65-M34														
-SLRB20S-70-M42		20	45	12.5	70	42		49.5		36	45	1.1	10.4	0.2
-SLFB20S-70-M42														
-SLRB25S-75-M30	5	25	49	12	75	30	19	52.2	53	42	50	1.3	11.6	
-SLFB25S-75-M30														

SLFB 

Cutting tool insertion length

Since the Short type has the shortest gauge length, the cutter insertion length (h) is not deep. Cut off the unnecessary portion of the tool shank and use a cutting tool with the optimal projection. Pay special attention for HSK-A63 shank products.



Recommended cutting tools

OSG		DIJET INDUSTRIAL		Tungaloy		MITSUBISHI MATERIALS		Mitsubishi Hitachi Tool Engineering	
WX-PHSS	General purpose	DV-OCSAR	For difficult-to-machine materials	SEF4000	For difficult-to-machine materials	C-3SA	For aluminum alloy	EPSMS-PN	General purpose
UP-PHS	General purpose	AL-SEESS	For aluminum alloy	SEE4000-A	For aluminum alloy	VF-6MHV	For difficult-to-machine materials	EPPS	For general steel

Heavy-duty type

BT50-SLRB20H-110-M42

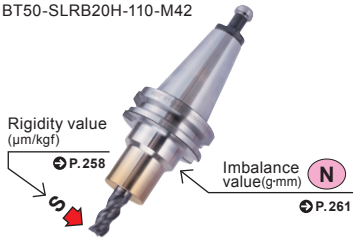


Fig. 1

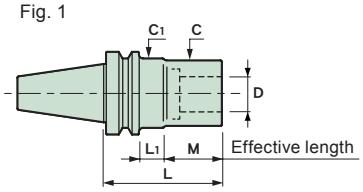
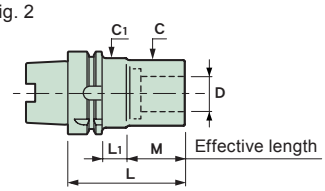


Fig. 2



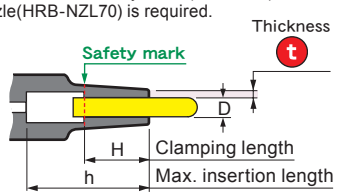
An appropriate heating coil for HRD-02S

■**Option**
- Retention knob (BT)→P.244

■**Std. Access.**
- Coolant duct (fixed type), (HSK-A)→P.246

■**Note**
- Swing type coolant ducts are available upon request.→p.246

■**Caution**
- Retention knob･･･Use a retention knob with hole, or remove the retention knob and heat it.(BT)
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.
- As for MST SLIMLINE, please use HEAT ROBO DENJI 5000S (HRD-02S) or HEAT ROBO Baby 3000S (HRB-03S).
- Refer to the table to choose an appropriate heating coil for Heat Robo Denji 5000 (HRD-02S).
- Remove the coolant duct before heating the holder when you use hot air heater (HSK-A).
- For HEAT ROBO Baby 3000 (HRB-03S), dia 70mm nozzle(HRB-NZL70) is required.



Thickness

CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	H	h	Kg	N	S	
BT40-SLRB12H- 80-M32	1	12	36	12	80	32	21	53	35	115	1.3	5.1	0.3	6
-SLFB12H- 80-M32											1.4			
-SLRB16H- 80-M32		16	42	13					37	90		5.4		
-SLFB16H- 80-M32														
-SLRB20H- 90-M42		20	50	15	90	42			47	100	1.6	6.3		7
-SLFB20H- 90-M42														
-SLRB25H- 95-M42		25	51	13	95		26		50	105		7		
-SLFB25H- 95-M42														
BT50-SLRB12H- 95-M32	1	12	36	12	95	32	25	53	35	150	3.8	8.8	0.3	6
-SLFB12H- 95-M32														
-SLRB16H- 95-M32		16	42	13					37		3.9	9		
-SLFB16H- 95-M32														
-SLRB20H-110-M42		20	50	15	110	42	30	63	47	165	4	14.1	0.2	7
-SLFB20H-110-M42														
-SLRB25H-110-M42		25	58	16.5					52		4.2	14.4		
-SLFB25H-110-M42														
A63 -SLRB12H- 80-M32	2	12	36	12	80	32	22	53	35	55	1.1	11.3	0.3	6
-SLFB12H- 80-M32														
-SLRB16H- 80-M32		16	42	13					37		1.2	11.6		
-SLFB16H- 80-M32														
-SLRB20H- 90-M42		20	50	15	90	42			47	65	1.5	13.1		7
-SLFB20H- 90-M42														
-SLRB25H- 95-M42		25	51	13	95		27		50	70		14.1		
-SLFB25H- 95-M42														

SLFB

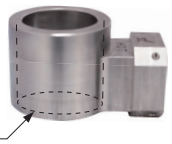
CODE	Fig.	ϕD	ϕC	t	L	M	L1	ϕC1	H	h	Kg	N	S	
A100-SLRB12H- 95-M32	2	12	36	12	95	32	34	53	35	63	2.7	26.9	0.3	6
-SLFB12H- 95-M32														
-SLRB16H- 95-M32		16	42	13					37			27.2		
-SLFB16H- 95-M32														
-SLRB20H-110-M42		20	50	15	110	42	39	63	47	78	3.2	31.3	0.2	7
-SLFB20H-110-M42														
-SLRB25H-110-M42		25	58	16.5					52		3.4	31.8		
-SLFB25H-110-M42									50					

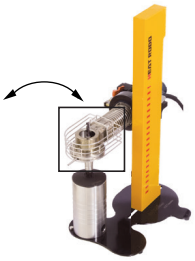
SLFB 

ϕ70 Nozzle (HRB-03S)

Required for shrinking the Heavy-duty type.

CODE
HRB-NZL70



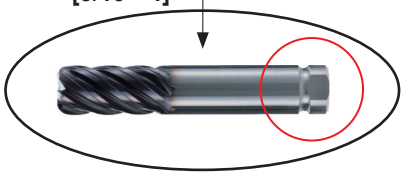


HEAT ROBO Baby3000S

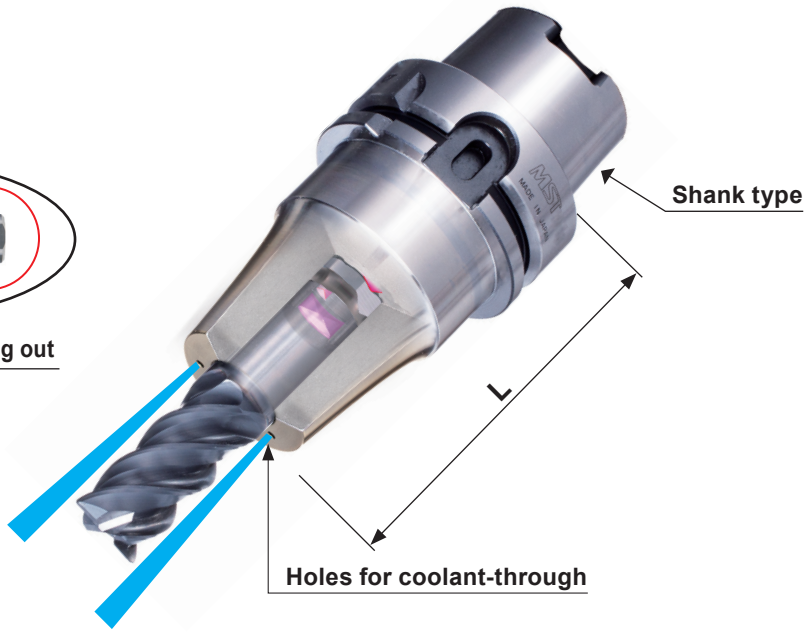
■ ANTI-SLIPPAGE, SHRINK-FIT HOLDER

SLIMLINE Z

Z shank tool
ϕ8~25
[5/16"~1]



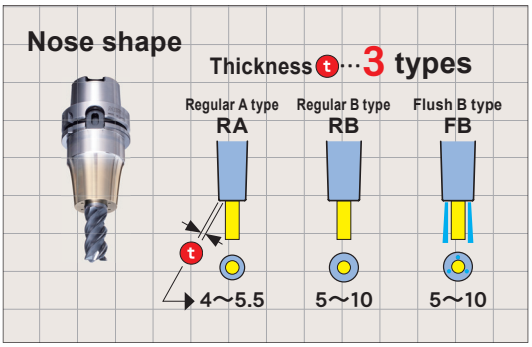
Anti-slippage and anti-pulling out
W stopper



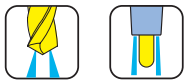
BT40 – SL RB 16 Z – 90

- BT40 — Shank type
- SL — SLIMLINE
- RB — Nose shape
- 16 — ϕD
- Z — SLIMLINE Z
- 90 — L

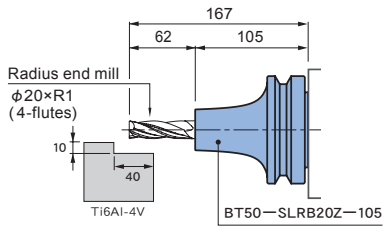
	Inch
BT40	—
BT50	—
A63	○
A100	○
DN40	—
DN50	—
CT40	○
CT50	○



Coolant-through



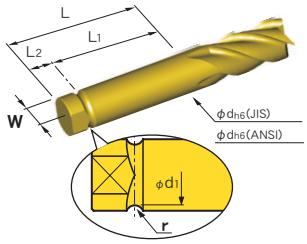
Machining examples



Rotation	2,100 min⁻¹
Cutting speed	132 m/min
Feed	1,260 mm/min
Feed per tooth	0.15 mm/tooth

Chip evacuation:504cc/min

Z shank tool dimensions table



They can provide a tool for SLIMLINE Z

OKT
DIJET
MITSUBISHI MATERIALS
MOLDINO

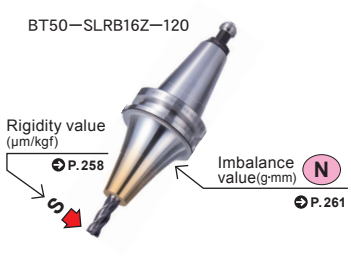
Metric

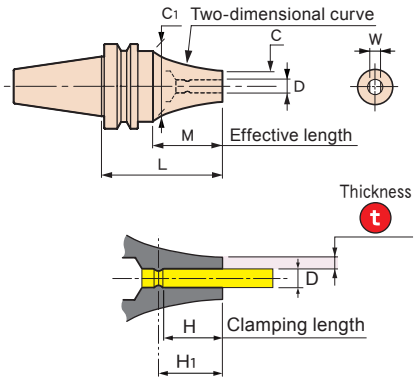
ϕd (h6)	W −0.1 −0.2	ϕd1 −0.1 −0.2	L min.	L max.	L1	L2 min.	L2 max.	r
8	6.5	6.5	36	45	29	7	16	2
10	8.5	8.5	42	51	35			
12	10	10						
16	14	14	45	54	38			
20	17	17	53	62	46			
25	22	22	60	69	53			2.5

Inch

ϕd (h6)	W −.004" −.008"	ϕd1 −.004" −.008"	L min.	L max.	L1	L2 min.	L2 max.	r
5/16	.25	.25	1.38	1.75	1.13	.25	.63	.08
3/ 8	.32	.32	1.63	2.00	1.38			
1/ 2	.42	.42						
5/ 8	.55	.55	1.75	2.13	1.50			
3/ 4	.63	.63	2.00	2.38	1.75			
1"	.88	.88	2.41	2.75	2.13	.28		.1

BT





An appropriate heating coil for HRD-02S

■**Option**
- Retention knob→P.244
- The Z-shank (dedicated) tool is needed.→P.227

■**Caution**
- Retention knob･･･Use a retention knob with a hole, or remove the retention knob and heat it.
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.
- As for MST SLIMLINE, please use HEAT ROBO DENJI 5000S (HRD-02S) or HEAT ROBO Baby 3000S (HRB-03S).
- Refer to the table to choose an appropriate heating coil for HEAT ROBO DENJI 5000 (HRD-02S).

Thickness

CODE	ϕD	ϕC	t	L	M	ϕC1	H	H1	W	Kg	N	S	
BT40-SLRB 8Z- 90	8	18	5	90	52	53	24	29	6.5	1.2	4.6	0.6	2
-120				120						1.6	6.8	0.7	
-150				150						2	8.9	0.8	
-180				180						2.4	11	0.9	
-SLFB 8Z- 90	8	18	5	90	52	53	24	29	6.5	1.2	4.6	0.6	
-120				120						1.6	6.8	0.7	
-150				150						2	8.9	0.8	
-180				180						2.4	11	0.9	
BT40-SLRB10Z- 90	10	22	6	90	52	53	30	35	8.5	1.3	4.8	0.5	3
-120				120						1.7	6.9	0.6	
-150				150						2	9	0.7	
-180				180						2.4	11.1	0.8	
-SLFB10Z- 90	10	22	6	90	52	53	30	35	8.5	1.3	4.8	0.5	
-120				120						1.7	6.9	0.6	
-150				150						2	9	0.7	
-180				180						2.4	11.1	0.8	
BT40-SLRB12Z- 90	12	26	7	90	52	53	30	35	10	1.3	5	0.4	
-120				120						1.7	7.1	0.5	
-150				150						2.1	9.2	0.6	
-180				180						2.5	11.3	0.8	
-SLFB12Z- 90	12	26	7	90	52	53	30	35	10	1.3	5	0.4	
-120				120						1.7	7.1	0.5	
-150				150						2.1	9.2	0.6	
-180				180						2.5	11.3	0.8	
BT40-SLRB16Z- 90	16	32	8	90	52	53	32	38	14	1.4	5.3	0.4	
-120				120						1.7	7.5	0.5	
-150				150						2.1	9.6	0.6	
-SLFB16Z- 90	16	32	8	90	52	53	32	38	14	1.4	5.3	0.4	
-120				120						1.7	7.5	0.5	
-150				150						2.1	9.6	0.6	

SLFB 

CODE	ϕD	ϕC	t	L	M	ϕC1	H	H1	W	Kg	N	S	
BT40-SLRB20Z- 90	20	38	9	90	42	53	40	46	17	1.5	5.9	0.3	4
-120				120						1.9	8	0.4	
-150				150						2.3	10.1	0.6	
-SLFB20Z- 90	20	38	9	90	42	53	40	46	17	1.5	5.9	0.3	
-120				120						1.9	8	0.4	
-150				150						2.3	10.1	0.5	
BT40-SLRB25Z- 95	25	45	10	95	42	53	45	53	22	1.6	6.7	0.3	
-125				125						2	8.8	0.4	
-SLFB25Z- 95	25	45	10	95	42	53	45	53	22	1.6	6.7	0.3	
-125				125						2	8.8	0.4	
BT50-SLRA12Z-105	12	22	5	105	67	85	30	35	10	3.9	13	0.5	2
-135				135	97					4.5	14.8	0.6	
-165				165	127					5.1	16.1	0.7	
-195				195	157					5.6	18	0.8	
-SLRB12Z-165	12	26	7	165	127	85	30	35	10	5.1	17.3	0.6	3
-195				195	157					5.4	18.9	0.7	
-SLFB12Z-165	12	26	7	165	127	85	30	35	10	5.1	17.3	0.6	3
-195				195	157					5.4	18.9	0.7	
BT50-SLRA16Z-105	16	27	5.5	105	67	85	32	38	14	3.9	13.3	0.4	3
-135				135	97					4.3	15.4	0.5	
-165				165	127					5	17.2	0.6	
-195				195	157					5.3	18.8	0.8	
-SLRB16Z-165	16	32	8	165	127	85	32	38	14	5.1	17.5	0.5	3
-195				195	157					5.8	20.3	0.6	
-SLFB16Z-165	16	32	8	165	127	85	32	38	14	5.1	17.5	0.5	3
-195				195	157					5.8	20.3	0.7	
BT50-SLRB20Z-105	20	38	9	105	67	85	40	46	17	4.1	13.8	0.3	4
-135				135	97					4.8	17.2		
-165				165	127					5.5	20.7	0.4	
-SLFB20Z-105	20	38	9	105	67	85	40	46	17	4.1	13.8	0.3	4
-135				135	97					4.8	17.2		
-165				165	127					5.5	20.7	0.4	
BT50-SLRB25Z-110	25	45	10	110	72	85	45	53	22	4.3	15	0.3	4
-140				140	102					4.8	17.7		
-SLFB25Z-110	25	45	10	110	72	85	45	53	22	4.3	15	0.3	4
-140				140	102					4.8	17.7		

SLFB 

HSK-A

A63-SLRB16Z-120

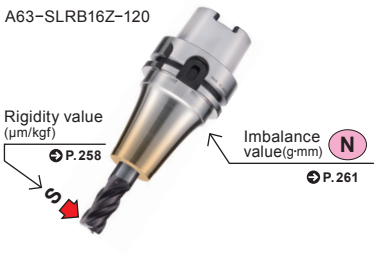


Fig. 1

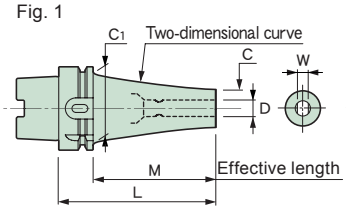
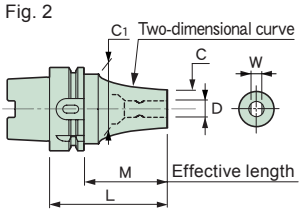
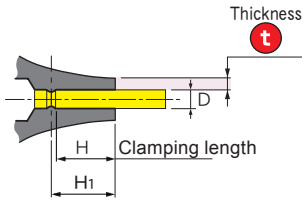


Fig. 2





An appropriate heating coil for HRD-02S

■Std.Access.
- Coolant duct (fixed type) →P.246

■Option
- The Z-shank (dedicated) tool is needed.→P.227

■Note
- As for MST SLIMLINE, please use HEAT ROBO DENJI 5000S (HRD-02S) or HEAT ROBO Baby 3000S (HRB-03S) .
- Refer to the table to choose an appropriate heating coil for HEAT ROBO DENJI 5000 (HRD-02S).
- Swing type coolant ducts are available upon request.

■Caution
- Remove the coolant duct before heating the holder when you use hot air heater. →P.256

Thickness

CODE	Fig.	φD	φC	t	L	M	φC1	H	H1	W	Kg lbs	N	S	
A63-SLRA8Z- 90	1	8	16	4	90	64	53	24	29	6.5	1	8.4	0.7	2
-120					120	94					1.2	9.6	1	
-150					150	124					1.4	10.8	1.4	
-SLRB8Z- 90	2	8	18	5	90	52	53	24	29	6.5	1.1	10.9	0.6	2
-120					120						1.4	14.1	0.8	
-150					150						1.8	17.2		
-180					180						2.2	20.4	0.9	
-SLFB8Z- 90	2	8	18	5	90	52	53	24	29	6.5	1.1	10.9	0.6	2
-120					120						1.4	14.1	0.7	
-150					150						1.8	17.2		
-180					180						2.2	20.4	0.9	
A63-SLRA5/16Z- 90	1	5/16	.63	.16	3.54	2.52	2.09	.94	1.13	.25	2.2	8.4	0.7	2
-120					4.72	3.70					2.6	9.6	1	
-150					5.91	4.88					3.1	10.8	1.4	
-SLRB5/16Z- 90	2	5/16	.71	.20	3.54	2.05	2.09	.94	1.13	.25	2.4	10.9	0.6	2
-120					4.72						3.1	14.1	0.7	
-150					5.91						4	17.2		
-180					7.09						4.9	20.4	0.9	
-SLFB5/16Z- 90	2	5/16	.71	.20	3.54	2.05	2.09	.94	1.13	.25	2.4	10.9	0.6	2
-120					4.72						3.1	14.1	0.7	
-150					5.91						4	17.2		
-180					7.09						4.9	20.4	0.9	
A63-SLRA10Z- 90	1	10	19	4.5	90	64	53	30	35	8.5	1	8.5	0.6	2
-120					120	94					1.2	9.6	0.9	
-150					150	124					1.3	10.9	1.4	
-SLRB10Z- 90	2	10	22	6	90	52	53	30	35	8.5	1.1	11.1	0.5	3
-120					120						1.5	14.3	0.7	
-150					150						1.6	17.4		
-180					180						2.3	20.6	0.8	
-SLFB10Z- 90	2	10	22	6	90	52	53	30	35	8.5	1.1	11.1	0.5	3
-120					120						1.5	14.3	0.6	
-150					150						1.6	17.4		
-180					180						2.3	20.6	0.8	
A63-SLRA3/8Z- 90	1	3/8	.73	.18	3.54	2.52	2.09	1.18	1.38	.31	2.2	8.5	0.6	2
-120					4.72	3.70					2.6	9.6	0.9	
-150					5.91	4.88					2.9	10.9	1.4	
-SLRB3/8Z- 90	2	3/8	.85	.24	3.54	2.05	2.09	1.18	1.38	.31	2.4	11.1	0.5	3
-120					4.72						3.3	14.3	0.6	
-150					5.91						3.5	7.4		
-180					7.09						5.1	20.6	0.8	

SLFB 

MST

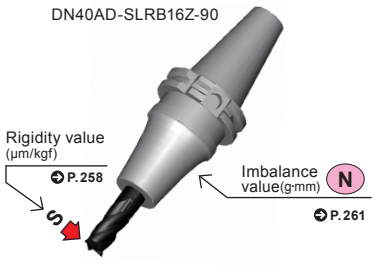
CODE	Fig.	ϕD	ϕC	t	L	M	ϕC1	H	H1	W	Kg lbs	N	S	
A63-SLFB3/8Z- 90	2	3/8	.85	.24	3.54	2.05	2.09	1.18	1.38	.31	2.4	11.1	0.5	3
-120					4.72						3.3	14.3	0.6	
-150					5.91						3.5	17.4		
-180					7.09						5.1	20.6	0.8	
A63-SLRA12Z- 90	1	12	22	5	90	64	53	30	35	10	1	8.5	0.6	2
-120					120	94					1.3	10.4	0.7	
-150					150	124					1.5	11.7	1.1	
-SLRB12Z- 90	2	12	26	7	90	52	53	30	35	10	1.1	11.4	0.4	3
-120					120						1.5	14.6	0.5	
-150					150						1.6	17.7	0.6	
-180					180						2.3	20.9	0.7	
-SLFB12Z- 90	2	12	26	7	90	52	53	30	35	10	1.1	11.4	0.4	3
-120					120						1.5	14.6	0.5	
-150					150						1.6	17.7	0.6	
-180					180						2.3	20.9	0.7	
A63-SLRA1/2Z- 90	1	1/2	.89	.20	3.54	2.52	2.09	1.18	1.38	.42	2.2	8.5	0.6	2
-120					4.72	3.70					2.9	10.4	0.7	
-150					5.91	4.88					3.3	11.7	1.1	
-SLRB1/2Z- 90	2	1/2	1.05	.28	3.54	2.05	2.09	1.18	1.38	.42	2.4	11.4	0.4	3
-120					4.72						3.3	14.6	0.5	
-150					5.91						3.5	17.7	0.6	
-180					7.09						5.1	20.9	0.7	
-SLFB 1/2Z- 90	2	1/2	1.05	.28	3.54	2.05	2.09	1.18	1.38	.42	2.4	11.4	0.4	3
-120					4.72						3.3	14.6	0.5	
-150					5.91						3.5	17.7	0.6	
-180					7.09						5.1	20.9	0.7	
A63-SLRA16Z- 90	2	16	27	5.5	90	52	53	32	38	14	1.1	11.6	0.4	3
-120	1				120	94					1.3	12.9	0.7	
-SLRB16Z- 90	2	16	32	8	90	52	53	32	38	14	1.2	12	0.4	3
-120					120						1.6	15.1		
-150					150						2	18.3	0.6	
-SLFB16Z- 90	2	16	32	8	90	52	53	32	38	14	1.2	12	0.4	3
-120					120						1.6	15.1		
-150					150						2	18.3	0.6	
A63-SLRA5/8Z- 90	2	5/8	1.06	.22	3.54	2.05	2.09	1.26	1.5	.55	2.4	11.6	0.4	3
-120	1				4.72	3.70					2.9	12.9	0.7	
-SLRB5/8Z- 90	2	5/8	1.25	.31	3.54	2.05	2.09	1.26	1.5	.55	2.6	12.0	0.4	3
-120					4.72						3.5	15.1		
-150					5.91						4.4	18.3	0.6	
-SLFB5/8Z- 90	2	5/8	1.25	.31	3.54	2.05	2.09	1.26	1.5	.55	2.6	12.0	0.4	3
-120					4.72						3.5	15.1		
-150					5.91						4.4	18.3	0.6	
A63-SLRB20Z- 90	2	20	38	9	90	42	53	40	46	17	1.3	12.7	0.3	4
-120					120						1.4	15.9	0.4	
-150					150						2.1	19.1	0.5	
-SLFB20Z- 90	2	20	38	9	90	42	53	40	46	17	1.3	12.7	0.3	4
-120					120						1.4	15.9	0.4	
-150					150						2.1	19.1	0.5	
A63-SLRB3/4Z- 90	2	3/4	1.46	.35	3.54	1.65	2.09	1.5	1.75	.63	2.9	12.7	0.3	4
-120					4.72						3.1	15.9	0.4	
-150					5.91						4.6	19.1	0.5	
-SLFB3/4Z- 90	2	3/4	1.46	.35	3.54	1.65	2.09	1.5	1.75	.63	2.9	12.7	0.3	4
-120					4.72						3.1	15.9	0.4	
-150					5.91						4.6	19.1	0.5	
A63-SLRB25Z- 95	2	25	45	10	95	42	53	45	53	22	1.4	13.9	0.3	4
-125					125						1.8	17.1	0.4	
-SLFB25Z- 95	2	25	45	10	95	42	53	45	53	22	1.4	13.9	0.3	4
-125					125						1.8	17.1	0.4	

