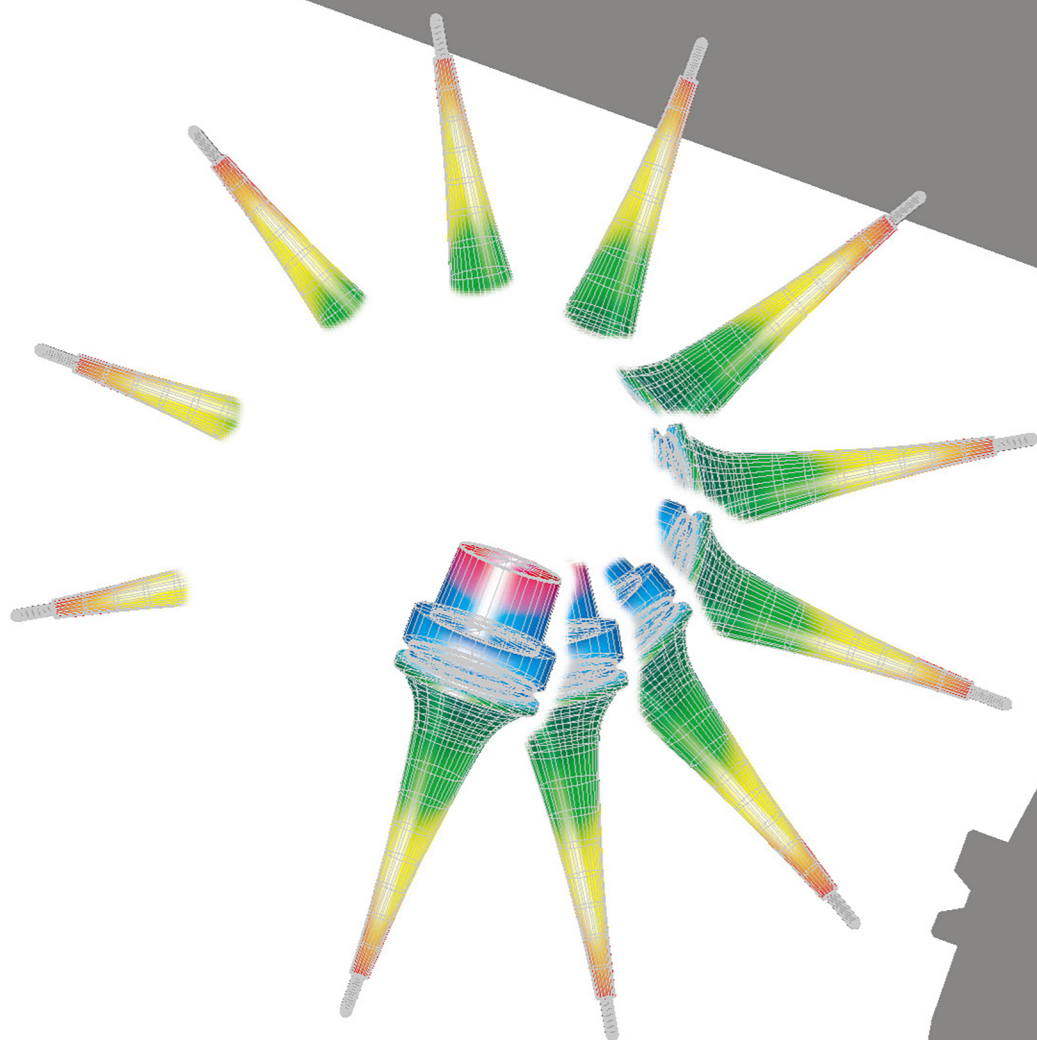
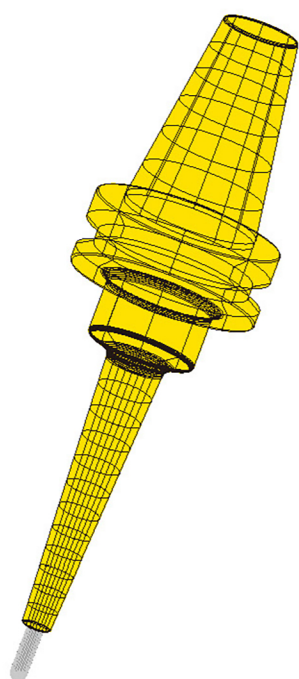




SHRINK-FIT HOLDER **SLIMLINE**



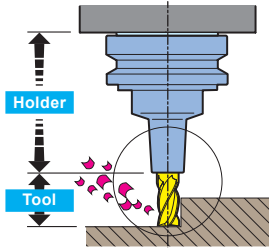
MST corporation

Vol. 3
1709 **ENG**

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

5 Points

1 The shortest As short as possible



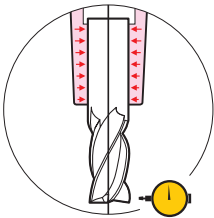
Length becomes **2**times

Deflection becomes **8**times

Use shrink-fit holders
with a slim-tip!

Deflection amount is proportional to projection length³.

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

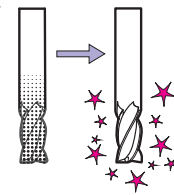
Run-out accuracy
within **3**microns
(.0001")

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

3 Quality Do not use worn cutting tools.

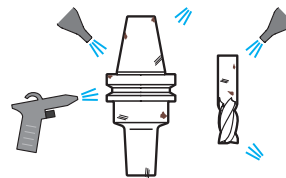
Machining quality
and speed

Drops



Replace!

4 Cleanliness Clean your tool holders and cutting tools.



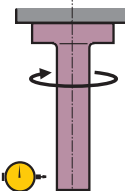
Cutting chips and oil are
your main enemies.

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.

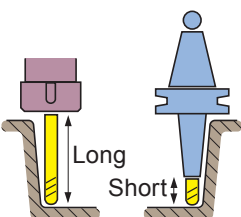
A simple chucking mechanism without any parts.

- 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.

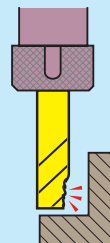


High accuracy

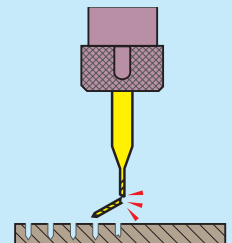
- Twice the tool life.
- Slim tools are also no problem.
- Anyone can use them...



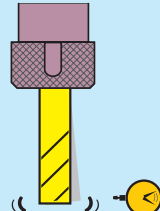
✗ Short cutter life.



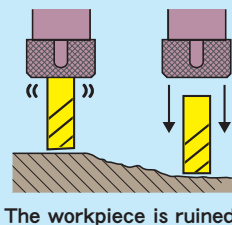
✗ Small tools break soon.



✗ Cutter run-out adjustment is troublesome.

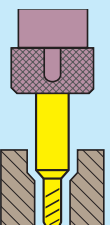


✗ The end mill slips or falls off.

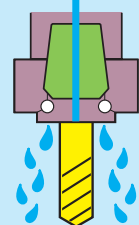


The workpiece is ruined.

✗ 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/V33i, 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

France

FOREST-LINE

Aerostar, Aeromill, Minumac, Vstar, etc.



CINCINNATI MACHINE
SMART-t, MAXOR

HAAS AUTOMATION
VF, UMC

U.S.A.

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

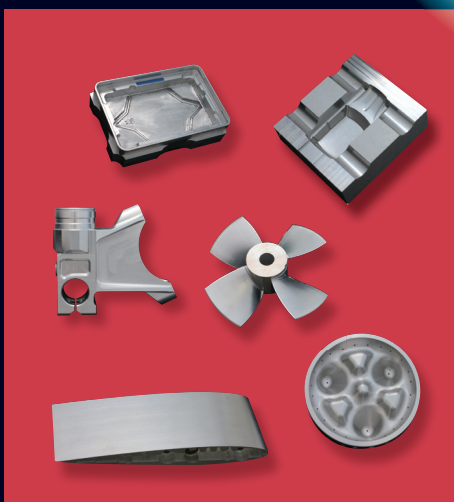
Optical communication

Aerospace

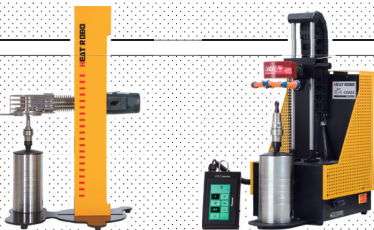
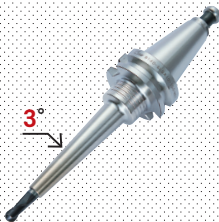
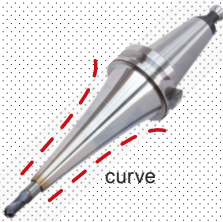
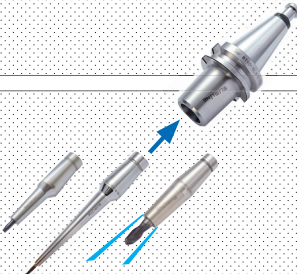
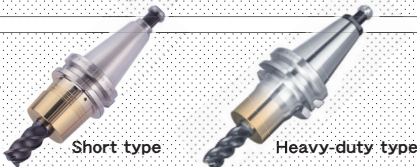
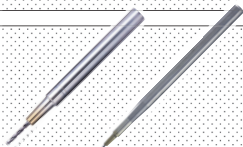
Car · Mobile

Fuel battery

Semiconductor device



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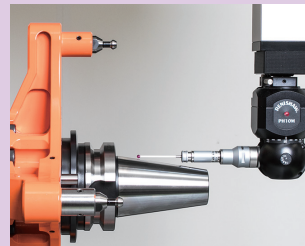
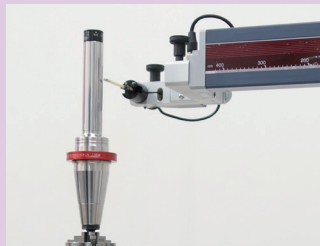
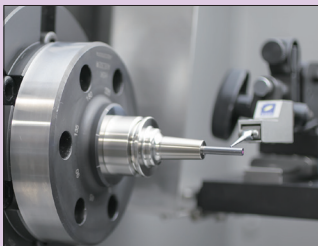


RELIABLE TOOLING

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 trustworthy products under strict quality control.

● MST's 4 precision standards

1 Taper contact	%	90
2 Roundness	μm	0.8
3 Surface roughness (R _{max})	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).

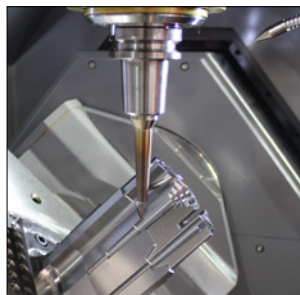
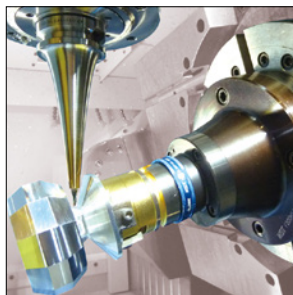
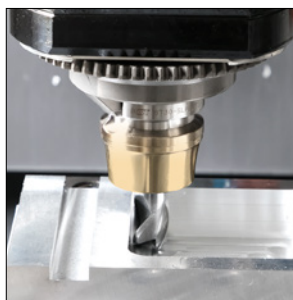
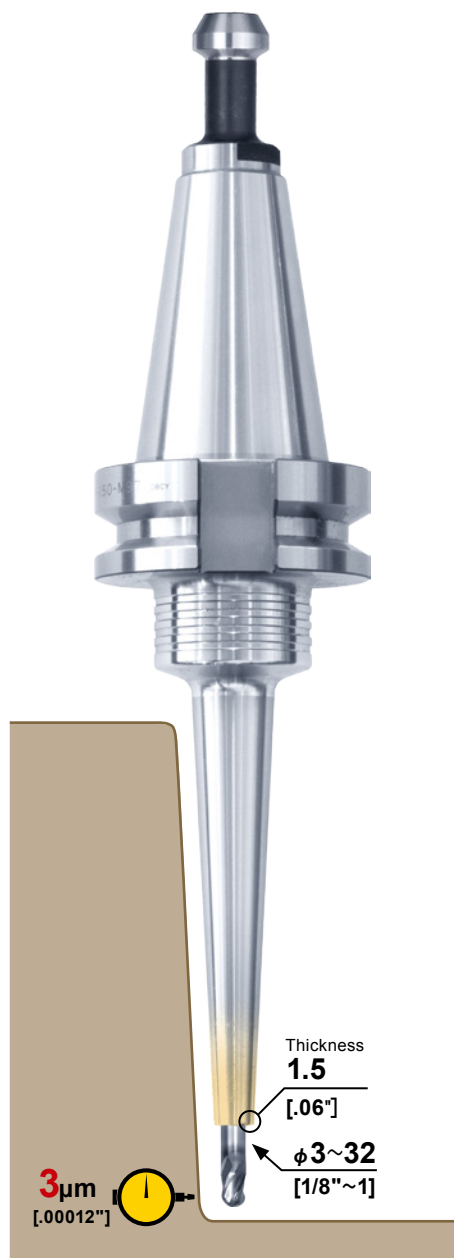
It also has a coefficient of thermal expansion that is 1.6 times higher than that of regular steel. Unlike conventional holders, SLIMLINE does not require any parts such as collets and nuts to hold tools. The simple mechanism can make the nose very thin, even to a thickness

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.

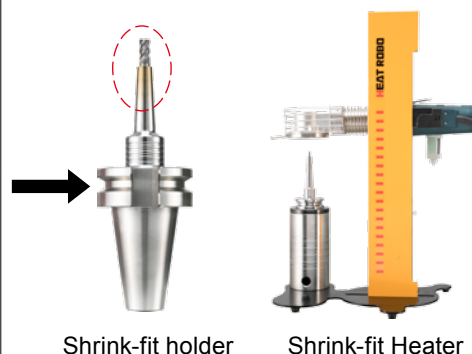
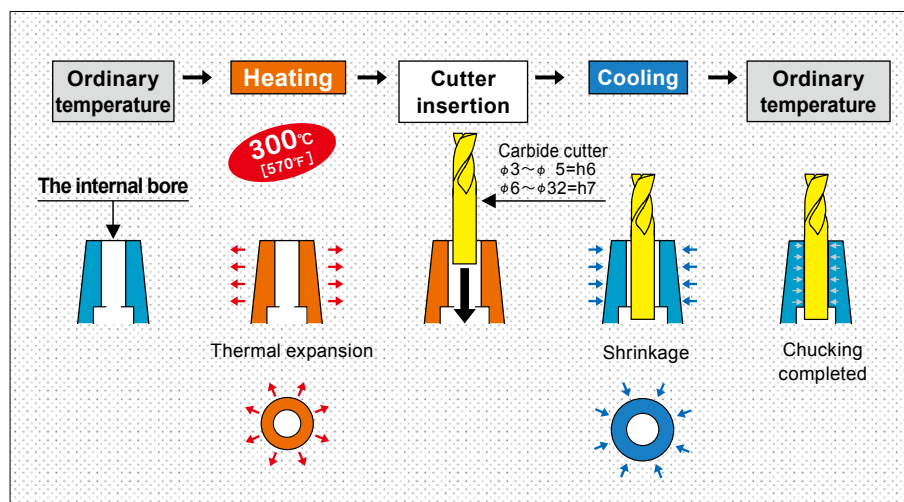
We promise that SLIMLINE will demonstrate its outstanding capabilities in 5-axis, micro-precision, heavy-duty, and many kinds of machining in order to improve accuracy, extend tool life and reduce production cost.

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).



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°C [1310°F] without any issue.

Shrink-fitting temperature

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

Coefficient of thermal expansion

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

1.6 times
(Compared to
competitors'
holders)

Long service life

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



Heatproof temperature
720°C
[1310°F]

Safety ratio

Maximum heating temperature
430°C
[810°F]

Shrink-fitting temperature

Competitors' shrink-fit holder

Heatproof temperature

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

Shrink-fitting temperature

- They need 690°C [1270°F] 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/°C

Short life

Maximum heating temperature
690°C
[1270°F]

Over Heating

Heatproof temperature
580°C
[1080°F]

- Oxidation
- Contraction of a bore dia.
- Reducing hardness

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



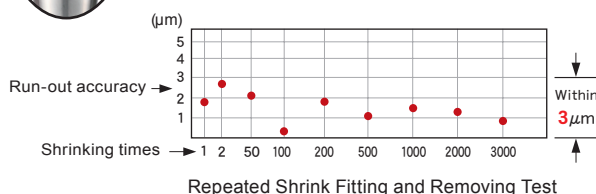
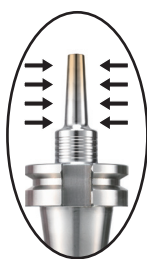
Die Steel

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

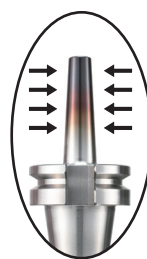
The lifetime of shrink-fit holder

MST's SLIMLINE

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



Competitors' shrink-fit holder



Heating several times at 700°C

The internal bore
Contraction of a bore dia.

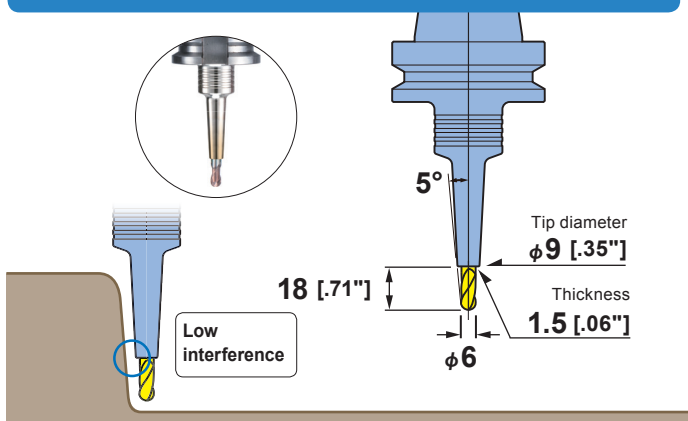
The cutter is difficult to insert.
Run-out accuracy deteriorations.

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

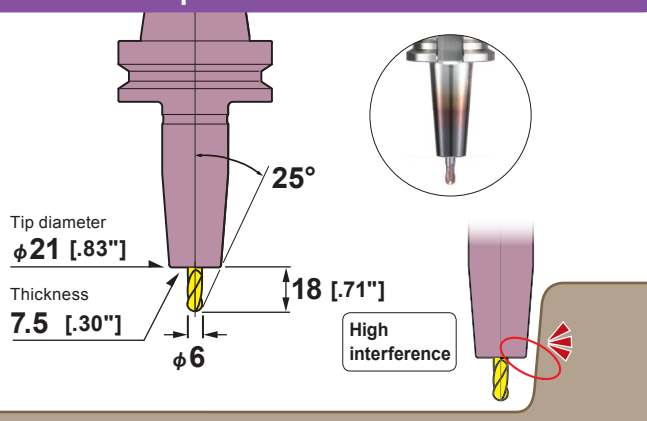
Super-slim design Displaying the highest performance at deep machining

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

MST's SLIMLINE



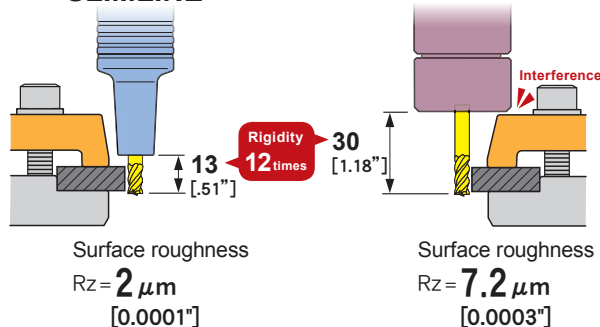
Competitors' shrink-fit holder



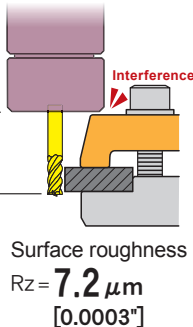
High rigidity Shortest cutter projection

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

SLIMLINE



Collet chuck



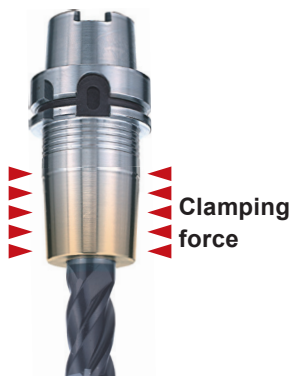
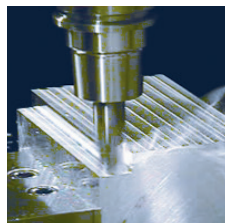
Deflection amount is proportional to projection length³.

Length becomes 2 times → Deflection amount becomes 8 times

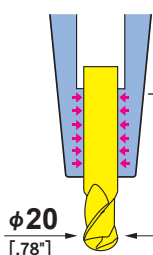
$$S = \frac{6.8 \times F \times L^3}{E \times D^4}$$

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

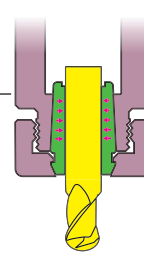
High clamping force 3 times greater clamping force (compare with a collet chuck)



SLIMLINE

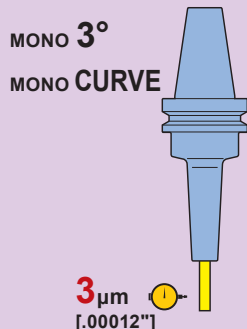


Collet chuck

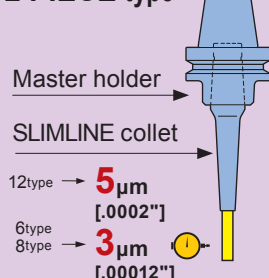


High run-out accuracy Stable high run-out accuracy can be achieved at all times.

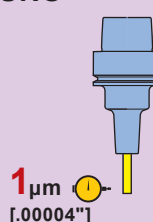
- There are no tightening parts (such as nuts and collets) to hold cutters. The simple design maintains high-accuracy chucking.



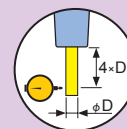
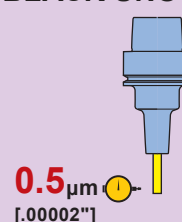
2 PIECE type



UNO

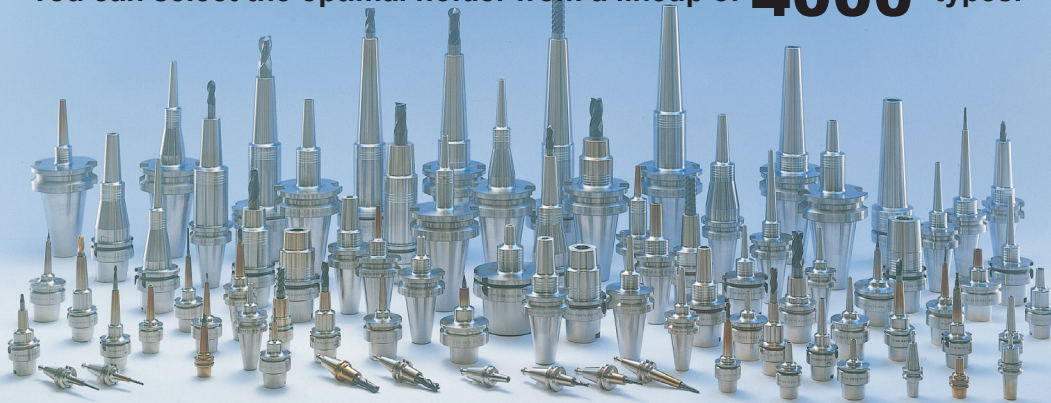


BLACK UNO



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.

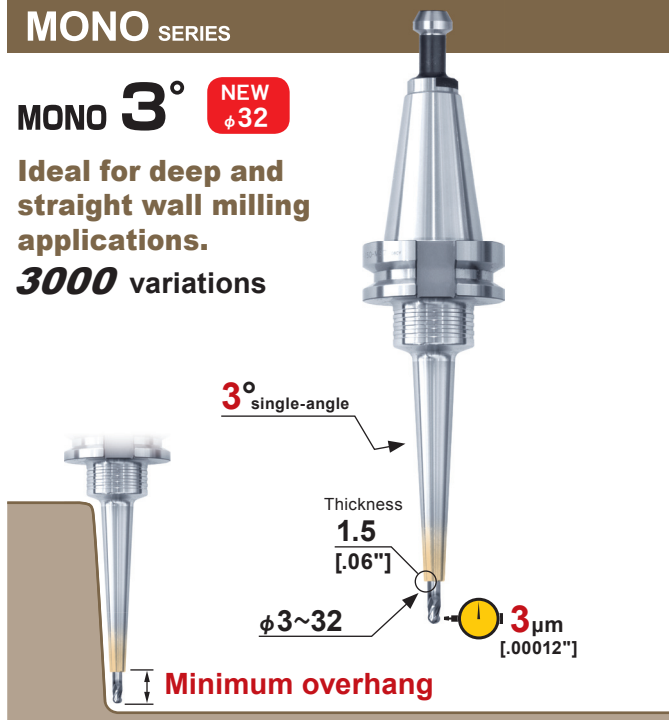


MONO SERIES

→ P. 16

MONO 3° **NEW** φ32

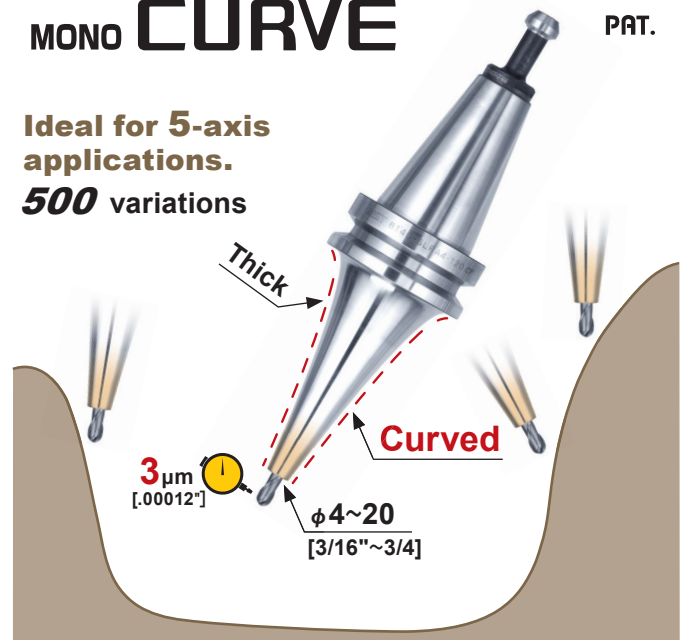
Ideal for deep and straight wall milling applications.
3000 variations



MONO CURVE

PAT.

Ideal for 5-axis applications.
500 variations

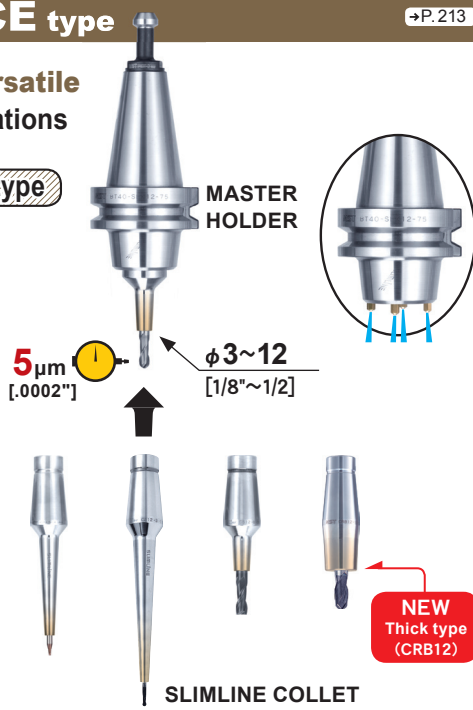


2 PIECE type

→ P. 213

Highly versatile
250 variations

Modular type



UNO

→ P. 221

Superior accuracy

NEW

BLACK UNO

UNO

PAT.

0.5μm [0.00002"]

1μm [0.00004"]

HYPER VERSION

→ P. 223

Heavy-duty endmill holder with high clamping force

Shortest L dimension

φ12~25



NEW
BT30

Z

→ P. 227

Anti-pulling out and anti-slippage mechanism

PAT.

φ8~25 [5/16"~1"]



SHRINK-FIT HEATER **HEAT ROBO**

Shrink-fitting at low heating temperature

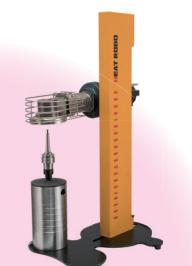
- Shrink-fitting temperature is comparatively low, about 300°C, which is safer for the materials.
Tools can be changed by the inexpensive and compact shrink-fit unit.

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~



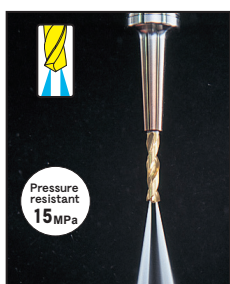
5kw HEAT ROBO DENJI 5000S

For COOLANT through

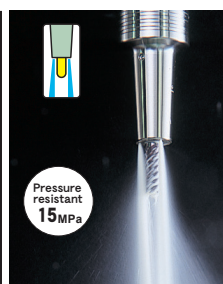
Withstanding pressure 15MPa

7MPa (NOZZLE through)

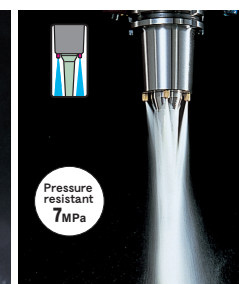
- The shrink-fit holder has a very simple configuration without a collet or a tightening nut. It is easily and completely compatible with through spindle coolant.



Pressure resistant 15MPa
CUTTER through
From the tip of cutter



Pressure resistant 15MPa
FLUSH through
From the tip of holder to the cutting edge



Pressure resistant 7MPa
NOZZLE through
From the nozzle

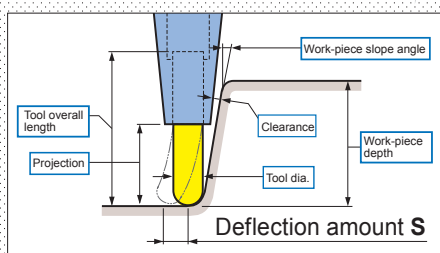
Ideal for carbide coolant-thru drills!

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.



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



Output DXF files.

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.

Examples 1 Improved tool design

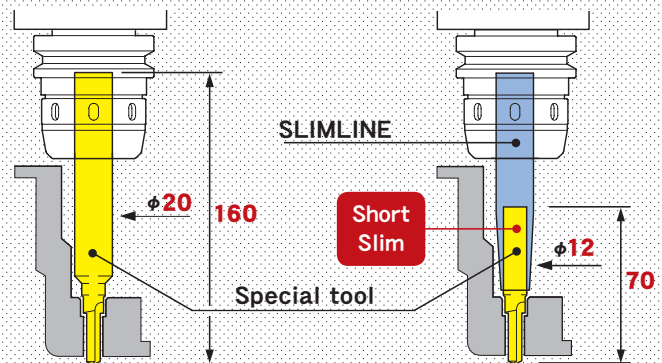
- Reducing the overall length and diameter of the special cutting tool.



Clutch Housing



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



Examples 2 Integration of a cutting tool and a holder

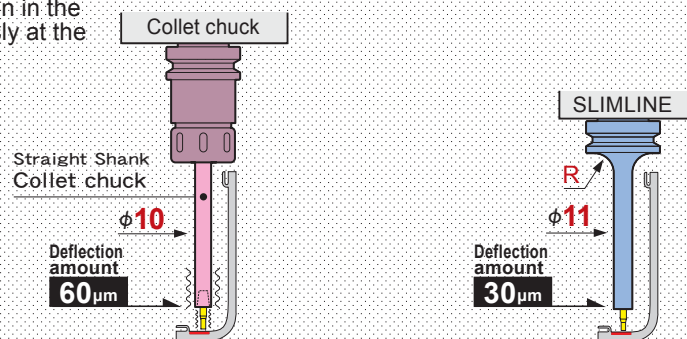
- SLIMLINE Solid type with the thinnest body design in the world allows the rigidity improvement tremendously at the straight wall application.



Smart phone



Tool life
3 times longer



Examples 3 Interference avoidance.

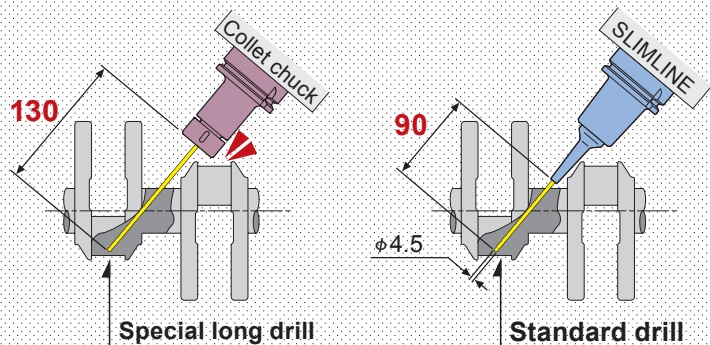
- Replacing the special long drill to the standard drill.



Crankshaft



Tool cost
reduction
¥23,000 → ¥12,500
Shortens
machining time
1min. → 30sec.

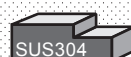


Examples 4 Small-size drilling

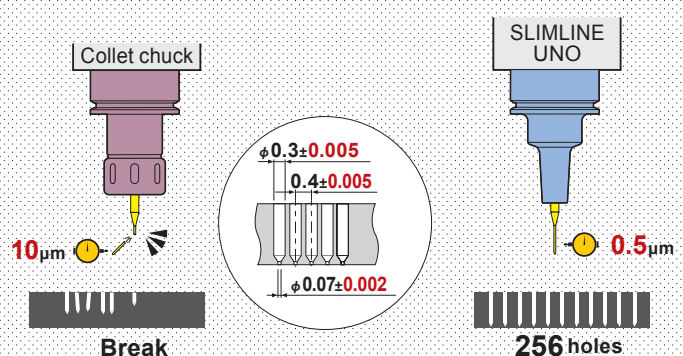
- SLIMLINE UNO allows dia. 0.07mm drilling.



Printer head parts



From impossible to
possible



Shrink-fit Heater **HEAT ROBO**

■ Specifications

Shrink-fit Heater	DENJI 電磁5000S	DENJI 電磁1200S	Baby3000S	Baby1200S	Baby1000
Spec.					
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

Shrink-fit Heater	DENJI 電磁5000S	DENJI 電磁1200S	Baby3000S	Baby1200S	Baby1000
Holder type					
MONO series	○	△	○	△	×
2 PIECE type	○	○	○	○	○
UNO	○	○	○	○	×
HYPER VERSION	○	×	○	×	×
Z	○	×	○	×	×
STRAIGHT arbor	○	▲	○	△	×

[○]: Available [X]: 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.

Baby3000S

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			

■ Std. Access.

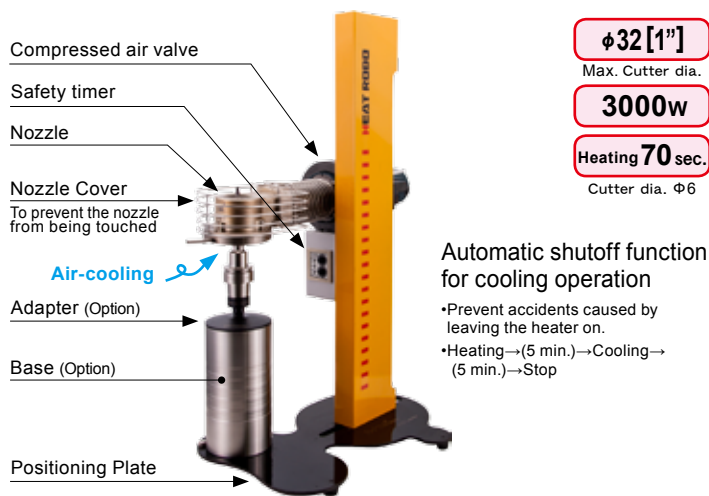
- Safety timer
- Heat-resistant gloves
- Tweezers

■ Option

- Please choose parts on P.12-15

■ Note

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



Baby1200S



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.

Baby1000



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 voltage.
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: 5Kg/cm² (air-consumption volume: 245t/min)
- The customer should prepare the following items : auxiliary parts including the air tube (O.D: 8mm.) an air filter and a coupler.

Heating Coil (Option)

Air-cooling

Adapter (Option)

Base (Option)

Touch Panel

- Timer
- Coil selection
- Heating
- Cooling

Base Plate

A3 size

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

■Std. Access.

- Protection sheet for heating coil →P.15

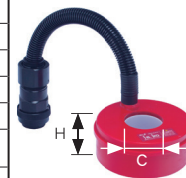
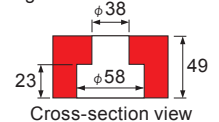
■Note

- 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

fig. 1



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: 5Kg/cm² (air-consumption volume: 245t/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.

Heating Coil (Std.access)

Air-cooling

Adapter (Option)

Base (Option)

Touch Panel

- Timer
- Coil selection
- Heating
- Cooling

Base Plate

A4 size

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.

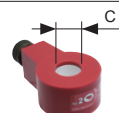
- Protection sheet for heating coil →P.15

■Caution

- 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.

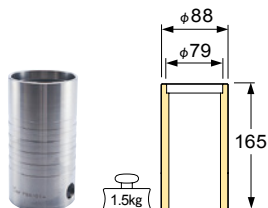


Option

Base

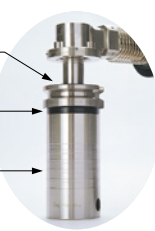
CODE

BAA-01

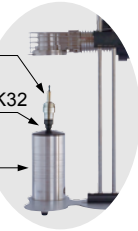


Examples of typical uses

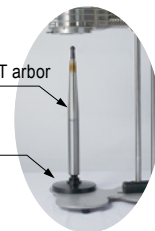
Holder
BT50
Adapter
ADH-50
Base
BAA-01



Holder
HSK-E32
Adapter
ADH-HSK32
Base
BAA-01



Long
STRAIGHT arbor
Adapter
BAS-01



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 STRAIGHT arbor	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						
			ST10	M6						
			ST12	M8						
		ST16/20/25	M10							
ADH-HSK25		MONO 3°	E25	○	△ ※ Some holders cannot be used. Please refer to the dimensional sheet.	○	△	※Some holders cannot be used.	×	
MONO CURVE		E32								
UNO		E40								
HYPER VERSION		A40								
Z		A50 / E50 / F63								
-40			BT40 / A63 F63 / F80PD DN40 / CT40						Available dimension C=Max. φ32 ※M=22 has a max. diameter of 24 at C.	
-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.	×
			ST32	M16						
			ST42	M24						
-02			Carbide Shank ST○○C						Available dimension C=Max. φ32 ※M=22 has a max. diameter of 24 at C.	

[○] : Available

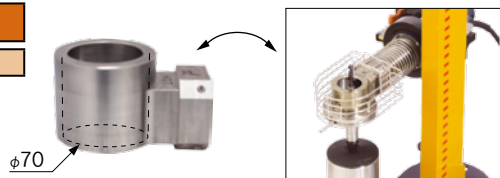
[×] : Not available

[△] : Restricted use

φ70 Nozzle (Baby3000S)

CODE

HRB-NZL70



Holder

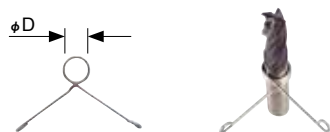
- MONO 3° SLRB32 φ32
- HYPER VERSION Heavy type (All sizes)

Option

■Cutter Stopper

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

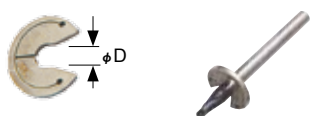
HSA type (Coil Spring type)



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)

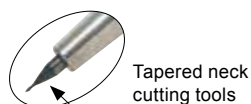


CODE	φ D	Set Contents (Q'ty)
HSB-D [Ex.: HSB-3]	3, 3.175[1/8], 4, 5, 6, 7, 8, 9, 10, 11, 12, 16, 20, 25, 32 [3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 1"]	1 piece
-E	3, 4, 6, 8, 10, 12	1 ea., 6 pieces in total
-F	3, 4, 5, 6, 7, 8, 9, 10, 11, 12	1 ea., 10 pieces in total
-EF	3, 4, 5, 6, 8, 10, 12, 16,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

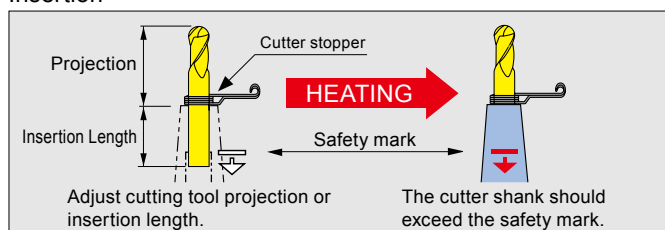
HSC type (Slit Collet type)



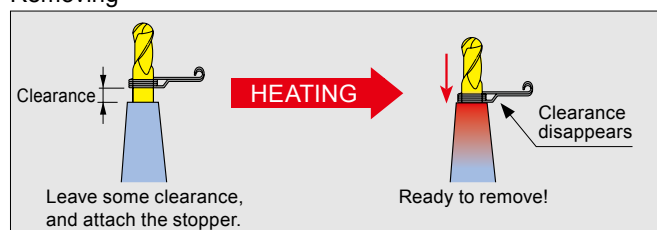
CODE	φ D
HSC-D [Ex.: HSC-3]	3, 3.175[1/8], 4, 6



Insertion



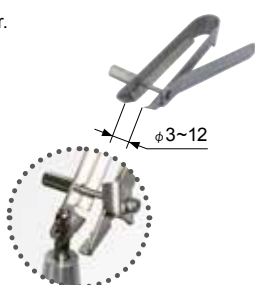
Removing



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)

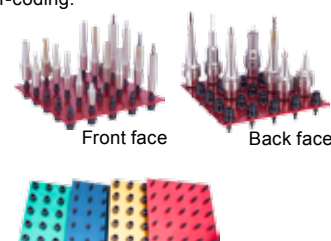


Holder Stand

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			

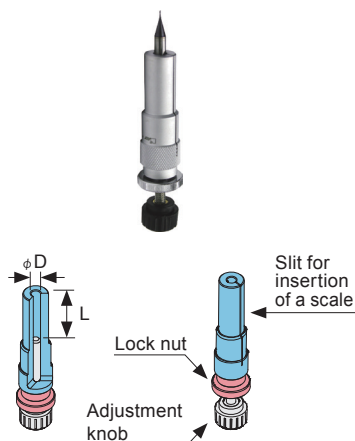
Size:190×190(mm)



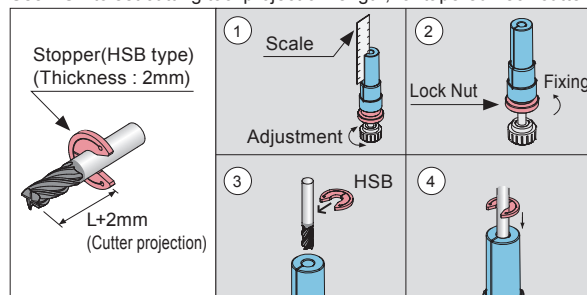
Cutter Adjuster

Simply adjustment for cutting tool projection and insertion length.

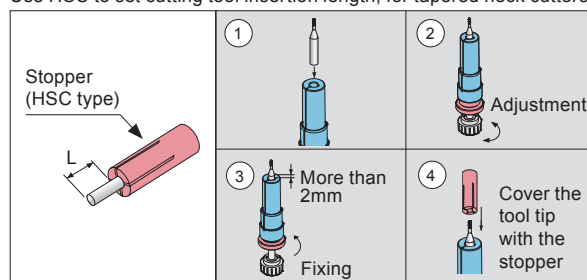
CODE	φ D	L
HAJ-3	3	10~ 30
-3.175	3.175 [1/8]	
-4	4	13~ 30
-3/16	[3/16]	
-6	6	19~ 45
-1/4	[1/4]	
-8	8 [5/16]	21~ 55
-10	10 [3/8]	22~ 70
-12	12	23~ 85
-1/2	[1/2]	
-16	16 [5/8]	26~ 90
-20	20 [3/4]	37~ 100
-25	25	40~ 100
-1"	[1"]	



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

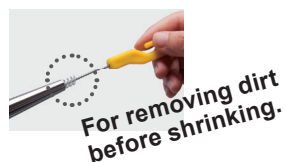
Brush type

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

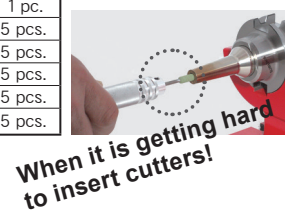
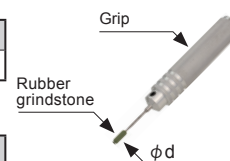
To eliminate strong oxidized film, burned-in dust and oil that have been generated in the internal bores.

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

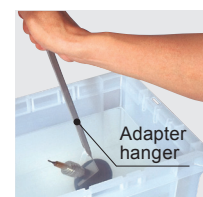
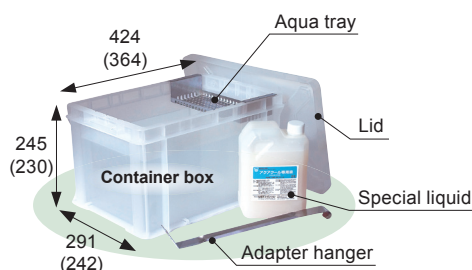
Aqua cool kit

Cooling kit for cooling SLIMLINE holders after shrink fitting or removing

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

Parts

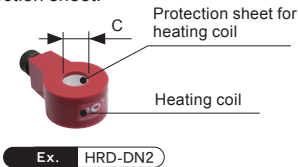
CODE	Name	Note
AQC-EK-01-2	Special Liquid	2ℓ of undiluted Solution, Use at a dilution ratio of 3%.
-AT-01	Aqua Tray	Drainer plate
-AH-01	Adapter Hanger	Hanger for lowering holders into liquid.
CN -245	Container Box	-
-FT	Lid for Container Box	-



Protection sheet for heating coil (For Induction Heater)

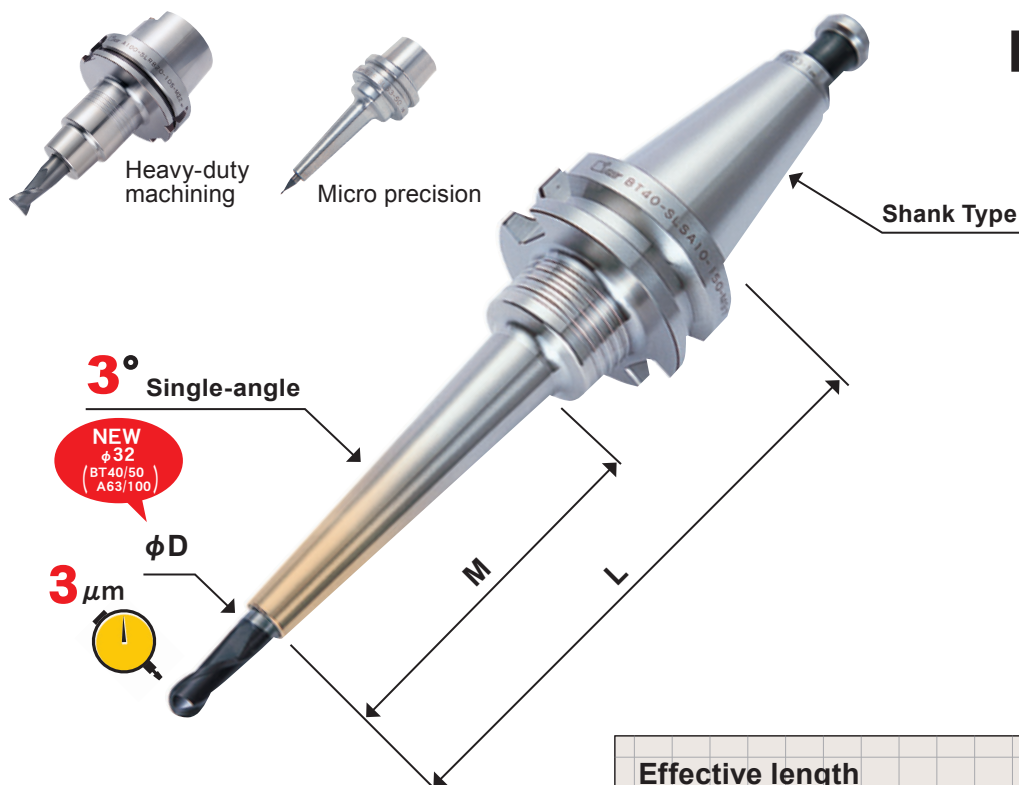
Don't heat holders without using a coil protection sheet.

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

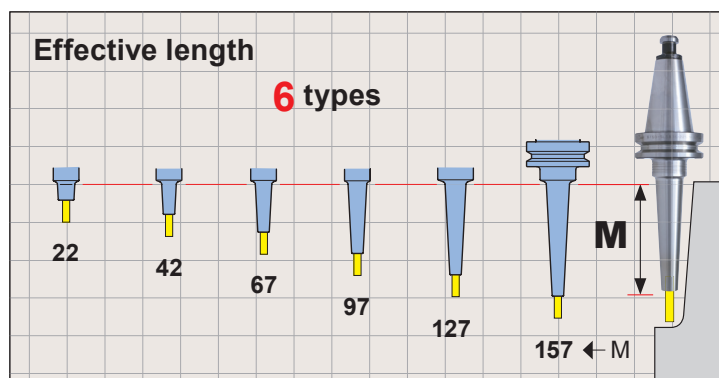


MONO SERIES

MONO 3°



3,000
variations



BT50 - SL SA 3 - 110 - M42

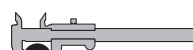
Shank Type

SLIMLINE

ϕD

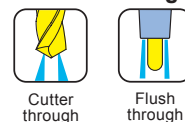
L

Effective length



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

Coolant-through

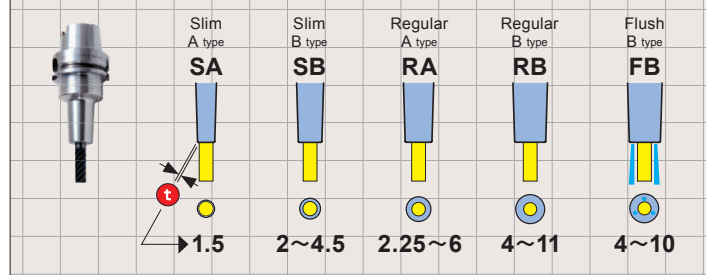


PAGE	
18	BT30
22	BT40
51	BT50
80	A40
85	A50
88	A63
125	A100
161	E25
163	E32
168	E40
175	E50
185	F63
204	15T
205	RS20
206	S20T

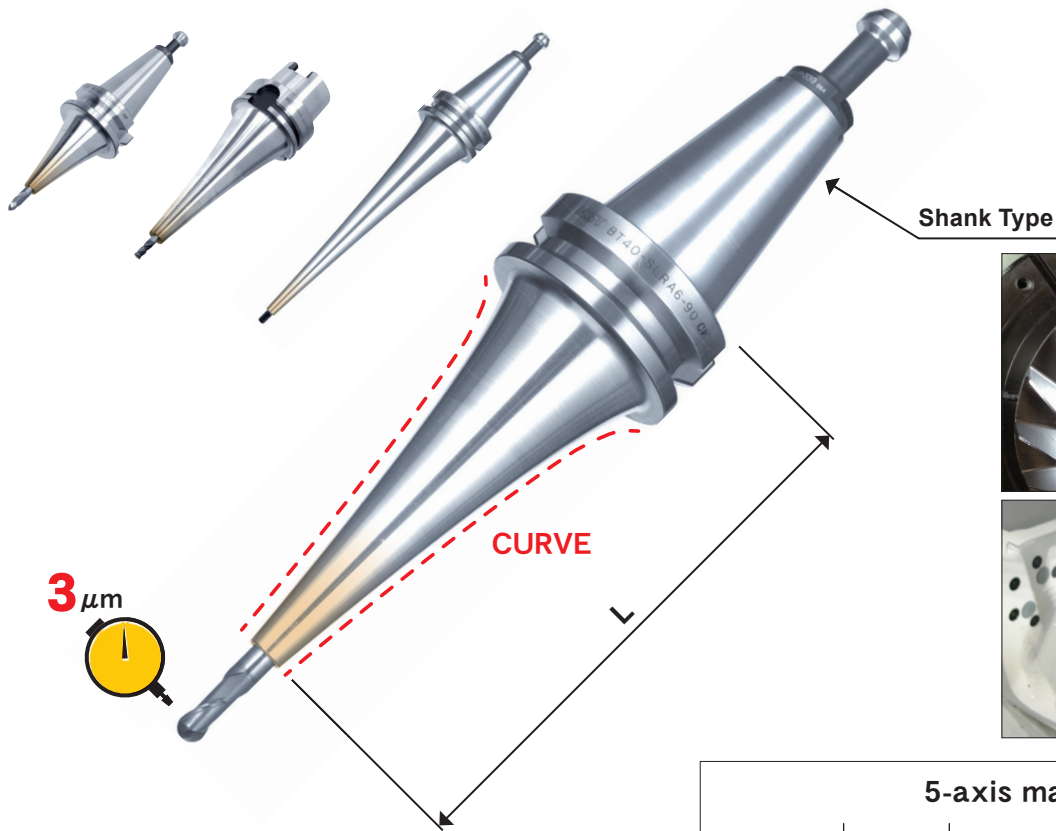
● DIN and CAT. shank products are available upon request.

Nose shape

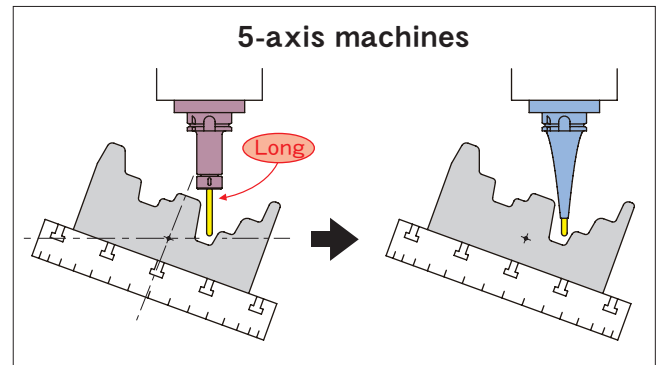
Thickness t ... 5 types



MONO CURVE



500
variations



BT50 – SL SA 4 – 165 CV

Shank Type

SLIMLINE

ϕD

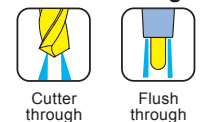
L

CURVE

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

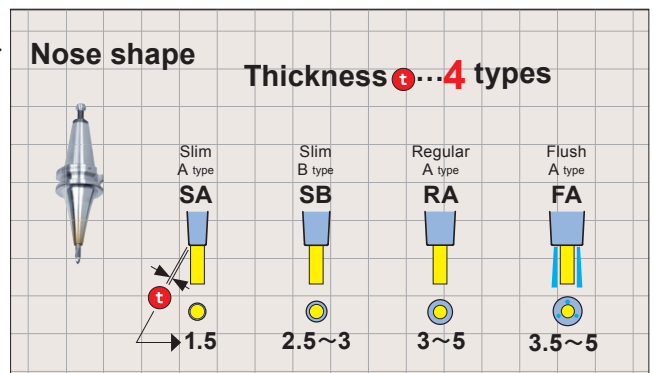
●DIN shank products are available upon request.

Coolant-through



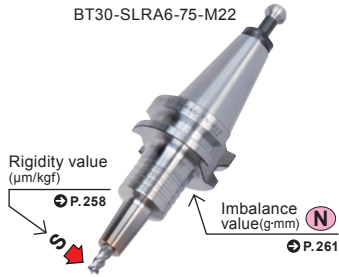
Nose shape

Thickness t ...4 types

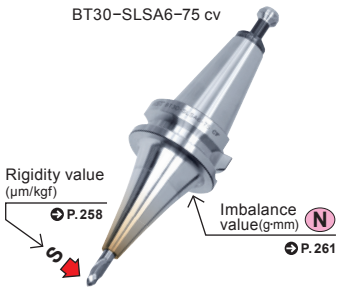


BT30

BT30-SLRA6-75-M22



BT30-SLSA6-75 cv



CV : Curve

Thickness

Fig.1

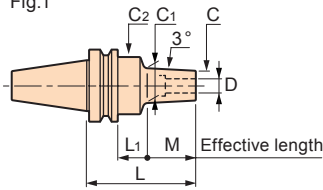
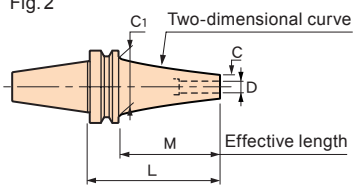


Fig.2

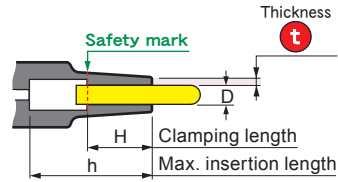


■Option

- 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.

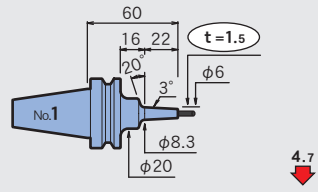


CODE	Fig.	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg	N	S	Scale model
BT30-SLSA3- 60-M22	1	3	6	1.5	60	22	16	8.3	20	9	80	0.4	0.8	4.7	1
- 75-M22					75		31		25		99			4.6	2
- 95-M42					95	42	31	10.4			119			9.2	3
-120-M67					120	67		13			144	0.5	1.6	14.9	4
-SLRA3- 75-M22	1	3	7.5	2.25	75	22	31	9.8	25	9	99	0.5	1.6	2.8	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

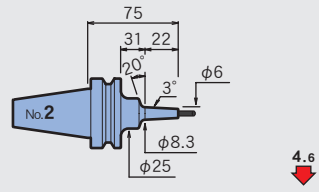
CODE	Fig.	φD	φC	t	L	M	L ₁	φC ₁	φC ₂	H	h				Scale model
BT30-SLRA10- 75-M22	1	10	16	3	75	22	31	18.3	25	30	99	0.4	1	1.1	30
-SLSA10- 75 <i>CV</i>	2	10	13	1.5	75	53	—	34	—	30	99	0.5	1.6	1.2	31
- 90 <i>CV</i>					90	68					114		1.4	2	32
-SLRA10- 90 <i>CV</i>	2	10	19	4.5	90	68	—	34	—	30	114	0.6	1.5	1.1	33
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

φ3

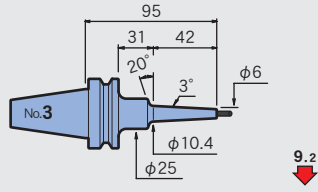
BT30-SLSA3-60-M22



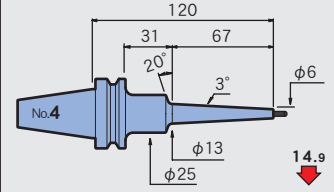
BT30-SLSA3-75-M22



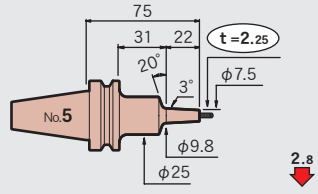
BT30-SLSA3-95-M42



BT30-SLSA3-120-M67

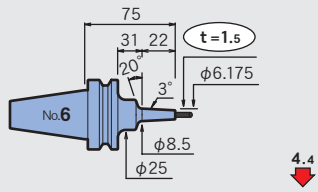


BT30-SLRA3-75-M22

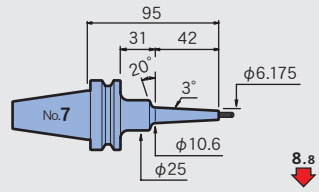


φ3.175

BT30-SLSA3.175-75-M22

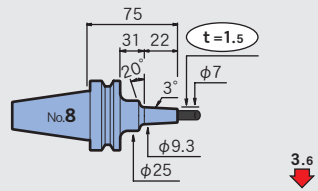


BT30-SLSA3.175-95-M42

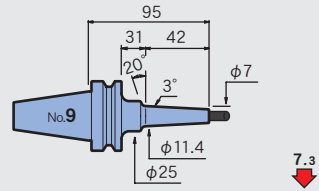


φ4

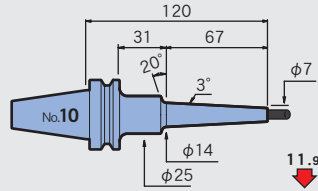
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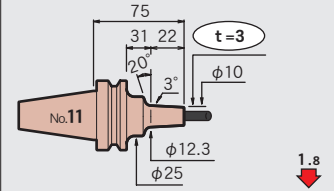
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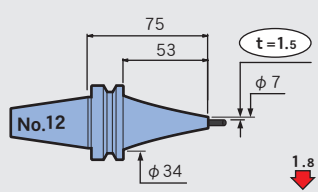
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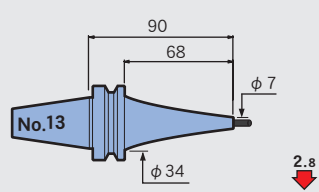
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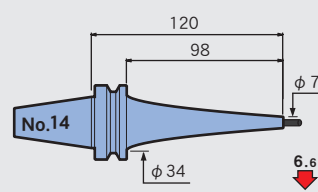
BT30-SLSA4-75 CV



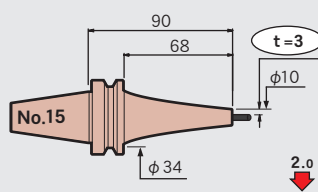
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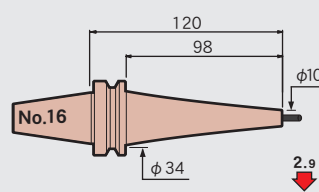
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BT30-SLRA4-90 CV

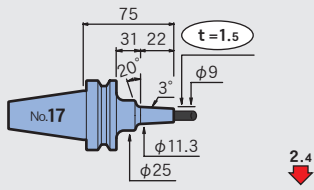


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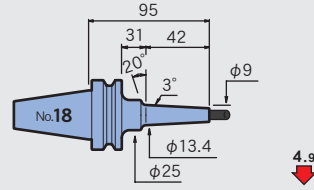


$\phi 6$

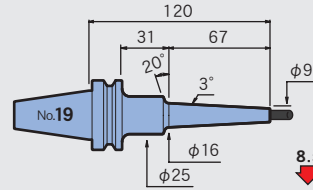
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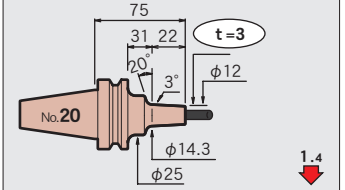
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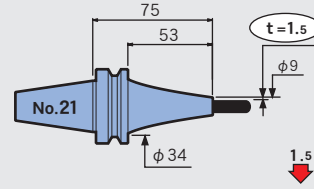
BT30-SLSA6-120-M67



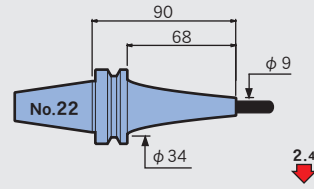
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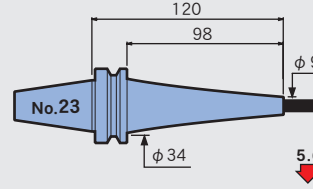
BT30-SLSA6-75 CV



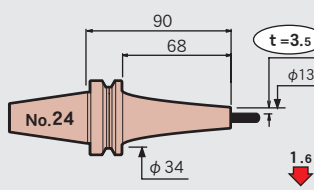
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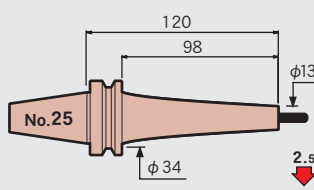
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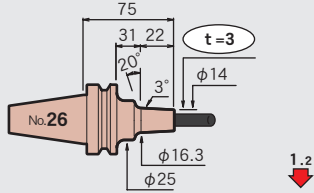
BT30-SLRA6-90 CV



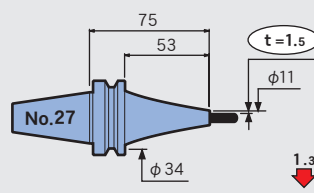
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 $\phi 8$

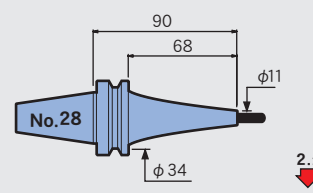
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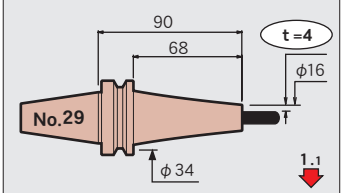
BT30-SLSA8-75 CV



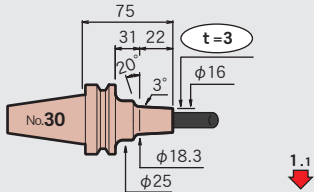
BT30-SLSA8-90 CV



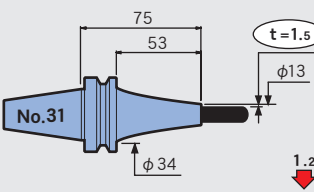
BT30-SLRA8-90 CV

 $\phi 10$

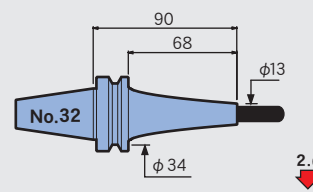
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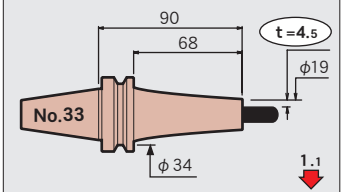
BT30-SLSA10-75 CV



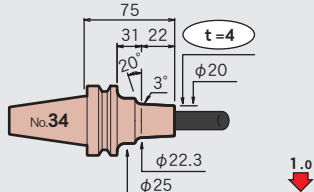
BT30-SLSA10-90 CV



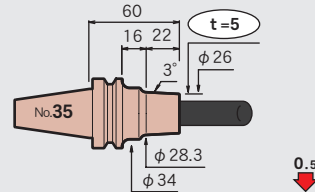
BT30-SLRA10-90 CV

 $\phi 12$

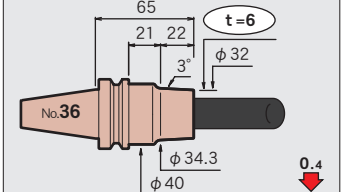
BT30-SLRA12-75-M22

 $\phi 16$

BT30-SLRA16-60-M22

 $\phi 20$

BT30-SLRA20-65-M22



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

BT40

BT40-SLSA10-150-M97

MONO 3°

Rigidity value
($\mu\text{m/kgf}$)
P.258Imbalance
value(g·mm) (N)
P.261

BT40-SLFA6-120cv

MONO CURVE

CV

Rigidity value
($\mu\text{m/kgf}$)
P.258Imbalance
value(g·mm) (N)
P.261

CV : Curve

Thickness

Fig.1

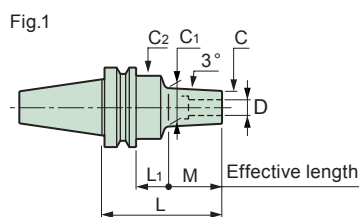
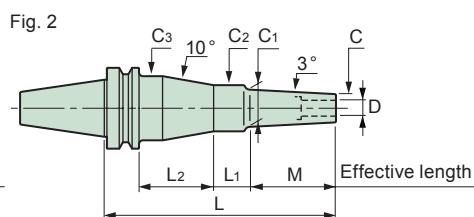


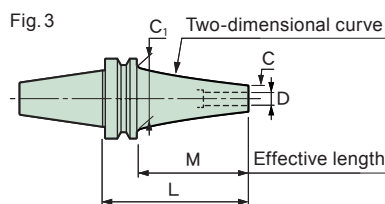
Fig. 2

Compatibility table
for HRD-01S

[○] Available [×] Not available

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

Fig.3

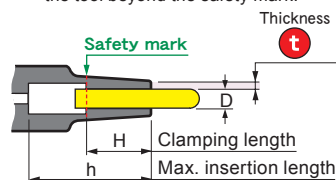


■Option

- 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.



CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h				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	<u>3</u>		
-180-M 67					180	67	13	215	3.4	15.8	<u>6</u>							
-M 97	1				97	56	—	16.2		—		1.2	4.1	22.2	<u>8</u>			
-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		○
- 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	<u>18</u>					
-M 97	1				97	56	—	17.7		—			1.2	4.2	14.3	<u>20</u>		
-M127					127	26		20.8	36				1.1	5.4	15.7	<u>22</u>		
-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	L ₁	L ₂	φC ₁	φC ₂	φC ₃	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

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h	Kg	N	S	Scale model
Shrink-fit Heater	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
MONO 3° MONO CURVE	-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
	BT40 -M 97	1					97	56	—	20.2	32	—			1.3	7.4	9.2	93
	-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
2PIECE type	-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
UNO	-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
HYPER VERSION	-SLFA6- 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
STRAIGHT arbor	-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
OTHERS																		
PERIPHERALS																		
Technical data																		

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model	Feature
BT40-SLSA8- 95-M 42	1	8	11	1.5	95	42	26	—	15.4	25	—	24	130	1	4.6	3.4	○	135	Shrink-fit Heater
-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	MONO 3° MONO CURVE
-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	MONO Series
-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	2PIECE type
- 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	HYPER VERSION
- 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	STRAIGHT arbor
-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	PERIPHERALS
-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	

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model
Shrink-fit Heater	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
MONO 3° MONO CURVE	-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
2PIECE type	-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
UNO	-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
HYPER VERSION	-SLSA10- 90 CV	3	10	13	1.5	90	63	—	—	53	—	—	30	125	1.2	3.3	1.3	○	235
	-120 CV					120	93							155	1.5	4.3		○	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
OTHERS	-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
PERIPHERALS	-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
Technical data																			

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	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
BT40-125-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	0.9	○	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

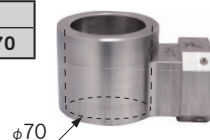
Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h				Scale model
Shrink-fit Heater	BT40-SLSB16- 95-M 42	1	16	24	4	95	42	26	—	28.4	42	—	32	105	1.2	12.4	0.7	309
	-120-M 67					120	67			31				130	1.3	19.3	1.1	312
	-125-M 42					125	42	56		28.4				135	1.4	13	0.9	310
	-150-M 67					150	67			31				160	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
MONO Series	-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
2PIECE type	-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
UNO	-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
HYPER VERSION	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
STRAIGHT arbor	-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
OTHERS																		
PERIPHERALS																		
Technical data																		

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h		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					95	42	26	—	42.4	53	—	40	105	1.5	14.3	0.4	369
 -120-M 67	1	20	38	9	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
BT40 -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

φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

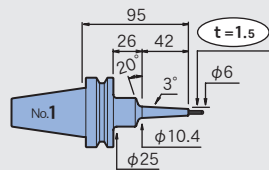
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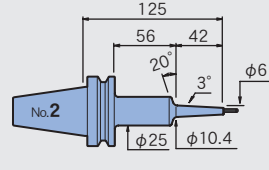
HEAT ROBO Baby3000S

φ3

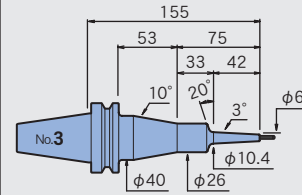
BT40-SLSA3-95-M42



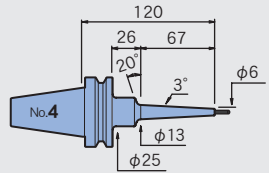
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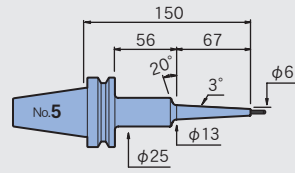
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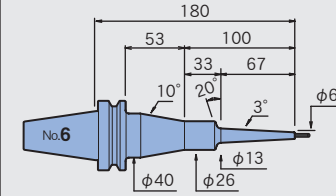
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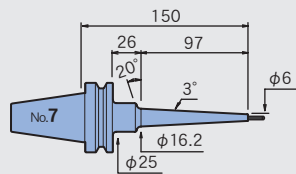
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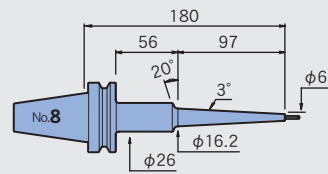
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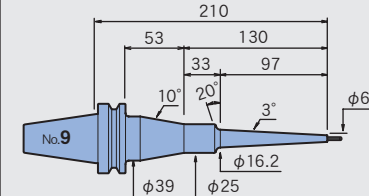
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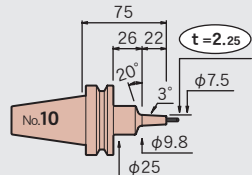
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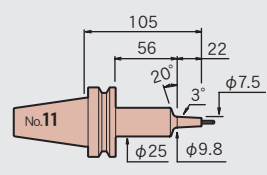
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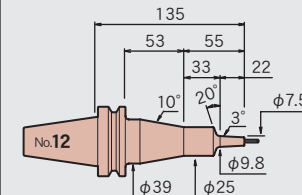
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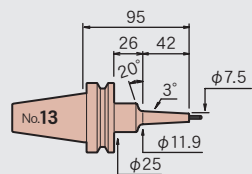
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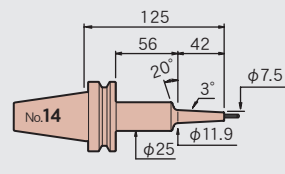
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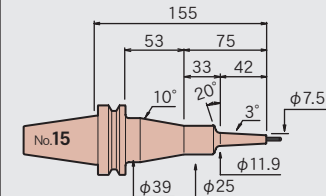
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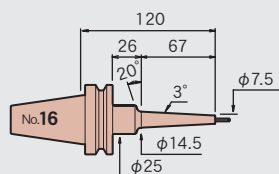
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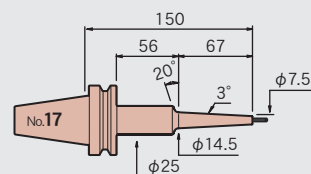
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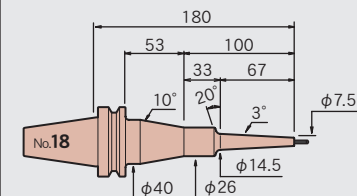
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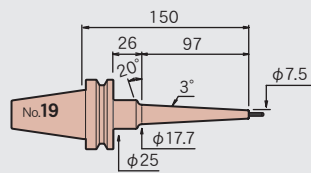
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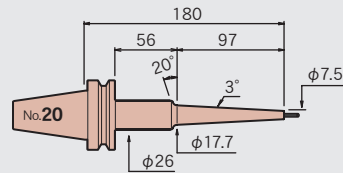
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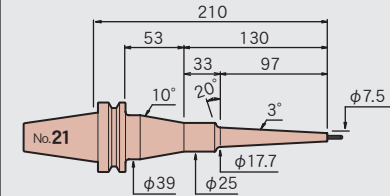
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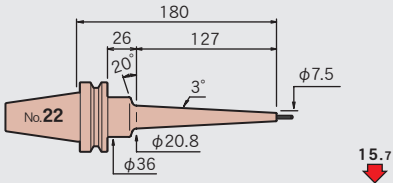
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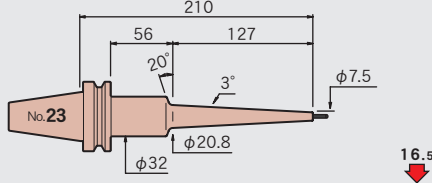
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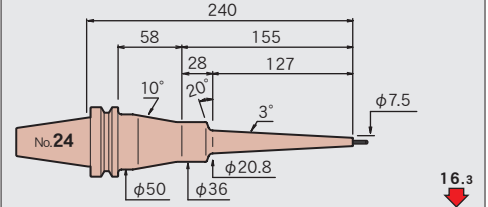
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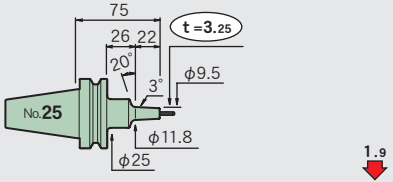
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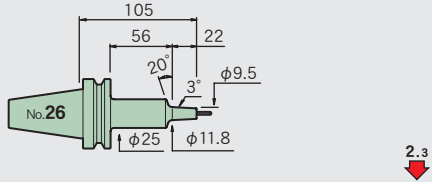
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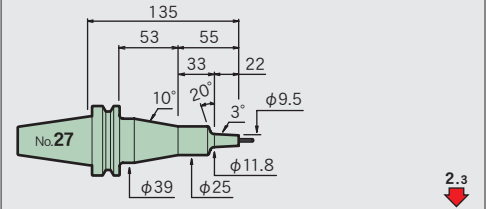
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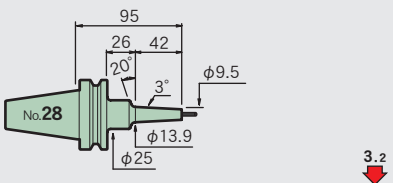
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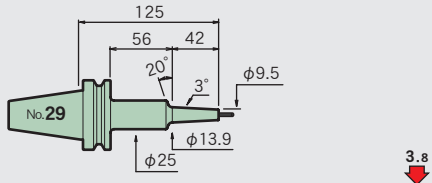
BT40-SLFB3-135-M22



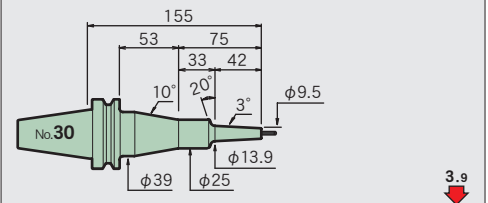
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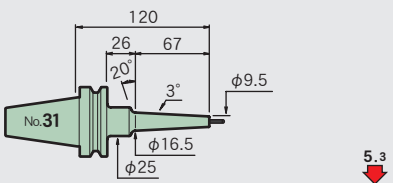
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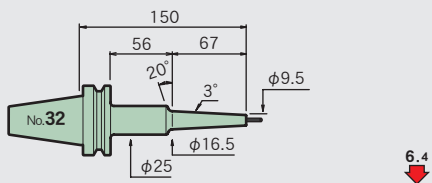
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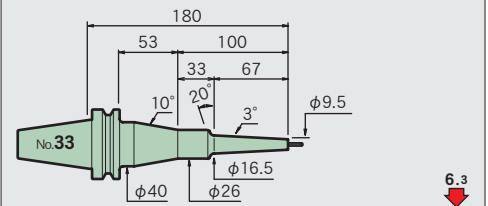
BT40-SLFB3-120-M67



BT40-SLFB3-150-M67



BT40-SLFB3-180-M67



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

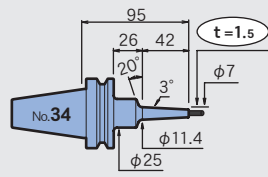
STRAIGHT
arbor

OTHERS

PERIPHERALS

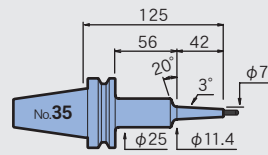
Technical
data

BT40-SLSA4-95-M42



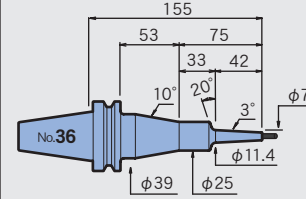
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BT40-SLSA4-125-M42



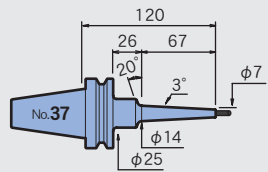
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BT40-SLSA4-155-M42



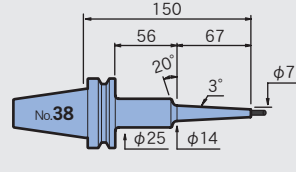
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BT40-SLSA4-120-M67



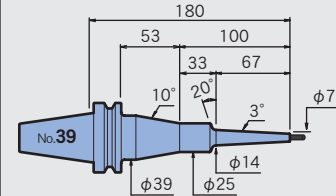
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BT40-SLSA4-150-M67



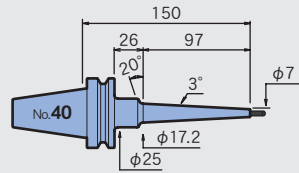
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BT40-SLSA4-180-M67



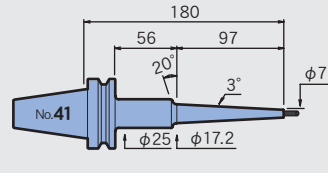
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BT40-SLSA4-150-M97



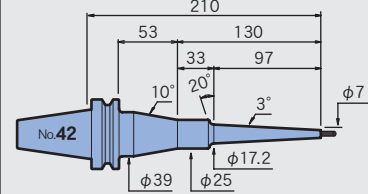
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BT40-SLSA4-180-M97



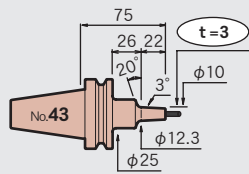
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BT40-SLSA4-210-M97



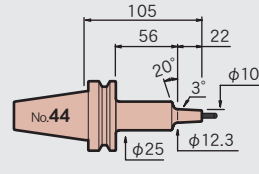
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BT40-SLRA4-75-M22



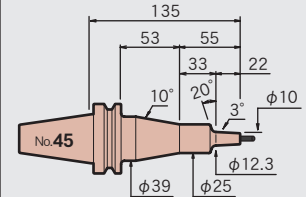
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BT40-SLRA4-105-M22



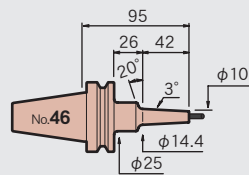
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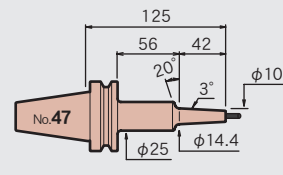
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BT40-SLRA4-95-M42



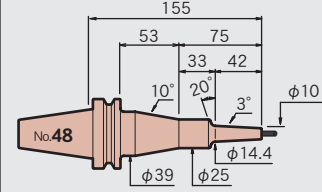
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BT40-SLRA4-125-M42



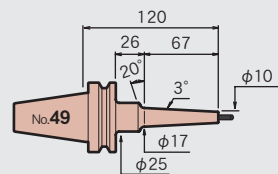
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BT40-SLRA4-155-M42



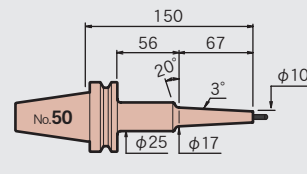
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BT40-SLRA4-120-M67



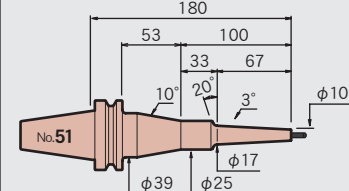
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BT40-SLRA4-150-M67



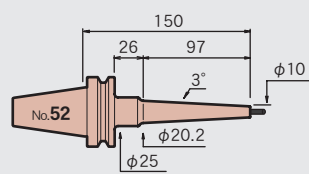
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BT40-SLRA4-180-M67



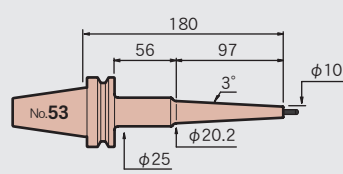
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BT40-SLRA4-150-M97



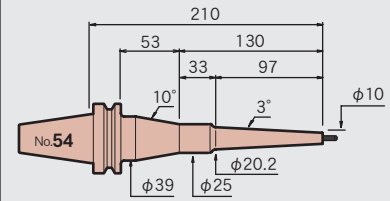
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BT40-SLRA4-180-M97



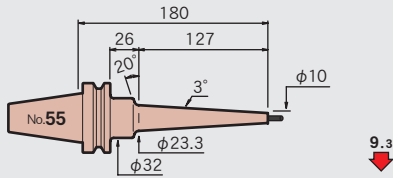
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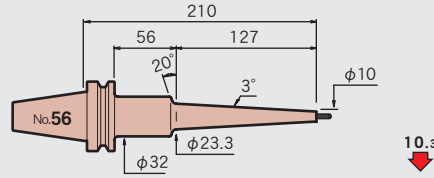


9.4

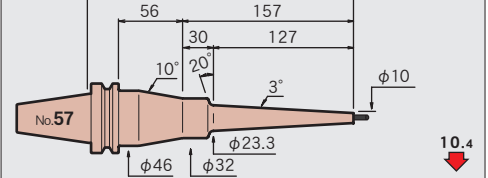
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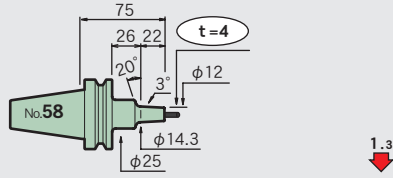
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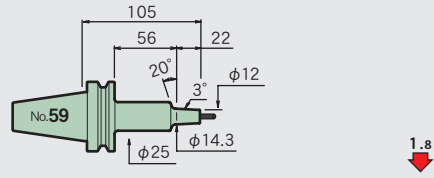
BT40-SLRA4-240-M127



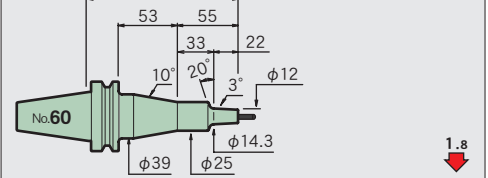
BT40-SLFB4-75-M22



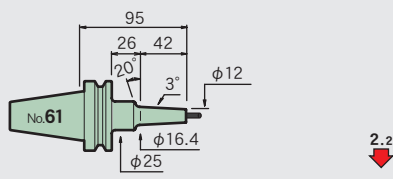
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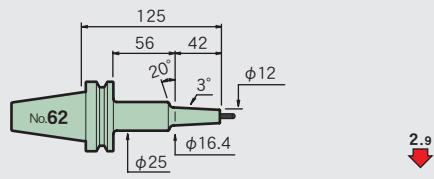
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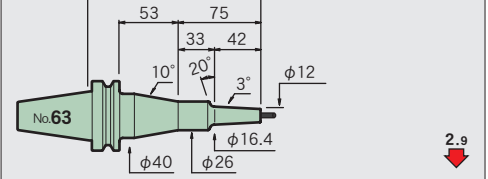
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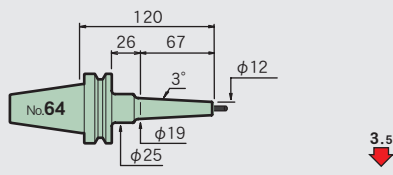
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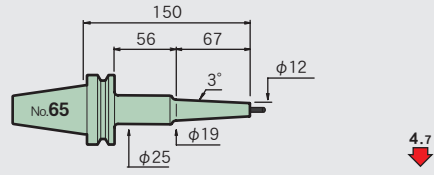
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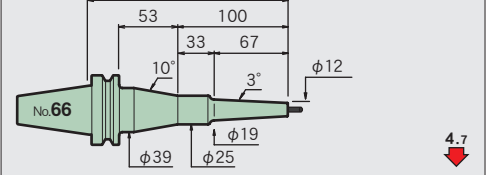
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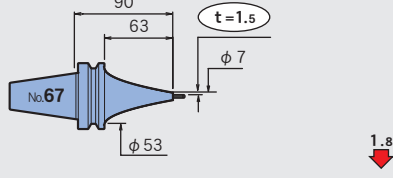
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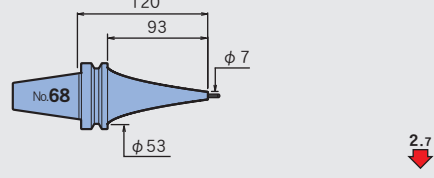
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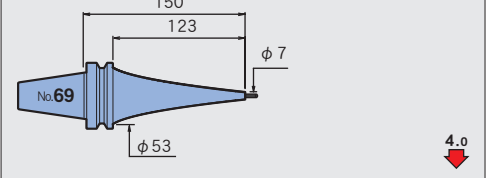
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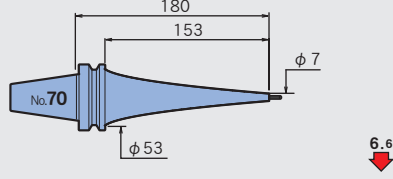
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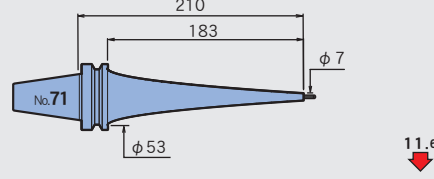
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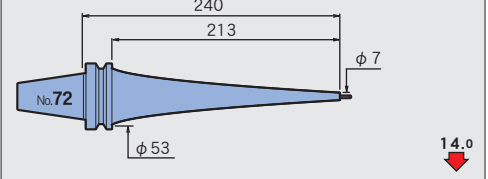
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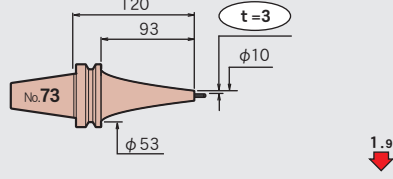
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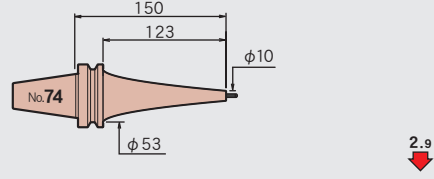
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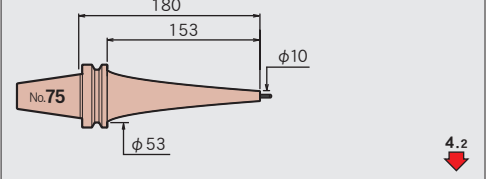
BT40-SLRA4-120 CV



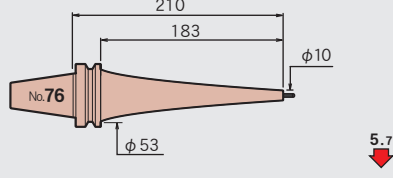
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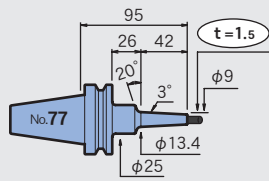
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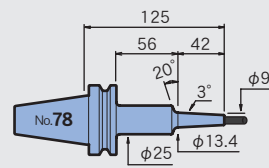
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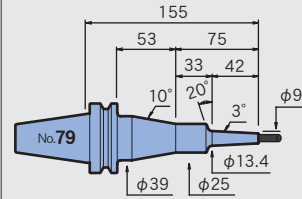
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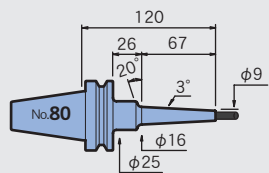
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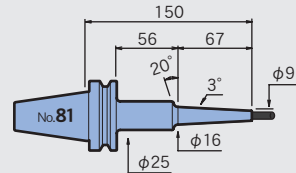
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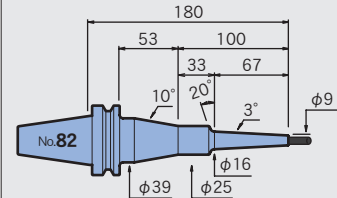
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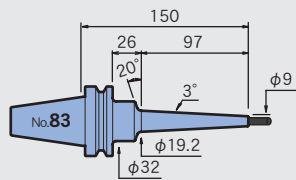
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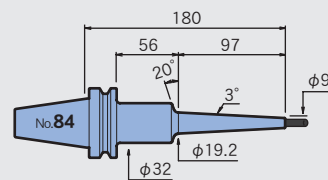
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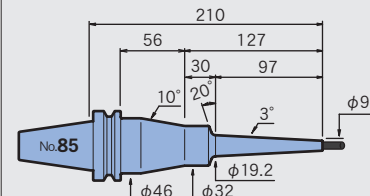
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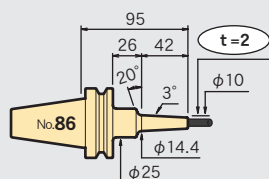
BT40-SLSA6-180-M97



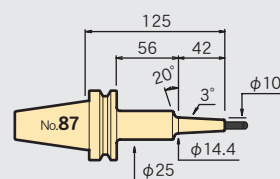
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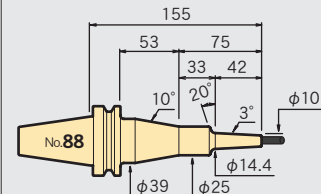
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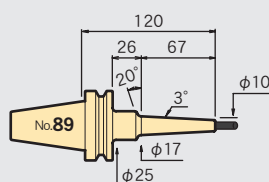
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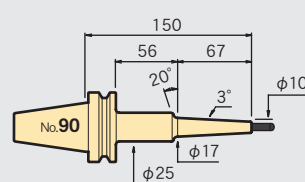
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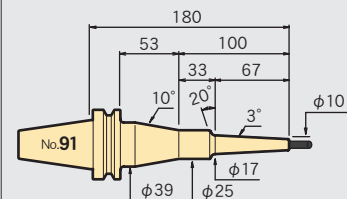
BT40-SLSB6-120-M67



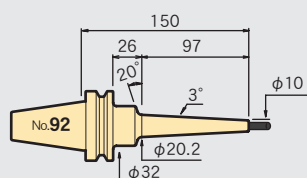
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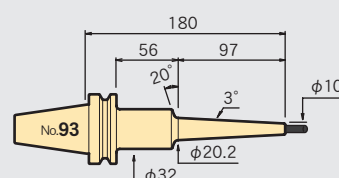
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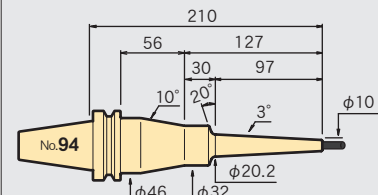
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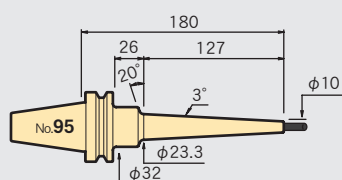
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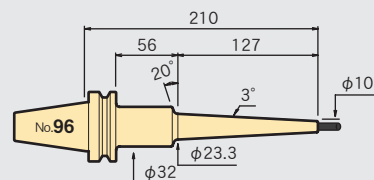
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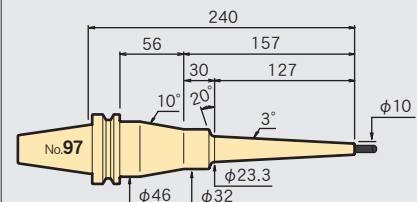
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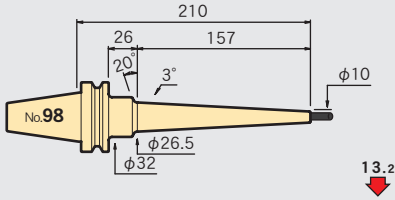
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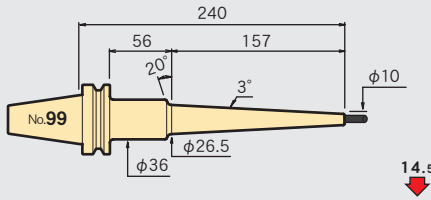
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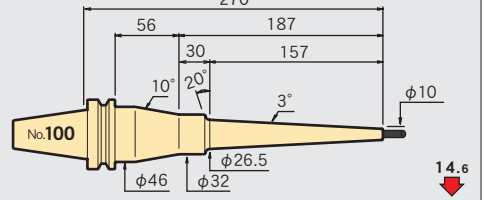
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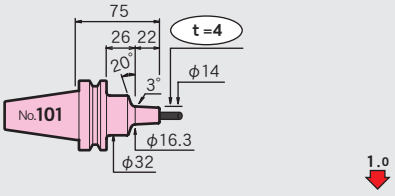
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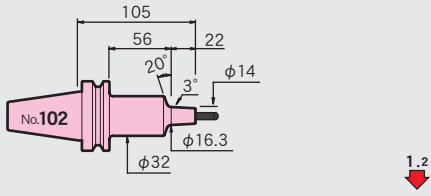
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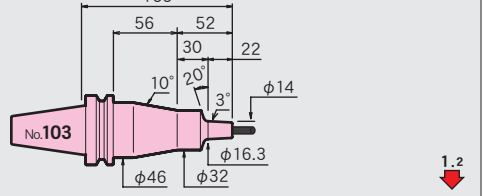
BT40-SLRB6-75-M22



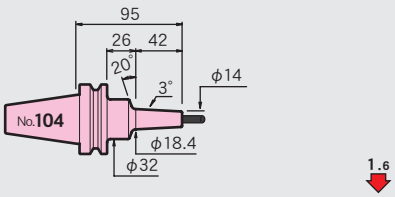
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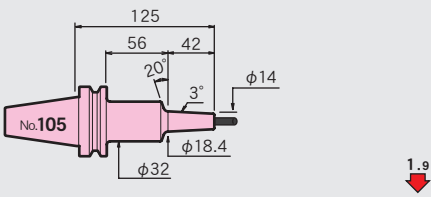
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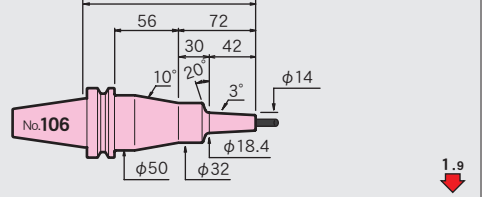
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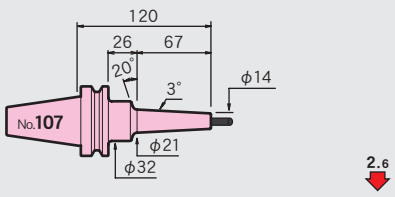
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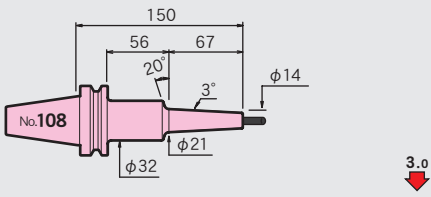
BT40-SLRB6-155-M42



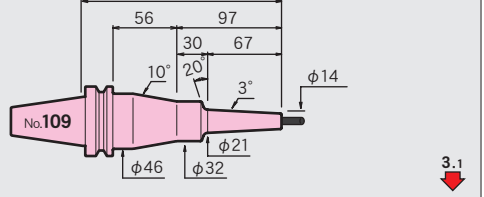
BT40-SLRB6-120-M67



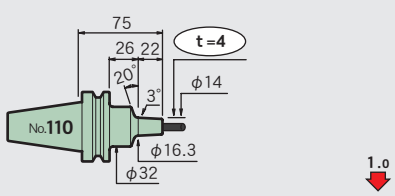
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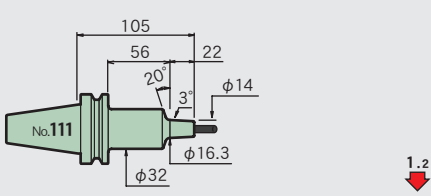
BT40-SLRB6-180-M67



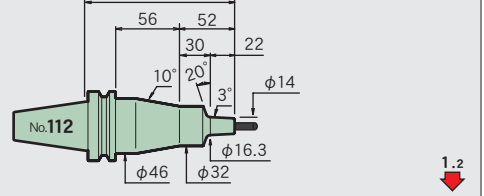
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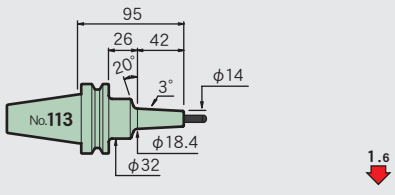
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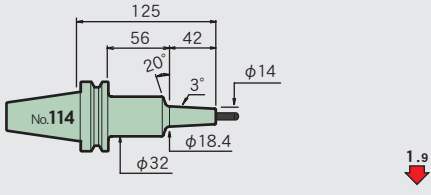
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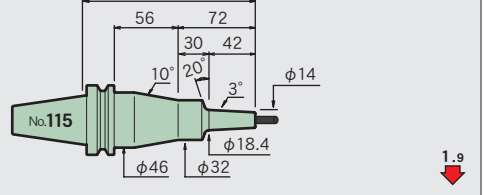
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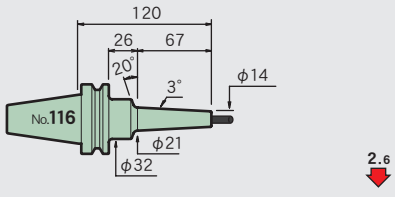
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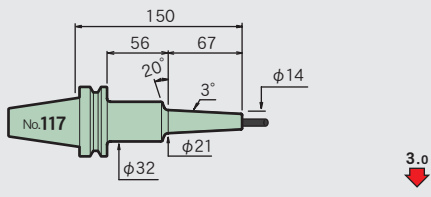
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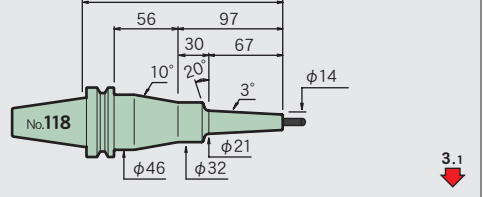
BT40-SLFB6-120-M67



BT40-SLFB6-150-M67



BT40-SLFB6-180-M67



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

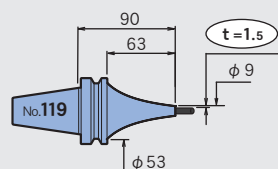
STRAIGHT
arbor

OTHERS

PERIPHERALS

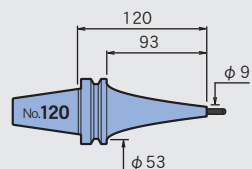
Technical
data

BT40-SLSA6-90 CV



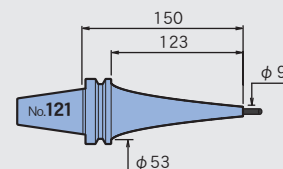
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BT40-SLSA6-120 CV



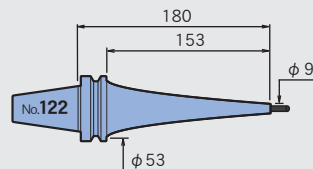
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BT40-SLSA6-150 CV



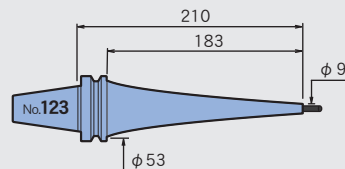
3.6

BT40-SLSA6-180 CV



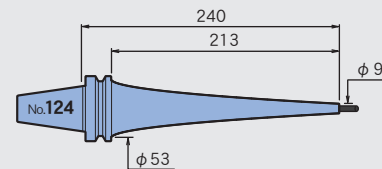
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BT40-SLSA6-210 CV



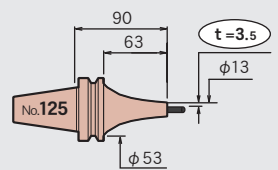
7.3

BT40-SLSA6-240 CV



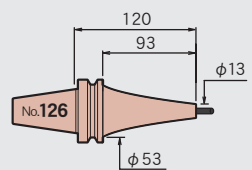
12.0

BT40-SLRA6-90 CV



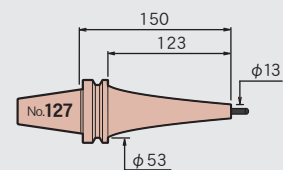
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BT40-SLRA6-120 CV



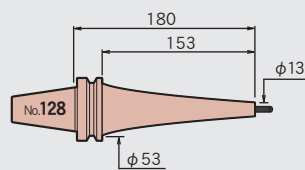
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BT40-SLRA6-150 CV



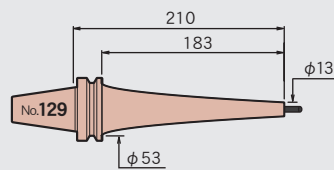
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BT40-SLRA6-180 CV



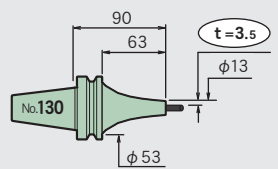
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BT40-SLRA6-210 CV



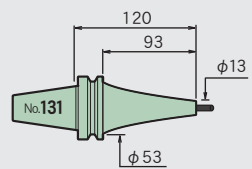
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BT40-SLFA6-90 CV



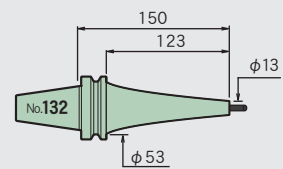
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BT40-SLFA6-120 CV



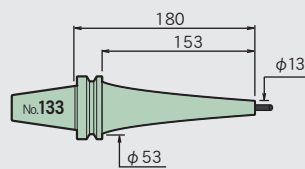
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BT40-SLFA6-150 CV



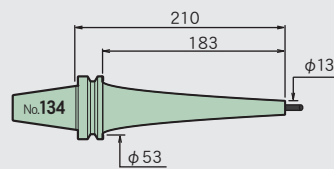
2.1

BT40-SLFA6-180 CV



2.8

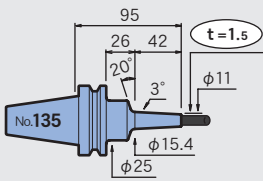
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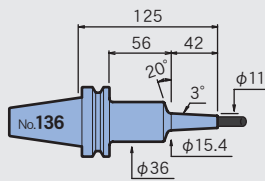
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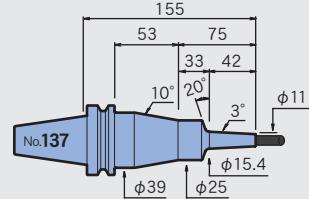
BT40-SLSA8-95-M42



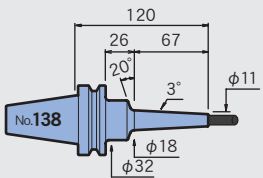
BT40-SLSA8-125-M42



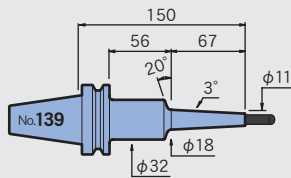
BT40-SLSA8-155-M42



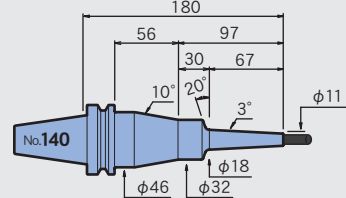
BT40-SLSA8-120-M67



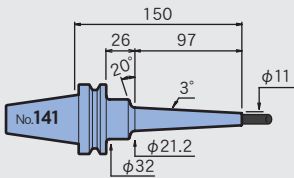
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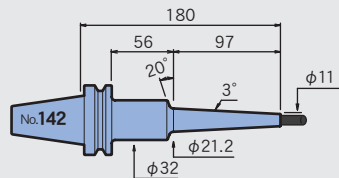
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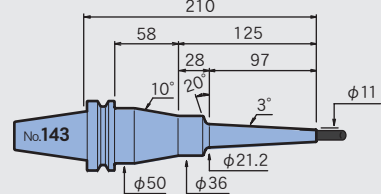
BT40-SLSA8-150-M97



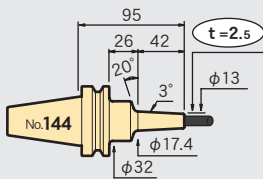
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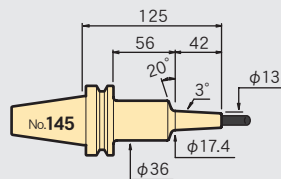
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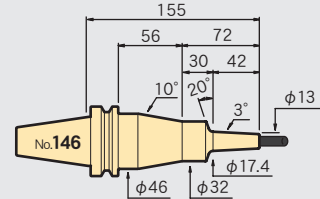
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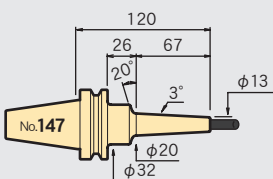
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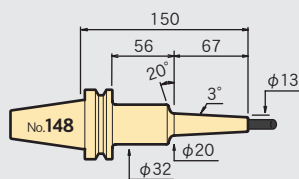
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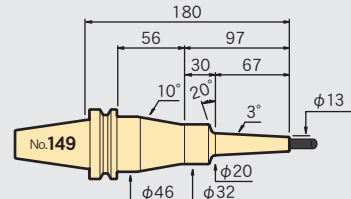
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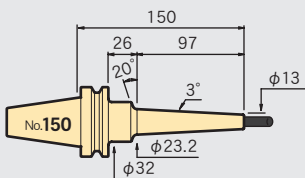
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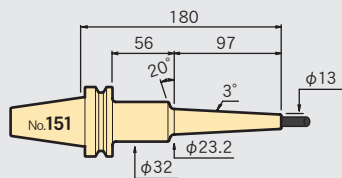
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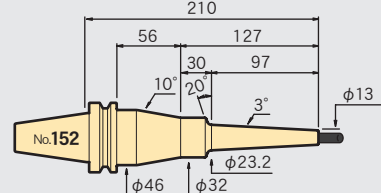
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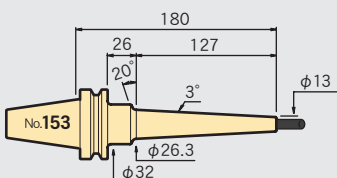
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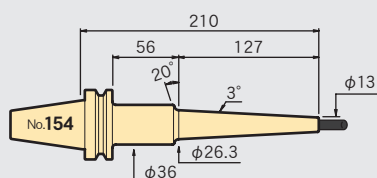
BT40-SLSB8-210-M97



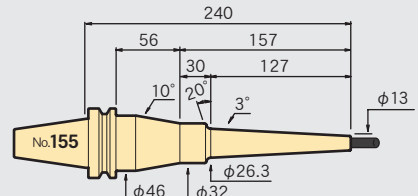
BT40-SLSB8-180-M127



BT40-SLSB8-210-M127



BT40-SLSB8-240-M127



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

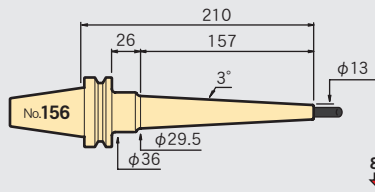
STRAIGHT
arbor

OTHERS

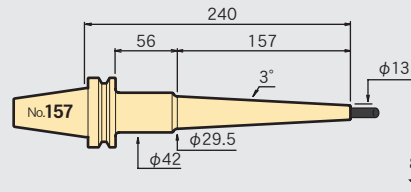
PERIPHERALS

Technical
data

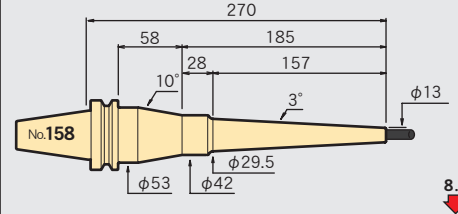
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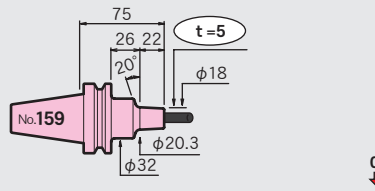
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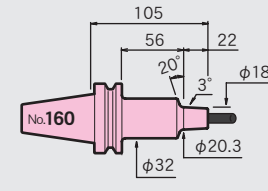
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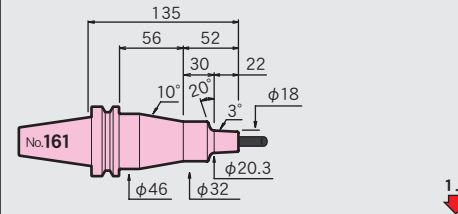
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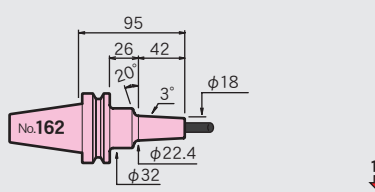
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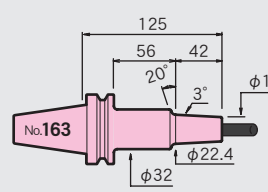
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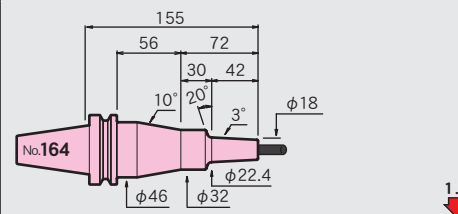
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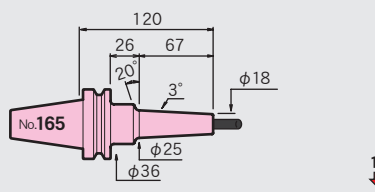
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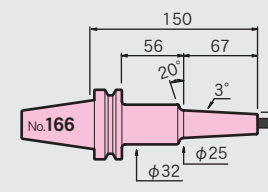
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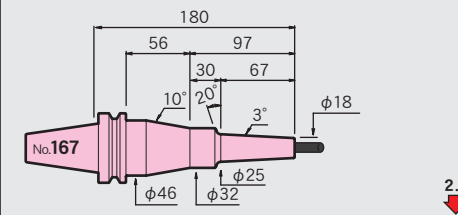
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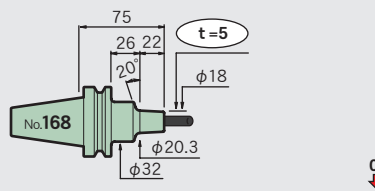
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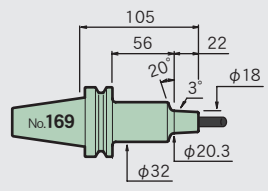
BT40-SLRB8-180-M67



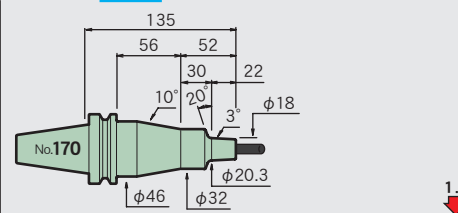
BT40-SLFB8-75-M22



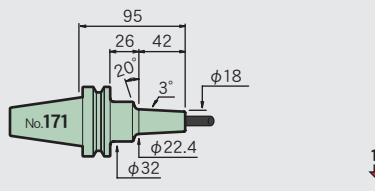
BT40-SLFB8-105-M22



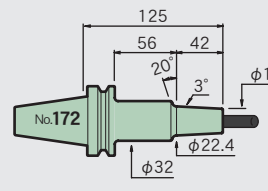
BT40-SLFB8-135-M22



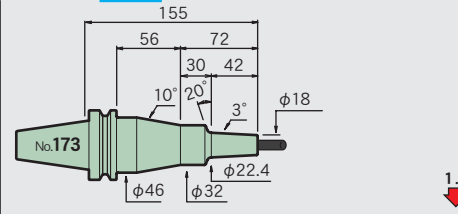
BT40-SLFB8-95-M42



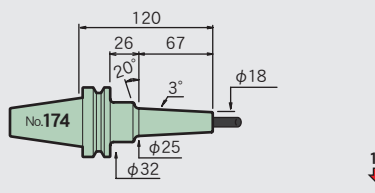
BT40-SLFB8-125-M42



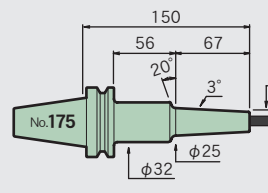
BT40-SLFB8-155-M42



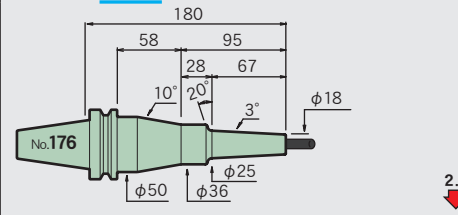
BT40-SLFB8-120-M67



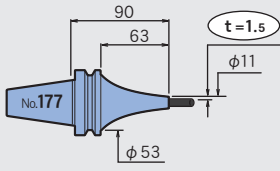
BT40-SLFB8-150-M67



BT40-SLFB8-180-M67

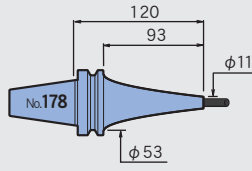


BT40-SLSA8-90 CV



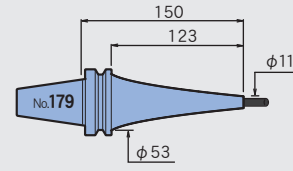
1.4

BT40-SLSA8-120 CV



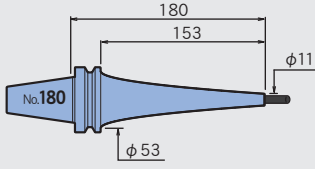
2.0

BT40-SLSA8-150 CV



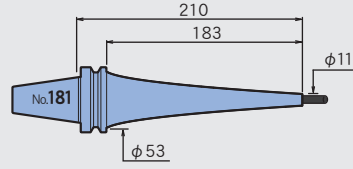
2.7

BT40-SLSA8-180 CV



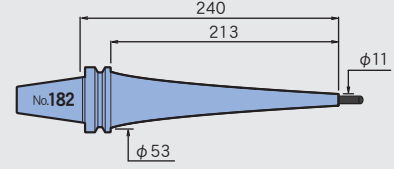
5.0

BT40-SLSA8-210 CV



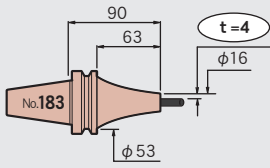
6.6

BT40-SLSA8-240 CV



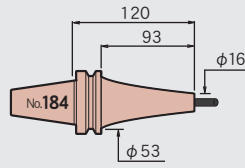
8.3

BT40-SLRA8-90 CV



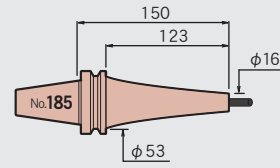
0.7

BT40-SLRA8-120 CV



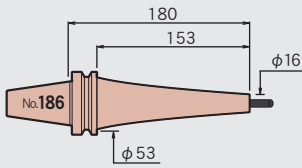
1.2

BT40-SLRA8-150 CV



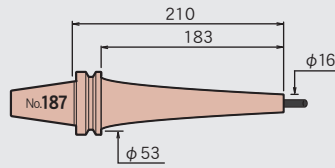
1.8

BT40-SLRA8-180 CV



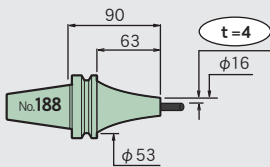
2.6

BT40-SLRA8-210 CV



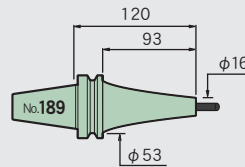
3.5

BT40-SLFA8-90 CV



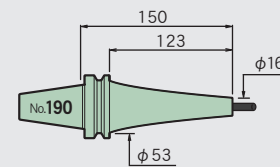
0.7

BT40-SLFA8-120 CV



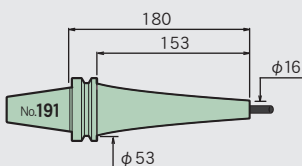
1.2

BT40-SLFA8-150 CV



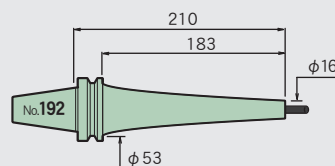
1.8

BT40-SLFA8-180 CV



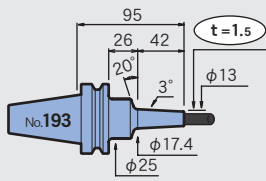
2.6

BT40-SLFA8-210 CV

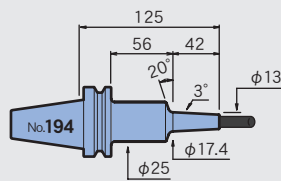


3.5

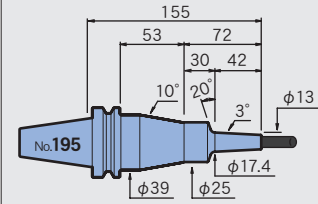
BT40-SLSA10-95-M42



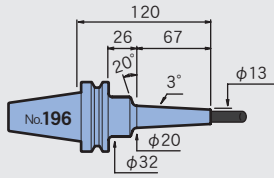
BT40-SLSA10-125-M42



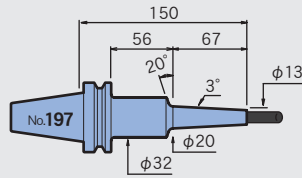
BT40-SLSA10-155-M42



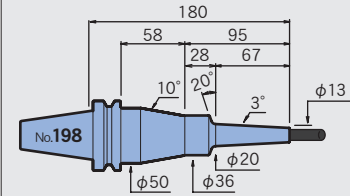
BT40-SLSA10-120-M67



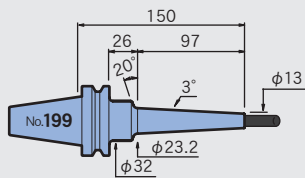
BT40-SLSA10-150-M67



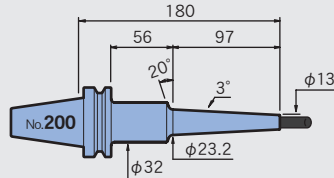
BT40-SLSA10-180-M67



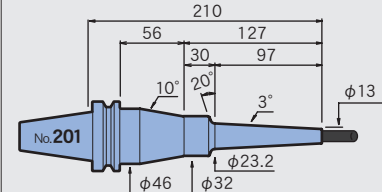
BT40-SLSA10-150-M97



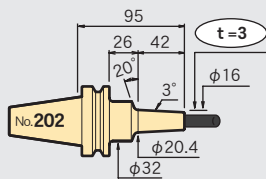
BT40-SLSA10-180-M97



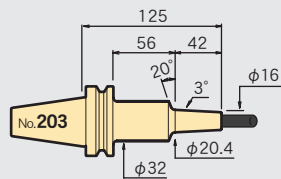
BT40-SLSA10-210-M97



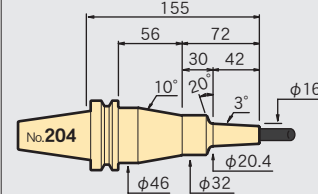
BT40-SLSB10-95-M42



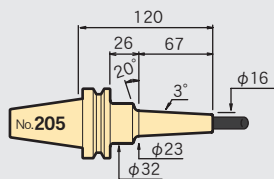
BT40-SLSB10-125-M42



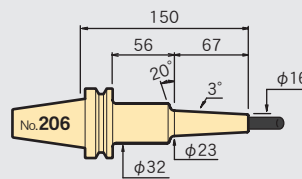
BT40-SLSB10-155-M42



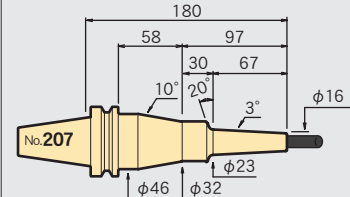
BT40-SLSB10-120-M67



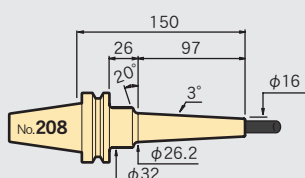
BT40-SLSB10-150-M67



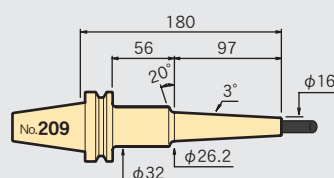
BT40-SLSB10-180-M67



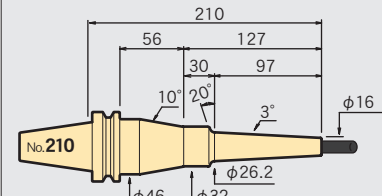
BT40-SLSB10-150-M97



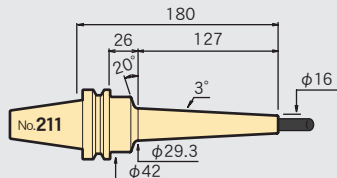
BT40-SLSB10-180-M97



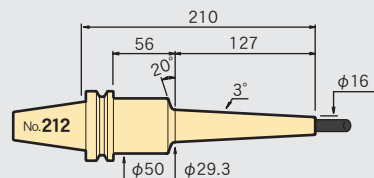
BT40-SLSB10-210-M97



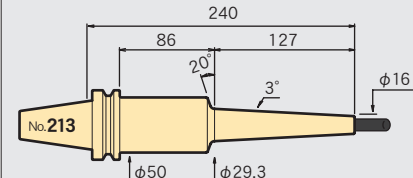
BT40-SLSB10-180-M127



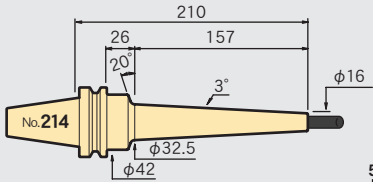
BT40-SLSB10-210-M127



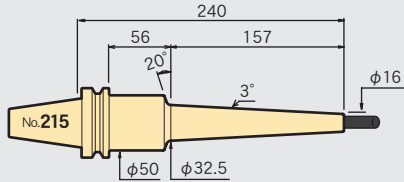
BT40-SLSB10-240-M127



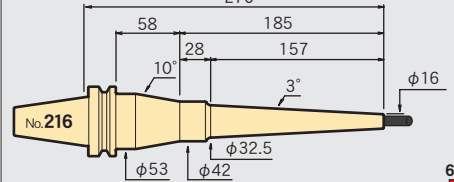
BT40-SLSB10-210-M157



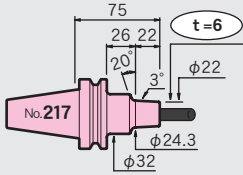
BT40-SLSB10-240-M157



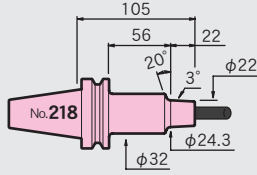
BT40-SLSB10-270-M157



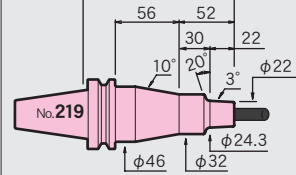
BT40-SLRB10-75-M22



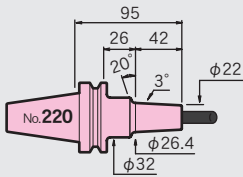
BT40-SLRB10-105-M22



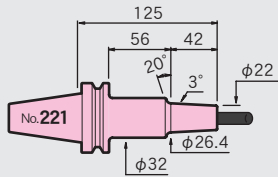
BT40-SLRB10-135-M22



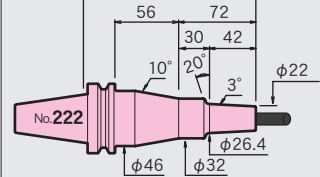
BT40-SLRB10-95-M42



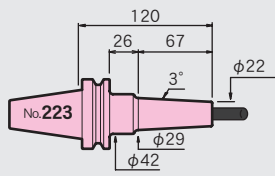
BT40-SLRB10-125-M42



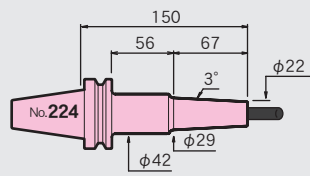
BT40-SLRB10-155-M42



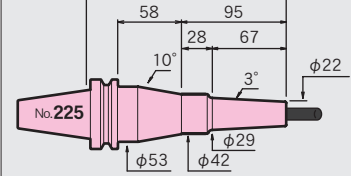
BT40-SLRB10-120-M67



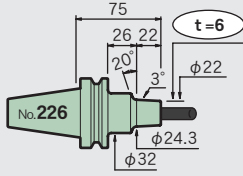
BT40-SLRB10-150-M67



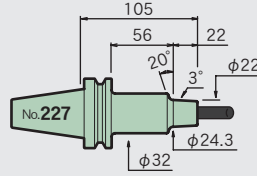
BT40-SLRB10-180-M67



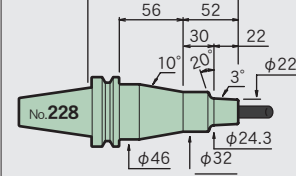
BT40-SLFB10-75-M22



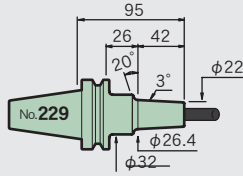
BT40-SLFB10-105-M22



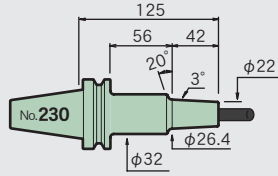
BT40-SLFB10-135-M22



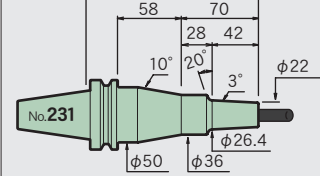
BT40-SLFB10-95-M42



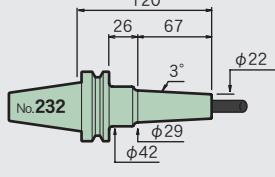
BT40-SLFB10-125-M42



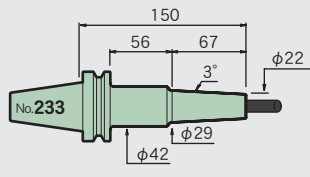
BT40-SLFB10-155-M42



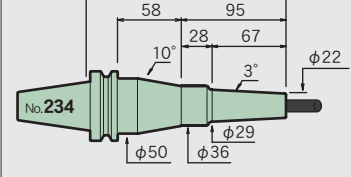
BT40-SLFB10-120-M67



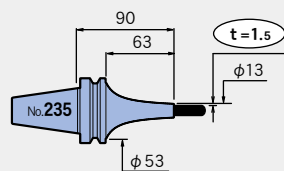
BT40-SLFB10-150-M67



BT40-SLFB10-180-M67

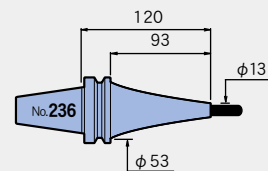


BT40-SLSA10-90 CV



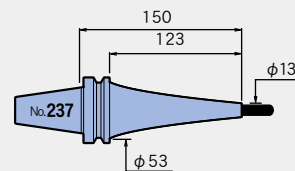
1.3

BT40-SLSA10-120 CV



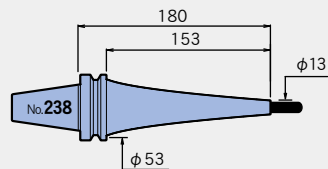
1.3

BT40-SLSA10-150 CV



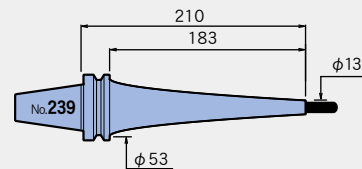
2.2

BT40-SLSA10-180 CV



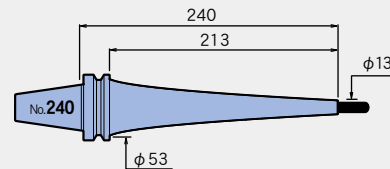
3.4

BT40-SLSA10-210 CV



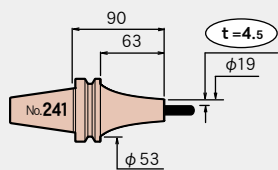
6.0

BT40-SLSA10-240 CV



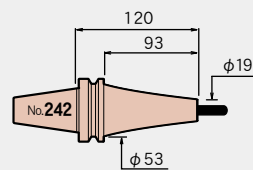
5.8

BT40-SLRA10-90 CV



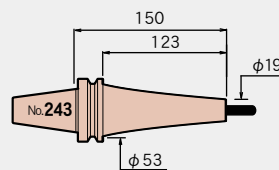
0.7

BT40-SLRA10-120 CV



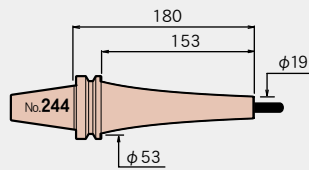
0.9

BT40-SLRA10-150 CV



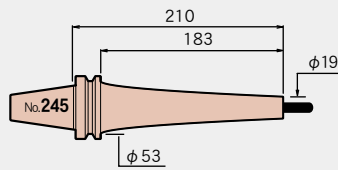
1.4

BT40-SLRA10-180 CV



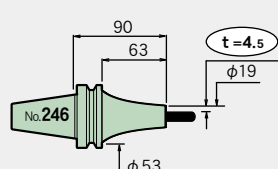
2.0

BT40-SLRA10-210 CV



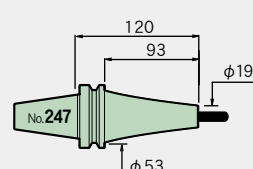
3.1

BT40-SLFA10-90 CV



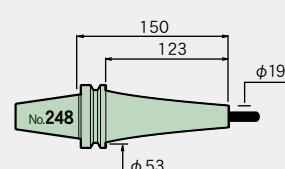
0.7

BT40-SLFA10-120 CV



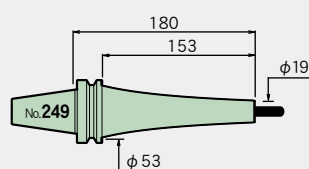
0.9

BT40-SLFA10-150 CV



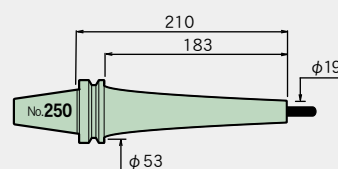
1.4

BT40-SLFA10-180 CV



2.0

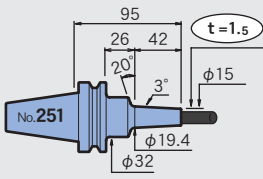
BT40-SLFA10-210 CV



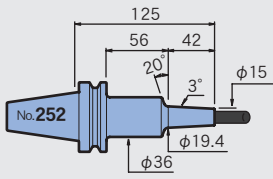
3.1

$\phi 12$

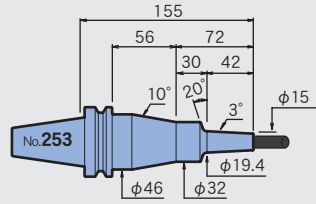
BT40-SLSA12-95-M42



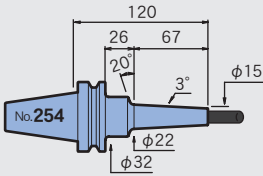
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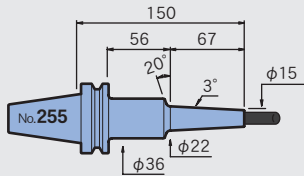
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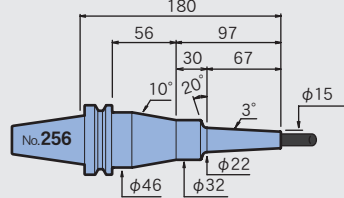
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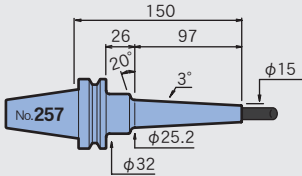
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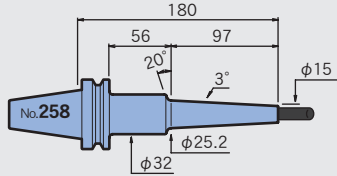
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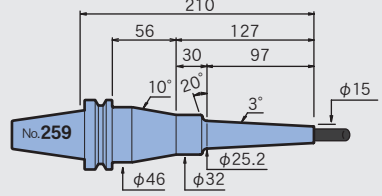
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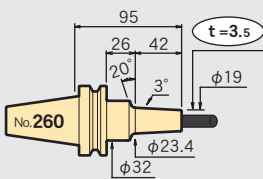
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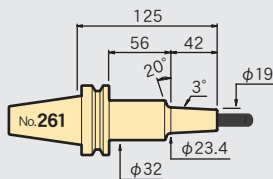
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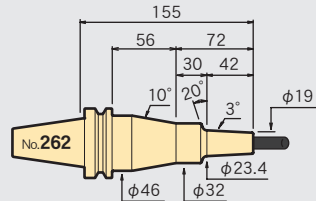
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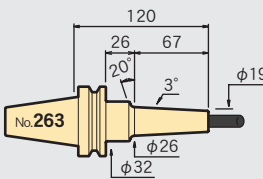
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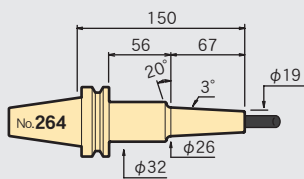
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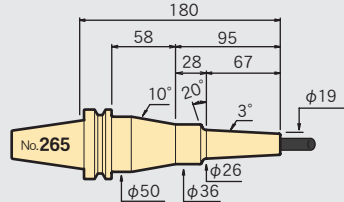
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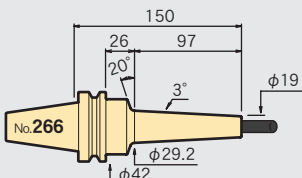
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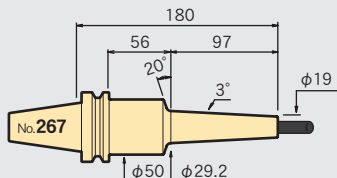
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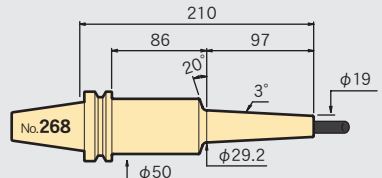
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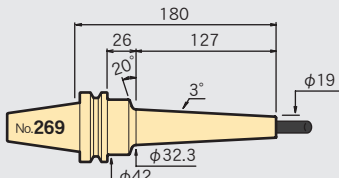
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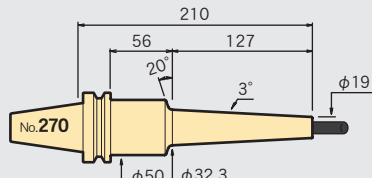
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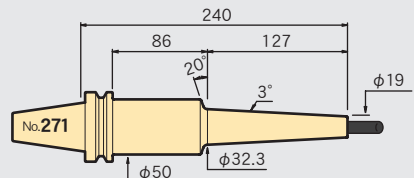
BT40-SLSB12-180-M127



BT40-SLSB12-210-M127



BT40-SLSB12-240-M127



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

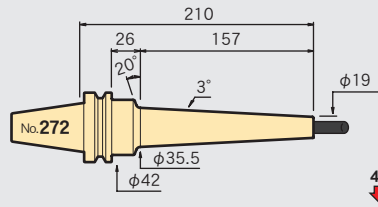
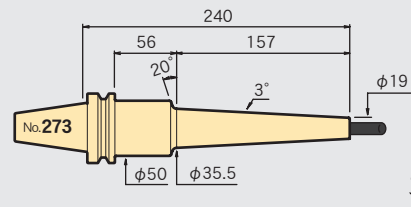
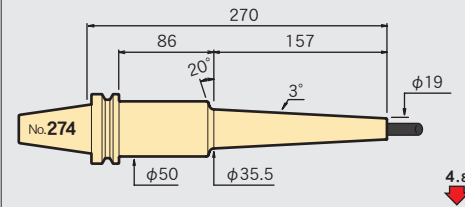
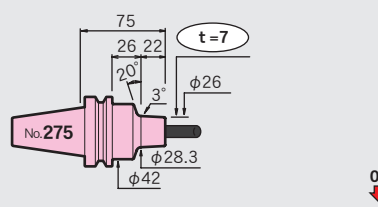
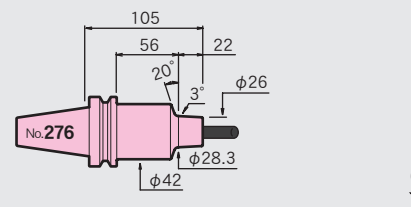
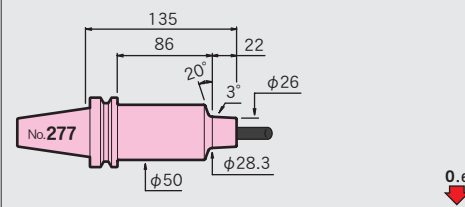
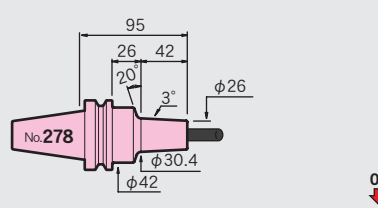
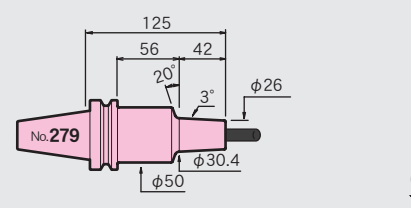
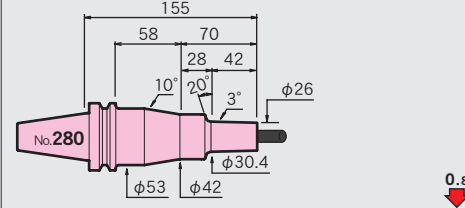
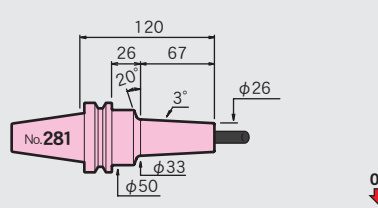
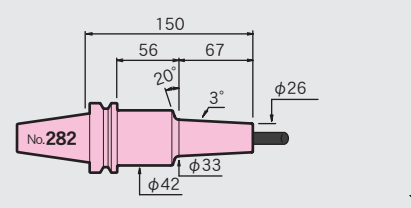
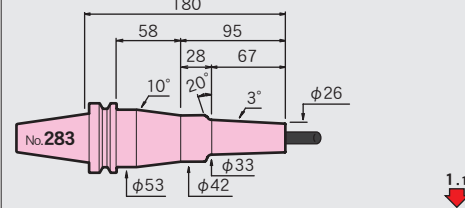
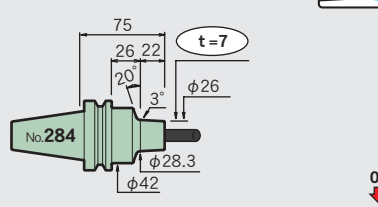
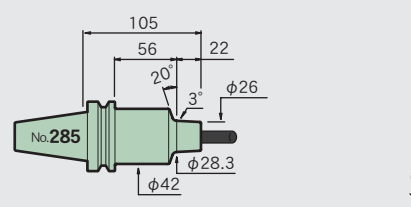
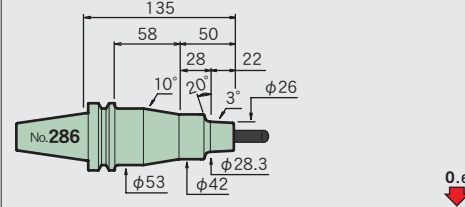
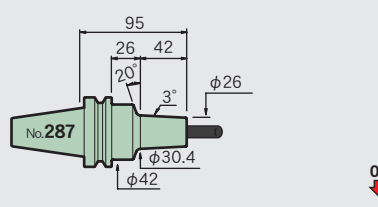
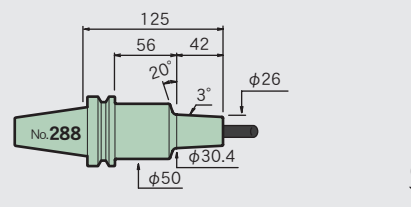
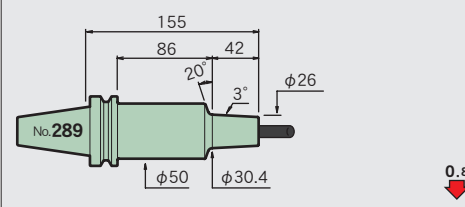
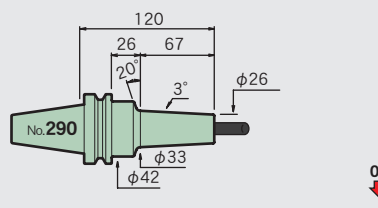
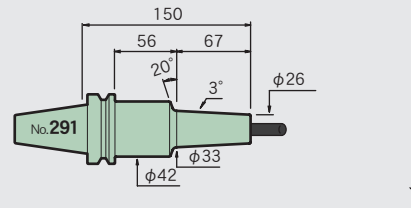
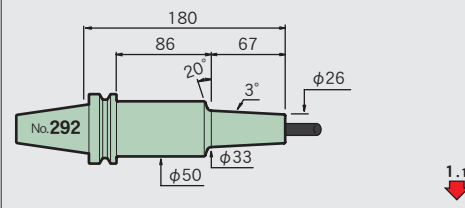
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STRAIGHT
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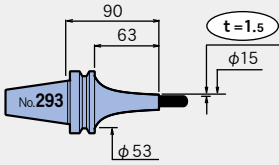
OTHERS

PERIPHERALS

Technical
data

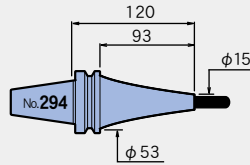
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BT40-SLSB12-240-M157

BT40-SLSB12-270-M157

BT40-SLRB12-75-M22

BT40-SLRB12-105-M22

BT40-SLRB12-135-M22

BT40-SLRB12-95-M42

BT40-SLRB12-125-M42

BT40-SLRB12-155-M42

BT40-SLRB12-120-M67

BT40-SLRB12-150-M67

BT40-SLRB12-180-M67

BT40-SLFB12-75-M22

BT40-SLFB12-105-M22

BT40-SLFB12-135-M22

BT40-SLFB12-95-M42

BT40-SLFB12-125-M42

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BT40-SLFB12-180-M67


BT40-SLSA12-90 CV



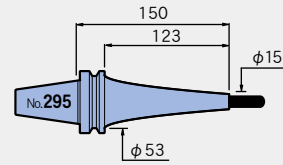
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BT40-SLSA12-120 CV



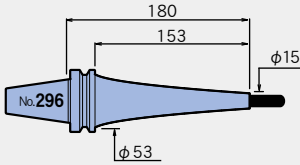
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BT40-SLSA12-150 CV



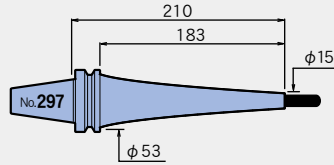
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BT40-SLSA12-180 CV



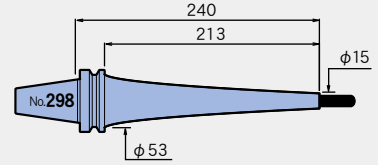
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BT40-SLSA12-210 CV



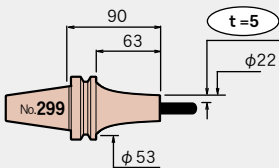
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BT40-SLSA12-240 CV



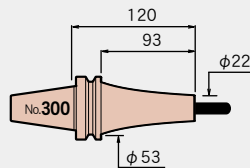
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BT40-SLRA12-90 CV



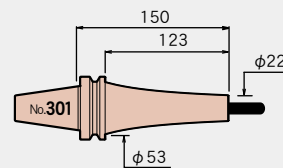
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BT40-SLRA12-120 CV



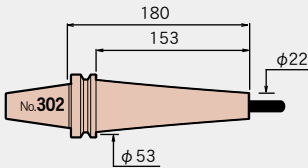
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BT40-SLRA12-150 CV



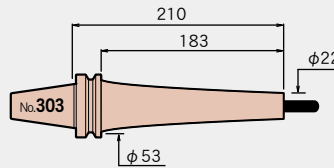
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BT40-SLRA12-180 CV



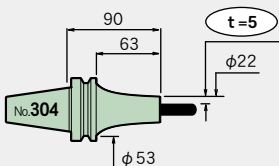
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BT40-SLRA12-210 CV



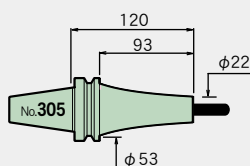
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BT40-SLFA12-90 CV



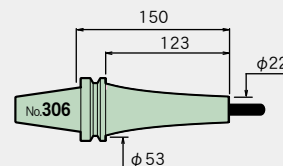
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BT40-SLFA12-120 CV



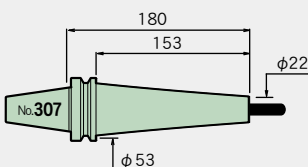
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BT40-SLFA12-150 CV



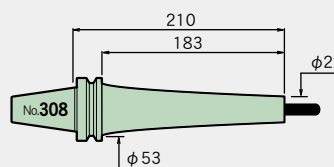
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BT40-SLFA12-180 CV



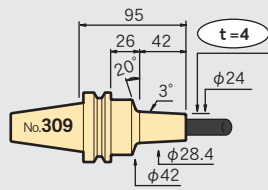
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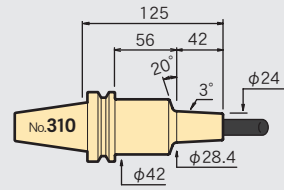


2.8

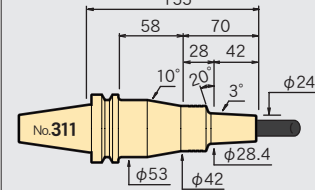
BT40-SLSB16-95-M42



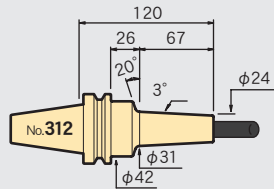
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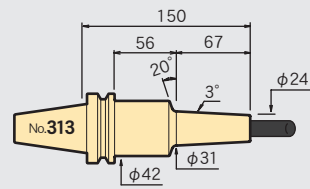
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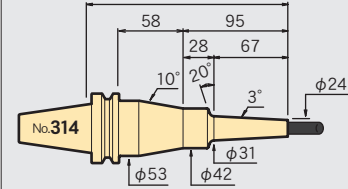
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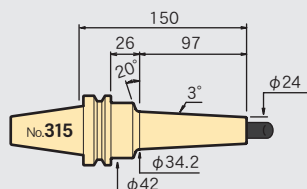
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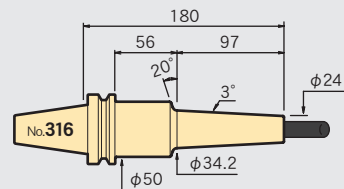
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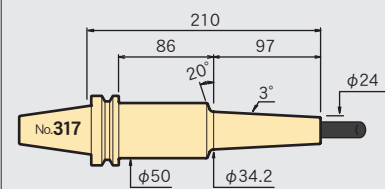
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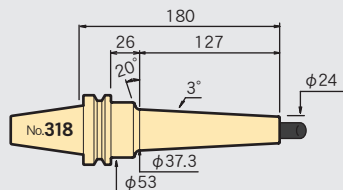
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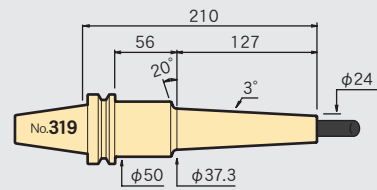
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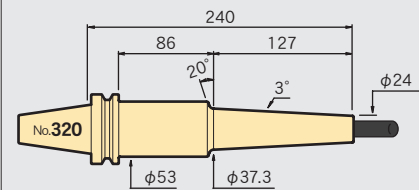
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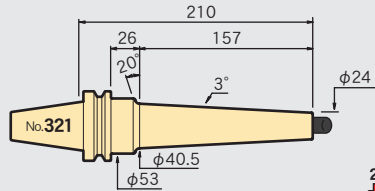
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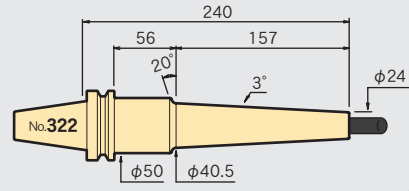
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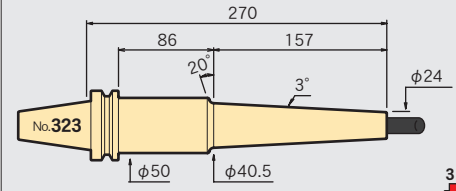
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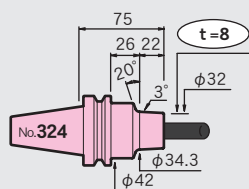
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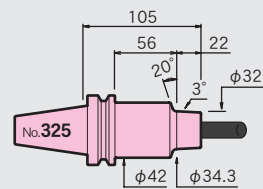
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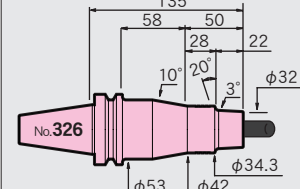
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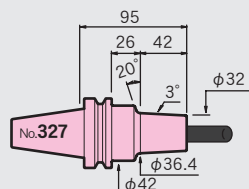
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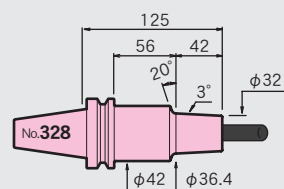
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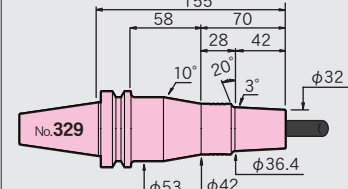
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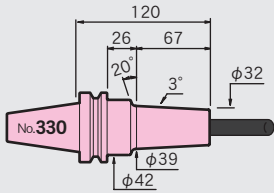
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BT40-SLRB16-155-M42

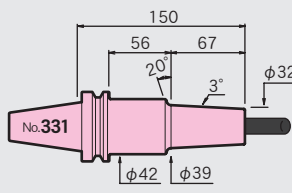


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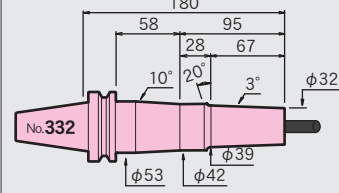
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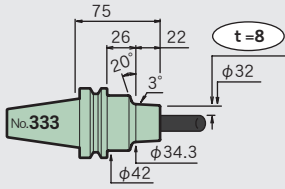
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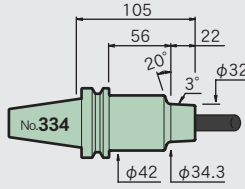
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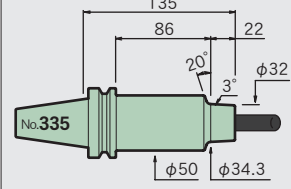
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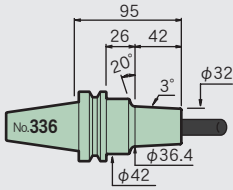
0.5