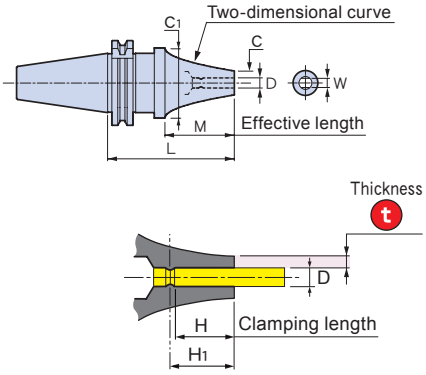


CODE	Fig.	ϕD	ϕC	t	L	M	ϕC1	H	H1	W	Kg lbs	N	S	
A 63 -SLRB1Z- 95	2	1"	1.79	.39	3.74	1.65	2.09	1.77	2.09	.88	3.1	13.9	0.3	4
-125					4.92						4	17.1	0.4	
-SLFB1Z- 95	2	1"	1.79	.39	3.74	1.65	2.09	1.77	2.09	.88	3.1	13.9	0.3	4
-125					4.92						4	17.1	0.4	
A100-SLRA12Z-105	1	12	22	5	105	76	85	30	35	10	3	27.7	0.4	3
-135					135	106					3.3	29.9	0.6	
-165					165	136					3.7	31.3	0.8	2
-195					195	166					4.5	35.6		
-SLRB12Z-165	1	12	26	7	165	136	85	30	35	10	4	34.3	0.6	3
-195					195	166					4.8	39.2		
-SLFB12Z-165	1	12	26	7	165	136	85	30	35	10	4	34.3	0.6	3
-195					195	166					4.8	39.2	0.7	
A100-SLRA1/2Z-105	1	1/2	.89	.20	4.13	2.99	3.35	1.18	1.38	.42	6.6	27.7	0.4	3
-135					5.31	4.17					7.3	29.9	0.5	
-165					6.50	5.35					8.2	31.3	0.8	
-195					7.68	6.54					9.9	35.6		
-SLRB1/2Z-165	1	1/2	1.05	.28	6.50	5.35	3.35	1.18	1.38	.42	8.8	34.3	0.6	3
-195					7.68	6.54					10.6	39.2	0.7	
-SLFB1/2Z-165	1	1/2	1.05	.28	6.50	5.35	3.35	1.18	1.38	.42	8.8	34.3	0.6	3
-195					7.68	6.54					10.6	39.2	0.7	
A100-SLRA16Z-105	1	16	27	5.5	105	76	85	32	38	14	3	28.1	0.4	3
-135					135	106					3.4	30.5	0.5	
-165					165	136					4	34.2	0.6	
-195					195	166					4.3	36.6	0.8	
-SLRB16Z-165	1	16	32	8	165	136	85	32	38	14	4	34.4	0.5	3
-195					195	166					4.5	37.6	0.6	
-SLFB16Z-165	1	16	32	8	165	136	85	32	38	14	4	34.4	0.5	3
-195					195	166					4.5	37.6	0.7	
A100-SLRA5/8Z-105	1	5/8	1.06	.22	4.13	2.99	3.35	1.26	1.50	.55	6.6	28.1	0.4	3
-135					5.31	4.17					7.5	30.5	0.5	
-165					6.50	5.35					8.8	34.2	0.6	
-195					7.68	6.54					9.5	36.6		
-SLRB5/8Z-165	1	5/8	1.25	.31	6.50	5.35	3.35	1.26	1.50	.55	8.8	34.4	0.5	3
-195					7.68	6.54					9.9	37.6	0.7	
-SLFB5/8Z-165	1	5/8	1.25	.31	6.50	5.35	3.35	1.26	1.50	.55	8.8	34.4	0.5	3
-195					7.68	6.54					9.9	37.6	0.7	
A100-SLRB20Z-105	1	20	38	9	105	76	85	40	46	17	3.1	28.7	0.3	4
-135					135	106					3.8	33.4		
-165					165	136					4.6	38.9	0.6	
-SLFB20Z-105	1	20	38	9	105	76	85	40	46	17	3.1	28.7	0.3	4
-135					135	106					3.8	33.4		
-165					165	136					4.6	38.9	0.4	
A100-SLRB3/4Z-105	1	3/4	1.46	.35	4.13	2.99	3.35	1.50	1.75	.63	6.8	28.7	0.3	4
-135					5.31	4.17					8.4	33.4		
-165					6.50	5.35					10.1	38.9	0.4	
-SLFB3/4Z-105	1	3/4	1.46	.35	4.13	2.99	3.35	1.50	1.75	.63	6.8	28.7	0.3	4
-135					5.31	4.17					8.4	33.4		
-165					6.50	5.35					10.1	38.9	0.4	
A100-SLRB25Z-110	1	25	45	10	110	81	85	45	53	22	3.1	29.7	0.3	4
-140					140	111					3.8	34.4		
-SLFB25Z-110	1	25	45	10	110	81	85	45	53	22	3.1	29.7	0.3	4
-140					140	111					3.8	34.4		
A100-SLRB 1Z-110	1	1"	1.79	.39	4.33	3.19	3.35	1.77	2.13	.88	6.8	29.7	0.3	4
-140					5.51	4.37					8.4	34.4		
-SLFB 1Z-110	1	1"	1.79	.39	4.33	3.19	3.35	1.77	2.13	.88	6.8	29.7	0.3	4
-140					5.51	4.37					8.4	34.4		

SLFB

DIN





An appropriate heating coil for HRD-02S

■**Option**
- Retention knob→P.244

■**Note**
- The Z-shank (dedicated) tool is needed.→P.227

■**Caution**
- Retention knob‥Use a retention knob with a hole, or remove the retention knob and heat it.
- Setting cutters‥Be sure to insert the tool beyond the safety mark.
- As for MST SLIMLINE, please use HEAT ROBO DENJI 5000S (HRD-02S) or HEAT ROBO Baby 3000S (HRB-03S).
- Refer to the table to choose an appropriate heating coil for HEAT ROBO DENJI 5000 (HRD-02S).

Thickness

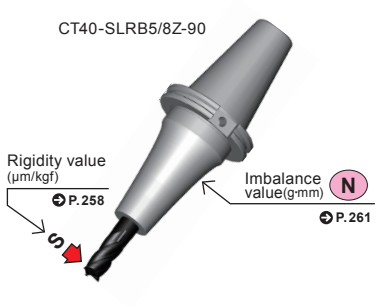
CODE	ϕD	ϕC	t	L	M	ϕC1	H	H1	W	Kg	N	S	
DN40AD-SLRB 8Z- 90	8	18	5	90	52	50	24	29	6.5	1.1	7.8	0.6	2
-120				120		53				1.5	10.9	0.7	
-150				150						1.9	14.1	0.8	
-180				180						2.3	17.3	0.9	
-SLFB 8Z- 90	8	18	5	90	52	50	24	29	6.5	1.1	7.8	0.6	2
-120				120		53				1.5	10.9	0.7	
-150				150						1.9	14.1	0.8	
-180				180						2.3	17.3	0.9	
DN40AD-SLRB10Z- 90	10	22	6	90	52	50	30	35	8.5	1.2	8	0.5	3
-120				120		53				1.6	11.2	0.6	
-150				150						2	14.3	0.7	
-180				180						2.3	17.5	0.9	
-SLFB10Z- 90	10	22	6	90	52	50	30	35	8.5	1.2	8	0.5	3
-120				120		53				1.6	11.2	0.6	
-150				150						2	14.3	0.7	
-180				180						2.3	17.5	0.8	
DN40AD-SLRB12Z- 90	12	26	7	90	52	50	30	35	10	1.2	8.3	0.5	3
-120				120		53				1.6	11.5	0.5	
-150				150						2	14.6	0.6	
-180				180						2.4	17.8	0.8	
-SLFB12Z- 90	12	26	7	90	52	50	30	35	10	1.2	8.3	0.4	3
-120				120		53				1.6	11.5	0.5	
-150				150						2	14.6	0.6	
-180				180						2.4	17.8	0.8	
DN40AD-SLRB16Z- 90	16	32	8	90	52	50	32	38	14	1.3	8.8	0.4	3
-120				120		53				1.7	12	0.5	
-150				150						2.1	15.2	0.6	
-SLFB16Z- 90	16	32	8	90	52	50	32	38	14	1.3	8.8	0.4	3
-120				120		53				1.7	12	0.5	
-150				150						2.1	15.2	0.6	
DN40AD-SLRB20Z- 90	20	38	9	90	42	50	40	46	17	1.4	9.6	0.3	4
-120				120		53				1.8	12.8	0.4	
-150				150						2.2	16	0.6	
-SLFB20Z- 90	20	38	9	90	42	50	40	46	17	1.4	9.6	0.3	4
-120				120		53				1.8	12.8	0.4	
-150				150						2.2	16	0.6	

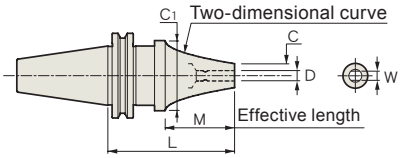
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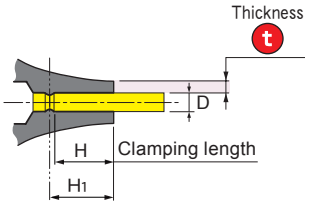
CODE	ϕD	ϕC	t	L	M	ϕC1	H	H1	W	Kg	N	S	
DN50AD-SLRA12Z-105	12	22	5	105	70	70	30	35	10	3.5	16.7	0.4	3
-135				135	100					3.9	18.4	0.6	
-165				165	130					4.4	19.4	0.8	2
-195				195	160					4.5	20.6	1.2	
-SLRB12Z-165	12	26	7	165	130	70	30	35	10	4.5	22.1	0.6	3
-195				195	160					4.8	24.4	0.8	
-SLFB12Z-165	12	26	7	165	130	70	30	35	10	4.5	22.1	0.6	3
-195				195	160					4.8	24.4	0.8	
DN50AD-SLRA16Z-105	16	27	5.5	105	70	70	32	38	14	3.5	17	0.4	4
-135				135	100					3.9	18.4	0.5	3
-165				165	130					4.5	22.1	0.7	
-195				195	160					4.8	24.4	0.8	
-SLRB16Z-165	16	32	8	165	130	70	32	38	14	4.4	21.8	0.6	3
-195				195	160					5.0	25.5	0.7	
-SLFB16Z-165	16	32	8	165	130	70	32	38	14	4.4	21.8	0.6	3
-195				195	160					5.0	25.5	0.7	
DN50AD-SLRB20Z-105	20	38	9	105	70	70	40	46	17	3.6	17.6	0.3	4
-135				135	100					4.0	21.0	0.4	
-165				165	130					4.7	25.4	0.5	
-SLFB20Z-105	20	38	9	105	70	70	40	46	17	3.6	17.6	0.3	4
-135				135	100					4.0	21	0.4	
-165				165	130					4.7	25.4	0.5	
DN50AD-SLRB25Z-110	25	45	10	110	75	70	45	53	22	3.7	18.8	0.3	4
-140				140	90					4.4	23.4	0.3	
-SLFB25Z-110	25	45	10	110	75	70	45	53	22	3.7	18.8	0.3	4
-140				140	90					4.4	23.4	0.4	



CAT.







An appropriate heating coil for HRD-02S

■**Option**
- Retention knob→P.244

■**Note**
- The Z-shank (dedicated) tool is needed.→P.227

■**Caution**
- Retention knob･･･Use a retention knob with a hole, or remove the retention knob and heat it.
- Setting cutters･･･Be sure to insert the tool beyond the safety mark.
- As for MST SLIMLINE, please use HEAT ROBO DENJI 5000S (HRD-02S) or HEAT ROBO Baby 3000S (HRB-03S).
- Refer to the table to choose an appropriate heating coil for HEAT ROBO DENJI 5000 (HRD-02S).

Thickness

CODE	ϕD	ϕC	t	L	M	ϕC1	H	H1	W	lbs	N	S	
CT40-SLRB5/16Z- 95	5/16	.71	.20	3.74	2.05	2.09	.94	1.13	.25	2.6	7.6	0.7	2
-120				4.72						3.3	10.2		
-150				5.91						4.2	13.4	0.8	
-180				7.09						5.1	16.6	1	
-SLFB 5/16Z- 95	5/16	.71	.20	3.74	2.05	2.09	.94	1.13	.25	2.6	7.6	0.7	2
-120				4.72						3.3	10.2		
-150				5.91						4.2	13.4	0.8	
-180				7.09						5.1	16.6	1	
CT40-SLRB 3/8Z- 95	3/8	.85	.24	3.74	2.05	2.09	1.18	1.38	.31	2.6	7.7	0.6	3
-120				4.72						3.3	10.5		
-150				5.91						4.2	13.6	0.8	
-180				7.09						5.1	16.8	0.9	
-SLFB 3/8Z- 95	3/8	.85	.24	3.74	2.05	2.09	1.18	1.38	.31	2.6	7.7	0.6	3
-120				4.72						3.3	10.5		
-150				5.91						4.2	13.6	0.8	
-180				7.09						5.1	16.8	0.9	
CT40-SLRB 1/2Z- 95	1/2	1.05	.28	3.74	2.05	2.09	1.18	1.38	.42	2.9	8.1	0.5	3
-120				4.72						3.5	10.8	0.6	
-150				5.91						4.4	14	0.7	
-180				7.09						5.3	17.1	0.9	
-SLFB 1/2Z- 95	1/2	1.05	.28	3.74	2.05	2.09	1.18	1.38	.42	2.9	8.1	0.5	3
-120				4.72						3.5	10.8	0.6	
-150				5.91						4.4	14	0.7	
-180				7.09						5.3	17.1	0.9	
CT40-SLRB 5/8Z- 95	5/8	1.25	.31	3.74	2.05	2.09	1.26	1.5	.55	2.9	8.6	0.4	3
-120				4.72						3.5	11.3	0.5	
-150				5.91						4.4	14.5	0.7	
-SLFB 5/8Z- 95	5/8	1.25	.31	3.74	2.05	2.09	1.26	1.5	.55	2.9	8.6	0.4	3
-120				4.72						3.5	11.3	0.5	
-150				5.91						4.4	14.5	0.7	
CT40-SLRB 3/4Z- 95	3/4	1.46	.35	3.74	1.65	2.09	1.5	1.75	.63	3.3	9.2	0.4	4
-120				4.72						4	12	0.5	
-150				5.91						4.9	15.1	0.7	
-SLFB 3/4Z- 95	3/4	1.46	.35	3.74	1.65	2.09	1.5	1.75	.63	3.3	9.2	0.4	4
-120				4.72						4	12	0.5	
-150				5.91						4.9	15.1	0.7	

SLFB 

CODE	ϕD	ϕC	t	L	M	ϕC1	H	H1	W	lbs	N	S	
CT50-SLRA1/2Z-105	1/2	.89	.20	4.13	2.76	2.76	1.18	1.38	.42	7.7	16.3	0.4	3
-135				5.31	3.94					8.6	18	0.6	
-165				6.50	5.12					9.5	18.9	0.8	2
-195				7.68	6.30					10.6	22.1		
-SLRB1/2Z-165	1/2	1.05	.28	6.50	5.12	2.76	1.18	1.38	.42	9.9	21.7	0.6	3
-195				7.68	6.30					10.6	24	0.8	
-SLFB 1/2Z-165	1/2	1.05	.28	6.50	5.12	2.76	1.18	1.38	.42	9.9	21.7	0.6	3
-195				7.68	6.30					10.6	24	0.8	
CT50-SLRA5/8Z-105	5/8	1.06	.22	4.13	2.76	2.76	1.26	1.50	.55	7.7	16.6	0.4	4
-135				5.31	3.94					7.9	18.1	0.5	3
-165				6.50	5.12					9.7	21.7	0.7	
-195				7.68	6.30					10.4	24	0.8	
-SLRB5/8Z-165	5/8	1.25	.31	6.50	5.12	2.76	1.26	1.50	.55	9.7	21.4	0.6	3
-195				7.68	6.30					10.8	25.1	0.7	
-SLFB 5/8Z-165	5/8	1.25	.31	6.50	5.12	2.76	1.26	1.50	.55	9.7	21.4	0.6	3
-195				7.68	6.30					10.8	25.1	0.7	
CT50-SLRB3/4Z-105	3/4	1.46	.35	4.13	2.76	2.76	1.50	1.75	.63	7.9	17.2	0.3	4
-135				5.31	3.94					8.8	20.5	0.4	
-165				6.50	5.12					10.4	24.9	0.5	
-SLFB 3/4Z-105	3/4	1.46	.35	4.13	2.76	2.76	1.50	1.75	.63	7.9	17.2	0.3	4
-135				5.31	3.94					8.8	20.5	0.4	
-165				6.50	5.12					10.4	24.9	0.5	
CT50-SLRB 1Z-110	1”	1.79	.39	4.33	2.95	2.76	1.77	2.13	.88	8.2	18.4	0.3	4
-140				5.51	3.94					9.5	22.7	0.4	
-SLFB 1Z-110	1”	1.79	.39	4.33	2.95	2.76	1.77	2.13	.88	8.2	18.4	0.3	4
-140				5.51	3.94					9.5	22.7	0.4	

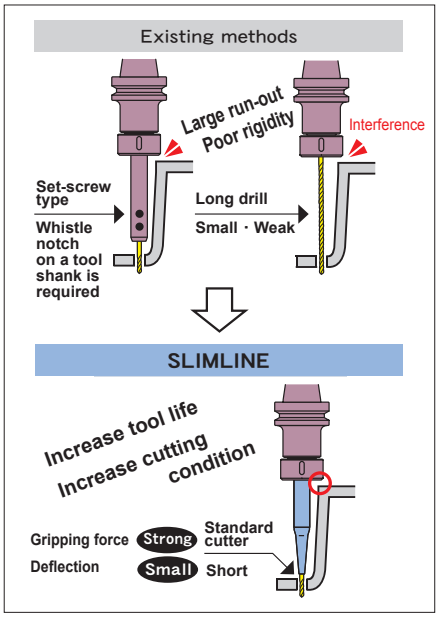
SLFB 

STRAIGHT ARBOR



Steel shank

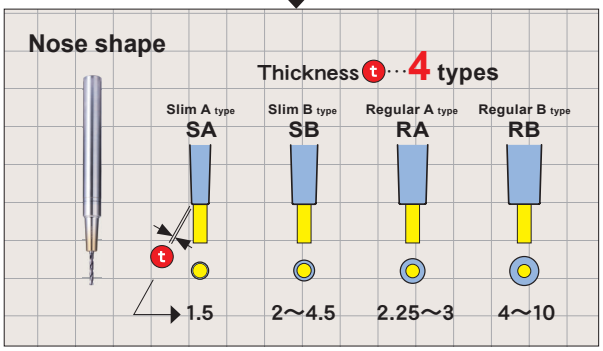
Carbide shank
• Slimer • Longer • Stronger



ST 10 C – SL SA 3 – 110 – M42

- ST 10 C: Carbide shank
- SL: SLIMLINE
- SA: Nose shape
- 3: ϕD
- 110: L
- M42: Effective length

METRIC	10
	12
	16
	20
	25
	32
	42
INCH	19.05
	25.4



Standard type

ST25−SLSA10−255



Fig. 1

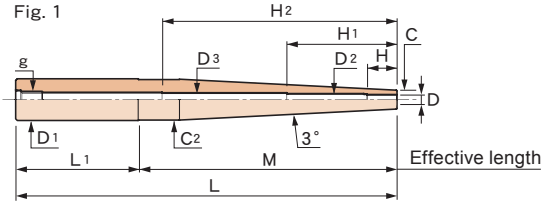
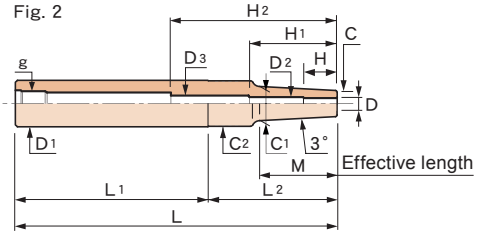


Fig. 2





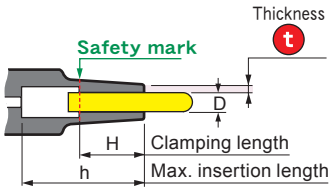
Compatibility table for HRD-01S

[○] Available [×] Not available

[▲] Usable by raising the heating unit.→P.257

■Caution

● Setting cutters･･･Be sure to insert the tool beyond the safety mark.



Thickness

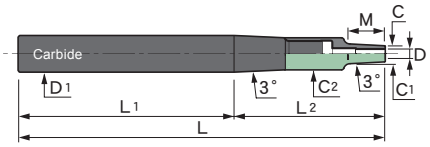
CODE	Fig.	φD	φC	t	L	M	D1	H	L1	L2	φC1	φC2	g	h	Kg lbs	φD2	φD3	H1	H2	
ST10-SLSA3- 80-M 35	1	3	6	1.5	80	35	10	9	45	—	—	9.3	M 6	64	0.03	4	—	49.6	—	○
ST16-SLRA3- 90-M 22	2		7.5	2.25	90	22	16		60	30	9.8	15.5	M10	62	0.09			33.7		
-SLSA3-115-M 42			6	1.5	115	42				55	10.4			87				53.7		
-SLRA3-115-M 42			7.5	2.25					65	50	11.9				0.1					
-SLSA3-140-M 67			6	1.5	140	67			60	80	13			112			6	54.4	84.3	
-SLRA3-140-M 67			7.5	2.25					65	75	14.5									
ST20-SLRA3-175-M 97					175	97	20		70	105	17.7	19.5		147				53.4	109.3	
-SLSA3-200-M 97			6	1.5	200				90	110	16.2			172	0.3			54.4	104.3	
ST25-SLSA3-245-M 97					245		25		120	125		24.5		217	0.6		5	49.7	105.3	
-SLRA3-245-M 97			7.5	2.25							17.7							47.5	99.5	
-SLSA3-315-M195	1		6	1.5	315	195				—	—			287				49.7	112.1	
-SLRA3-315-M 67	2		7.5	2.25		67			220	95	14.5				0.9				75.3	
ST10-SLSA3.175-80-M35	1	3.175	6.175	1.5	80	35	10	10	45	—	—	9.3	M 6	64	0.03	4	—	49.6	—	○
ST19.05-SLS1/8-200	2	1/8	.24	.059	7.87	3.82	.750	.38	3.54	4.33	.64	.728	M10	7.20	0.62	.16	.24	2.16	4.13	○
ST10-SLSA4- 80-M 35	1	4	7	1.5	80	35	10	12	45	—	—	9.5	M 6	64	0.03	5	—	50	—	○
ST16-SLRA4- 90-M 22	2		10	3	90	22	16		60	30	12.3	15.5	M10	62	0.09			34		
-SLSA4-115-M 42			7	1.5	115	42				55	11.4			87	0.1			64		
-SLRA4-115-M 42			10	3					65	50	14.4							54		
-140-M 60	1				140	60			80	—	—			112				64		
ST16-SLSA4-140-M 67	2		7	1.5		67			60	80	14						6	64.7	84.3	
ST20-SLRA4-175-M 95	1		10	3	175	95	20		80	—	—	19.5		147	0.3			53.7	99.3	
-SLSA4-200-M 97	2		7	1.5	200	97			90	110	17.2			172			7	39.4	104.5	
ST25-SLSA4-245-M 97					245		25		120	125		24.5		217	0.6		6	49.7	105.6	
-SLRA4-245-M 97			10	3							20.2							50.5	100.5	
-315-M 67					315	67			220	95	17			287	0.9				70.5	
-SLSA4-315-M195	1		7	1.5		195			120	—	—				0.7			49.7	112.4	
ST19.05-SLS3/16-200	1	3/16	.31	.059	7.87	4.33	.750	.59	3.54			.728	M10	7.20	0.55	.24	—	2.76	—	○
ST10-SLSA5- 80-M 35		5	8	1.5	80	35	10	15	45			9.5	M 6	70	0.03	—		—		○
ST20-SLSA5-200-M110					200	110	20		90			19.2	M10	182	0.3	6		69.3		
ST25-SLSA5-290-M 97	2				290	97	25		180	110	18.2	24.5		272	0.8		7	69.7	114.5	

CODE	Fig.	ϕD	ϕC	t	L	M	D1	H	L1	L2	ϕC1	ϕC2	g	h	Kg lbs	ϕD2	ϕD3	H1	H2	
ST12-SLSA6- 80-M 35	1	6	9	1.5	80	35	12	18	45	—	—	11.5	M 8	52	0.04	—	—	—	—	○
ST16-SLSA6-115-M 42	2				115	42	16		60	55	13.4	15.5	M10	87	0.1	7		84.5		
-SLSB6-115-M 42			10	2					65	50	14.4							54.5		
ST20-SLRB6-120-M 42			14	4	120		20		70		18.4	19.5		92	0.2					
ST16-SLSB6-140-M 60	1		10	2	140	60	16		80	—	—	15.5		112	0.1			64.5		
-SLSA6-140-M 70			9	1.5		70			70									74.5		
ST20-SLSA6-175-M105					175	105	20					19.5		147	0.3			109.5		
-SLSB6-175-M 95			10	2		95			80									99.5		
-SLRB6-175-M 60			14	4		60			115									64.5		
ST25-SLSB6-205-M127	2		10	2	205	127	25		70	135	23.3	24.5		177	0.5			104.5		
-SLSA6-230-M 97			9	1.5	230	97			120	110	19.2			202				94.5		
-SLRB6-240-M 42			14	4	240	42			170	70	18.4			212	0.7		11	50.8	160	
ST32-SLSB6-255-M157			10	2	255	157	32		70	185	26.5	31.5	M16	227	0.8		8	49.7	107.4	
ST25-SLSA6-305-M185	1		9	1.5	305	185	25		120	—	—	24.5	M10	277				91.7	166.1	
ST32-SLRB6-345-M 67	2		14	4	345	67	32		250	95	21	31.5	M16	317	1.6			50.5	73.5	
-SLSB6-375-M157			10	2	375	157			190	185	26.5			347	1.4			49.7	107.4	
ST19.05-SLS1/4-200	2	1/4	.37	.059	7.87	3.94	.750	.71	3.94	3.94	—	.728	M10	7.20	0.55	.28	—	2.76	—	○
ST25-SLSA7-230-M 97	2	7	10	1.5	230	97	25	20	120	110	20.2	24.5	M10	212	0.5	8	—	69.8	—	○
-320-M 97					320				210					302	0.9	7.5		44.7		
ST20-SLRB8-100-M 30	1	8	18	5	100	30	20	24	70	—	—	19.5	M10	72	0.2	—	—	—	—	○
ST16-SLSA8-115-M 50			11	1.5	115	50	16		65			15.5		87	0.1					
ST20-SLSB8-145-M 70			13	2.5	145	70	20		75			19.5		117	0.2					
ST25-SLRB8-160-M 42	2		18	5	160	42	25		110	50	22.4	24.5		132	0.5					
ST20-SLSA8-175-M 85	1		11	1.5	175	85	20		90	—	—	19.5		147	0.3					
ST25-SLSB8-175-M 97	2		13	2.5		97	25		70	105	23.2	24.5			0.4					
-SLRB8-210-M 90	1		18	5	210	90			120	—	—			182	0.6	9	11	71.4	150	
-SLSA8-230-M 97	2		11	1.5	230	97				110	21.2			202		—	—	—	—	
-SLSB8-260-M140	1		13	2.5	260	140				—	—			232	0.7	9	11	121.4	200	
-SLSA8-280-M160			11	1.5	280	160								252				141.4	220	
ST32-SLRB8-285-M67	2		18	5	285	67	32		190	95	25	31.5	M16	257	1.3		14	75.8	185	
-SLSB8-375-M157			13	2.5	375	157				185	29.5			347	1.5		12	94.1	166.4	
ST25-SLSA9-230-M 97	2	9	12	1.5	230	97	25	30	120	110	22.2	24.5	M10	60	0.6	9.6	—	61	—	○
-320-M 97					320				210						0.9					
ST25.4-SLS3/8-230	2	3/8	.49	.059	9.06	3.82	1	11.18	4.72	4.33	.89	.965	M10	2.36	1.43	.40	—	2.40	—	○
ST25-SLRB10-120-M 35	1	10	22	6	120	35	25	30	85	—	—	24.5	M10	60	0.4	10.6	—	61	—	○
ST20-SLSB10-120-M 50			16	3		50	20		70			19.5			0.2					
ST25-SLSB10-145-M 67	2				145	67	25			75	23	24.5			0.4					
ST20-SLSA10-145-M 70	1		13	1.5		70	20		75	—	—	19.5			0.2					
ST25-SLSB10-175-M105			16	3	175	105	25		70			24.5		154	0.5	11		155		
-SLRB10-210-M 90			22	6	210	90			120					149	0.7			150		
ST32-SLSB10-240-M170			16	3	240	170	32		70			31.5	M16	212	0.9		14	151.1	200	
ST25-SLSA10-255-M135			13	1.5	255	135	25		120			24.5	M10	194	0.7		—	195	—	
-SLSB10-275-M105			16	3	275	105			170						0.8					
ST32-SLRB10-285-M 67	2		22	6	285	67	32		190	95	29	31.5	M16	257	1.4		14	76.1	185	
-SLSA10-340-M210	1		13	1.5	340	210			130	—	—			312	1.3			191.1	270	
-SLSB10-360-M170			16	3	360	170			190					332	1.5			151.1	260	
ST42-SLSB10-445-M157	2				445	157	42		260	185	32.5	41.5	M24	417	2.7			97.1	165	×
ST25-SLSA11-230-M110	1	11	14	1.5	230	110	25	30	120	—	—	24.5	M10	60	0.6	11.6	—	61	—	○
-320-M110					320				210						0.9					

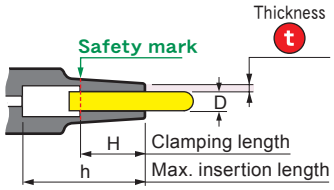
CODE	Fig.	ϕD	ϕC	t	L	M	D_1	H	L_1	L_2	$ϕC_1$	$ϕC_2$	g	h	Kg lbs	$ϕD_2$	$ϕD_3$	H_1	H_2	
ST25-SLSB12-120-M 42	2	12	19	3.5	120	42	25	30	70	50	23.4	24.5	M10	60	0.3	12.6	–	61	–	○
ST20-SLSA12-120-M 50	1		15	1.5		50	20			–	–	19.5			0.2					
ST32-SLRB12-140-M 60			26	7	140	60	32		80			31.5	M16	112	0.7	13		109.5		×
ST25-SLSB12-150-M 80			19	3.5	150	80	25		70			24.5	M10	60	0.4		11	61	130	○
ST32-SLSB12-220-M150					220	150	32					31.5	M16	192	0.9		14	131.7	180	
ST25-SLSA12-230-M110			15	1.5	230	110	25		120			24.5	M10	60	0.6	12.6	11	61	–	
-SLSB12-250-M 80			19	3.5	250	80			170						0.8	13			170	
ST32-SLRB12-260-M 70			26	7	260	70	32		190			31.5	M16	232	1.3		14	51.7	160	×
-SLSA12-315-M185			15	1.5	315	185			130					287	1.2			166.7	245	○
-SLSB12-340-M150			19	3.5	340	150			190					312	1.5			131.7	240	
ST42-SLSB12-445-M157	2				445	157	42		260	185	35.5	41.5	M24	417	2.8	12.6		59. 5	162.5	×
ST25.4-SLS1/2-230	1	1/2	.62	.059	9.06	4.33	1	1.18	4.72	4.33	–	.965	M10	2.36	1.33	.52	–	2.40	–	
ST32-SLRB16-175-M 45	1	16	32	8	175	45	32	32	130	–	–	–	M16	80	0.8	16.6	–	81	–	
ST25-SLSB16-175-M 50			24	4		50	25		125				M10		0.5					
ST32-SLSB16-290-M100					290	100	32		190			31.5	M16		1.4	17	14		190	
ST42-SLRB16-355-M 67	2		32	8	355	67	42		260	95	39	41.5	M24	327	2.7		21	73.5	–	
-SLSB16-445-M157	1		24	4	445	157				–	40.5			417	3			165.8	424.5	
ST42-SLRB20-170-M 70	1	20	38	9	170	70	42	40	100	–	–	41.5	M24	142	1.3	21	21	109.5	154	
ST32-SLSB20-175-M 50			29	4.5	175	50	32		125			31.5	M16	80	0.8		–	81	–	
ST42-SLSB20-255-M155					255	155	42		100			41.5	M24	227	1.7		22	194.5		
-SLRB20-330-M 70			38	9	330	70			260					302	2.6		22.6	189.5	314	
-SLSB20-415-M155			29	4.5	415	155								387	2.9	21.6	22	69.5	135	
ST42-SLRB25-170-M 42	2	25	45	10	170	42	42	45	100	70	49.6	53	M24	120	1.5	26	22.6	121	154	
-250-M 42					250				180		49.4	50		80	2.1	25.6	22	81	–	

Carbide type





■Caution
- Setting cutters···Be sure to insert the tool beyond the safety mark.

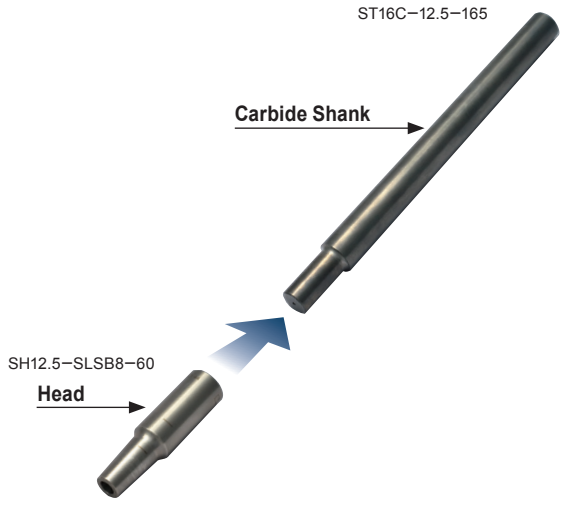


Thickness

CODE	ϕD	ϕC	t	L	M	D1	H	L1	L2	ϕC1	ϕC2	h	Kg	ϕD2	ϕD3	H1
ST10C-SLSA 3-160	3	6	1.5	160	12	10	9	120	40	7.3	10	19	0.2	4	—	17
ST16C-SLSA 3-280				280		16		182	98				0.7			
ST10C-SLSA 4-160	4	7	1.5	160	12	10	12	120	40	8.3	10	19	0.2	5	—	17
ST16C-SLSA 4-280				280		16		182	98				0.7			
ST12C-SLSB 6-175	6	10	2	175	19.1	12	18	125	50	—	12	27	0.3	7	—	25
ST16C-SLSB 6-225				225	22	16		165	60	12.3	16	32	0.6			28
ST20C-SLSB 6-320				320		20		221	99				1.3		8	
ST25C-SLSB 6-360				360		25		242	118		20	38	2.2			33
ST16C-SLSB 8-225	8	13	2.5	225	22	16	24	165	60	15.3	16	32	0.6	9	—	28
ST20C-SLSB 8-270				270		20		200	70		20	38	1.1			33
ST25C-SLSB 8-360				360		25		242	118				2.2			
ST20C-SLSB10-270	10	16	3	270	22	20	30	200	70	18.3	20	38	1.1	11	—	33
ST25C-SLSB10-360				360		25		242	118				2.2			

The Parts Code List for Carbide Straight Arbor

SET-CODE	CARBIDE SHANK	HEAD
ST10C-SLSA 3-160	ST10C− 7 −120	SH 7 −SLSA 3−40
-SLSA 4-160		−SLSA 4−40
ST12C-SLSB 6-175	ST12C− 9 −125	SH 9 −SLSB 6−50
ST16C-SLSA 3-280	ST16C− 7 −240	SH 7 −SLSA 3−40
-SLSA 4-280		−SLSA 4−40
-SLSB 6-225	−12.5−165	SH12.5 −SLSB 6−60
-SLSB 8-225		SH12.5 −SLSB 8−60
ST20C-SLSB 6-320	ST20C−12.5−260	SH12.5 −SLSB 6−60
-SLSB 8-270	−16 −200	SH16 −SLSB 8−70
-SLSB10-270		SH16 −SLSB10−70
ST25C-SLSB 6-360	ST25C−16 −290	SH16 −SLSB 6−70
-SLSB 8-360		−SLSB 8−70
-SLSB10-360		−SLSB10−70



The other holders

COLLET HOLDER (CTH/CTS)



E32-CTH10-55



E32-CTS10-50

Fig.1

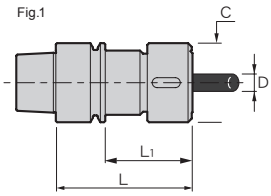
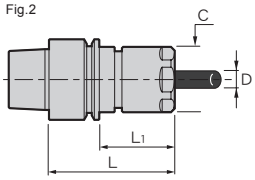


Fig.2

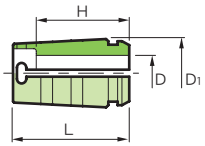


CODE	Fig.	ϕD	L	ϕC	L1	Kg
E32-CTH10-55	1	2.4 ~ 10	55	32	35	0.2
-CTS10-50 (※)	2		50	26	30	
E40-CTH10-55	1		55	32	35	0.4
E50-CTH10-60			60	36	34	0.7
-90			90		64	0.9
-CTH20-75		5.8 ~ 20	75	50	49	
F63-CTH10-60		2.4 ~ 10	60	36	34	0.9
-90			90		64	1.1
-CTH20-75		5.8 ~ 20	75	50	49	

■**Option** ●Spring collet ●Spanner
■**Caution** ●※=It cannot use collapsibility of a collet.
The holding diameter applies only to the reference diameter of collet.

Spring collet





CODE Precision Collet	ϕD	L	ϕD1	H	Holder type
C10-D-P	2.6～ 5.8 (0.2㎜ steps)	26	17.2	18	CTH10
	6 ～10 (0.2㎜ steps)			20	
C20-D-P	6 ～ 9.8 (0.2㎜ steps)	50	29.5	29	CTH20
	10 ～15.8 (0.2㎜ steps)			33	
	16 ～20 (0.2㎜ steps)			40	

Spanner / Wrench

Fig.1



Fig.2



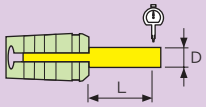


CODE	Fig.	Shank type	R	L
FC-32	1	E32 - CTH10 E40 - CTH10	16	120
-36		F63 - CTH10	18	208
-50		- CTH20	25	281
RC-26	2	E32 - CTS10	—	240

Accuracy

Runout accuracy	Nominal shank size
Precision Collet	5 μm

※Accuracy of collet alone

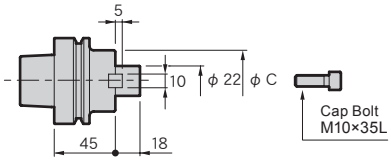


D	L
～ 10	4 ×D
10.2 ～ 20	40

Face Mill Arbor (FMC)



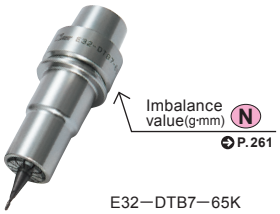
F63-FMC22-45



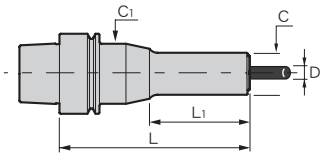
CODE	Cutter dia	ϕC	Kg
E50-FMC22-45	50 , 63	42	0.7
F63-FMC22-45		45	1.0

■**Std. Access.** ●Cap Bolt ●Stopper Key
■**Note** ●The cap bolt may differ depending upon the shape of the cutter.

DETa-1 Collet Holder (DTA / DTB)

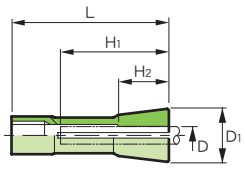


E32—DTB7—65K



DETa-1 Collet





CODE	ϕD	L	ϕC	L1	Kg	N
E25 -DTB 3- 58	0.5 ~3.175	58	10	27	0.1	0.4
E32 -DTA 3- 75	0.5 ~3.175	75	10	27	0.2	1.8
-DTB 3- 65		65			0.2	0.6
-DTB 7- 65K※	1 ~ 7		21	33		0.9
E40 -DTA 3- 75	0.5 ~3.175	75	10	27	0.2	1.7
-DTB 3- 70		70			0.3	0.9
-DTB 7- 95	1 ~ 7	95	21	50	0.4	1.6
DTB12-110	2.5 ~13	110	30	90	0.5	2.8
E50 -DTA 3- 80	0.5 ~3.175	80	10	27	0.5	2.1
-DTB 3- 75		75				1.7
-DTB 7-100	1 ~ 7	100	21	50	0.6	3.2
-DTB12-115	2.5 ~13	115	30	89	0.8	4.2
F63 -DTA 3- 90	0.5 ~3.175	90	10	27	0.8	2.3
-120		120			0.9	2.7
-DTB 3- 75		75			0.7	2.1
-105		105			0.8	2.5
-105L				57	0.7	2.1
F63M-DTB 7-100	1 ~ 7	100	21	50	0.9	3.3
-DTB12-120	2.5 ~13	120	30	70	1.1	4.8

CODE Precision Collet	ϕD	Collap-sibility	ϕD1	L	H1	H2	Holder type
D 3- 0.6-P	0.5 ~ 0.6	0.1	7	40	36	6.9	DTA 3 DTB 3
- 0.8-P	0.6 ~ 0.8	0.2					
- 1 -P	0.8 ~ 1.0					7	
- 1.5-P	1.0 ~ 1.5	0.5				7.2	
- 2 -P	1.5 ~ 2.0					7.3	
- 2.5-P	2.0 ~ 2.5					7.4	
- 3 -P	2.5 ~ 3.0					7.6	
- 3.175-P	2.7 ~ 3.175						
D 7- 1.5-P	1 ~ 1.5	0.5	17	50	36	7	DTA 7 DTB 7
- 2 -P	1.5 ~ 2					10	
- 2.5-P	2 ~ 2.5					12	
- 3 -P	2.5 ~ 3						
- 4 -P	3 ~ 4	1				14	
- 5 -P	4 ~ 5					16	
- 6 -P	5 ~ 6						
- 7 -P	6 ~ 7						
D12- 4 -P	2.5 ~ 4	1.5	26	70	50	16	DTB12
- 6 -P	4 ~ 6	2				20	
- 8 -P	6 ~ 8					22	
-10 -P	8 ~ 10						
-12 -P	10 ~ 12						
-13 -P	11 ~ 13						

■**Option** •DETa-1 Collet • Wrench

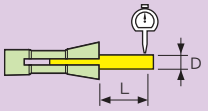
■**Std.Access.** •Rod(DTA3)

■**Caution** •※=It cannot use collapsibility of a collet. The holding diameter applies only to the reference diameter of collet.
•HSK-E and F shank don't come with a coolant duct and cannot be attached. Consult us if you need it.

Accuracy

Runout accuracy	D3	D7·D12
Precision Collet	3 (6)μm	5 (10)μm

※Accuracy of collet alone,
( ) means collapsibility usable.



D	L
~10	4 ×D
10 ~13	40

Spanner · Wrench

Fig.1

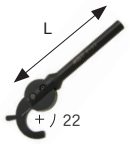


Fig.2



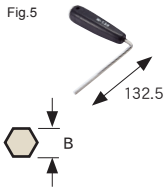
Fig.3



Fig.4



Fig.5

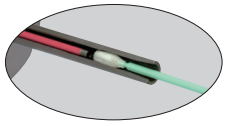


CODE	Shank type	Fig.	L	B	Clamping torque (kgf)
F -22	DTA 3	1	110	—	0.2~0.3
DW-2.5-110	DTB 3	2			
TW-4	E32 - DTB 7	3	100	4	1.4
-5	- DTB 7	4	153	5	3.4
-6	DTB12		173	6	1.4
W -135DR	E40 - DTB12	5	110	5	1.8
	F63M - DTB 7		132.5		1.4
	- DTB12				1.8

Cleaning Tool (DTA3 / DTB3)

Please use to clean the inside of the holder.

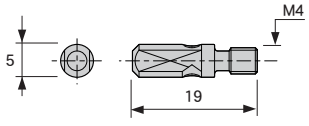


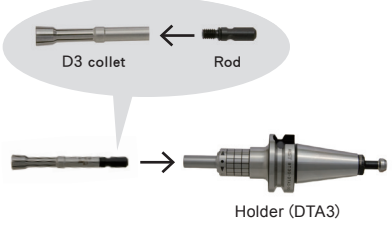


CODE	Q'ty
PCT01-10	10
-25	25

Rod (DTA3 type)

The rod is required to a collet when attaching to the DTA 3 type holder.





CODE	Shank type	Q'ty
PR-DTA3	DTA3	2

Retention knob

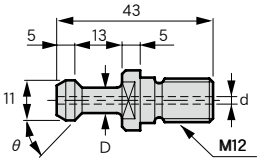


■ Caution

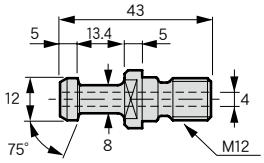
- Retention knobs in this catalog are typical models for various machine tool companies. Confirm the correct retention knob design using the machine specifications sheet.
- We manufacture other kinds of retention knobs. Please consult us for the detail.
- When heating Mono Series shrink-fit holders, use a retention knob with a through-hole or remove the retention knob before heating. If you use a retention knob without a through-hole for the Mono Series shrink-fit holders, a cutter cannot be inserted into the holder because the air in the holder is not released. We can provide you with a retention knob with an air drain hole.

Compatible manufacturers	Standard type						For through spindle coolant type		
	BT30		BT40		BT50		BT30	BT40	BT50
	Standard type	Standard type with a through hole	Standard type	Standard type with a through hole	Standard type	Standard type with a through hole			
OKUMA	—		P40T–2 (MB series)	P–339 (MB series)	P50T–2	P–419	—	P–499	P–419
			P40T–1 (MILLAC series)	P–297 (MILLAC series)					
OKK	—		P40T–1	—	P–143	—	—	—	—
OHTORI	—		P40T–1	P–297	P50T–1	P–299	—	—	—
KITAMURA	P30T–1	P–445 P–399 (Mycenter-1Xi)	P–348	P–323–1	P–400		—	P–323–1	P–400
KIRA	P30T–1	P–445	P40T–1	P–297	—		—	P–323–1	—
KIWA	P30T–1	P–445	P–348	P–323–1	P–400		—	P–323–1	P–400
KURASHIKI	—		P40T–1	P–297	P50T–1	P–299	—	—	—
KOMATSU NTC	P30T–1	P–445	P40T–1	P–297	P50T–1	P–299	P–522	P–505	P–384
JTEKT	—		P40T–1	P–297	P50T–1	P–299	—	P–297	P–299
SHIZUOKA	P30T–1	P–445	P–141	P–498	P–143	P–402	—	—	—
SNK	—		P40T–2	P–339	P50T–2	P–419	—	—	—
SUGINO	P30T–2	P–497	—		—		—	—	—
DMG MORI	P30T–1	P–445	P–141	—	P–143	—	—	P–435	P–513
TOSHIBA MACHINE	—		—		P50T–1	P–299	—	—	—
NIIGATA MACHINE TECHNO	—		—		P50T–2	P–419	—	—	—
FANUC	P30T–1	P–522	—		—		P–522	—	—
BROTHER	P30T–2	P–511	—		—		P–511	—	—
HOWA	P30T–1	P–445	P40T–1	P–297	P50T–1	P–299	—	—	—
MAKINO	—		P40T–1 (V series)	P–297 (V series)	P50T–1 (A series, MCC series, V series,)	P–299 (A series, MCC series, V series,)	—	P–323–1	P–299
			P–348 (a series, D series)	P–323–1 (a series, D series)	P–400 (A series, a series)				
MATSUURA	P30T–2	P–511	P–348	P–323–1	P50T–2	P–419	—	P–323–1	—
	P–399				P–400		—		—
MITSUI SEIKI	—		P–007	—	P–008	P–250	—	—	—
MITSUBISHI	—		P40T–1	—	P50T–2	—	—	—	—
YASDA	—		P–348	P–438	P50T–1	P–299	—	P–509	P–459
					P–400 (YBM1218V)		—	—	P–288–1 (YBM1218V)
YAMAZAKI GIKEN	—		P40T–1	P–297	P50T–2	P–419	—	—	—
MAZAK	—		P–227		P–514		—	P–227	P–514

■ BT30

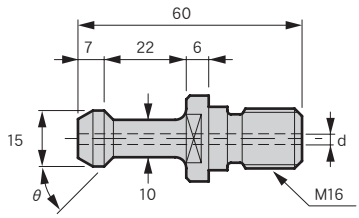


CODE	ϕD	ϕd	θ	NOTE
P30T-1	7	—	45	MAS —1
P-445		3		P30T —1 through hole
P30T-2		—	60	MAS —2
P-497		2		P30T —2 through hole
-522	8	4	45	FANUC center-through
-511	7.5	2.5	60	BROTHER center-through

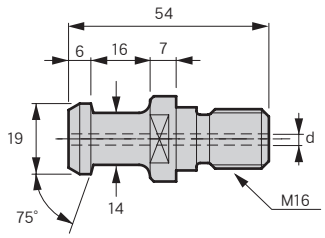


CODE	NOTE
P-399	JIS30P

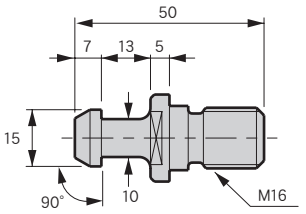
BT40



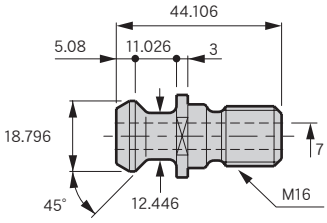
CODE	ϕd	θ	NOTE
P40T-1	—	45	MAS—1
P-297	4		P40T—1 through hole
P40T-2	—	60	MAS—2
P-339	4		P40T—2 through hole
P-141	—	90	—
-498	4		P—141 through hole
-505	3	45	KOMATSU NTCcenter-through



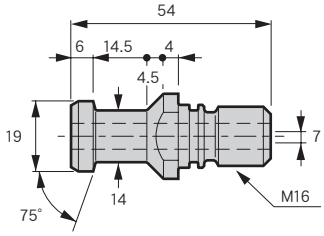
CODE	ϕd	NOTE
P-348	—	JIS40P
-323-1	7	P—348 through hole
-499	4	OKUMA center-through
-438	7	YASDA through hole
-509		YASDA center-through



CODE	NOTE
P-007	MITSUI SEIKI

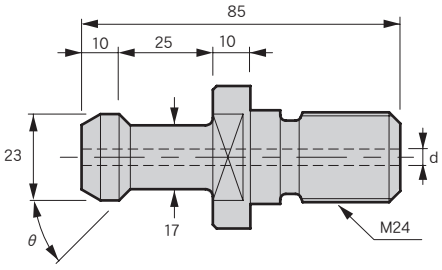


CODE	NOTE
P-227	MAZAK

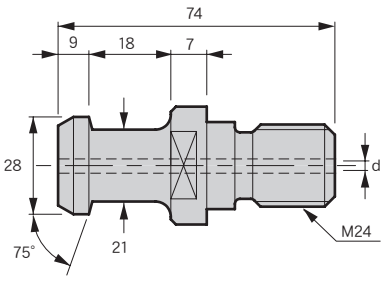


CODE	NOTE
P-435	DMG MORI center-through

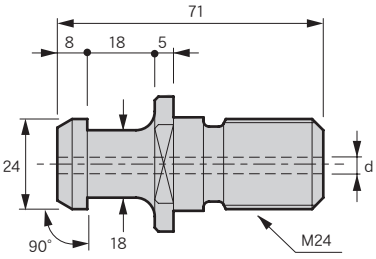
BT50



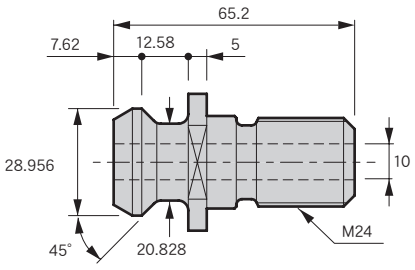
CODE	ϕd	θ	NOTE
P50T-1	—	45	MAS—1
P-299	6		P50T—1 through hole
P50T-2	—	60	MAS—2
P-419	6		P50T—2 through hole
P-143	—	90	—
-402	7		P—143 through hole
P-459	7	45	YASDA center-through
-513	8	90	DMG MORI center-through
-384	5.5	45	KOMATSU NTC center-through



CODE	ϕd	NOTE
P-400	10	JIS50P
-288-1	6	P—400 through hole



CODE	ϕd	NOTE
P-008	—	MITSUI SEIKI
-250	8	P—008 through hole



CODE	NOTE
P-514	MAZAK

SLIMLINE collet installation

You can install a SLIMLINE collet without removing the retention knob if the center hole dia. is more than 6mm.



Coolant duct (HSK-A)

Coolant duct (fixed type)

A coolant duct comes with below shank holders as a standard accessory.