BT40-SLFB16-135-M22



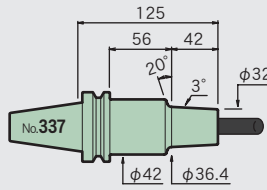
0.5

BT40-SLFB16-95-M42



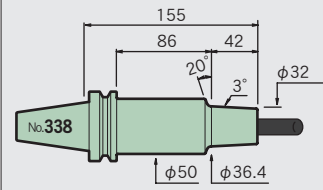
0.5

BT40-SLFB16-125-M42



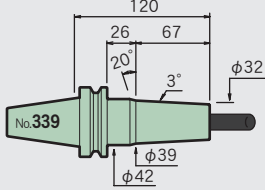
0.7

BT40-SLFB16-155-M42



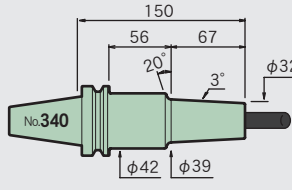
0.7

BT40-SLFB16-120-M67



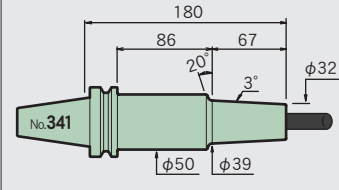
0.7

BT40-SLFB16-150-M67



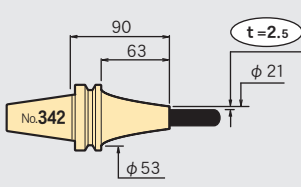
0.9

BT40-SLFB16-180-M67



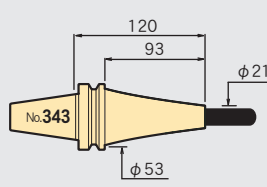
1.0

BT40-SLSB16-90 CV



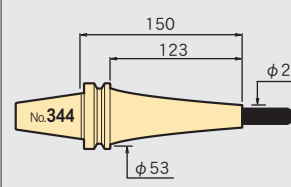
0.6

BT40-SLSB16-120 CV



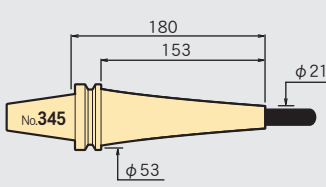
0.8

BT40-SLSB16-150 CV



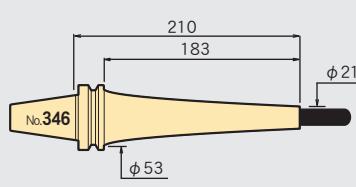
1.5

BT40-SLSB16-180 CV



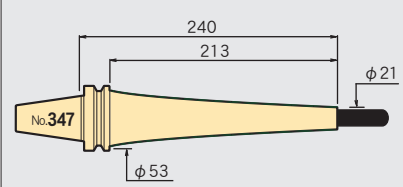
1.9

BT40-SLSB16-210 CV



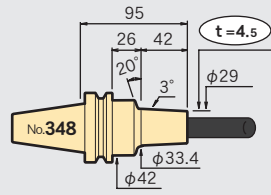
3.0

BT40-SLSB16-240 CV

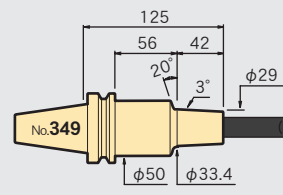


3.7

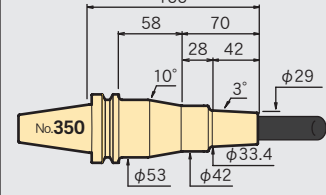
BT40-SLSB20-95-M42



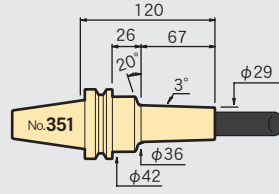
BT40-SLSB20-125-M42



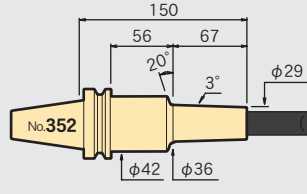
BT40-SLSB20-155-M42



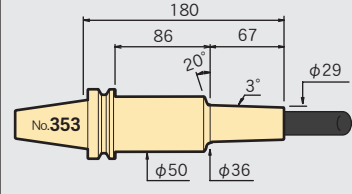
BT40-SLSB20-120-M67



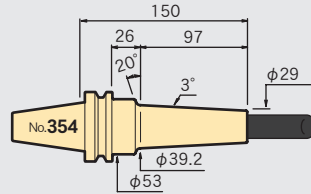
BT40-SLSB20-150-M67



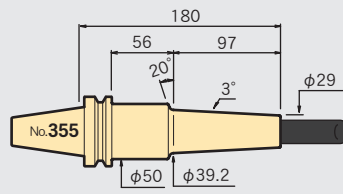
BT40-SLSB20-180-M67



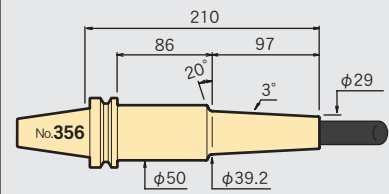
BT40-SLSB20-150-M97



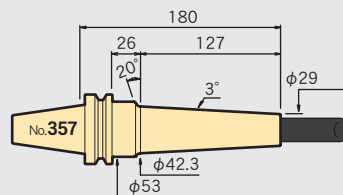
BT40-SLSB20-180-M97



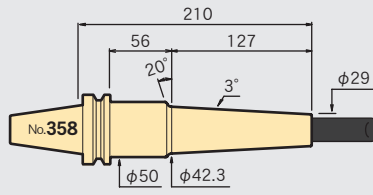
BT40-SLSB20-210-M97



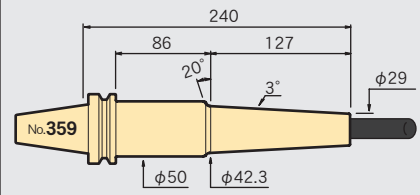
BT40-SLSB20-180-M127



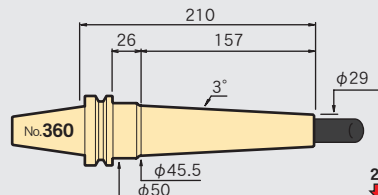
BT40-SLSB20-210-M127



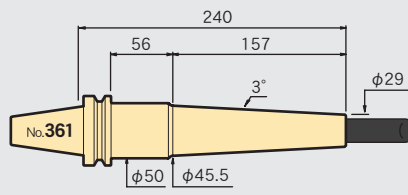
BT40-SLSB20-240-M127



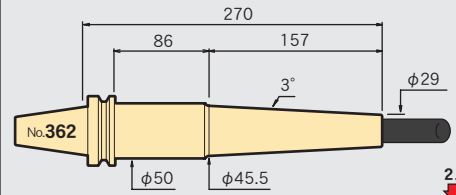
BT40-SLSB20-210-M157



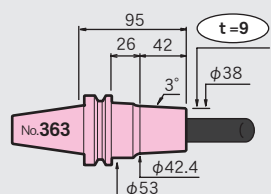
BT40-SLSB20-240-M157



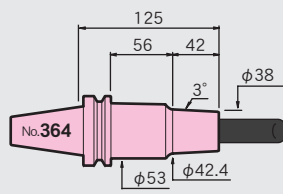
BT40-SLSB20-270-M157



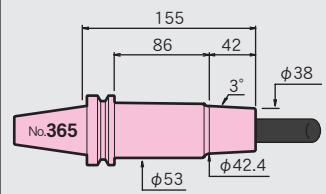
BT40-SLRB20-95-M42



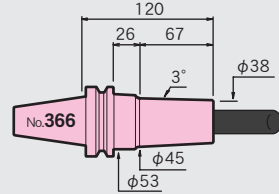
BT40-SLRB20-125-M42



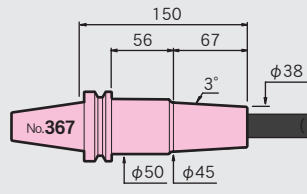
BT40-SLRB20-155-M42



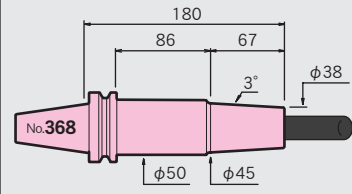
BT40-SLRB20-120-M67



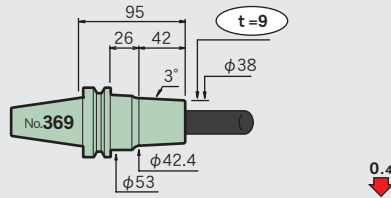
BT40-SLRB20-150-M67



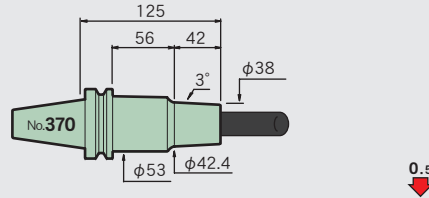
BT40-SLRB20-180-M67



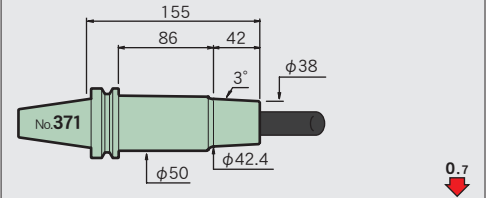
BT40-SLFB20-95-M42



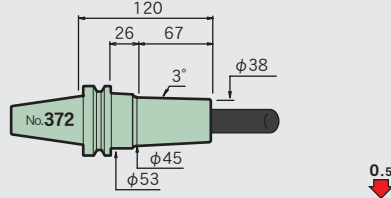
BT40-SLFB20-125-M42



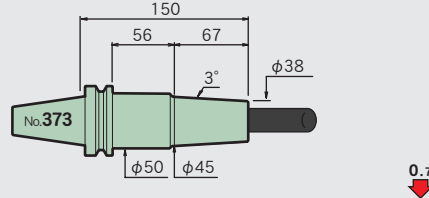
BT40-SLFB20-155-M42



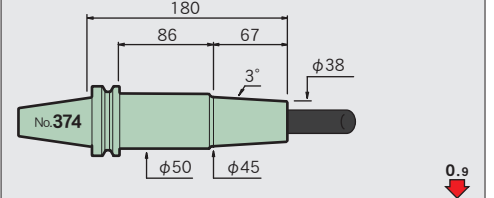
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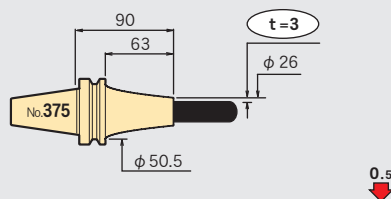
BT40-SLFB20-150-M67



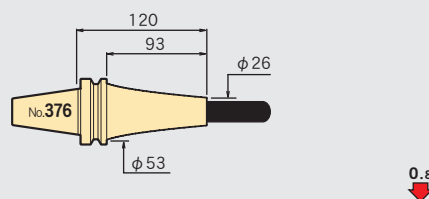
BT40-SLFB20-180-M67



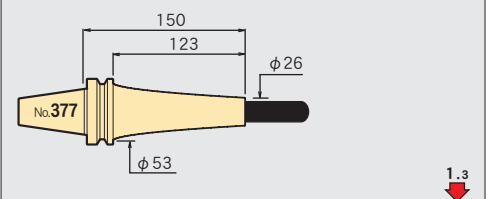
BT40-SLSB20-90 CV



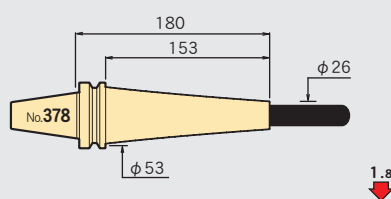
BT40-SLSB20-120 CV



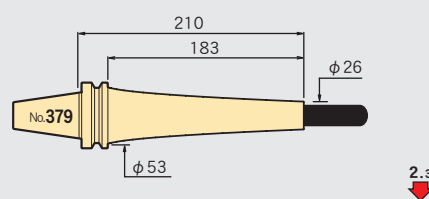
BT40-SLSB20-150 CV



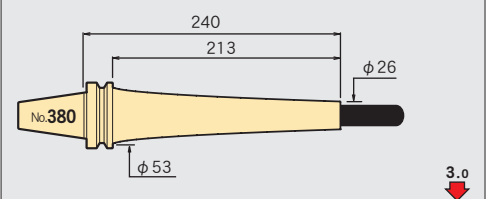
BT40-SLSB20-180 CV



BT40-SLSB20-210 CV

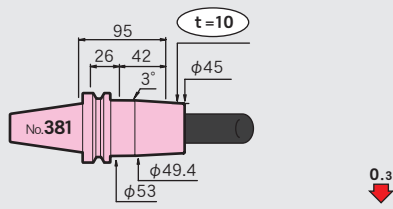


BT40-SLSB20-240 CV

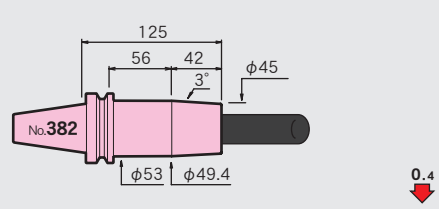


φ 25

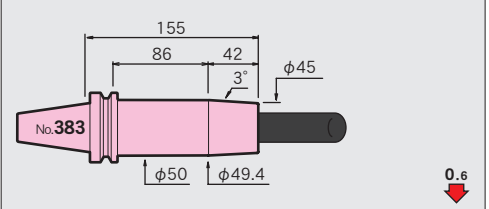
BT40-SLRB25-95-M42



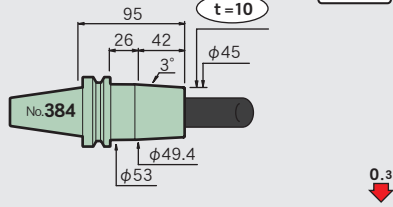
BT40-SLRB25-125-M42



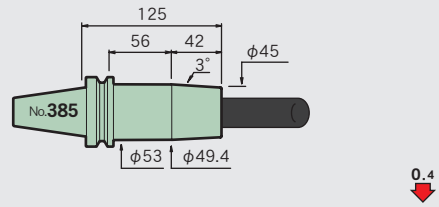
BT40-SLRB25-155-M42



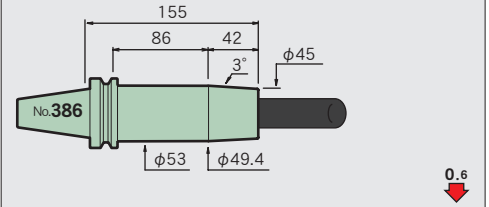
BT40-SLFB25-95-M42



BT40-SLFB25-125-M42

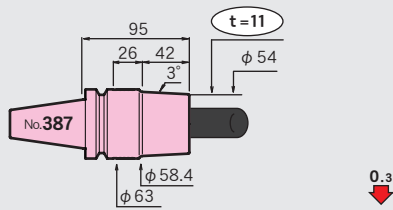


BT40-SLFB25-155-M42



φ 32

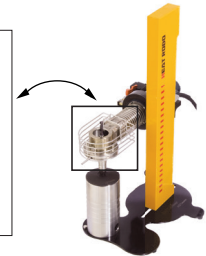
BT40-SLRB32-95-M42



φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL 70



HEAT ROBO Baby3000S

BT50

BT50-SLSB16-225-M157

MONO 3°

Rigidity value
($\mu\text{m/kgf}$)
P.258

Imbalance value(g·mm)
P.261

Fig.1

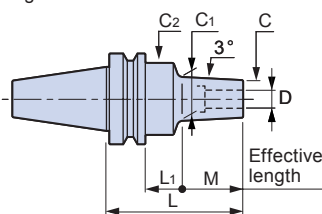
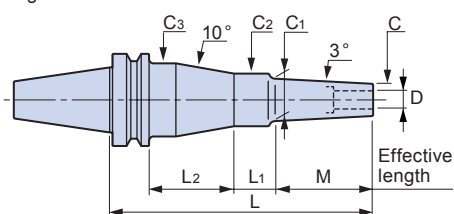


Fig. 2



Compatibility table for HRD-01S

[○] Available [×] Not available
[▲] Usable by raising the heating unit.→P.257

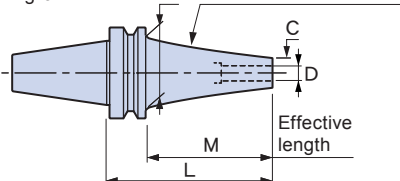
BT50-SLSA6-225 cv

MONO CURVE

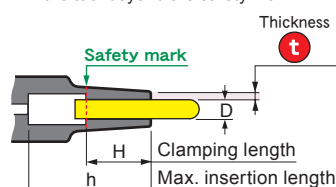
Rigidity value
($\mu\text{m/kgf}$)
P.258

Imbalance value(g·mm)
P.261

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

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model
Shrink-fit Heater	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
MONO 3° MONO CURVE	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
MONO Series	-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
	 -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
2PIECE type	-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
HYPER VERSION	-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
STRAIGHT arbor	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
																		○	
PERIPHERALS																			
Technical data																			

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	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
 -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 	3	6	9	1.5	165	127	—	—	85	—	—	18	220	5.1	15.1	1.5		115
-195 					195	157							250	5.2	15.5	2.4		116
-225 					225	187							280	5.7	16.8	2.9		117
-255 					255	217							310	5.9	18.4	4		118
-285 					285	247							340	6.2	19.5	5.2		119
-315 					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

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model	
Shrink-fit Heater	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	
	-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	
2PIECE type	-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	
HYPER VERSION	-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	
	STRAIGHT arbor	-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	
OTHERS		-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	
PERIPHERALS	-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	
Technical data																				

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model	Feature
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	Shrink-fit Heater
-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	MONO 3° MONO CURVE
-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	UNO
-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	STRAIGHT arbor
 -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	PERIPHERALS
-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	

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h	 Kg	 N	 S		Scale model
Shrink-fit Heater	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
MONO 3° MONO CURVE	-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
MONO Series	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
2PIECE type	-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
UNO	-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
HYPER VERSION	-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
Z	-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
STRAIGHT arbor	-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
OTHERS	-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
PERIPHERALS	-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
Technical data																			

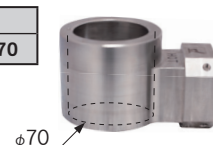
CODE	Fig.	φD	φC	t	L	M	L1	L2	φC1	φC2	φC3	H	h	Kg	N	S		Scale model		
BT50-SLSA12-165 CV	3	12	15	1.5	165	127	—	—	84	—	—	30	220	4.8	14.6	1.2	○	277		
-195 CV					195	157	85	250	5.6				17.6	278						
-225 CV					225	187	280	5.8	18.5				1.8	279						
-255 CV					255	217	310	6	19.3				2.6	280						
-285 CV					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						
-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				53	—	4.3	30.7		2	300	
-M127					127	30	37.3	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					2	157	30	40.5	67				—	310	5.5	39.6		2.3	304	
-255-M127						255	127	28							62	37.3		4.8	47.3	2.8
-M157					1	157	60	—	40.5				67	—	4.8	47.3		2.8	306	
-285-M157					2	285		28	62							340		5.7	47.9	2.9
-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	0.6	309				
-135-M 67					135	67	30	39	190				4.1	22		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		56	220		4.3	22.6	0.9
-170-M 42					2	170	42	28	62				36.4	56		225		4.8	16.2	0.7
-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
-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	0.6	318							
-135-M 67	135	67	30	39					190	4.1	22		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		56	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			
-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									

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h				Scale model
Shrink-fit Heater	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
2PIECE type	-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
HYPER VERSION	-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
Z	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
OTHERS	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

φ70 Nozzle (HRB-03S)

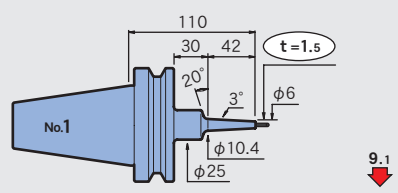
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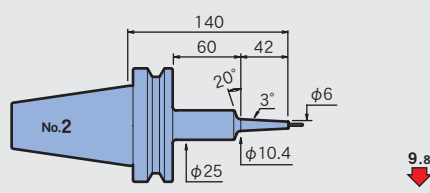


φ3

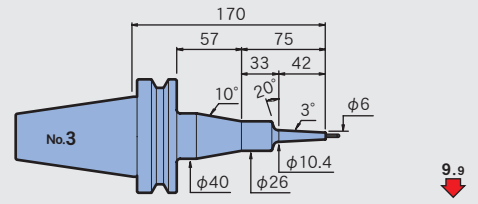
BT50-SLSA3-110-M42



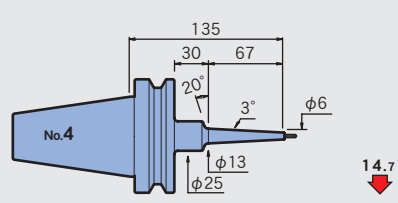
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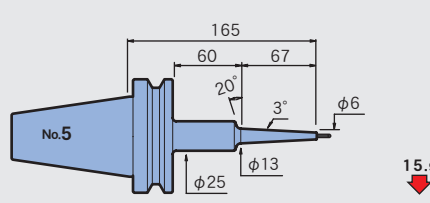
BT50-SLSA3-170-M42



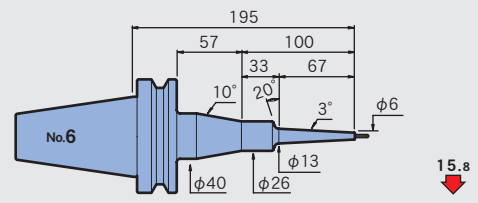
BT50-SLSA3-135-M67



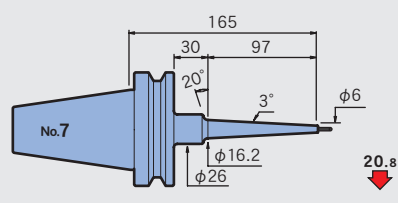
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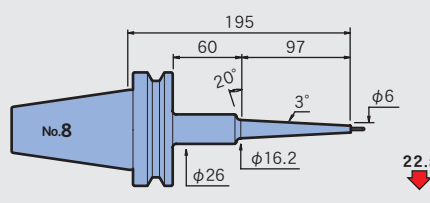
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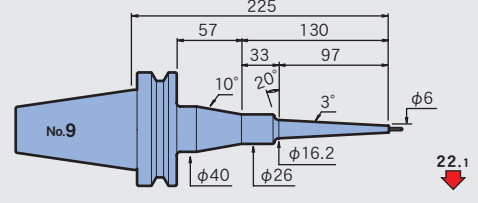
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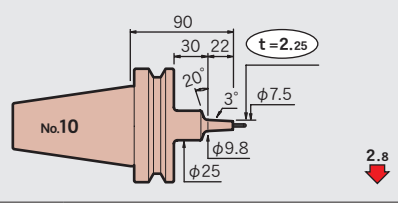
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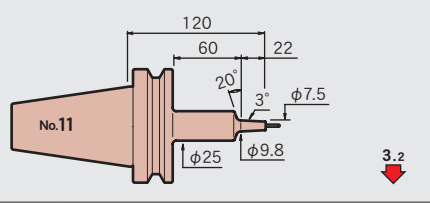
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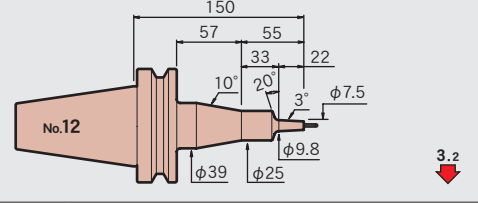
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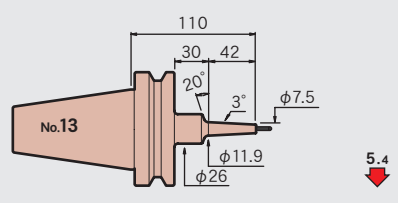
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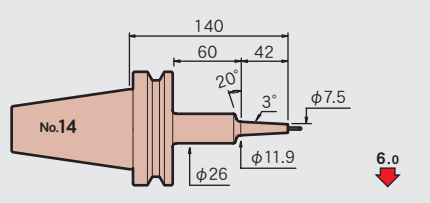
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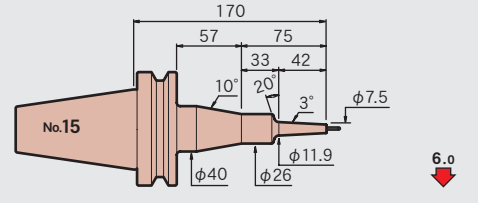
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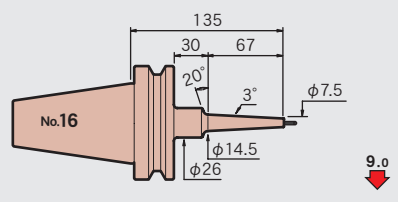
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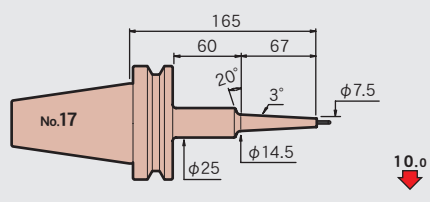
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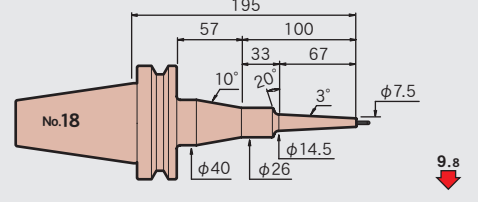
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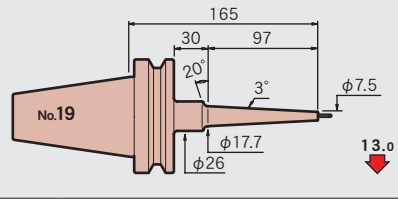
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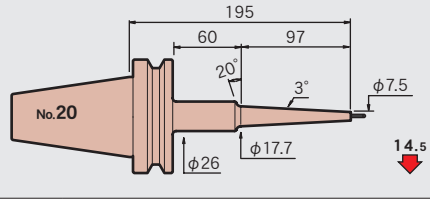
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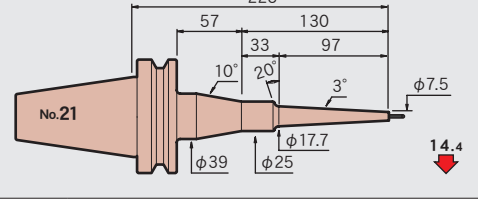
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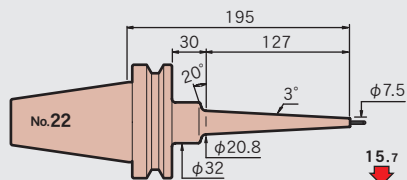
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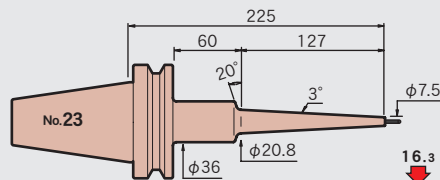
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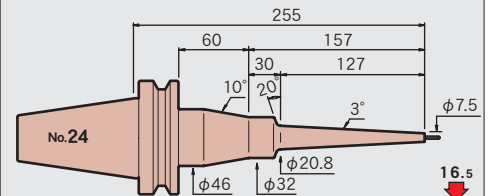
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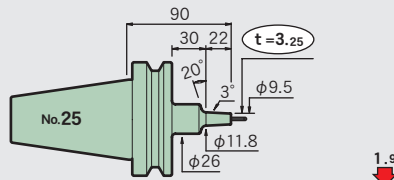
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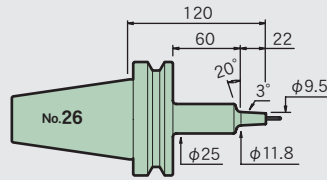
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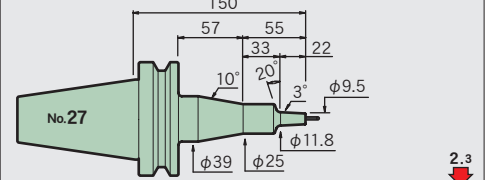
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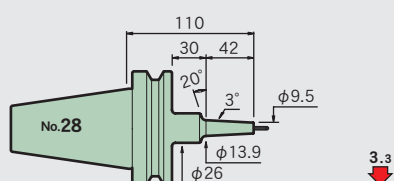
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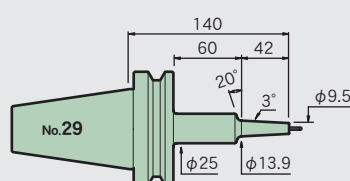
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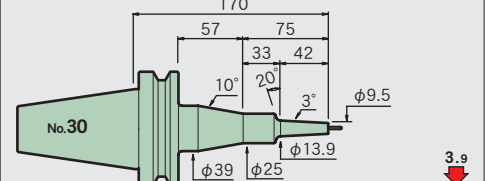
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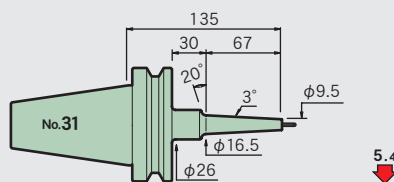
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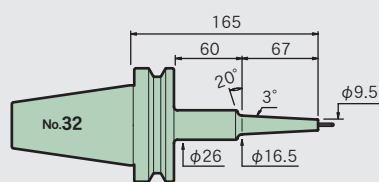
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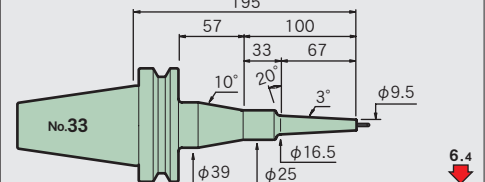
BT50-SLFB3-135-M67



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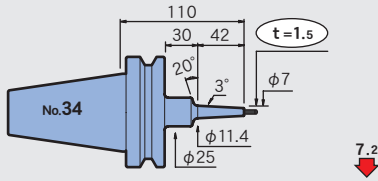


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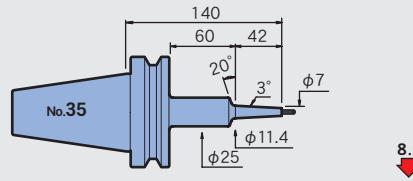


φ 4

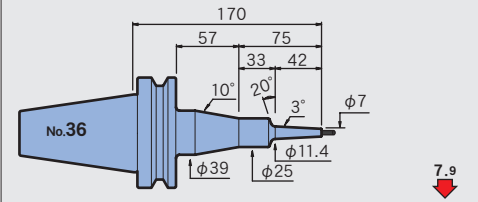
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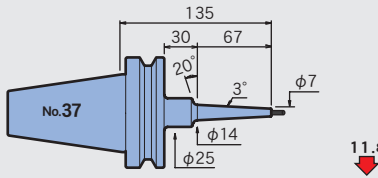
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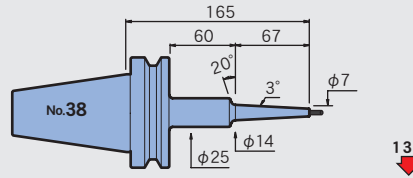
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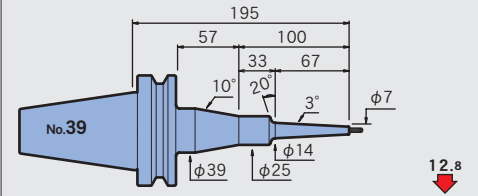
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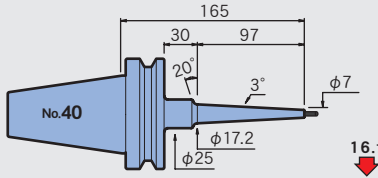
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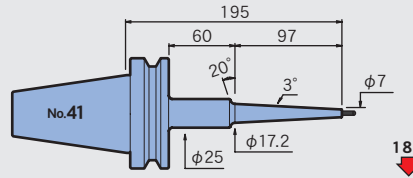
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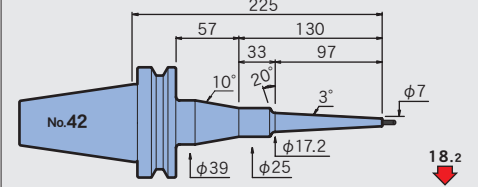
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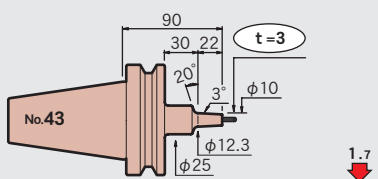
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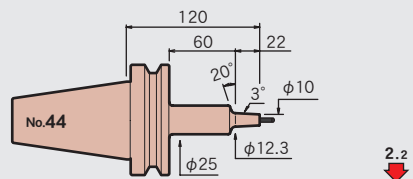
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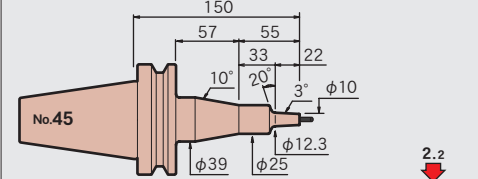
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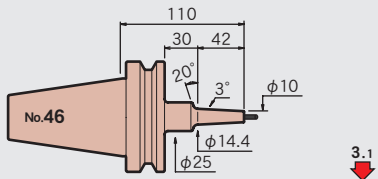
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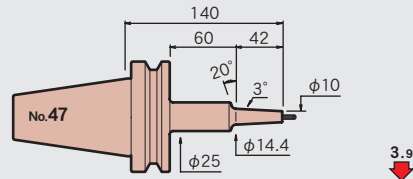
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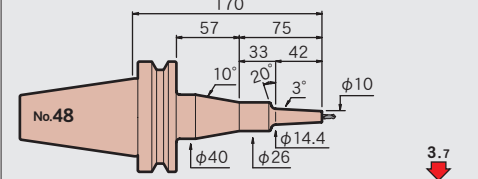
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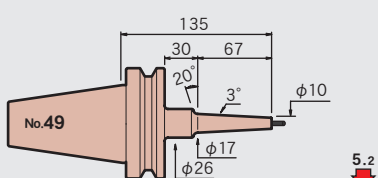
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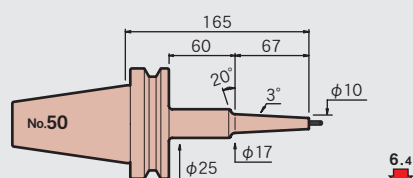
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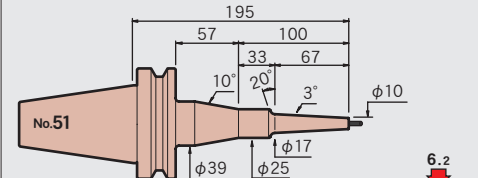
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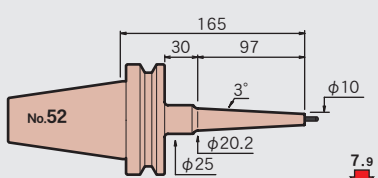
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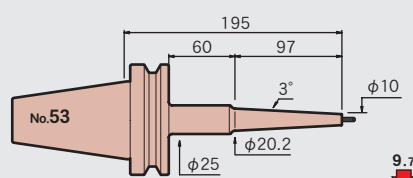
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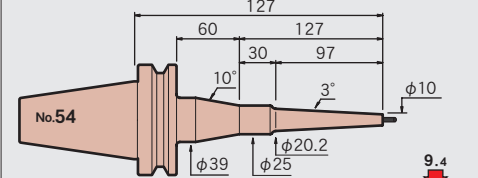
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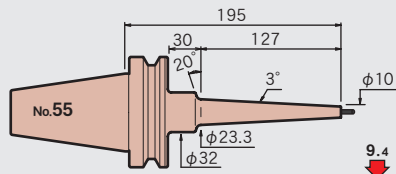
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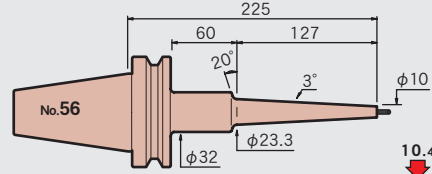
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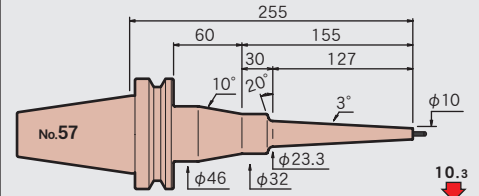
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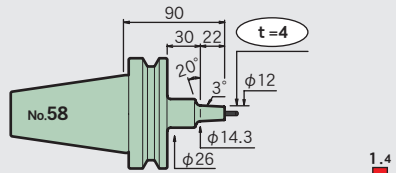
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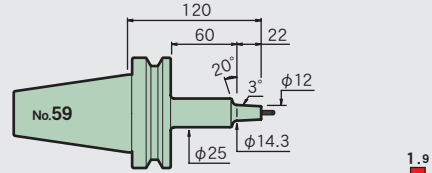
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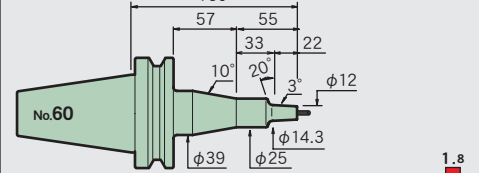
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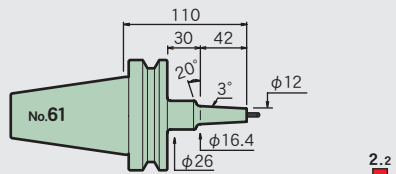
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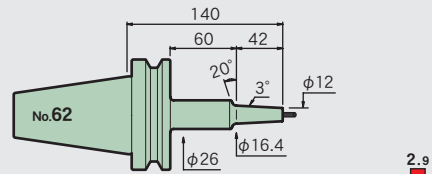
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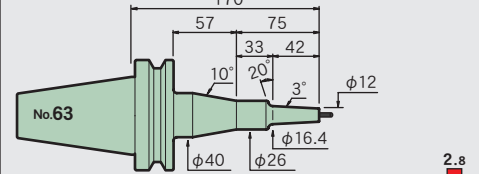
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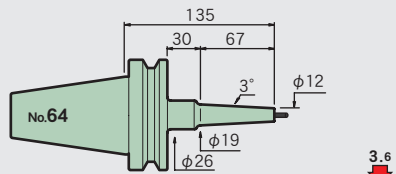
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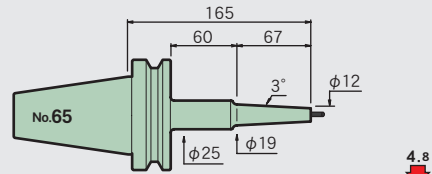
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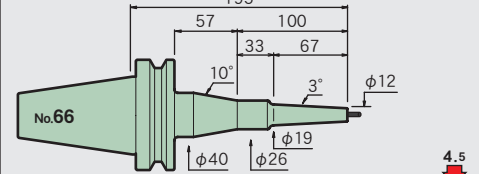
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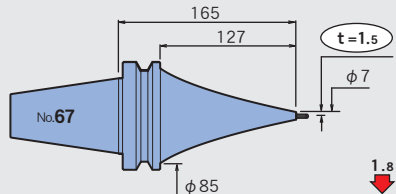
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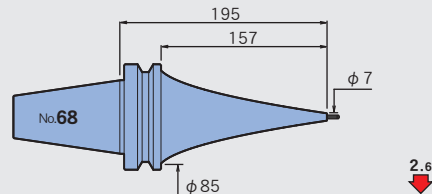
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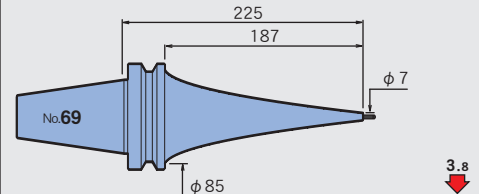
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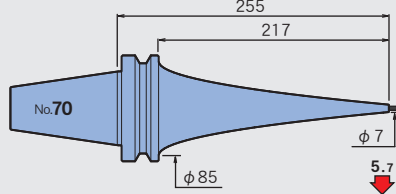
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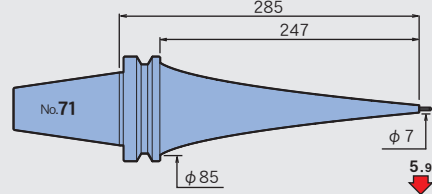
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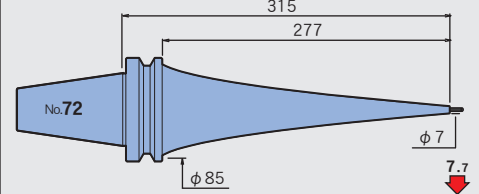
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BT50-SLSA4-285 CV

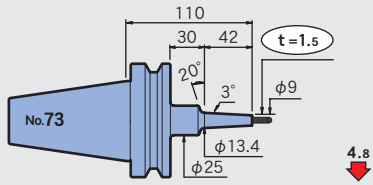


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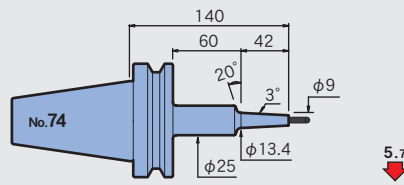


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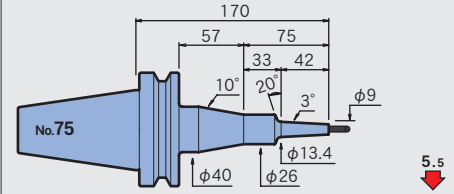
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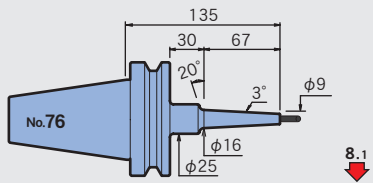
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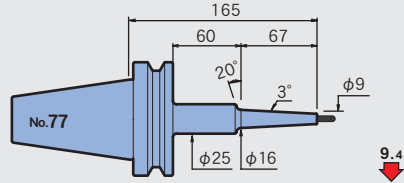
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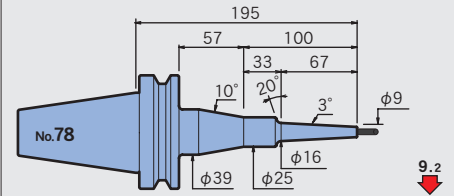
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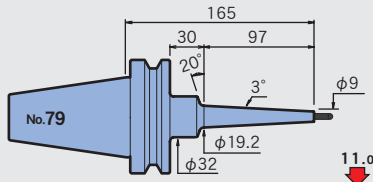
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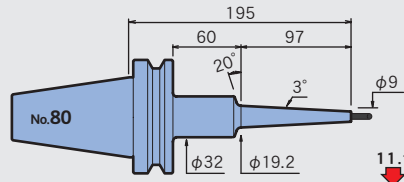
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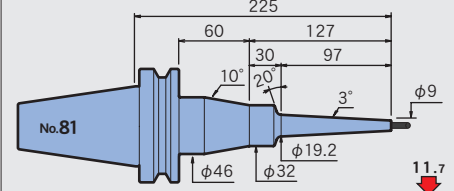
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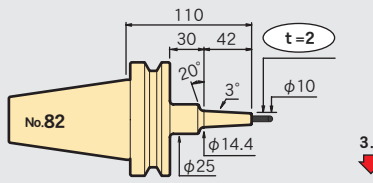
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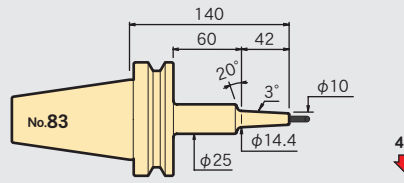
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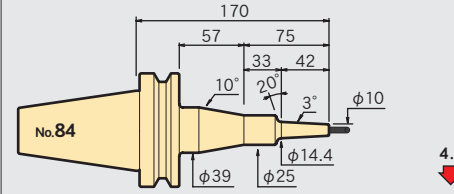
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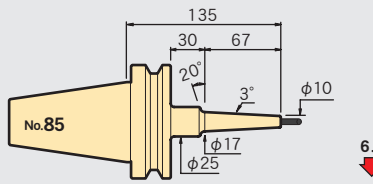
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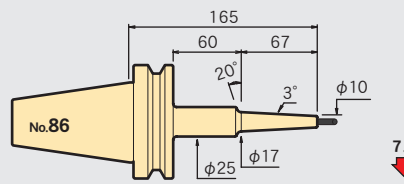
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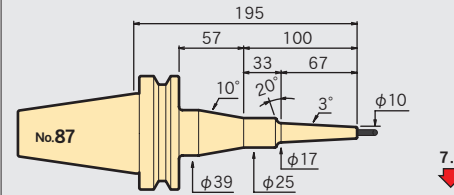
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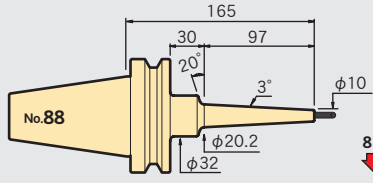
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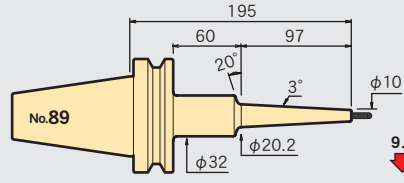
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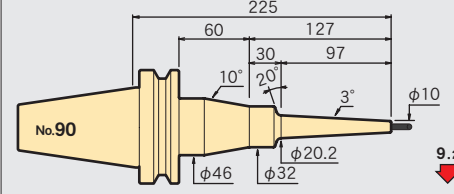
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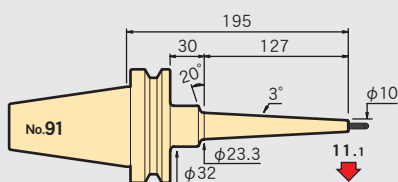
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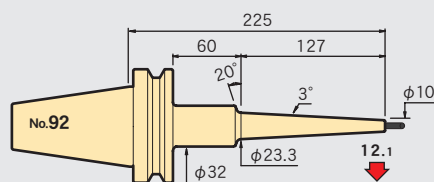
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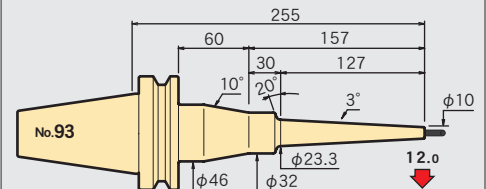
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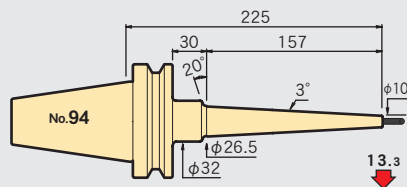
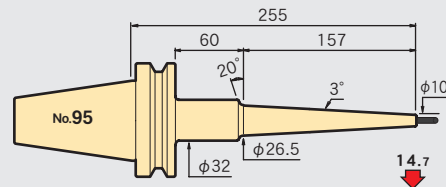
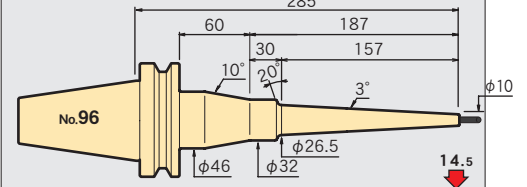
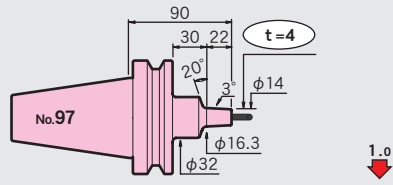
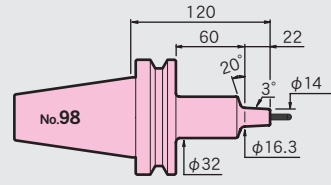
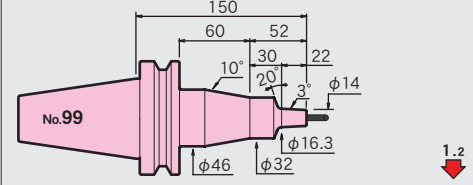
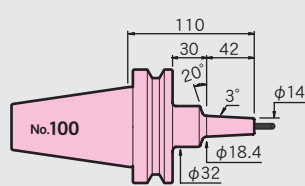
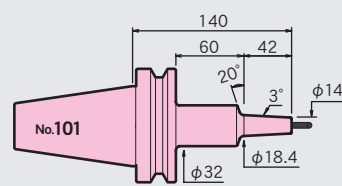
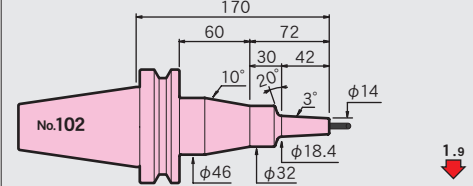
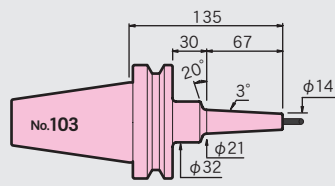
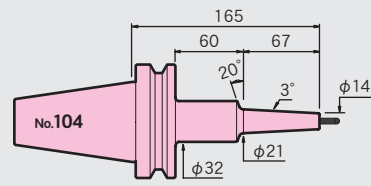
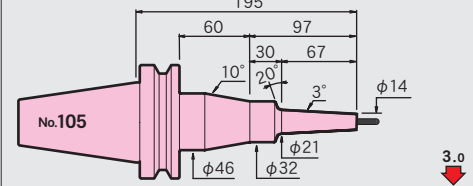
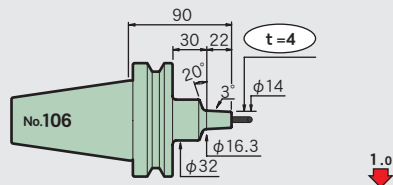
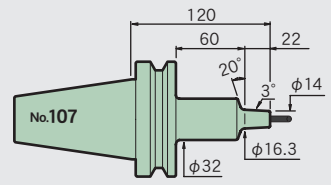
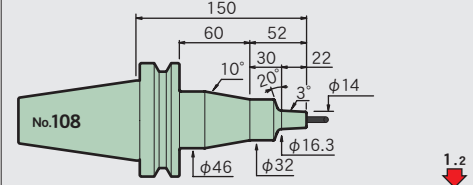
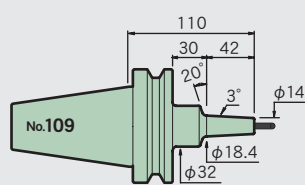
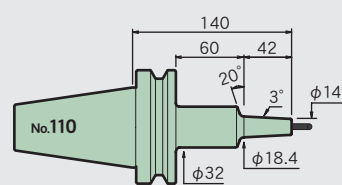
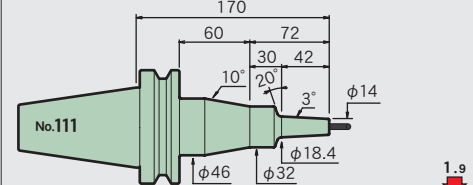
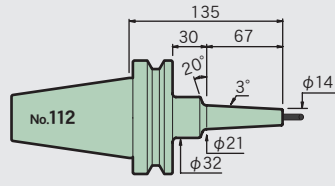
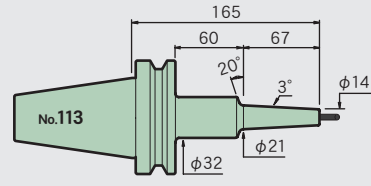
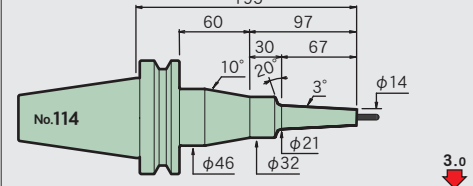


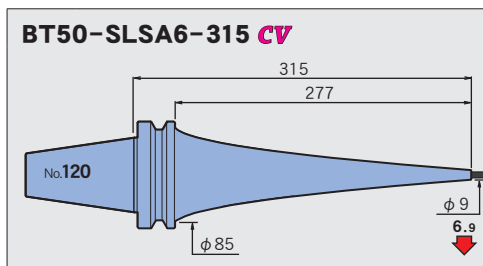
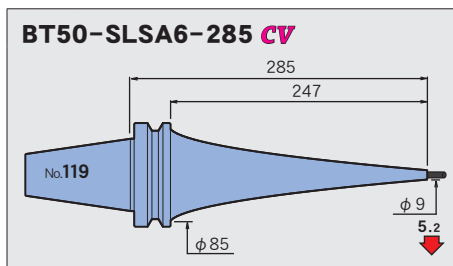
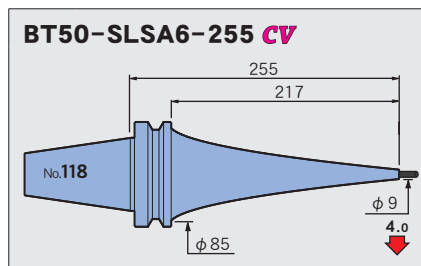
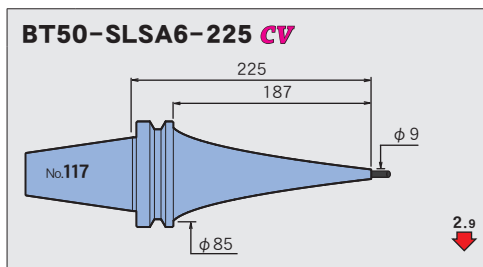
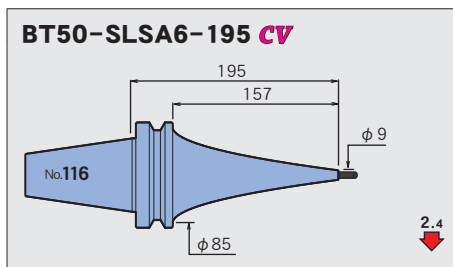
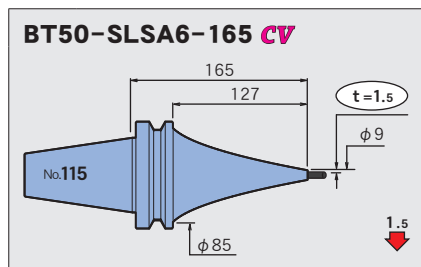
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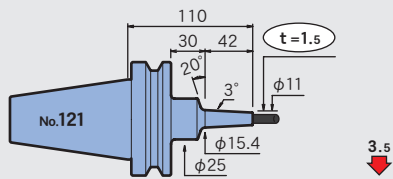
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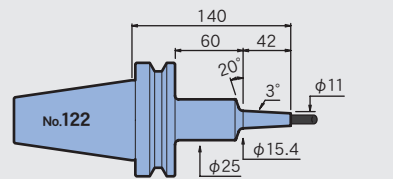
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BT50-SLRB6-150-M22

BT50-SLRB6-110-M42

BT50-SLRB6-140-M42

BT50-SLRB6-170-M42

BT50-SLRB6-135-M67

BT50-SLRB6-165-M67

BT50-SLRB6-195-M67

BT50-SLFB6-90-M22

BT50-SLFB6-120-M22

BT50-SLFB6-150-M22

BT50-SLFB6-110-M42

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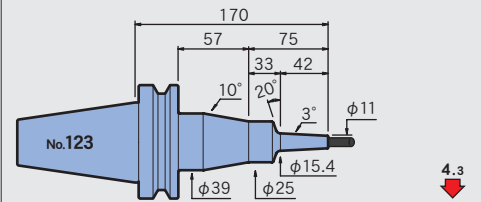
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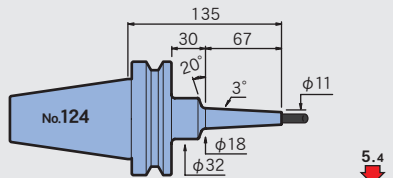
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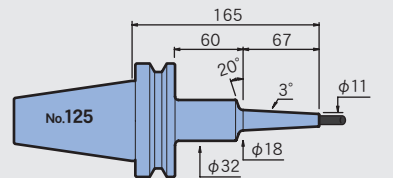
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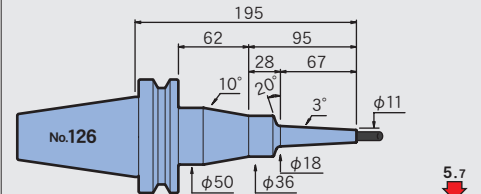
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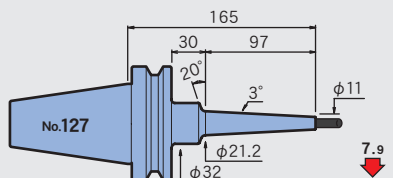
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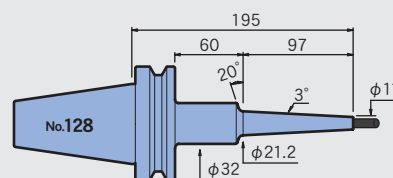
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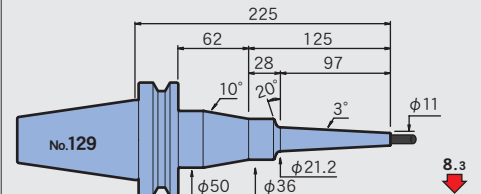
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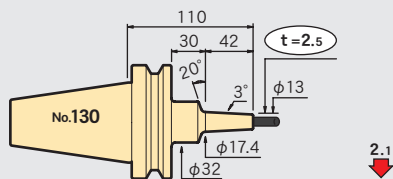
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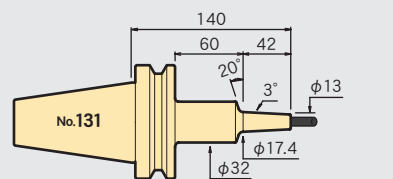
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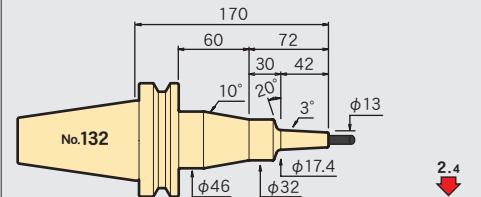
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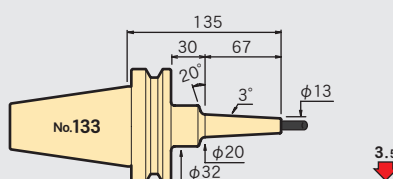
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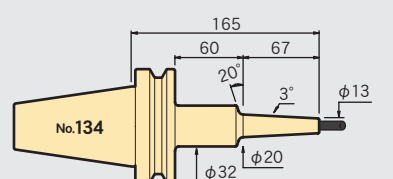
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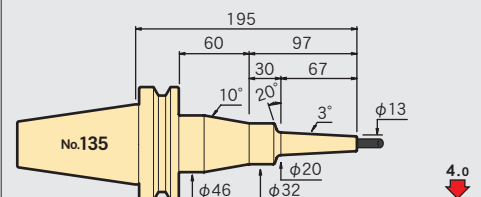
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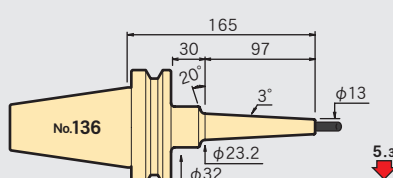
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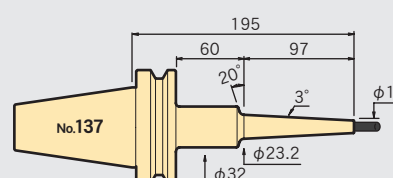
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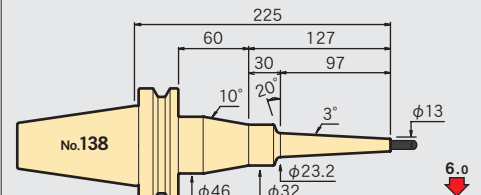
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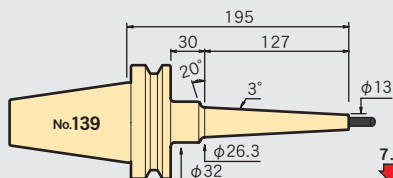
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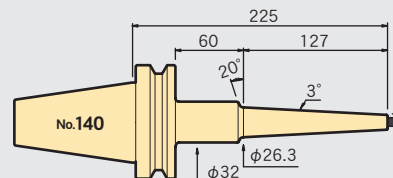
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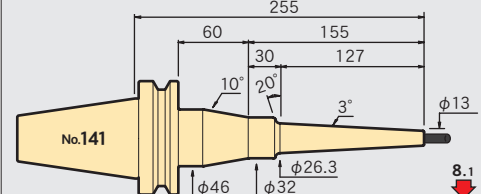
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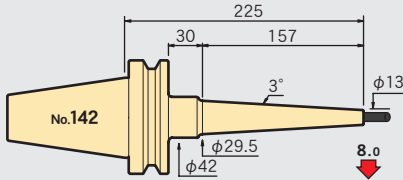
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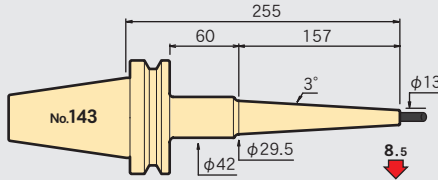
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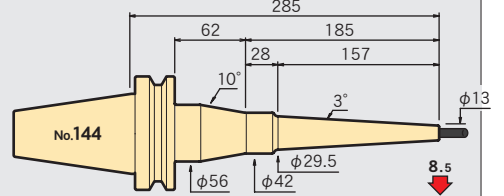
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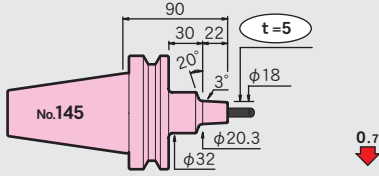
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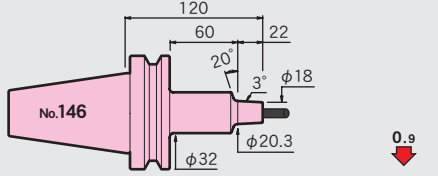
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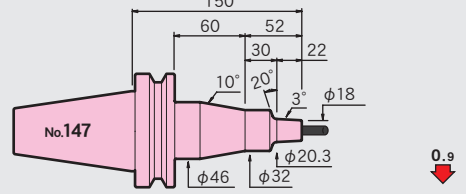
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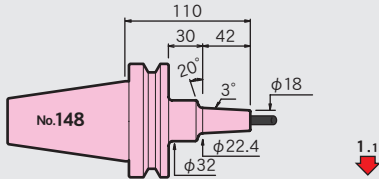
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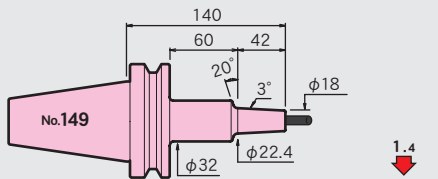
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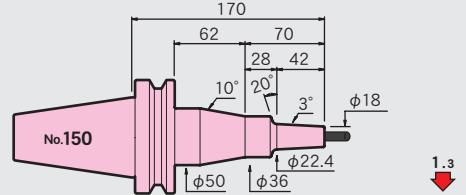
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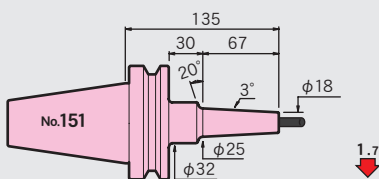
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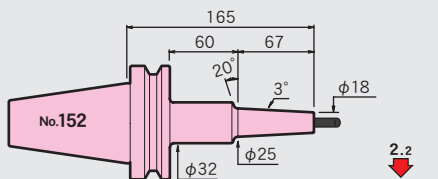
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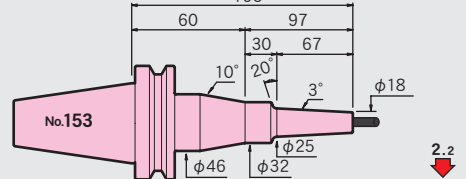
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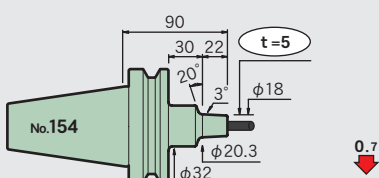
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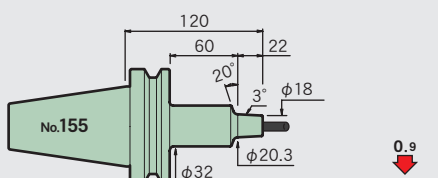
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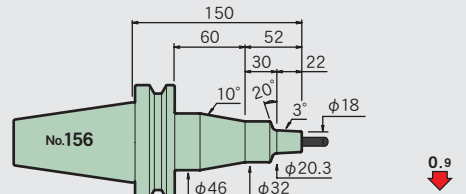
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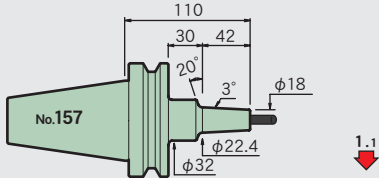
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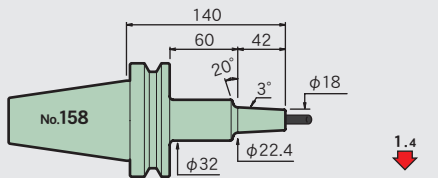
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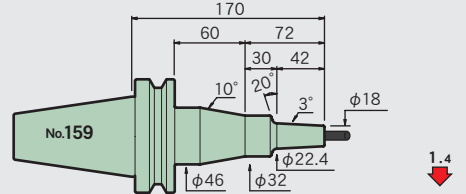
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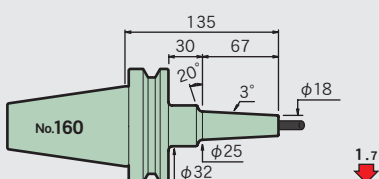
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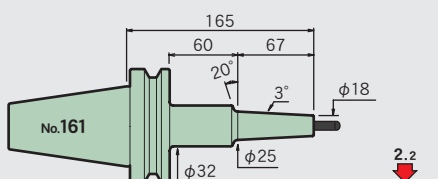
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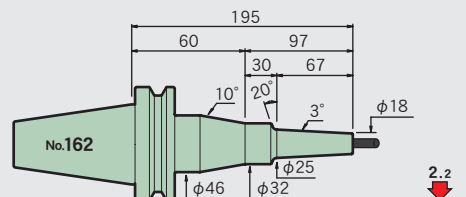
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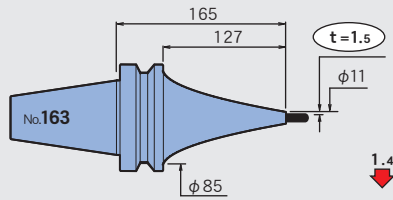
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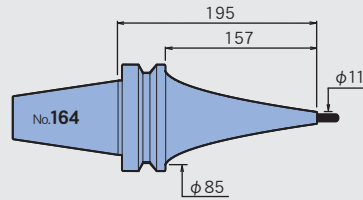
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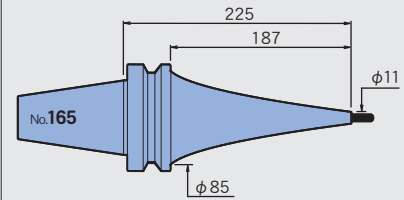
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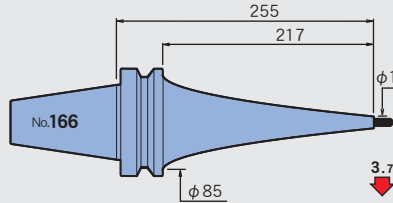
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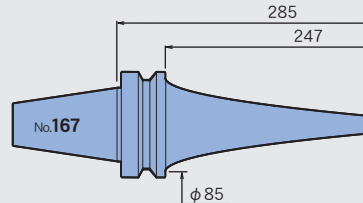
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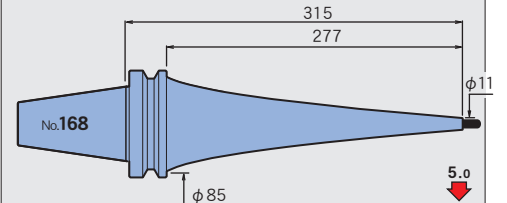
BT50-SLSA8-255 CV



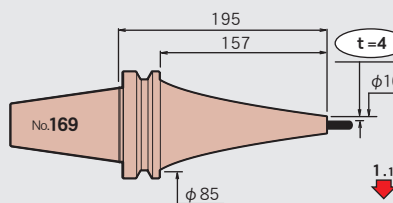
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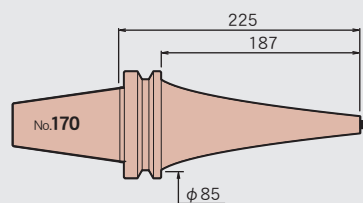
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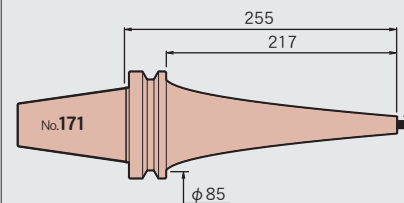
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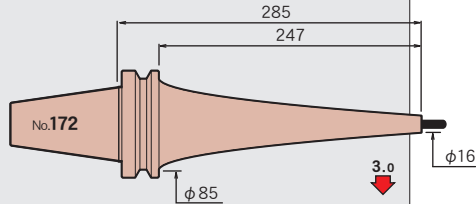
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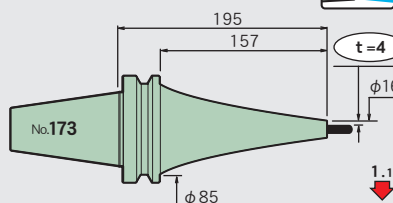
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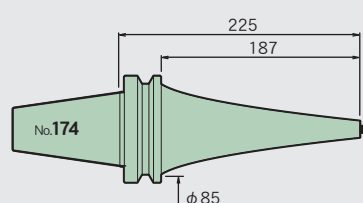
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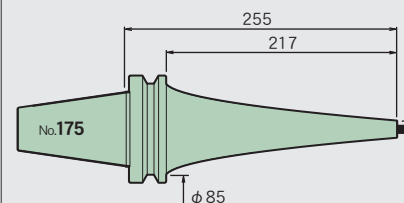
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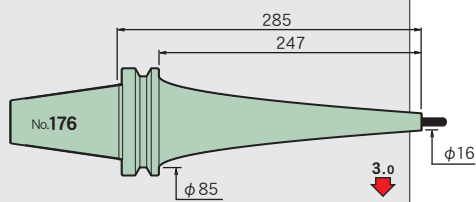
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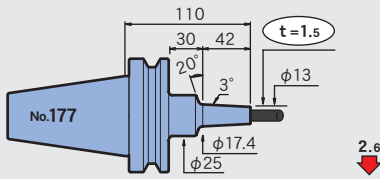


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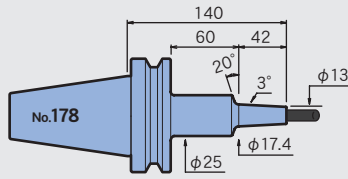


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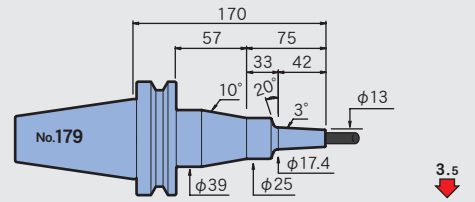
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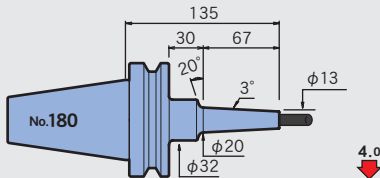
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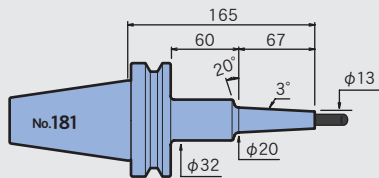
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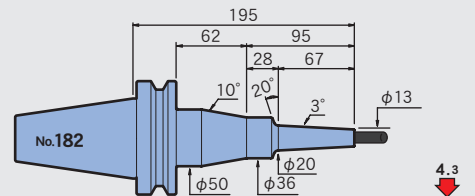
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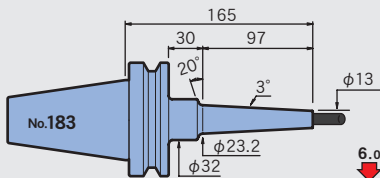
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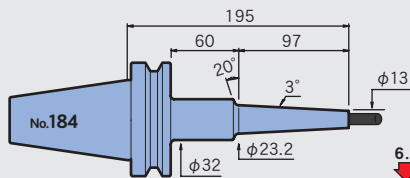
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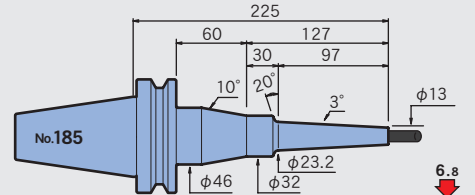
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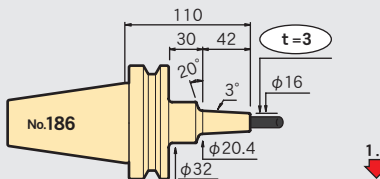
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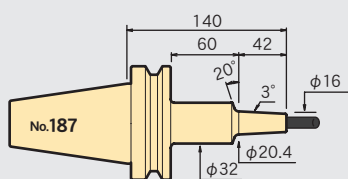
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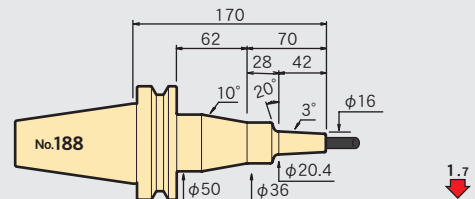
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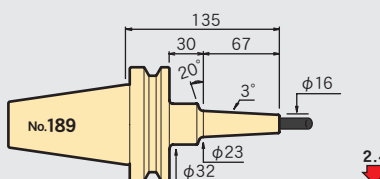
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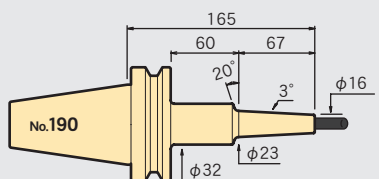
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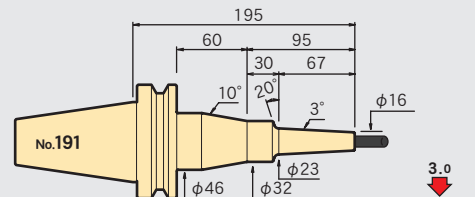
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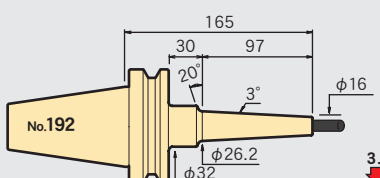
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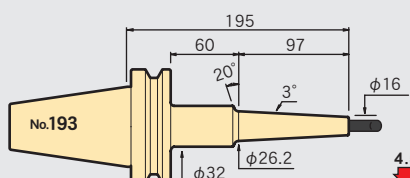
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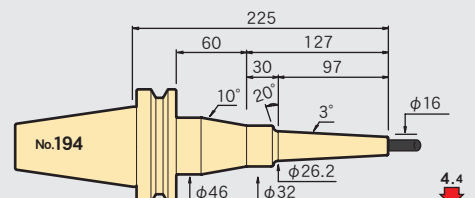
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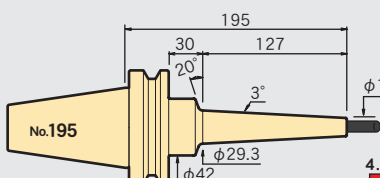
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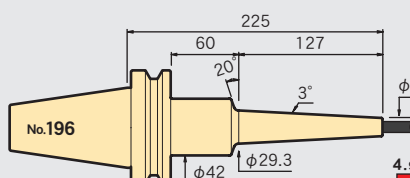
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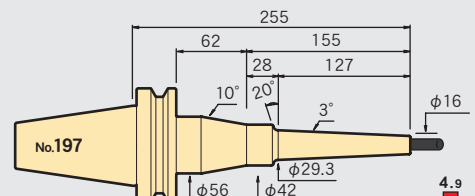
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BT50-SLSB10-225-M127



BT50-SLSB10-255-M127



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

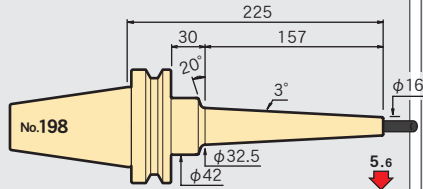
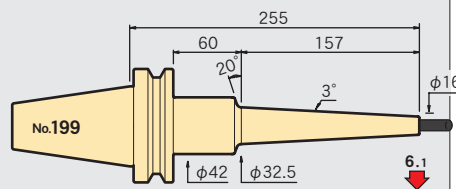
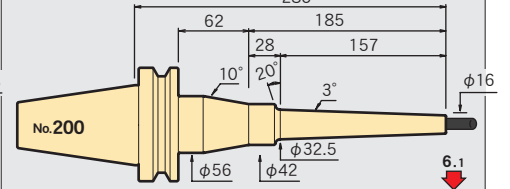
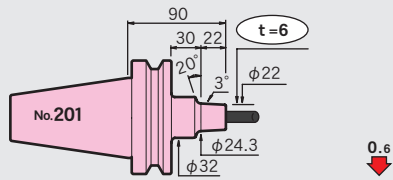
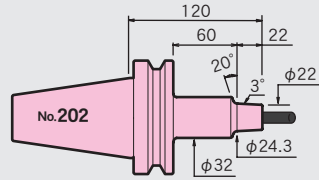
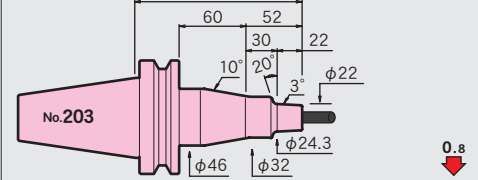
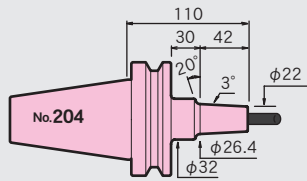
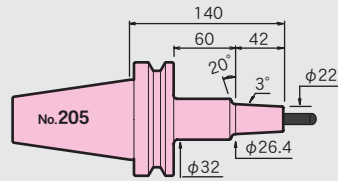
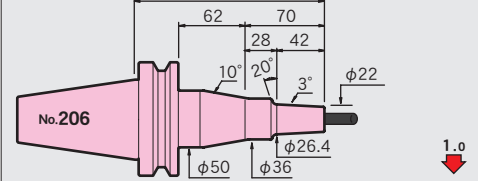
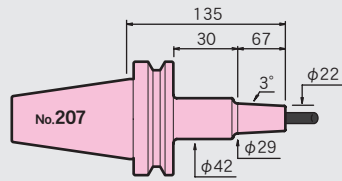
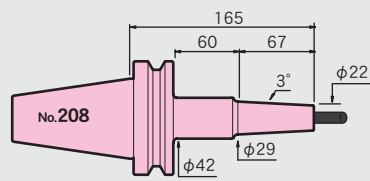
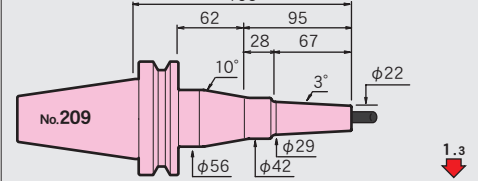
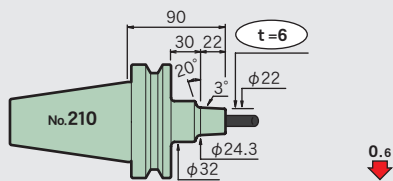
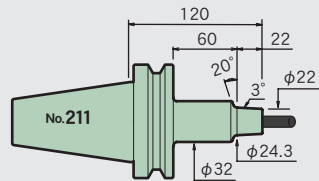
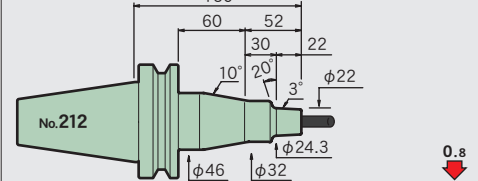
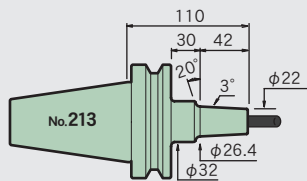
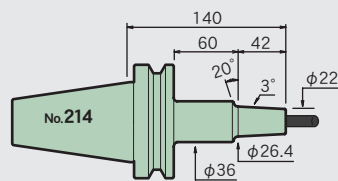
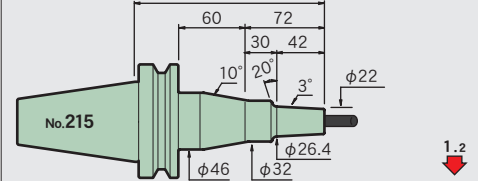
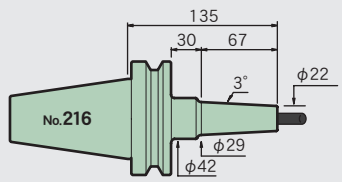
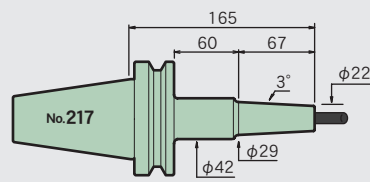
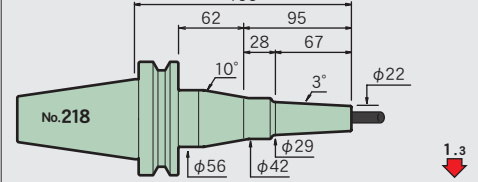
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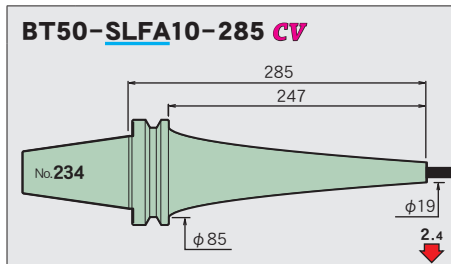
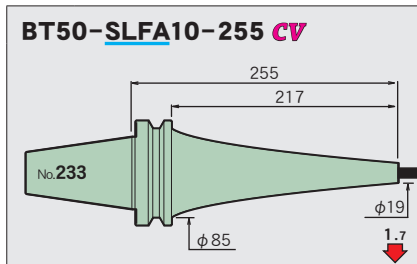
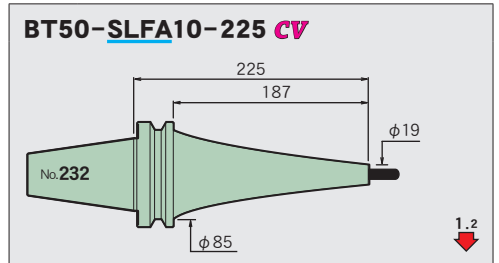
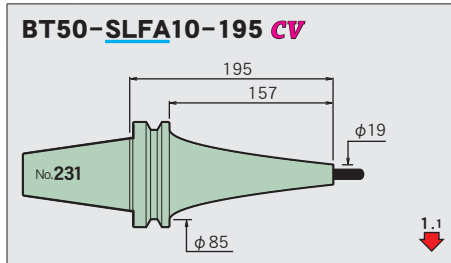
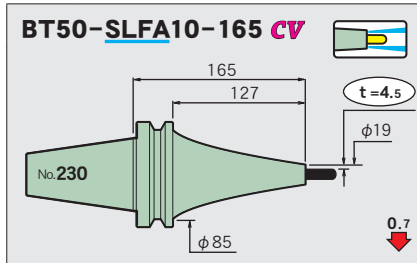
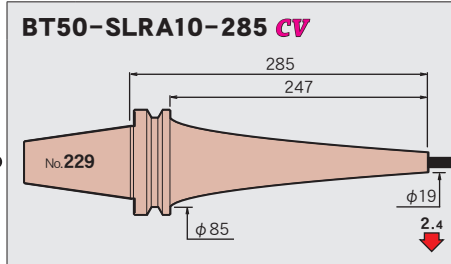
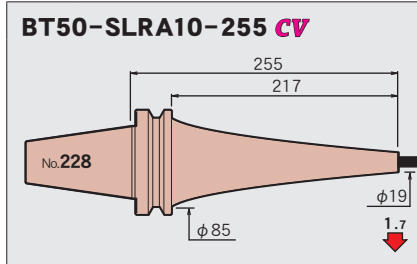
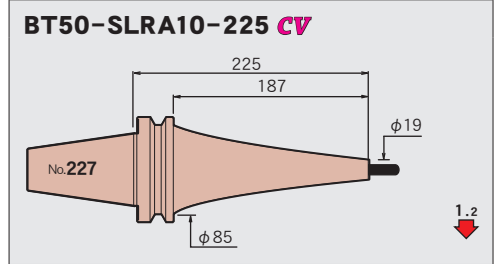
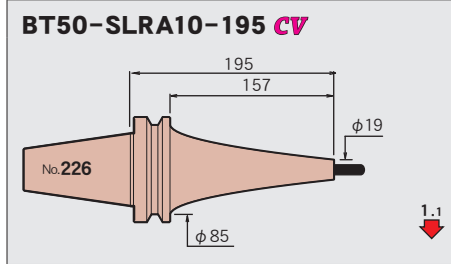
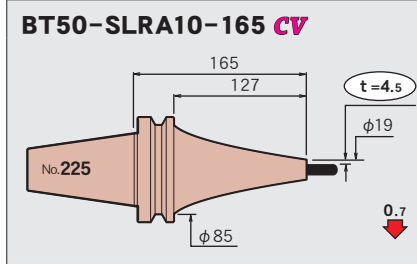
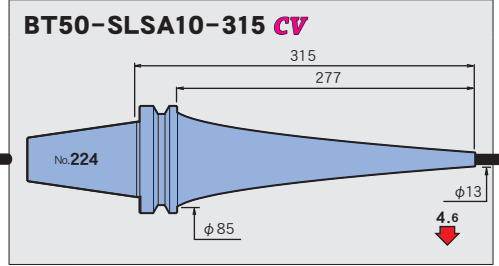
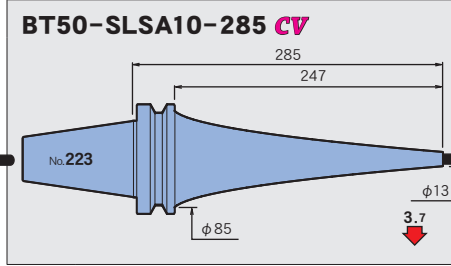
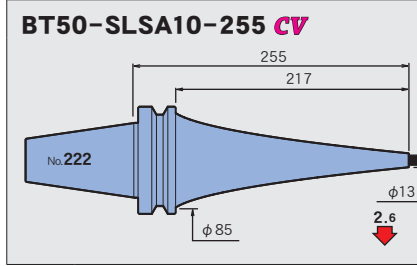
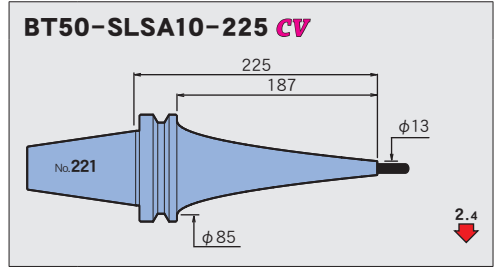
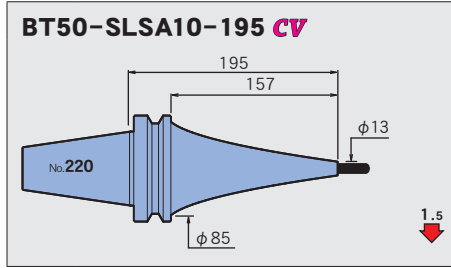
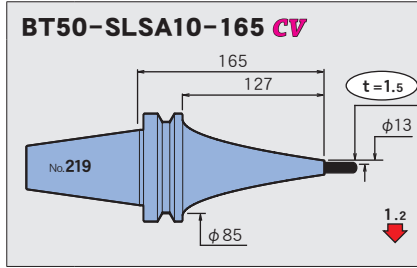
STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