CODE	Fig.	ϕC	L	ϕD	W	G	
CD 40-01	1	8	29.5	4	4	M12X1	HSK−A40
-03	3		35.5				
-04			36.5				
CD 50-01	1	10	33	5	5	M16X1	HSK−A50
-03	3		39				
-04			59				
CD 63-01	1	12	36.5	6	6	M18X1	HSK−A63
-02	2						
-03	3				5		
-04			60.5				
CD100-01	1	16	44	8	8	M24X1.5	HSK−A100
-02	2			10.3			

Fig. 1

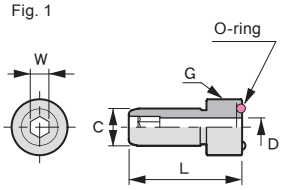


Fig. 2

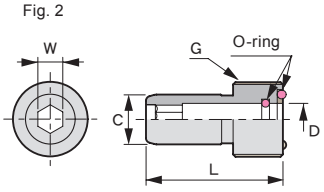
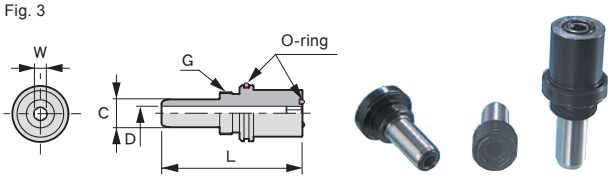
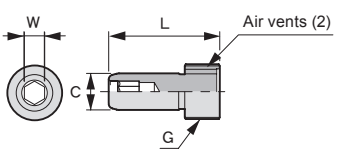


Fig. 3



Dummy duct

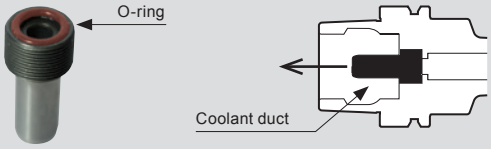
CODE	ϕC	L	W	G	
CD 40-A1	8	29.5	4	M12X1	HSK−A40
CD 50-A1	10	33	5	M16X1	−A50
CD 63-A1	12	36.5	6	M18X1	−A63
CD100-A1	16	44	8	M24X1.5	−A100





⚠ Cautions for shrinking operation.

Remove the coolant duct when using the hot air heater.
If not, the O-ring will be damaged by the heat.
(Removal is not necessary with the induction heater.)
Use the dummy duct when the spindle coolant capability is not in use.
The dummy duct does not need to be removed when heated.



Coolant duct (Swing type)

Some machine tool companies recommend using a swing type coolant duct.
We can exchange our standard fixed type coolant duct with a swing type at your request.

CODE	Fig.	ϕC	L	ϕD	G	
CD 63-01F	1	12	36.5	7	M18×1	HSK−A63
-03F	2		45.5	6.5		
CD100-01F	1	16	44	10	M24×1.5	−A100

Fig.1

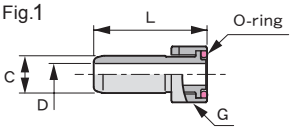
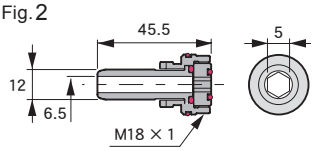


Fig.2



TOOL SET UP STATION

For details, please see our website!
http://www.mst-corp.co.jp

Work table

6S DESK

CODE
6SD-01

Sorting
Systematizing
Sweeping
Sanitizing
Self-discipline
6S
5S + S Safety

- Helps in the rapid implementation of the 5 S's in your factory.
- Ensures safe tool settings.
- Easy-to-assemble, simple, compact, prefabricated type.



Backside
- Dust Shooter
- Tool Cap Dispenser
- Hanger



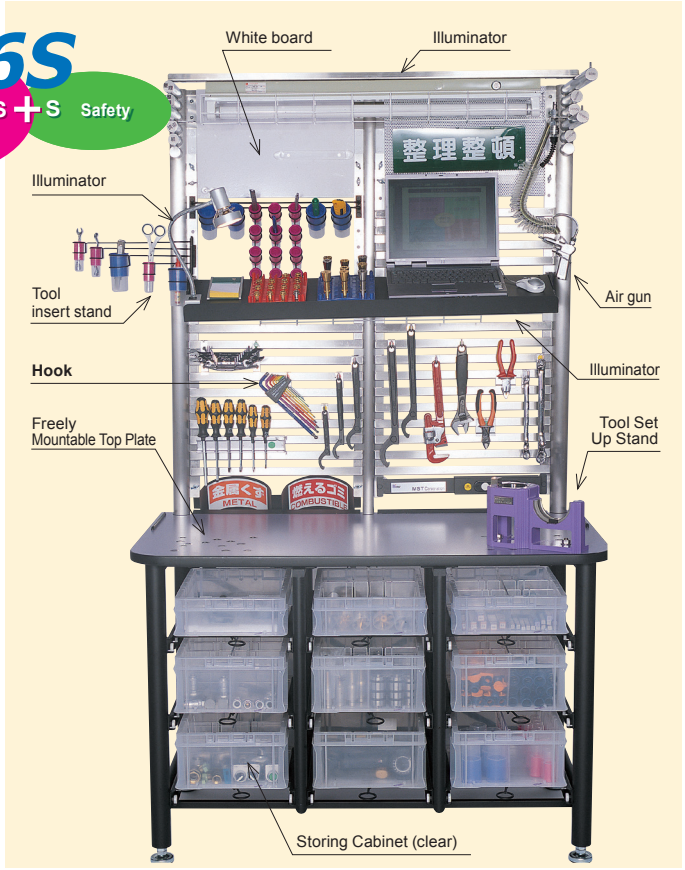
Freely Removable Drawer



Freely mountable and interchangeable hooks



Tools and vises can be freely clamped/mounted.



*This image includes the options.

Tool washing machine

CLEAN BOX

CODE
CBX-01

- Tools including cutters and jigs are washable with no need to breaking them down.
- Compact type with built-in sink.
- No plumbing required.
- Safe cleaning system using water.
- Comes with a washing water heater for ensuring comfortable working conditions even in winter.



Compact built-in sink

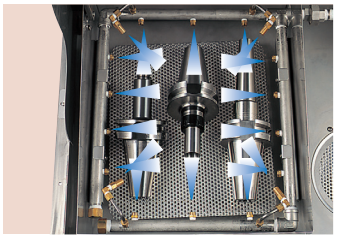


Washing shower equipped with automatic shutoff function, when opened

Warm water



Hand washing



Automatic washing from 18 nozzles.

Wash Tool holder/Collet/Nut/Cutting tools thoroughly to maintain their high accuracy.



*This image includes the options.

TOOL CAP TCC type

Cutting tool cover that keeps the cutting tool visible, will not slip off or break, and is user-friendly



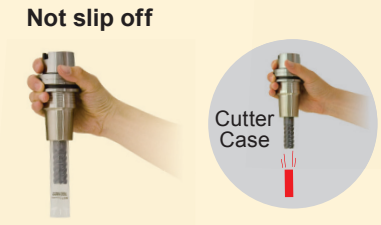
Protects the cutting tool and is user-friendly.

The cutting tool cover protects the user from injury at the time of work while protecting breakage of the cutting edge.



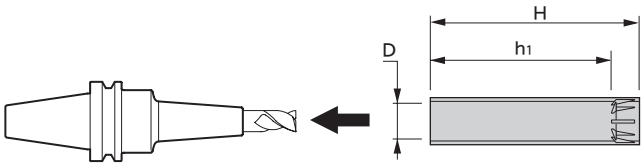


Not slip off





CODE	φD	h1	H	Q'ty
TCD03-50	3	—	25	50
TCD04-50	4	—	32	50
TCC0607- 50	5.4～ 6.7	35	40	50
-100				100
-500				500
TCC0709- 50	6.8～ 8.9	35	40	50
-100				100
-500				500
TCC0911- 50	8.9～10.9	65	70	50
-100				100
-500				500
TCC1113- 50	10.9～13.4	65	70	50
-100				100
-500				500
TCC1418- 25	13.8～17.8	100	110	25
- 50				50
-250				250
TCC1822- 25	17.8～22.4	100	110	25
- 50				50
-250				250
TCC2228- 25	22.3～28	135	150	25
- 50				50
-250				250
TCC2836- 10	28 ～36	130	150	10
- 20				20
- 50				50
-200				200
TCC3646- 10	36.2～47	165	190	10
- 20				20
- 50				50
-200				200
TCC4760- 10	46 ～60	160	190	10
- 20				20
- 50				50
-200				200



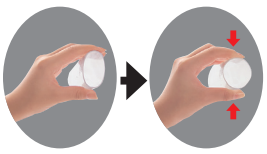
Variety Set

Each size comes in a set of two.

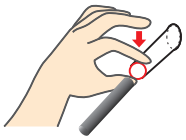
CODE	Q'ty
TCC-F	2 pieces per cutting tool over size for TCC0607 to 4760(total of 20 pieces per set)

Usage

1 Hold the mouth of the tool cap vertically, and then press it so that its oval shape becomes round.

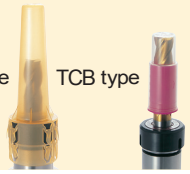


2 Once the mouth of the tool cap becomes round, push it into the cutting tool or tool.



TCA type— The TCA-type cutting tool cover is used by attaching it to the tip of a tool holder.

TCB type— This cutting tool cover is attached to the cutting tool.



General catalog for further reference…

TOOL SET UP STAND

The setup time can be shortened.
Not only can you mount cutting tools simply and quickly without using other tools, but also clamping collets and retention knobs!

プチボール Petit Ball 40
BT40

Freely set vertically or horizontally

マイキューブ MY CUBE 50
BT50

マイキューブ MY CUBE 100
HSK-A100

HF SERIES
BT30/BT40/BT50
HSK-A40/A50/A63/A100
E32/E40/E50/F63









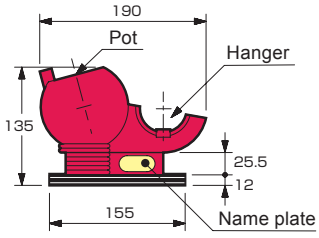
Petit Ball / MY CUBE

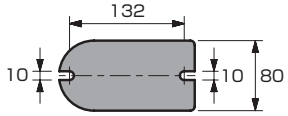
CODE	Shank type	Kg
PETIT BALL40	BT40 / CAT.40 / DIN40	6.1
MY CUBE 50	BT50 / CAT.50 / DIN50	9.7
MY CUBE100	HSK-A100	9.6

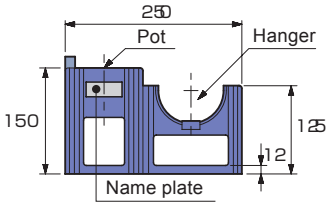
■Option
- Adapter (Petit Ball, MY CUBE 50)

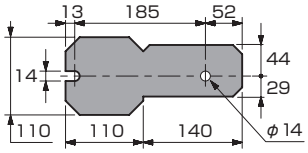
■Std.Access.
- Name plate

■Caution
- Prepare 2 bolts for installation. (Petit Ball : M8, MY CUBE : M12×2).









CODE	Model	Adapter	Shank type
AP40-T30V	Petit Ball 40	For pot	BT30
-T30H		For hanger	BT30
AP50-T30V	MY CUBE 50	For pot	BT30
-T40V			BT40/CT40 / DN40
-A63V			HSK-A63、T63
-F63V			HSK-F63
AP50-T30H		For hanger	BT30
-T40H			BT40
-A63H			HSK-A63、T63
-F63H			HSK-F63



At your request, your company name will be engraved.
(Petit Ball, MY CUBE)



Petit Ball　MY CUBE

HF series

CODE	Fig.	Shank type	H	W	A	t	Kg
HF-BT30	1	BT30	77	70	50	30	0.8
-BT40		BT40	90	90	60	37	1.2
-BT50	2	BT50	—	—	—	—	2.2
-A40	1	HSK-A40、T40	72	60	35	30	0.8
-A50		-A50、T50	88	70	50	37	1.0
-A63		-A63、T63	87	90			1.2
-A100	2	-A100、T100	—	—	—	—	2.1
-E32	3	-E32	98	64	35	24	1.0
-E40		-E40	100	70			1.1
-E50		-E50	106	80	50	26	1.3
-F63		-F63	120	90	60		1.6

Fig. 1

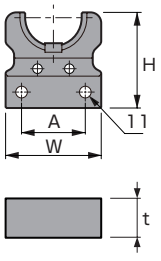


Fig. 2

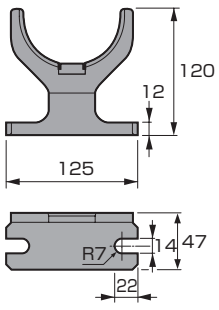
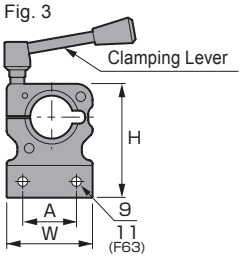


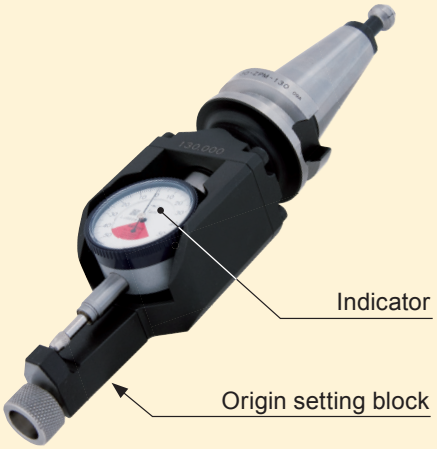
Fig. 3

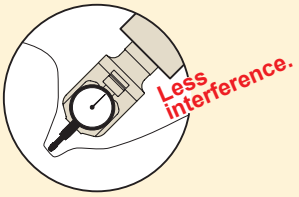


Goo CHECKER ZPMtype

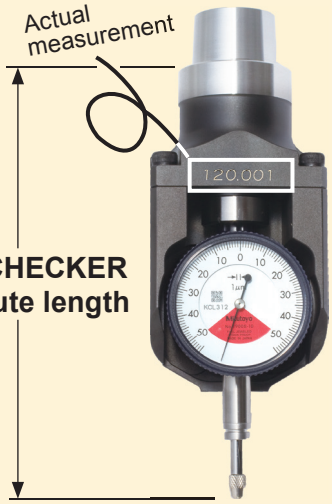
Set up the original point on the Z axis / measuring tool for reference position

Shareable Z-axis origin for multiple machining centers. Easy work-piece origin setting. Precise work-piece flatness and step measurement possible!





Available for using 5-axis machine.



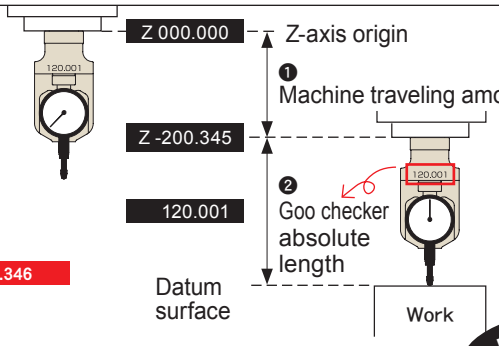
Easy Z-axis origin setting

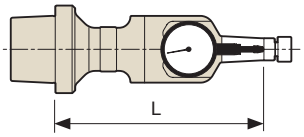
Easy measurement for Z-axis origin to work-piece datum surface.

〈Ex.〉
Distance from Z-axis origin to work-piece datum surface.

200.345 + 120.001 = 320.346

❶ Machine traveling amount ❷ Goo checker absolute length





	CODE	L	Kg
BT	BT30-ZPM-130	130	1.0
	-165	165	1.2
	BT40-ZPM-150	150	1.3
	-210	210	1.5
	BT50-ZPM-180	180	2.9
	-240	240	4.1
	A 63-ZPM-150	150	1.2
	-210	210	1.5
	A100-ZPM-180	180	2.5
	-240	240	3.8
HSK	E 32-ZPM-120	120	0.7
	-165	165	1.0
	E 40-ZPM-120	120	0.8
	-180	180	1.1
	E 50-ZPM-150	150	1.0
	-195	195	1.3
	F 63-ZPM-150	150	1.1
	-210	210	1.3
	F80PD-ZPM-180	150	1.1
	-240	210	1.3
DIN	DN40-ZPM-150	150	1.3
	DN50-ZPM-180	180	2.9
CAT.	CT40-ZPM-150	150	1.3
	CT50-ZPM-240	240	4.1

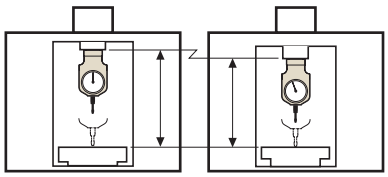
■ **Option**
●Retention knob(BT/ CT/ DN)

■ **Std. Access.**
●Origin setting block ●Indicator, 1/1000 reading

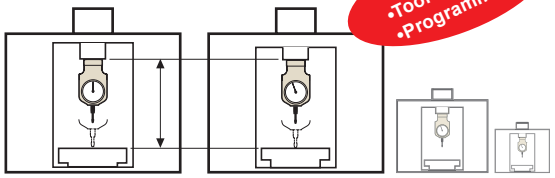
■ **Caution**
●A.T.C is not available. (except for BT30)

Sharable Z-axis origin for several machining centers

After measuring the distance from the Z-axis origin to the table surface of each machining center and correcting any variations, mulitple machining centers can share Z-axis origin.

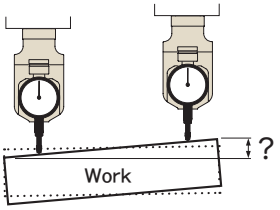


Correcting actual measurement variations



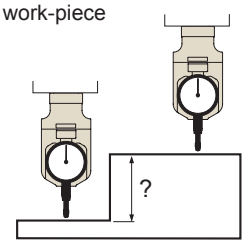
Work-piece position measuring

Precise measurement for flatness



Step distance measurement

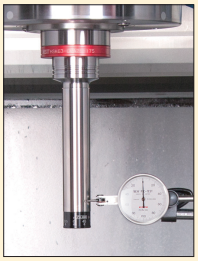
Measurement for steps on the work-piece



Ideal for checking machine spindle run-out accuracy easily.

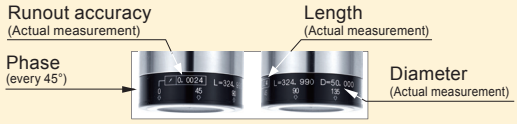
Managing spindle accuracy will maximize tool holder performance and increase productivity.

- ▷ Light-weight, hollow design makes it easy to use.
- ▷ Ideal for setting Z axis origin.
- ▷ Reasonable price.



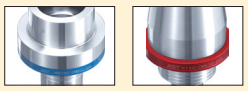
You can recognize the exact run-out accuracy and the highest run-out of the spindle.

The actual measurement values are marked on the body.



It can be installed into the spindle in every phase.

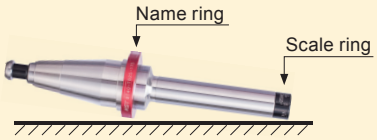
Drive-key less design allows you to install the test bar in every phase, making the run-out check easier than ever.



No drive key ways.

The name ring and scale ring protect it from scratches and dents.

The taper area and straight area do not touch the table surface even if they are placed horizontally.





Handy CMA type

Allows you to check the dynamic accuracy thanks to optional balance adjustment.



Full-fledged CMB type

Z-axis deflection and spindle travel accuracy can be measured.

	CODE	Fig.	ϕD	ϕD1	L	L1	L2	L3	Kg
BT / DIN / CAT.	NT30-CMA20-125	1	20	32	125	45	65	15	0.7
	NT40-CMA25-175	2	25	42	175	50	110		1.3
	NT50-CMA30-225		30	53	225	65	145		3.5
	NT30-CMB30-175	1	30	32	175	45	115	15	1.0
	NT40-CMB40-325	2	40	42	325		265		2.8
	NT50-CMB50-325		50	53		60	250		5.7
HSK-A / -E	HSK32-CMA20-125	3	20	26	125	35	75	15	0.4
	HSK40-CMA20-125			32		45	65		0.5
	HSK50-CMA25-175		25	42	175	50	110		1.0
	HSK63-CMA25-175								1.2
	HSK80-CMA30-225		30	53	225	65	145		2.2
	HSK100-CMA30-225								3.0
	HSK125-CMA30-225								4.1
	HSK32-CMB25-175	3	25	26	175	35	125	15	0.7
	HSK40-CMB30-175		30	32		40	120		0.9
	HSK50-CMB40-225		40	42	225	45	165		1.8
	HSK63-CMB40-325				325		265		2.7
	HSK80-CMB50-325		50	53		60	250		4.4
	HSK100-CMB50-325								5.2
	HSK125-CMB50-325								6.3
HSK-F	HSK63F-CMA25-175	3	25	42	175	50	110	15	1.2
	HSK80F-CMA30-225		30	53	225	65	145		2.3
	HSK63F-CMB40-325		40	42	325	45	265		2.7
	HSK80F-CMB50-325		50	53		60	250		4.5

Fig. 1

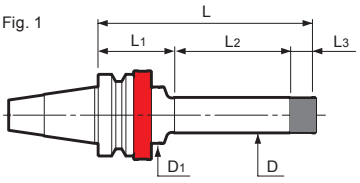


Fig. 2

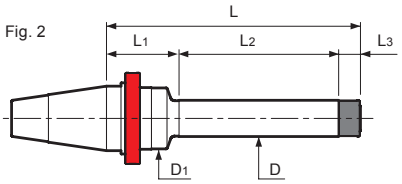
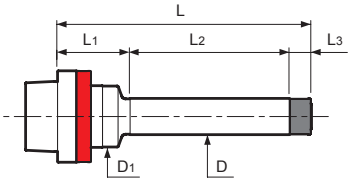


Fig. 3



Exclusive retention knob

CODE	Shank
P-576	CAT.40
-575	CAT.50
-578	DIN40
-577	DIN50

■ **Std. Access.**
- Accuracy inspection sheet

■ **Option**
- Coolant duct(HSK-A) ●Retention knob(BT)
- Special retension knob(CAT. / DIN)
- Balance adjustment (only for CMA type) less than G2.5 /30000min-1
  *Please order by adding "BL" to the end of the code.
  (Ex. : HSK63-CMA25-175 **BL**)

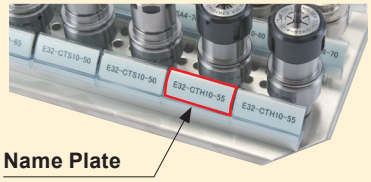
■ **Note**
- NT type is available for BT/CAT. and DIN spindle by changing the retention knob.
- HSK type is available for both HSK-A and HSK-E spindles. ●HSK-F type is available only for HSK-F spindle.
- A special design retention knob is required for CAT./DIN spindle. A market standard retention knob for ANSI/DIN/ISO is not available. Contact us for detail.

■ **Caution**
- Use a market standard retention knob for the BT spindle.
- NT30 type can be installed into a spindle at 0°and 180°.
- A.T.C is not available. (except for NT30)

TOOL HOLDER STORING CABINET

Compact Storage Box for anti-rust treatment of tool holders.

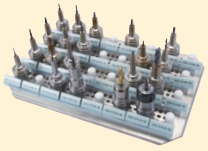
Orderly storing with name plate





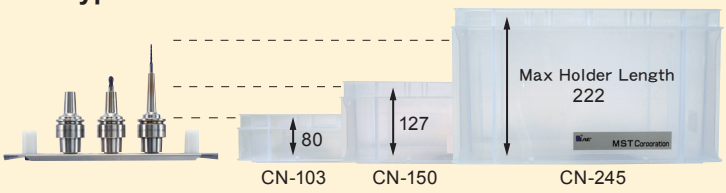
Arrangeable

A multi-hole base plate is employe.
Supports a variety of holder specifications using pins that can be freely changed and relocated.


Horizontal type


Vertical type

Holders with different lengths can be stored using three types of container boxes.



Standard Set

CODE	max. Q'ty	Container box	Pin	Number of pins supplied	Shank type
HBX-A40	24	CN-150	HBX-PNE40	18	HSK-A40
-A50	15	-245	-PNE50	15	-A50
-E25	40	-150	-PNE25	32	-E25
-E32			-PNE32		-E32
-E40	24		-PNE40	18	-E40
-E50	15	-245	-PNE50	15	-E50
-F63	10				-F63
-15T	40	-150	-PN15T	16	15T(BROTHER)
-20T			-PN20T		RS20/20T(SUGINO)

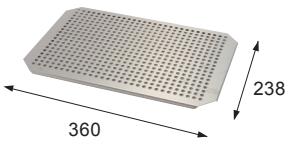
■**Contents of set**
●Base plate ●Container box ●Pin

■**Option**
●Rail ●Name Plate ●Lid for Container Box ●Eyenut

■**Note**
●Knock-down type. A wrench (5mm) is required.

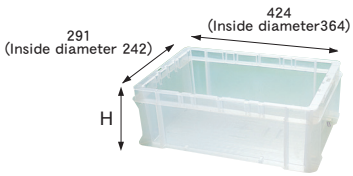
Base plate

CODE
HBX-BP01



Container box

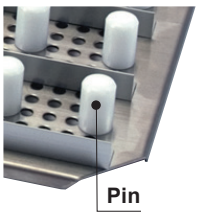
CODE	H		Shank type
	Outside diameter	Inside diameter	
CN-103	103	88	—
-150	150	135	E25, 32, 40/15T/20T
-245	245	230	A50, E50, F63



Pin

CODE	Q'ty	Size
HBX-PNE25	10	ϕ13.5×H20
-PNE32		ϕ16.5×H25
-PNE40	5	ϕ20.5×H29
-PNE50		ϕ25.5×H36
-PN15T		ϕ26.5×H54
-PN20T		ϕ30.5×H62

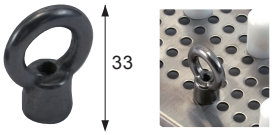
■ **Std. Access.** ●Mounting bolt (M5)



Eyenut

CODE	Q'ty
HBX-ENM6	2

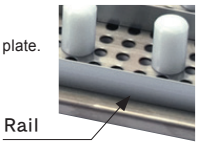
■ **Std. Access.**
●Mounting bolt M6



Rail (for name plate)

CODE	Q'ty	L	Note
HBX-R210	6	210	Vertical type
-R330	4	330	Horizontal type

■ **Std. Access.**
●Mounting bolt M5
Required for attaching name plate.

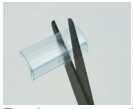


Name plate

CODE	Q'ty
HBX-NP01	40

Attaches easily to the rail.



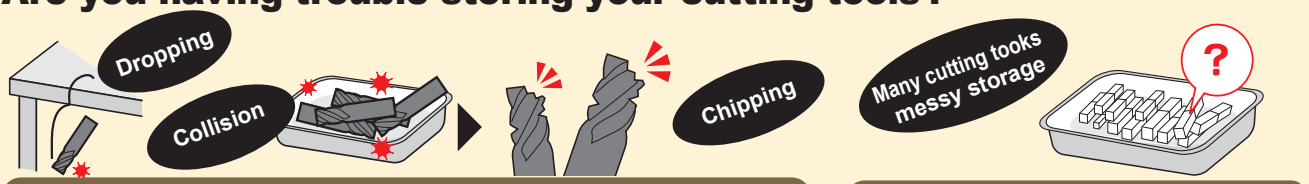

Freely cut to required overall length

Lid for container box

CODE
CN-FT



Are you having trouble storing your cutting tools?



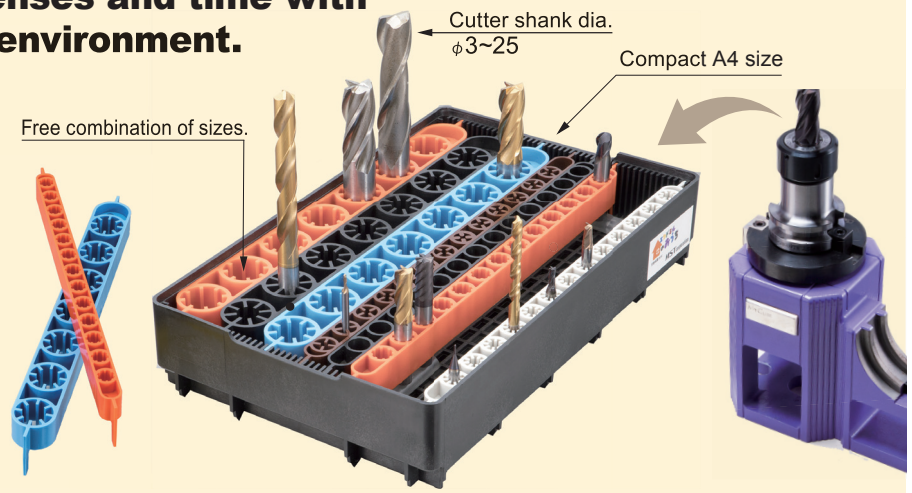
Cutting tool expenses increase due to cutting edge chipping.

The required cutting tool cannot be found easily.

Save cutting tool expenses and time with the optimum working environment.

Cutting tool life is extended because the cutting edge is not dulled from striking other cutters.
You can find the required cutting tool immediately.

エンドミルのおうち
刃物保護 BOX
Cutter protection box



Value set

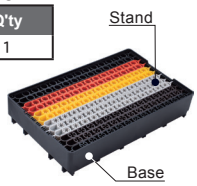
This is a convenient value set that can be immediately used and handles tool shank diameters of 3 mm to 12 mm. (Stores 156 cutting tools)

Stand

Cutter dia	Q'ty
ϕ 3	1
ϕ 4	2
ϕ 6	3
ϕ 8	2
ϕ 10	2
ϕ 12	2

Base

Q'ty
1



TOOL CAP

Cutter dia	Q'ty
ϕ 3	50
ϕ 4	50
ϕ 6	50
ϕ 8	50
ϕ 10	50
ϕ 12	50



TOOL CAP storage box

Q'ty
1

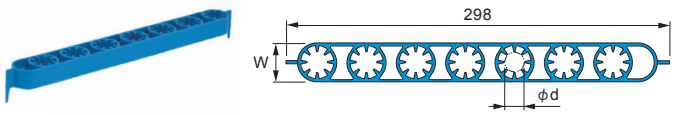


ϕ3:13pcs. ϕ4 :26pcs. ϕ6 :39pcs.
ϕ8:26pcs. ϕ10:26pcs. ϕ12:26pcs.

CODE
EMO-SET-01

Stand

Parts for storing and securing cutting tools. It is possible to identify the cutting tool size by color, and the cutting tool you need can be found at a glance. Use this stand inserting it into the base.



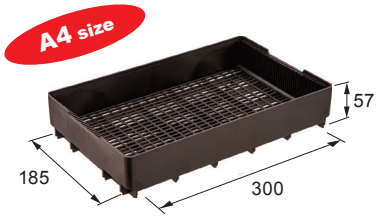
CODE	ϕd	Q'ty	Color	max. Q'ty	W
EMO-STD 3-2	3	2	Black	13 pcs./cutting tools/stand	15mm (1W)
-5		5			
-STD 4-2	4	2	Brown		
-5		5			
-STD 6-2	6	2	Gray		
-5		5			
-STD 8-2	8	2	Yellow		
-5		5			
-STD10-2	10	2	Orange		
-5		5			
-STD12-2	12	2	Black		
-5		5			
-STD16-2	16	2	Blue	7 pcs./cutting tools/stand	30mm (2W)
-5		5			
-STD20-2	20	2	Orange		
-5		5			
-STD25-2	25	2	Gray		
-5		5			

Base

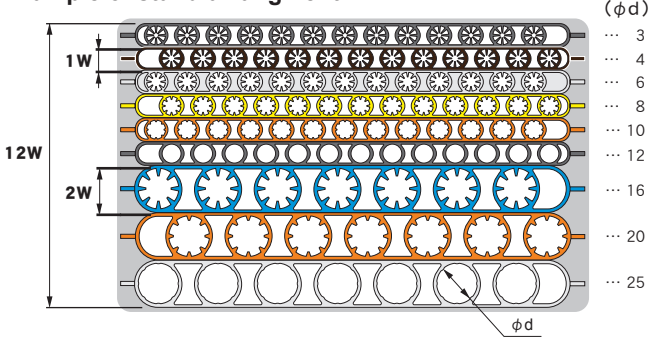
Container for holding the stands.
Stands can be arranged by changing the combination of stands freely.

CODE	Q'ty
EMO-BAS-1	1
-3	3

■ Note
- 12 rows for the stands of 3mm to 12mm diameter or 6 rows for the stands of 16mm to 25mm diameter.
- The left-right orientation of the stands can be set.



Example of stand arrangment



Technical support

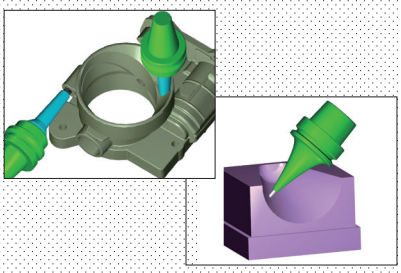
At MST, we provide long-term support of your safe use and maintaining high accuracy of our products for your machining.

1 Pre-sales

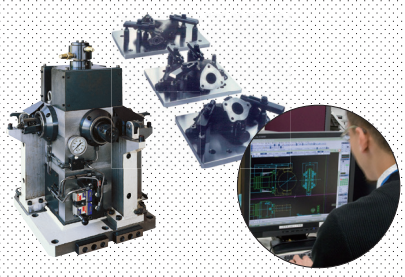
Provide wide-ranging technical support.



Tool selection



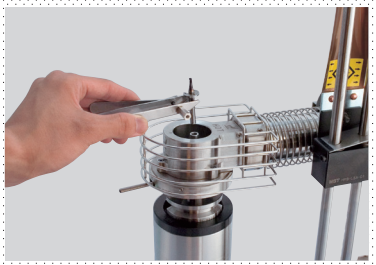
Interference check with 3D drawings



Designing jig fixtures

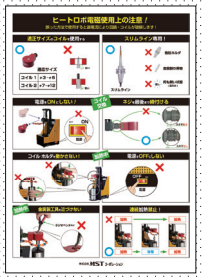
2 On delivery

You will receive instructions.



Instructions for a heater





Maintenance instruction

3 Post-sales

Our Tool Clinic experts can visit your factory to demonstrate the correct usage, maintenance and seminar.



Seminar



Evaluation



Consulting

Substantial peripheral equipment



Work table
6S DESK
P. 247



Holder,
Tool washing machine
CLEAN BOX
P. 247



Tool protection cover
TOOL CAP
P. 248



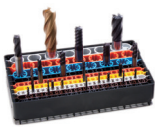
Tool tightening stand
Tool set up station
P. 249



For machine spindle maintenance
Test bar CHECKMATE
P. 251



Tool holder storage cabinet
P. 252



Cutter protection box
ENDMILL HOUSE
P. 253



Cleaning tool
P. 14

Instructions for use

To ensure optimum, trouble-free performance, please read this instructions carefully before using products.
Please contact us if your holder is damaged. We are ready to help you.

Instructions for using SLIMLINE

Pay attention to scratches and dust.

Before using, be sure to remove anti-rust oil on the holder. Scratches and dust can reduce performance and accuracy.
Please keep your holders clean with rags.
Our CLEAN BOX is available for your cleaning needs.



CLEAN BOX
➔P.247



Tool holder shank

If you insert holder shanks with scratches and dust into machine spindles, the acuracy of the spindle is reduced and the spindle can be damaged.
For shank maintenance, use an oil grinding stone or sandpaper to remove scratches and rust.
We can not re-grind shanks since it changes the position of gauge line, so we recommend you to purchase new holders.



Storage

Please use tool protection covers if you store holders with cutters.
Cutting edges may be damaged by coming in contact with each other, and you may get injured by sharp cutting edges.



TOOL CAP
➔P.248



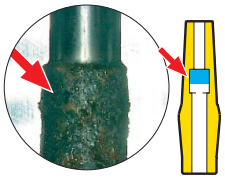
Daily maintenance.

Why does rust form?

- Water in air adheres to SLIMLINE holders. This water reacts with the metal and then rust forms. Since the SLIMLINE is heated, the oil on its surface is liable to evaporate and this makes rusting more likely to occur.
- Rust formed on the metal surface gradually corrodes deeper over time.

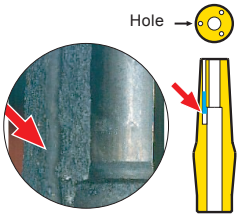
Coolant-through-spindle

In particular, when coolant is passed through a holder or a collet in the spindle-through system, it remains deep inside the holder and induces rusting.



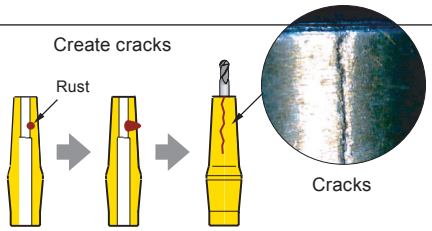
Flush type

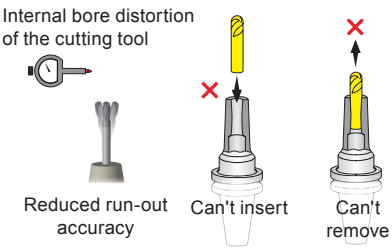
Special care must be taken for the flush type SLIMLINE, because coolant is more likely to remain in its small holes.



What happens after rusting?

- If a tool is chucked in this state, the tool cannot be inserted into the holder. If the tool is forced, then the stress resulting from the shrink-fit will focus on the corroded part and it causes the holder to crack.
- The clamping force is reduced, resulting in cutter slippage and loss of acuracy.

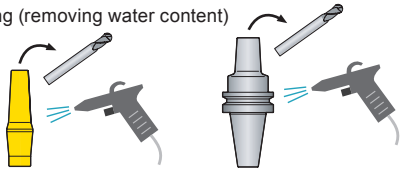




What should be done to prevent rusting?

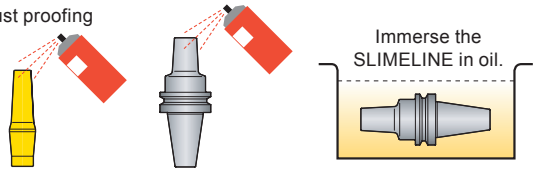
Iron rusting occurs if there are water content and air (oxygen). It can be prevented by removing water content by rustproofing or by ensuring that the metal is not directly exposed to air (oxygen).

❶ Cleaning (removing water content)



- After use, blow off any clinging water content with compressed air. Sufficiently blow air, in particular, into the deep ends of holes, small holes in the flush-type SLIMLINE, etc. After SLIMLINE has been cleaned with cleaning oil or a washing machine, blowing the holder with compressed air is effective.

❷ Rust proofing



- After cleaning, spray with rustproofing oil or immerse your SLIMLINE in rustproofing oil.
- Prior to shrink-fitting, sufficiently remove the rustproofing oil remaining on the SLIMLINE. To remove the oil, a cleaner spray or solvent is useful.

If it's getting hard to insert the cutting tool ?

If oxidation has occurred, or grease or dust has burned onto the internal bores, remove with “cleaning tool rubber grinding stone”.



Cleaning tool
Rubber grinding stone type
➔P. 14

Precautions for shrink-fitting

Cleaning before shrink-fitting

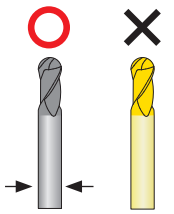
You must clean the cutter shank and internal bore of holder before you shrink-fit it. Please use our brush-type cleaning tool to clean out dust and dirt inside before you shrink-fit.



Cleaning tool
Brush type P. 14

Usable tools

- Please use only carbide cutters. No shrink release is possible for any tool using high-speed steel.
- A tool exceeding its tolerance can cause breakage or slippage.
- Sometimes melted particles such as tiny cutting chips on cutter shanks get stuck in clamping holes, and cutters can't be removed. DO NOT remove or insert the cutting tool forcedly, when you cannot remove it, please reheat again.



Carbide
ϕ3～ 5:h6
ϕ6～32:h7

High speed steel

Using heat-resistant gloves

Use these gloves to protect from burns during operation.

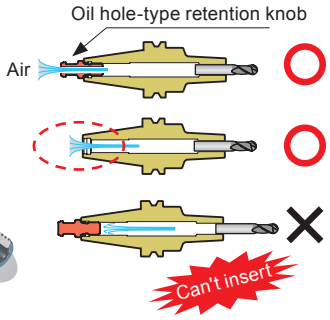


Heat-resistant gloves
P. 13



Retention knob with hole (BT)

Use a retention knob that has a through hole, or remove the retention knob and heat it. The typical retention knob has no vent to release air which prevents tools from being inserted.

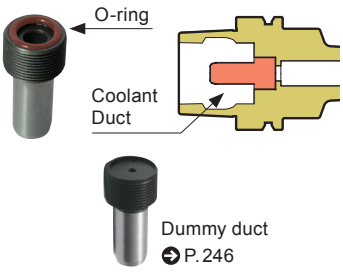


Through hole-type retention knob



Coolant Duct (HSK-A)

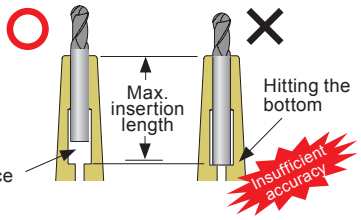
When you use hot air heater, remove the coolant duct before heating the holder. If you heat the holder with the coolant duct attached, the O-ring will be damaged.
A dummy duct is available, If you don't use the coolant-through feature and don't want to remove the duct every time.



P. 246

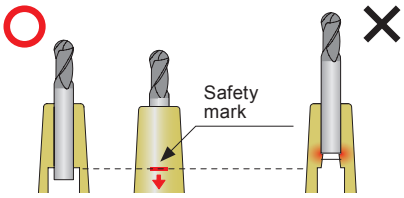
Max. insertion length

Inserting the cutter all the way to the bottom of the holder may result in insufficient accuracy. Please ensure the insertion length.



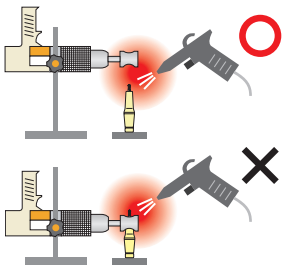
Min. holding length

A short insertion length may cause the holder to be damaged when the cutter is inserted. Always insert the cutter shank beyond the safety mark.



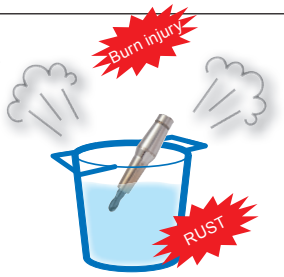
Cooling by outside air

Do not directly apply air to the shrink-fitting heater when cooling the HRB-01, 02S and 03S using air from the outside. The fan in the heater will melt, resulting in a breakdown



Precautions for water-cooling

Water-cooling immediately after shrink fitting may ressult in burns due to the large quantity of steam generated.
Be sure to set the shrink-fitting heater setting to COOL and cool the holder for at least one minute before water-cooling.
Moisture left on the holder may lead to rust formation and damage to the holder, so be sure to completely remove all moisture.

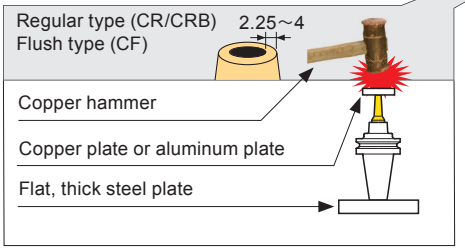


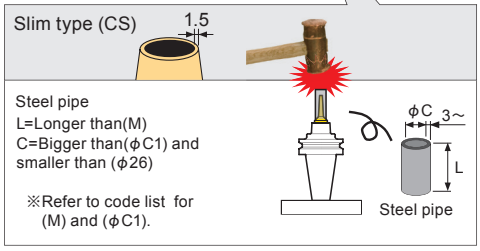
2 PIECE type : When the SLIMLINE collet can't be removed from the master holder.

Tap the collet. You can remove the collet after loosening the stuck screw.

1. Remove the tool using a shrink-fit heating device.
2. Apply force once using the dedicated wrench in the eject direction.
3. Tap it.
4. Eject.
5. Apply oil to the thread.







The reason it cannot be loosened.
In most cases, there is not adequate lubrication on the thread.



Low oil content

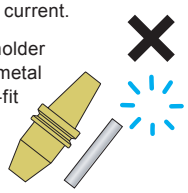
Please contact MST if you cannot remove a collet using the method above.

Cautions when using the HEAT ROBO DENJI! (HRD-01S, HRD-02S)

Only for use with SLIMLINE holders

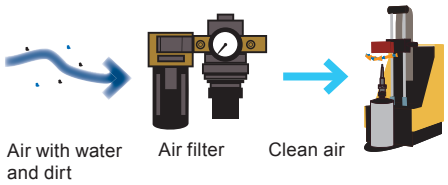
Use of the following items will lead to damage to the heater from excessive current.

- Other brand's shrink-fit holder
- Foreign matter made of metal
- Heating without a shrink-fit holder (blank heating)



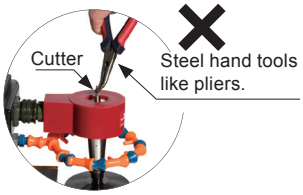
Attaching an air filter

For air-cooling, use filtered air. Air with a lot of water, or hot air, can break air component parts.

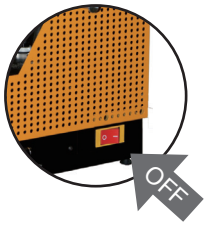


Do not use steel hand tools

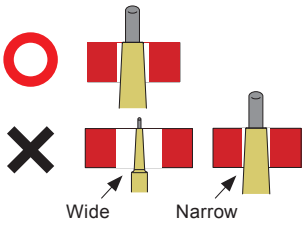
Wear heat-resistant gloves and use a cutter stopper.



Changing coils…
Be sure to turn off the power

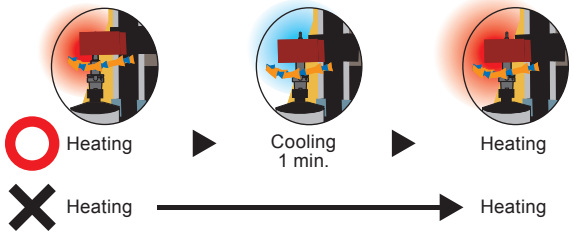


Use the appropriate coil size

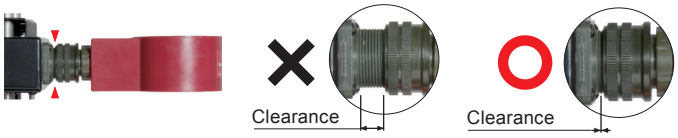


Do not repeat heating

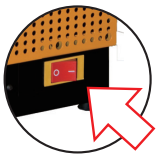
Always conduct a cooling operation for at least one minute after a heating operation, as continuous heating may damage the unit.



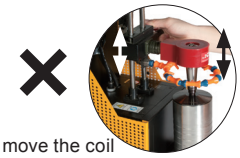
When you attach a coil, tighten the threaded connector all the way.



Heating



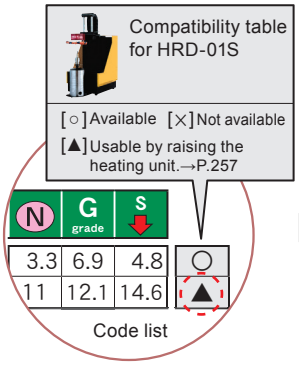
Do not turn OFF the power.



Do not move the coil & holder.

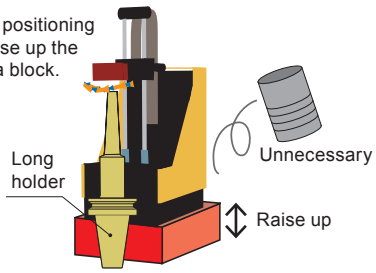
The HEAT ROBO DENJI 1200S (HRD-01S) is unable to shrink certain holders

For the MONO series and STRAIGHT ARBOR, please check for compatibility on item code table before using your holders.
For those marked with 「▲」 on the table, please follow the procedure to the right.



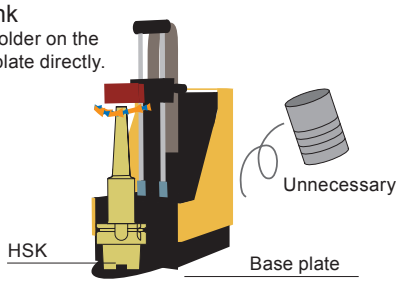
BT shank

Remove the positioning plate and raise up the heater with a block.



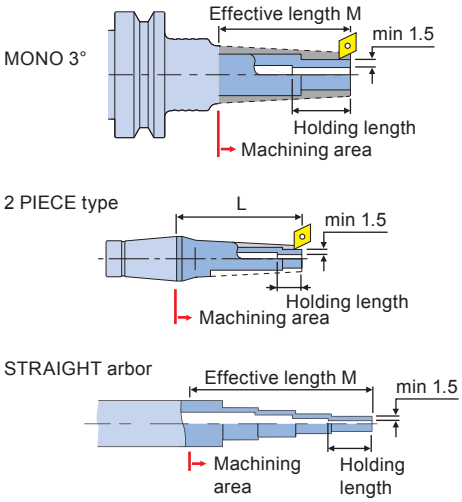
HSK shank

Set up the holder on the positioning plate directly.



User customization (Additional processing)

- Do not change the overall length (tool clamping length).
- Ensure that a thickness of at least 1.5mm is maintained.
- The custom machining area must be above the 「➡」mark. Please check details on the code tables.
- You can not do custom machining with the STRAIGHT ARBOR Carbide Shank type.
- When customizing flush-type (CF, SLFA and SLFB) holders, pay particular attention to the coolant-through holes.
- On request, we also supply drawings as CAD data (DXF format), which are useful for additional processing. These drawings may also be used to carry out interference checks with the work-piece and fixtures.
- The rigidity of the holder decreases after custom-machining. Reduce cutting conditions when using it.



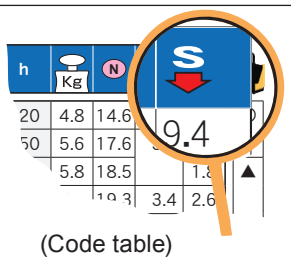
About custom-machining (turning)

- Perform light cutting using a shallow cutting depth (0.1 to 0.2mm).
- During cutting, use water-soluble coolant and do not allow the temperature of the object being cut to rise.
- Use a stainless-use tool or positive tip tool.
- The following machining conditions are recommended:
  - ○Cutting speed ···30～50m/min
  - ○Feed rate ···0.1～0.2mm/rev
  - ○Cutting depth ···0.1～0.2mm

Rigidity of SLIMLINE

Relationship between SLIMLINE rigidity S and L/D

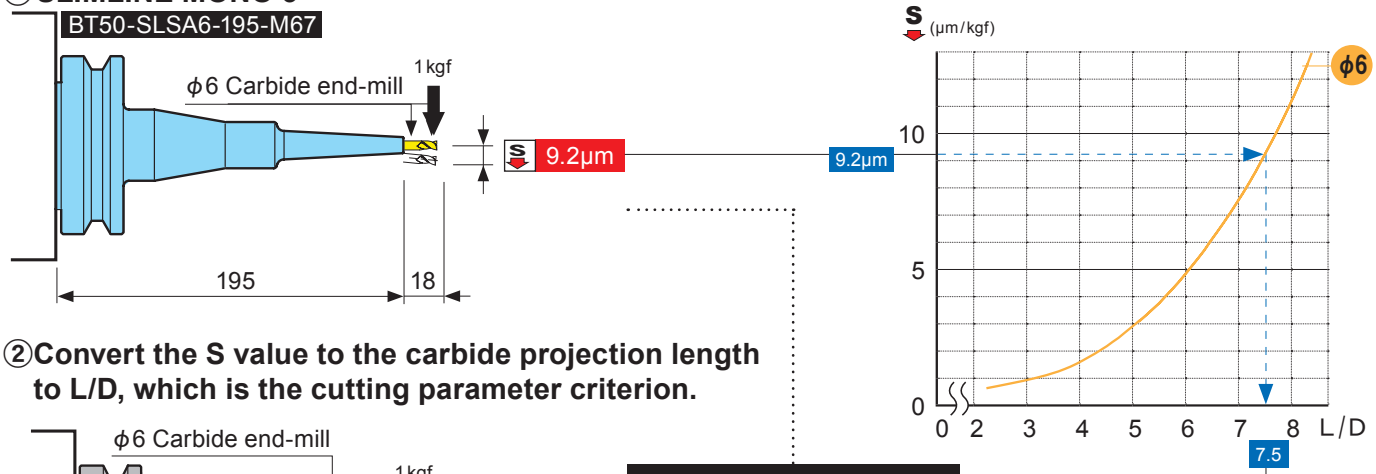
SLIMLINE has a very slim design. Your cutting results may vary significantly, depending on the holder design and the cutting tool projection length.
Rigidity Value S in the dimension tables can be used as a reference mark when selecting holders.
Please refer to the example below to learn more about this.