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BT50-SLSB10-255-M157

BT50-SLSB10-285-M157

BT50-SLRB10-90-M22

BT50-SLRB10-120-M22

BT50-SLRB10-150-M22

BT50-SLRB10-110-M42

BT50-SLRB10-140-M42

BT50-SLRB10-170-M42

BT50-SLRB10-135-M67

BT50-SLRB10-165-M67

BT50-SLRB10-195-M67

BT50-SLFB10-90-M22

BT50-SLFB10-120-M22

BT50-SLFB10-150-M22

BT50-SLFB10-110-M42

BT50-SLFB10-140-M42

BT50-SLFB10-170-M42

BT50-SLFB10-135-M67

BT50-SLFB10-165-M67

BT50-SLFB10-195-M67




Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

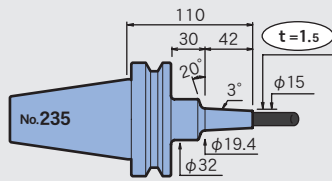
STRAIGHT
arbor

OTHERS

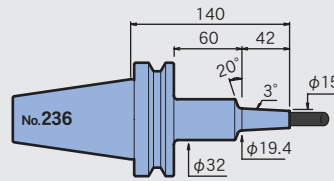
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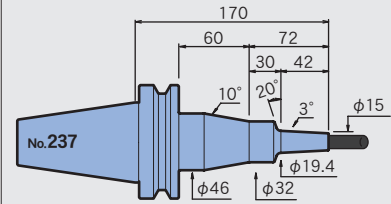
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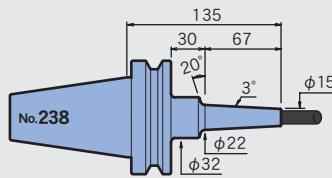
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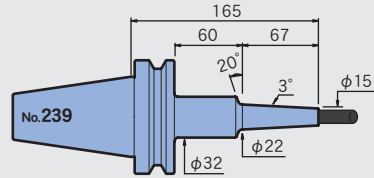
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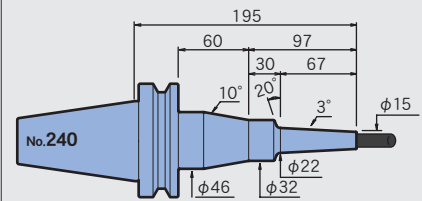
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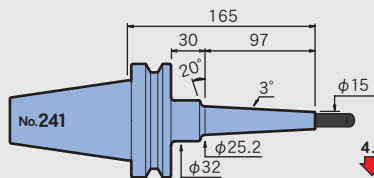
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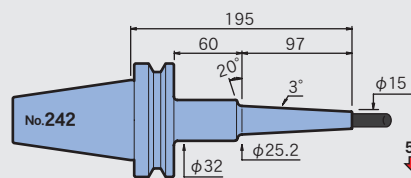
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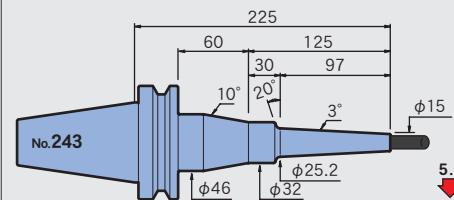
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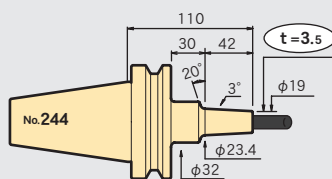
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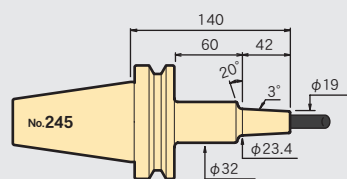
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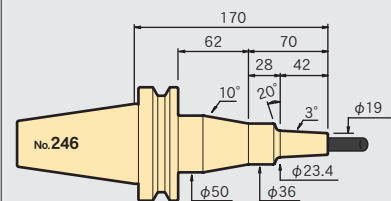
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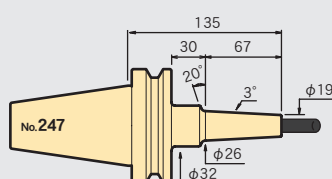
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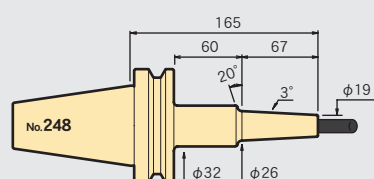
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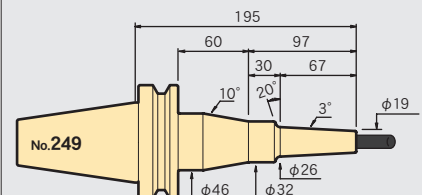
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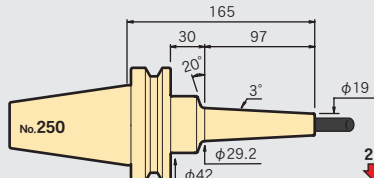
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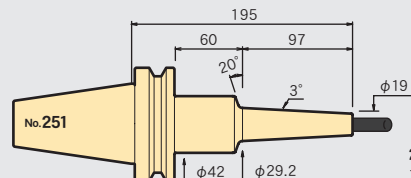
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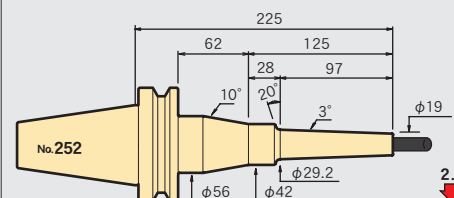
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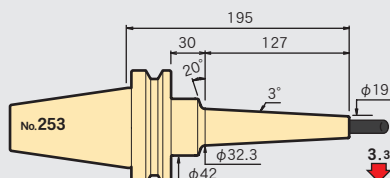
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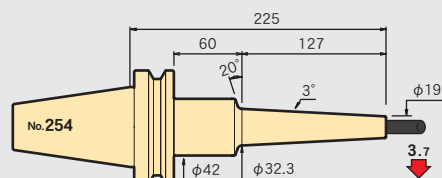
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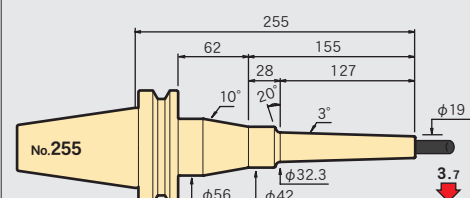
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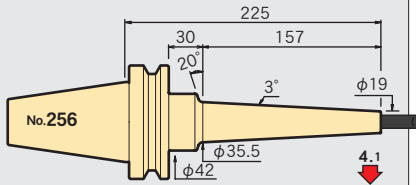
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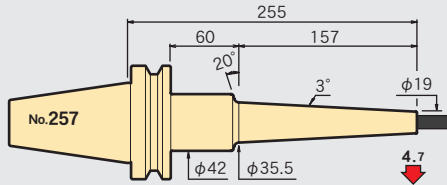
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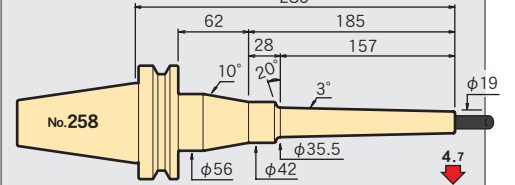
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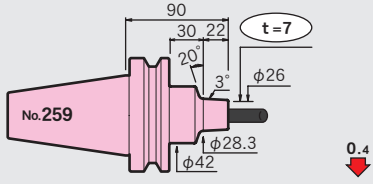
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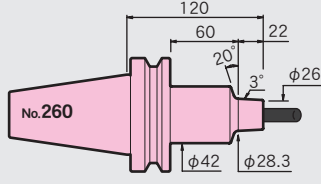
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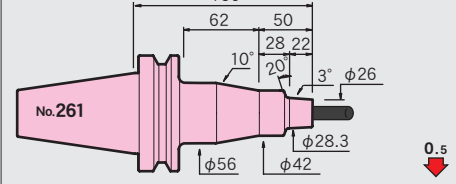
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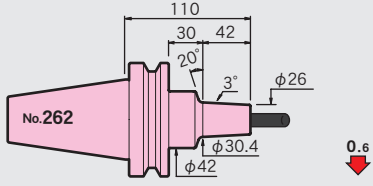
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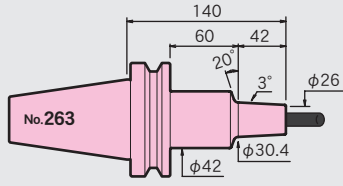
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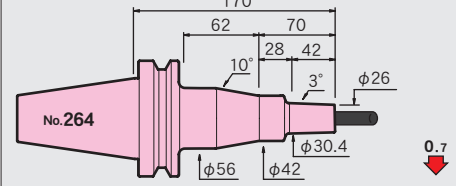
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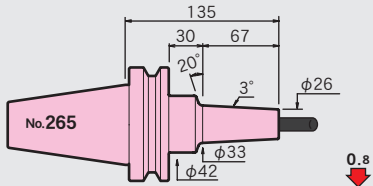
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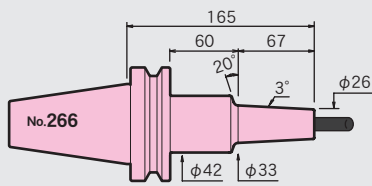
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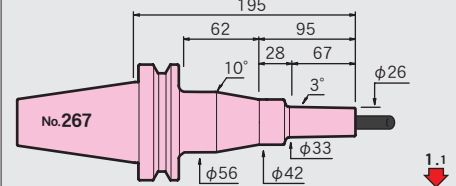
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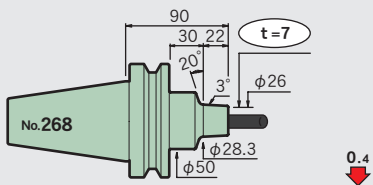
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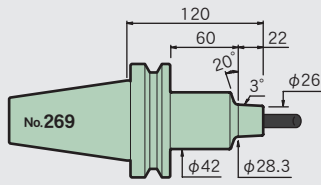
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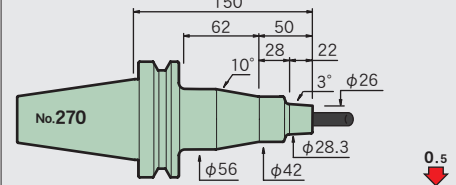
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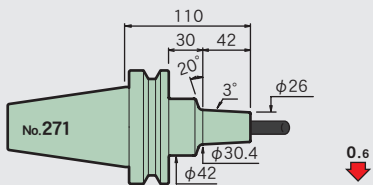
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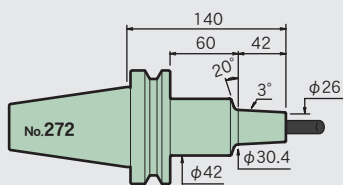
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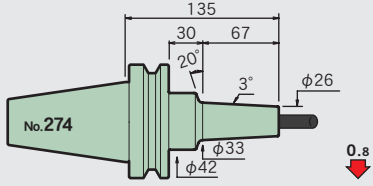
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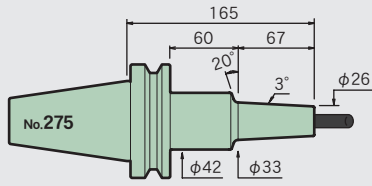
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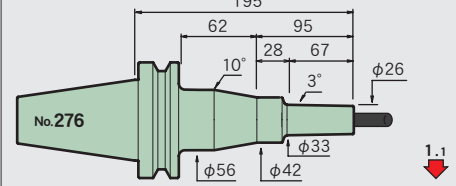
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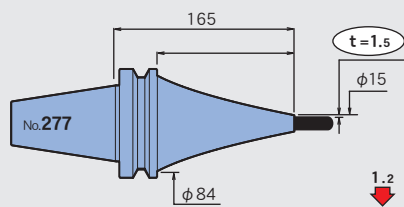
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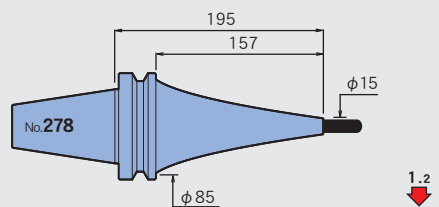
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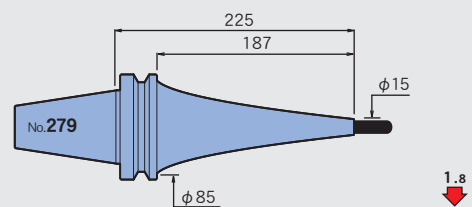
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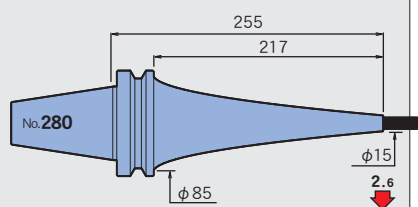
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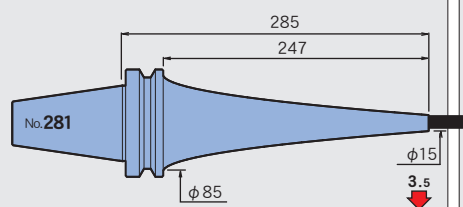
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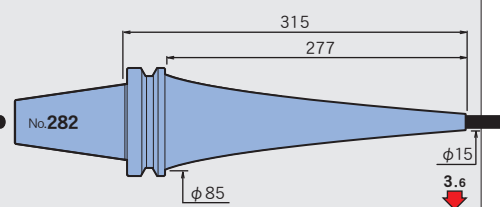
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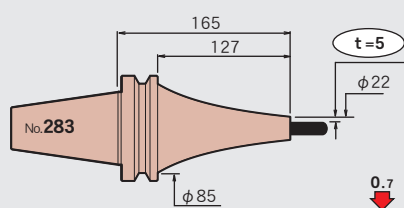
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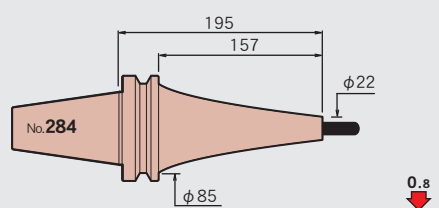
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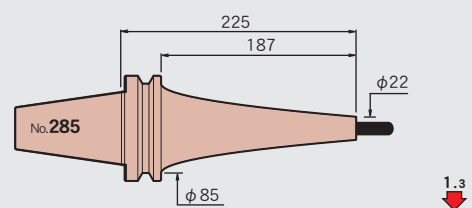
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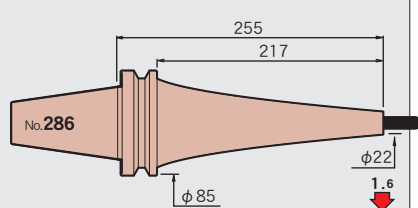
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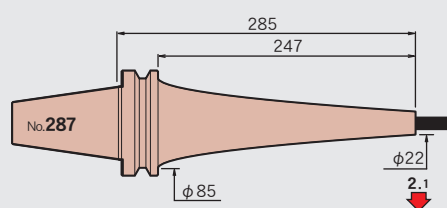
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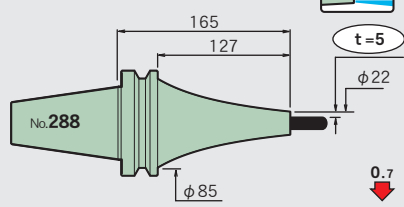
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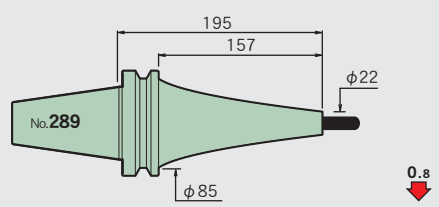
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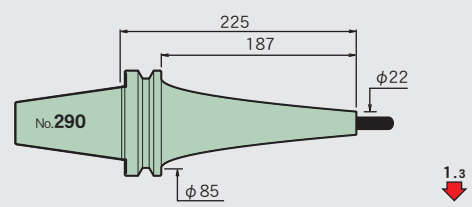
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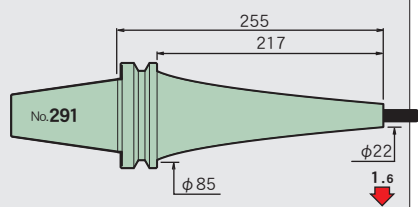
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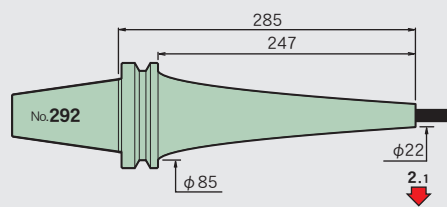
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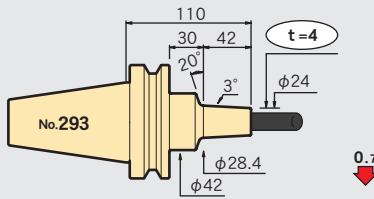


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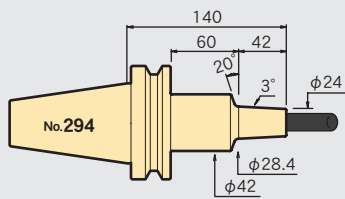


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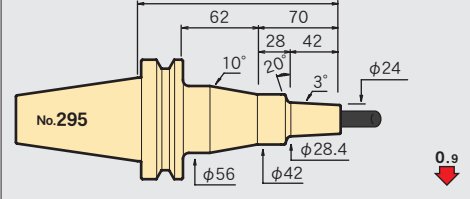
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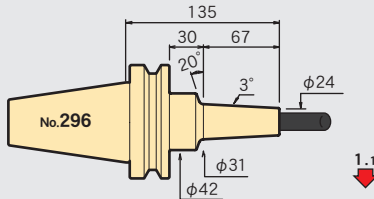
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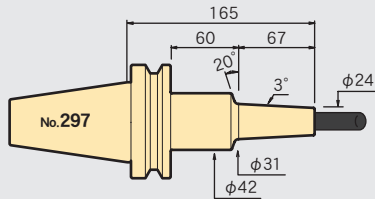
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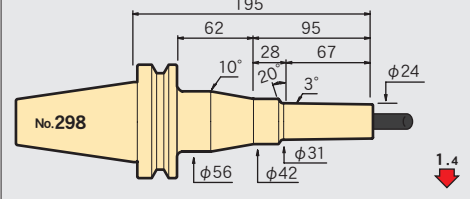
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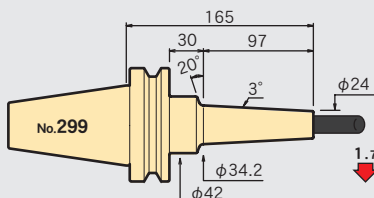
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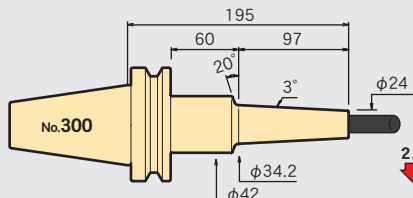
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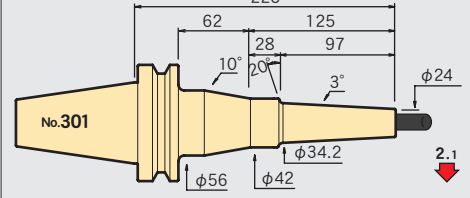
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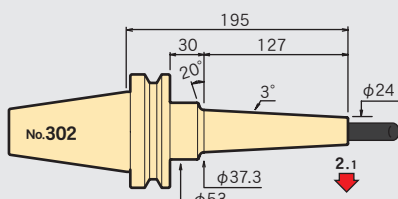
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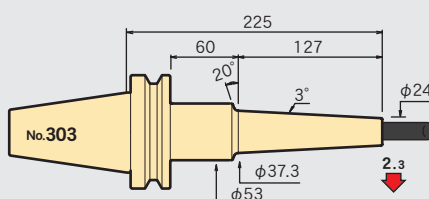
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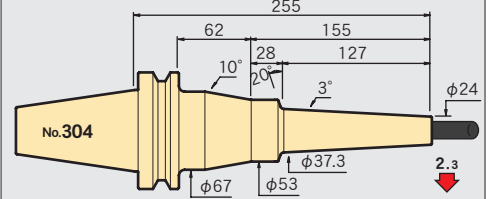
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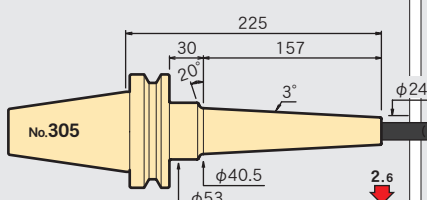
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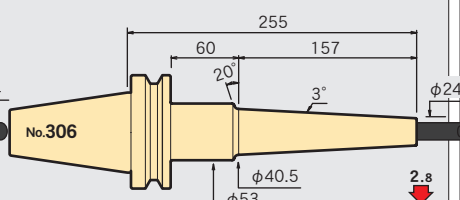
BT50-SLSB16-255-M127



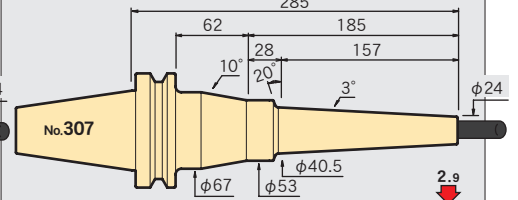
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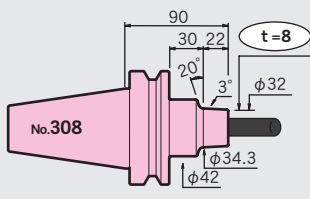
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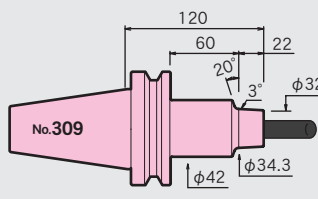
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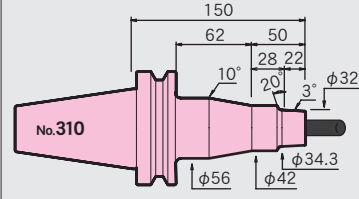
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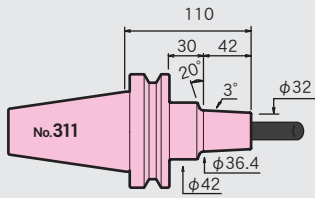
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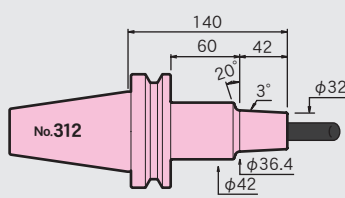
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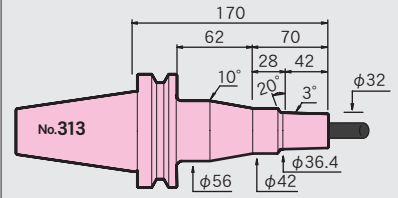
BT50-SLRB16-110-M42



BT50-SLRB16-140-M42



BT50-SLRB16-170-M42



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

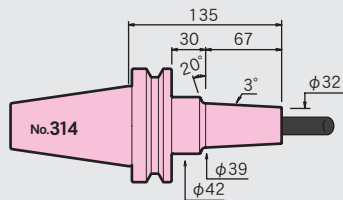
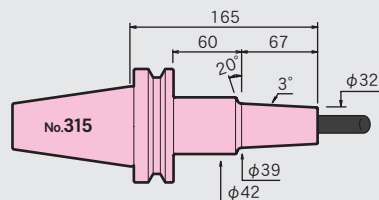
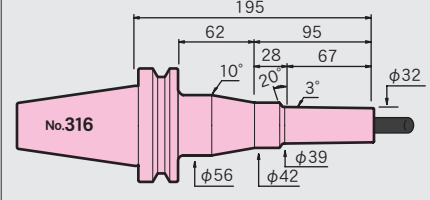
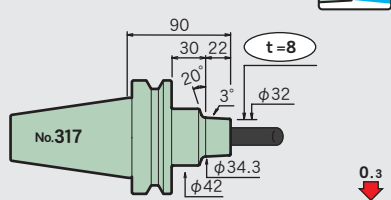
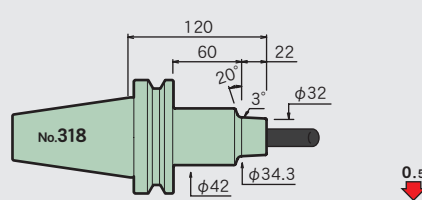
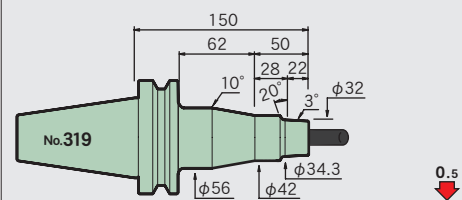
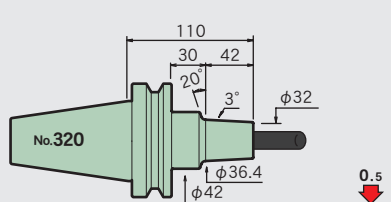
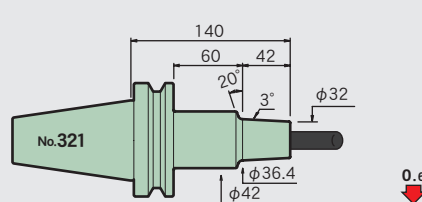
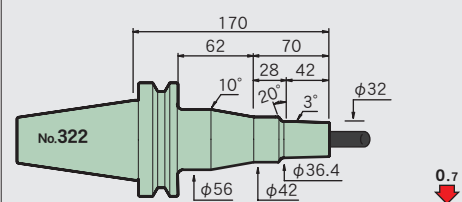
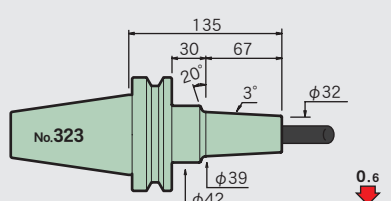
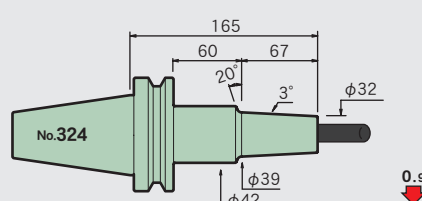
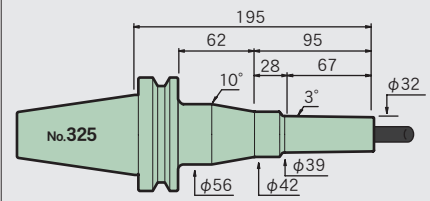
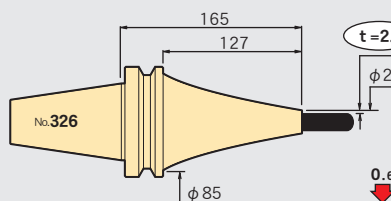
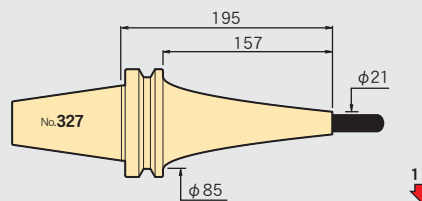
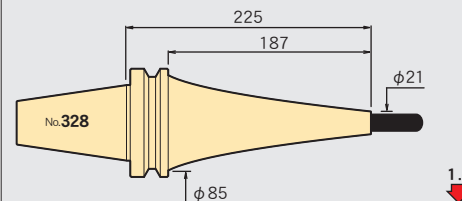
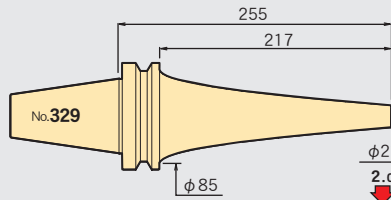
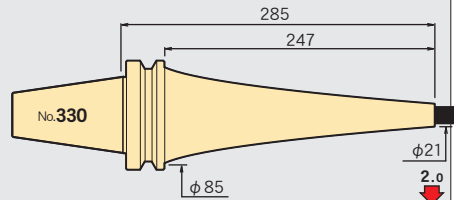
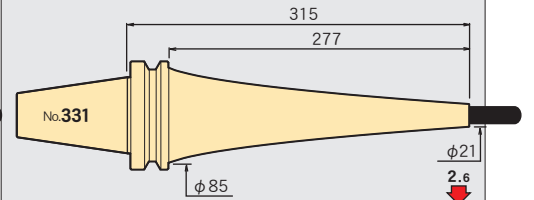
Z

STRAIGHT
arbor

OTHERS

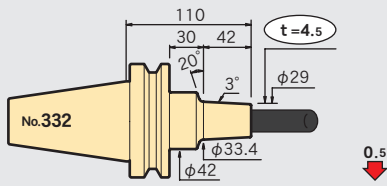
PERIPHERALS

Technical
data

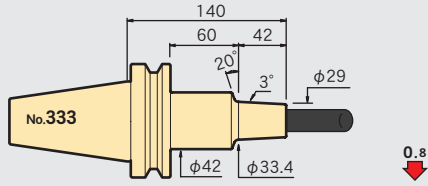
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BT50-SLRB16-165-M67

BT50-SLRB16-195-M67

BT50-SLFB16-90-M22

BT50-SLFB16-120-M22

BT50-SLFB16-150-M22

BT50-SLFB16-110-M42

BT50-SLFB16-140-M42

BT50-SLFB16-170-M42

BT50-SLFB16-135-M67

BT50-SLFB16-165-M67

BT50-SLFB16-195-M67

BT50-SLSB16-165 CV

BT50-SLSB16-195 CV

BT50-SLSB16-225 CV

BT50-SLSB16-255 CV

BT50-SLSB16-285 CV

BT50-SLSB16-315 CV


$\phi 20$

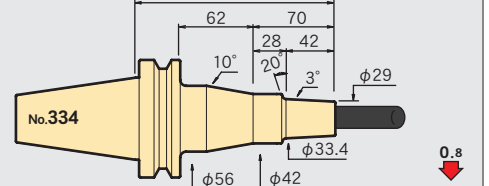
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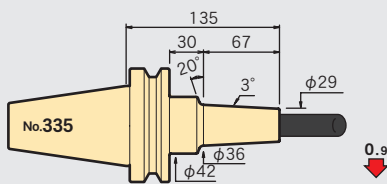
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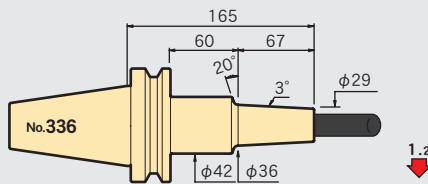
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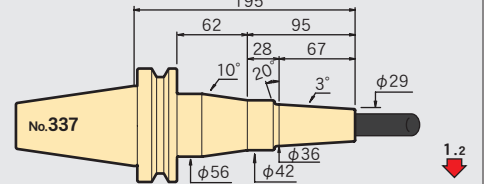
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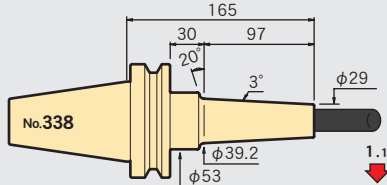
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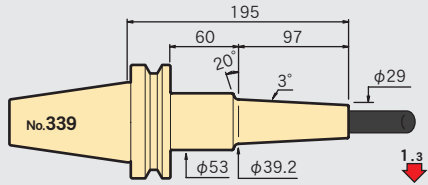
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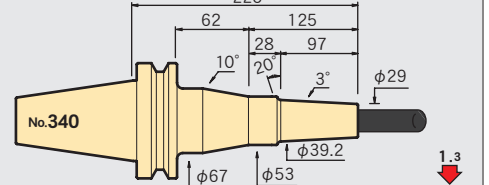
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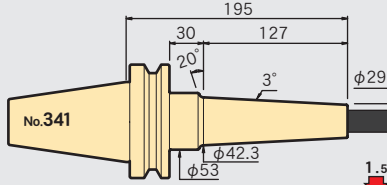
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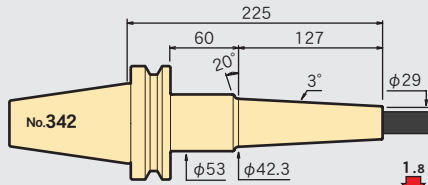
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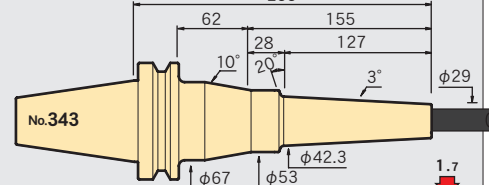
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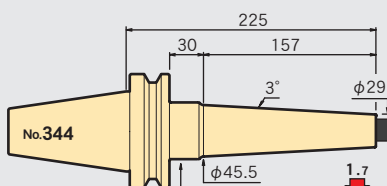
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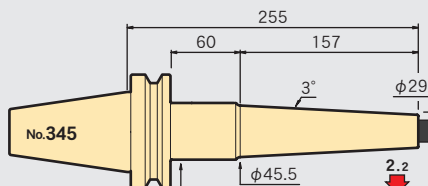
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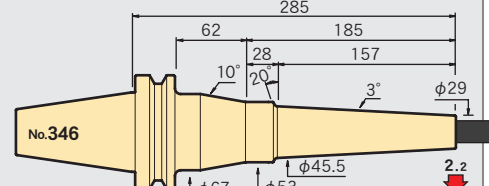
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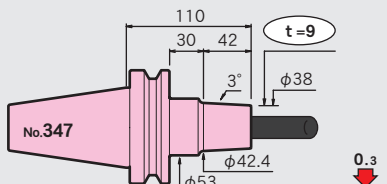
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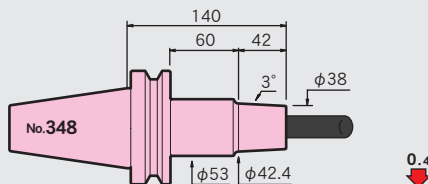
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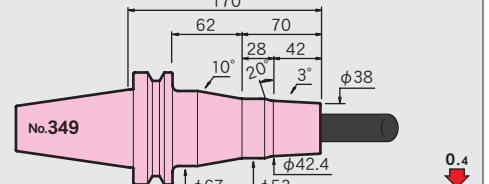
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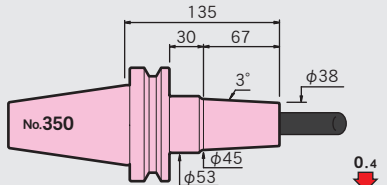
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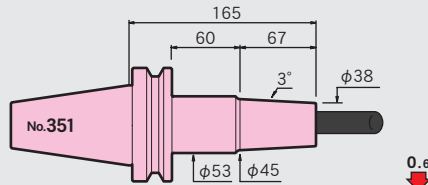
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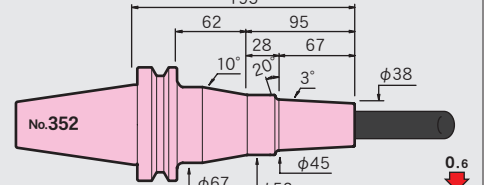
BT50-SLRB20-135-M67



BT50-SLRB20-165-M67



BT50-SLRB20-195-M67



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

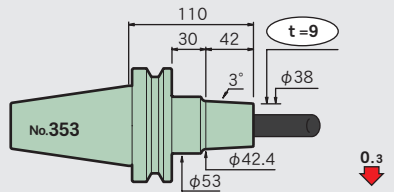
STRAIGHT
arbor

OTHERS

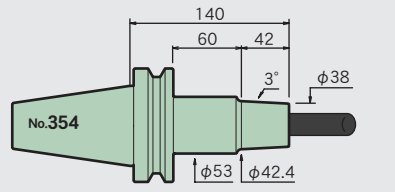
PERIPHERALS

Technical
data

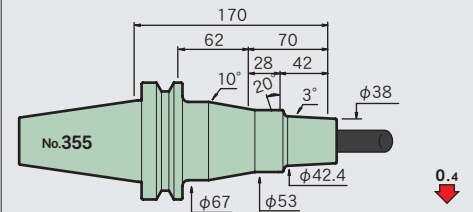
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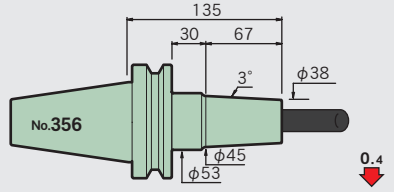
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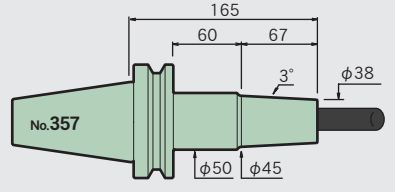
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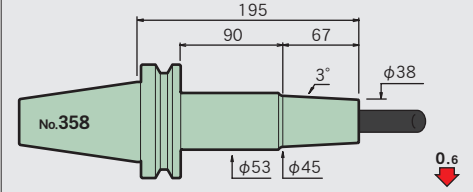
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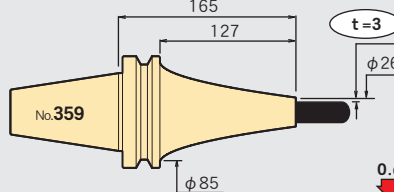
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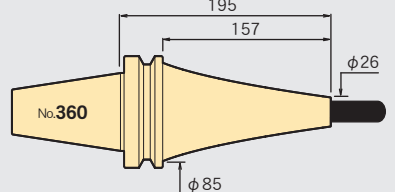
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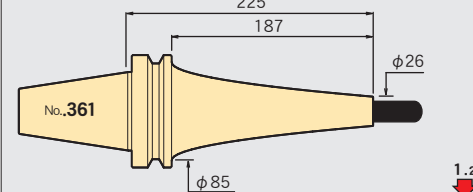
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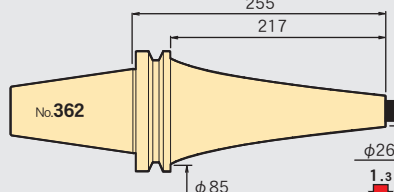
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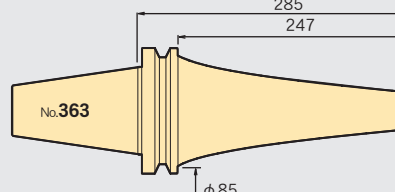
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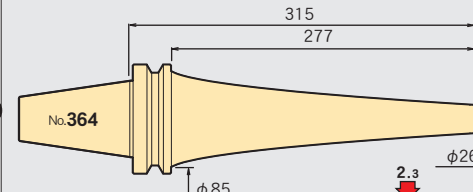
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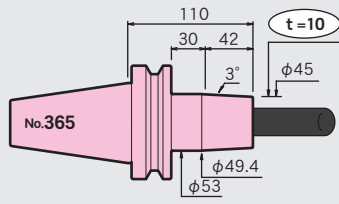


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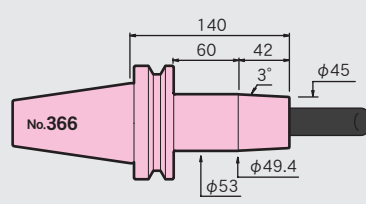


φ 25

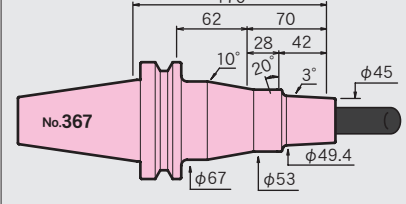
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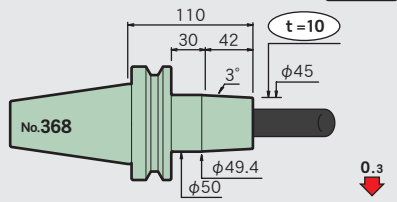
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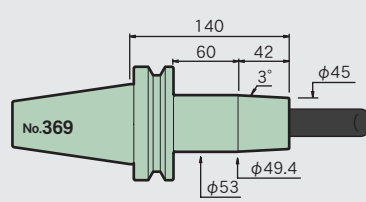
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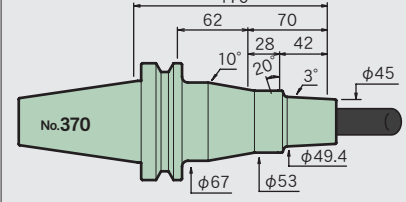
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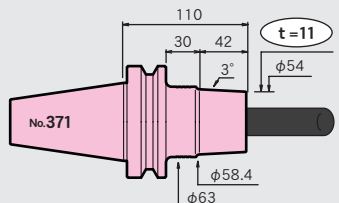


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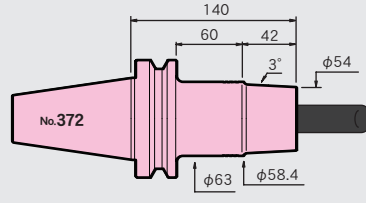


φ 32

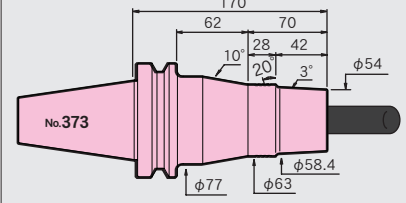
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BT50-SLRB32-140-M42



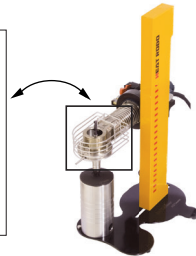
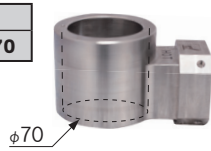
BT50-SLRB32-170-M42



φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70



HEAT ROBO Baby3000S

A40

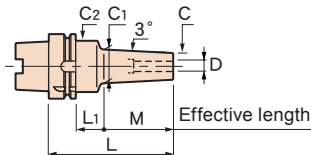
A40-SLRA10-65

MONO 3°

Rigidity value
($\mu\text{m}/\text{kgf}$)

● P.258

Imbalance
value(gmm) **N**
● P.261



Compatibility table
for HRD-01S

[○] Available [✕] Not available

■ Std.Access.

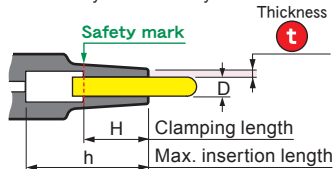
- Coolant duct (fixed type)→P.246

■ Note

- Swing type coolant ducts are available upon request.
For details, please contact us.

■ Caution

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



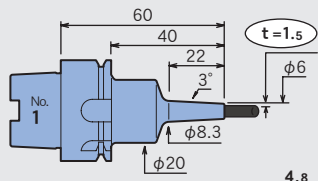
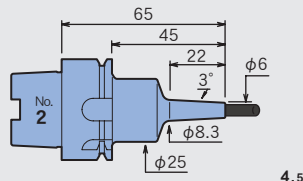
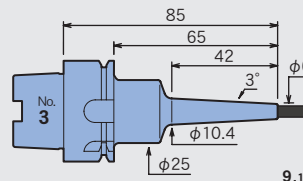
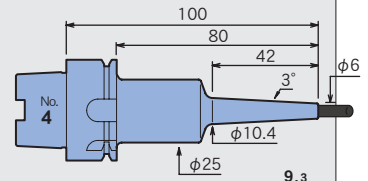
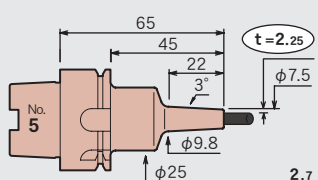
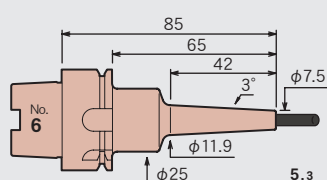
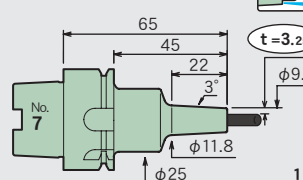
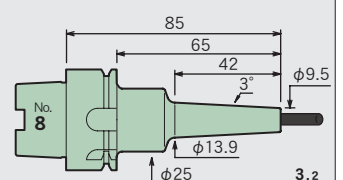
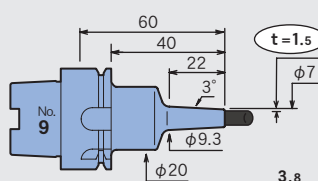
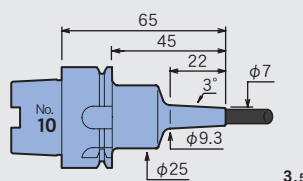
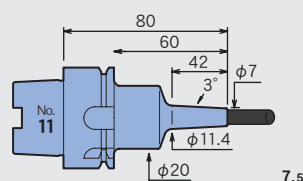
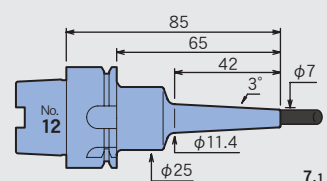
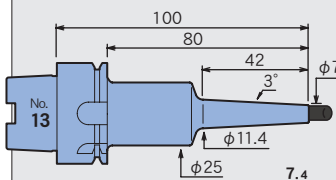
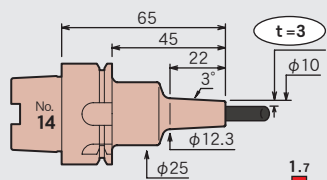
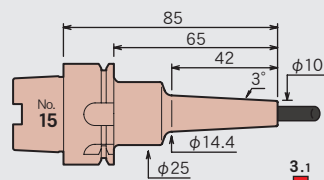
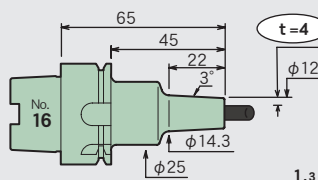
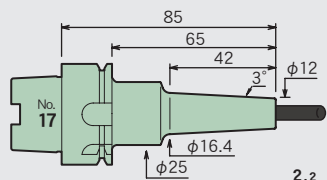
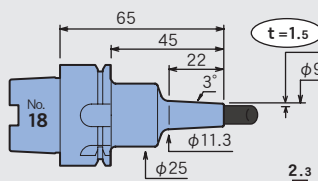
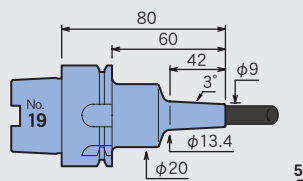
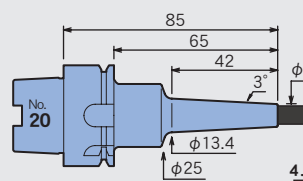
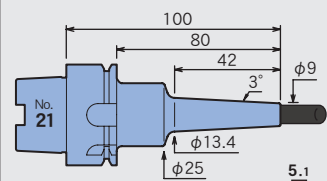
CODE	ϕD	ϕC	t	L	M	L ₁	ϕC_1	ϕC_2	H	h		N	S	Scale model
A40-SLSA3- 60	3	6	1.5	60	22	18	8.3	20	9	44	0.2	1.3	4.8	○ 1
- 65-M22				65		23		25			0.3	3	4.5	○ 2
- 85-M42				85	42		10.4			64		3.2	9.1	○ 3
-100-M42				100		38				78		3.3	9.3	○ 4
-SLRA3- 65-M22	3	7.5	2.25	65	22	23	9.8	25	9	44	0.3	3	2.7	○ 5
- 85-M42				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

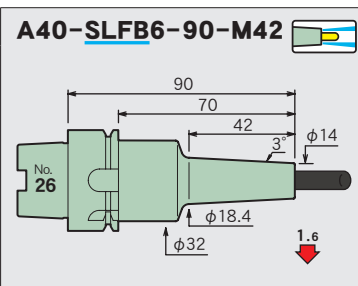
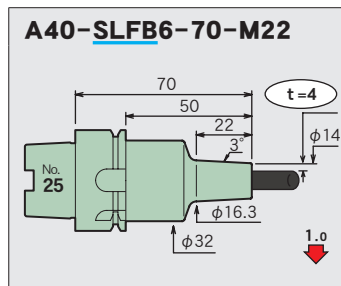
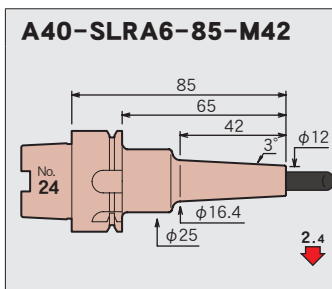
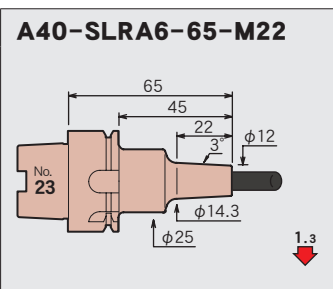
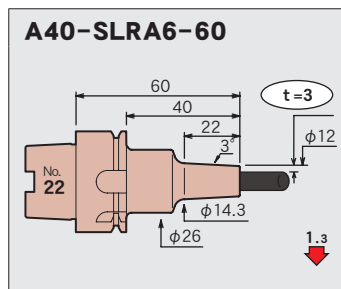
SLFB



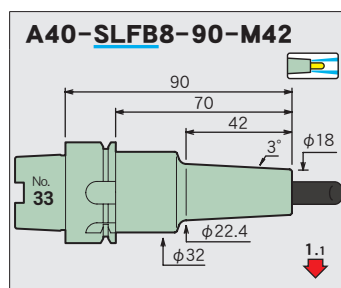
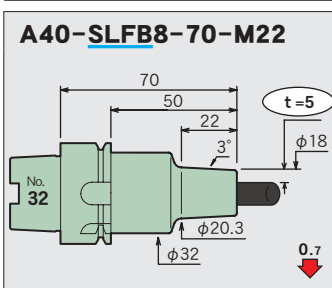
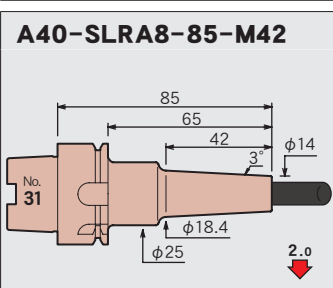
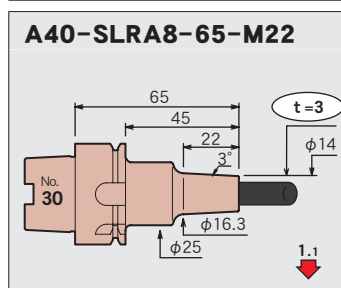
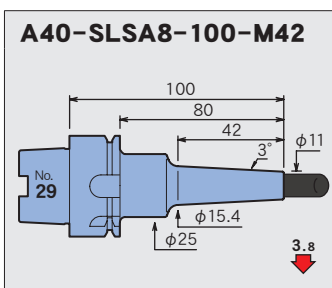
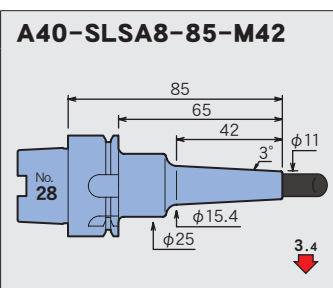
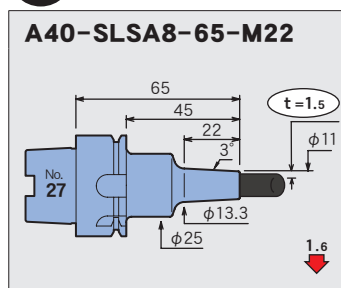
CODE	φD	φC	t	L	M	L ₁	φC ₁	φC ₂	H	h	 Kg	N	S	
A40-SLSA10- 65-M22	10	13	1.5	65	22	23	15.3	25	30	44	0.3	3	1.2	○
- 85-M42				85	42		17.4			64		4.6	2.6	
- 90				90		28		26				1.9		
-100-M42				100		38		25		78		4.7	3	
-SLRA10- 65	10	16	3	65	22	23	18.3	26	25	44	0.3	1.6	0.9	○
- 65-M22								25	30			3	1	
- 90-M42				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	



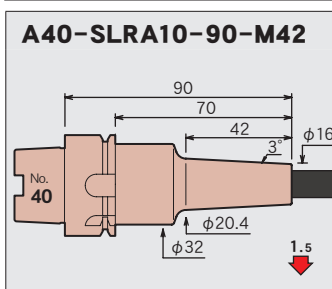
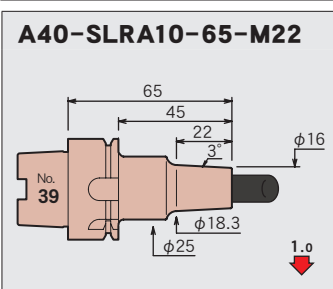
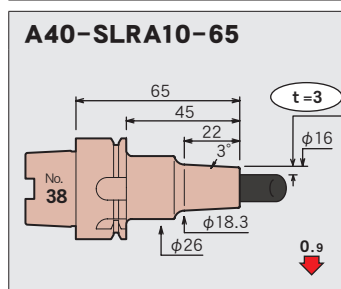
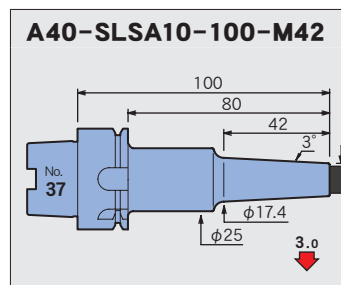
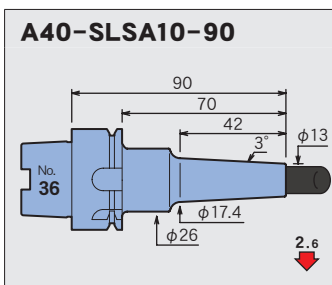
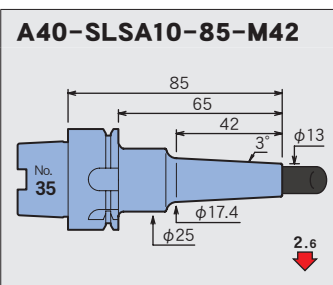
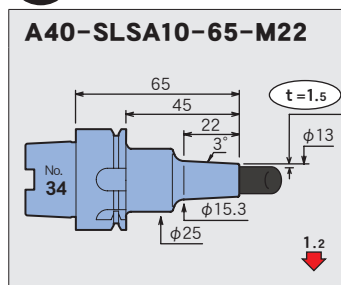
$\phi 3$ **A40-SLSA3-60****A40-SLSA3-65-M22****A40-SLSA3-85-M42****A40-SLSA3-100-M42****A40-SLRA3-65-M22****A40-SLRA3-85-M42****A40-SLFB3-65-M22****A40-SLFB3-85-M42** $\phi 4$ **A40-SLSA4-60****A40-SLSA4-65-M22****A40-SLSA4-80****A40-SLSA4-85-M42****A40-SLSA4-100-M42****A40-SLRA4-65-M22****A40-SLRA4-85-M42****A40-SLFB4-65-M22****A40-SLFB4-85-M42** $\phi 6$ **A40-SLSA6-65-M22****A40-SLSA6-80****A40-SLSA6-85-M42****A40-SLSA6-100-M42**



φ 8



φ 10



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

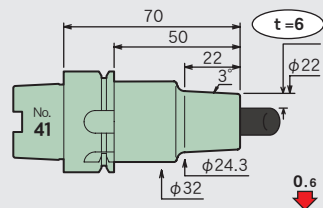
STRAIGHT
arbor

OTHERS

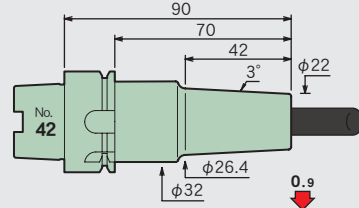
PERIPHERALS

Technical
data

A40-SLFB10-70-M22



A40-SLFB10-90-M42

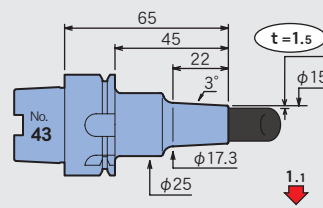


SLFB

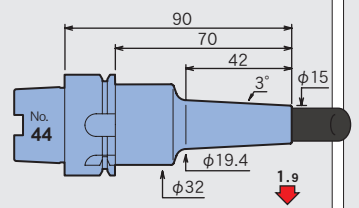


φ 12

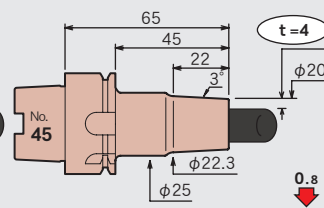
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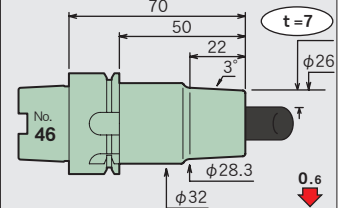
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A40-SLRA12-65-M22

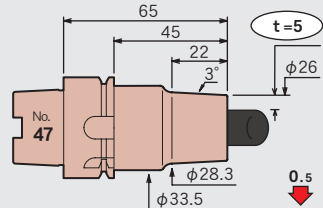


A40-SLFB12-70-M22



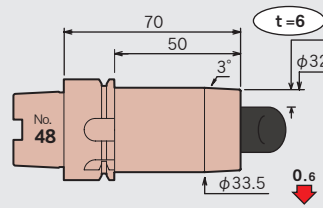
φ 16

A40-SLRA16-65-M22



φ 20

A40-SLRA20-70-M50



A50

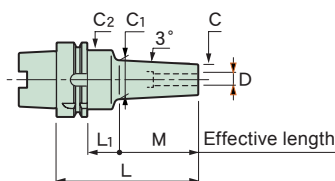
Rigidity value
($\mu\text{m/kgf}$)

● P.258

Imbalance
value(g·mm)

● P.261

A50-SLSA4-95-M42



Compatibility table
for HRD-01S

[○] Available [×] Not available

■ Std.Access.

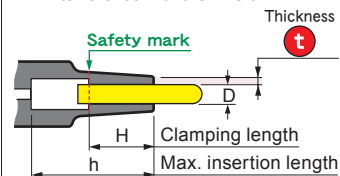
- Coolant duct (fixed type)→P.246

■ Note

- Swing type coolant ducts are available upon request.
For details, please contact 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	L ₁	φC ₁	φC ₂	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.

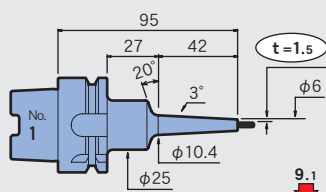
MAKINO J
MAKINO

J3

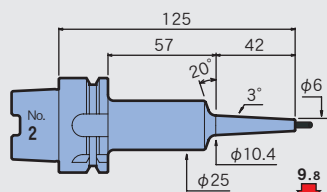


φ3

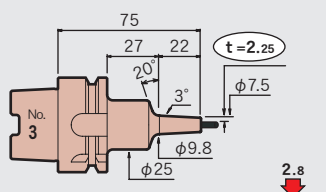
A50-SLSA3-95-M42



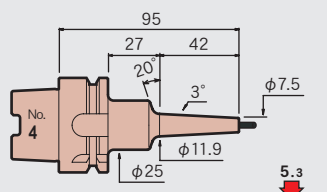
A50-SLSA3-125-M42



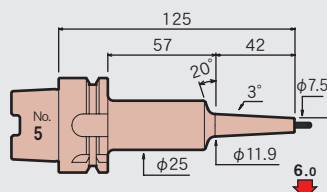
A50-SLRA3-75-M22



A50-SLRA3-95-M42

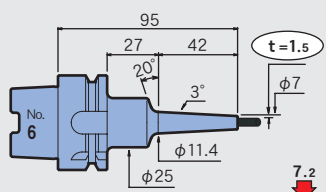


A50-SLRA3-125-M42

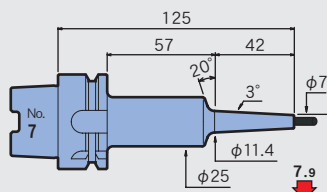


φ4

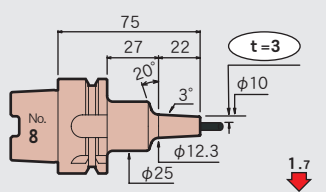
A50-SLSA4-95-M42



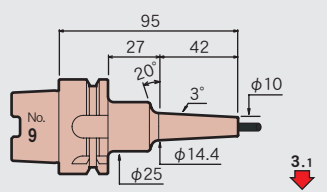
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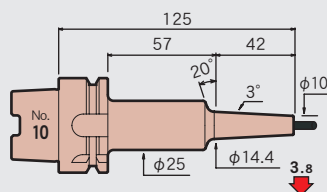
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A50-SLRA4-95-M42

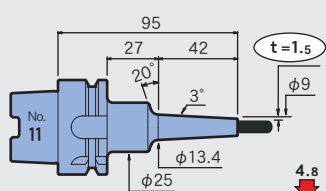


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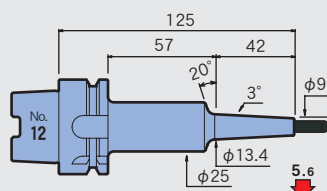


φ6

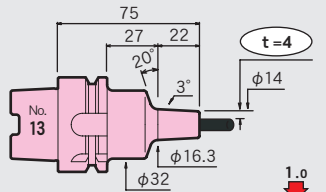
A50-SLSA6-95-M42



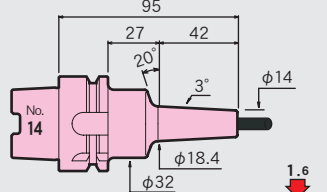
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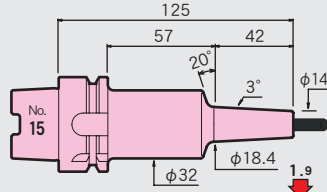
A50-SLRB6-75-M22



A50-SLRB6-95-M42



A50-SLRB6-125-M42



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

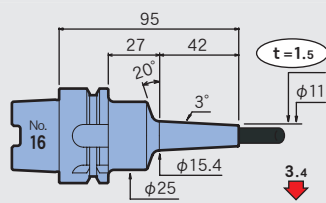
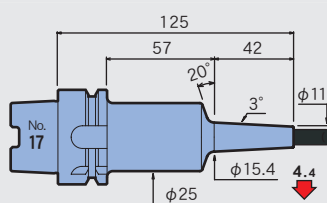
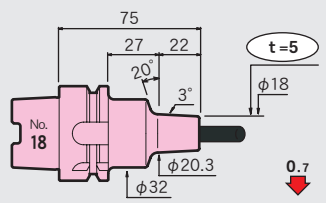
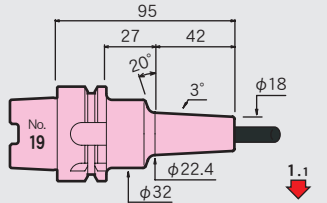
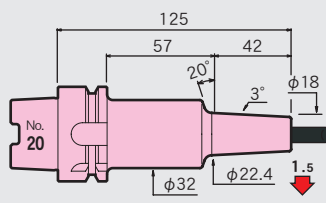
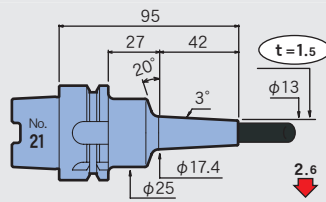
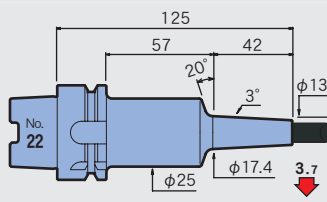
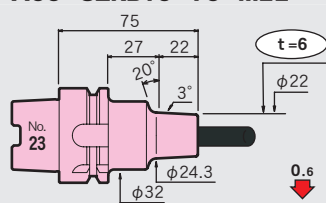
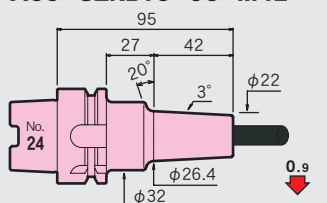
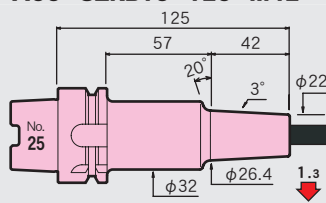
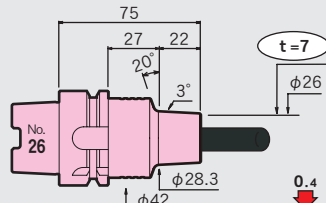
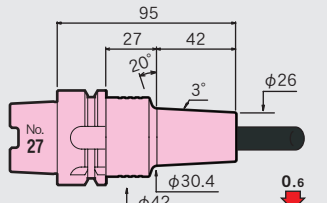
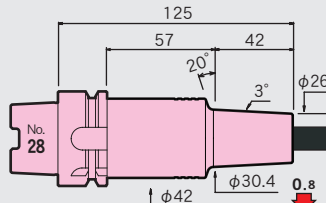
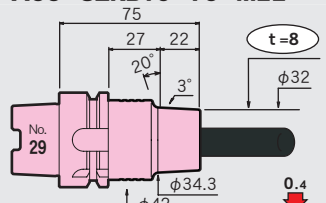
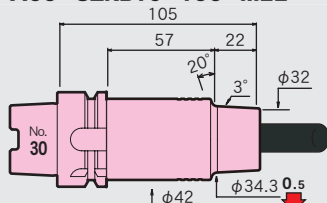
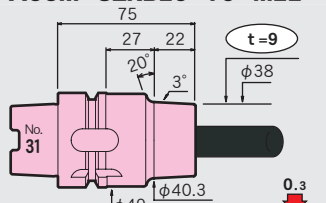
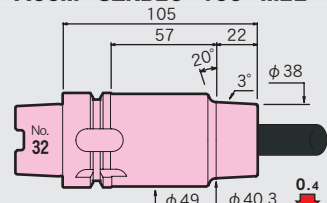
Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

$\phi 8$ **A50-SLSA8-95-M42****A50-SLSA8-125-M42****A50-SLRB8-75-M22****A50-SLRB8-95-M42****A50-SLRB8-125-M42** $\phi 10$ **A50-SLSA10-95-M42****A50-SLSA10-125-M42****A50-SLRB10-75-M22****A50-SLRB10-95-M42****A50-SLRB10-125-M42** $\phi 12$ **A50-SLRB12-75-M22****A50-SLRB12-95-M42****A50-SLRB12-125-M42** $\phi 16$ **A50-SLRB16-75-M22****A50-SLRB16-105-M22** $\phi 20$ **A50M-SLRB20-75-M22****A50M-SLRB20-105-M22**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

A63

A63-SLRB12-95-M42

MONO 3°

Rigidity value
($\mu\text{m/kgf}$)
→ P.258Imbalance
value(g·mm)
→ P.261

(N)

Fig. 1

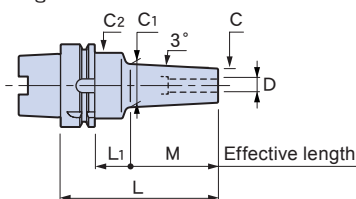


Fig. 2

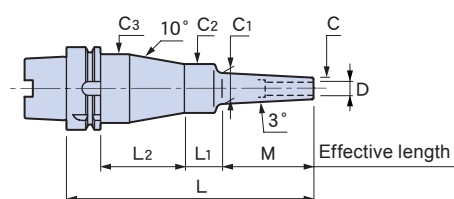
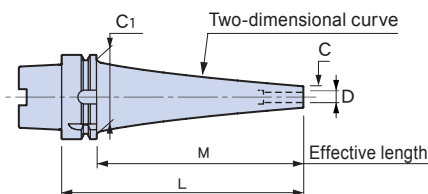


Fig. 3

Compatibility table
for HRD-01S

[O] Available [X] Not available

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

[★] Use heating coil No. 2.

■ Std. Access.