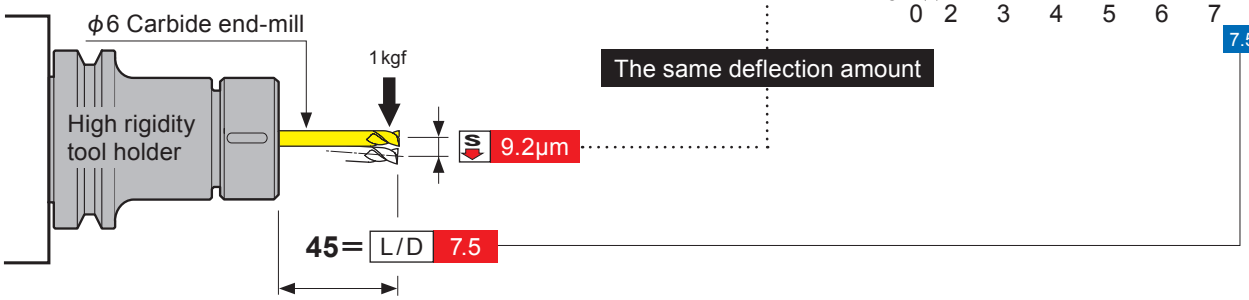
(Code table)

Rigidity Value S is the deflection amount of a holder with a 3D cutter projection length.

①SLIMLINE MONO 3°



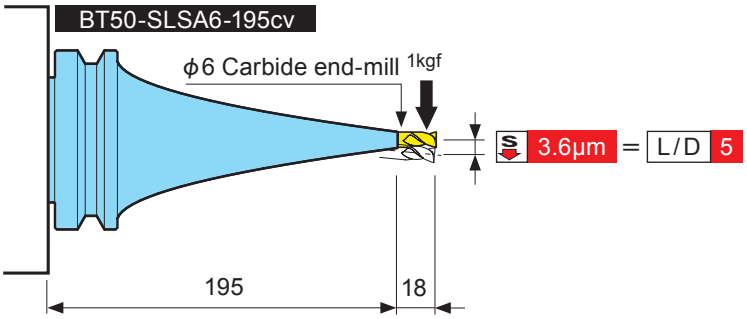
②Convert the S value to the carbide projection length to L/D, which is the cutting parameter criterion.



The rigidity value S = 9.2μm for BT50-SLSA6-195-M67 (18mm cutter projection) is equivalent to L/D = 7.5 = 45mm of carbide cutter projection.

③Even if the holder lengths are the same, the rigidity can vary greatly due to differences in the holder design.

Selecting the same length MONO Curve BT50-SLSA6-195cv holder will give a rigidity value of S = 3. 6μm, L/D = 5, enabling more stable machining.



SLIMLINE rigidity calculation software

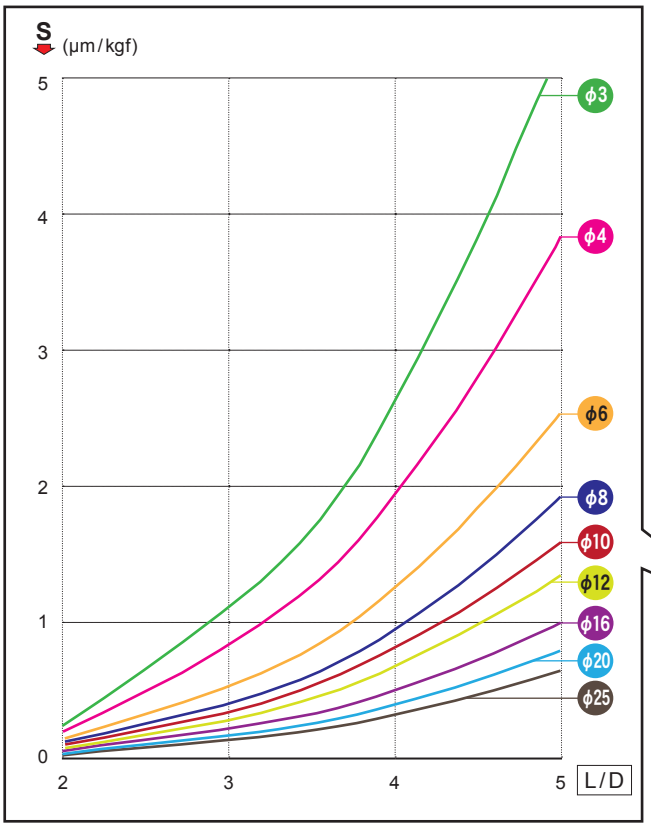
Please use our SLIMLINE rigidity calculation software for different cutter lengths (excluding 3D) and stepped/tapered cutters. It will calculate the rigidity according to your machining conditions.

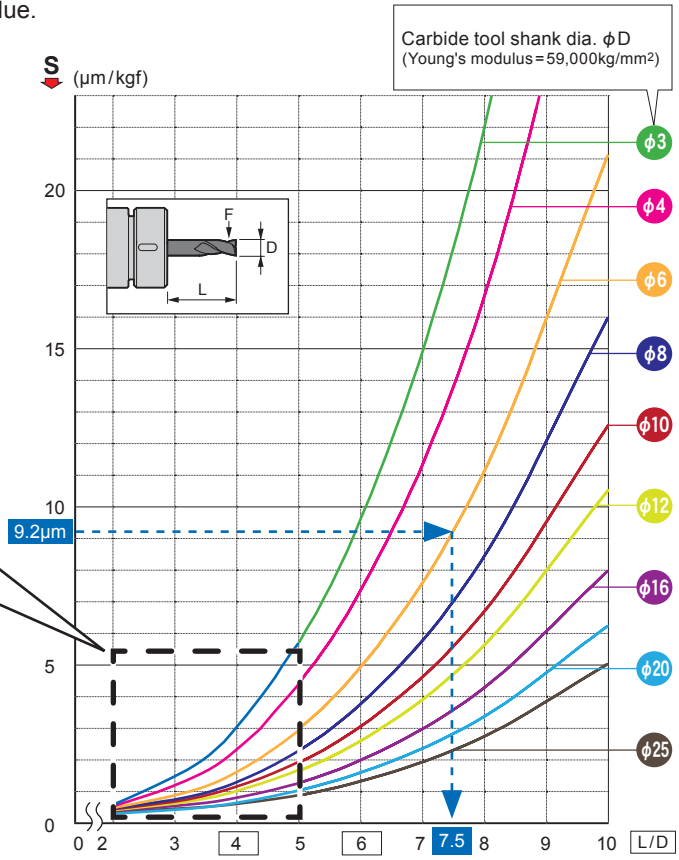


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The graph of relationship between rigidity S and L/D

The values of L/D can be determined based on the rigidity S value.





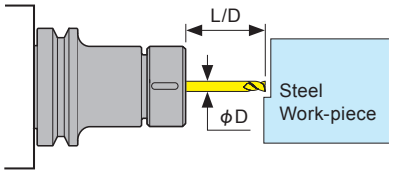
The formula to determine rigidity S (deflection)

$$S = \frac{6.8 \times F \times L^3}{E \times D^4}$$

D : Tool shank dia.
L : Overhang length of cutter
F : Load
E : Young's modulus

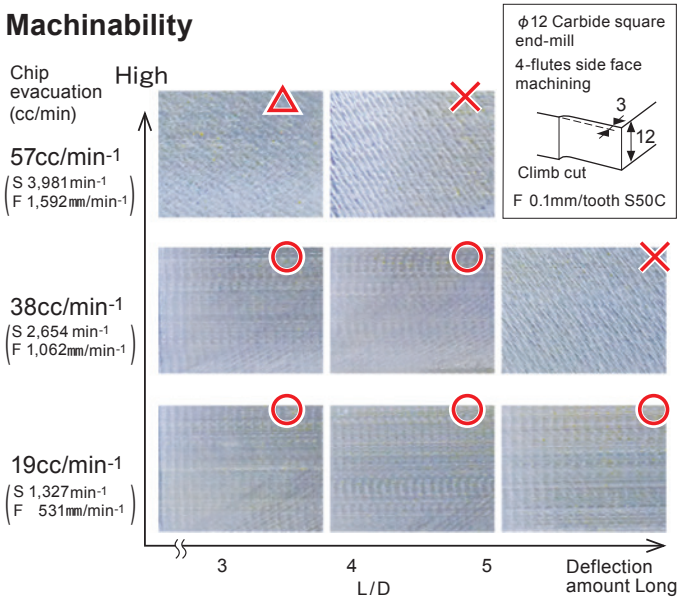
Cutting condition indication

	Cutting condition	
	Standard	Need to conside
Square end-mill Corner radius end-mill	L/D=4 Less than	L/D=4 Over
Ball end-mill	L/D=6 Less than	L/D=6 Over

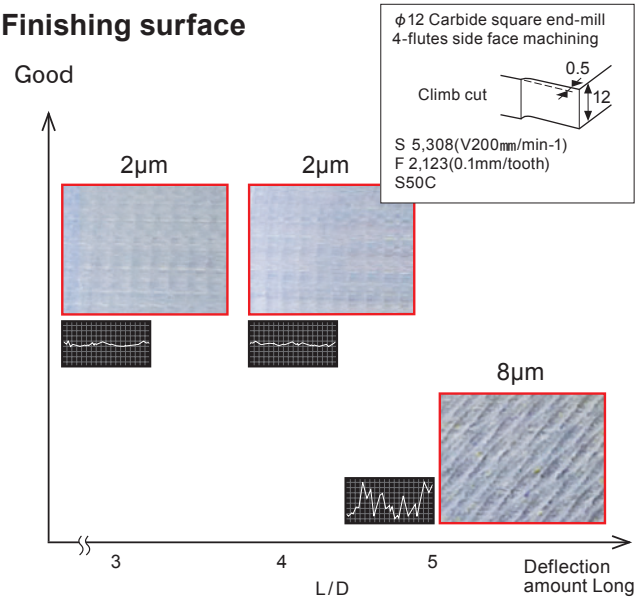


Tool life, surface finishing quality, and productivity comparison by different carbide cutter lengths (L/D)

Machinability



Finishing surface



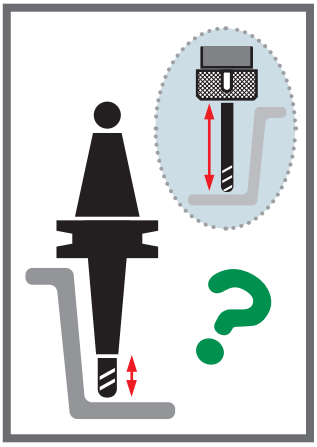
SLIMLINE
Rigidity calculation software

Free of charge

Indispensable for CAM operators!

PAT.

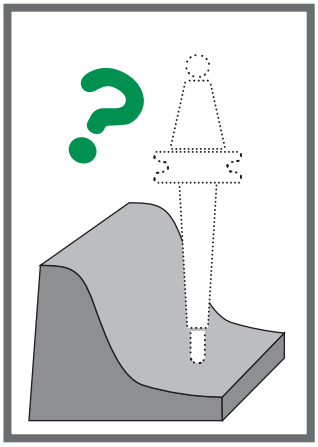
Do you have similar problems?



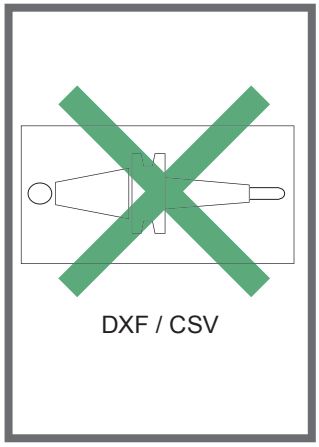
How much more rigidity is there in SLIMLINE compared to con-ventional holders?



We are looking for SLIM-LINE products (4,000 Variations) that can be used at even higher cutting conditions.



We want a holder that perfectly matches our cutting conditions and the shape of our workpiece.



There is no drawing data, which makes it troublesome for us to carry out an interference check using CAM.

Solution



Use SLIMLINE Rigidity Calculation Software to easily check SLIMLINE rigidity with cutter and work-piece interference. You can select the optimum holder with stronger rigidity and less interference.



You can readily improve your machining efficiency and quality.

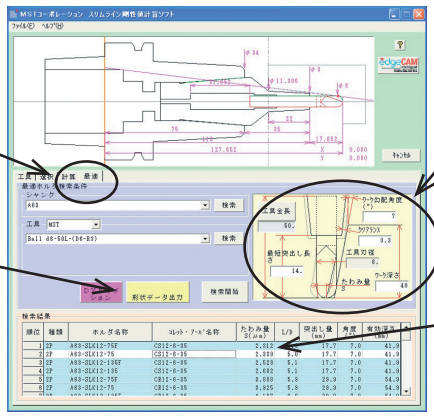
- The most suitable SLIMLINE
  +
- Cutter
  +
- Cutter projection

④Displaying the main dimensions

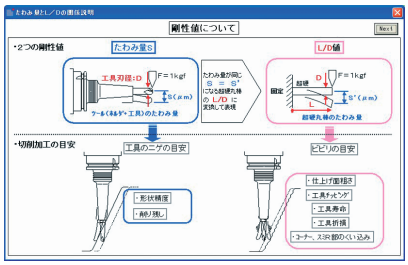
③The most suitable SLIMLINE holder with the highest rigidity for the shape of the work piece is automatically selected.

⑤"Selected SLIMLINE holder"with optimized "projection" of "cutter" can be output in DXF/CSV.

②Holders are listed in order of rigidity.



①Input a work-piece geometry. Input clearance information (between a work-piece and tool/ holder), and tool overhang limitation (min. value).



●The CAM simulators listed below come with SLIMLINE configured data as a standard.

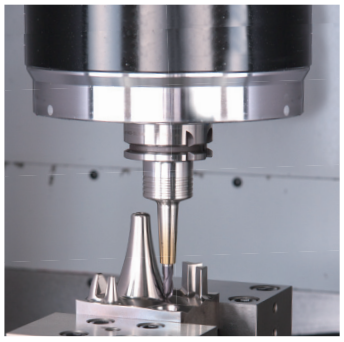
CAM-TOOL	edgecam	worknc	hyperMILL 5AXIS	CAD/CAM Solution Company JBM	GENETEC	SIEMENS
CAM-TOOL	EDGECAM	WORK NC	HYPER MILL	JBM	GENETEC	Siemens PLM Software
FF/cam	tebis	Delcam PowerMILL	CADmeister	VISI	VERICUT	
FF/cam	TEBIS	PowerMill	CAD meister	VISI	VERICUT	

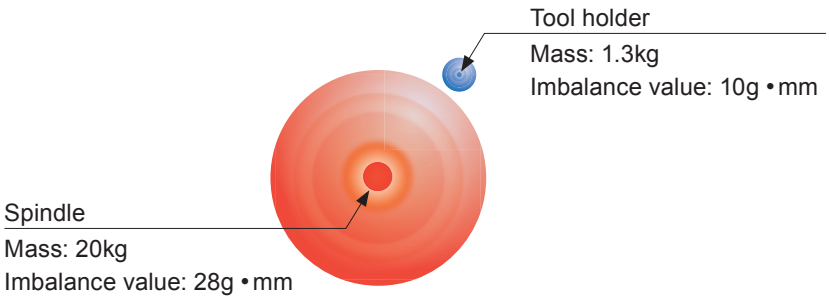
CAUTION : ※Each set of geometry data is handled differently, so please ask each CAM manufacturer for help.

For high-speed spindle rotation

Imbalance value of a machine tool spindle and a tool holder

A tool holder imbalance value (G grade) focuses at high-speed spindle rotation of a machining center. However, it is important to consider the entire rotation body, including the spindle, holder and cutter to determine the high-speed spindle rotation. This is because the holder and cutter weight is much lighter than the spindle weight (less than approx. 1/20th), and thus the effect of a tool holder on the spindle rotating equipment (spindle, tool holder and cutter) becomes significantly smaller.





Points to keep in mind at high-speed rotation.

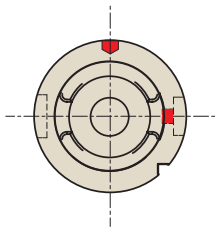
- Minimal length of a tool holder and cutting tool as short as possible.
- Using high accuracy and compact design tool holders.
- Optimizing cutting condition(rpm, feed and depth of cut).

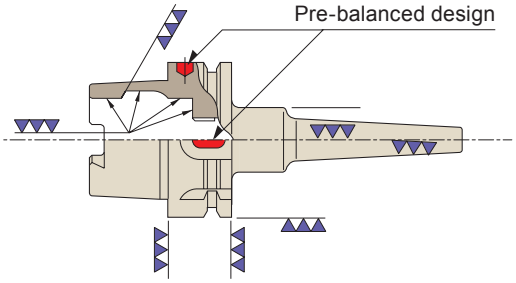
Spending time and money on balance corrections to the holder alone will not result in significant improvement.

PRE-BALANCED DESIGN

MST has applied our original pre-balancing to make our tool holders applicable for high-speed spindle rotation. Balancing corrections for our products is not required.

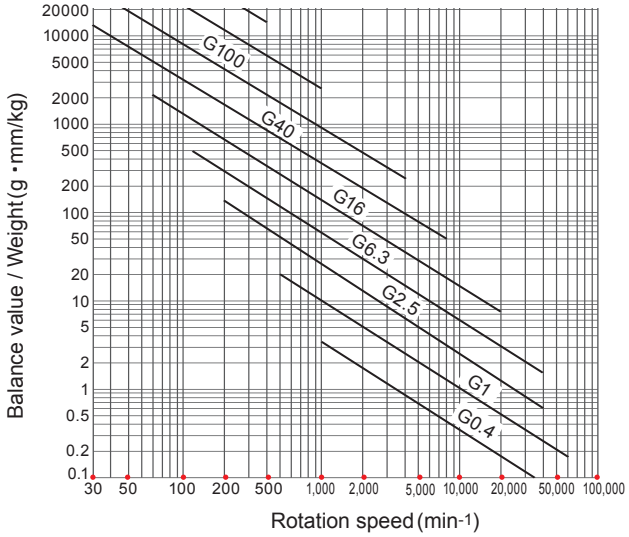






- Counter-balancing at imbalanced design areas.
- O.D finish grinding after heat treatment

Unbalancing in terms of tolerable residual ration against the balancing grade (G grade value)

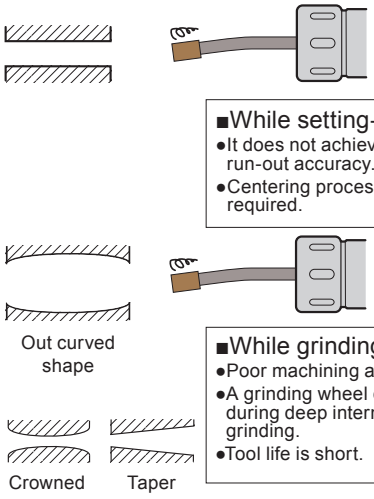


Application examples using SLIMLINE

The shrink fit quill for an internal grinder

A SLIMLINE holder has a slim design. It minimizes interference with grinding wheel. It holds the shorter portion of the tool for grinding. Grinding can be performed with high accuracy and high rigidity. It reduces tool costs and contributes to cost reduction.

Current method of chucking with a collet



■While setting-up
- It does not achieve good run-out accuracy.
- Centering process is required.

■While grinding
- Poor machining accuracy
- A grinding wheel deflects during deep internal bore grinding.
- Tool life is short.

Problem resolution

Ideal for internal grinding.

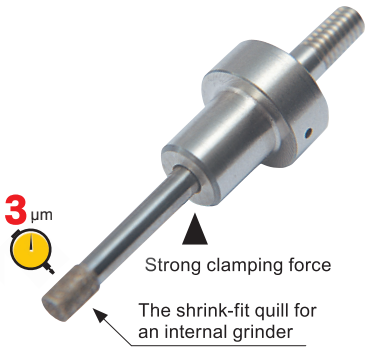




Specialized brochure available

Comparison data

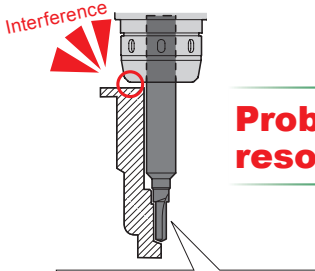
Measurements	SLIMLINE	COLLET HOLDER
Roundness	0.3 µm	0.6 µm
Surface roughness(Ry)	1.38 µm	2.7 µm



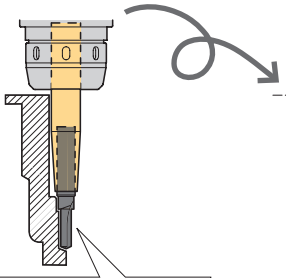
Tool grinding applications

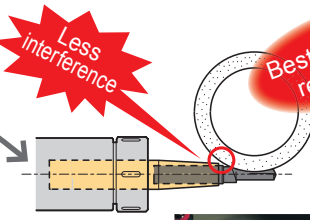
The chucking accuracy of a grinding wheel largely influences grinding accuracy (roundness and surface roughness, etc.).
A shrink-fit quill SLIMLINE holder further enhances processing accuracy.

Examples of improvements



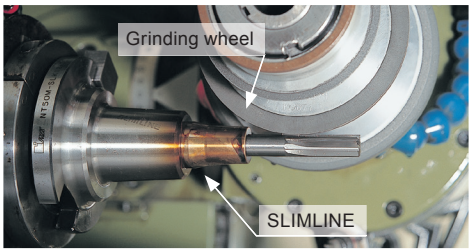
Problem resolution





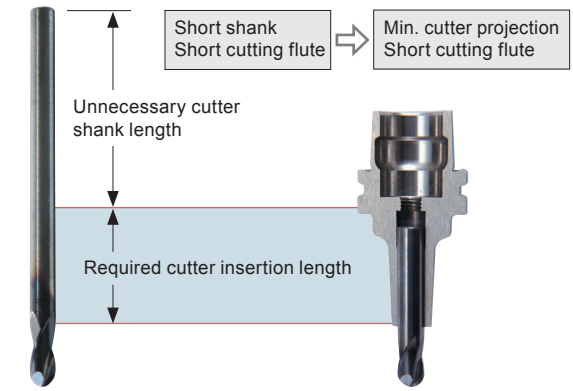
- Cutting tool life is shortened.
- Tool cost runs up.
- Bad machining conditions.

- Improvement tool life.
- Tool costs are decreased.
- Increased cutting speed!



Short-overall length carbide endmill for shrink-fit holders.

With a SLIMLINE, the maximum insertion length is short, so a normal length tool is not necessary.



DIJET Super short ball end mill DZ-SSB	MITSUBISHI MATERIALS Impact miracle ball end mill VF-2SSB	MOLDINO Shrink master ball FSHB-TH
NS TOOL Short shank ball end mill MSB230SF	OSG Short over all length type WXL end mill WXL-HS-EBD WXL-HS-LN-EBD	UNION TOOL High-efficiency short shank ball HFB-S

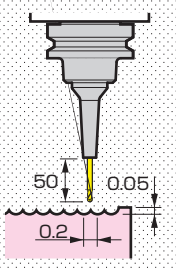
Cutting data

BT40-SLK12-45
CF12-3-55

N : 20000 min^{-1}
F : 2000 mm
V : 25 m
f : 0.05 mm/flute

R0.2 Carbide ball endmill
2flutes

User's voice
Cutter life was extended almost double, because chucking accuracy was improved. Finishing surface of workpiece was improved.



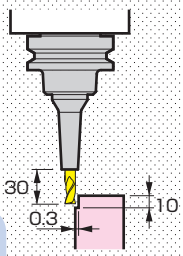
SKD61(HRC50°)

BT40-SLK12-45
CR12-6-55

N : 15000 min^{-1}
F : 2400 mm
V : 188 m
f : 0.04 mm/flute

φ6 Carbide endmill
2flutes

Cutter life was extended almost double against a collet holder. Scratch on the cutting surface with up-cut operation has been disappeared due to increasing rigidity of a cutting tool, because of reducing cutter projection when using SLIMLINE.



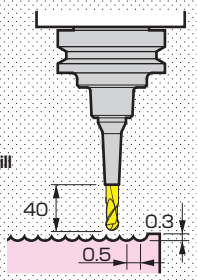
Sintering

BT50-SLK12-75
CS12-10-55

N : 6000 min^{-1}
F : 6000 mm
V : 188 m
f : 0.5 mm/flute

R5 Carbide ball endmill
2flutes

We achieved sufficient cutting surface.
Cutter life was extended about 3 times against using a collet holder.



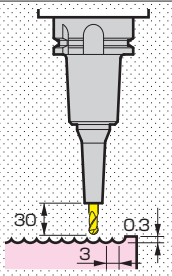
SKD11(HRC40°)

A63-SLK12-75
CF12-6-55

N : 16000 min^{-1}
F : 3200 mm
V : 301 m
f : 0.1 mm/flute

R3 Carbide ball endmill
2flutes

Cutter life was extended about 3 times due to superior chucking accuracy. SLIMLINE provides us great cutting surface, therefore, we could reduce hand-polishing time.



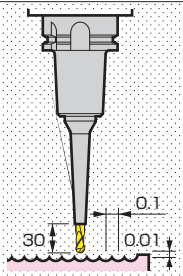
S55C(HRC28°)

A63-SLK12-75
CS12-6-80

N : 20000 min^{-1}
F : 4000 mm
V : 377 m
f : 0.1 mm/flute

R3 Carbide ball endmill
2flutes

No necessity long time for checking interference. Spindle rotation and feed rate were increased 1.5 times. Cutter life was extended due to superior chucking accuracy.



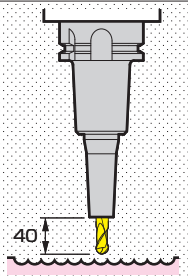
A7075

A63-SLK12-75
CF12-10-55

N : 20000 min^{-1}
F : 6000 mm
V : 628 m
f : 0.15 mm/flute

R4 Carbide ball endmill
2flutes

SLIMLINE provides constant run-out accuracy. We achieved sufficient cutting surface, because of vibration free machining due to high rigidity for cross feed. Cutter life was extended 1.5 ～ 2 times against a collet holder.



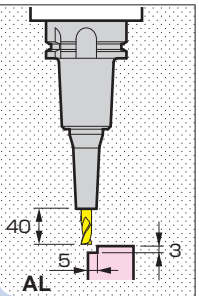
SKD11(HRC50°)

A63-SLK12-75
CR12-10-55

N : 20000 min^{-1}
F : 6000 mm
V : 628 m
f : 0.15 mm/flute

φ10Endmill
2flutes

SLIMLINE achieves noise less running at high speed spindle rotation. No required long projection of cutting tool, because SLIMLINE compact design provides us superior approach to cutting point without interference against work clamping devices.