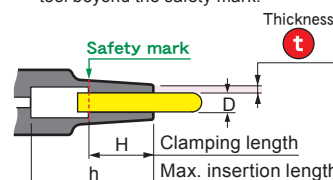
- Coolant duct (fixed type) → p.246

■ Note

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

■ Caution

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



A63-SLFA6-150 cv

MONO CURVE

Rigidity value
($\mu\text{m/kgf}$)
→ P.258Imbalance
value(g·mm)
→ P.261

(N)

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

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
A63 -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

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h		N	S		Scale model
Shrink-fit Heater	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
MONO 3° MONO CURVE	-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
MONO Series	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
2PIECE type	-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
UNO	-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
	A63 -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
HYPER VERSION	-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
Z	-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
STRAIGHT arbor	-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
OTHERS	-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
PERIPHERALS	 - 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
Technical data	-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	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					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
-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
-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
-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

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model	
Shrink-fit Heater	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	
MONO 3° MONO CURVE	-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	
MONO Series	-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	
	UNO	-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	
HYPER VERSION	-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	
Z	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	
	OTHERS	-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	
PERIPHERALS	-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	
technical data																				

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	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

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model
Shrink-fit Heater	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
MONO 3° MONO CURVE	-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
MONO Series	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
2PIECE type	-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
UNO	-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
HYPER VERSION	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
Z	-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
	 -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
OTHERS	-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
Technical data																			

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h	 Kg lbs	 N	 S		Scale model	Feature
A63-SLRB12- 75-M 22	1	12	26	7	75	22	27	—	28.3	42	—	30	50	0.9	14.5	0.4	×	349	Shrink-fit Heater
- 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	MONO 3° MONO CURVE
 - 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	2PIECE type
-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	UNO
-120 CV					120	94							94	1.3	10.4	0.7		375	
 -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	HYPER VERSION
 -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	Z
-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	OTHERS
-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	PERIPHERALS
 -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	

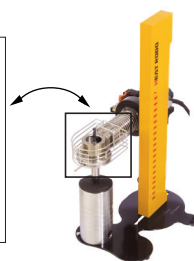
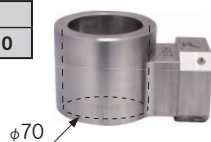
Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h				Scale model
Shrink-fit Heater	A63-SLSB16- 95-M 42	1	16	24	4	95	42	27	—	28.4	42	—	32	70	1	22.7	0.7	401
	-120-M 67					120	67			31				95	1.1	33	1.1	404
	-125-M 42					125	42	57		28.4				97	1.2	23.5	0.9	402
	-150-M 67					150	67			31				122	1.3	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
	 -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
2PIECE type	-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
HYPER VERSION	 - 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
STRAIGHT arbor	-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
OTHERS	-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
PERIPHERALS																		
Technical data																		

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h	Kg lbs	N	S	Scale model	Feature
A63-SLSB20- 95-M 42	1	20	29	4.5	95	42	27	—	33.4	42	—	40	70	1	25.4	0.5	448	Shrink-fit Heater
-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	MONO 3° MONO CURVE
-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	MONO Series
-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	
A63-SLRB32-110-M 42	1	32	54	11	110	42	42	—	58.4	63	—	50	84	1.8	13.3	0.3	495	

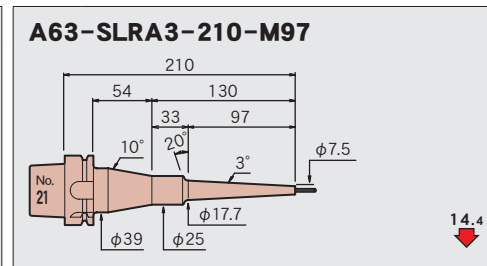
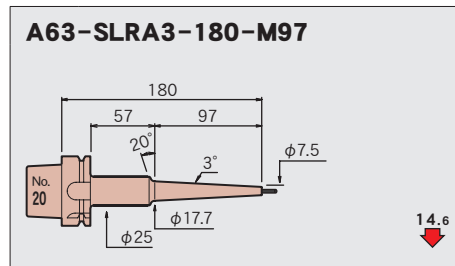
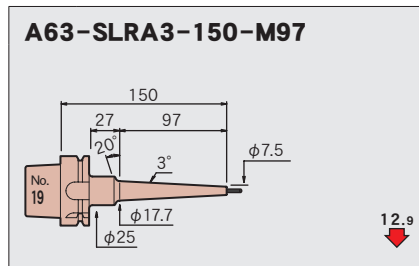
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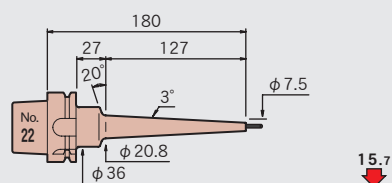
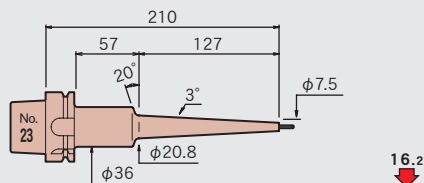
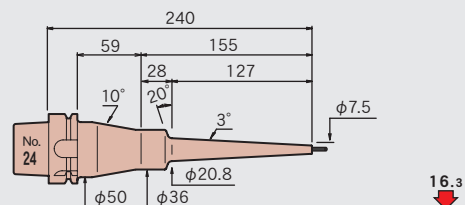
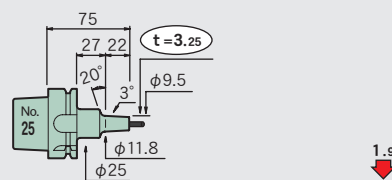
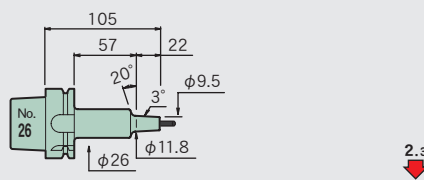
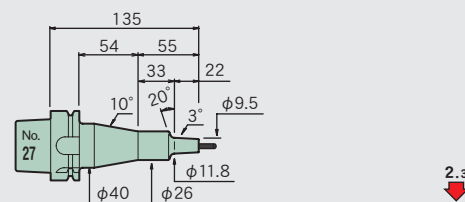
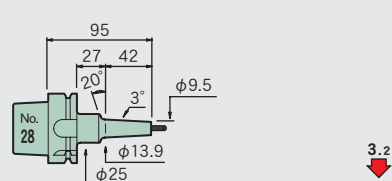
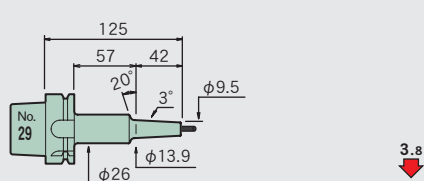
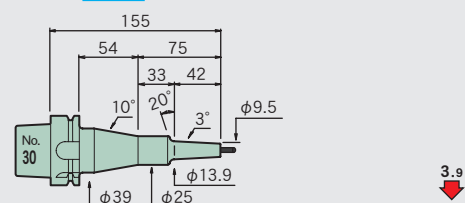
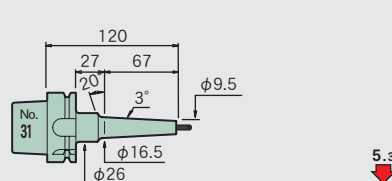
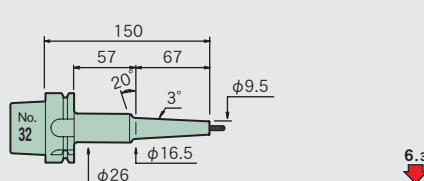
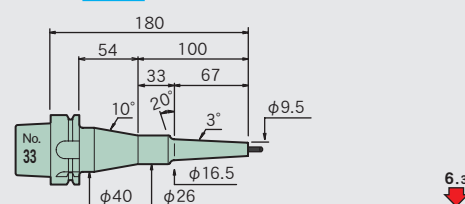
φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL 70

HEAT ROBO Baby3000S



A63-SLRA3-180-M127**A63-SLRA3-210-M127****A63-SLRA3-240-M127****A63-SLFB3-75-M22****A63-SLFB3-105-M22****A63-SLFB3-135-M22****A63-SLFB3-95-M42****A63-SLFB3-125-M42****A63-SLFB3-155-M42****A63-SLFB3-120-M67****A63-SLFB3-150-M67****A63-SLFB3-180-M67**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

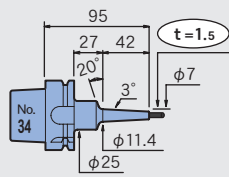
STRAIGHT
arbor

OTHERS

PERIPHERALS

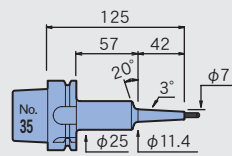
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A63-SLSA4-95-M42



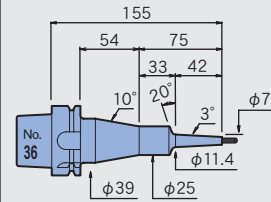
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A63-SLSA4-125-M42



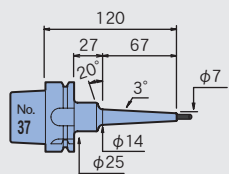
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A63-SLSA4-155-M42



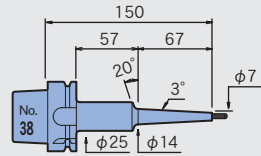
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A63-SLSA4-120-M67



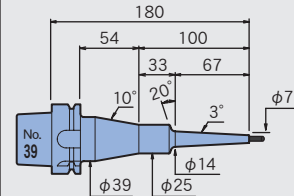
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A63-SLSA4-150-M67



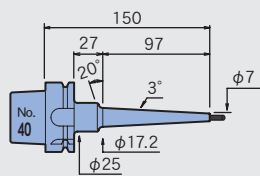
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A63-SLSA4-180-M67



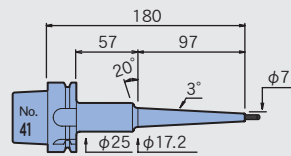
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A63-SLSA4-150-M97



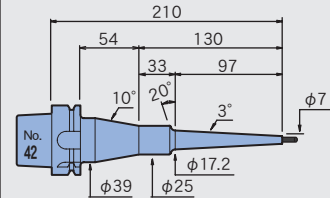
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A63-SLSA4-180-M97



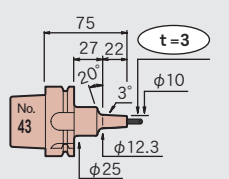
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A63-SLSA4-210-M97



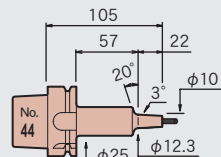
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A63-SLRA4-75-M22



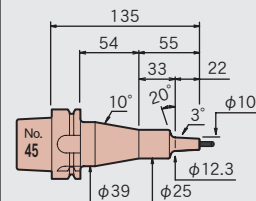
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A63-SLRA4-105-M22



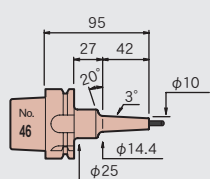
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A63-SLRA4-135-M22



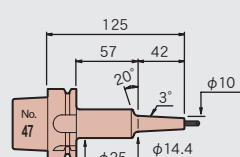
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A63-SLRA4-95-M42



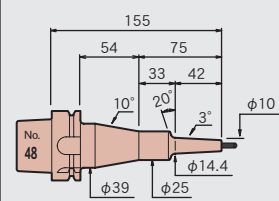
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A63-SLRA4-125-M42



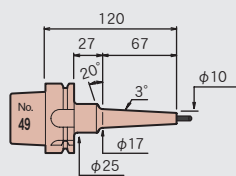
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A63-SLRA4-155-M42



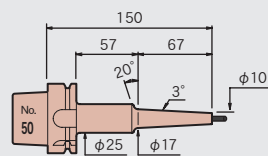
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A63-SLRA4-120-M67



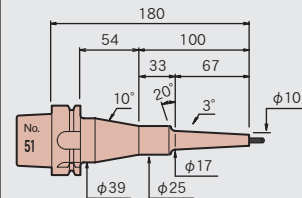
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A63-SLRA4-150-M67



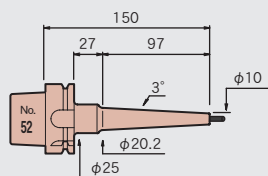
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A63-SLRA4-180-M67



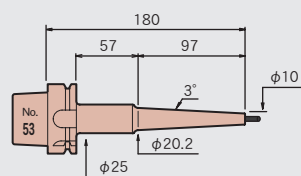
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A63-SLRA4-150-M97



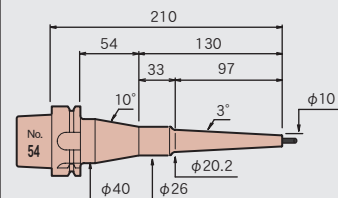
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A63-SLRA4-180-M97

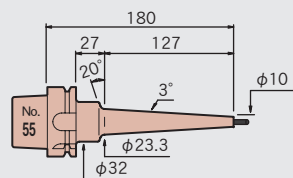


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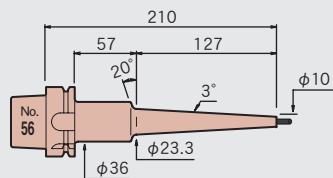
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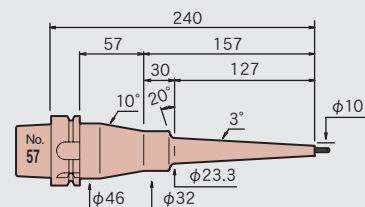
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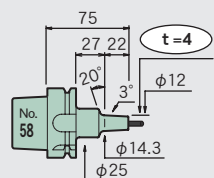
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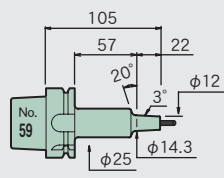
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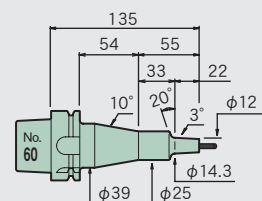
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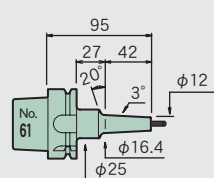
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A63-SLFB4-105-M22

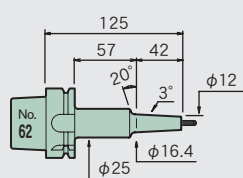
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A63-SLFB4-135-M22

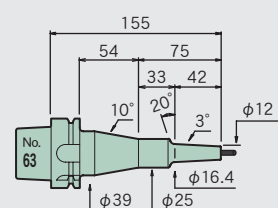
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A63-SLFB4-95-M42

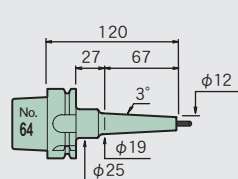
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A63-SLFB4-125-M42

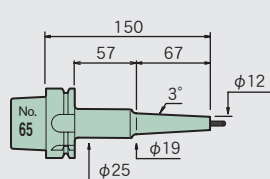
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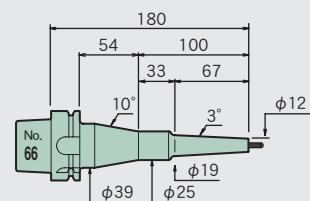
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A63-SLFB4-120-M67

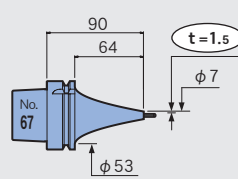
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A63-SLFB4-150-M67

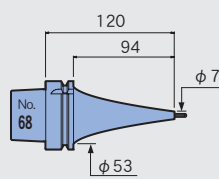
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A63-SLFB4-180-M67

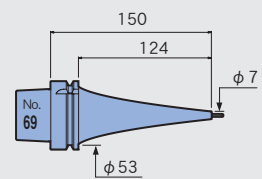
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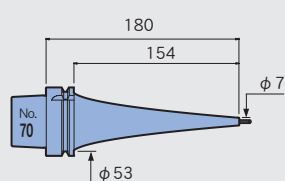
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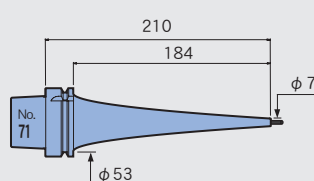
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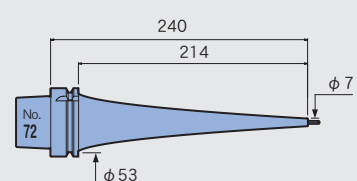
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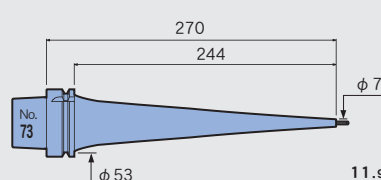
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A63-SLSA4-210 CV

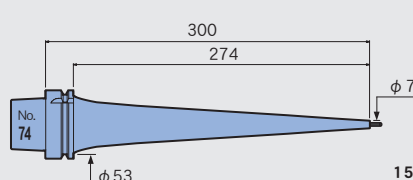
11.6

A63-SLSA4-240 CV

14.0

A63-SLSA4-270 CV

11.9

A63-SLSA4-300 CV

15.9

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

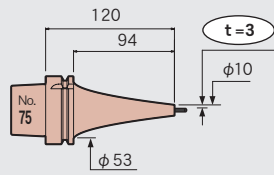
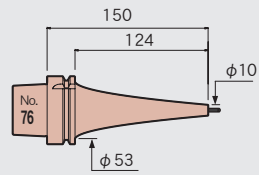
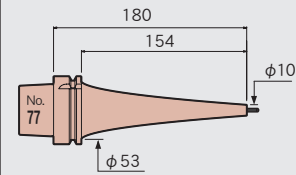
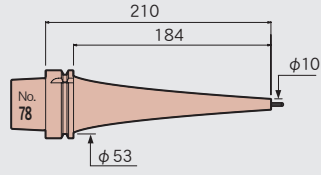
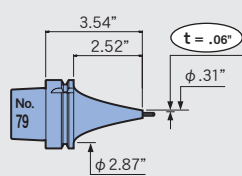
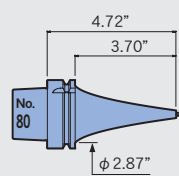
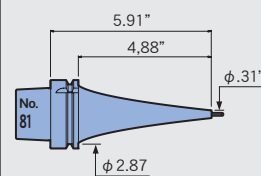
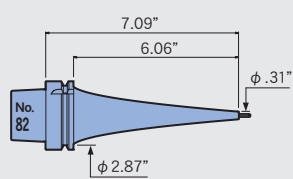
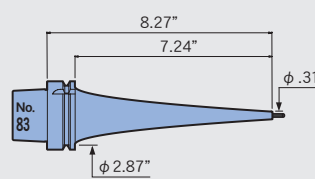
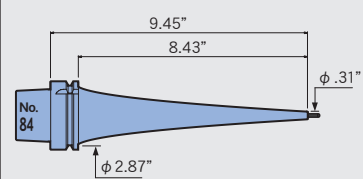
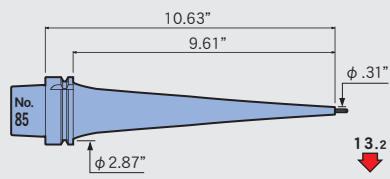
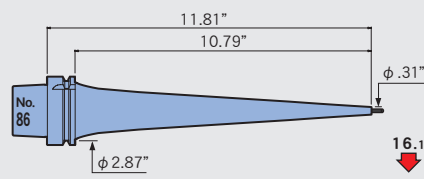
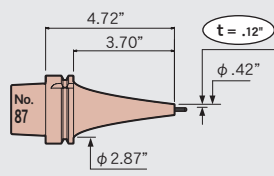
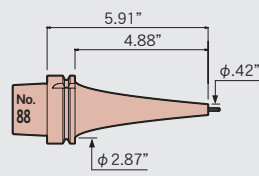
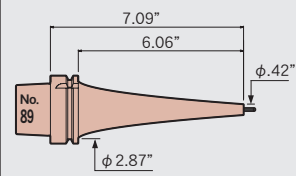
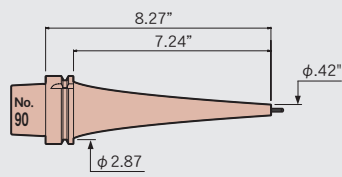
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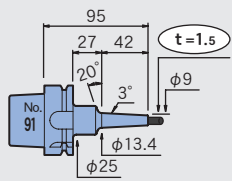
STRAIGHT
arbor

OTHERS

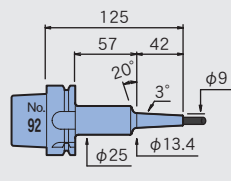
PERIPHERALS

Technical
data

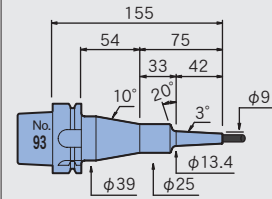
A63-SLRA4-120 CV**A63-SLRA4-150 CV****A63-SLRA4-180 CV****A63-SLRA4-210 CV** $\phi 3/16$ **A63-SLSA3/16-90 CV****A63-SLSA3/16-120 CV****A63-SLSA3/16-150 CV****A63-SLSA3/16-180 CV****A63-SLSA3/16-210 CV****A63-SLSA3/16-240 CV****A63-SLSA3/16-270 CV****A63-SLSA3/16-300 CV****A63-SLRA3/16-120 CV****A63-SLRA3/16-150 CV****A63-SLRA3/16-180 CV****A63-SLRA3/16-210 CV**

$\phi 6$ **A63-SLSA6-95-M42**

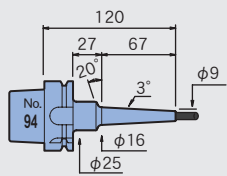
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A63-SLSA6-125-M42

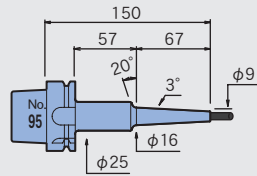
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A63-SLSA6-155-M42

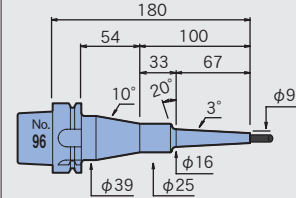
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A63-SLSA6-120-M67

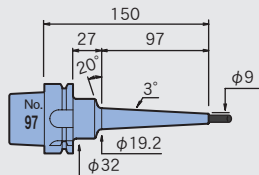
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A63-SLSA6-150-M67

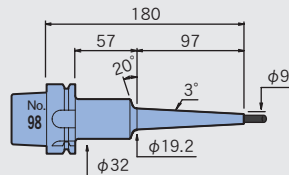
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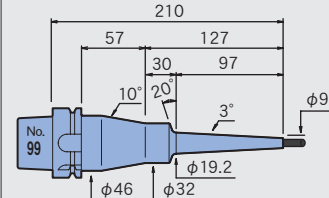
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A63-SLSA6-150-M97

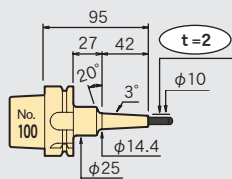
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A63-SLSA6-180-M97

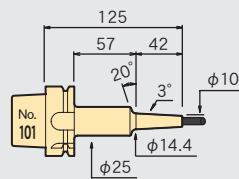
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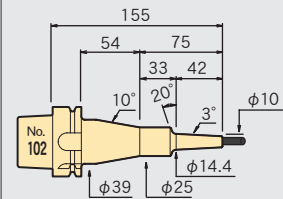
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A63-SLSB6-95-M42

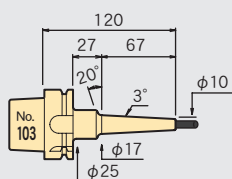
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A63-SLSB6-125-M42

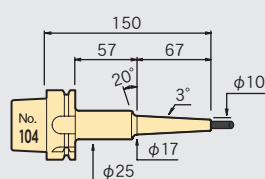
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A63-SLSB6-155-M42

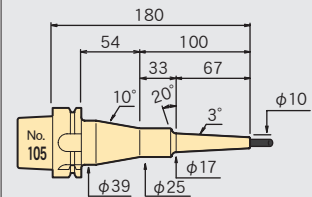
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A63-SLSB6-120-M67

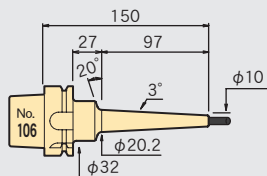
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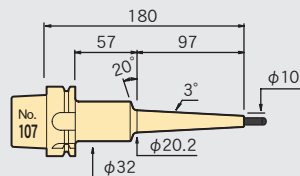
7.4

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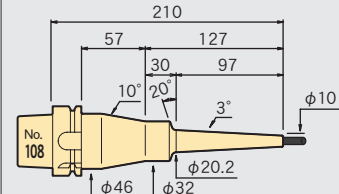
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A63-SLSB6-150-M97

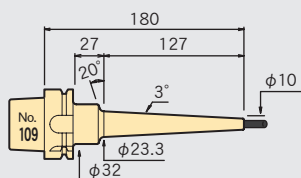
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A63-SLSB6-180-M97

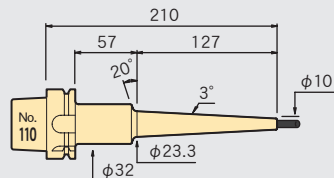
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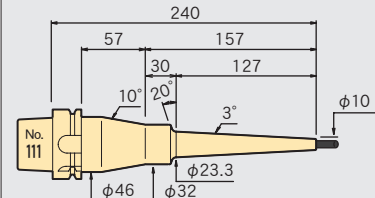
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A63-SLSB6-180-M127

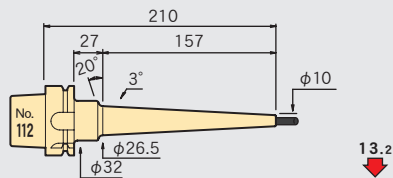
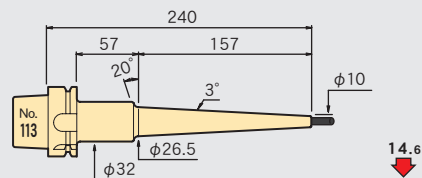
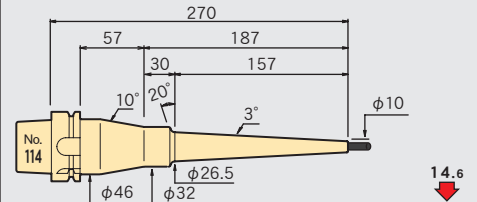
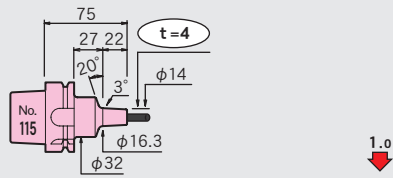
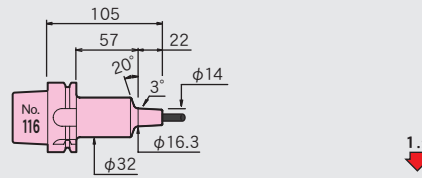
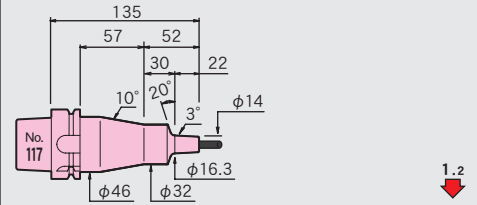
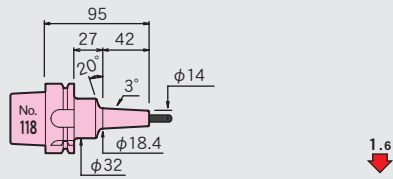
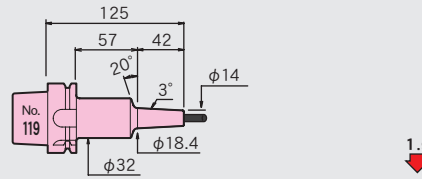
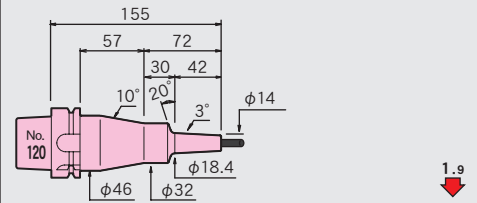
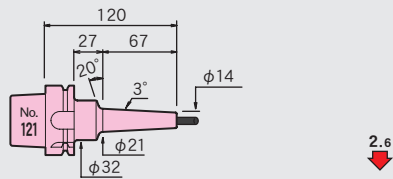
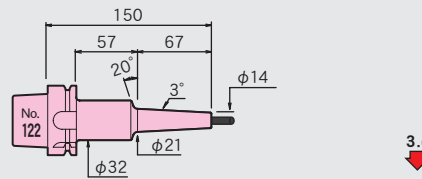
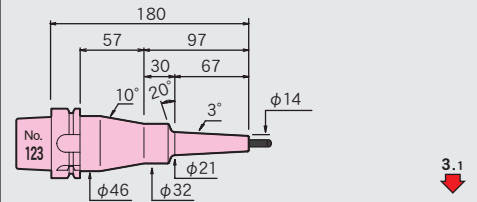
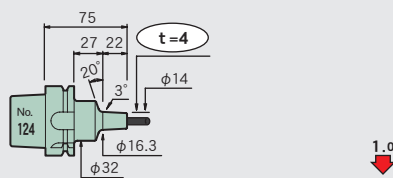
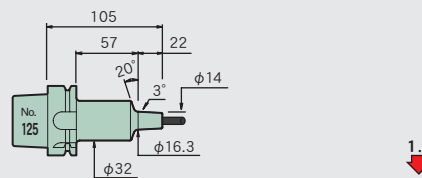
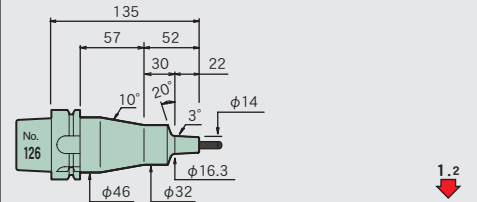
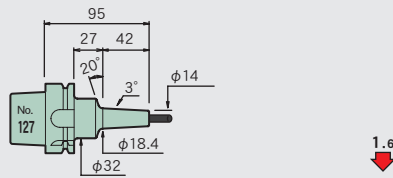
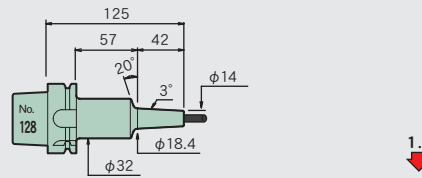
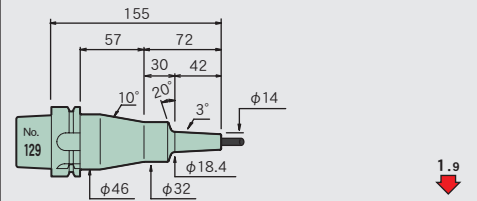
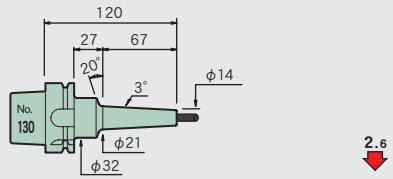
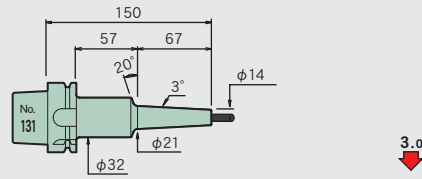
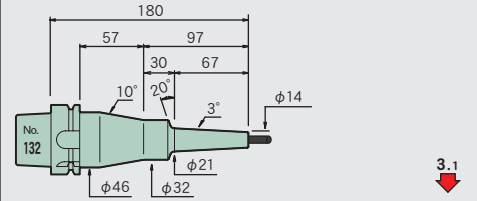
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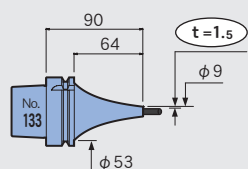
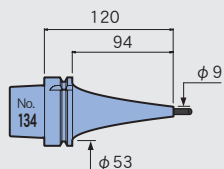
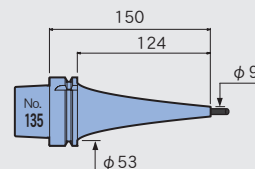
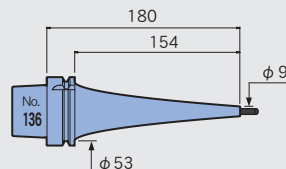
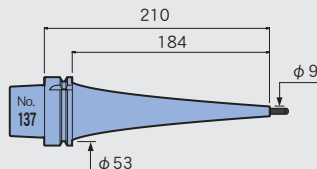
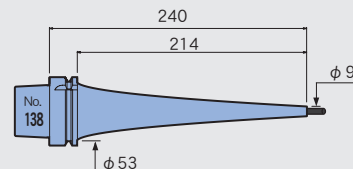
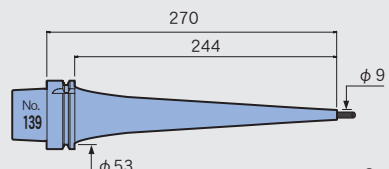
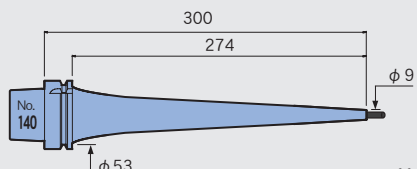
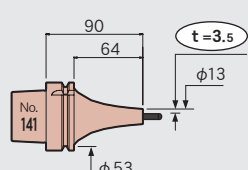
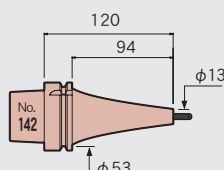
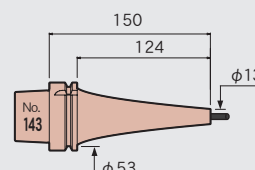
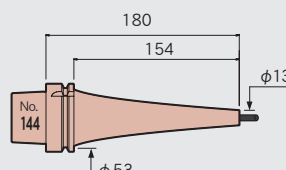
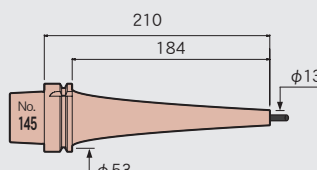
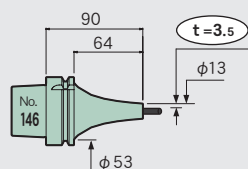
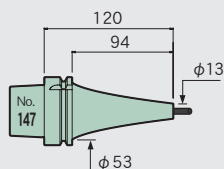
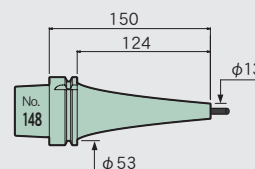
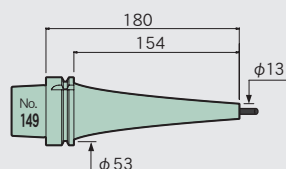
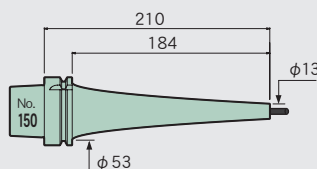
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A63-SLSB6-240-M127

12.0

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A63-SLSA6-90 CV1.6
↓**A63-SLSA6-120 CV**2.3
↓**A63-SLSA6-150 CV**3.6
↓**A63-SLSA6-180 CV**5.7
↓**A63-SLSA6-210 CV**7.3
↓**A63-SLSA6-240 CV**12.0
↓**A63-SLSA6-270 CV**8.5
↓**A63-SLSA6-300 CV**11.7
↓**A63-SLRA6-90 CV**0.8
↓**A63-SLRA6-120 CV**1.2
↓**A63-SLRA6-150 CV**1.9
↓**A63-SLRA6-180 CV**2.8
↓**A63-SLRA6-210 CV**4.8
↓**A63-SLFA6-90 CV**0.8
↓**A63-SLFA6-120 CV**1.2
↓**A63-SLFA6-150 CV**1.9
↓**A63-SLFA6-180 CV**2.8
↓**A63-SLFA6-210 CV**4.8
↓

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

$\phi 1/4$

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

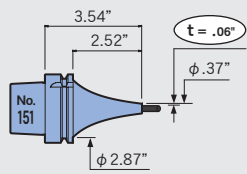
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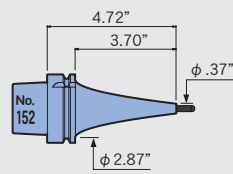
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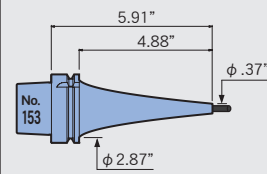
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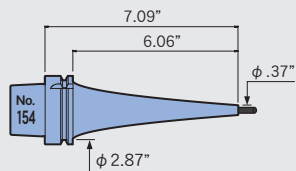
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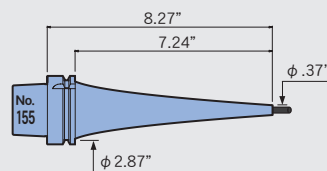
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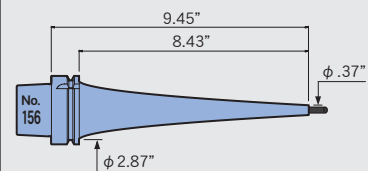
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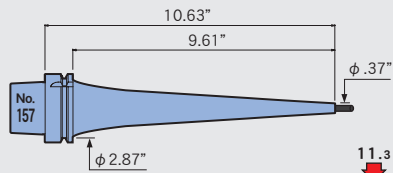
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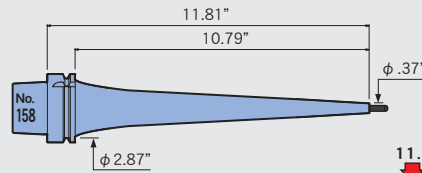
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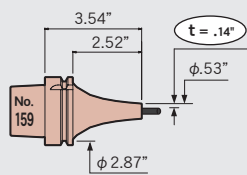
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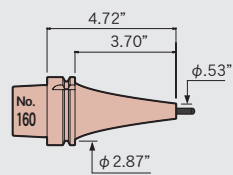
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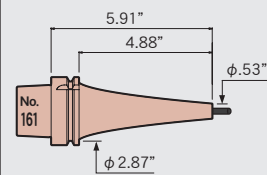
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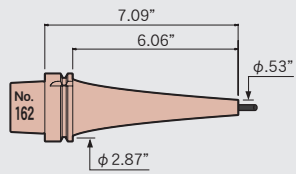
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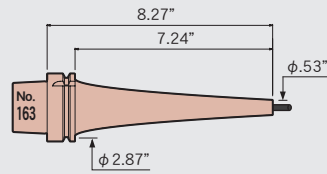
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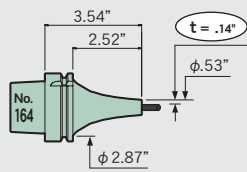
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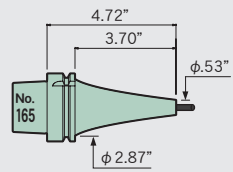
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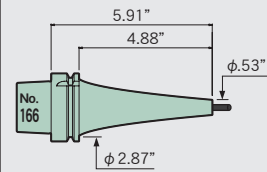
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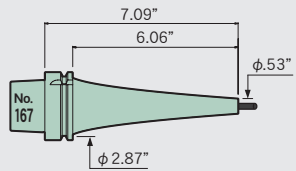
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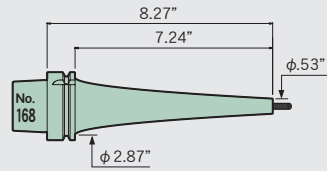
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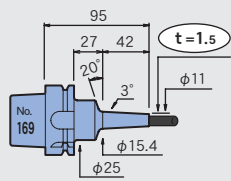
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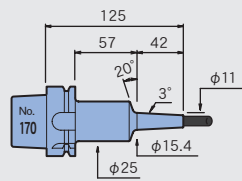
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A63-SLSA8-95-M42



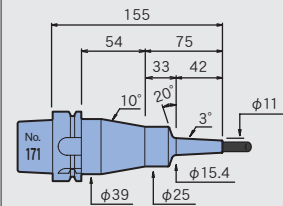
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A63-SLSA8-125-M42



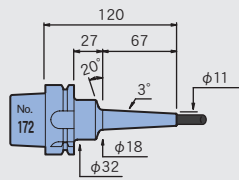
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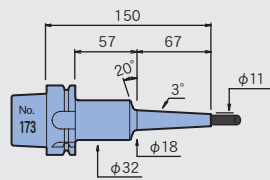
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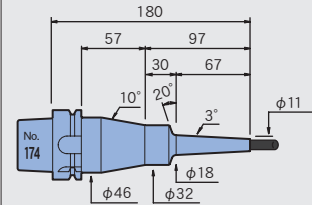
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A63-SLSA8-150-M67



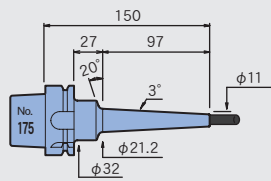
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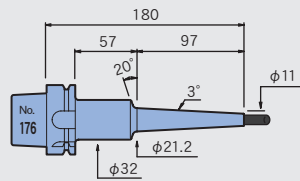
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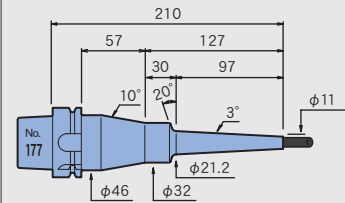
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A63-SLSA8-180-M97



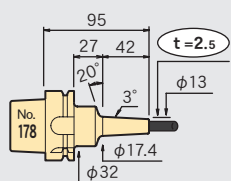
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A63-SLSA8-210-M97



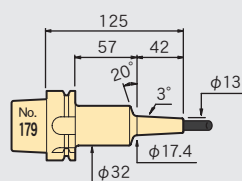
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A63-SLSB8-95-M42



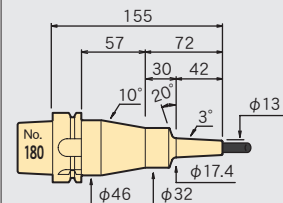
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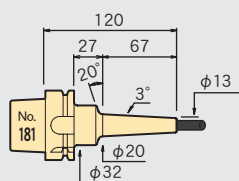
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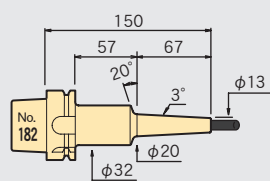
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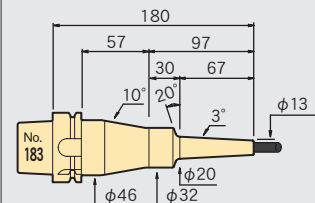
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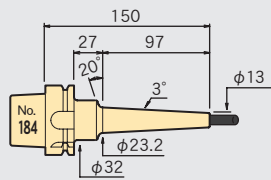
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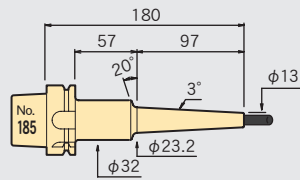
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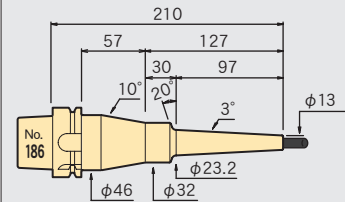
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A63-SLSB8-180-M97



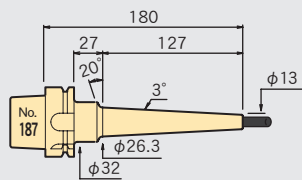
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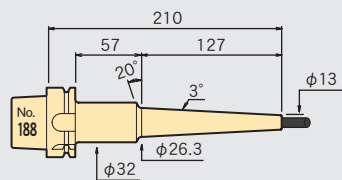
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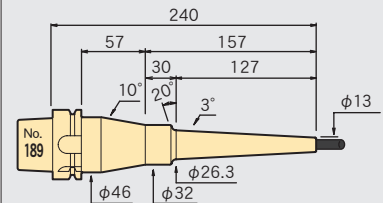
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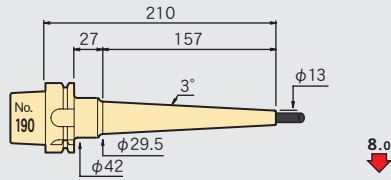
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A63-SLSB8-240-M127



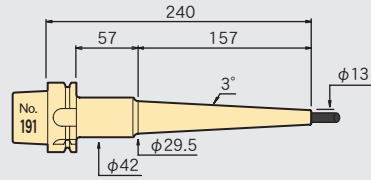
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A63-SLSB8-210-M157



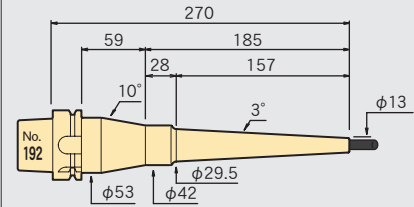
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A63-SLSB8-240-M157



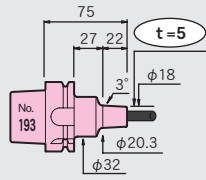
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A63-SLSB8-270-M157



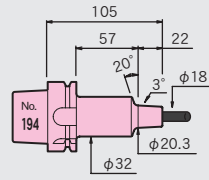
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A63-SLRB8-75-M22



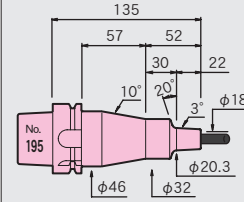
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A63-SLRB8-105-M22



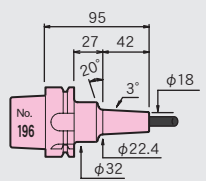
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A63-SLRB8-135-M22



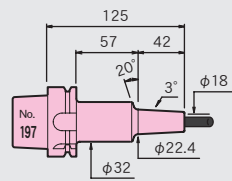
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A63-SLRB8-95-M42



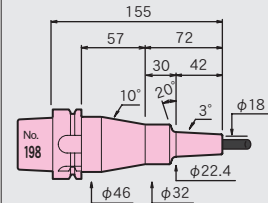
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A63-SLRB8-125-M42



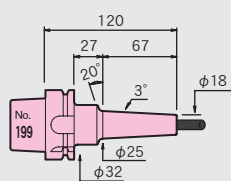
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A63-SLRB8-155-M42



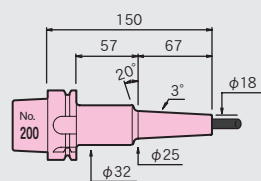
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A63-SLRB8-120-M67



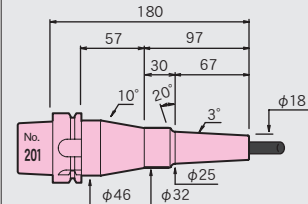
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A63-SLRB8-150-M67



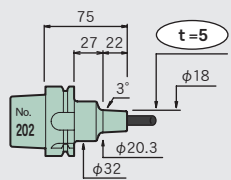
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A63-SLRB8-180-M67



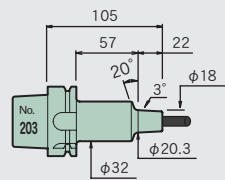
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A63-SLFB8-75-M22



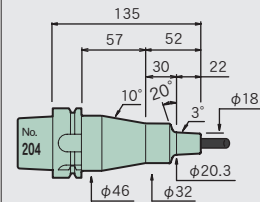
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A63-SLFB8-105-M22



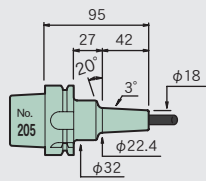
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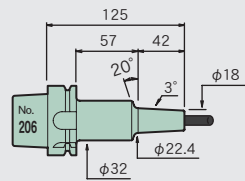
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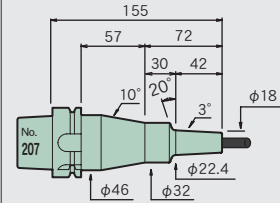
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A63-SLFB8-125-M42



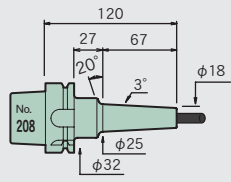
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A63-SLFB8-155-M42



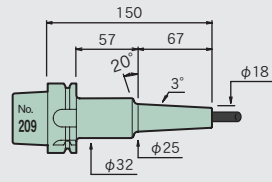
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A63-SLFB8-120-M67



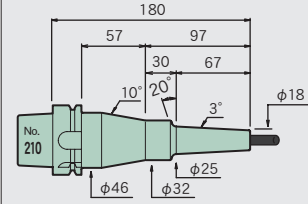
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A63-SLFB8-150-M67

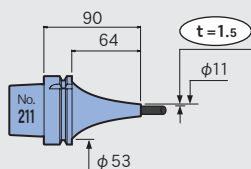
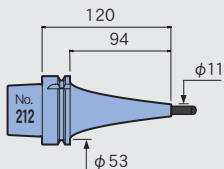
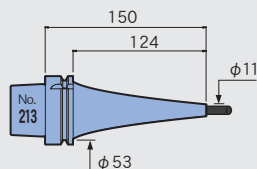
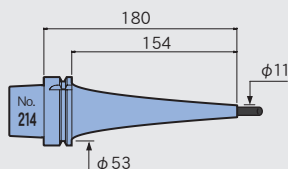
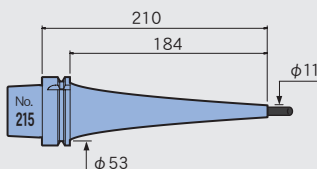
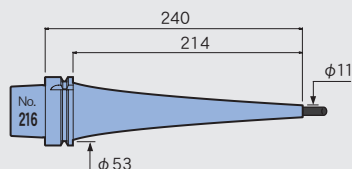
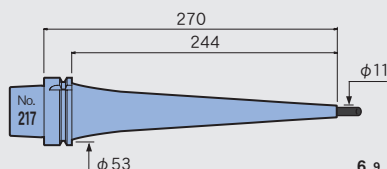
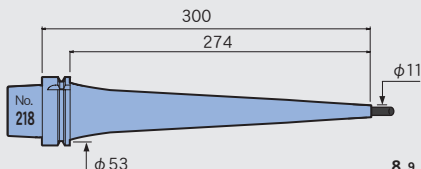
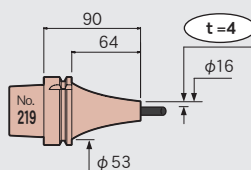
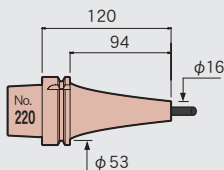
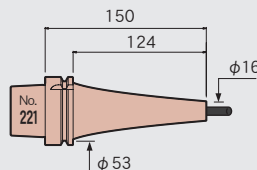
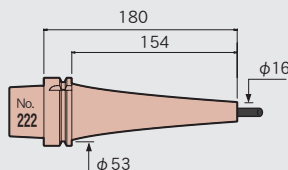
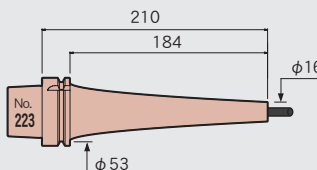
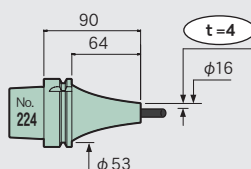
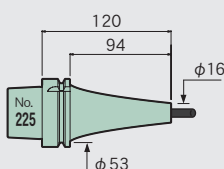
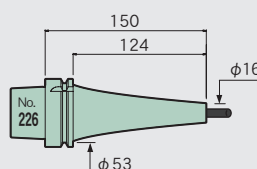
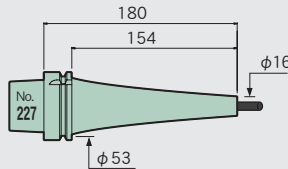
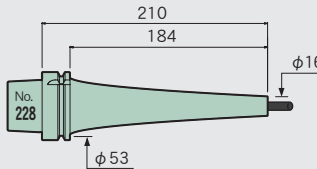


2.2

A63-SLFB8-180-M67



2.2

A63-SLSA8-90 CV**A63-SLSA8-120 CV****A63-SLSA8-150 CV****A63-SLSA8-180 CV****A63-SLSA8-210 CV****A63-SLSA8-240 CV****A63-SLSA8-270 CV****A63-SLSA8-300 CV****A63-SLRA8-90 CV****A63-SLRA8-120 CV****A63-SLRA8-150 CV****A63-SLRA8-180 CV****A63-SLRA8-210 CV****A63-SLFA8-90 CV****A63-SLFA8-120 CV****A63-SLFA8-150 CV****A63-SLFA8-180 CV****A63-SLFA8-210 CV**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

$\phi 5/16$

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

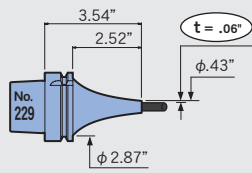
HYPER
VERSION

Z

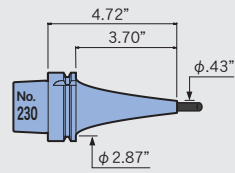
STRAIGHT
arbor

OTHERS

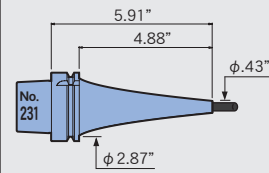
PERIPHERALS

Technical
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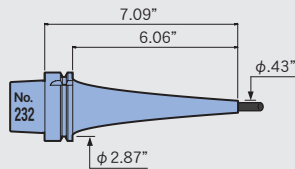
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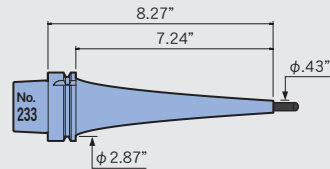
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A63-SLSA5/16-150 CV

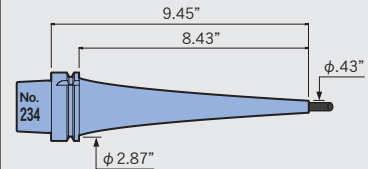
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A63-SLSA5/16-180 CV

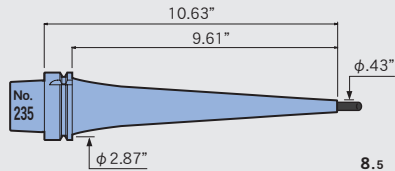
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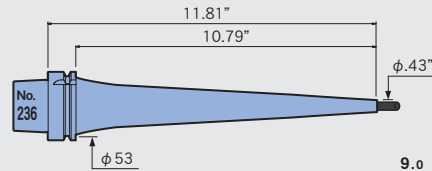
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A63-SLSA5/16-240 CV

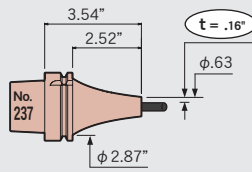
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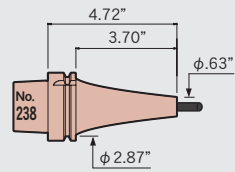
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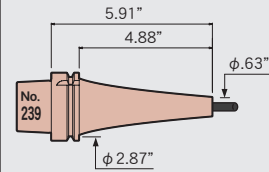
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A63-SLRA5/16-90 CV

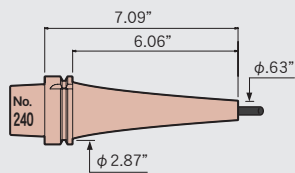
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A63-SLRA5/16-120 CV

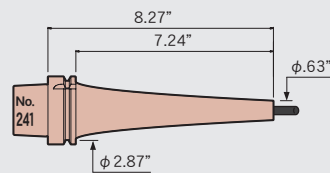
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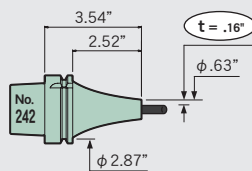
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A63-SLRA5/16-180 CV

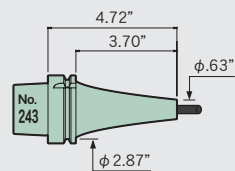
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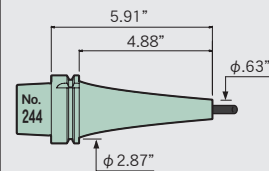
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A63-SLFA5/16-90 CV

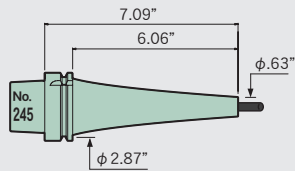
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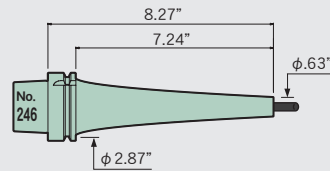
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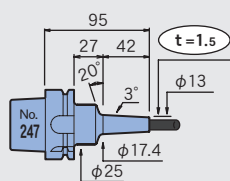
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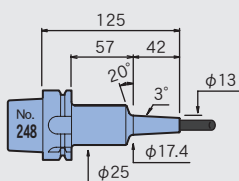
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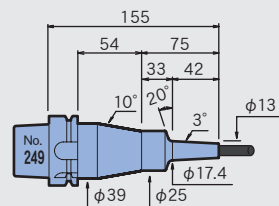
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$\phi 10$ **A63-SLSA10-95-M42**

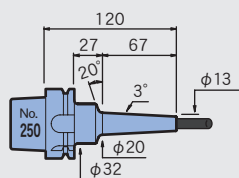
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A63-SLSA10-125-M42

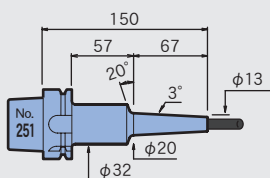
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A63-SLSA10-155-M42

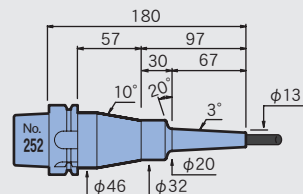
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A63-SLSA10-120-M67

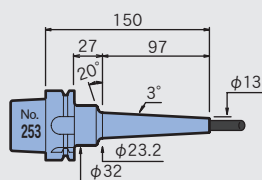
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A63-SLSA10-150-M67

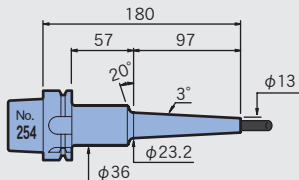
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A63-SLSA10-180-M67

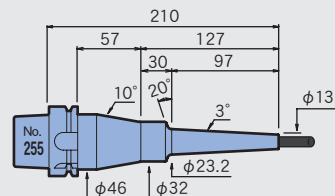
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A63-SLSA10-150-M97

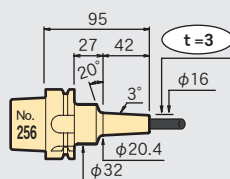
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A63-SLSA10-180-M97

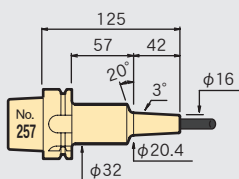
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A63-SLSA10-210-M97

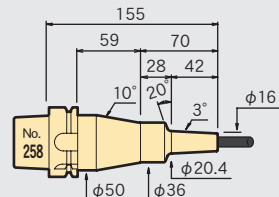
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A63-SLSB10-95-M42

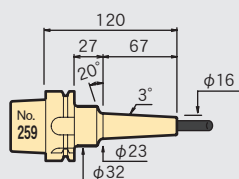
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A63-SLSB10-125-M42

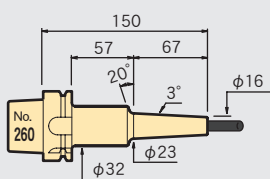
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A63-SLSB10-155-M42

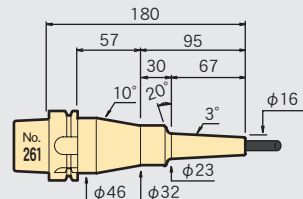
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A63-SLSB10-120-M67

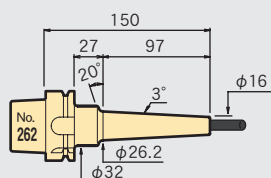
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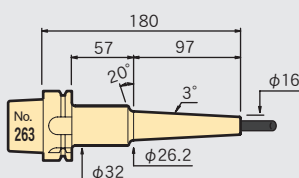
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A63-SLSB10-180-M67

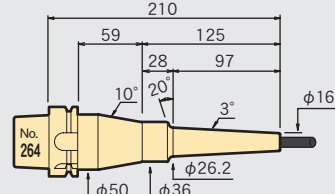
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A63-SLSB10-150-M97

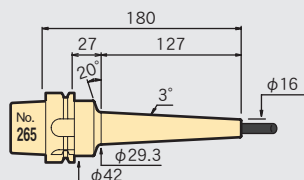
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A63-SLSB10-180-M97

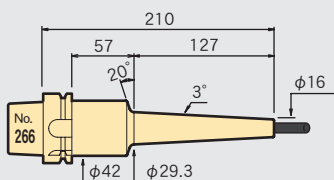
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A63-SLSB10-210-M97

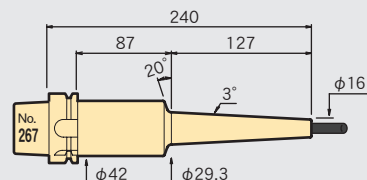
4.1

A63-SLSB10-180-M127

4.5

A63-SLSB10-210-M127

4.9

A63-SLSB10-240-M127

4.9

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

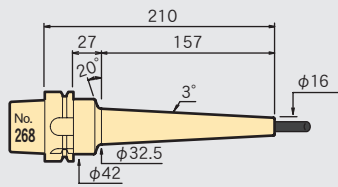
STRAIGHT
arbor

OTHERS

PERIPHERALS

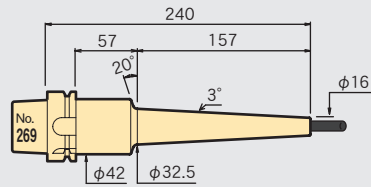
Technical
data

A63-SLSB10-210-M157



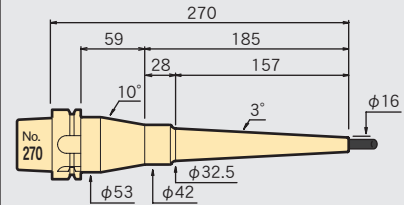
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A63-SLSB10-240-M157



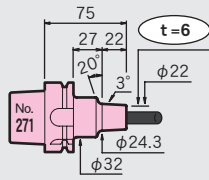
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A63-SLSB10-270-M157



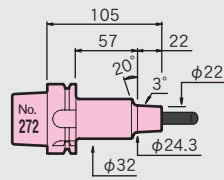
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A63-SLRB10-75-M22



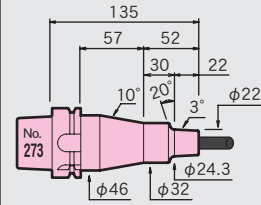
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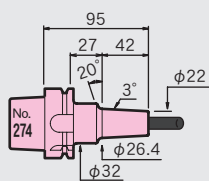
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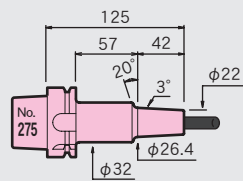
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A63-SLRB10-95-M42



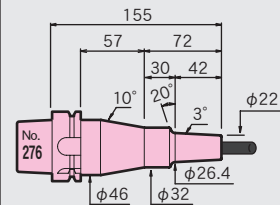
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A63-SLRB10-125-M42



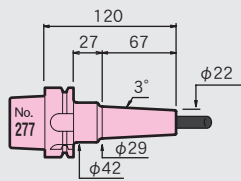
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A63-SLRB10-155-M42



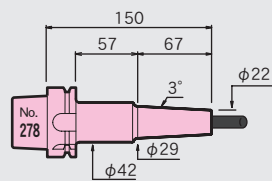
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A63-SLRB10-120-M67



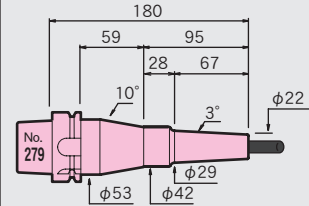
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A63-SLRB10-150-M67



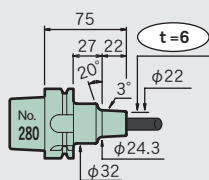
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A63-SLRB10-180-M67



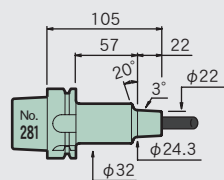
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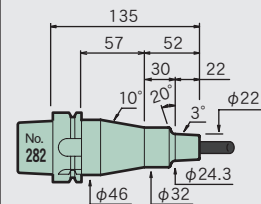
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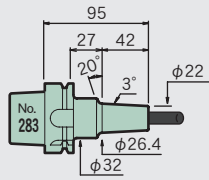
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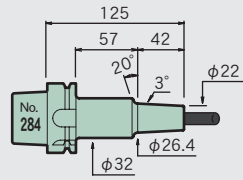
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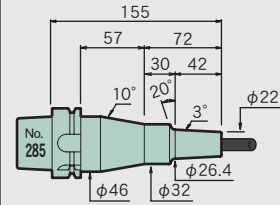
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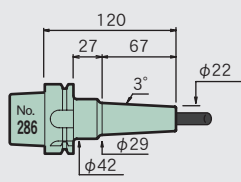
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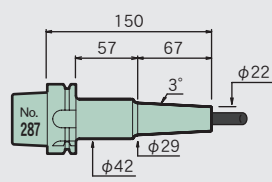
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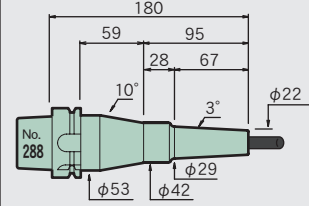
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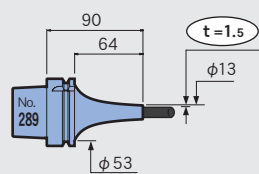


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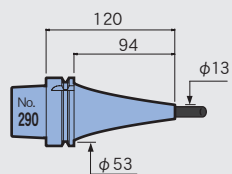
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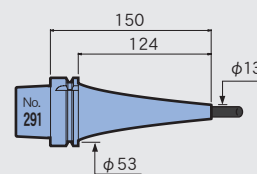
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A63-SLSA10-90 CV

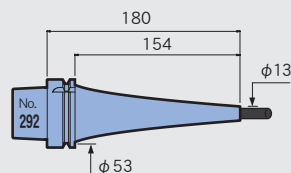
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A63-SLSA10-120 CV

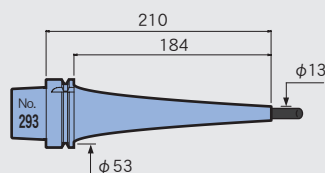
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A63-SLSA10-150 CV

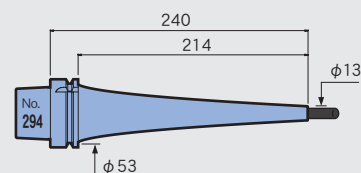
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A63-SLSA10-180 CV

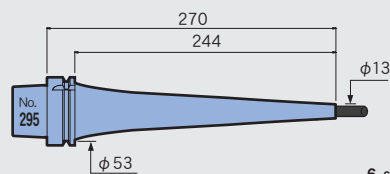
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A63-SLSA10-210 CV

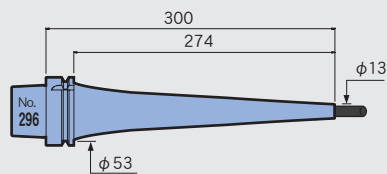
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A63-SLSA10-240 CV

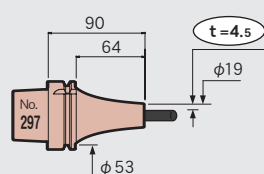
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A63-SLSA10-270 CV

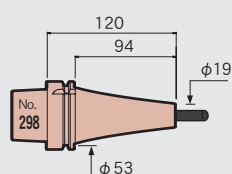
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A63-SLSA10-300 CV

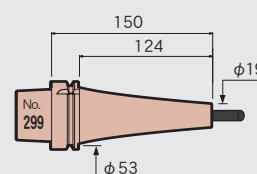
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A63-SLRA10-90 CV

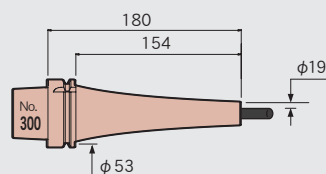
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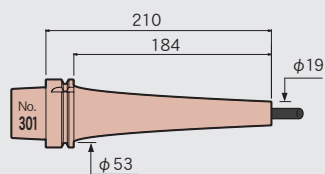
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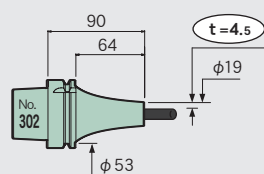
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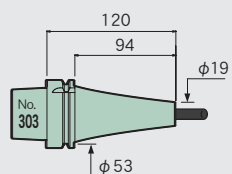
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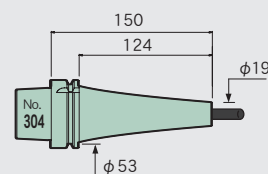
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A63-SLFA10-90 CV

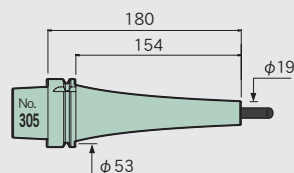
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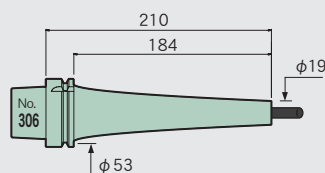
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A63-SLFA10-150 CV

1.4

A63-SLFA10-180 CV

2.0

A63-SLFA10-210 CV

3.1

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

$\phi 3/8$

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

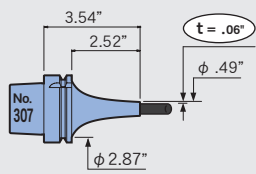
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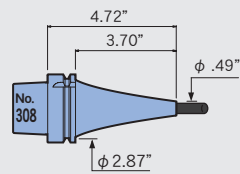
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OTHERS

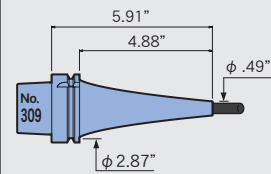
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Technical
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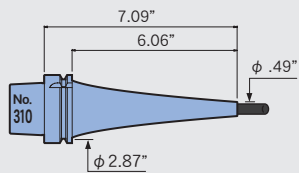
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A63-SLSA3/8-120 CV

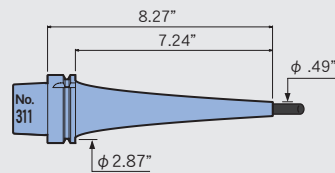
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A63-SLSA3/8-150 CV

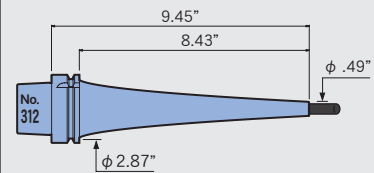
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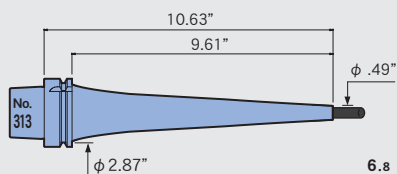
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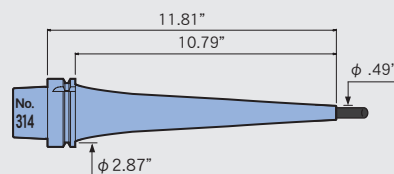
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A63-SLSA3/8-240 CV

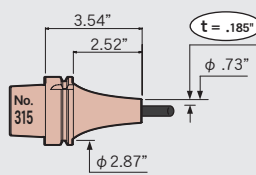
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A63-SLSA3/8-270 CV

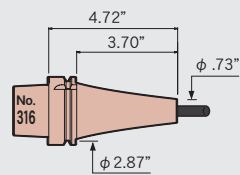
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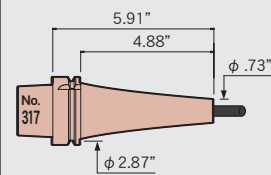
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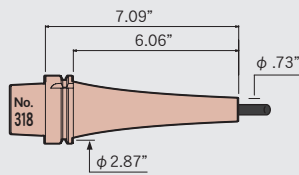
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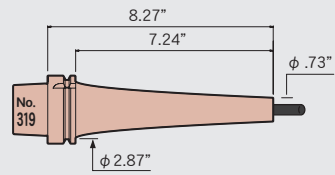
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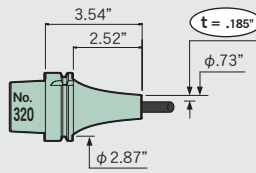
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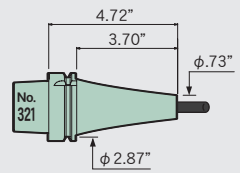
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A63-SLRA3/8-210 CV

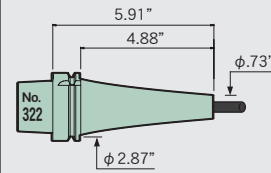
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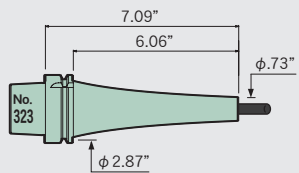
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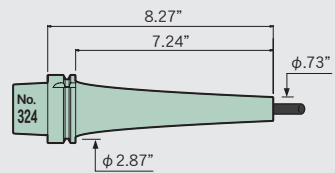
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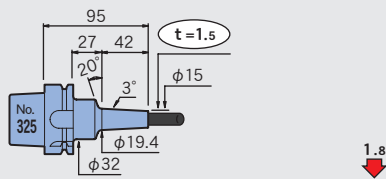
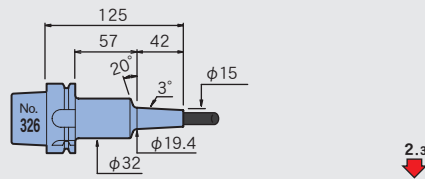
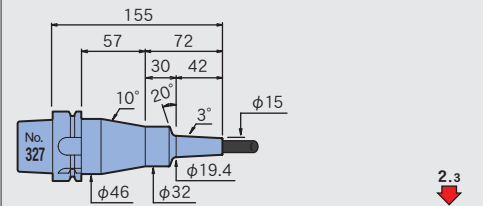
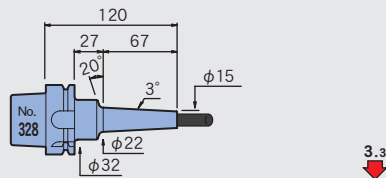
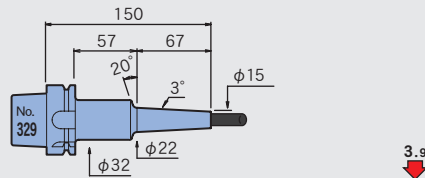
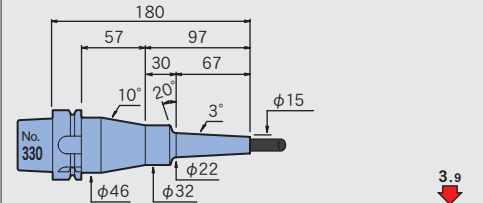
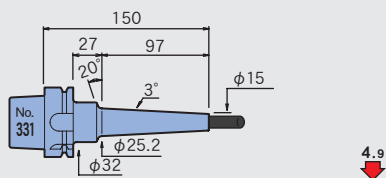
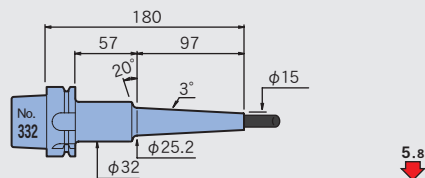
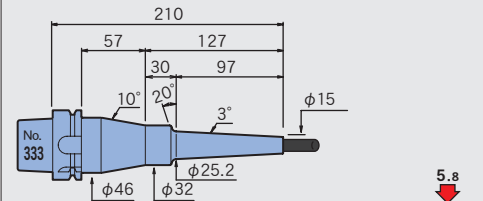
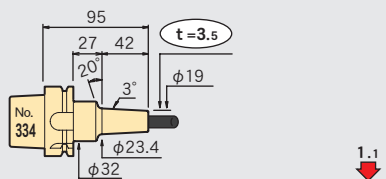
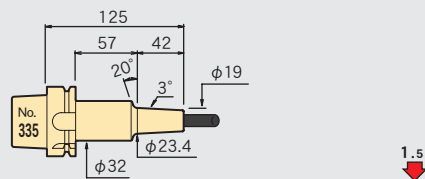
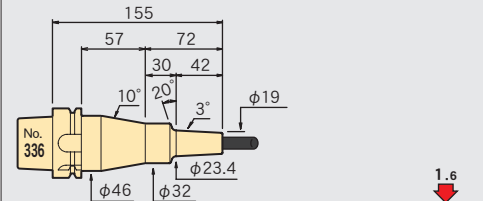
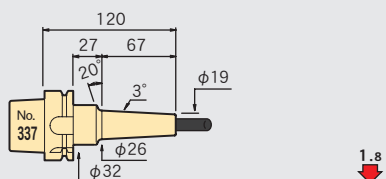
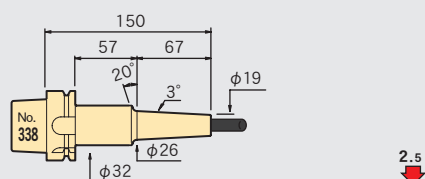
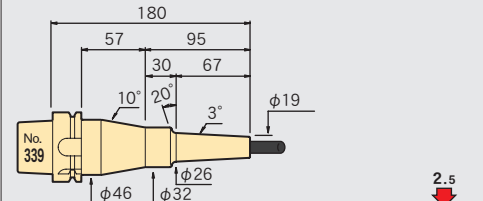
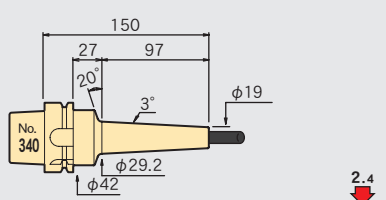
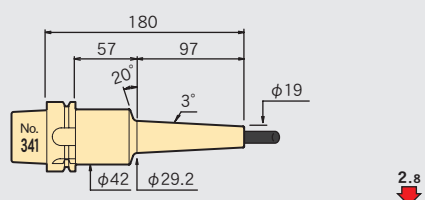
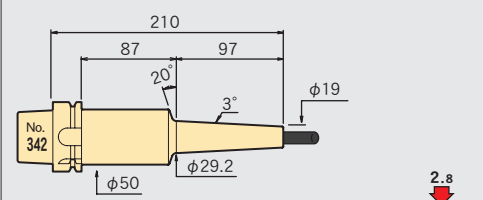
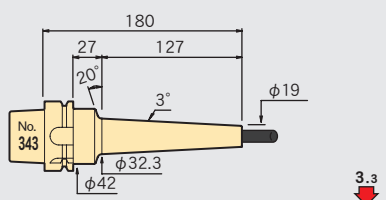
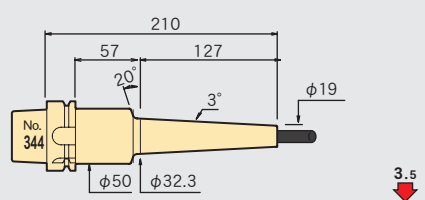
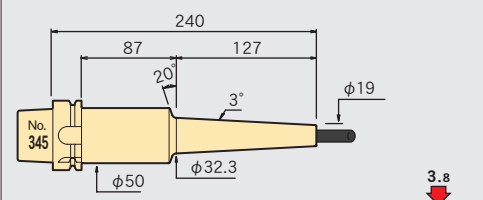
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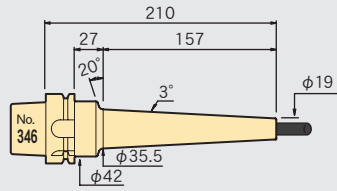
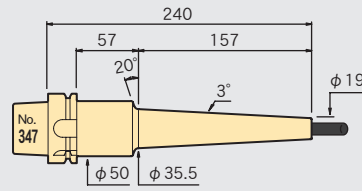
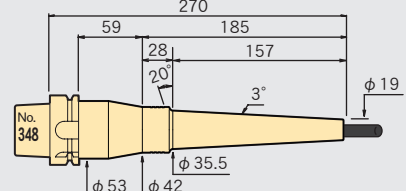
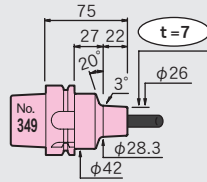
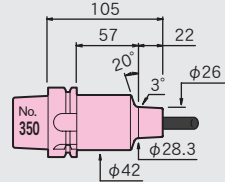
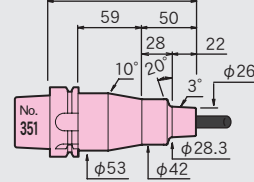
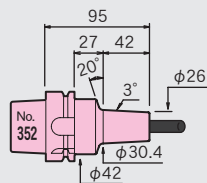
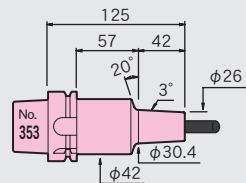
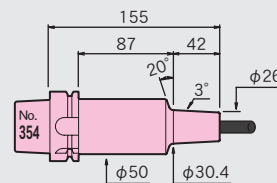
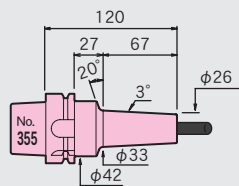
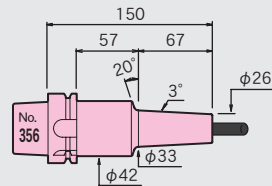
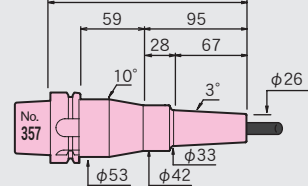
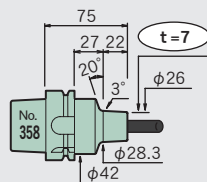
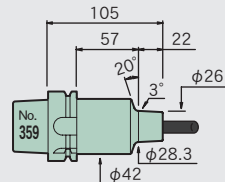
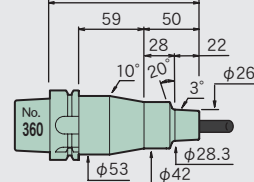
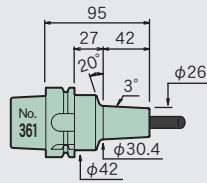
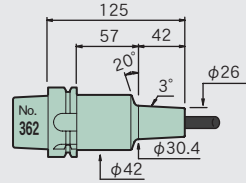
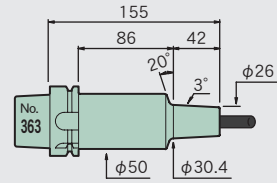
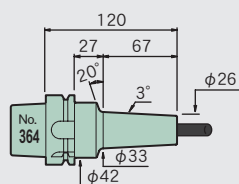
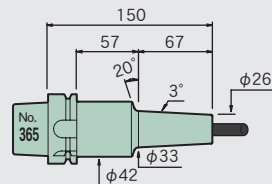
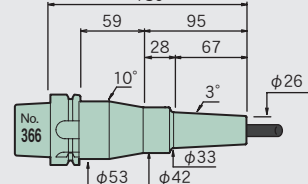
A63-SLFA3/8-180 CV

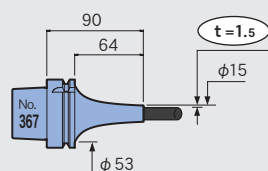
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A63-SLFA3/8-210 CV

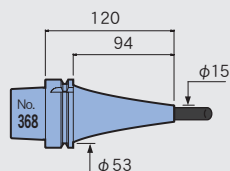
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$\phi 12$ **A63-SLSA12-95-M42****A63-SLSA12-125-M42****A63-SLSA12-155-M42****A63-SLSA12-120-M67****A63-SLSA12-150-M67****A63-SLSA12-180-M67****A63-SLSA12-150-M97****A63-SLSA12-180-M97****A63-SLSA12-210-M97****A63-SLSB12-95-M42****A63-SLSB12-125-M42****A63-SLSB12-155-M42****A63-SLSB12-120-M67****A63-SLSB12-150-M67****A63-SLSB12-180-M67****A63-SLSB12-150-M97****A63-SLSB12-180-M97****A63-SLSB12-210-M97****A63-SLSB12-180-M127****A63-SLSB12-210-M127****A63-SLSB12-240-M127**

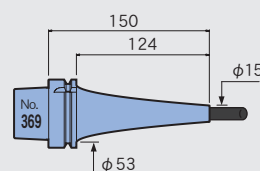
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↓**A63-SLSB12-270-M157**4.8
↓**A63-SLRB12-75-M22**0.4
↓**A63-SLRB12-105-M22**0.5
↓**A63-SLRB12-135-M22**0.6
↓**A63-SLRB12-95-M42**0.6
↓**A63-SLRB12-125-M42**0.6
↓**A63-SLRB12-155-M42**0.8
↓**A63-SLRB12-120-M67**0.8
↓**A63-SLRB12-150-M67**1.1
↓**A63-SLRB12-180-M67**1.1
↓**A63-SLFB12-75-M22**0.4
↓**A63-SLFB12-105-M22**0.5
↓**A63-SLFB12-135-M22**0.6
↓**A63-SLFB12-95-M42**0.6
↓**A63-SLFB12-125-M42**0.7
↓**A63-SLFB12-155-M42**0.8
↓**A63-SLFB12-120-M67**0.8
↓**A63-SLFB12-150-M67**1.1
↓**A63-SLFB12-180-M67**1.1
↓