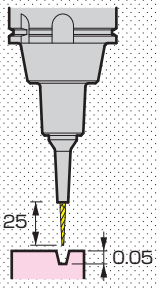
AL

A100-SLK12-105
CR12-4-55

N : 13000 min^{-1}
F : 700 mm
V : 61 m
f : 0.03 mm/flute

φ4 Carbide taper endmill
(1°) 2flutes

Cutter life was extended 2 times against a conventional collet holder due to superior chucking accuracy.



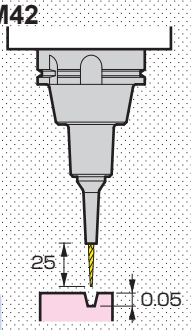
HPM7(HRC32°)

BT40-SLSA6-95-M42

N : 2000 min^{-1}
F : 100 mm
V : 38 m
f : 0.025 mm/flute

φ6 Carbide endmill
2flutes

Cutting surface and holding accuracy improved.



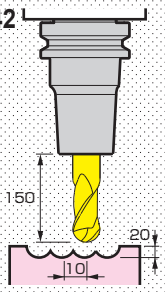
ADC12

BT50-SLRB20-110-M42

N : 4500 min^{-1}
F : 4400 mm
V : 283 m
f : 0.489 mm/flute

R10 Carbide ball endmill
2flutes

We doubled the z feeding compared to conventional holder, but this holder still has enough rigidity.



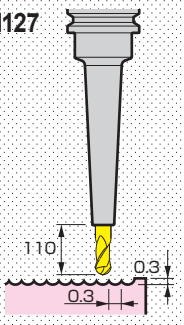
Plastic

BT40-SLSB12-180-M127

N : 2500 min^{-1}
F : 500 mm
V : 94 m
f : 0.1 mm/flute

R6 Carbide ball endmill
2flutes

During the cutting process the vibration reduced, and the cutting surface was improved.



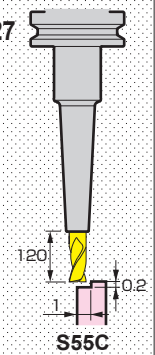
Gr

BT50-SLSB16-225-M127

N : 5600 min^{-1}
F : 2000 mm
V : 281 m
f : 0.179 mm/flute

φ16 Carbide endmill
2flutes

Holding accuracy was stabilized. Cutting surface and cutter life improved 2-3 times.



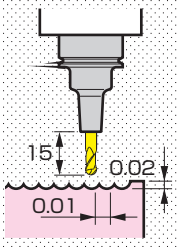
S55C

E40-SLRA6-50

N : 20000 min^{-1}
F : 1500 mm
V : 377 m
f : 0.038 mm/flute

R3 Carbide ball endmill
2 flutes

With conventional holder we could not have good surface finish. However with SLIMLINE we could have great surface finish.



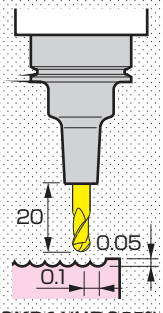
SKD11(HRC60°)

F63-SLSA4-75-M22

N : 16000 min^{-1}
F : 1200 mm
V : 100 m
f : 0.038 mm/flute

R1 Carbide ball endmill
2flutes

The cutter life extended because of great accuracy.



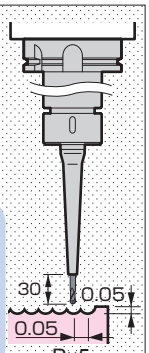
SKD61(HRC55°)

A100−CTH25−195
ST25−SLSA6−320

N : 5000 min^{-1}
F : 150 mm
V : 94 m
f : 0.015 mm/flute

Carbide coated endmill
2flutes

The rigidity and accuracy of the SLIMLINE system has been improved so that it only requires two components (maste holder and collet) for chucking a cutting tool while conventional systems require three different holders connected in series. The machining time has been reduced to 300 minutes from 360 minutes.



P×5

HSK Shank

MST uses DIN-HSK standard shanks, which are widely used in Japan and other countries as "2-face contact tooling" for high-speed, high-efficiency machining.

■The close contact of the end faces (2-face contact) of the HSK shank results in high rigidity for transverse feed, which minimizes vibrations during machining and improves the operating life of the cutting tool and the finishing surface.
■Even if the spindle expands during high-speed rotations, the tapered hollow portion comes up with that expansion, thereby maintaining high precision.



A type
The most common type in use today.



E type
This type has no drive keyway and is suitable for high-speed machining.



F type
This type uses a combination of different sizes of tapers and flanges.

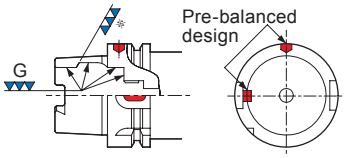


T type
This type is for turning with turning-mill machines.

PRE-BALANCED DESIGN

The HSK-A-type shank is unbalanced in its standard form, but at MST we have applied our original pre-balancing to make our tool holders applicable for high-speed machining.
In the DIN standard, only the area marked with an asterisk (*) is finished in the hallow. In order to further improve the balance, MST has carried out finish machining after heat treatment.

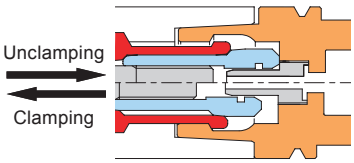
	MST	DIN standard
A 63	15 g·mm	75 g·mm
A100	28 g·mm	170 g·mm



Three times stronger clamping force

HSK uses a clamping mechanism, which utilizes the wedge effect, to provide a tool gripping power 2.5 to 3.0 times greater than in the pull-stud system (BT40 and BT50), thereby increasing rigidity.

	Tensile strength of draw bar	Tool clamping force
BT40	10~15 kN	10~15 kN
A63	5.8 kN	18.4 kN
BT50	20~25 kN	20~25 kN
A100	14.5 kN	45.9 kN



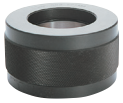
RIGIDITY COMPARISON WITH BT SHANK

The HSK shank is effective when longer overhang or higher transverse feed rigidity is required. The higher rigidity greatly contributes to improving the operating life of the cutting tool and the smoothness of the finished surface



TAPER GAUGE

MST establishes the optimal value within the tolerance in accordance with the DIN standard and manufacturers master gauges for tool shanks and those for spindle tapers accordingly.



1/10 taper ring gauge



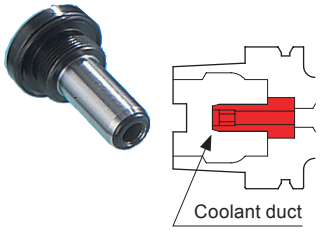
1/10 taper plug gauge



Detection gauge for end face position

COOLANT DUCT

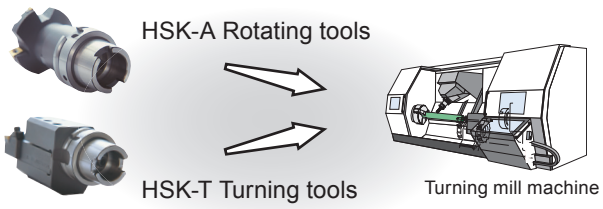
This is a coolant feed part exclusively for the HSK-A type.
MST's HSK-A type holder comes standard with each coolant duct.



For some machines, the use of a coolant duct (Adjustable) is recommended. The existing coolant duct is replaced with an adjustable one at your request only when you have placed an order for the holder. For more information on replacement coolant ducts. ➔ P.246

TOOLING SYSTEMS for HSK-T

Collaborative development with 17 Japanese makers has resulted in an interface for mill-turning machines based on the HSK-A type. With its 2008 ISO accreditation it has become popular standard around the world.

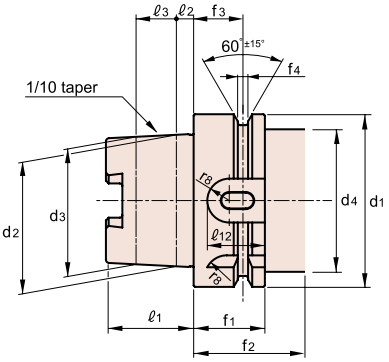


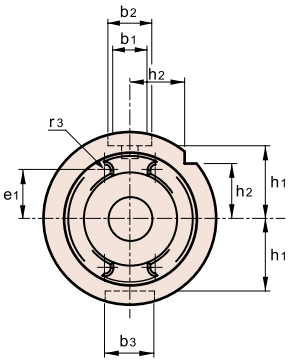
Technical data

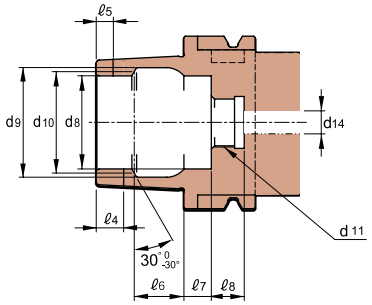
The shank dimensions

HSK-A (Extracts from DIN 69893-1;1993-07)

Shank	A40	A50	A63	A100	A125
b_1 (H10)	8	10.5	12.5	20	25
b_2 (H10)	9	12	16	20	25
b_3 (H10)	11	14	18	22	28
d_1 (h10)	40	50	63	100	125
d_2	30	38	48	75	95
	+0.007 +0.005	+0.009 +0.006	+0.011 +0.007	+0.015 +0.009	+0.018 +0.011
d_3	29.05	36.9	46.53	72.6	91.95
	+0.005 +0.003	+0.006 +0.003	+0.007 +0.003	+0.009 +0.003	+0.011 +0.004
d_4 (max.)	34	42	53	85	105
d_8 (H10)	21	26	34	53	67
d_9 (H11)	25.5	32	40	63	80
d_{10}	23	29	37	58	73
d_{11}	M12 × 1	M16 × 1	M18 × 1	M24 × 1.5	M30 × 1.5
d_{14} (max.)	5	6.8	8.4	12	14
e_1	10.88	13.797	17.862	27.329	35.324
f_1 ($^{0}_{-0.1}$)	20	26	26	29	29
f_2 (min.)	35	42	42	45	45
f_3 (± 0.1)	16	18	18	20	20
f_4 ($^{+0.15}_{0}$)	2	3.75	3.75	3.75	3.75
h_1 ($^{0}_{-0.2}$)	17	21	26.5	44	55.5
h_2 ($^{0}_{-0.3}$)	12	15.5	20	31.5	39.5
ℓ_1 ($^{0}_{-0.2}$)	20	25	32	50	63
ℓ_2	4	5	6.3	10	12.5
ℓ_3	9.5	11	14.7	24	30.5
ℓ_4 ($^{+0.2}_{0}$)	6	7.5	10	15	19
ℓ_5 ($^{+0.2}_{0}$)	3.5	4.5	6	10	12
ℓ_6 (JS10)	11.42	14.13	18.13	28.56	36.27
ℓ_7 ($^{0}_{-0.1}$)	8	10	10	12.5	16
ℓ_8 ($^{0}_{-0.3}$)	8	10	12	16	18
ℓ_{12}	12	19	21	24	24
r_3 ($^{+0.05}_{-0.05}$)	1.88	2.38	2.88	4.88	5.88
r_8	4.5	6	8	10	5



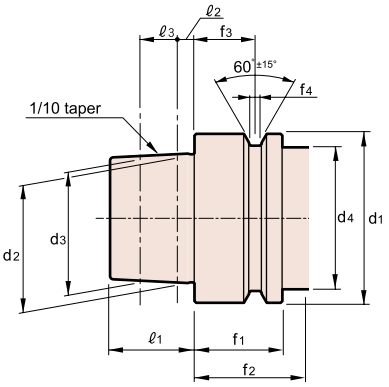




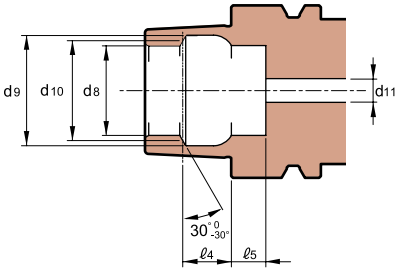


HSK-E (Extracts from DIN V 69893-5;1996-01)

Shank	E25	E32	E40	E50
d_1 (h10)	25	32	40	50
d_2	19	24	30	38
	+0.006 +0.004	+0.007 +0.005	+0.007 +0.005	+0.009 +0.006
d_3	18.15	23.27	29.05	36.90
	+0.004 +0.002	+0.005 +0.003	+0.005 +0.003	+0.006 +0.003
d_4 (max.)	20	26	34	42
d_8 (H10)	14	17	21	26
d_9 (H11)	16.4	21	25.5	32
d_{10}	15	19	23	29
d_{11} (max.)	3	4.2	5	6.8
ℓ_1 ($^{0}_{-0.2}$)	13	16	20	25
ℓ_2	2.5	3.2	4	5
ℓ_3	8.5	7.3	9.5	11
ℓ_4 (JS10)	7.21	8.92	11.42	14.13
ℓ_5 ($^{0}_{-0.1}$)	6	8	8	10
f_1 ($^{0}_{-0.1}$)	10	20	20	26
f_2 (min.)	20	35	35	42
f_3 (± 0.1)	4.5	16	16	18
f_4 ($^{+0.15}_{0}$)	2	2	2	3.75

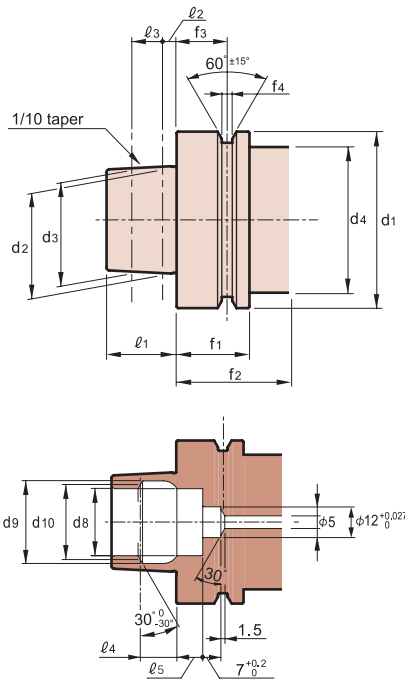






HSK-F (Extracts from DIN V 69893-6;1996-01)

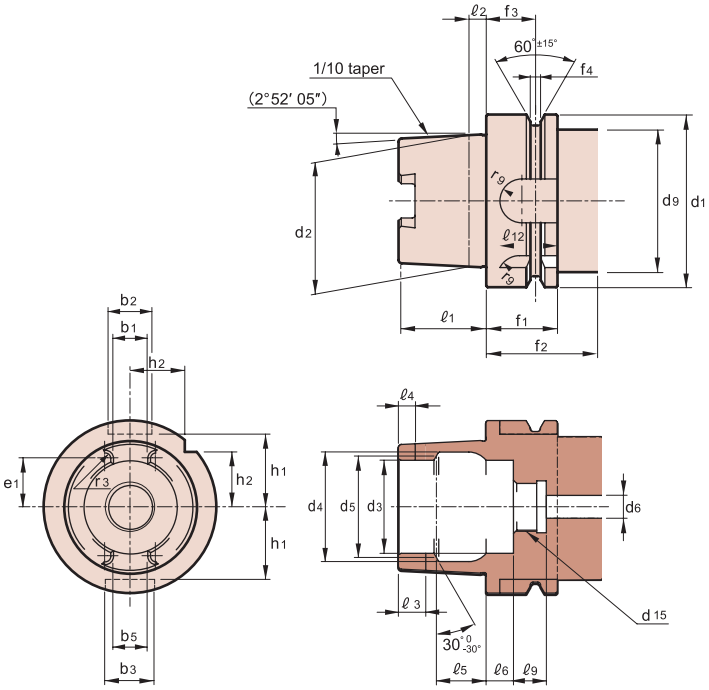
Shank	F63	F80
d_1 (h10)	63	80
d_2	38	48
	+0.009 +0.006	+0.011 +0.007
d_3	36.9	46.53
	+0.006 +0.003	+0.007 +0.003
d_4 (max.)	53	67
d_8 (H10)	26	34
d_9 (H11)	32	40
d_{10}	29	37
f_1 ($^{0}_{-0.1}$)	26	26
f_2 (min.)	42	42
f_3 (± 0.1)	18	18
f_4 ($^{+0.15}_{0}$)	3.75	3.75
ℓ_1 ($^{0}_{-0.2}$)	25	32
ℓ_2	5	6.3
ℓ_3	11	14.7
ℓ_4 (Js10)	14.13	18.13
ℓ_5 ($^{0}_{-0.1}$)	10	10
f_1 ($^{0}_{-0.1}$)	26	26
f_2 (min.)	42	42
f_3 (± 0.1)	18	18
f_4 ($^{+0.15}_{0}$)	3.75	3.75





HSK-T (Extracts from ISO 12164-3;2008) For turning with turning mill machines

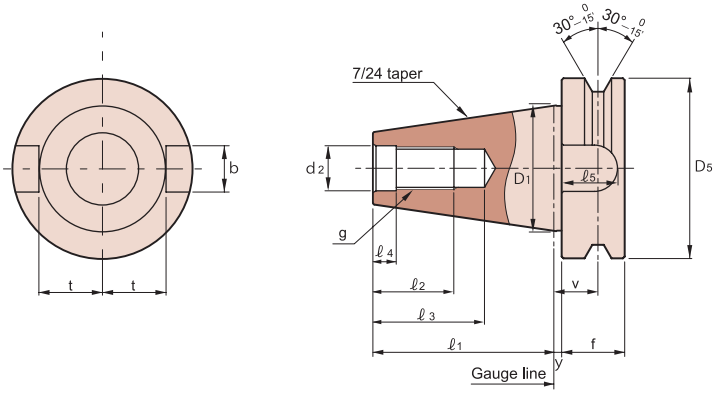
Shank	T40	T50	T63	T100	T125
b_1 ($^{+0.04}_{-0.04}$)	8.05	10.54	12.54	20.02	25.02
b_2 (H10)	9	12	16	20	25
b_3 (H10)	11	14	18	22	28
b_5	7.932	10.425	12.425	19.91	24.915
	+0.03 0	+0.035 0			+0.04 0
d_1 (h10)	40	50	63	100	125
d_2	30.007	38.009	48.010	75.013	95.016
d_3 (H10)	21	26	34	53	67
d_4 (H11)	25.5	32	40	63	80
d_5	23	29	37	58	73
d_6 (max.)	5	6.8	8.4	12	14
d_9 (max.)	39	49	62	99	124
d_{15}	M12 × 1	M16 × 1	M18 × 1	M24 × 1.5	M30 × 1.5
e_1	11	13.88	17.99	27.37	35.37
f_1 ($^{0}_{-0.1}$)	20	26	26	29	29
f_2 (min.)	23	30	30	34	34
f_3 (± 0.1)	16	18	18	20	20
f_4 ($^{+0.15}_{0}$)	2	3.75	3.75	3.75	3.75
h_1 ($^{0}_{-0.2}$)	17	21	26.5	44	55.5
h_2 ($^{0}_{-0.3}$)	12	15.5	20	31.5	39.5
ℓ_1 ($^{0}_{-0.2}$)	20	25	32	50	63
ℓ_2	4	5	6.3	10	12.5
ℓ_3 ($^{+0.2}_{0}$)	6	7.5	10	15	19
ℓ_4 ($^{+0.2}_{0}$)	3.5	4.5	6	10	12
ℓ_5 (JS10)	11.42	14.13	18.13	28.56	36.27
ℓ_6 ($^{0}_{-0.1}$)	8	10	10	12.5	16
ℓ_9 ($^{0}_{-0.2}$)	8	10	12	16	18
ℓ_{12}	12	19	21	24	24
r_3 ($^{+0.05}_{-0.05}$)	1.88	2.38	2.88	4.88	5.88
r_9	4.5	6	8	10	5





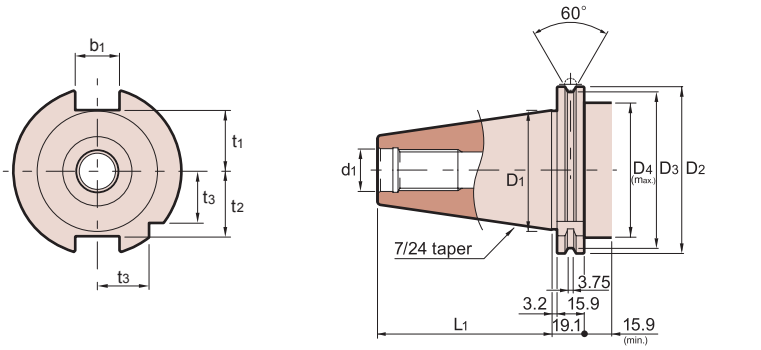
BT (Extracts from MAS 403)

Shank	BT30	BT40	BT50
D_1	31.75	44.45	69.85
ℓ_1 (±0.15)	48.4	65.4	101.8
d_2 (H8)	12.5	17	25
g (6H)	M12	M16	M24
ℓ_2 (min.)	24	30	45
ℓ_3 (min.)	34	43	62
ℓ_4	7	9	13
b (H12)	16.1	16.1	25.7
ℓ_5 (min.)	17	21	31
t ($^{0}_{-0.2}$)	16.3	22.6	35.4
D_5 (h8)	46	63	100
f	20	25	35
v (±0.1)	13.6	16.6	23.2
y (±0.4)	2	2	3



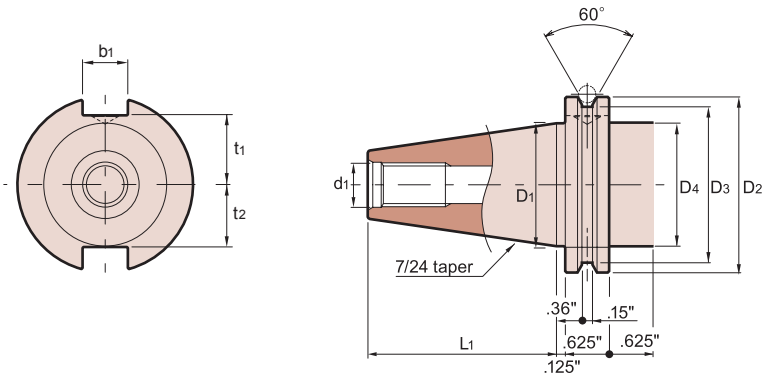
DIN (DIN69871-1)

Shank	DN40	DN50
D_1	44.45	69.85
D_2	63.55	97.5
D_3	56.25	91.25
D_4	50	80
L_1	68.4	101.75
L_3	3.75	6.495
b_1	16.1	25.7
d_1	17	25
t_1	22.8	35.5
t_2	25	37.7
t_3	18.5	30



CAT.

Shank	CT40	CT50
D_1	1.75”	2.75”
D_2	2.5”	3.88”
D_3	2.22”	3.59”
D_4	1.75”	2.75”
L_1	2.69”	4”
b_1	.65”	1.06”
d_1	.64”	1.03”
t_1	.99”	1.49”
t_2	.84”	1.39”



Dimensional tolerance of typically used mating

The class of dimension(mm)		The tolerance of the hole dimension(μm)						The tolerance of the shaft dimension(μm)					
More than	Less than	H4	H5	H6	H7	H8	H9	h4	h5	h6	h7	h8	h9
–	3	+3 0	+4 0	+6 0	+10 0	+14 0	+25 0	0 -3	0 -4	0 -6	0 -10	0 -14	0 -25
3	6	+4 0	+5 0	+8 0	+12 0	+18 0	+30 0	0 -4	0 -5	0 -8	0 -12	0 -18	0 -30
6	10	+4 0	+6 0	+9 0	+15 0	+22 0	+36 0	0 -4	0 -6	0 -9	0 -15	0 -22	0 -36
10	18	+5 0	+8 0	+11 0	+18 0	+27 0	+43 0	0 -5	0 -8	0 -11	0 -18	0 -27	0 -43
18	30	+6 0	+9 0	+13 0	+21 0	+33 0	+52 0	0 -6	0 -9	0 -13	0 -21	0 -33	0 -52
30	50	+7 0	+11 0	+16 0	+25 0	+39 0	+62 0	0 -7	0 -11	0 -16	0 -25	0 -39	0 -62

Conversion table for International System of Units

Force

N	kgf
1	1.01972^{-1}
9.80665	1

Pressure

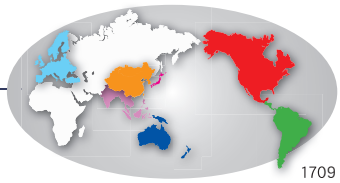
Pa	kgf/cm²
1	1.0197×10^{-5}
9.80665×10^{4}	1

Stress

Pa	kgf/mm²
1	1.0197×10^{-7}
9.80665×10^{6}	1

OVERSEAS NETWORK

Logistic center (J-COMPO) ●USA/Chicago ●Germany/Nuremburg ●China/Hong Kong ●Thai



1709

<Europe>

BELGIUM 2 distributors

DIATOOL BVBA
TURNHOUT
MR. GELDHOF
info@diatool.be
TEL 32-14401830
FAX 32-14438880

MachinImmo BVBA
LOKEREN
MR. MANU COPPENS
mc@machinimmo.com
TEL 32-93288811

CZECH REPUBLIC 2 distributor

Creative Tools s.r.o.
SKALKA
MR. PETR CHYTIL
info@creative-tools.cz
TEL 420-725588988
FAX 420-582384485

Precision Tools Service Czech s.r.o.
PRAHA
office@ptscz.cz
TEL 420-225020413
FAX 420-225020444

DENMARK 2 distributors

Balling Maskiner ApS
KOLDING
MR. MICHAEL BALLING PETERSEN
mbp@balling-maskiner.dk
TEL 45-24790300

OSG SCANDINAVIA A/S
ROSKILDE
osg@osg-scandinavia.com
TEL 45-46756555
FAX 45-46756700

FRANCE 2 distributors

DOGA S.A.
MAUREPAS
MR. ANTY
laurent.anty@doga.fr
TEL 33-130664141
FAX 33-130664199

OSG France s.a.r.l.
ROISSY
MR. MICHAEL LINANT
mlinant@osgeurope.com
TEL 33-149901010
FAX 33-149901015

ITALY 6 distributors

FEBAMETAL S.P.A.
TORINO
febametal@tin.it
TEL 39-0117701412
FAX 39-0117701524

MAKINO ITALIA S.R.L.
Cavenago di Brianza
TEL 39-0295948290
FAX 39-0295948240

MMC EMILIA ROMAGNA SRL
MODENA
MR. GIOVANNI FACCHINI
facchini@mmcemilia.it
TEL 39-0536946687
FAX 39-0536946695