A63-SLSA12-90 CV

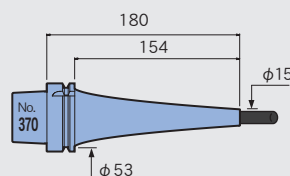
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A63-SLSA12-120 CV

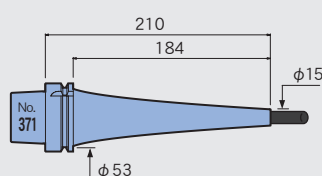
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A63-SLSA12-150 CV

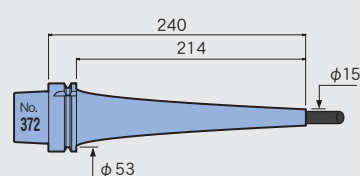
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A63-SLSA12-180 CV

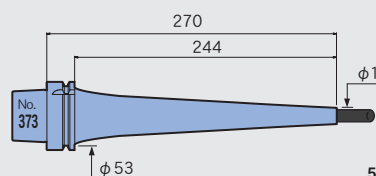
3.3

A63-SLSA12-210 CV

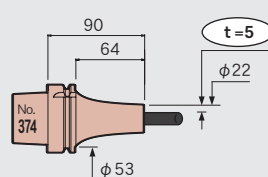
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A63-SLSA12-240 CV

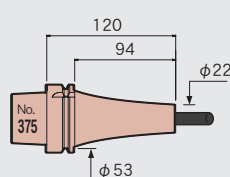
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A63-SLSA12-270 CV

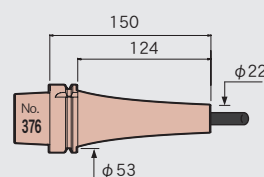
5.4

A63-SLRA12-90 CV

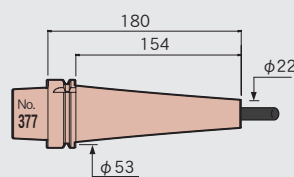
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A63-SLRA12-120 CV

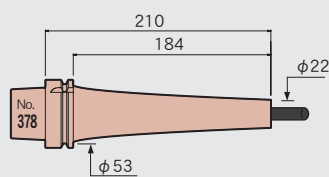
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A63-SLRA12-150 CV

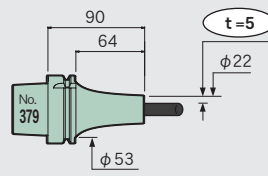
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A63-SLRA12-180 CV

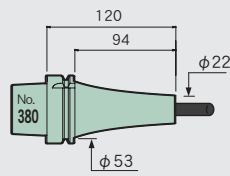
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A63-SLRA12-210 CV

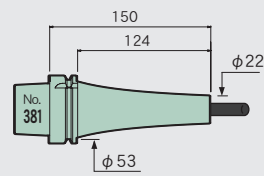
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A63-SLFA12-90 CV

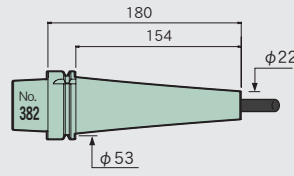
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A63-SLFA12-120 CV

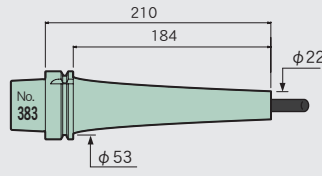
0.7

A63-SLFA12-150 CV

1.1

A63-SLFA12-180 CV

1.8

A63-SLFA12-210 CV

2.8

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

$\phi 1/2$

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

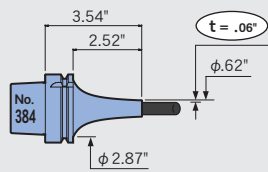
HYPER
VERSION

Z

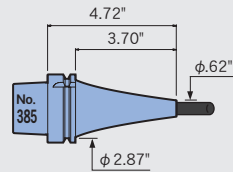
STRAIGHT
arbor

OTHERS

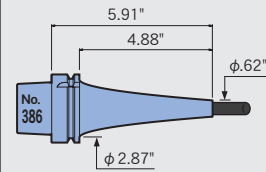
PERIPHERALS

Technical
data**A63-SLSA1/2-90 CV**

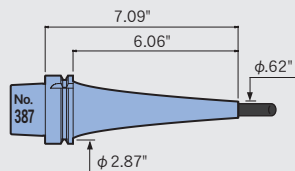
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A63-SLSA1/2-120 CV

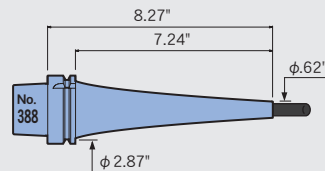
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A63-SLSA1/2-150 CV

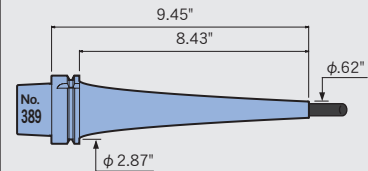
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A63-SLSA1/2-180 CV

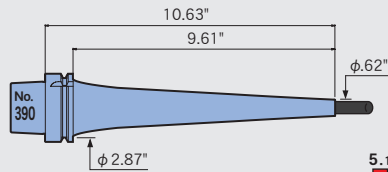
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A63-SLSA1/2-210 CV

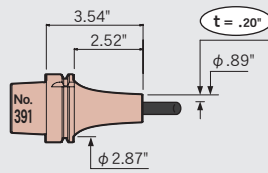
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A63-SLSA1/2-240 CV

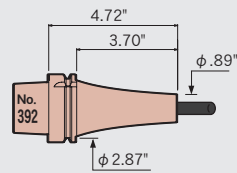
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A63-SLSA1/2-270 CV

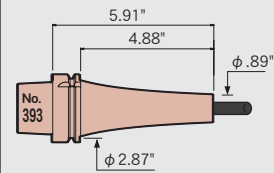
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A63-SLRA1/2-90 CV

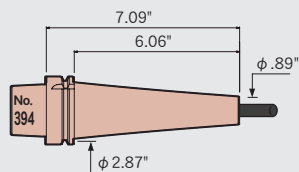
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A63-SLRA1/2-120 CV

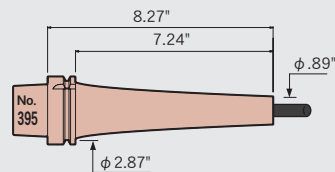
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A63-SLRA1/2-150 CV

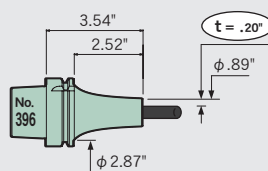
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A63-SLRA1/2-180 CV

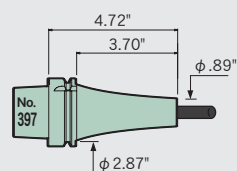
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A63-SLRA1/2-210 CV

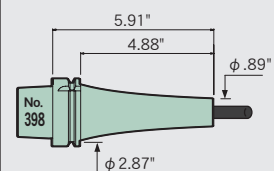
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A63-SLFA1/2-90 CV

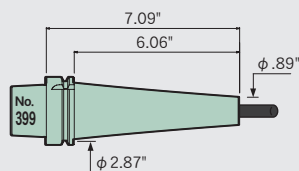
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A63-SLFA1/2-120 CV

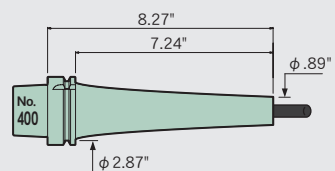
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A63-SLFA1/2-150 CV

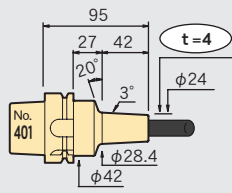
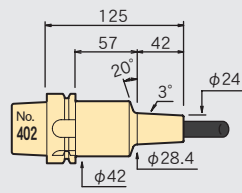
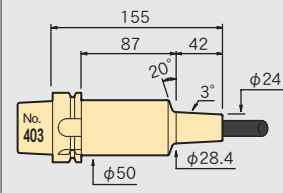
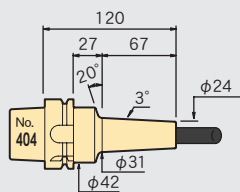
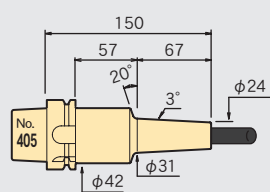
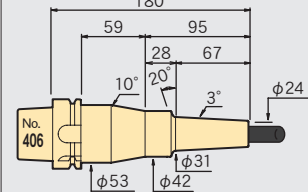
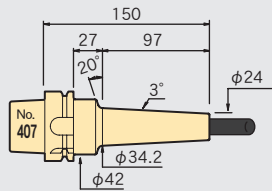
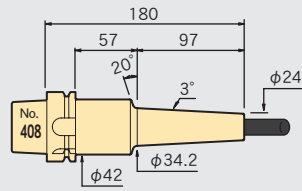
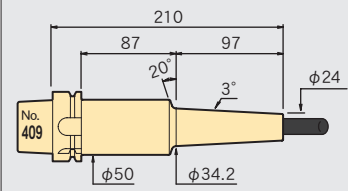
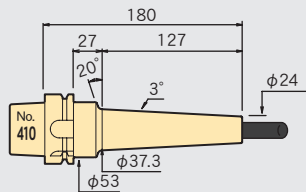
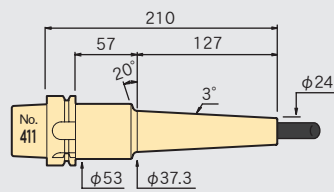
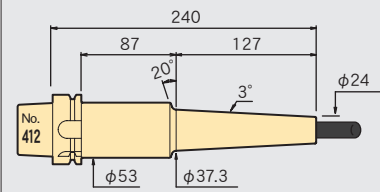
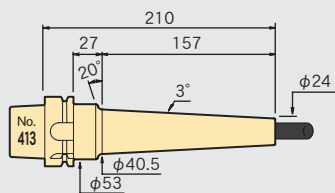
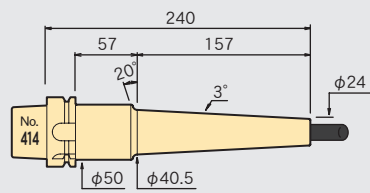
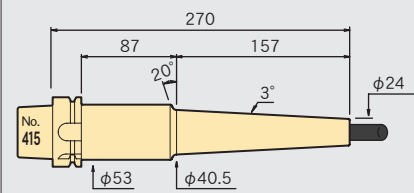
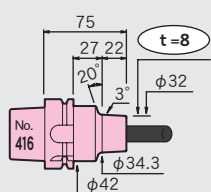
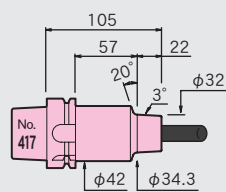
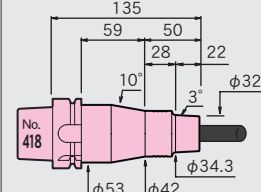
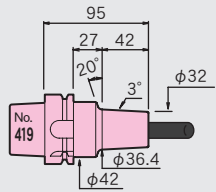
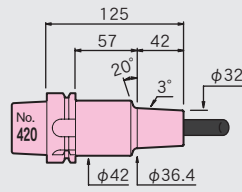
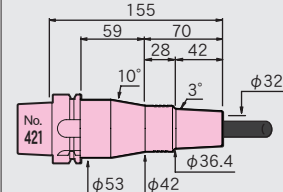
1.1

A63-SLFA1/2-180 CV

1.9

A63-SLFA1/2-210 CV

2.0

$\phi 16$ **A63-SLSB16-95-M42**0.7
↓**A63-SLSB16-125-M42**0.9
↓**A63-SLSB16-155-M42**0.9
↓**A63-SLSB16-120-M67**1.1
↓**A63-SLSB16-150-M67**1.4
↓**A63-SLSB16-180-M67**1.5
↓**A63-SLSB16-150-M97**1.7
↓**A63-SLSB16-180-M97**2.1
↓**A63-SLSB16-210-M97**2.1
↓**A63-SLSB16-180-M127**2.1
↓**A63-SLSB16-210-M127**2.3
↓**A63-SLSB16-240-M127**2.6
↓**A63-SLSB16-210-M157**2.7
↓**A63-SLSB16-240-M157**3.1
↓**A63-SLSB16-270-M157**3.2
↓**A63-SLRB16-75-M22**0.3
↓**A63-SLRB16-105-M22**0.5
↓**A63-SLRB16-135-M22**0.5
↓**A63-SLRB16-95-M42**0.5
↓**A63-SLRB16-125-M42**0.7
↓**A63-SLRB16-155-M42**0.7
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Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

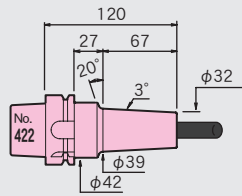
STRAIGHT
arbor

OTHERS

PERIPHERALS

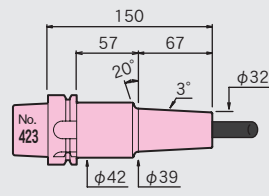
Technical
data

A63-SLRB16-120-M67



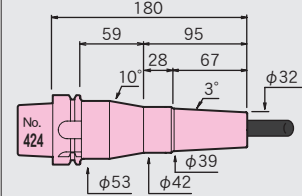
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A63-SLRB16-150-M67



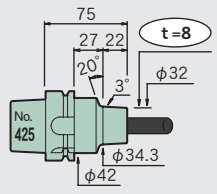
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A63-SLRB16-180-M67



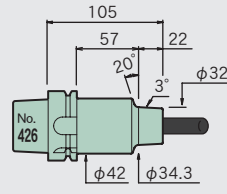
1.0

A63-SLFB16-75-M22



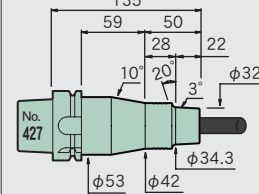
0.3

A63-SLFB16-105-M22



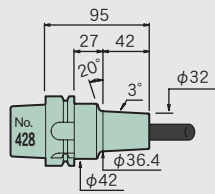
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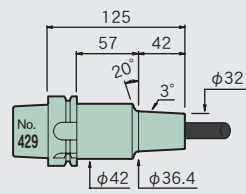
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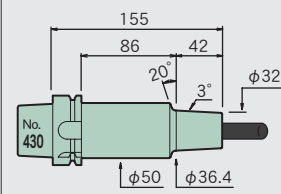
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A63-SLFB16-125-M42



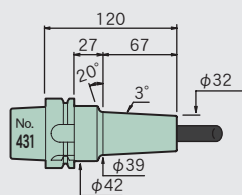
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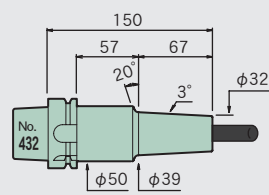
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A63-SLFB16-120-M67



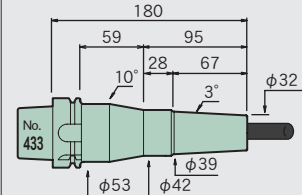
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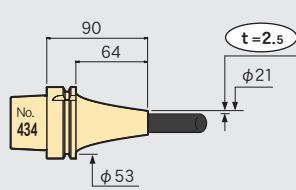
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A63-SLFB16-180-M67



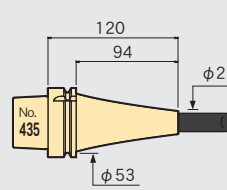
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A63-SLSB16-90 CV



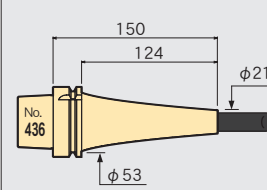
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A63-SLSB16-120 CV



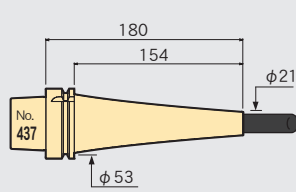
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A63-SLSB16-150 CV



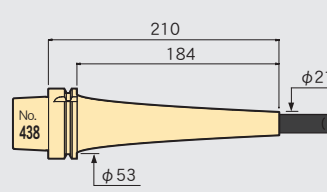
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A63-SLSB16-180 CV



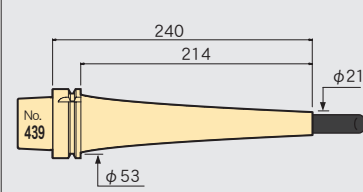
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A63-SLSB16-210 CV



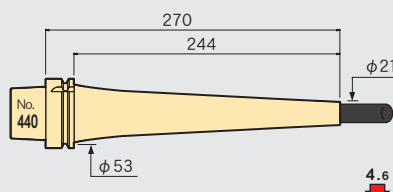
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A63-SLSB16-240 CV

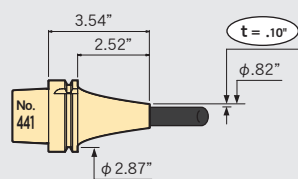
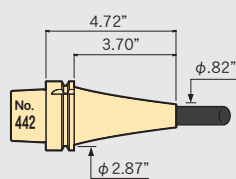
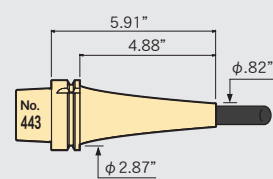
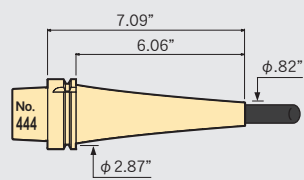
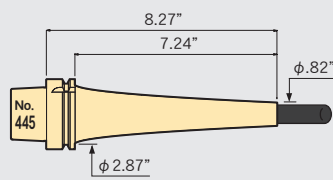
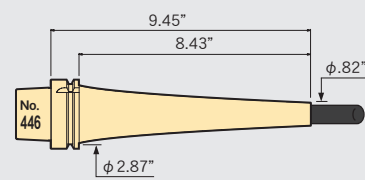
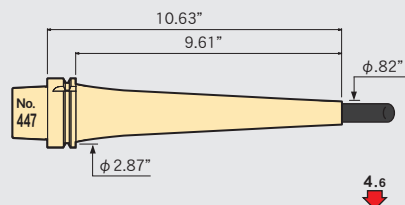


3.7

A63-SLSB16-270 CV



4.6

$\phi 5/8$ **A63-SLSB5/8-90 CV****A63-SLSB5/8-120 CV****A63-SLSB5/8-150 CV****A63-SLSB5/8-180 CV****A63-SLSB5/8-210 CV****A63-SLSB5/8-240 CV****A63-SLSB5/8-270 CV**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

Feature

Shrink-fit Heater

MONO 3° MONO CURVE

MONO Series

2PIECE type

UNO

HYPER VERSION

Z

STRAIGHT arbor

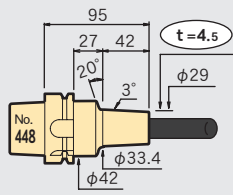
OTHERS

PERIPHERALS

Technical data

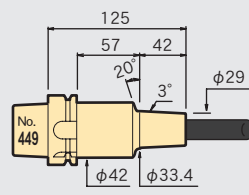
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A63-SLSB20-95-M42



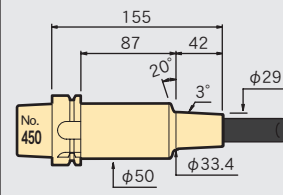
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A63-SLSB20-125-M42



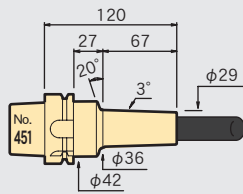
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A63-SLSB20-155-M42



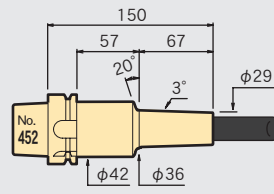
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A63-SLSB20-120-M67



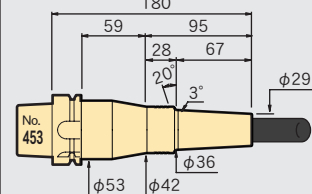
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A63-SLSB20-150-M67



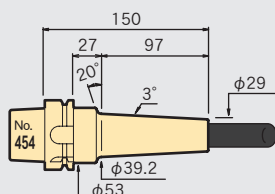
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A63-SLSB20-180-M67



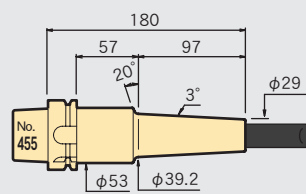
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A63-SLSB20-150-M97



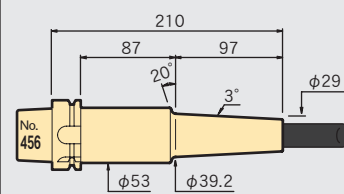
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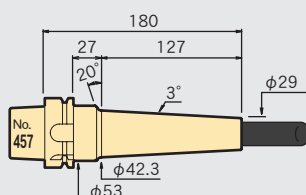
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A63-SLSB20-210-M97



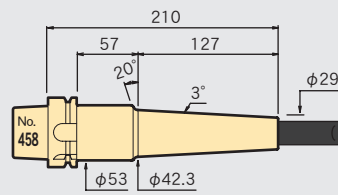
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A63-SLSB20-180-M127



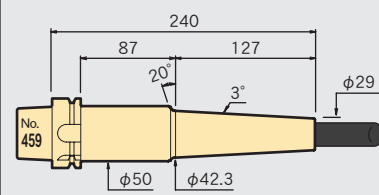
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A63-SLSB20-210-M127



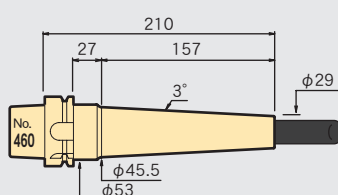
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A63-SLSB20-240-M127



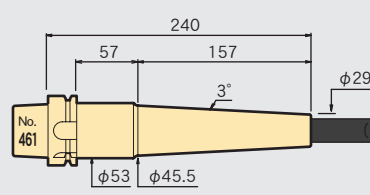
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A63-SLSB20-210-M157



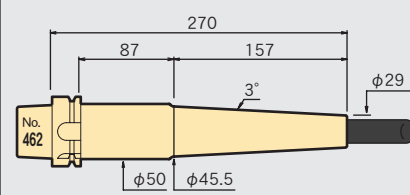
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A63-SLSB20-240-M157



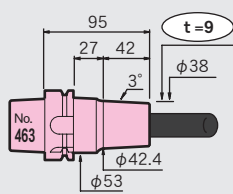
2.2

A63-SLSB20-270-M157



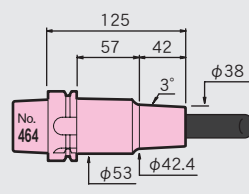
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A63-SLRB20-95-M42



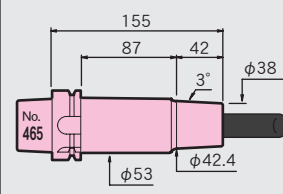
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A63-SLRB20-125-M42



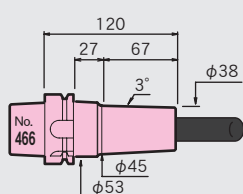
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A63-SLRB20-155-M42



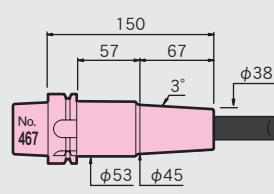
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A63-SLRB20-120-M67



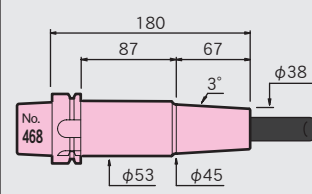
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A63-SLRB20-150-M67



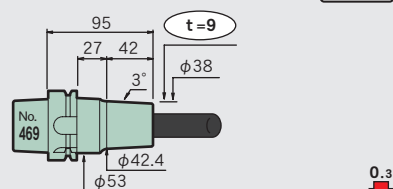
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A63-SLRB20-180-M67

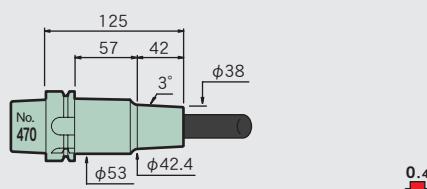


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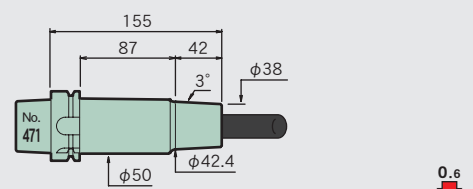
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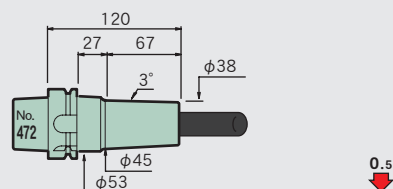
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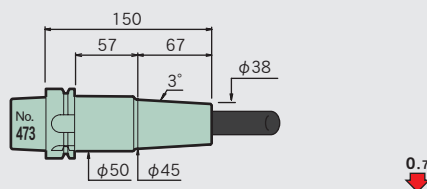
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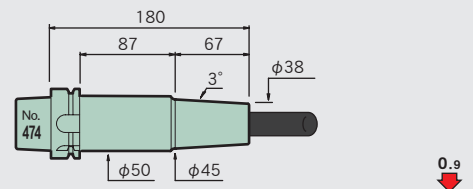
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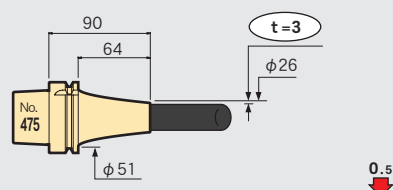
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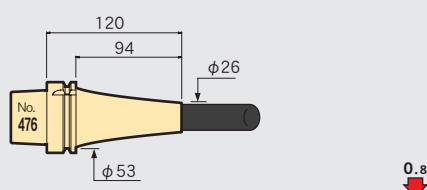
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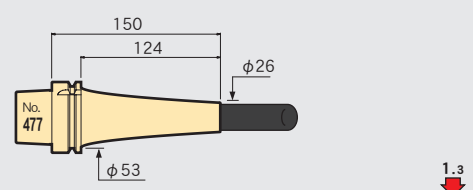
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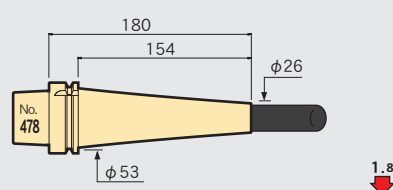
A63-SLSB20-120 CV



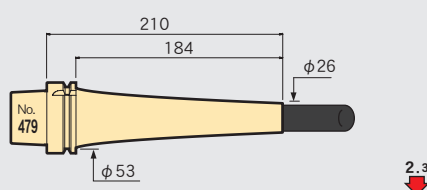
A63-SLSB20-150 CV



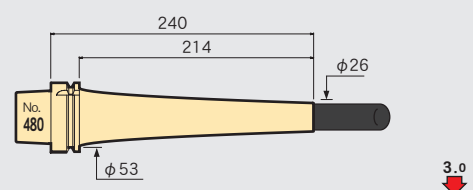
A63-SLSB20-180 CV



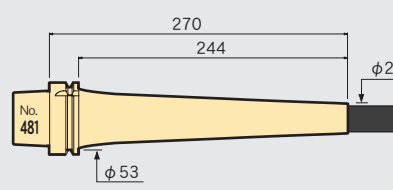
A63-SLSB20-210 CV



A63-SLSB20-240 CV



A63-SLSB20-270 CV



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

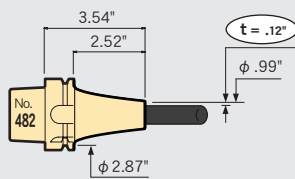
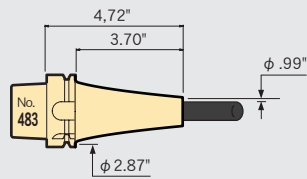
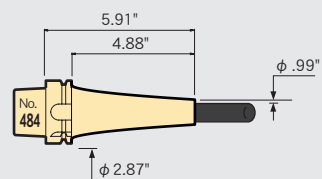
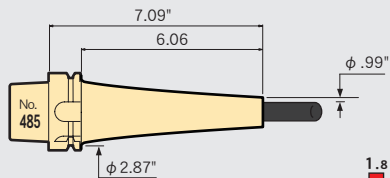
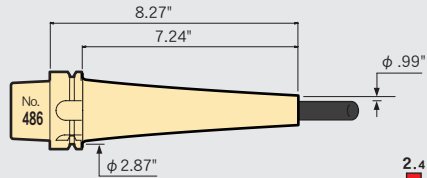
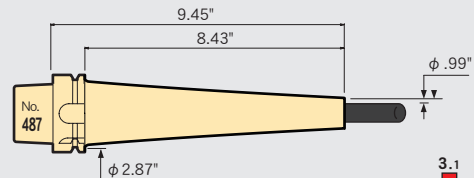
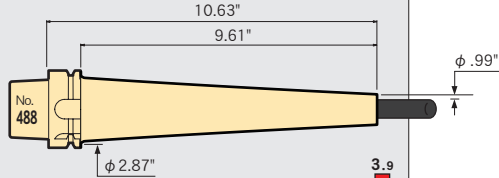
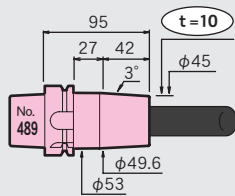
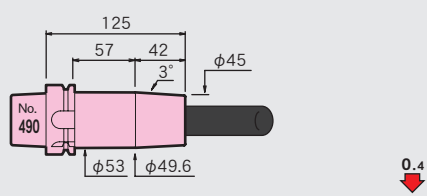
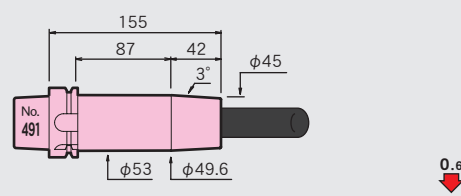
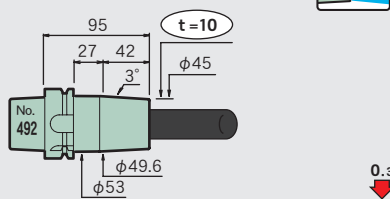
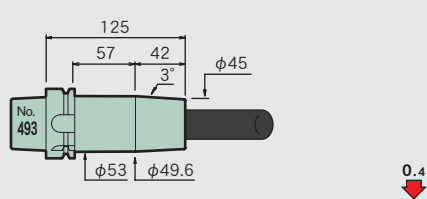
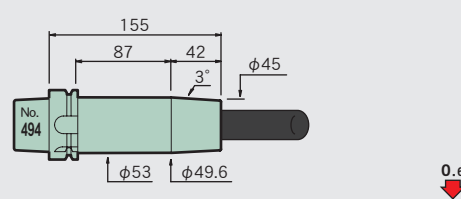
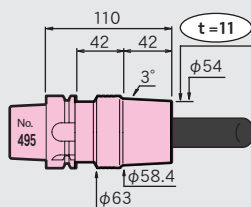
Z

STRAIGHT
arbor

OTHERS

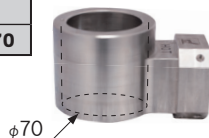
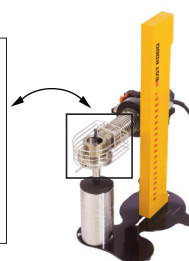
PERIPHERALS

Technical
data

$\phi 3/4$ **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** $\phi 25$ **A63-SLRB25-95-M42****A63-SLRB25-125-M42****A63-SLRB25-155-M42****A63-SLFB25-95-M42****A63-SLFB25-125-M42****A63-SLFB25-155-M42** $\phi 32$ **A63-SLRB32-110-M42** **$\phi 70$ Nozzle (HRB-03S)**

Required for shrinking the SLRB32.

CODE
HRB-NZL 70

 $\phi 70$ 

HEAT ROBO Baby3000S

A100

A100-SLRB16-285-M157

MONO 3°

Rigidity value
(μm/kgf)
P.258

Imbalance
value(g·mm)
P.261

A100-SLSB16-165 cv

MONO CURVE

Rigidity value
(μm/kgf)
P.258

Imbalance
value(g·mm)
P.261

cv: Curve

Fig. 1

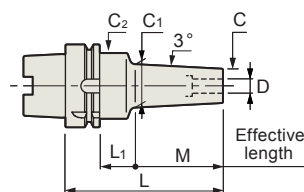


Fig. 2

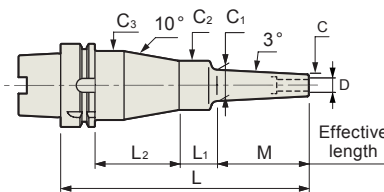
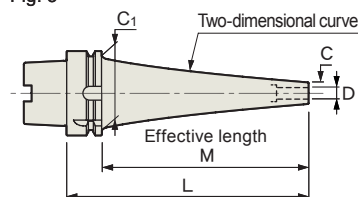


Fig. 3



Compatibility table
for HRD-01S

[○] Available [×] Not available
[▲] Usable by raising the
heating unit.→P.257

■ Std. Access.

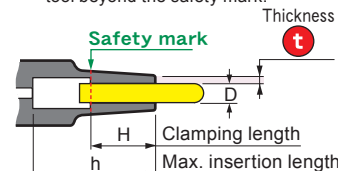
- Coolant duct (fixed type) →p.246

■ Note

- Swing type coolant ducts are available upon request. For details, please contact us.

■ Caution

- Setting cutters: Be sure to insert the tool beyond the safety mark.



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	○
-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	○
-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

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h	Kg lbs	N	S	Scale model
Shrink-fit Heater	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
	A100 -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
MONO 3° MONO CURVE	-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
2PIECE type	-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
UNO	-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
HYPER VERSION	-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
PERIPHERALS	-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
Technical data																		▲

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model	Feature
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	Shrink-fit Heater
-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	MONO 3° MONO CURVE
-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	MONO Series
-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	2PIECE type
-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	HYPER VERSION
 -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	
A100 -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	STRAIGHT arbor
-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	PERIPHERALS
-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	

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h	Kg	N	S	Scale model		
Shrink-fit Heater	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	
MONO 3° MONO CURVE	-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	
MONO Series	-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	
2PIECE type	-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	
HYPER VERSION	-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	
	Z	-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	
STRAIGHT arbor																				
OTHERS																				
PERIPHERALS																				
technical data																				

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	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
 -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

Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					Scale model
Shrink-fit Heater	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
MONO 3° MONO CURVE	-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
MONO Series	-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
2PIECE type	-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
UNO	-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
HYPER VERSION	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
Z	-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
OTHERS	-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
PERIPHERALS	-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
Technical data																			

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h					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

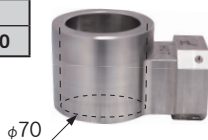
Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h				Scale model
Shrink-fit Heater	A100-SLSB16-110-M 42	1	16	24	4	110	42	39	—	28.4	42	—	32	78	2.4	34.7	0.7	361
	-135-M 67					135	67			31				103	2.5	45	1.2	364
	-140-M 42					140	42	69		28.4				107	2.7	35	0.9	362
	-165-M 67					165	67			31				132	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
MONO Series	-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
2PIECE type	-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
UNO	-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
HYPER VERSION	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
Z	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
Technical data																		

CODE	Fig.	φD	φC	t	L	M	L ₁	L ₂	φC ₁	φC ₂	φC ₃	H	h	 Kg lbs	 N	 S	Scale model		
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	1				195	67			36				162	3.5	53.5	1.2	413		
-M 97					97	69			—				39.2	53	—	3.3	71.7	1.3	415
-195-M127					127	39							42.3			163	3.2	91	1.5
-225-M 97	2	1			225	97	28	71	39.2		67		190	4.3	72	1.3	416		
-M127	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	
-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
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		
-170-M42					2	170							28	71	77	132	4.9	42.8	

φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.

CODE
HRB-NZL70



HEAT ROBO Baby3000S

Φ3

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

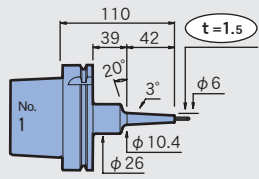
STRAIGHT
arbor

OTHERS

PERIPHERALS

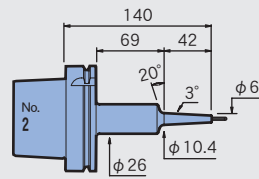
Technical
data

A100-SLSA3-110-M42



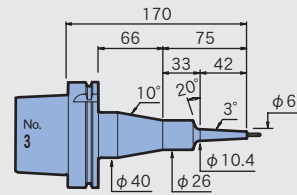
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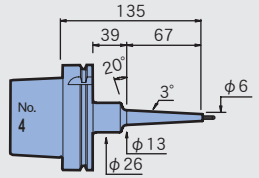
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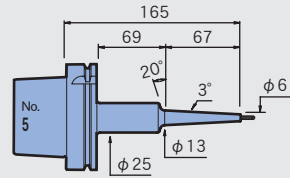
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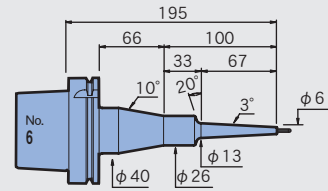
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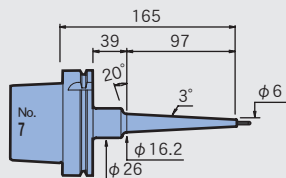
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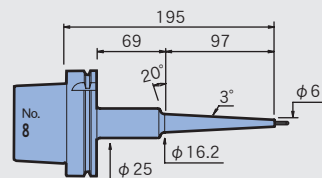
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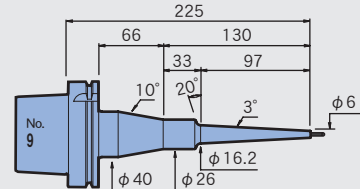
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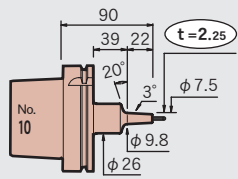
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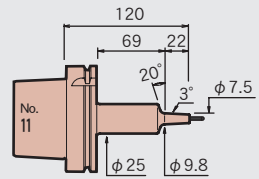
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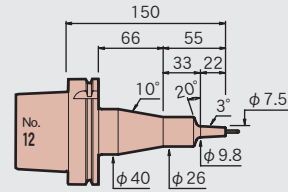
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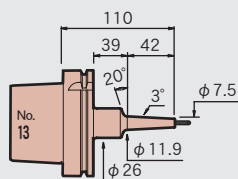
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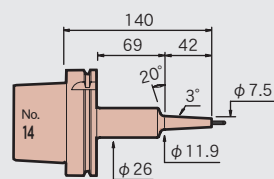
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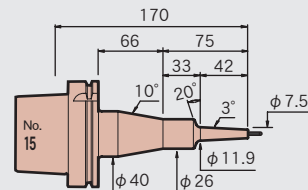
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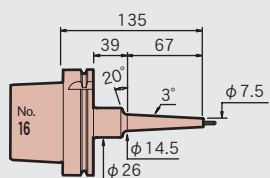
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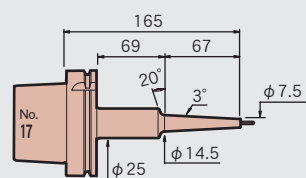
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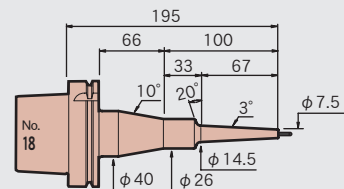
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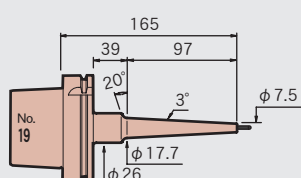
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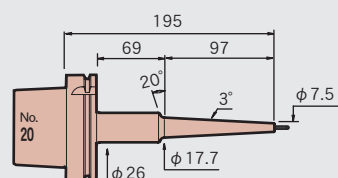
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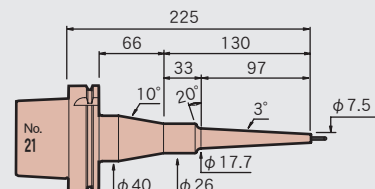
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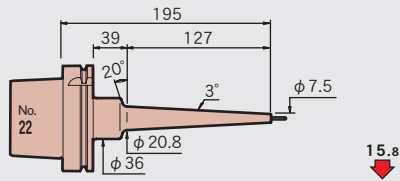
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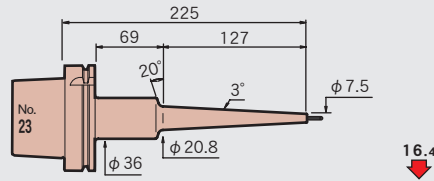


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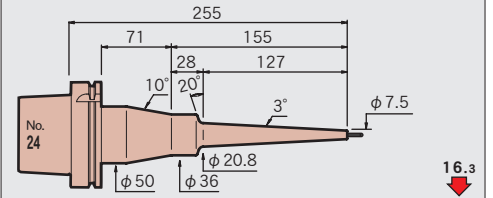
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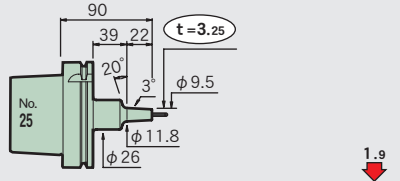
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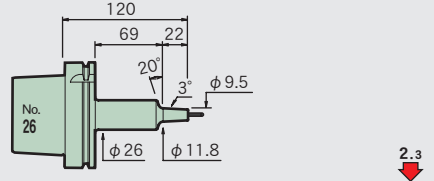
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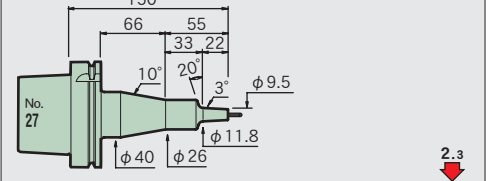
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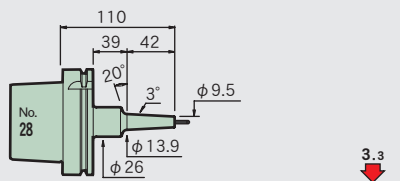
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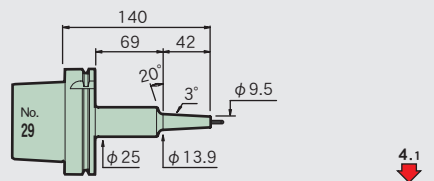
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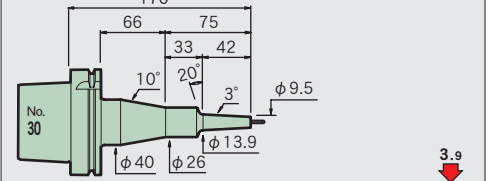
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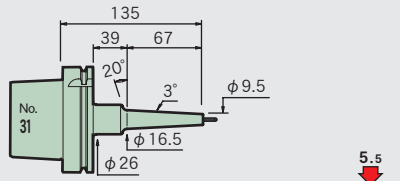
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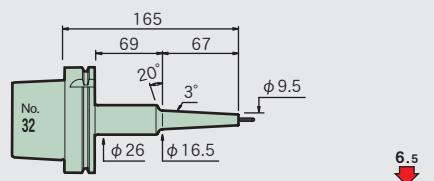
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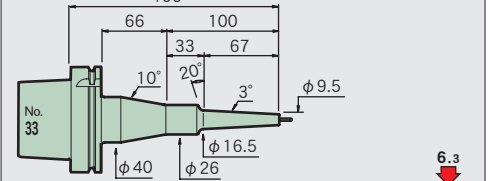
A100-SLFB3-135-M67



A100-SLFB3-165-M67



A100-SLFB3-195-M67



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

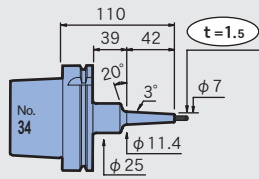
STRAIGHT
arbor

OTHERS

PERIPHERALS

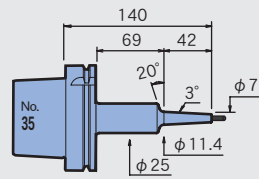
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data

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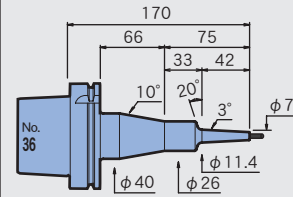
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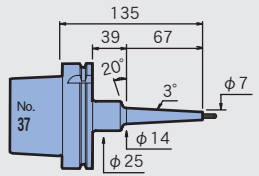
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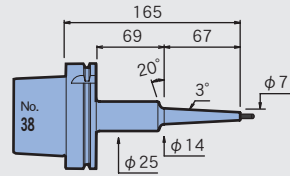
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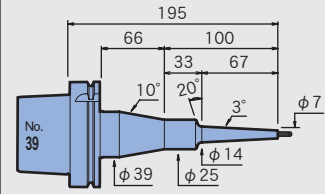
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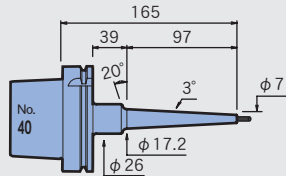
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A100-SLSA4-195-M67



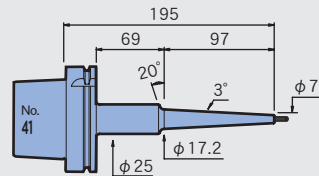
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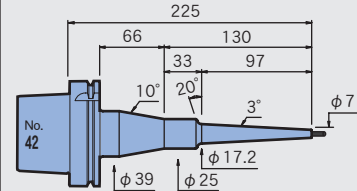
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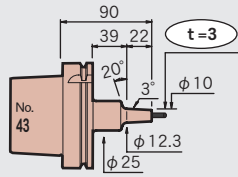
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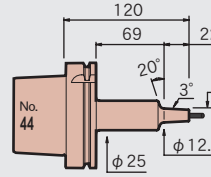
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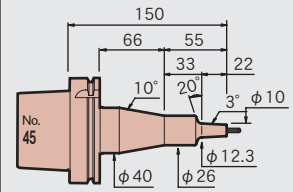
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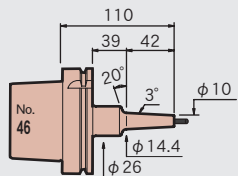
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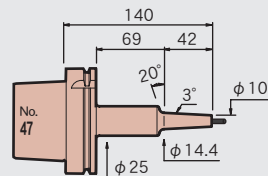
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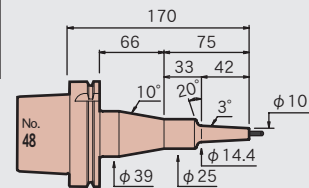
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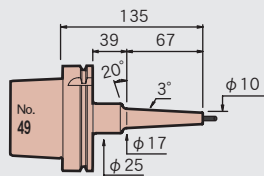
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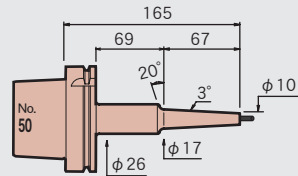
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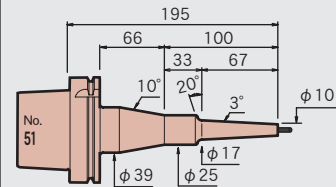
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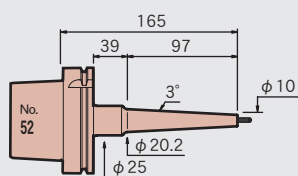
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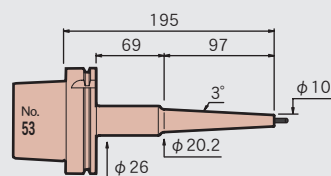
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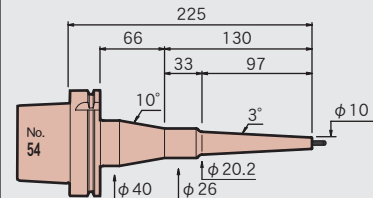
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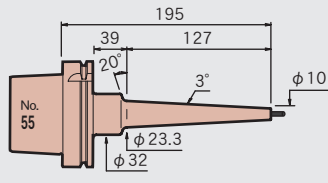
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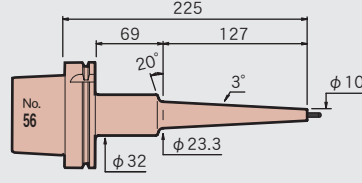


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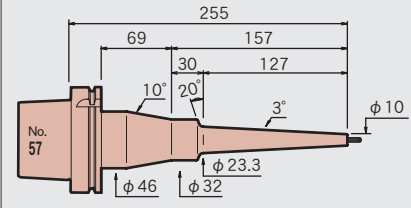
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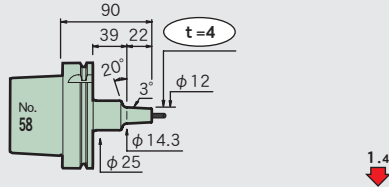
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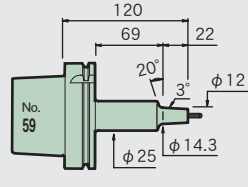
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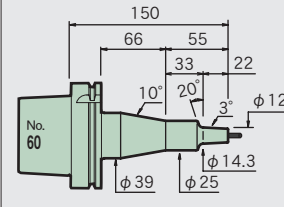
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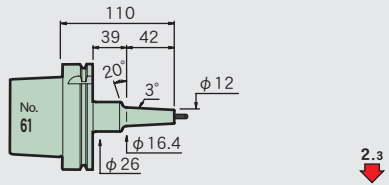
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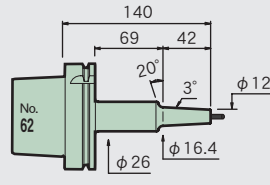
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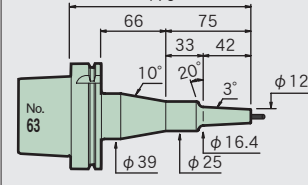
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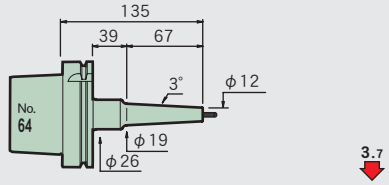
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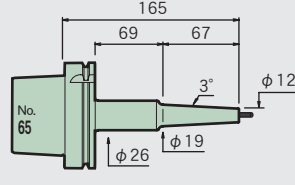
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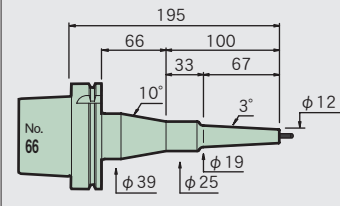
A100-SLFB4-135-M67



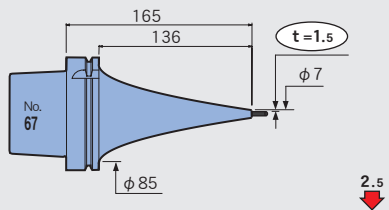
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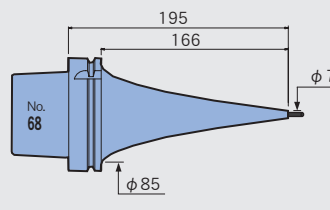
A100-SLFB4-195-M67



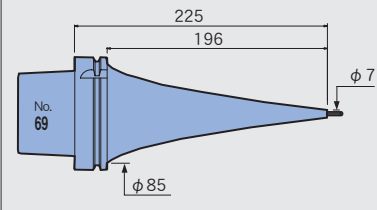
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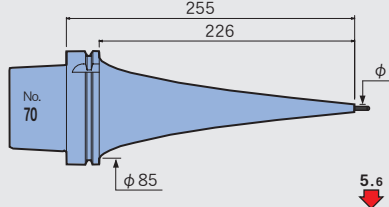
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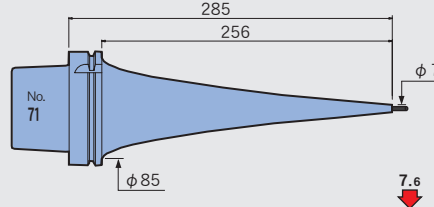
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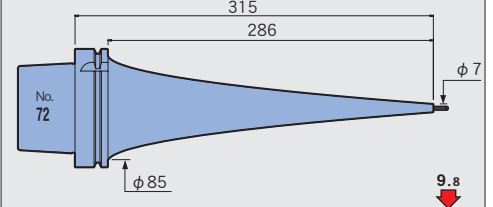
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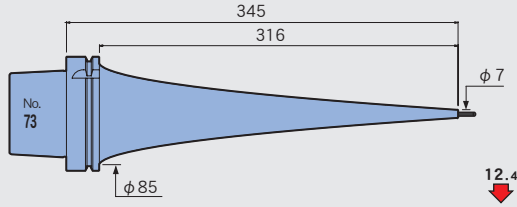
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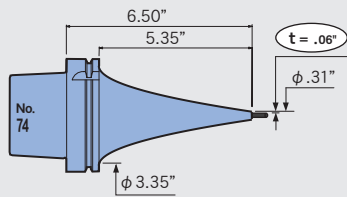
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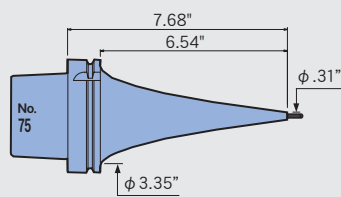
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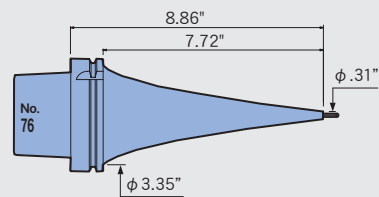
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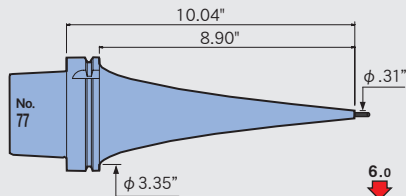
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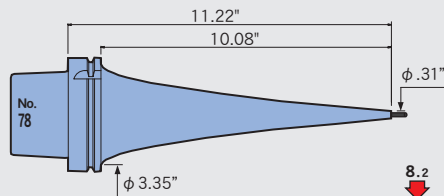
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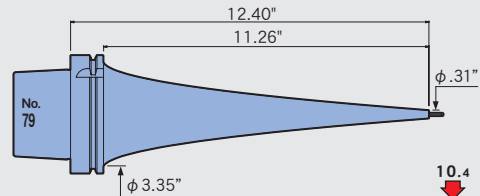
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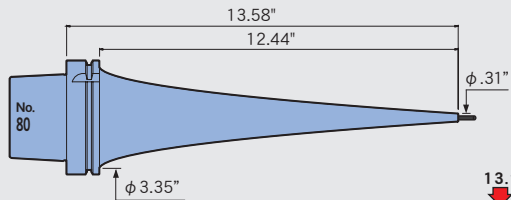
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A100-SLSA3/16-315 CV

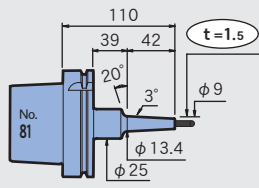


A100-SLSA3/16-345 CV



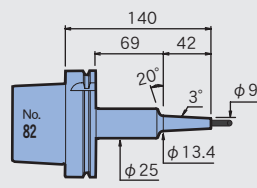
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A100-SLSA6-110-M42



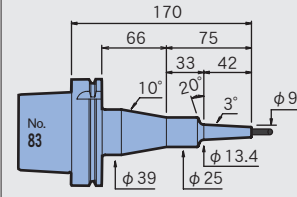
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A100-SLSA6-140-M42



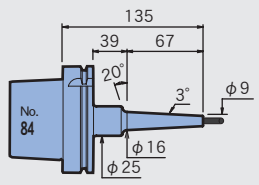
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A100-SLSA6-170-M42



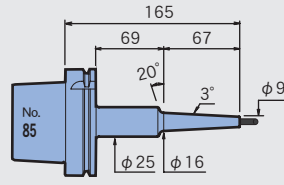
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A100-SLSA6-135-M67



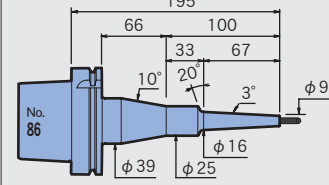
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A100-SLSA6-165-M67



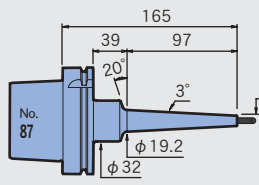
9.5

A100-SLSA6-195-M67



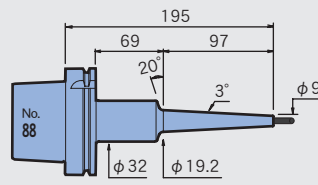
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A100-SLSA6-165-M97



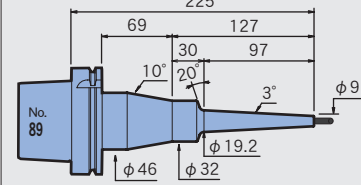
11.1

A100-SLSA6-195-M97



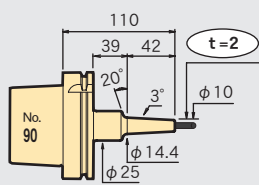
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A100-SLSA6-225-M97



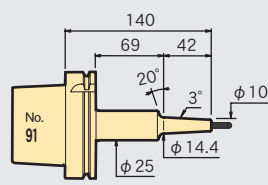
11.7

A100-SLSB6-110-M42



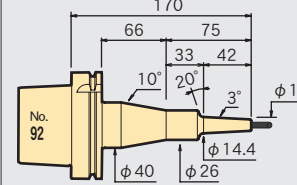
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A100-SLSB6-140-M42



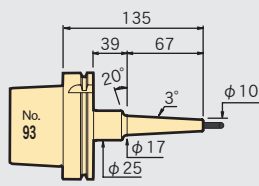
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A100-SLSB6-170-M42



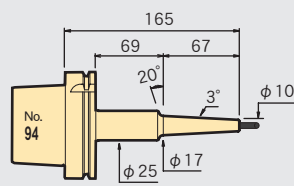
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A100-SLSB6-135-M67



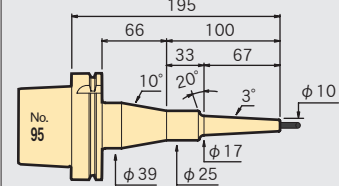
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A100-SLSB6-165-M67



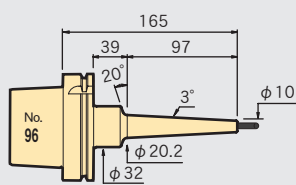
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A100-SLSB6-195-M67



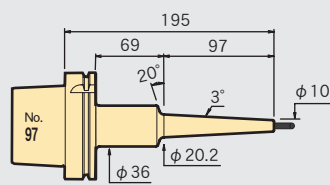
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A100-SLSB6-165-M97



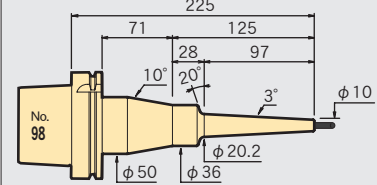
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A100-SLSB6-195-M97



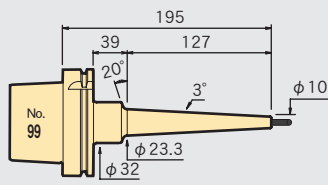
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A100-SLSB6-225-M97



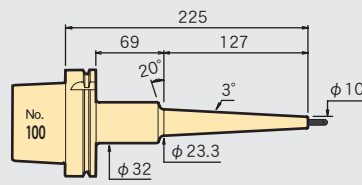
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A100-SLSB6-195-M127



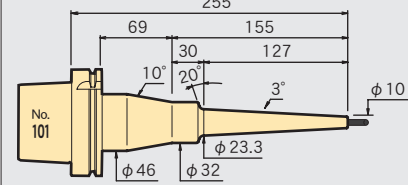
11.3

A100-SLSB6-225-M127



12.4

A100-SLSB6-255-M127



12.1

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

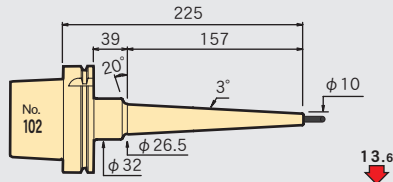
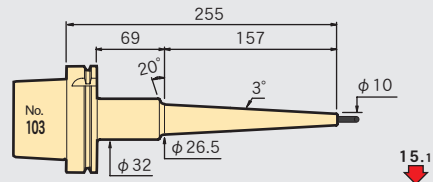
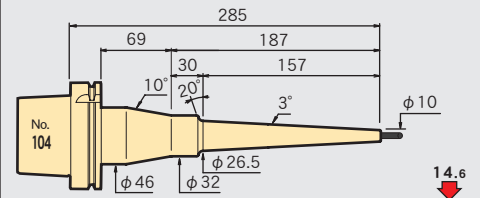
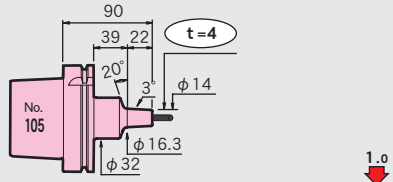
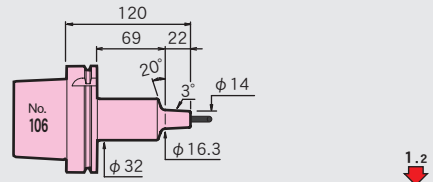
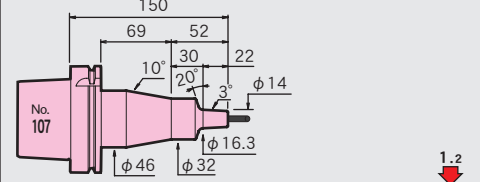
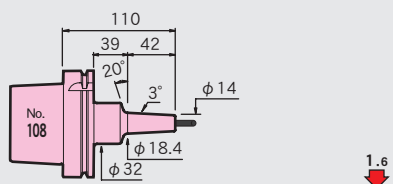
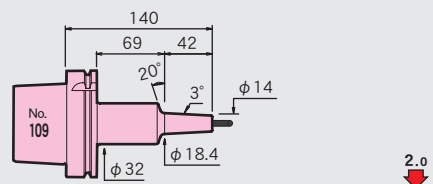
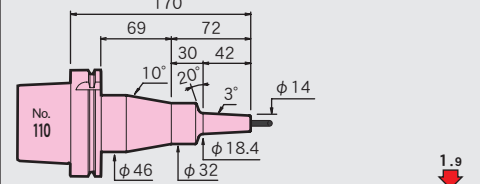
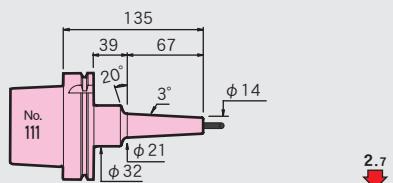
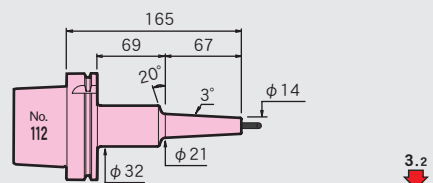
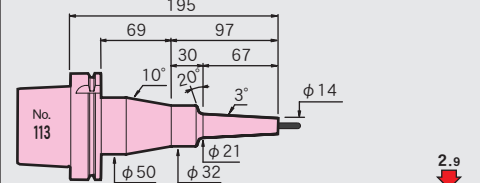
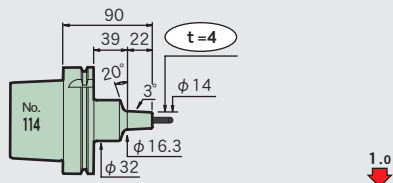
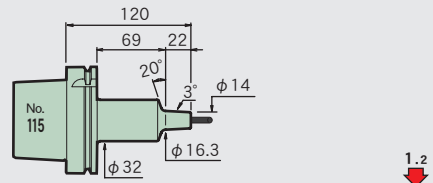
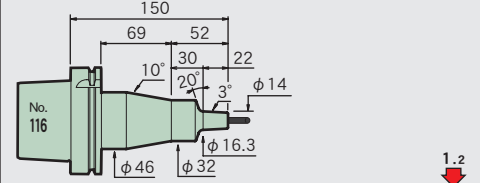
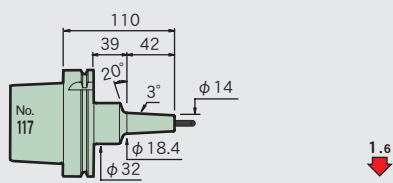
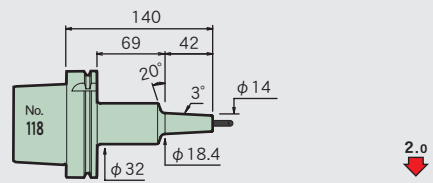
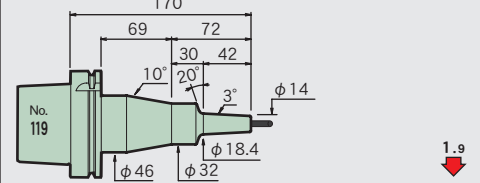
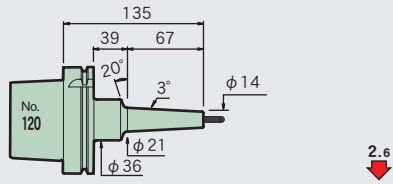
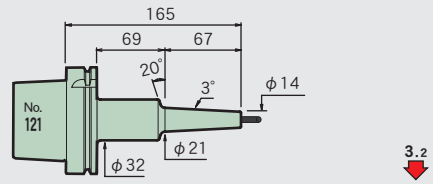
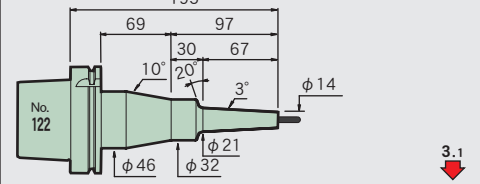
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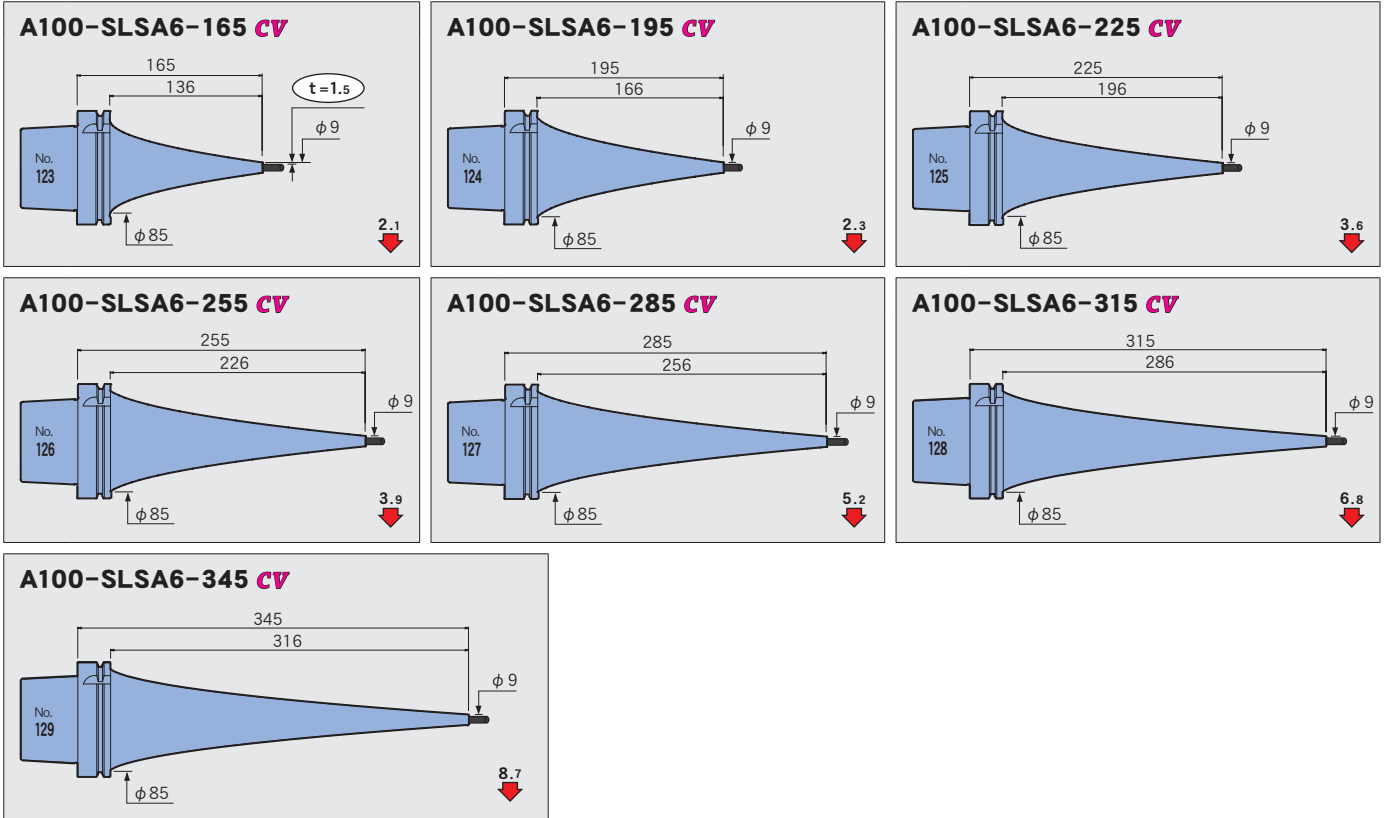
STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

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A100-SLRB6-90-M22

A100-SLRB6-120-M22

A100-SLRB6-150-M22

A100-SLRB6-110-M42

A100-SLRB6-140-M42

A100-SLRB6-170-M42

A100-SLRB6-135-M67

A100-SLRB6-165-M67

A100-SLRB6-195-M67

A100-SLFB6-90-M22

A100-SLFB6-120-M22

A100-SLFB6-150-M22

A100-SLFB6-110-M42

A100-SLFB6-140-M42

A100-SLFB6-170-M42

A100-SLFB6-135-M67

A100-SLFB6-165-M67

A100-SLFB6-195-M67




Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

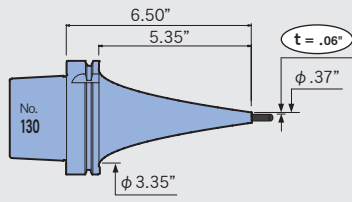
STRAIGHT
arbor

OTHERS

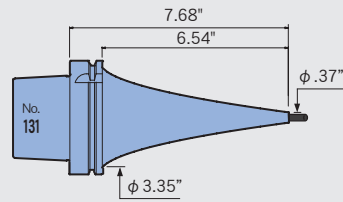
PERIPHERALS

Technical
data

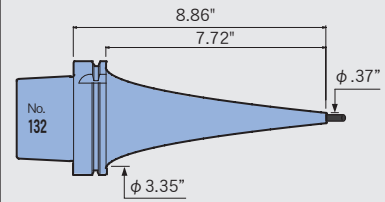
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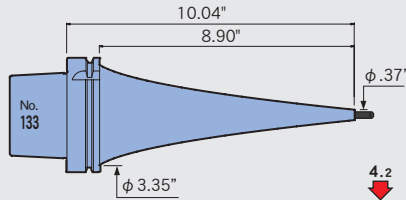
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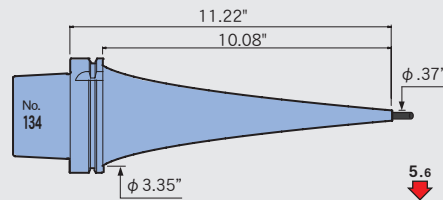
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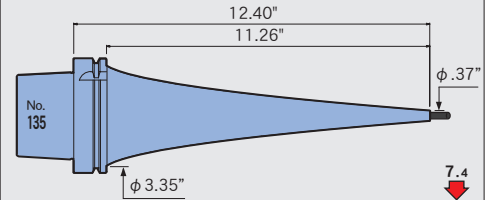
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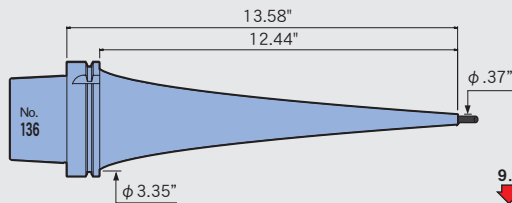
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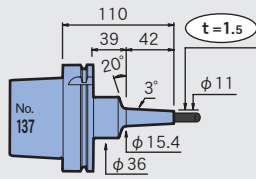


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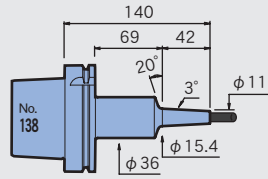


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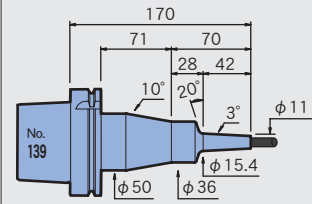


$\phi 8$ **A100-SLSA8-110-M42**

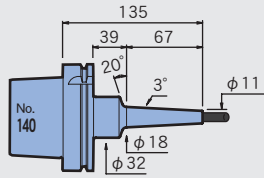
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A100-SLSA8-140-M42

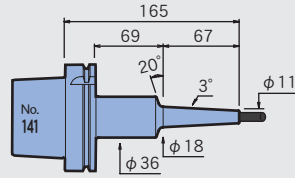
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A100-SLSA8-170-M42

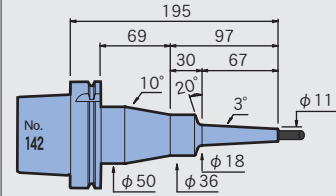
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A100-SLSA8-135-M67

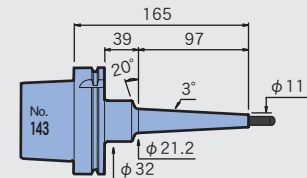
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A100-SLSA8-165-M67

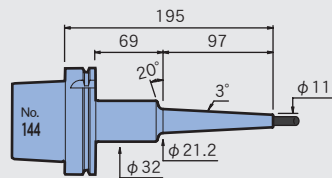
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A100-SLSA8-195-M67

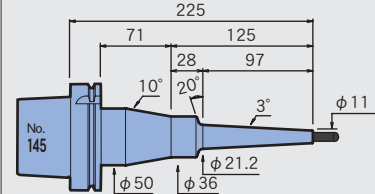
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A100-SLSA8-165-M97

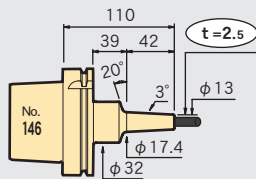
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A100-SLSA8-195-M97

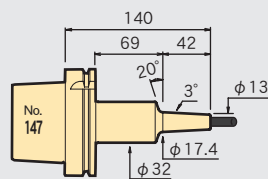
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A100-SLSA8-225-M97

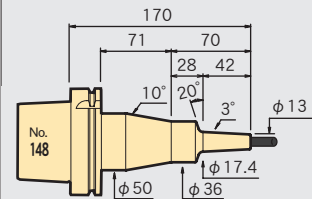
8.3

A100-SLSB8-110-M42

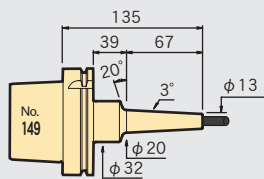
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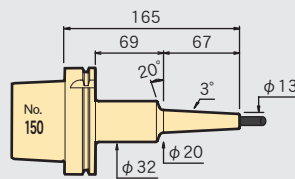
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A100-SLSB8-170-M42

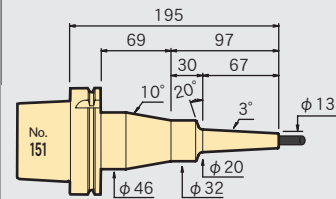
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A100-SLSB8-135-M67

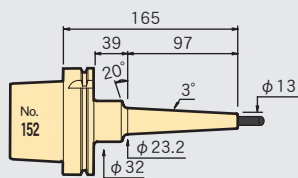
3.6

A100-SLSB8-165-M67

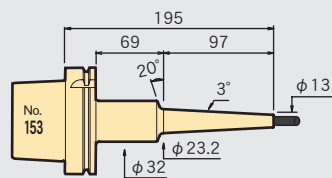
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A100-SLSB8-195-M67

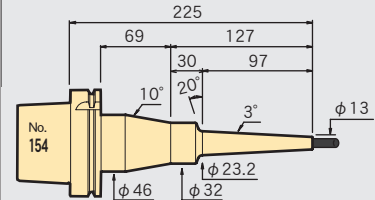
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A100-SLSB8-165-M97

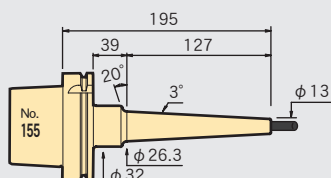
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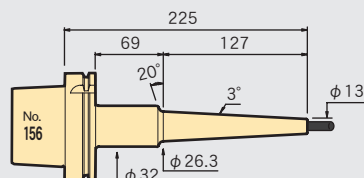
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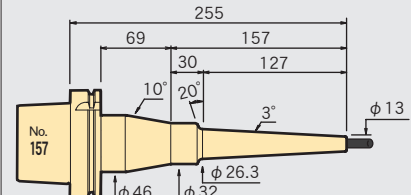
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A100-SLSB8-195-M127

7.3

A100-SLSB8-225-M127

8.5

A100-SLSB8-255-M127

8.2

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

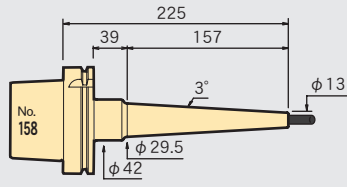
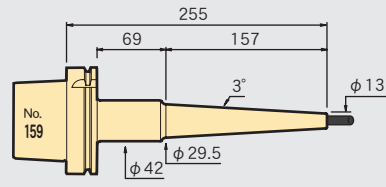
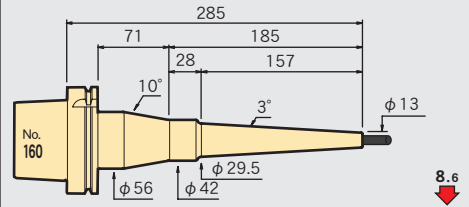
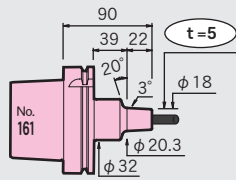
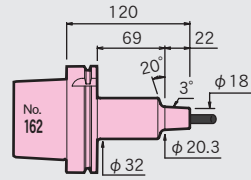
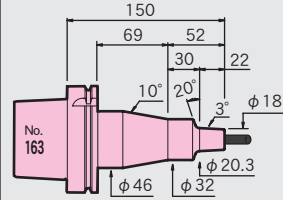
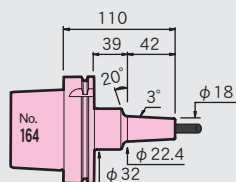
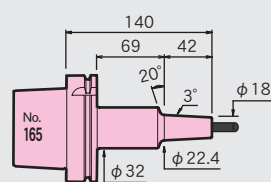
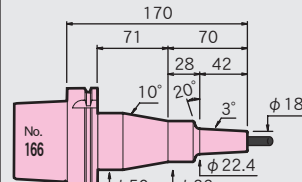
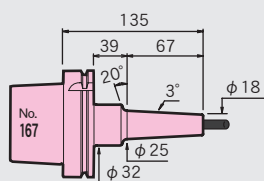
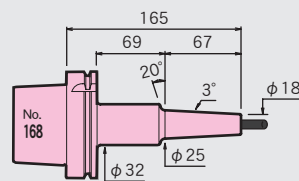
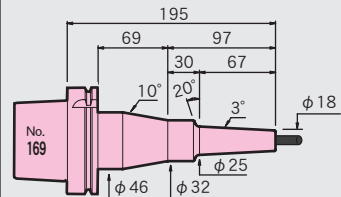
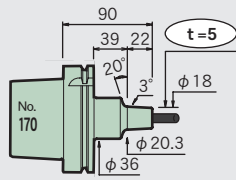
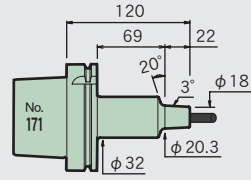
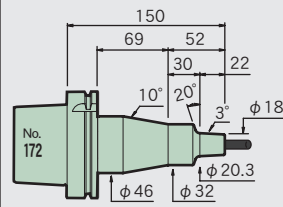
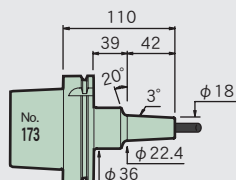
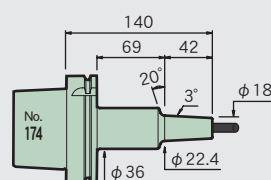
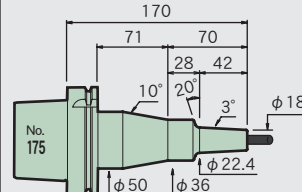
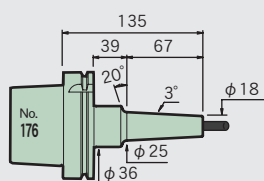
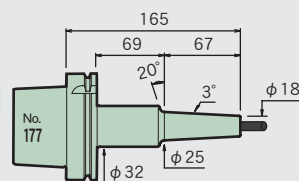
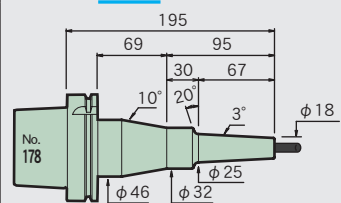
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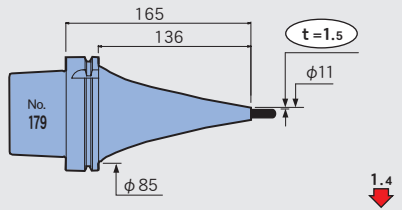
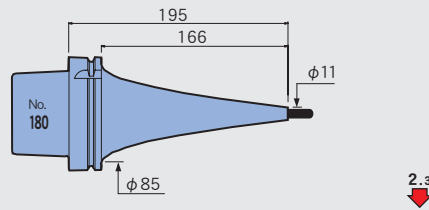
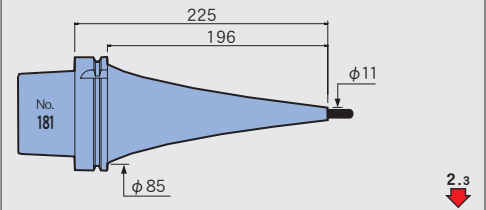
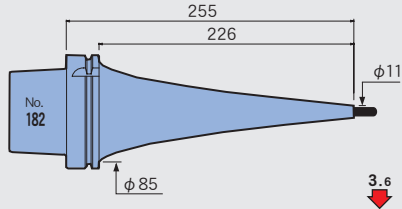
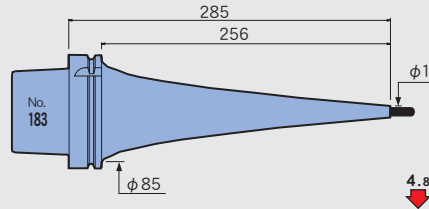
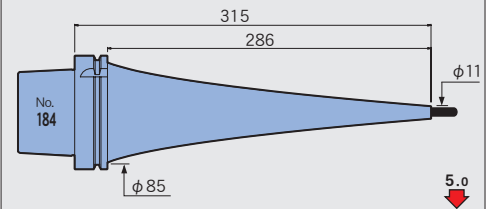
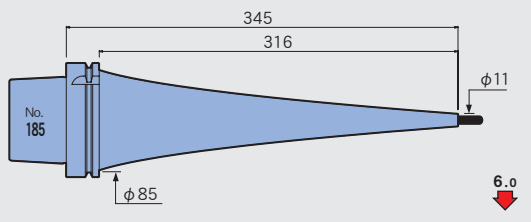
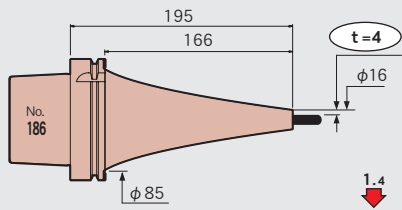
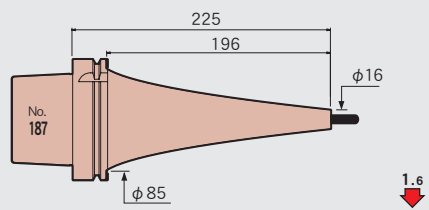
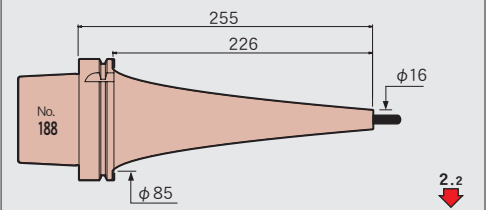
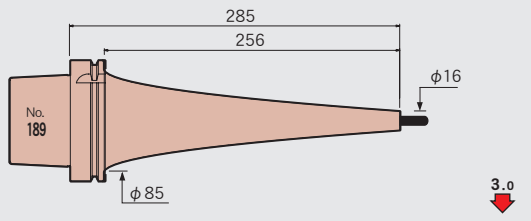
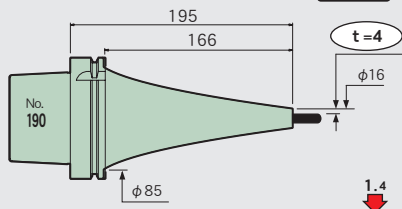
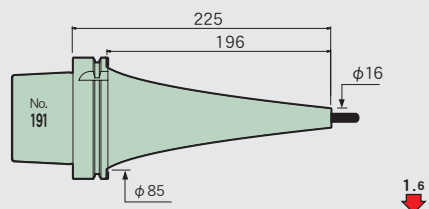
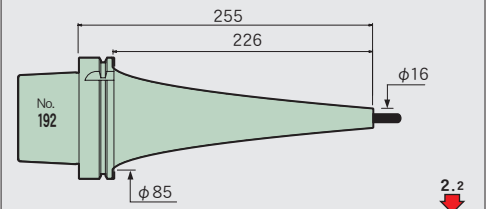
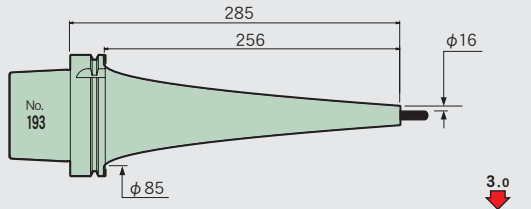
STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

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A100-SLRB8-120-M22

A100-SLRB8-150-M22

A100-SLRB8-110-M42

A100-SLRB8-140-M42

A100-SLRB8-170-M42

A100-SLRB8-135-M67

A100-SLRB8-165-M67

A100-SLRB8-195-M67

A100-SLFB8-90-M22

A100-SLFB8-120-M22

A100-SLFB8-150-M22

A100-SLFB8-110-M42

A100-SLFB8-140-M42

A100-SLFB8-170-M42

A100-SLFB8-135-M67

A100-SLFB8-165-M67

A100-SLFB8-195-M67


A100-SLSA8-165 CV**A100-SLSA8-195 CV****A100-SLSA8-225 CV****A100-SLSA8-255 CV****A100-SLSA8-285 CV****A100-SLSA8-315 CV****A100-SLSA8-345 CV****A100-SLRA8-195 CV****A100-SLRA8-225 CV****A100-SLRA8-255 CV****A100-SLRA8-285 CV****A100-SLFA8-195 CV****A100-SLFA8-225 CV****A100-SLFA8-255 CV****A100-SLFA8-285 CV**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

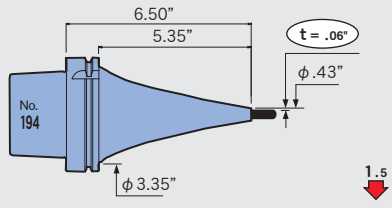
STRAIGHT
arbor

OTHERS

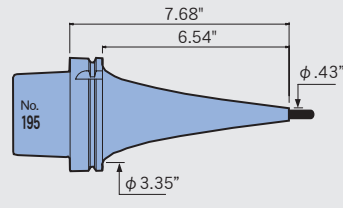
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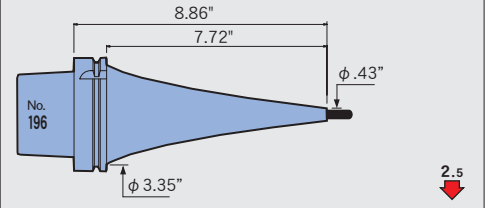
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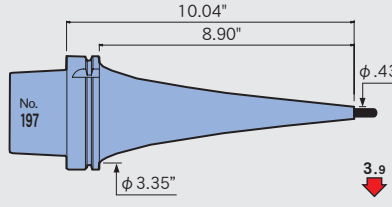
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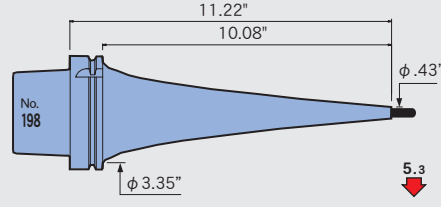
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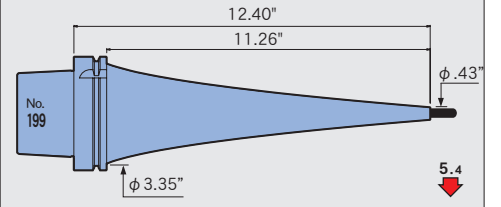
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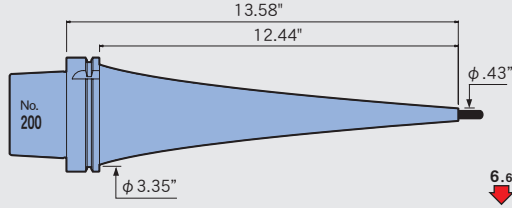
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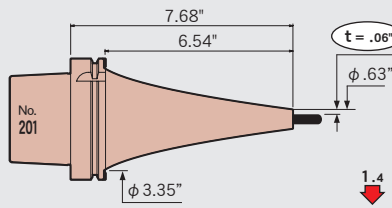
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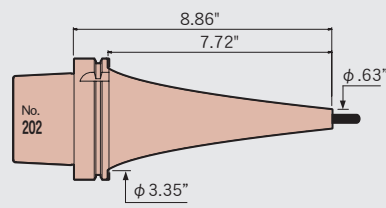
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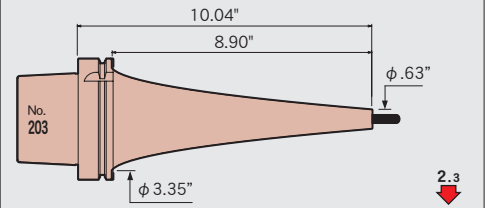
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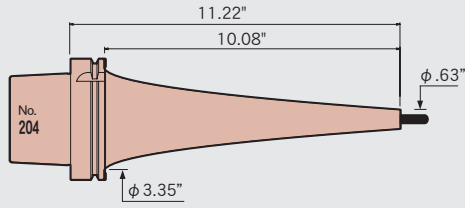
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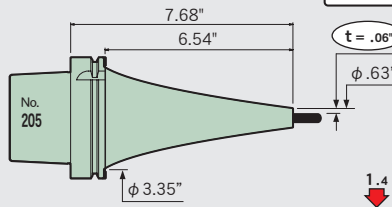
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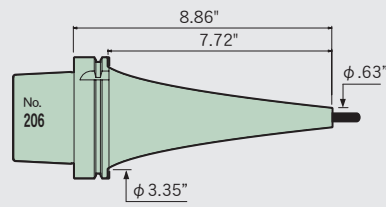
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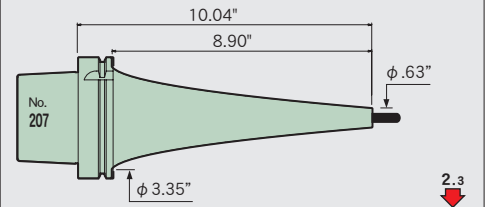
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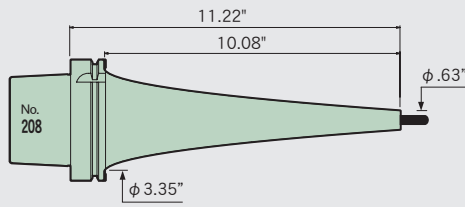
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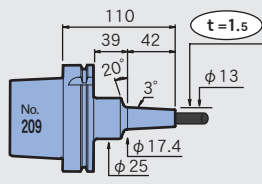


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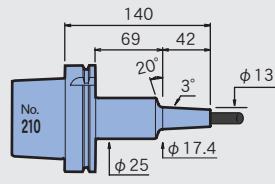


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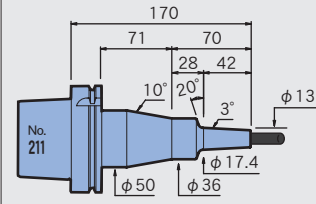


$\phi 10$ **A100-SLSA10-110-M42**

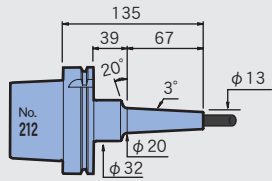
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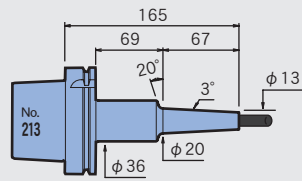
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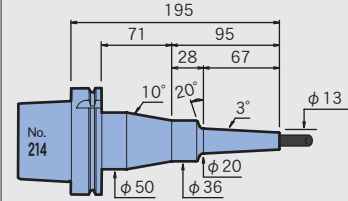
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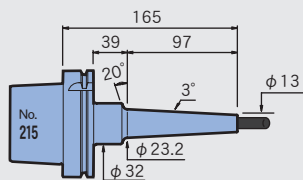
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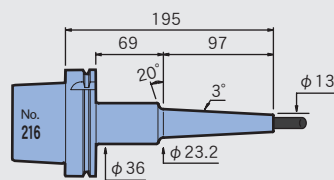
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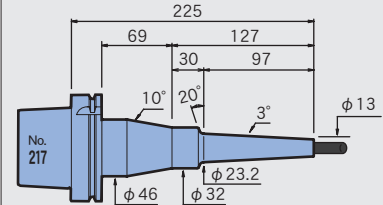
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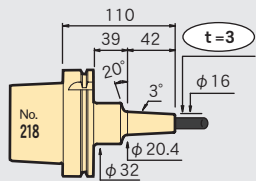
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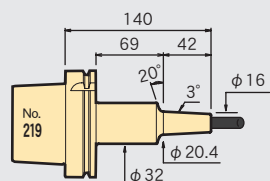
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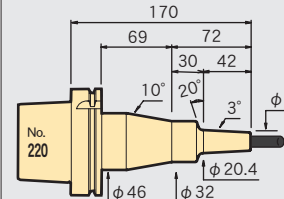
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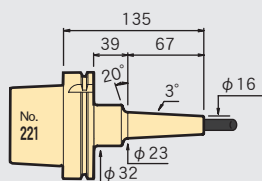
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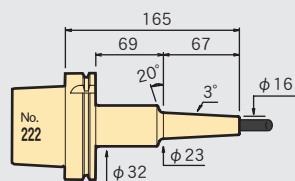
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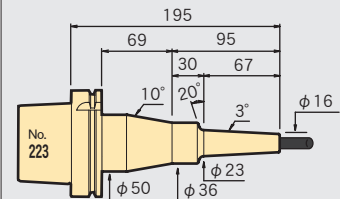
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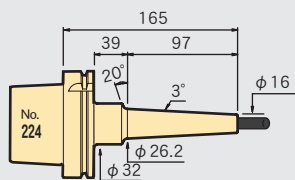
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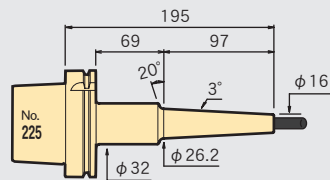
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A100-SLSB10-195-M67

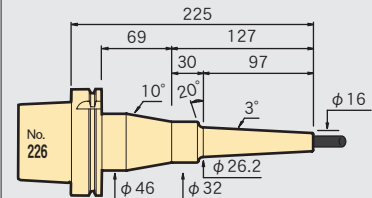
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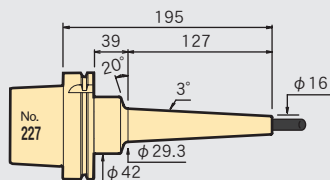
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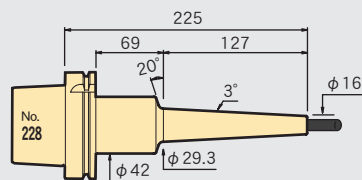
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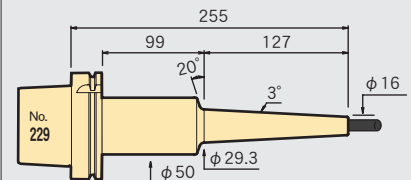
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A100-SLSB10-195-M127

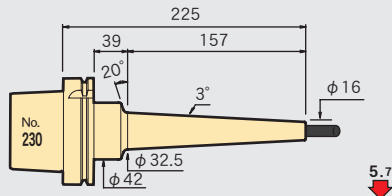
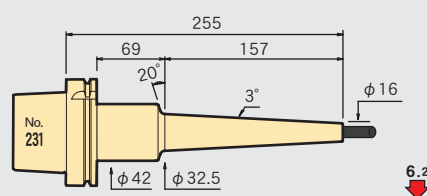
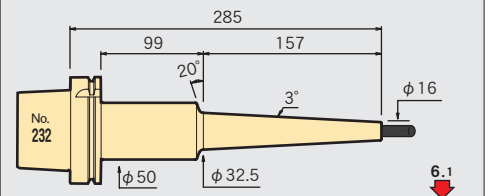
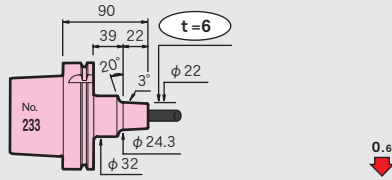
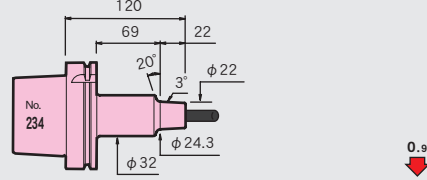
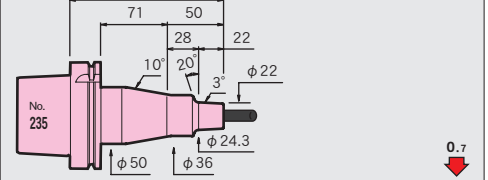
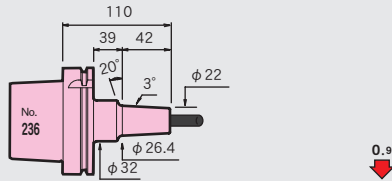
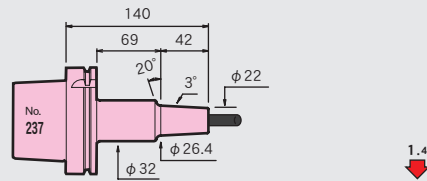
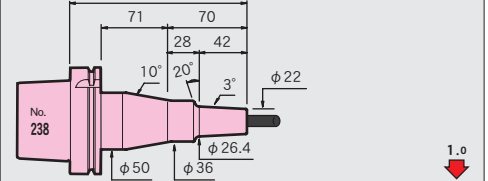
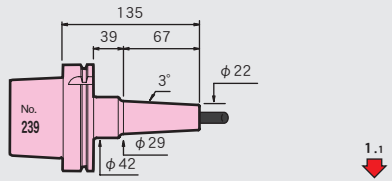
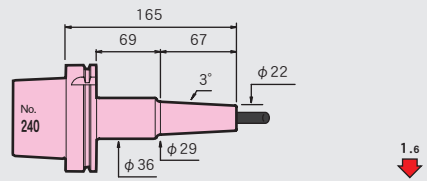
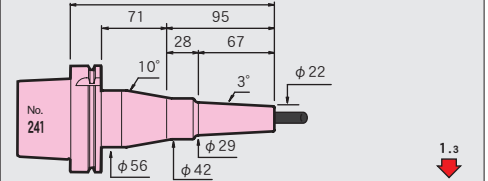
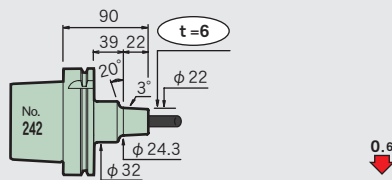
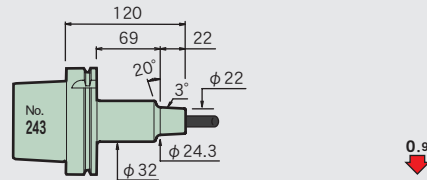
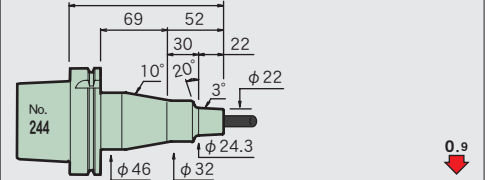
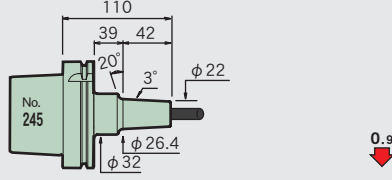
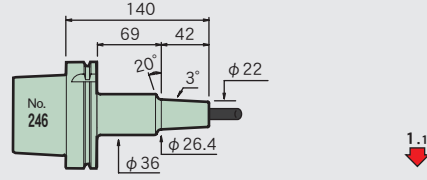
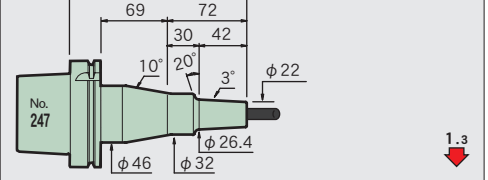
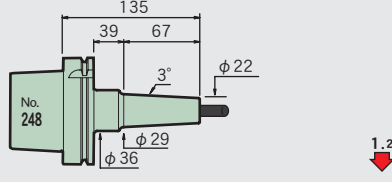
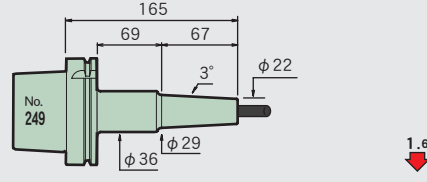
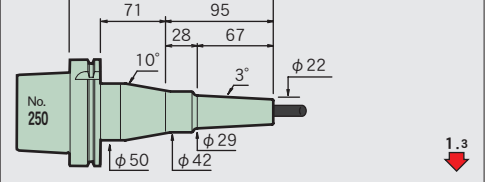
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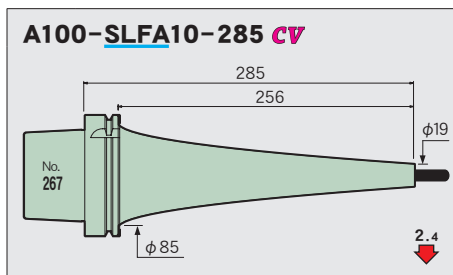
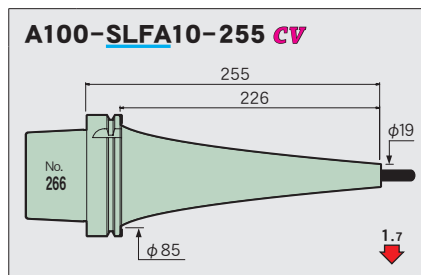
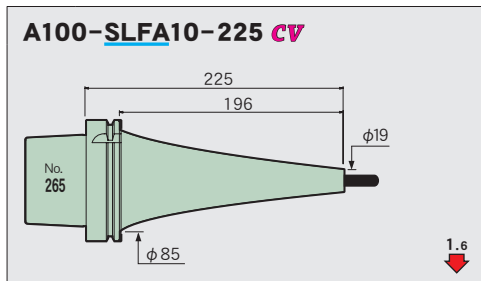
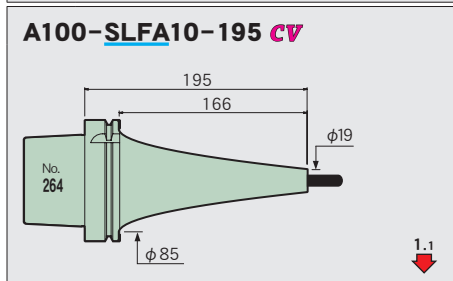
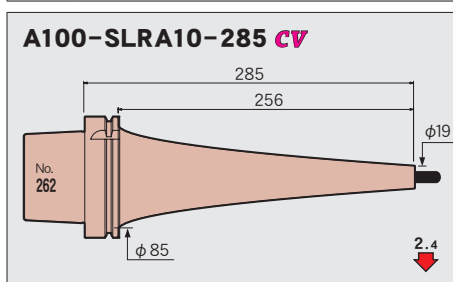
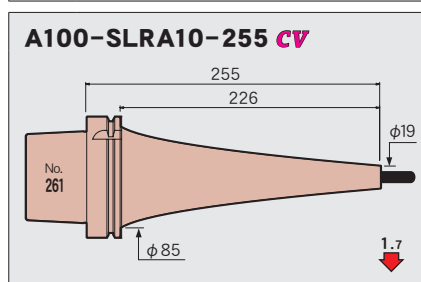
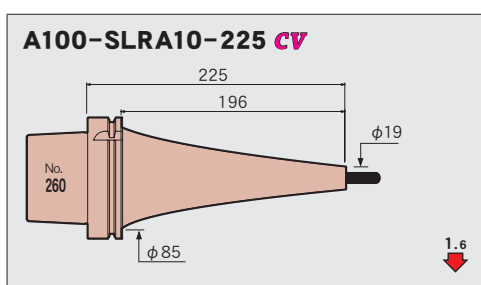
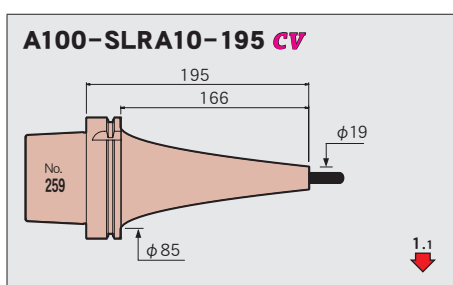
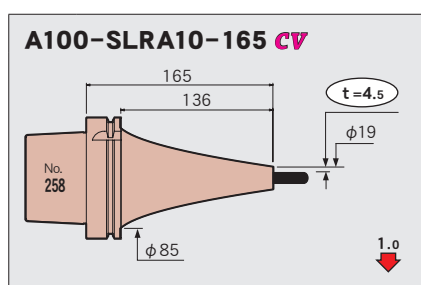
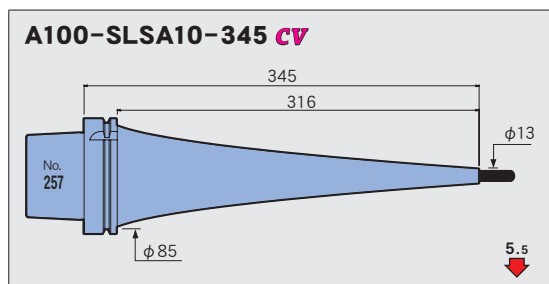
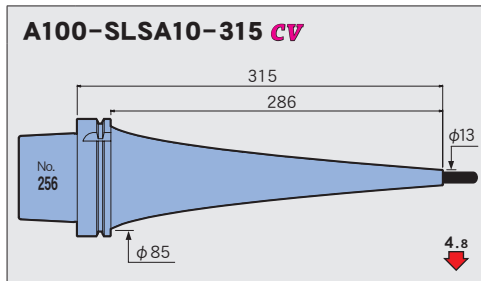
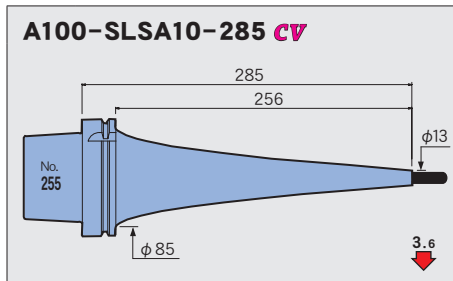
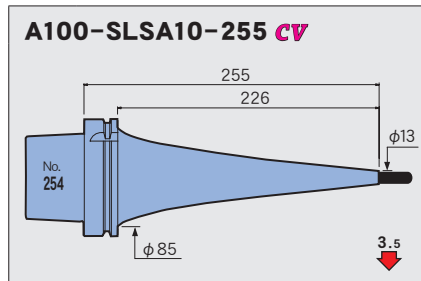
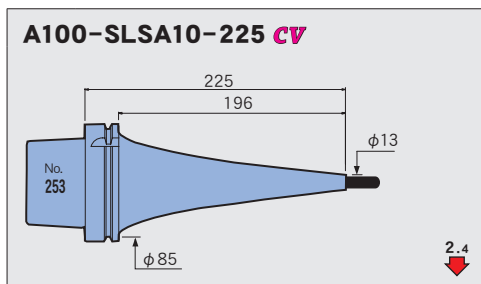
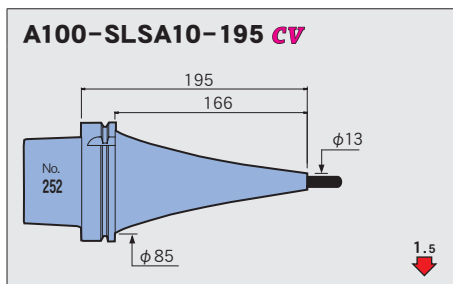
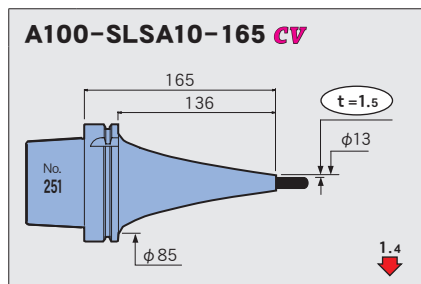
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5.0

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A100-SLRB10-170-M42

A100-SLRB10-135-M67

A100-SLRB10-165-M67

A100-SLRB10-195-M67

A100-SLFB10-90-M22

A100-SLFB10-120-M22

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A100-SLFB10-170-M42

A100-SLFB10-135-M67

A100-SLFB10-165-M67

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Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

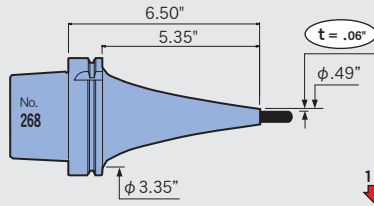
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OTHERS

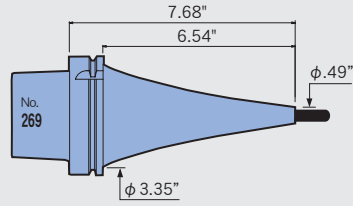
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Technical
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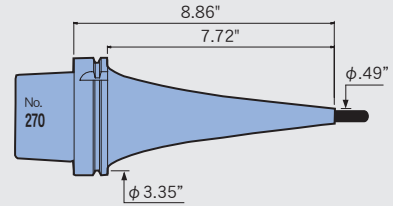
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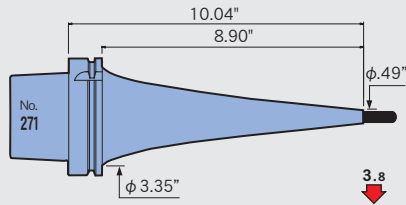
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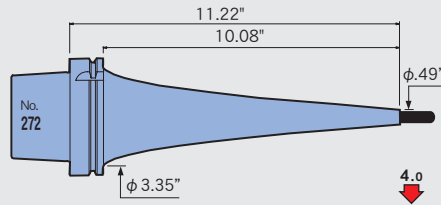
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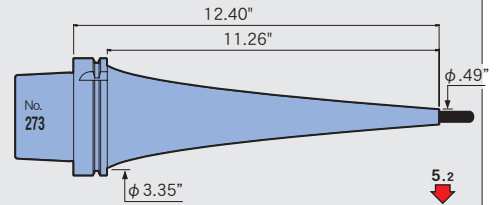
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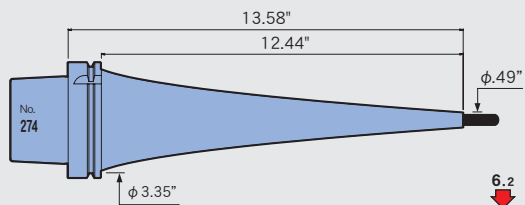
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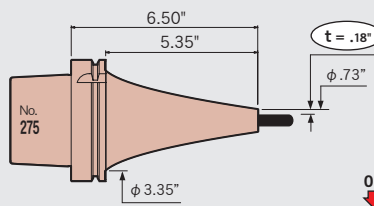
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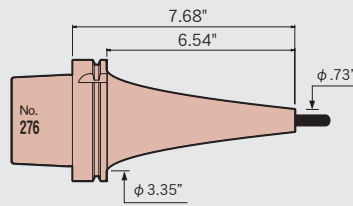
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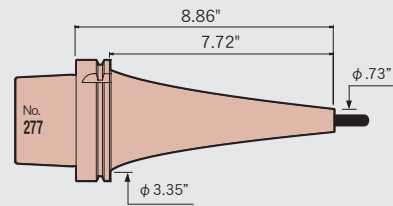
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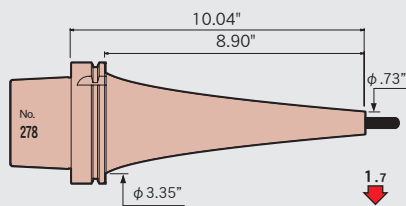
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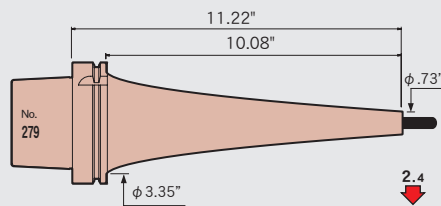
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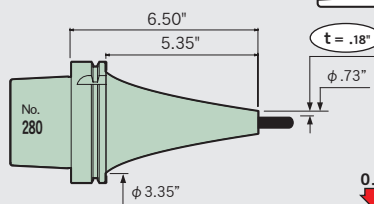
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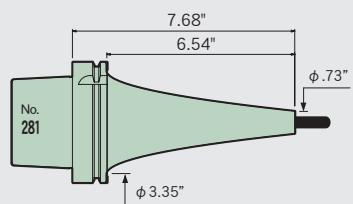
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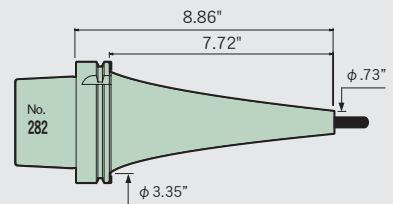
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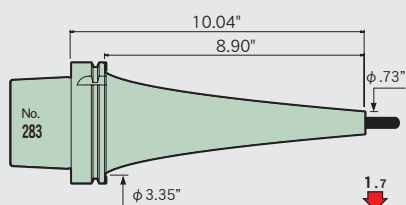
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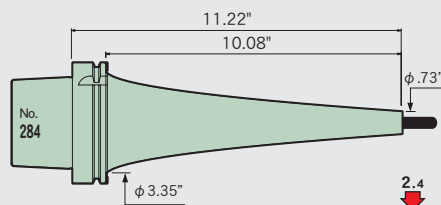
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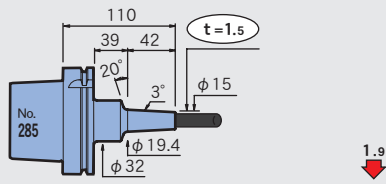
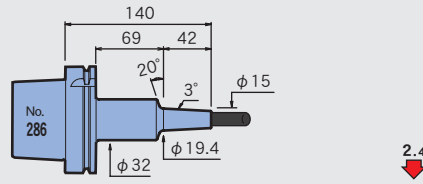
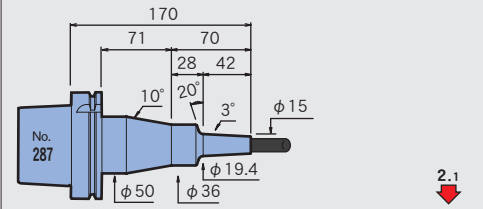
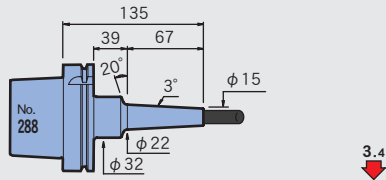
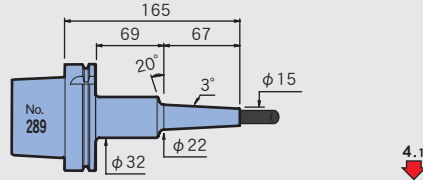
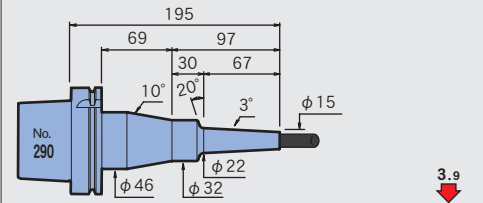
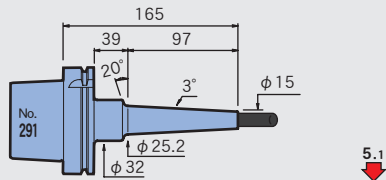
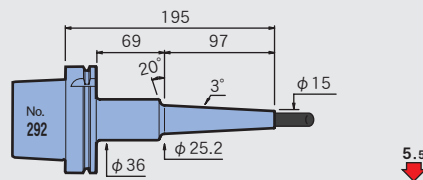
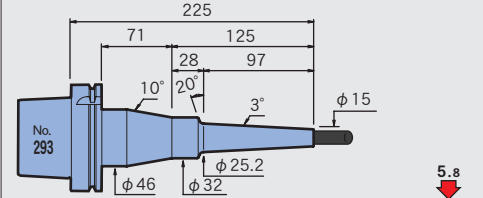
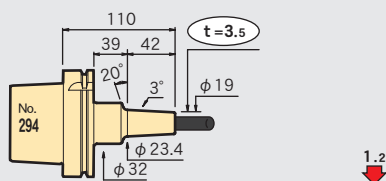
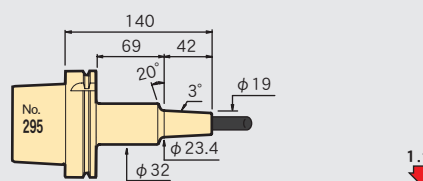
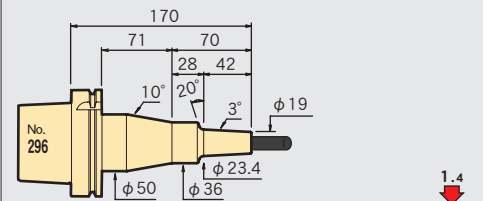
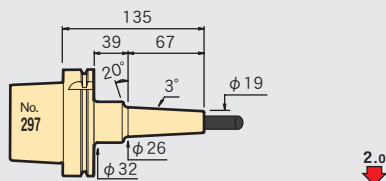
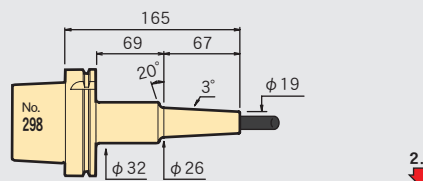
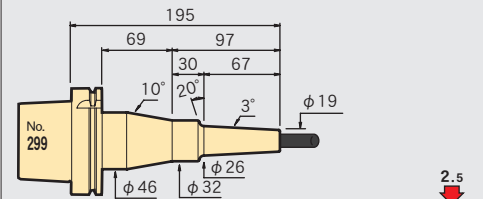
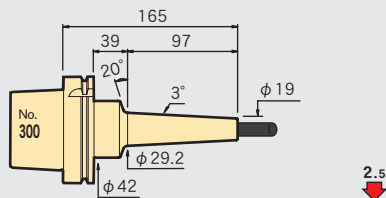
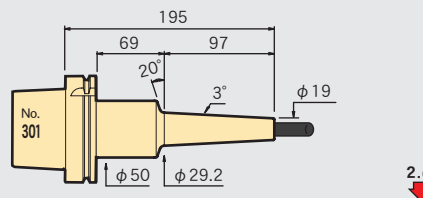
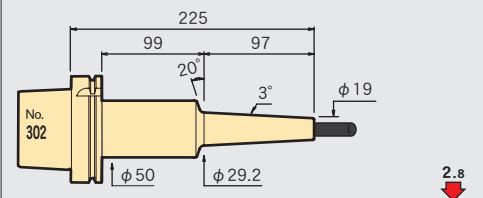
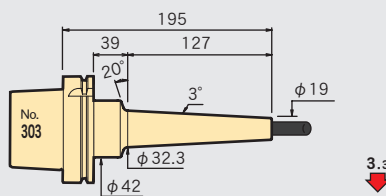
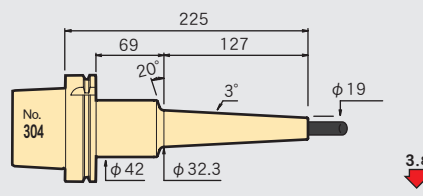
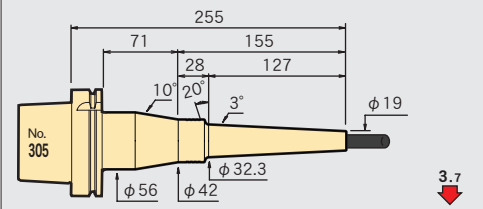


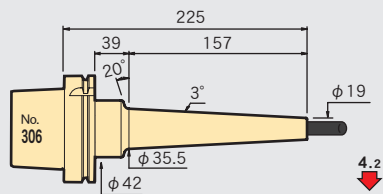
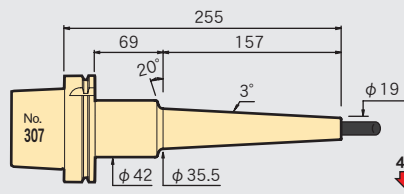
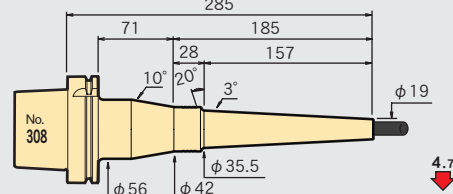
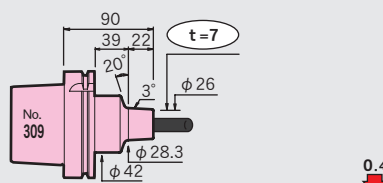
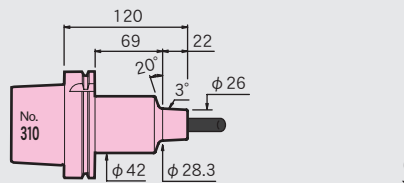
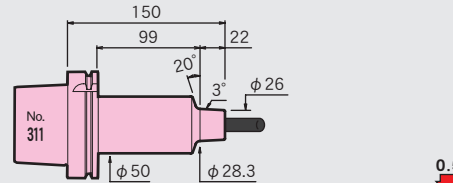
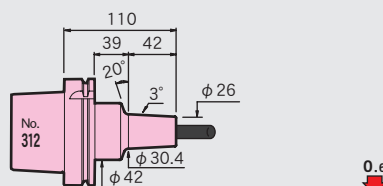
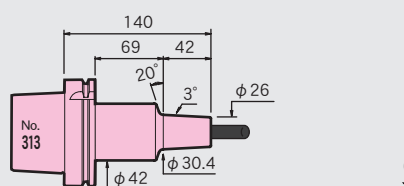
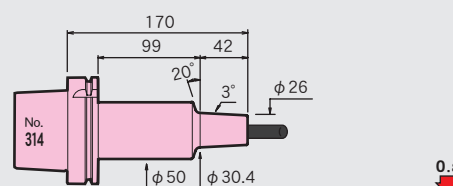
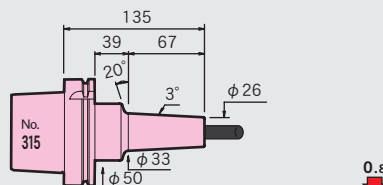
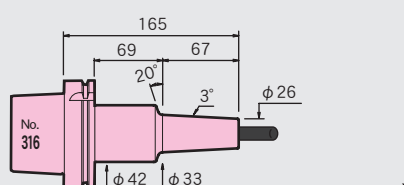
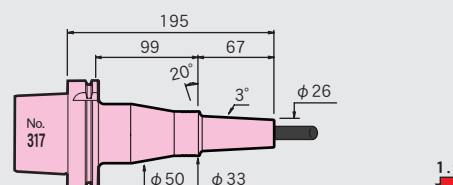
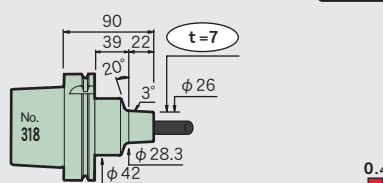
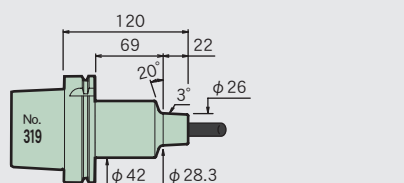
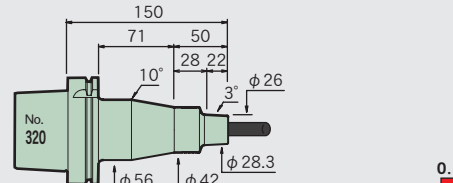
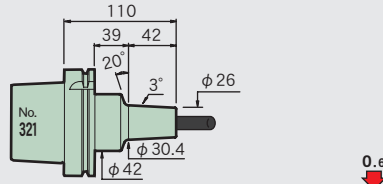
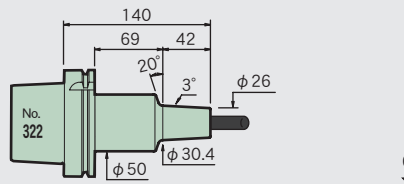
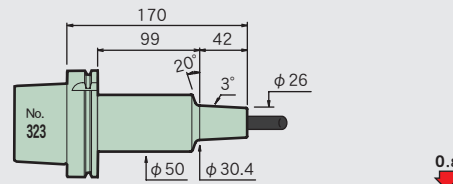
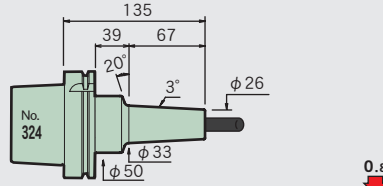
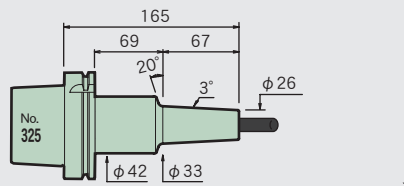
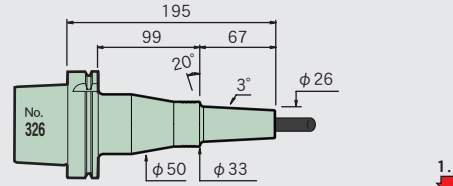
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A100-SLFA3/8-285 CV

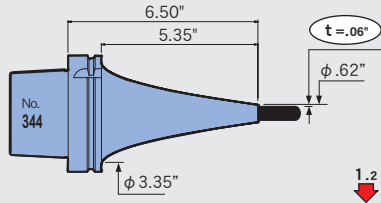


$\phi 12$ **A100-SLSA12-110-M42****A100-SLSA12-140-M42****A100-SLSA12-170-M42****A100-SLSA12-135-M67****A100-SLSA12-165-M67****A100-SLSA12-195-M67****A100-SLSA12-165-M97****A100-SLSA12-195-M97****A100-SLSA12-225-M97****A100-SLSB12-110-M42****A100-SLSB12-140-M42****A100-SLSB12-170-M42****A100-SLSB12-135-M67****A100-SLSB12-165-M67****A100-SLSB12-195-M67****A100-SLSB12-165-M97****A100-SLSB12-195-M97****A100-SLSB12-225-M97****A100-SLSB12-195-M127****A100-SLSB12-225-M127****A100-SLSB12-255-M127**

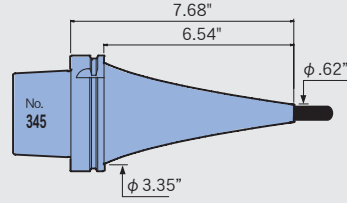
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A100-SLSB12-285-M157

A100-SLRB12-90-M22

A100-SLRB12-120-M22

A100-SLRB12-150-M22

A100-SLRB12-110-M42

A100-SLRB12-140-M42

A100-SLRB12-170-M42

A100-SLRB12-135-M67

A100-SLRB12-165-M67

A100-SLRB12-195-M67

A100-SLFB12-90-M22

A100-SLFB12-120-M22

A100-SLFB12-150-M22

A100-SLFB12-110-M42

A100-SLFB12-140-M42

A100-SLFB12-170-M42

A100-SLFB12-135-M67

A100-SLFB12-165-M67

A100-SLFB12-195-M67


A100-SLSA12-165 CV No. 327	A100-SLSA12-195 CV No. 328	A100-SLSA12-225 CV No. 329
A100-SLSA12-255 CV No. 330	A100-SLSA12-285 CV No. 331	A100-SLSA12-315 CV No. 332
A100-SLSA12-345 CV No. 333		
A100-SLRA12-165 CV No. 334	A100-SLRA12-195 CV No. 335	A100-SLRA12-225 CV No. 336
A100-SLRA12-255 CV No. 337	A100-SLRA12-285 CV No. 338	
A100-SLFA12-165 CV No. 339	A100-SLFA12-195 CV No. 340	A100-SLFA12-225 CV No. 341
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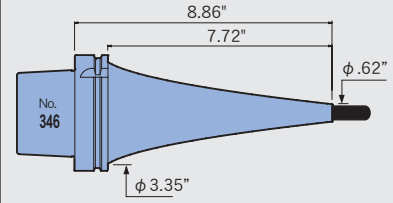
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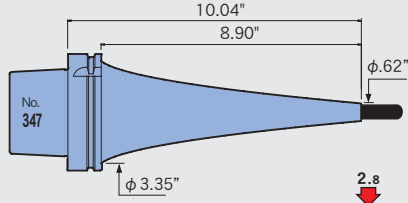
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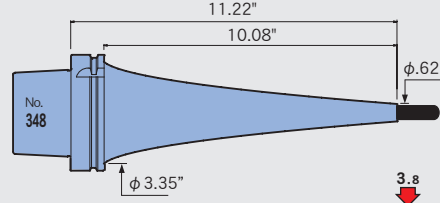
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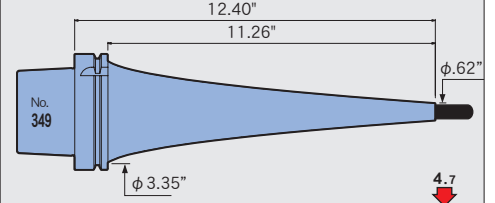
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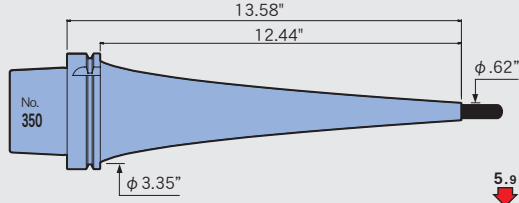
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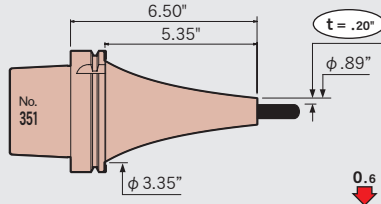
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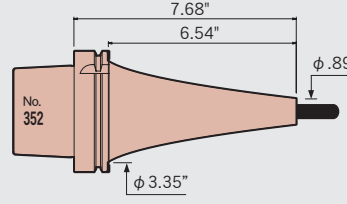
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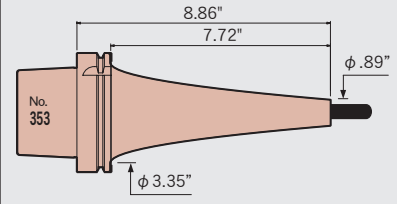
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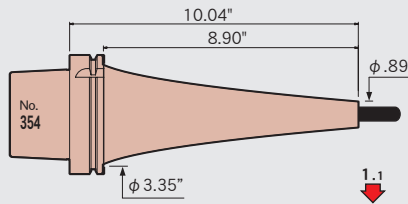
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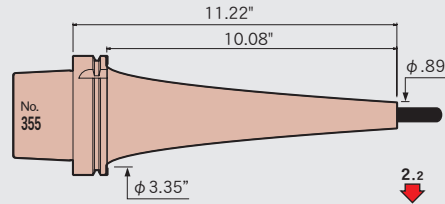
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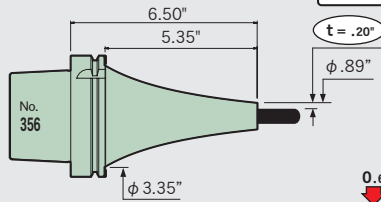
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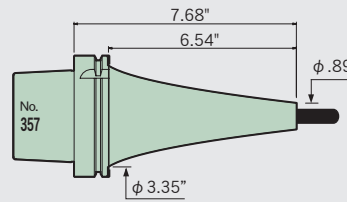
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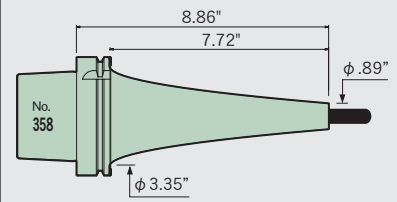
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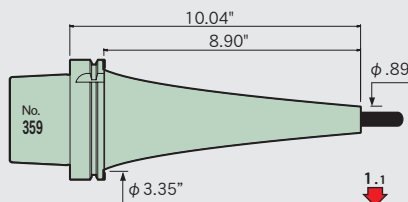
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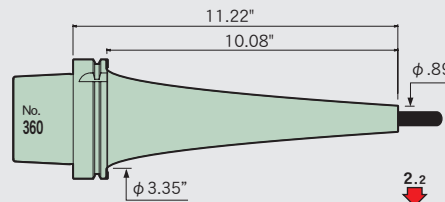
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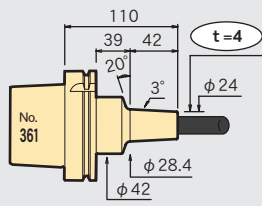
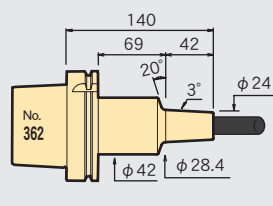
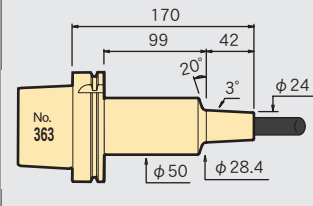
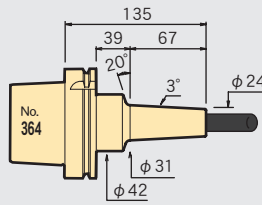
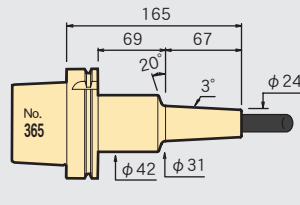
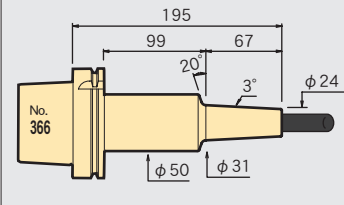
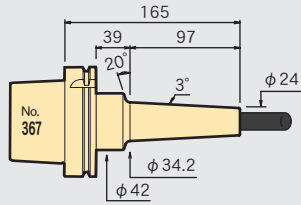
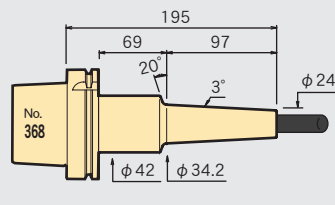
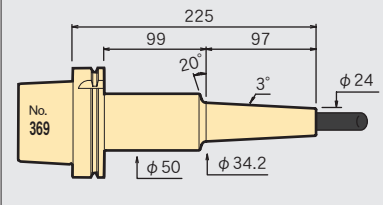
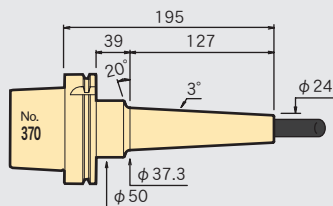
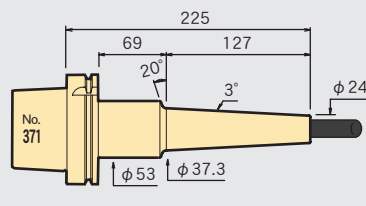
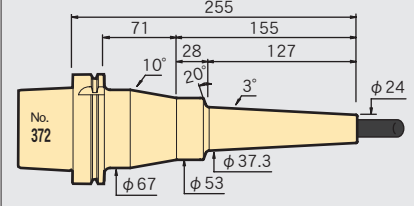
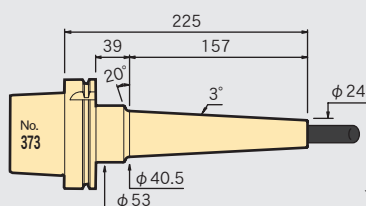
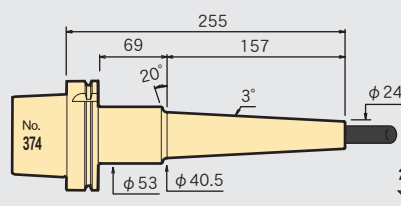
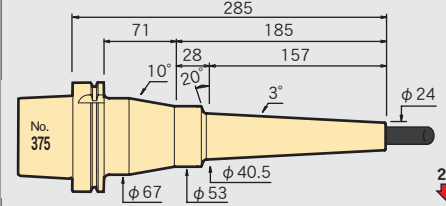
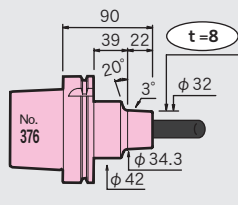
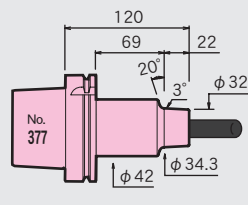
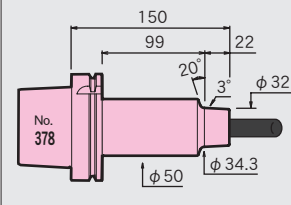
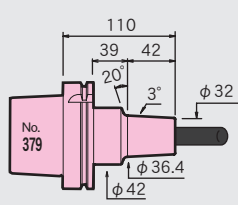
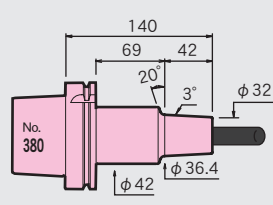
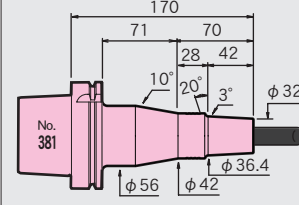


A100-SLFA1/2-255 CV



A100-SLFA1/2-285 CV



$\phi 16$ **A100-SLSB16-110-M42****A100-SLSB16-140-M42****A100-SLSB16-170-M42****A100-SLSB16-135-M67****A100-SLSB16-165-M67****A100-SLSB16-195-M67****A100-SLSB16-165-M97****A100-SLSB16-195-M97****A100-SLSB16-225-M97****A100-SLSB16-195-M127****A100-SLSB16-225-M127****A100-SLSB16-255-M127****A100-SLSB16-225-M157****A100-SLSB16-255-M157****A100-SLSB16-285-M157****A100-SLRB16-90-M22****A100-SLRB16-120-M22****A100-SLRB16-150-M22****A100-SLRB16-110-M42****A100-SLRB16-140-M42****A100-SLRB16-170-M42**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

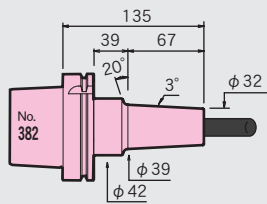
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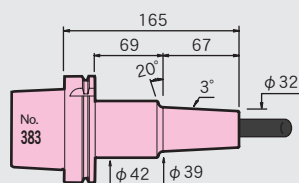
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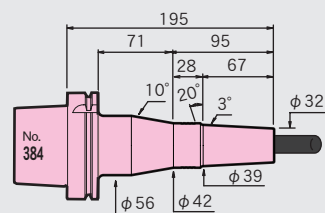
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A100-SLRB16-135-M67


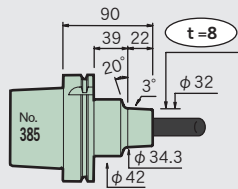
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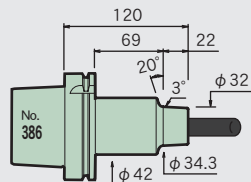
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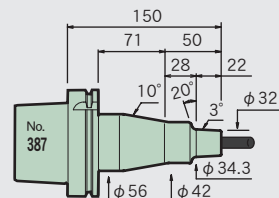
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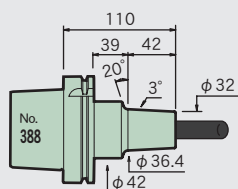
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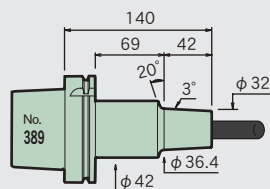
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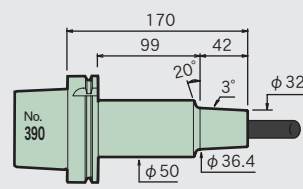
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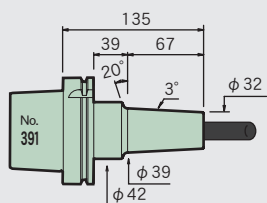
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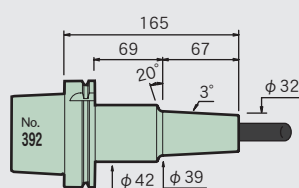
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A100-SLFB16-170-M42


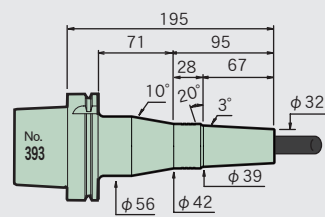
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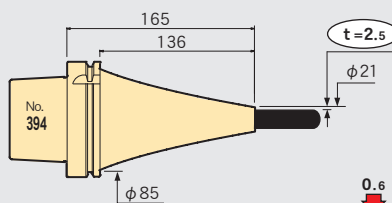
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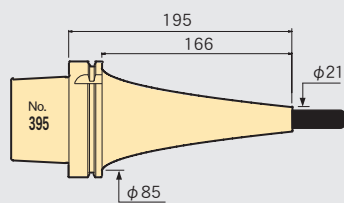
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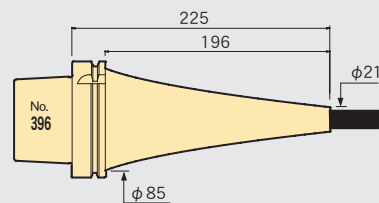
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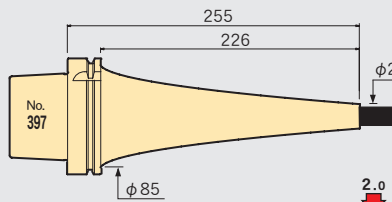
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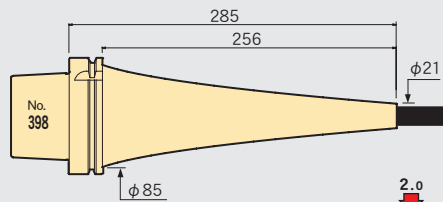
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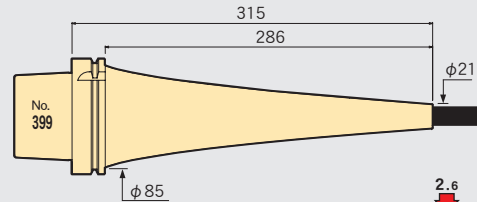
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A100-SLSB16-255 CV


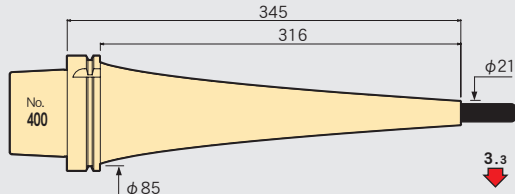
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A100-SLSB16-285 CV


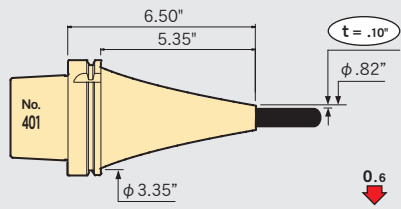
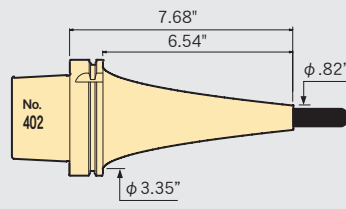
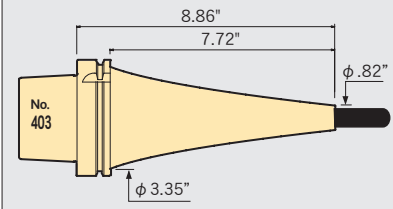
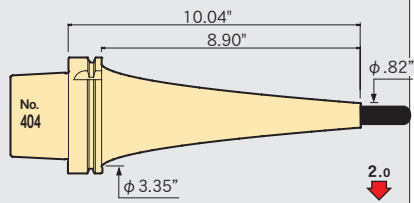
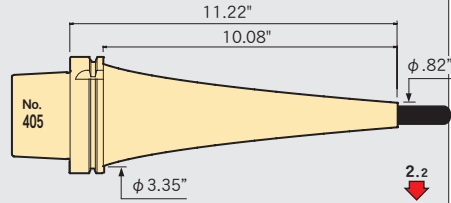
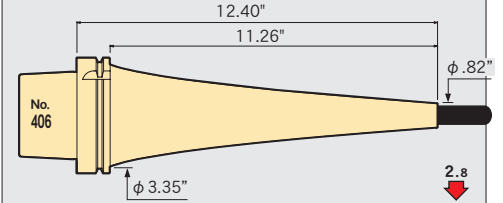
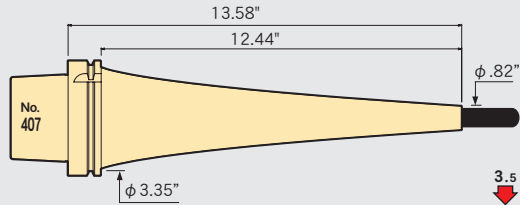
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A100-SLSB16-315 CV


2.6

A100-SLSB16-345 CV


3.3

$\phi 5/8$ **A100-SLSB5/8-165 CV****A100-SLSB5/8-195 CV****A100-SLSB5/8-225 CV****A100-SLSB5/8-255 CV****A100-SLSB5/8-285 CV****A100-SLSB5/8-315 CV****A100-SLSB5/8-345 CV**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

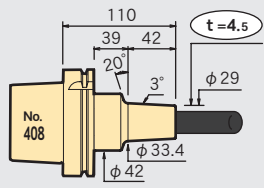
STRAIGHT
arbor

OTHERS

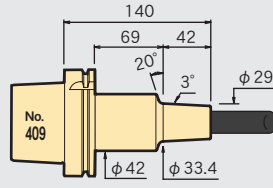
PERIPHERALS

Technical
data

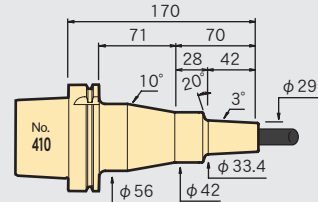
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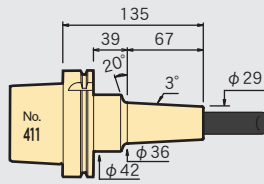
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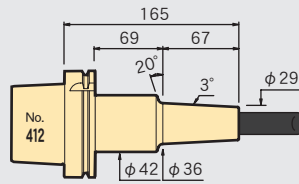
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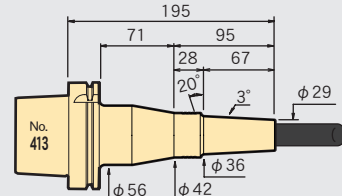
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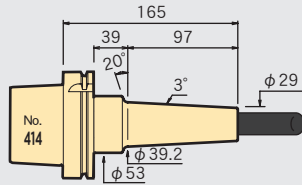
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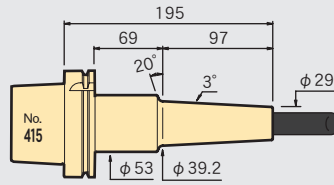
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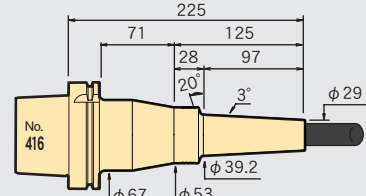
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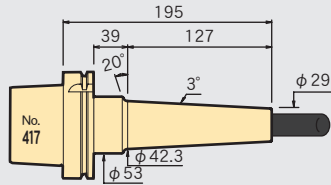
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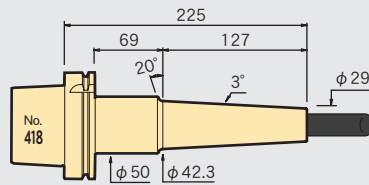
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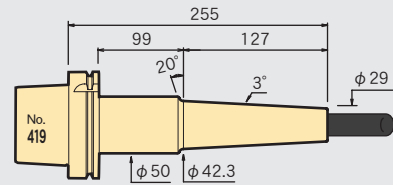
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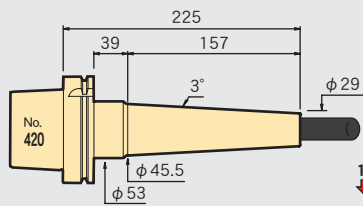
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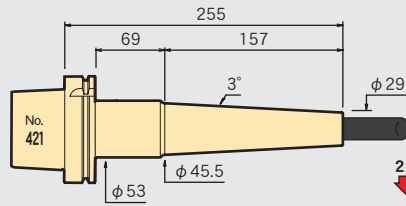
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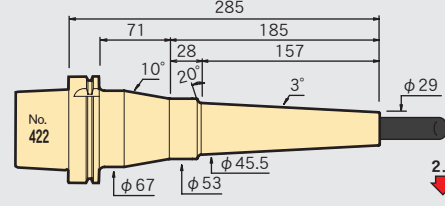
A100-SLSB20-225-M157



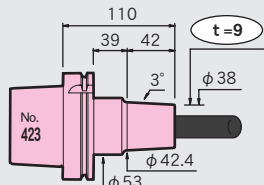
A100-SLSB20-255-M157



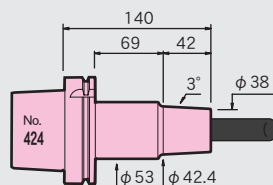
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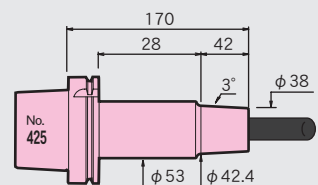
A100-SLRB20-110-M42



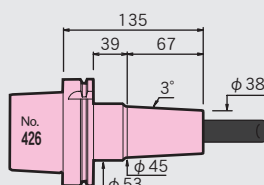
A100-SLRB20-140-M42



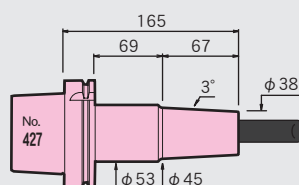
A100-SLRB20-170-M42



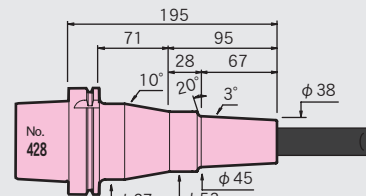
A100-SLRB20-135-M67

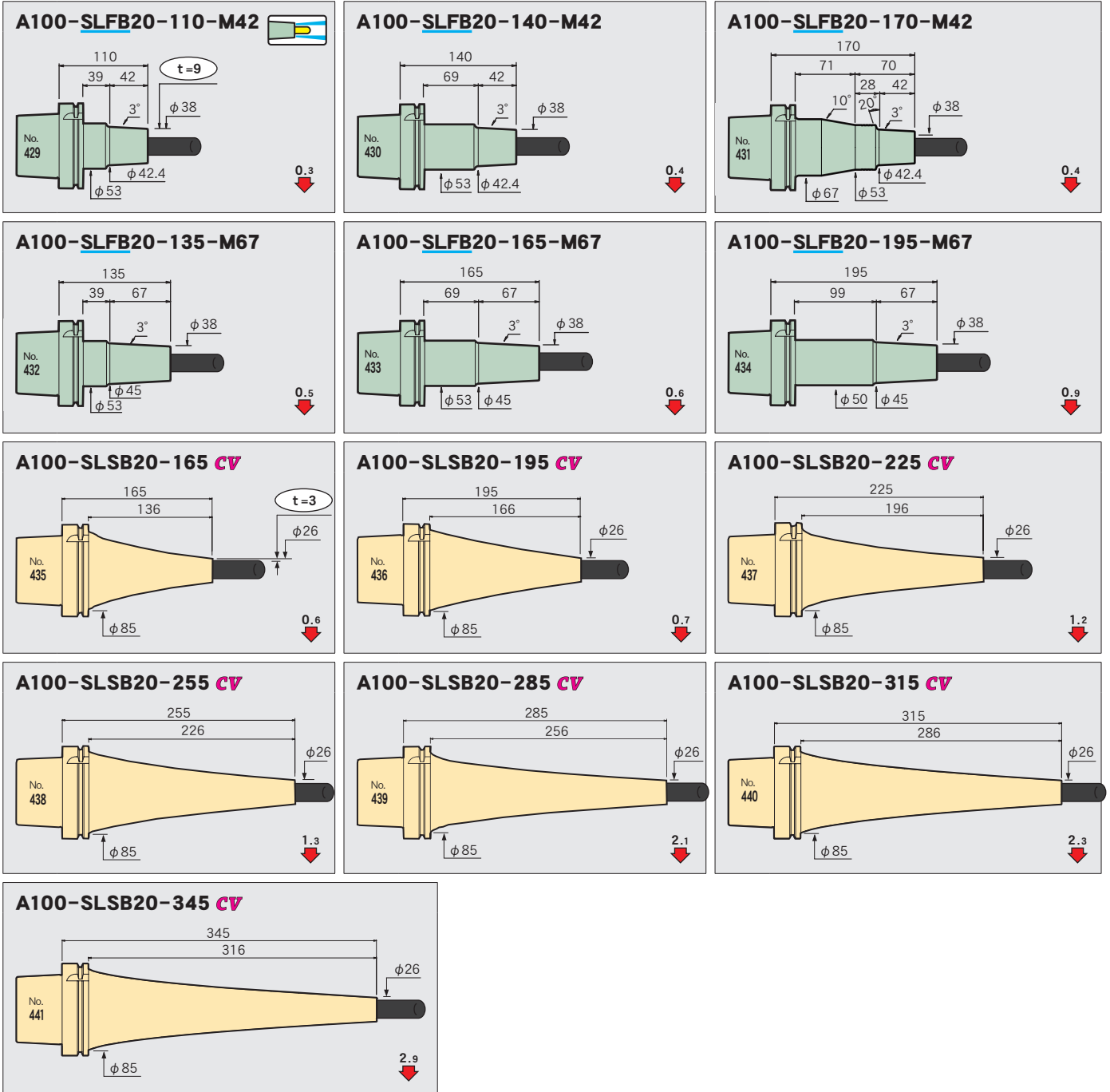


A100-SLRB20-165-M67



A100-SLRB20-195-M67





Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

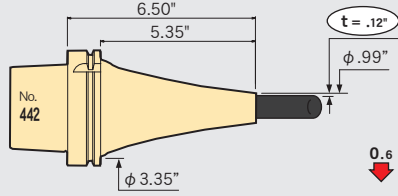
OTHERS

PERIPHERALS

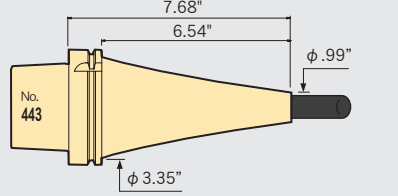
Technical
data

φ 3/4

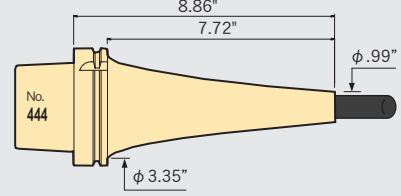
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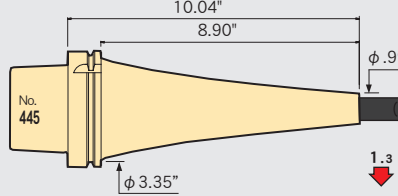
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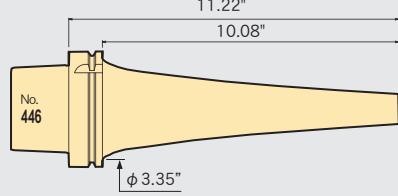
A100-SLSB3/4-225 CV



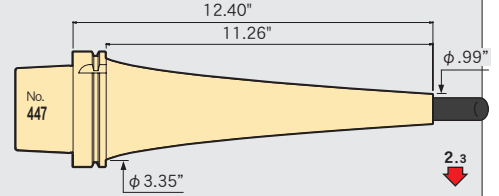
A100-SLSB3/4-255 CV



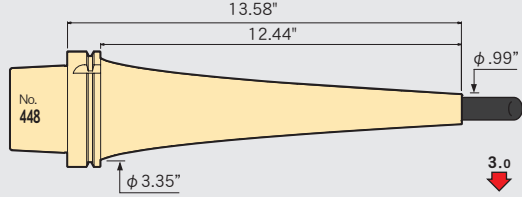
A100-SLSB3/4-285 CV



A100-SLSB3/4-315 CV

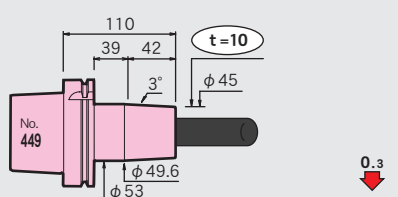


A100-SLSB3/4-345 CV

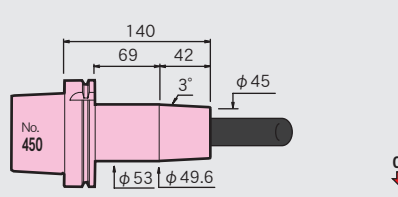


φ 25

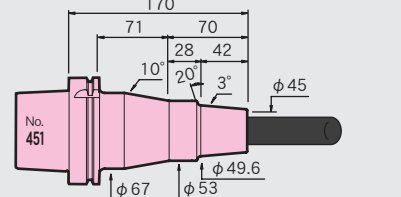
A100-SLRB25-110-M42



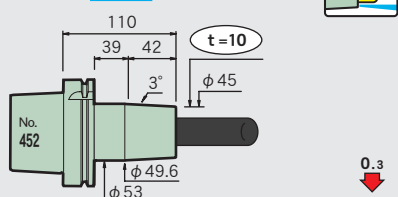
A100-SLRB25-140-M42



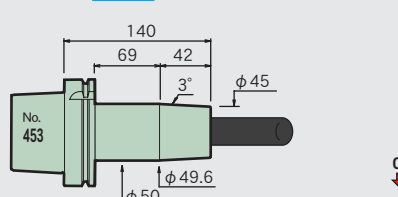
A100-SLRB25-170-M42



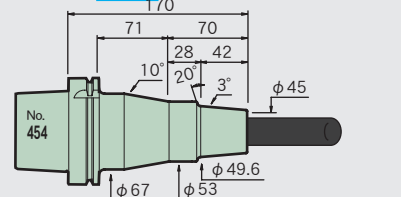
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A100-SLFB25-140-M42

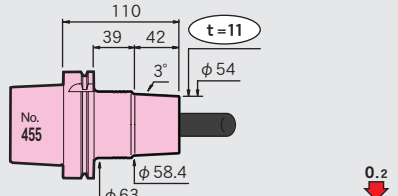


A100-SLFB25-170-M42

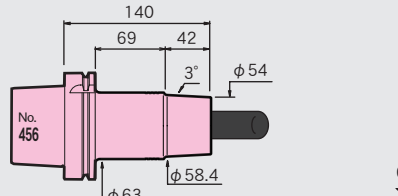


φ 32

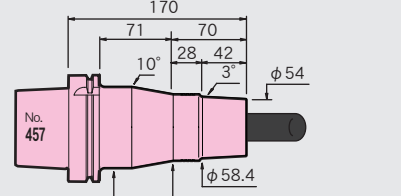
A100-SLRB32-110-M42



A100-SLRB32-140-M42

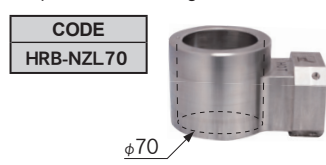


A100-SLRB32-170-M42



φ70 Nozzle (HRB-03S)

Required for shrinking the SLRB32.