OSG ITALIA SRL
TORINO
MR. VINCENZO RAGO
vincenzo.rago@osg-italia.it
TEL 39-0117705211
FAX 39-0117071402

NETHERLANDS 2 distributors

PRODUTEC BV
MEERKERK
MR. ANDRE VERBURG
info@produtec.nl
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FAX 31-183600647

SVM
VALKENSWAARD
MR. HANS SMITS
info@svmfreestechniek.nl
TEL 31-402040923
FAX 31-402047968

POLAND 3 distributors

Aura Frästechnik GMBH
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k.kosla@aura-tools.de
TEL 48-666011225
FAX 49-646591119429

MB Michał Rzepka
OBORNIKI
MR. BARTOSZ RZEPKA
mb@mb-frezy.pl
TEL 48-504647666
FAX 48-616222339

PORTUGAL 2 distributors

AMTOOLS
MARINHA GRANDE
geral@amtools.pt
TEL 351-244560456
FAX 351-244560668

SIMPLEFER-COMERCIO DE FERRAMENTAS, LDA.
MARINHA GRANDE
MR. CARLOS ALVES
carlos.alves@simplefer.pt
TEL 351-244575350
FAX 351-244575359

RUSSIA 2 distributors

SodicoM-Center
MOSCOW
info@sodick.ru
TEL 7-4957870970

SOLDREAM SPB
SAINT-PETERSBURG
soldream-spb@soldream-spb.com
TEL 7-8123737456

SLOVAKIA 2 distributors

MAKINO S.R.O.
BRATISLAVA
TEL 421-249612100
FAX 421-249612400

OSG
BRATISLAVA
MR. KENSUKE HIKOSAKA
khikosaka@osgeurope.com
TEL 421-911775678
FAX 421-249612400

SLOVENIA 2 distributors

BTS COMPANY d.o.o.
LJUBLJANA
MR. BORIS POZAR
boris.pozar@bts-company.si
TEL 386-15841400
FAX 386-15249224

MJM Maruša Brinovec s.p.
Litija
MR. METOD PETRIC
metod.petric@siol.net
TEL 386-31335760

FINLAND 1 distributor

OY FMS TOOLS AB
HELSINKI
info@fmstools.fi
TEL 358-98190950
FAX 358-981909550

GERMANY 4 distributors

Aura Frästechnik GMBH
BREIDENBACH
MR. MAIK BRADO
kontakt@aura-tools.de
TEL 49-646591119414
FAX 49-646591119429

HSC TECHNIK
SCHNELLDORF
MR. LANGOHR
langohr.hermann@t-online.de
TEL 49-79502132
FAX 49-79501302

MAKINO GMBH
TEL 49-7021503201

OSG GMBH
Göppingen
info@osg-germany.de
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FAX 49-71616064444

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AS NOR-SWISS
OSLO
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jan.ege@ege.no
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FAX 47-23241021

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blozowicki@mitsubishicarbide.com.pl
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FAX 48-655467283

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BUCHAREST
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adrian.totu@mazarom.ro
TEL 40-212328001
FAX 40-212328002

SWITZERLAND 1 distributors

STREULI TECHNOLOGIES AG
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MR. STREULI
w.streuli@streuli-techno.ch
TEL 41-17394070
FAX 41-17394077

SWEDEN 2 distributor

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osg@osg-scandinavia.com
TEL 45-46756555
FAX 45-46756700

RAVEMA AB
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roho@ravema.se
TEL 46-37048800
FAX 46-37049064

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VIZCAYA
MR. JON AZCUE
delfincomponentes@delfincomponentes.com
TEL 34-944105544
FAX 34-944105544

JANA TOOLS SL
SONDIKA
MR. JUAN JOSE JORDE
info@jana-tools.com
TEL 34-944538224
FAX 34-944538225

UTILTALL S.A.
BARCELONA
comercial@utiltall.es
TEL 34-934984465
FAX 34-933086993

TURKEY 3 distributors

FORM TEKNIK
ISTANBUL
MR. ISMAIL CINAR
info@form-teknik.com
TEL 90-2122973397
FAX 90-2122566215

TANDEM TAKIM TEZGAHLARI
ISTANBUL
MR. TANKUT KOCAK
tankut.kocak@tandem.com.tr
TEL 90-2163131413
FAX 90-2163131411

TEKNIKA HIRDAVAT SANAVI VE TICARET LTD. STL.
ISTANBUL
MR. MEHMET AKKAYA
info@teknikatools.com
TEL 90-2126742864
FAX 90-2126742863

UK 4 distributors

MATSUURA MACHINERY LTD
LEICESTERSHIRE
MR. DAVID SPENCER
dspencer@matsuura.co.uk
TEL 44-1530511400
FAX 44-1530511442

MMC HARDMETAL U.K. LTD
TAMWORTH
MR. ADRIAN BARNACLE
abarnacle@mitsubishicarbide.co.uk
TEL 44-1827312312
FAX 44-1827312314

OSG UK LTD.
ESSEX
sales@osg-uk.com
TEL 44-8453051066
FAX 44-8453051067

KYOCERA SGS PRECISION TOOLS EUROPE LTD.
BERKSHIRE
SalesEU@kyocera-sgstool.comt
TEL 44-1189795200
FAX 44-1189795295

<North America>

U.S.A 9 distributors

MITSUBISHI MATERIALS USA CORP.
ILLINOIS
TECHNICAL SERVICE
marketingsarvices@mmus.com
TEL 1-800-486-2341
FAX 1-847-519-1732

ON TARGET TOOLING LLC
WISCONSIN
MR. SCOTT SHIPPELL
Scott@cimtekllc.com
TEL 1-847-628-9942
FAX 1-847-628-1987

OSG TAP & DIE, INC.
ILLINOIS
MR. DAN VOLPE
dan.volpe@osgtool.com
TEL 1-630-790-5141
FAX 1-630-800-837-3334

SINGLE SOURCE TECHNOLOGIES, INC.
MICHIGAN
MR. RICK GRABAREK
rgrabarek@singlesourcetech.com
TEL 1-248-232-6268
FAX 1-248-232-6261

ILLINOIS
MR. VICTOR ROVEDO
franz.stark@singlesourcetech.com
TEL 1-847-340-3781
FAX 1-847-468-1271

WISCONSIN
MR. STEVE KLUG
Steve.Klug@singlesourcetech.com
TEL 1-262-212-3825
FAX 1-262-574-7551

SOUTH CAROLINA
MS. CARA KELSO
cara.kelso@singlesourcetech.com
TEL 1-704-896-6000
FAX 1-704-896-6002

ALABAMA
MR. BOB ASH
bob.ash@singlesourcetech.com
TEL 1-256-301-0040
FAX 1-256-301-0059

PRECISION TOOLS SERVICE INC.
INDIANA
MR. PAUL SCHNEPP
pschnepp@ptservice.com
TEL 1-812-342-1234
FAX 1-812-342-1235

TECNARA TOOLING SYSTEMS, INC.
LOS ANGELES
MR. DAVID TAKAHASHI
la@tecnaratools.com
TEL 1-562-941-2000
FAX 1-562-946-0506

EAST COAST
MR. MATT GENOVESE
la@tecnaratools.com
TEL 1-203-912-8906
FAX 1-562-946-0506

YAMAZEN INC. INC.
ILLINOIS
MR. RYAN JACOBSON
ryanjacobson@yamazen.com
TEL 1-800-228-2969
FAX 1-847-882-9056

LOS ANGELES
MR. MARK O'DONNELL
markodonnell@yamazen.com
TEL 1-800-882-8558
FAX 1-714-692-2961

INDIANA
MR. BOBBY WHITE
bobbywhite@yamazen.com
TEL 1-800-882-8558
FAX 1-317-773-4945

CONNECTICUT
MR. JON MORASUTTI
jonmorasutti@yamazen.com
TEL 1-800-882-8558
FAX 1-860-829-2205

MICHIGAN
MR. ALBERTO SAENZ
albertosaenz@yamazen.com
TEL 1-800-882-8558
FAX 1-248-347-3624

TOMITA USA INC.
OHIO
TEL 1-614-873-6509
FAX 1-614-873-6806

VEGA TOOL CORP..
ILLINOIS
MR. TADASHI KURASHIMA
tadashikurashima@vega-tool.com
TEL 1-800-228-2969
FAX 1-847-882-9056

CANADA 2 distributors

OSG CANADA LTD.
ONTARIO, Burlington
MR. ROB ADKINS
rob.adkins@osgcanada.com
TEL 1-905-632-8032
FAX 1-905-632-8466

SINGLE SOURCE TECHNOLOGIES, INC.
ONTARIO, Windsor
MR. SHAWN LESPERANCE
slesperance@singlesourcetech.com
TEL 1-519-737-8999
FAX 1-519-737-8939

ONTARIO, Mississauga
MR. ROBERT KMIECIK
Robert.Kmiecik@singlesourcetech.com
TEL 1-905-565-6886
FAX 1-905-565-6866

MEXICO 5 distributors

AHNSA TOOLS s.a.
MONTERREY
MR. HORACIO CAMPOS
hcampos@ahnsa.com
TEL 52-81-8126-1000
FAX 52-81-8126-1001

MMC METAL DE MEXICO S.A. DE C.V
QUERETARO
MR. GUILLERMO ORTIZ
lortiz@mmcmex.com
TEL 52-442 192 6800
FAX 52-442 221 6134

OSG /ROYCO, S.A. DE C.V.
MEXICO CITY
MR. TOSHITAKA YOSHIZAKI
toshi@osgroyco.com.mx
TEL 52-55-51-19-3363
FAX 52-55-51-19-3370

SINGLE SOURCE TECHNOLOGIES, de R.L.de C.V.
QUERETARO
MR. MANUEL RUIZ
manuel.ruiz@singlesourcetech.com
TEL 52-442-1016000
FAX 52-442-2531355

MONTERREY
MS. JUTZILL MANON
Jutzill.Manon@singlesourcetech.com
TEL 52-442-101-6000

YAMZEN MEXICANA SA DE CV
LEON
MR. GERARDO PLASCENCIA
gerardo.perez@yamazen.com.mx
TEL 52-477-3910280
FAX 52-477-3910278

<South America>

BRAZIL 1 distributor

OSG FERRAMENTAS DE PRECISAO LTDA.
SAN PAULO
MR. YUJI KONDA
osgsp@nethall.com.br
TEL 55-11-6190-0900
FAX 55-11-6190-0901

<Oceania>

New Zealand 2 distributors

HeadlandMT Ltd
Auckland
TEL 64-2152265

TOTAL CNC PRODUCTS
AUCKLAND
MS. MARGARET WILLIAMS
admin@totalcnc.co.nz
TEL 64-92745890
FAX 64-92745867

<East Asia>

CHINA 21 distributors

AUTOFACT MACHINERY LTD.
亞動機械有限公司

DONGGUAN 東莞
MS. LILY GUAN 关 星 — TEL 86-769-81157228
lily@autofact.com.hk — FAX 86-769-81157229

BBPC CO., LTD
上海阪商機床刀具有限公司

SHANGHAI 上海
MR. AMAYAMA 天山 — TEL 86-21-6253-1219
osaka@bbpc.biz — FAX 86-21-6256-3539

BEIJIN 北京
MS. CHANG YAOHUA 常 耀华 — TEL 86-10-6348-5150
osaka@bbpc.biz — FAX 86-10-6348-5152

DIJET INDUSTRIAL CO.,LTD.
黛傑工業株式會社

SHANGHAI 上海
MR. GAO YONGMING 高 永明 — TEL 86-21-5058-1698
dijetsh@yahoo.com.cn — FAX 86-21-5058-1699

Dongguan Integrity Precision Machinery Co.,Ltd.
☒莞市☒晋精密机械有限公司

DONGGUAN 東莞
MR. YANG YABIN 楊 亞兵 — TEL 86-769-82288607
frank1_yang@126.com — FAX 86-769-82288609

DONGGUAN YAJIYA Precision machinery Co., Ltd
東莞八字屋精密機械有限公司

DONGGUAN 東莞
MR. Jason lee 李 忠信 — TEL 86-769-8530-7420
yajiyasales@163.com — FAX 86-769-8530-7470

Fineness Corporation
匯穎國際貿易(上海)有限公司

SHANGHAI 上海
MR. STEVE HU 胡上千/ MR. ROY LU 呂旺勳 — TEL 86-21-64282885
steve@fct-tools.com — FAX 86-21-64391906

DONGGUAN 東莞
MR. ALAN CHEN 陳 宏儒 — TEL 86-769-82284785
alan@fct-tools.com — FAX 86-769-82284797

TIANJIN 天津
MR. YANG JIAN 楊 建 — TEL 86-22-87395825
isabat_yang@fct-tools.com — FAX 86-22-87395827

CHENGDU 成都
MR. JASON HUANG 黃 琳琳 — TEL 86-28-83112969
jasonhuang1121@163.com — FAX 86-28-8311-2969

DONGLI MACHINE CO.,LTD.
東立機械有限公司

DALIAN 大連
MS. ZHOU PING 周 萍 — TEL 86-411-87324719
zhoup@dl-dongli.com.cn — FAX 86-411-87324721

JECO PRECISION LTD.
捷高精機有限公司

HONGKONG 香港
MS. CATHY WONG 黃 玉珍 — TEL 852-2428-8328
cathy@jeco.hk — FAX 852-2428-3683

SHENZHEN 深圳
MR. ERIC CHOW 周 弈行 — TEL 86-755-6116-2522
eric@jeco.hk — FAX 86-755-6116-2533

GALAXY PRECISION MACHINERY LTD
佳力精密机械有限公司

HONGKONG 香港
MR. KENNETH NG 吳 志良 — TEL 852-31505889
gp610@galaxy-mt.com — FAX 852-23729093

KUNSHAN KUNQIAO TRADING CO.,LTD.
坤僑貿易有限公司

KUNSHAN 昆山
MR. CHOU TING SHENG 周 廷升 — TEL 86-512-57507151
kjcorp@ms56.hinet.net — FAX 86-512-57507153

SHENZHEN 深圳
MR. GHENG-NAN,YEH 葉 正男 — TEL 86-755-81786391~2
kj.com@msa.hinet.net — FAX 86-755-8178-6670

JIANZE MACHINERY TECHNOLOGY CO.,LTD
上海建澤機械技術有限公司

SHANGHAI 上海
MR. XUE JIANMING 薛 建明 — TEL 86-21-51557657
xuejianming@jianze.net — FAX 86-21-51557668

MAKINO CHINA CO.,LTD.
牧野機床(中國)有限公司

KUNSHAN 昆山
MR. LIU HAORAN 劉 浩然 — TEL 86-512-5777-8000
info@makino.com.cn — FAX 86-512-5777-9900

PRO-TECHNIC MACHINERY LTD.
寶力機械有限公司

HONG KONG 香港
MR. ALDO, S.K. CHEUNG 張 四繼 — TEL 852-2428-2727
aldocheung@protechnic.com.hk — FAX 852-2480-4764

RSE (DALIAN) INTERNATIONALTRADING CO LTD
美立吉(大連)国際貿易有限公司

DALIAN 大连
MR. LI GANG 李 剛 — TEL 86-411-8750-8552
01@chinarse.com — FAX 86-411-8750-8553

OSG SHANGHAI
歐士機(上海)精密工具有限公司

SHANGHAI 上海
MS. JI MIN 嵇 敏 — TEL 86-21-5888-6600
jimin@chinaosg.com — FAX 86-21-5888-3300

SONDER TOOLS & MACHINERY(HK)LTD.
晨達(香港)有限公司

HONG KONG 香港
MR. JOHNNY NG 吳 偉良 — TEL 852-2-964-0233
johnnyng@sondertools.com — FAX 852-2-964-0604

DONGGUAN 東莞
MR. JOHNNY NG 吳 偉良 — TEL 86-769-22699687
johnnyng@sondertools.com — FAX 86-769-22699487

SHANGHAI 上海
MR. VICTOR LAU 劉 晓炎 — TEL 86-21-5109-6048
sonderbj@sonder.com.cn — FAX 86-21-5111-3216

BEIJIN 北京
MS. LILIAN WANG ZHE 王 浙 — TEL 86-10-5862 2040
sonderbj@sonder.com.cn — FAX 86-10-5862 2037

SHANGHAI HERLY INTERNATIONAL TRADING CO.,LTD.
上海賀立國際貿易有限公司

SHANGHAI 上海
MR. YOU JUNHA 由 俊哈 — TEL 86-21-3921-5609
import@herly.com — FAX 86-21-3921-5606

TOJU MACHINE-ELECTRICITY CO.,LTD
上海東住機電科技有限公司

SHANGHAI 上海
MR. TIAN JUN 田 军 — TEL 86-21-6413-8038
sh_toju@163.com — FAX 86-21-5230-8016

TOP CEL INTERNATIONAL TRADING(SHANGHAI)CO.,LTD.
拓賽爾國際貿易(上海)有限公司

SHANGHAI 上海
MR. TOM LEI 雷 德耀 — TEL 86-21-6441-3330
tom@topcel.net — FAX 86-21-6469-5985

SHANGHAI REBAR CUTTINGTOOLS CO., LTD
上海鋭覇切削工具有限公司

SHANGHAI 上海
MR. CUI YANJUN 崔 岩軍 — TEL 86-21-5108-5980
steven_rb@126.com — FAX 86-21-5763-2329

YAMAZEN CORPORATION
山善(上海)貿易有限公司

SHANGHAI 上海
MR. KOZAWA 小澤 — TEL 86-21-5445-2266
kozawa@yamazensh.com. — FAX 86-21-5445-2066

SHENZHEN 深圳
MR. YASUNO 安野 — TEL 86-755-8280-5000
yasuno@yamazen.com.cn — FAX 86-755-8280-5100

DALIAN 大连
MR. ZHUANG 庄 震 — TEL 86-411-8762-6323
zhuangzhen@yamazensh.com — FAX 86-411-8762-6332

CHONGQING 重庆
MR. HIROSE 廣瀬 — TEL 86-23-8906-1951
hirose@yamazensh.com — FAX 86-23-8906-1953

GUANGZHOU 广州
MR. YAMASHITA 山下 — TEL 86-20-8732-1601
yamashita@yamazen.com.cn — FAX 86-20-8732-1232

TIANJIN 天津
MR. ESHIRO 江城 — TEL 86-22-2840-8710
eshiro@yamazensh.com — FAX 86-22-2840-8712

SICHENG Electromechanical Technology Co., Ltd
思誠機電科技有限公司

DONGGUAN 東莞
MR. Fly ZHONG 鐘 飛泰 — TEL 86-769-22186189
customercare@ec-sourcing.com — FAX 86-769-22186191

ZHE JIANG RI JIN CNC TOOLS CO., LTD.
浙江日進數控刀具有限公司

ZHEJIANG 浙江
MS. YE LI HONG 叶 丽红 — TEL 86-576-84232178
cnrijin15@126.com — FAX 86-576-84115612

TAIWAN 3 distributors

KUNJUNG CORPORATION
坤嶸企業有限公司

TAIPEI 台北
MR.CHUNG-WEI,HUANG 黃 崇維 — TEL 886-2-22902500
kjcorp@ms56.hinet.net — FAX 886-2-22902515

KAOSHUNG 高雄
MR. TSUNG-LIEH, HO 何 宗烈 — TEL 886-7-7231101
chdhor@pchome.com.tw — FAX 886-7-7236088

TAICHUNG 台中
MR. MING-CHIEH,YEN 顏 明傑 — TEL 886-4-27026477
kj.com@msa.hinet.net — FAX 886-4-24520439

CENTURY TRADING CORPORATION
世紀貿易股份有限公司

TAIPEI 台北
MR. YAN YUNGTA 顏 永達 — TEL 886-2-2298-8336
ytyan@centra.com.tw — FAX 886-2-2298-8338

TAIHO TOOL MFG. CO.,LTD.
大寶精密工具股份有限公司

KAOSHUNG 高雄
yung-fengi@mail.taihotool.co.tw — TEL 886-7-621-6136
FAX 886-7-621-6140

KOREA 9 distributors

KUK SUNG INTERNATIONAL CO.,LTD.
국성인터내셔널주식회사
DAEGU 대구
MR. CHOI BYUNG HOON 최병훈 TEL 82-53-604-0521
kuksung1@unitel.co.kr FAX 82-53-604-0525

DOO REE TRADING CO.,LTD.
(유)두리무역
CHANGWON 창원
MR. J.K. CHO 조재관 TEL 82-55-286-5310
dooree0909@naver.com FAX 82-55-284-5313

IGPNET CO.,LTD.
주식회사 아이지피넷
SEOUL 서울
MR. KIM MOON KI 김문기 TEL 82-2-2026-5100
mk-kim@igpnet.co.kr FAX 82-2-2026-5101

KAMI CO.,LTD.
SEOUL 서울
MR. YOUNG L. , KIM, PH. D. 김영립 TEL 82-2-6670-4114
info@kami.biz FAX 82-2-6670-4110

MIRAE TECHNO
미래테크노
GWANGMYEONG 광명
MR. PARK HO SUNG 박호성 TEL 82-31-479-5301
miraetechno@hanmail.net FAX 82-31-479-5302

NS KOREA
앤에스코리아
ANYANG 안양
MR. BAI JAMES 배성진 TEL 82-31-479-1207
jamesbai@ns-korea.com FAX 82-31-479-1208

OSG KOREA CORPORATION
한국OSG주식회사
DAEGU 대구
MR. JANG JUN YOUNG 장준영 TEL 82-53-589-2054
jyjang1@osg.co.kr FAX 82-53-583-5553

SEJONG M.T
세종엠티
BUSAN 부산
MR. KANG YOUNG JIN 강영진 TEL 82-51-313-1148
sj0989@naver.com FAX 82-51-317-1148

YAMAZEN (KOREA) LTD.
(주)야마젠코리아
SEOUL 서울
MR. KIM SUNG JONG 김성종 TEL 82-2-864-1755
sj-kim@yamazenkorea.co.kr FAX 82-2-864-1758

<South Asia>

INDIA 7 distributors

MAKINO INDIA PVT LTD.
BANGALORE
MR. B.V. SRIDHAR TEL 91-8067419500
sridhar@makino.co.in FAX 91-8067419523

Delhi
MR. SHASHANK TOMAR TEL 91-1244652200
shashankt@makino.co.in FAX 91-1244365217

Pune
info@makino.co.in TEL 91-2138673600
FAX 91-2138673623

ASSOCIATED ENGINEERING SERVICES CO.,LTD.
CHENNAI
MR. N MURALI TEL 91-4423821581
murali@associatedengg.com FAX 91-4423821584

MMC HARDMETAL INDIA PVT. LTD.
BANGALORE
mmcindia@mmc.co.jp TEL 91-802308-3400

Orion Innotech Pvt. Limited
GURGAON
MR. VISHAL VERMA TEL 91-1244225210
vishal@oriongroup.in FAX 91-1244225211

OSG (INDIA) PVT. LTD.
GURGAON
TEL 91-1244009737
FAX 91-1244207761

VALIANT INDIA
PUNE
MR. VIRENDRA MAYNALE TEL 91-9371672785
sales@valiantindia.in

Yamazen Machinery & Tools India Pvt. Ltd.
Bangalore / Chennai / Gurgaon / Pune
tooling@yamazen.in TEL 91-1244605900
FAX 91-1244605921

INDONESIA 4 distributors

PT. JAVATEC TRIMITRA UTAMA
JAKARTA
MR. STEFANUS DIBYO TEL 62-21-458-77288
tools@javatec.co.id FAX 62-21-458-77289

PT. JAVATEC TRIMITRA MACHINERY
JAKARTA
MR. JONATAN ARIF SANTOSO TEL 62-21-4584-9988
jonatan@javatec-machinery.com FAX 62-21-4584-8899

PT. RUKUN SEJAHTERA TEKNIK
JAKARTA
MR. HERI RISWANTO TEL 62-21-628-1615
marketing@abrasive-tools.com FAX 62-21-626-5559

PT. YAMAZEN INDONESIA
JAKARTA
MR. MASASHI HAGIHARA TEL 62-21-451-3345
hagihara@yamazen.co.id FAX 62-21-451-3346

PHILIPPINES 2 distributors

YAMAZEN MACHINERY & TOOLS PHILIPPINES, INC.
LAGUNA
MR. SHIN ISHIDA TEL 63-49-543-1958
s.ishida@yamazen.com.ph FAX 63-49-508-0893

KAMOGAWA LAGUNA PHILIPPINES.INC
LAGUNA
MR. TAKAHIRO FUNAKUBO TEL 63-49-576-4931
t.funakubo@kamog.co.jp FAX 63-49-508-3199

SINGAPORE 5 distributors

A-TECH MARKETING PTE LTD
MR. IAN SOH TEL 65-6773-3148
iansoh@a-tech.com.sg FAX 65-6234-4826

MAKINO ASIA PTE LTD.
MR. V.M KUMAR TEL 65-6861-5722
kumar@makino.com.sg FAX 65-6861-1600

NOBELTECH PTE LTD
MR. ERIC CHAN TEL 65-6749-3636
eric@nbel.com.sg FAX 65-6749-0303

OSG ASIA PTE LTD.
MR. KAZUMASA KOIKE TEL 65-6844-4350
osgkk@osgasia.com.sg FAX 65-6844-4351

YAMAZEN (SINGAPORE)PTE LTD.
MR. TAKURO MATSUI TEL 65-6276-9488
matsui@yamazen.com.sg FAX 65-6276-9688

THAILAND 5 distributors

FACTORY MAX CO.,LTD.
BANGKOK
MR. S. TANGTARATORN TEL 66-2-759-9100
surapong@factorymax.co.th FAX 66-2-759-9009

MAKINO (THAILAND) CO.,LTD.
BANGKOK
MR. JUNYA YOSHIMURA TEL 66-2-971-5750
junya.yoshimura@makino.co.th FAX 66-2-971-5751

OSG (THAILAND) CO.,LTD.
BANGKOK
MR. MASAKAZU SEIKE TEL 66-3-898-9035
mseike@osg.co.th FAX 66-3-898-9042

PRECISION TOOLS SERVICE (THAILAND) CO.,LTD.
BANGKOK
MR. YOSHIAKI KATO TEL 66-2-308-2470
sales@ptsthai.com FAX 66-2-308-2471

YAMAZEN (THAILAND) CO.,LTD.
BANGKOK
MR. KENICHI YASUNO TEL 66-2-374-5522
yasuno@yamazen.co.th FAX 66-2-374-3192

VIETNAM 2 distributors

KAMOGAWA VIETNAM CO.,LTD
Hanoi
MR. TOMOHIRO YAMAMOTO TEL 84-24-378-550-22/23
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