HEAT ROBO Baby3000S



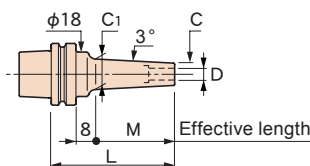
E25

E25-SLSA3-50

MONO 3°

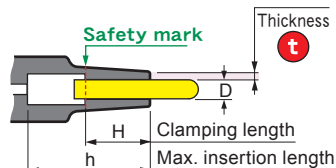
Rigidity value
($\mu\text{m/kgf}$)
P. 258

Imbalance value(g·mm)
P. 261



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.



CODE	φD	φC	t	L	M	L ₁	φC ₁	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.

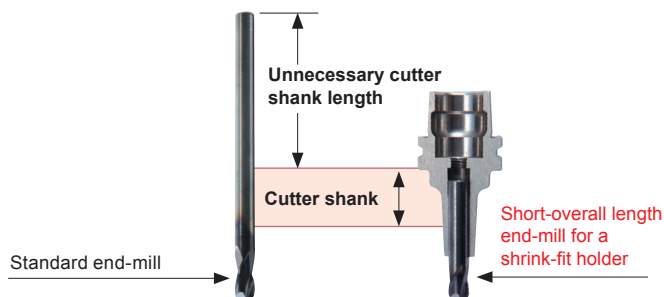
A short end-mill for the shrink-fit holder P. 262

Short shank

Short cutting flute

The shortest cutter projection

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.

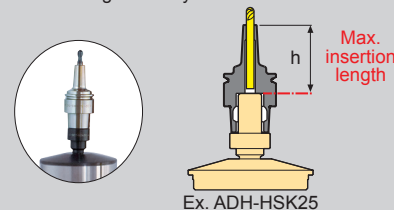
Holder stand

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.

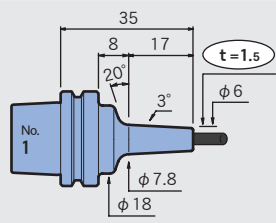
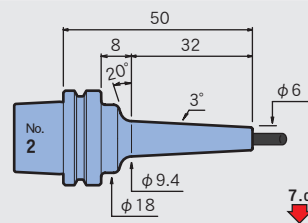
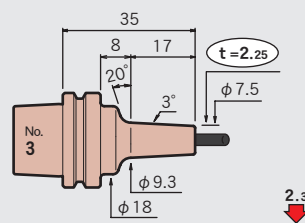
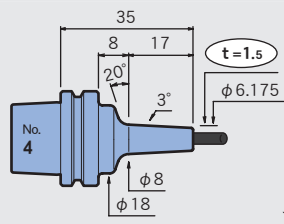
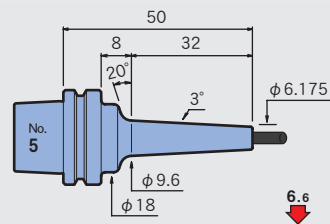
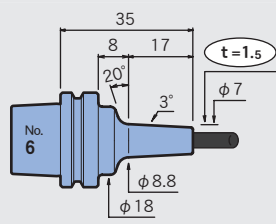
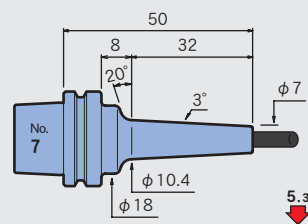
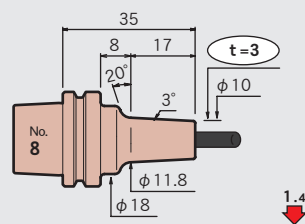
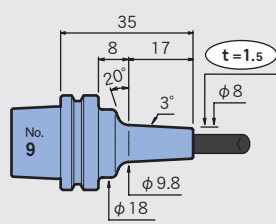
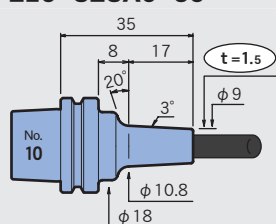
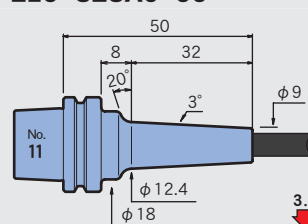
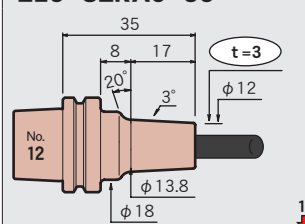


SODICK

UH430L/UH650L
TT1-400A/OPM250L
VL30
MEGA-SS Series
Android

MITSUI SEIKI
ROKU-ROKU

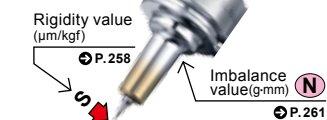


$\phi 3$ **E25-SLSA3-35****E25-SLSA3-50****E25-SLRA3-35** $\phi 3.175$ **E25-SLSA3.175-35****E25-SLSA3.175-50** $\phi 4$ **E25-SLSA4-35****E25-SLSA4-50****E25-SLRA4-35** $\phi 5$ **E25-SLSA5-35** $\phi 6$ **E25-SLSA6-35****E25-SLSA6-50****E25-SLRA6-35**

E32

E32-SLRA4-50-M22

MONO 3°



E32-SLSA4-90 cv

MONO CURVE



CV : Curve

Thickness

Fig. 1

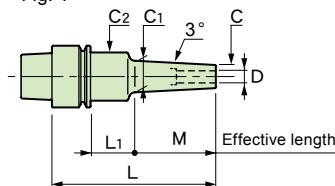


Fig. 2

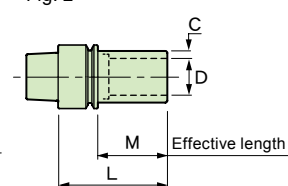
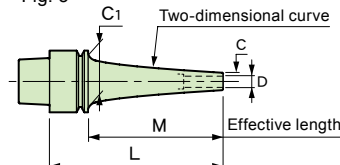
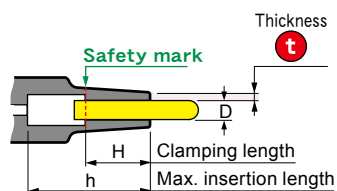


Fig. 3



■ 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.



CODE	Fig.	ϕD	ϕC	t	L	M	L ₁	ϕC_1	ϕC_2	H	h	$\frac{Kg}{lbs}$	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	L ₁	φC ₁	φC ₂	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

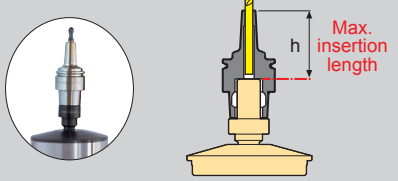
Holder stand






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

SODICK

DMG MORI

MAKINO

MITSUI SEIKI

MITSUBISHI

YASDA

Xion-III、Xion-II -5AX

UH430L、UH650L

HSC 20 linear

V22、V33*i*、iQ300

VL30

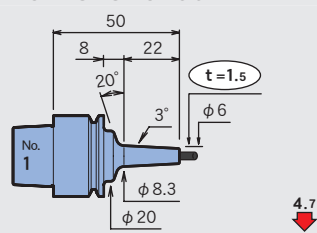
μV1

YMC430

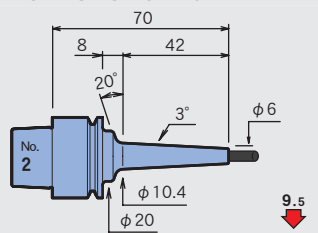


$\phi 3$

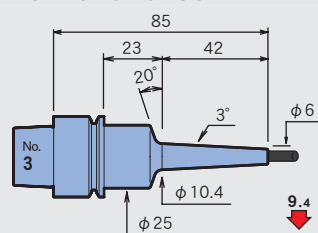
E32-SLSA3-50-M22



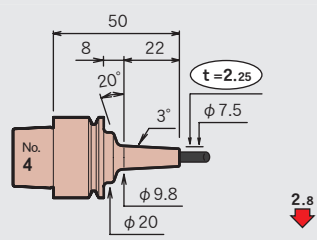
E32-SLSA3-70-M42



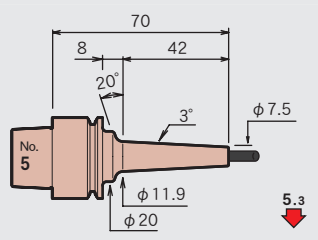
E32-SLSA3-85-M42



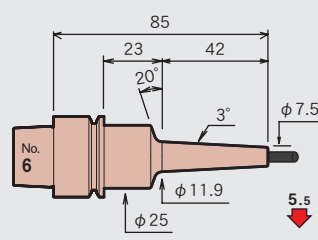
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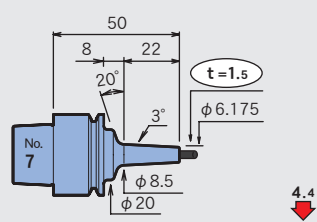
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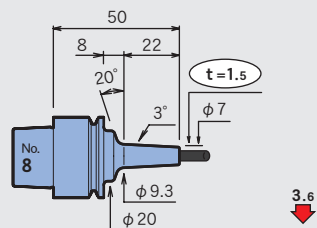
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 $\phi 3.175$

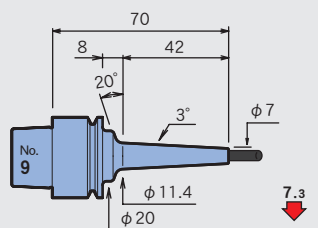
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 $\phi 4$

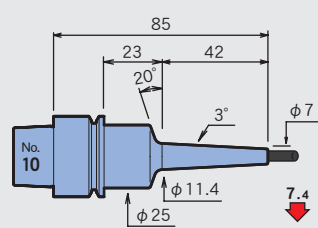
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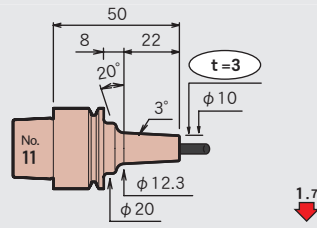
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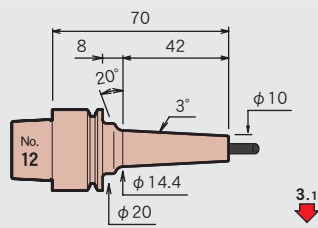
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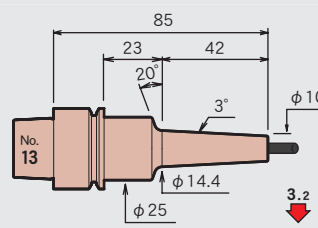
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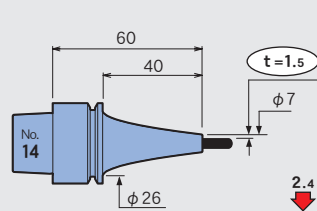
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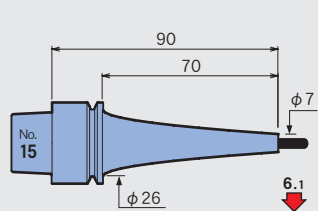
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E32-SLSA4-60 CV



E32-SLSA4-90 CV



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

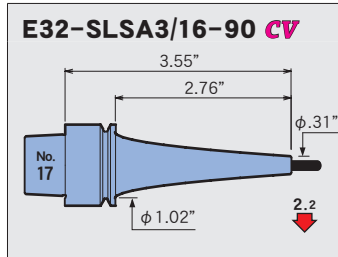
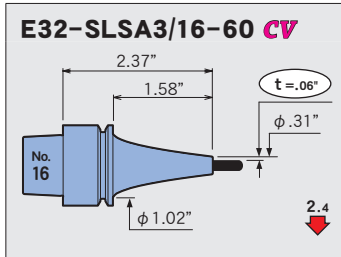
STRAIGHT
arbor

OTHERS

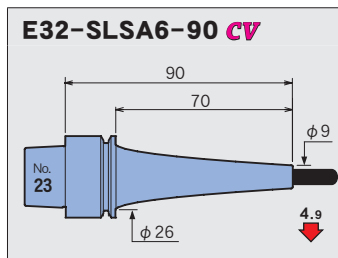
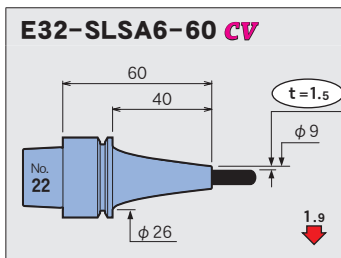
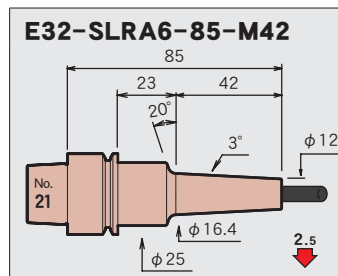
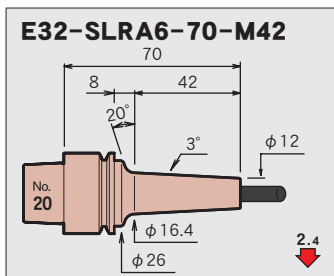
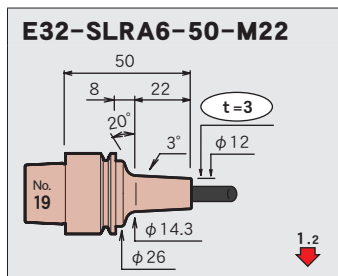
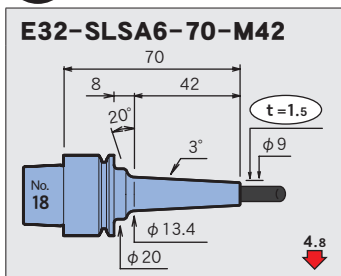
PERIPHERALS

Technical
data

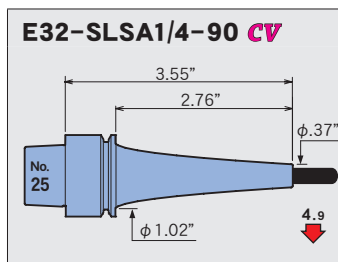
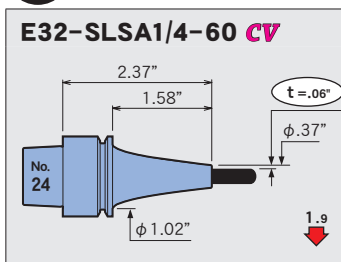
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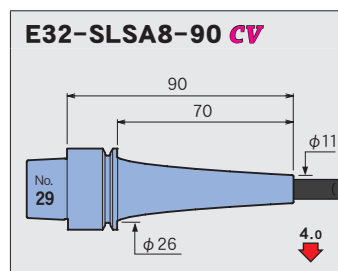
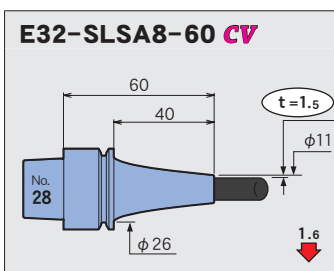
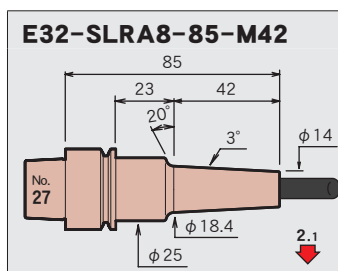
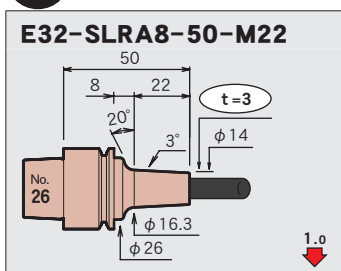
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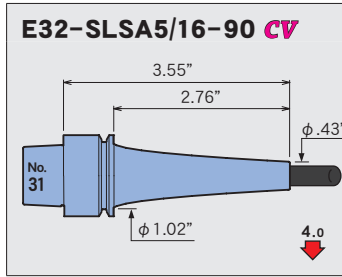
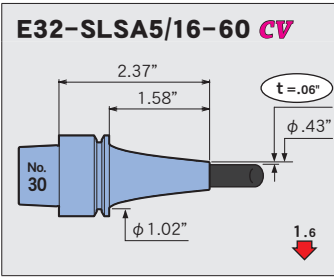
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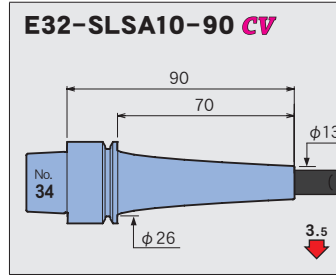
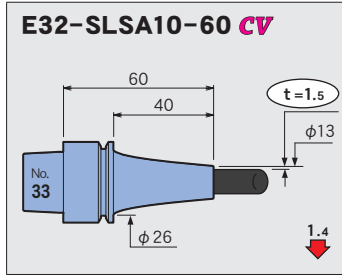
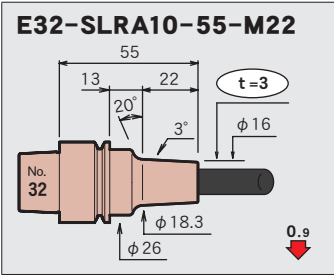
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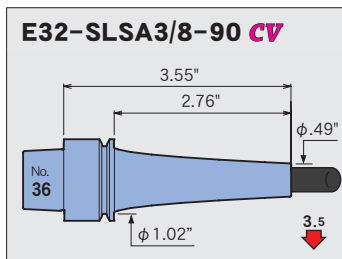
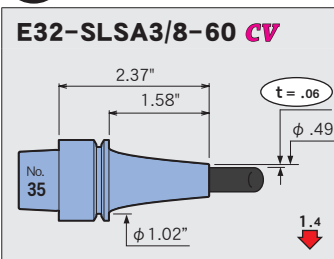
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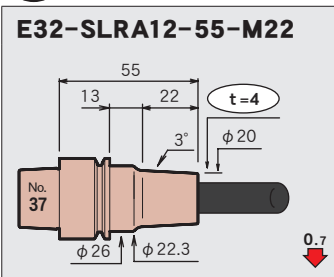
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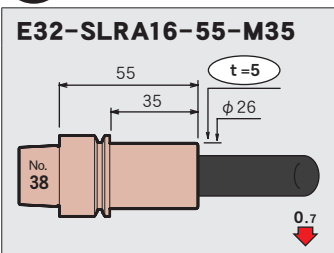
$\phi 3/8$



$\phi 12$



$\phi 16$



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

E40

E40-SLRA10-55-M22

MONO 3°



Fig. 1

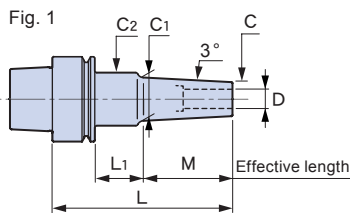
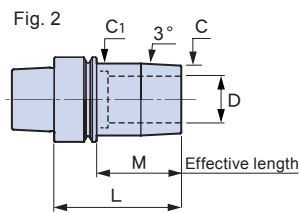


Fig. 2

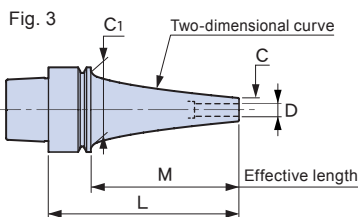


E40-SLRA6-90 cv

MONO CURVE

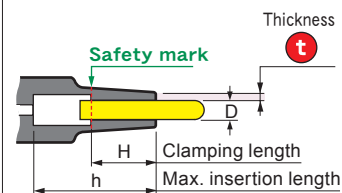


Fig. 3



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.



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	L ₁	φC ₁	φC ₂	H	h	 Kg lbs	 N	 S	Scale model	Feature
E40-SLRA6- 50-M22	1	6	12	3	50	22	8	14.3	26	18	39	0.2	0.7	1.2	32	Shrink-fit Heater
- 70-M42					70	42		16.4			54	0.3	0.8	2.3	33	
- 85-M42					85						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	MONO 3° MONO CURVE
-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	MONO Series
-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	2PIECE type
-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	UNO
-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	HYPER VERSION
- 80-M42					80	42		15.4			64			3.3	47	
-100-M42					100						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	Z
- 85-M42					85	42		18.4			69	0.3	1.2	2.1	50	
-100-M42					100						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	STRAIGHT arbor
-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	OTHERS
-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	PERIPHERALS
-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	TECHNICAL data
-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	Z
- 80-M42					80	42		17.4			64		1.1	2.4	63	
-100-M42					100						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	STRAIGHT arbor
- 85-M42					85	42		20.4			64		1.2	1.7	66	
-100-M42					100							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	OTHERS
-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	STRAIGHT arbor
-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	OTHERS
-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	PERIPHERALS
-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	TECHNICAL data
- 85-M42					85	42		24.4			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	PERIPHERALS
E40-SLRA20- 60-M40	2	20	32	6	60	40	—	34	—	38	49	0.4	1.6	0.4	81	

OKK
DMG MORI
MITSUI SEIKI
ROKU-ROKU

GR400
HSC 30 linear
VL30
CEGA-SS Series



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

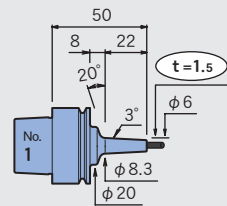
OTHERS

PERIPHERALS

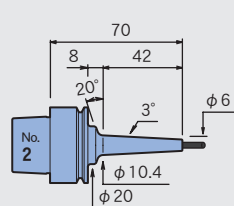
Technical
data

φ 3

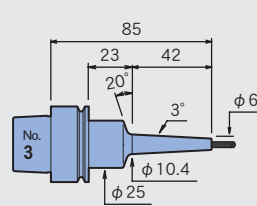
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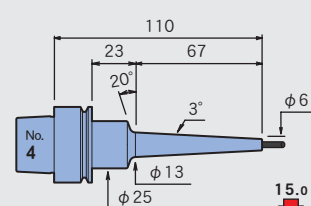
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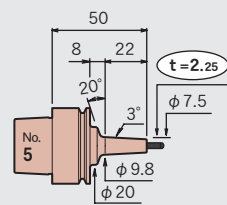
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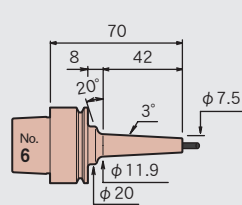
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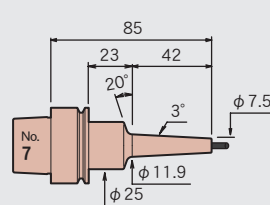
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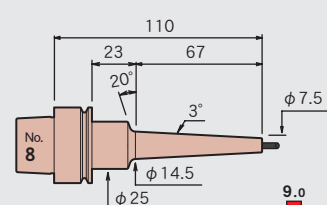
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E40-SLRA3-85-M42

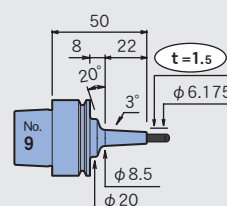


E40-SLRA3-110-M67



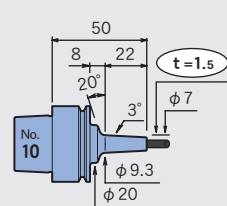
φ 3.175

E40-SLSA3.175-50-M22

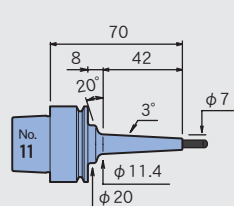


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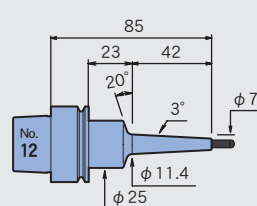
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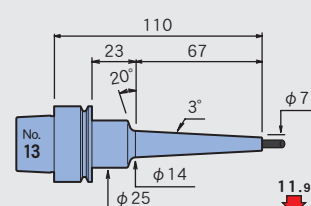
E40-SLSA4-70-M42



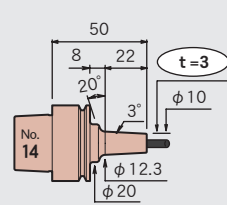
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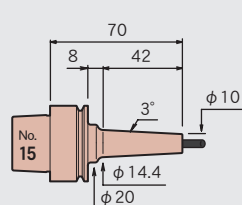
E40-SLSA4-110-M67



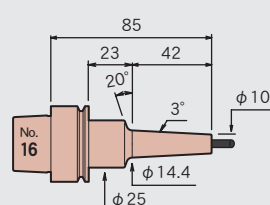
E40-SLRA4-50-M22



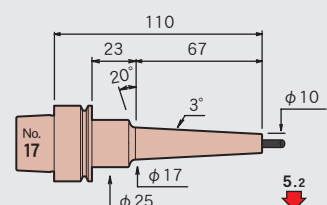
E40-SLRA4-70-M42



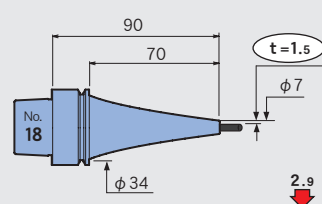
E40-SLRA4-85-M42



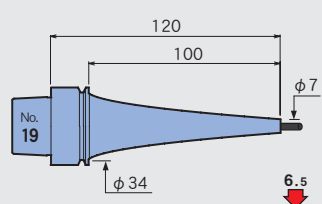
E40-SLRA4-110-M67



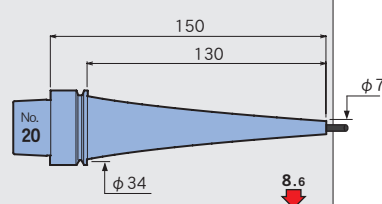
E40-SLSA4-90 CV

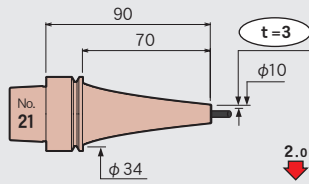
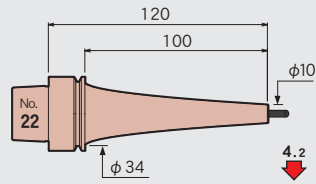
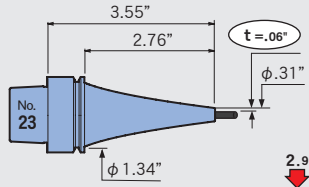
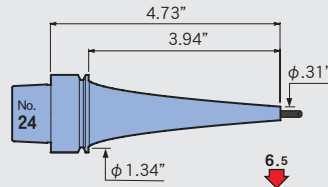
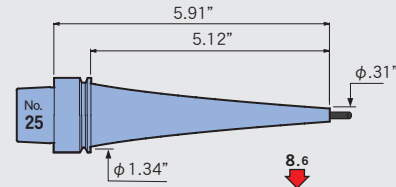
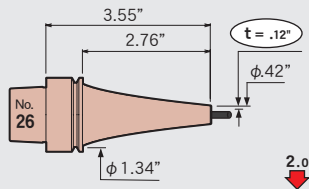
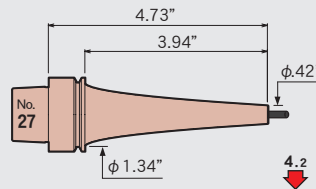
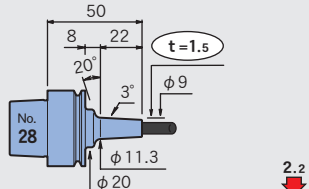
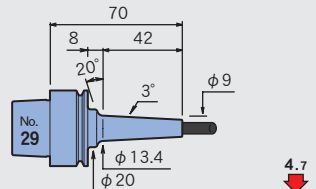
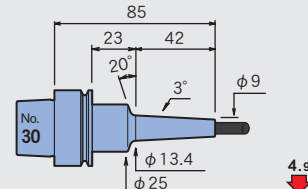
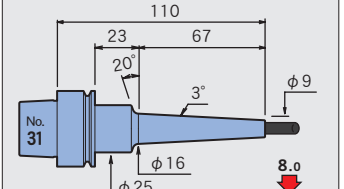
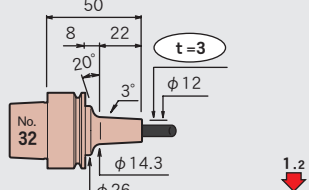
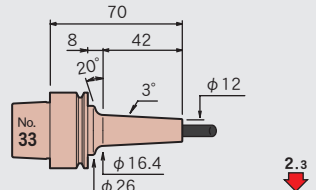
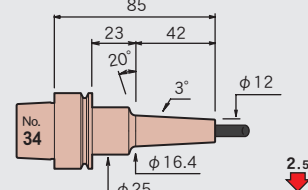
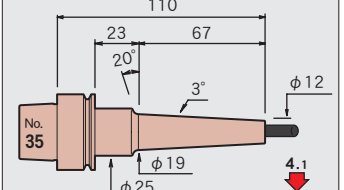
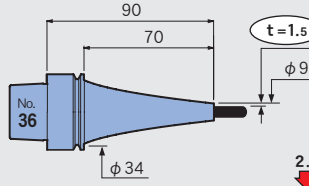
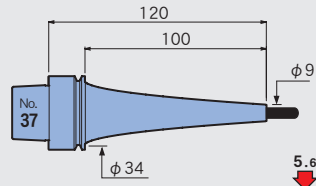
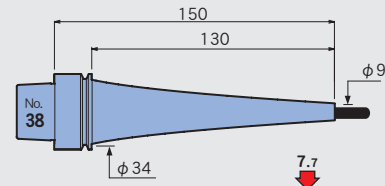
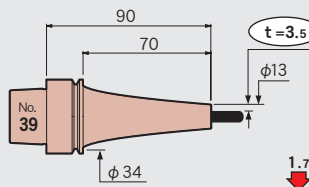
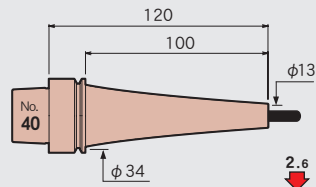


E40-SLSA4-120 CV



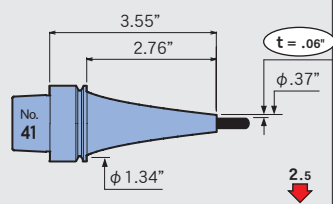
E40-SLSA4-150 CV



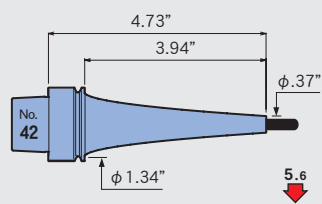
E40-SLRA4-90 CV**E40-SLRA4-120 CV** $\phi 3/16$ **E40-SLSA3/16-90 CV****E40-SLSA3/16-120 CV****E40-SLSA3/16-150 CV****E40-SLRA3/16-90 CV****E40-SLRA3/16-120 CV** $\phi 6$ **E40-SLSA6-50-M22****E40-SLSA6-70-M42****E40-SLSA6-85-M42****E40-SLSA6-110-M67****E40-SLRA6-50-M22****E40-SLRA6-70-M42****E40-SLRA6-85-M42****E40-SLRA6-110-M67****E40-SLSA6-90 CV****E40-SLSA6-120 CV****E40-SLSA6-150 CV****E40-SLRA6-90 CV****E40-SLRA6-120 CV**

$\phi 1/4$

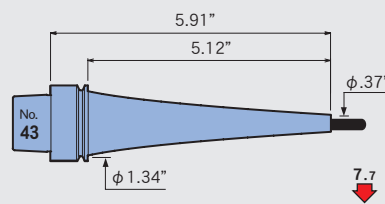
E40-SLSA1/4-90 CV



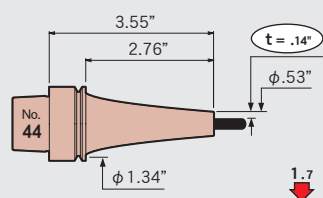
E40-SLSA1/4-120 CV



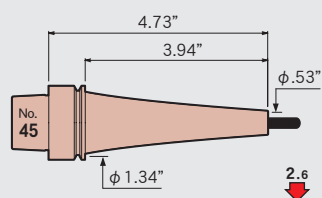
E40-SLSA1/4-150 CV



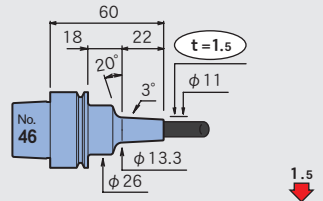
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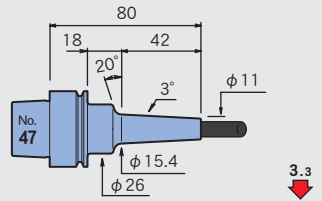
E40-SLRA1/4-120 CV

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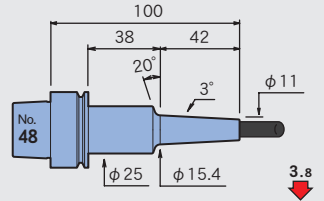
E40-SLSA8-60-M22



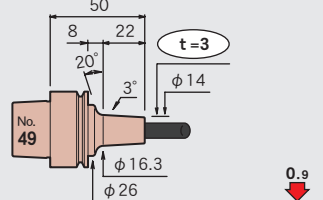
E40-SLSA8-80-M42



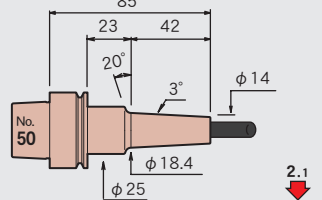
E40-SLSA8-100-M42



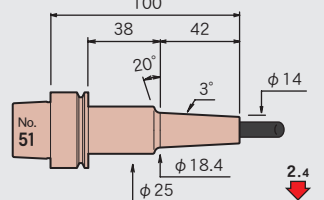
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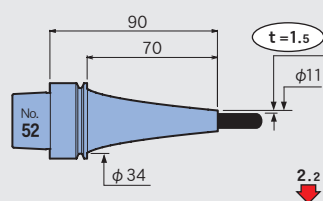
E40-SLRA8-85-M42



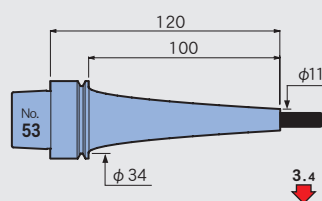
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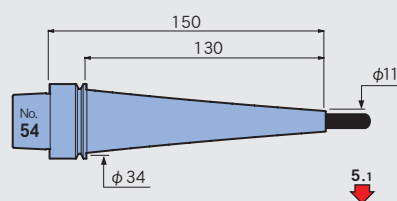
E40-SLSA8-90 CV



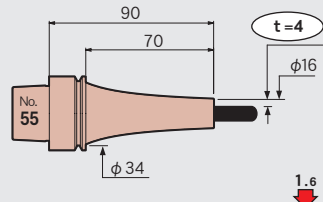
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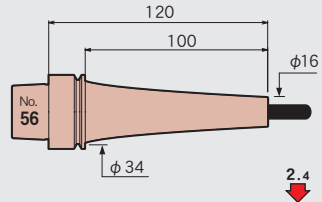
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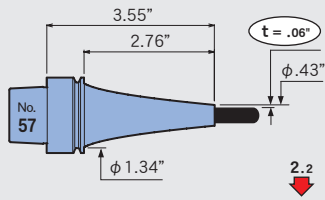
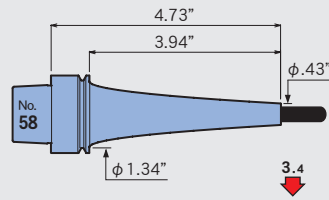
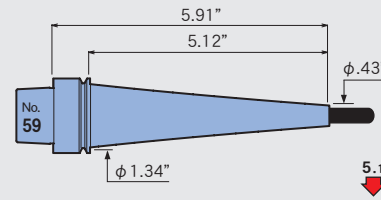
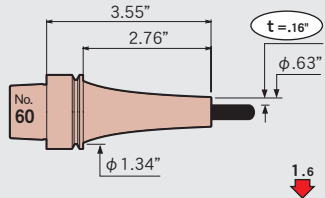
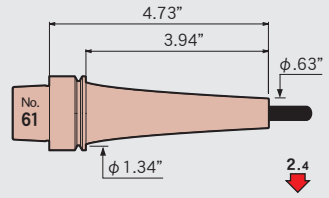
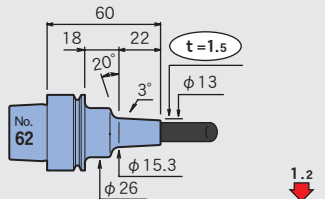
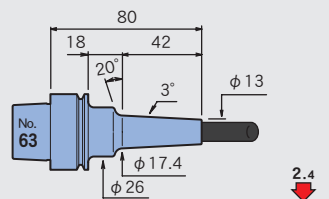
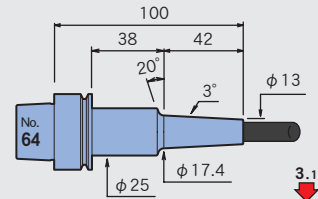
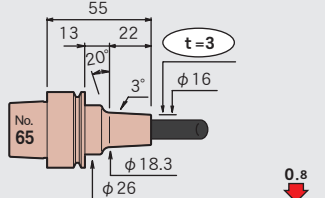
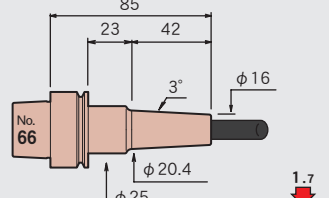
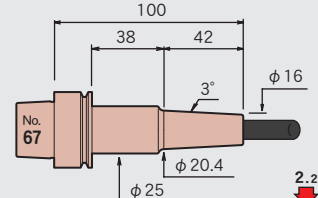
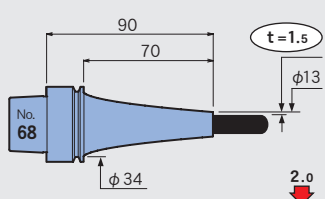
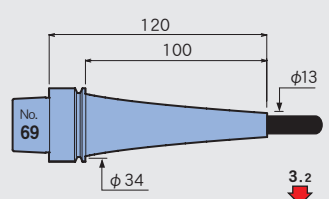
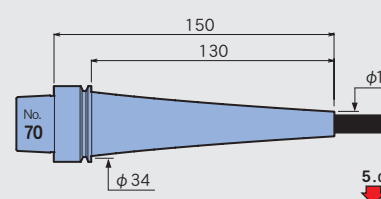
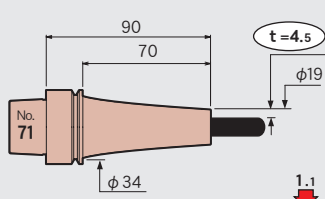
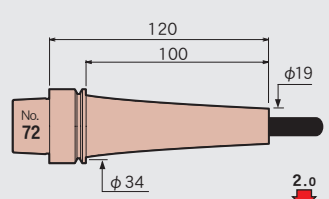


E40-SLRA8-90 CV



E40-SLRA8-120 CV



$\phi 5/16$ **E40-SLSA5/16-90 CV****E40-SLSA5/16-120 CV****E40-SLSA5/16-150 CV****E40-SLRA5/16-90 CV****E40-SLRA5/16-120 CV** $\phi 10$ **E40-SLSA10-60-M22****E40-SLSA10-80-M42****E40-SLSA10-100-M42****E40-SLRA10-55-M22****E40-SLRA10-85-M42****E40-SLRA10-100-M42****E40-SLSA10-90 CV****E40-SLSA10-120 CV****E40-SLSA10-150 CV****E40-SLRA10-90 CV****E40-SLRA10-120 CV**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

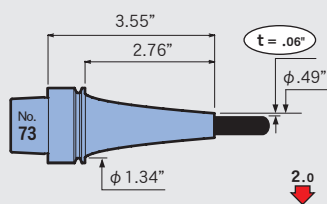
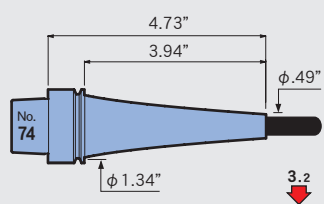
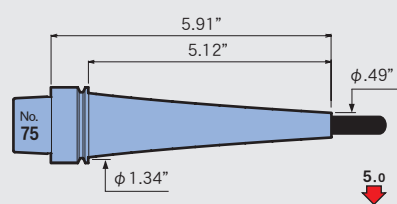
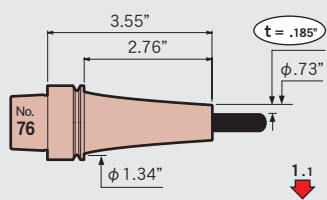
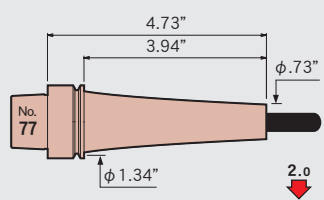
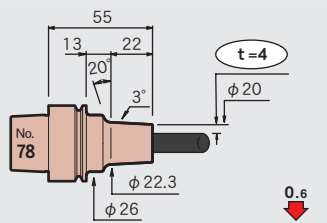
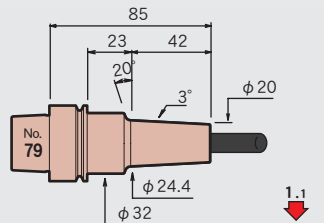
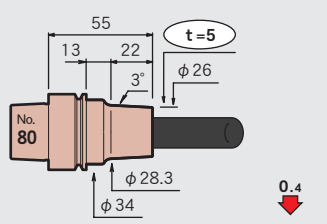
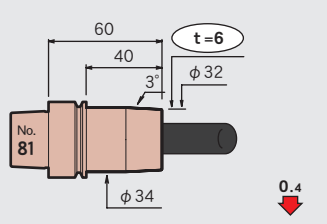
Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

$\phi 3/8$ **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** $\phi 12$ **E40-SLRA12-55-M22****E40-SLRA12-85-M42** $\phi 16$ **E40-SLRA16-55-M22** $\phi 20$ **E40-SLRA20-60-M40**

E50

E50-SLSA8-65-M22

MONO 3°

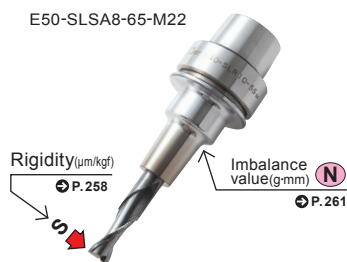
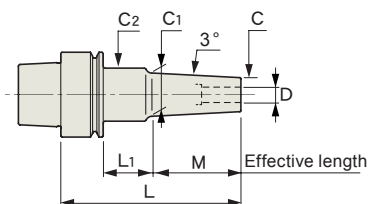


Fig. 1

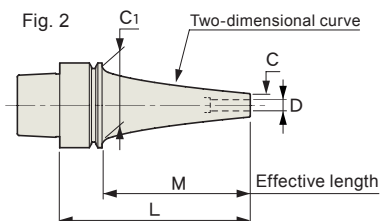


E50-SLSA6-150 cv

MONO CURVE



Fig. 2

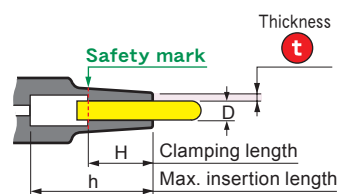


Compatibility table for HRD-01S

[○] Available	[×] Not available
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■ 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	L ₁	φC ₁	φC ₂	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			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			3.1	13
-120-M67					120	67		17			106	0.6		5.2	14
-150-M97					150	97		20.2			135	0.7		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			4.2	18
-150 cv					150	124					134	0.7		6	19
-180 cv					180	154					164	0.8		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		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		4.2	24
-150 cv					5.91	4.89					5.20	1.7		6	25
-180 cv					7.09	6.07					6.38	1.7		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		4.1	28



Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	φC ₁	φC ₂	H	h	 Kg lbs	 N	 S		Scale model
Shrink-fit Heater	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
MONO 3° MONO CURVE	-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
MONO Series	-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
2PIECE type	-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
UNO	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
	-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
HYPER VERSION	-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
Z	-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
STRAIGHT arbor	-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
OTHERS	-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
PERIPHERALS	-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
Technical data	-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

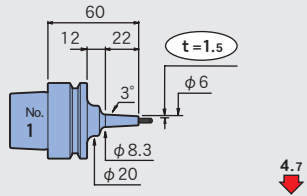


CODE	Fig.	φD	φC	t	L	M	L ₁	φC ₁	φC ₂	H	h		N	S		Scale model	Feature
E50-SLSA10- 65-M22	1	10	13	1.5	65	22	17	15.3	26	30	49	0.5	1.5	1.1	○	80	Shrink-fit Heater
- 75-M22					75		27		25		61		1.6	1.3		81	
- 85-M42					85	42	17	17.4	26		64			2.4		82	
E50 - 95-M42					95		27		25		81		2.2	2.6		83	
-120-M67					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	MONO 3° MONO CURVE
-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	MONO Series
-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	2PIECE type
-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	UNO
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	HYPER VERSION
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	Z
-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	STRAIGHT arbor
-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	OTHERS
-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	PERIPHERALS
-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	Technical data
-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	

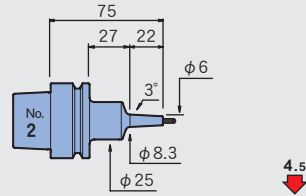


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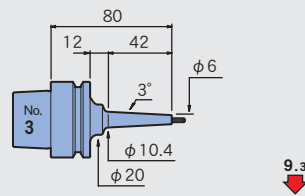
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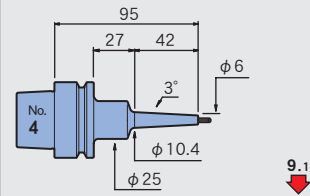
E50-SLSA3-75-M22



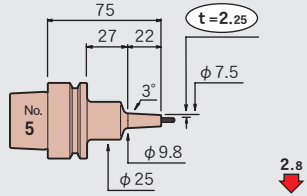
E50-SLSA3-80-M42



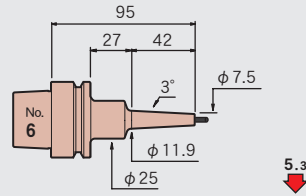
E50-SLSA3-95-M42



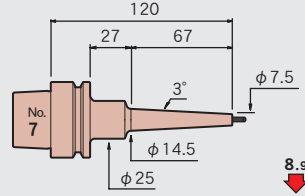
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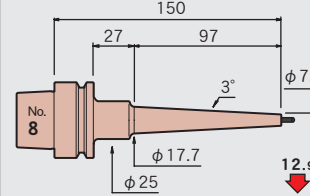
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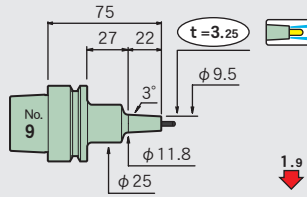
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E50-SLRA3-150-M97

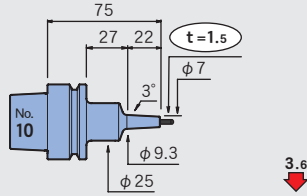


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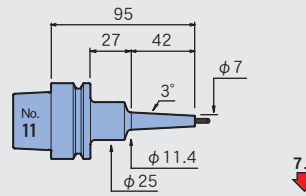


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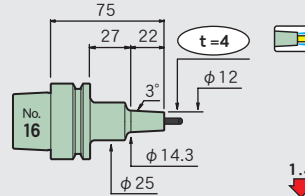
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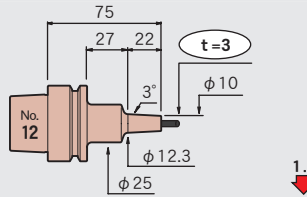
E50-SLSA4-95-M42



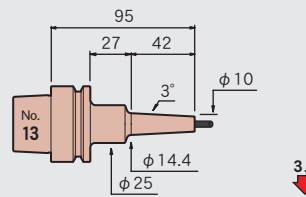
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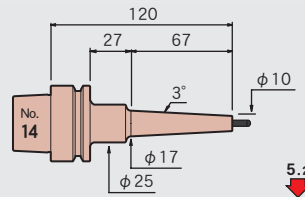
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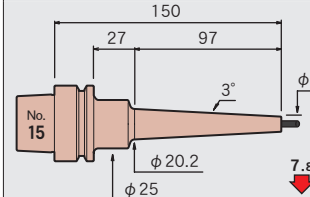
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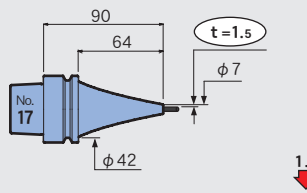
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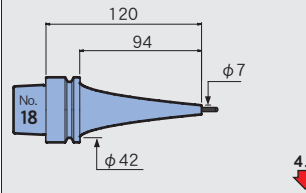
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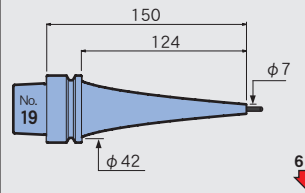
E50-SLSA4-90 CV



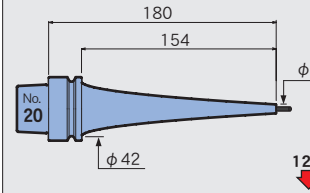
E50-SLSA4-120 CV



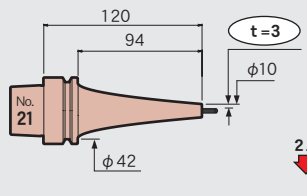
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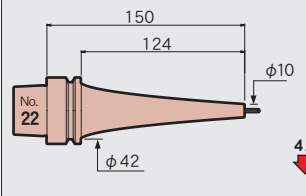
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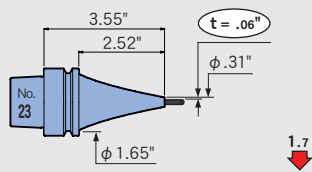
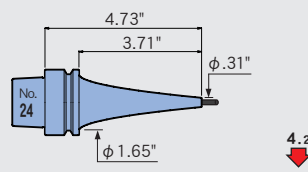
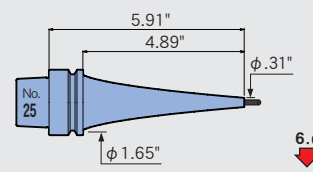
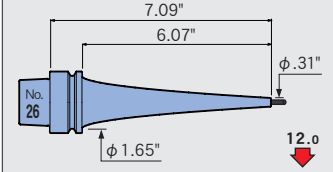
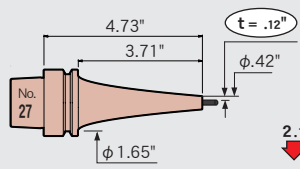
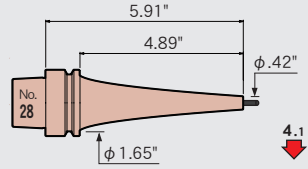
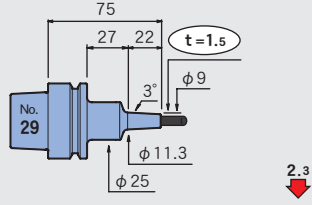
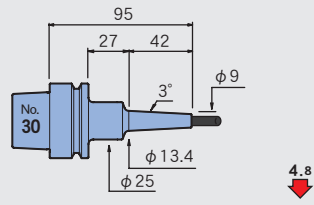
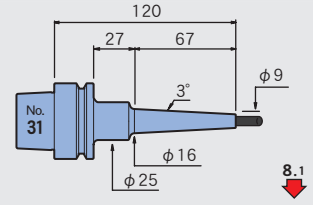
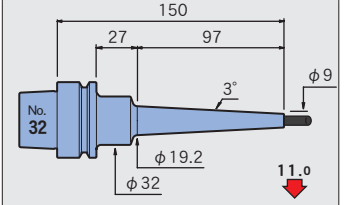
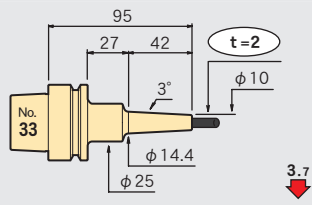
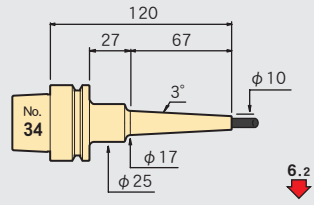
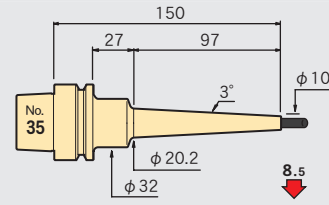
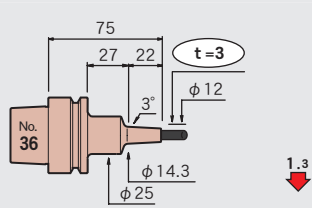
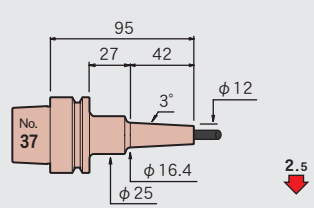
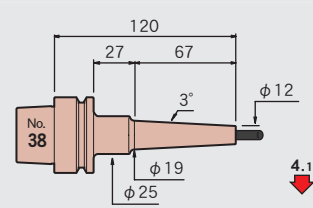
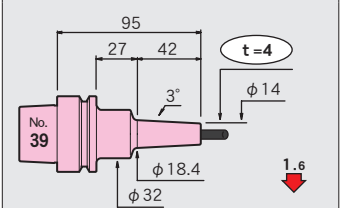
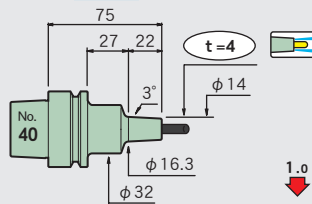
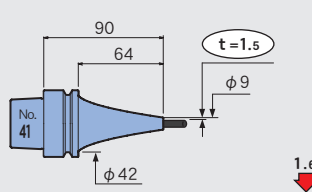
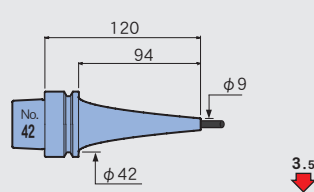
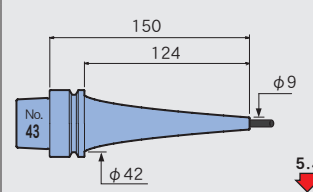
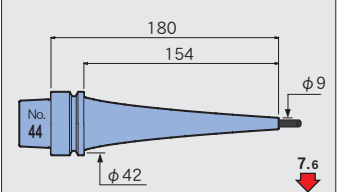


E50-SLRA4-120 CV



E50-SLRA4-150 CV



$\phi 3/16$ **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** $\phi 6$ **E50-SLSA6-75-M22****E50-SLSA6-95-M42****E50-SLSA6-120-M67****E50-SLSA6-150-M97****E50-SLSB6-95-M42****E50-SLSB6-120-M67****E50-SLSB6-150-M97****E50-SLRA6-75-M22****E50-SLRA6-95-M42****E50-SLRA6-120-M67****E50-SLRB6-95-M42****E50-SLFB6-75-M22****E50-SLSA6-90 CV****E50-SLSA6-120 CV****E50-SLSA6-150 CV****E50-SLSA6-180 CV**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

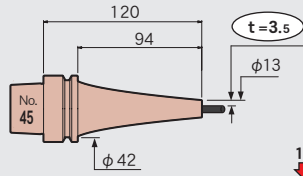
STRAIGHT
arbor

OTHERS

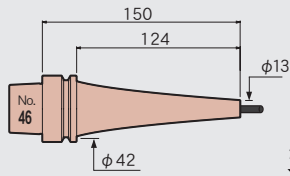
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Technical
data

E50-SLRA6-120 CV

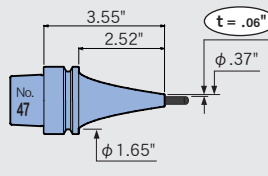


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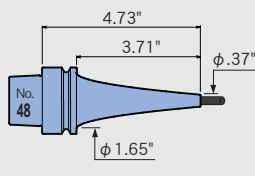


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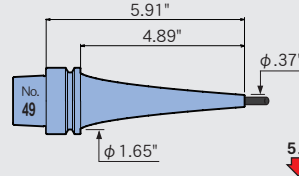
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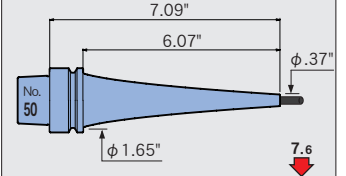
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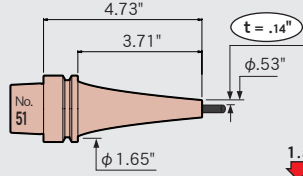
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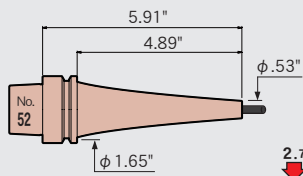
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E50-SLRA1/4-120 CV

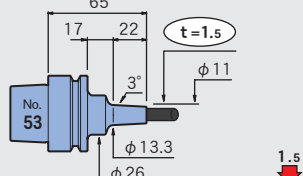


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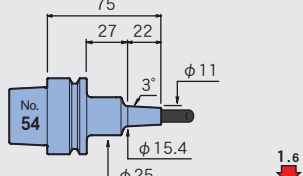


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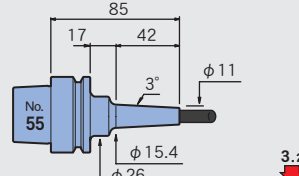
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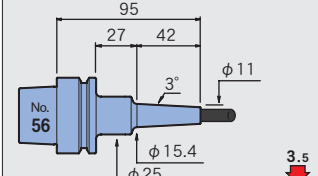
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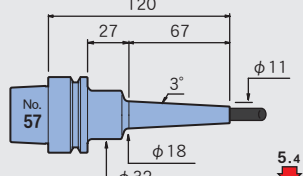
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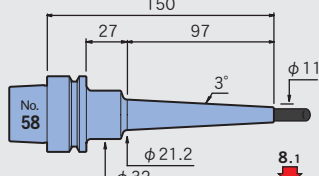
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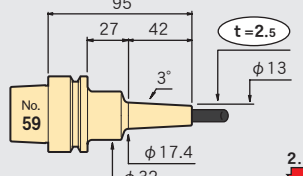
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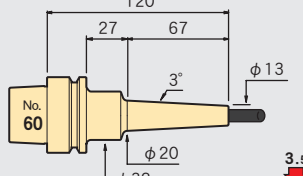
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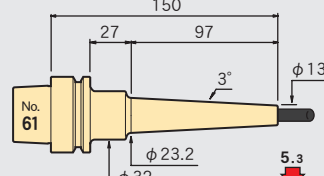
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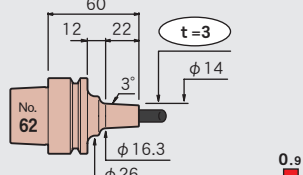
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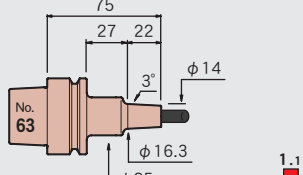
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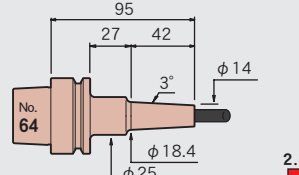
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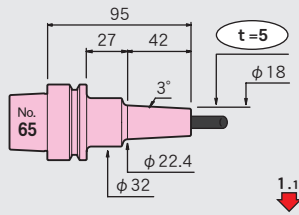
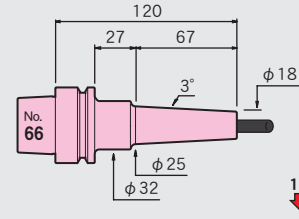
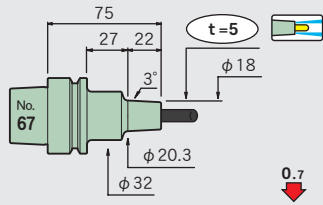
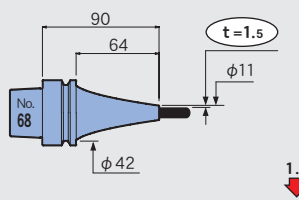
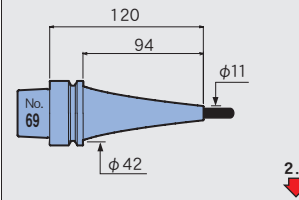
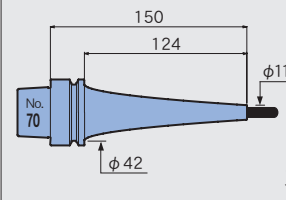
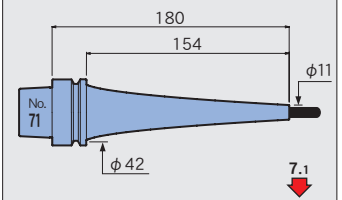
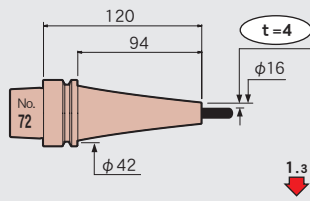
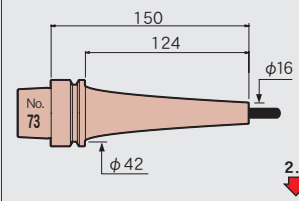
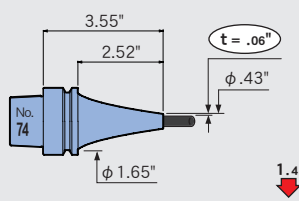
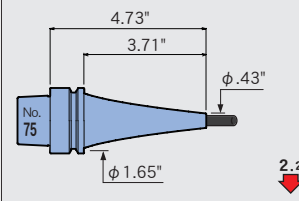
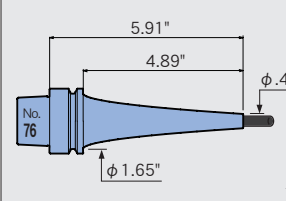
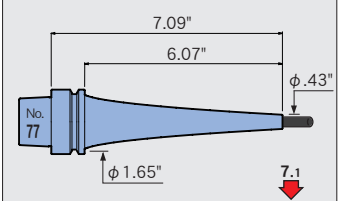
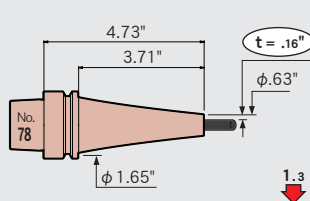
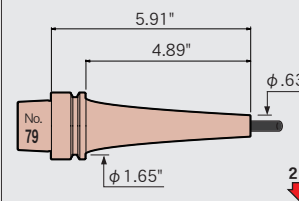


E50-SLRA8-75-M22



E50-SLRA8-95-M42



E50-SLRB8-95-M42**E50-SLRB8-120-M67****E50-SLFB8-75-M22****E50-SLSA8-90 CV****E50-SLSA8-120 CV****E50-SLSA8-150 CV****E50-SLSA8-180 CV****E50-SLRA8-120 CV****E50-SLRA8-150 CV** $\phi 5/16$ **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**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

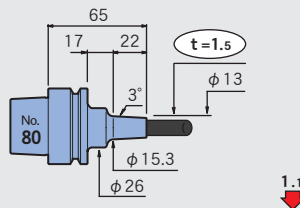
STRAIGHT
arbor

OTHERS

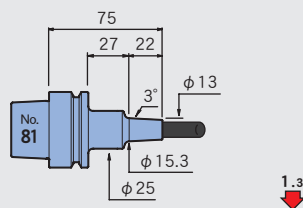
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Technical
data

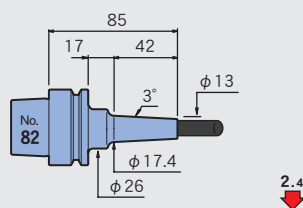
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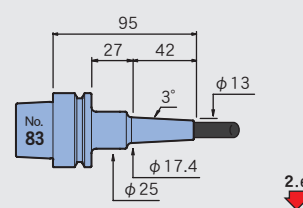
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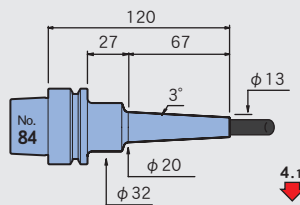
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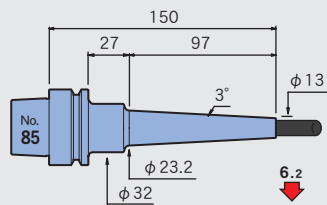
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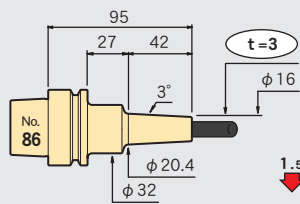
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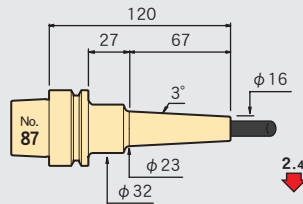
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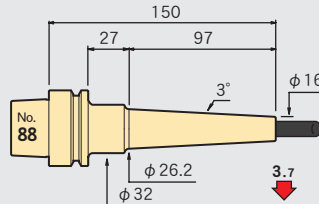
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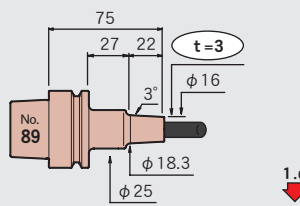
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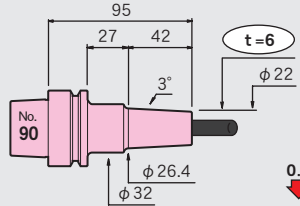
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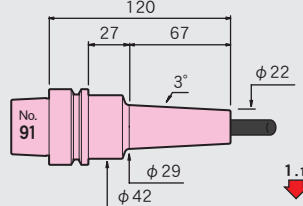
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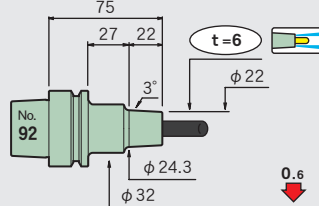
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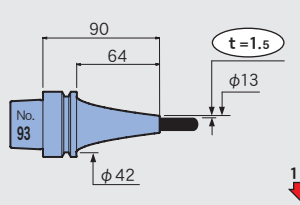
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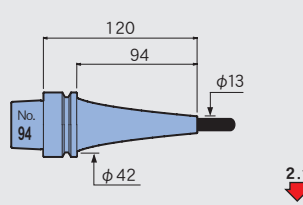
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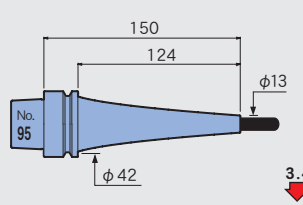
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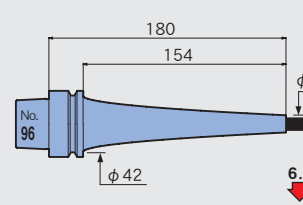
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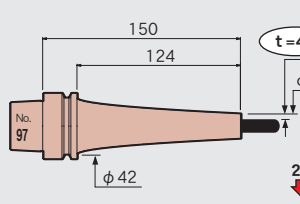
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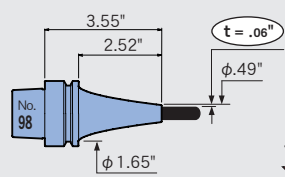
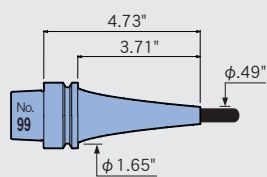
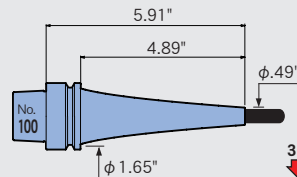
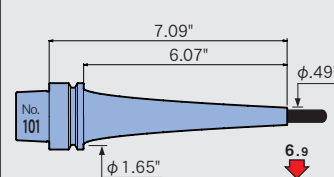
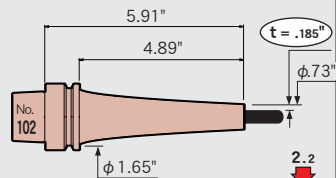
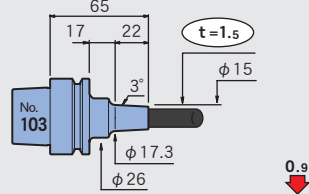
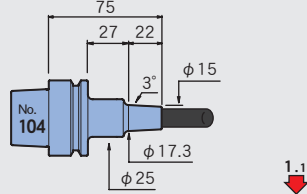
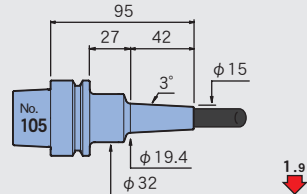
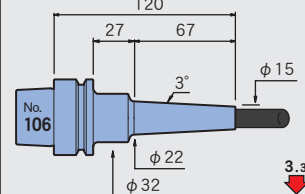
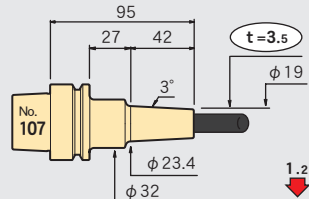
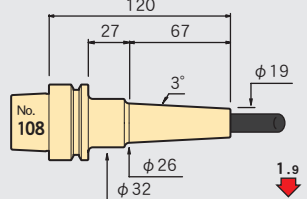
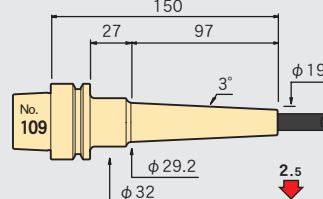
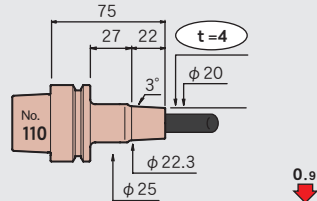
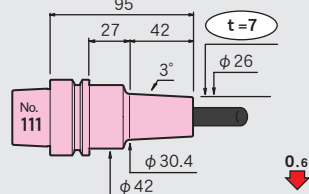
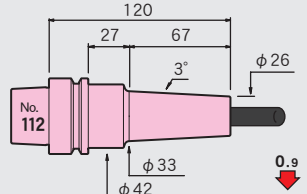
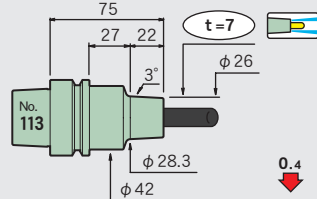


E50-SLSA10-180 CV



E50-SLRA10-150 CV



$\phi 3/8$ **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** $\phi 12$ **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**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

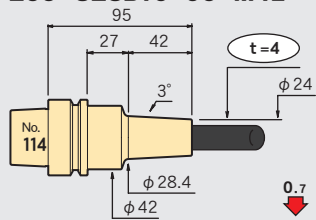
OTHERS

PERIPHERALS

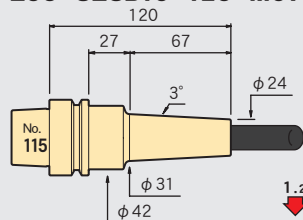
Technical
data

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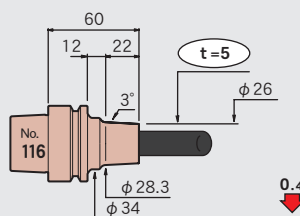
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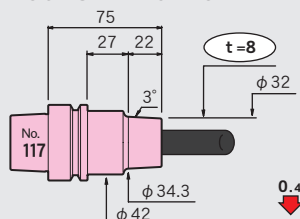
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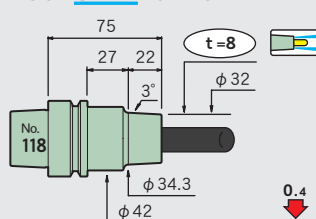
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E50-SLRB16-75-M22

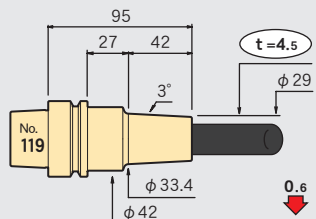


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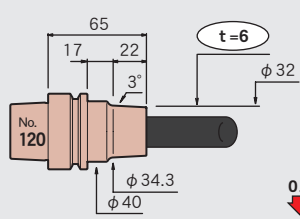


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E50-SLSB20-95-M42



E50-SLRA20-65-M22



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

OTHERS

PERIPHERALS

Technical
data

F63

F63-SLRA4-70-M22

MONO 3°

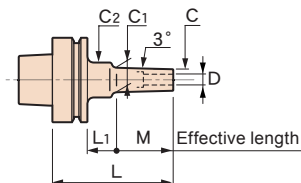
Rigidity value
($\mu\text{m/kgf}$)

P.258

Imbalance
value(g·mm)

P.261

Fig.1

Compatibility table
for HRD-01S

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

F63-SLRA6-120cv

MONO CURVE

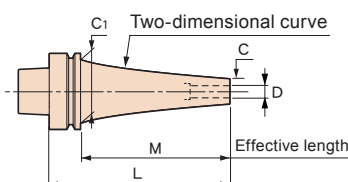
Rigidity value
($\mu\text{m/kgf}$)

P.258

Imbalance
value(g·mm)

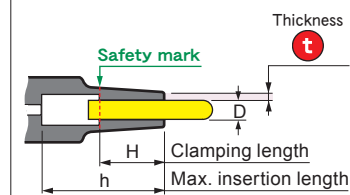
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Fig.2



■ 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	L ₁	φC ₁	φC ₂	H	h					Scale model
F63-SLSA3- 75-M37	1	3	6	1.5	75	37	12	9.9	26	9	58	0.7	1.5	8		<u>1</u>
- 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		<u>3</u>
- 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 <i>cv</i>	2	4	7	1.5	90	64	—	53	—	12	65	0.9	2.7	1.8		15
-120 <i>cv</i>					120	94					95	1	3.6	2.7		16
-150 <i>cv</i>					150	124					125	1.2	4.4	4		17
-180 <i>cv</i>					180	154					154	1.3	5	6.6		18
-210 <i>cv</i>					210	184					185		5.3	11.6		19
-240 <i>cv</i>					240	214					214	1.6	6.5	14		20
-270 <i>cv</i>					270	244					245	1.9	8.8	11.9		21
-300 <i>cv</i>					300	274					275	2	9.7	15.9		22
-SLRA4-120 <i>cv</i>	2	4	10	3	120	94	—	53	—	12	95	1	3.6	1.9		23
-150 <i>cv</i>					150	124					125	1.1	4.4	2.9		24
-180 <i>cv</i>					180	154					155	1.4	6	3.3		25
-210 <i>cv</i>					210	184					185	1.5	6.2	5.6		26

SLFB

Feature	CODE	Fig.	φD	φC	t	L	M	L1	φC1	φC2	H	h					Scale model
Shrink-fit Heater	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
	 -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
MONO 3° MONO CURVE	-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
MONO Series	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
2PIECE type	-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
UNO	-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
Z	-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
STRAIGHT arbor	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
PERIPHERALS	-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
Technical data																	



CODE	Fig.	φD	φC	t	L	M	L ₁	φC ₁	φC ₂	H	h	Kg lbs	N	S	Scale model	Feature
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
-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



Feature	CODE	Fig.	φD	φC	t	L	M	L ₁	φC ₁	φC ₂	H	h	Kg lbs	N	S	Scale model
Shrink-fit Heater	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
	F63 -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
MONO 3° MONO CURVE	-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
MONO Series	-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
2PIECE type	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
UNO	-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
HYPER VERSION	-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
Z	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
STRAIGHT arbor	-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
OTHERS	-240 CV					240	214					212	2	9.6	5.5	171
	-270 CV					270	244					244	2.2	11.8	5.4	172
PERIPHERALS	-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



CODE	Fig.	φD	φC	t	L	M	L ₁	φC ₁	φC ₂	H	h	Kg lbs	N	S	Scale model	Feature
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
F63 -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-SLFB3-120-M67

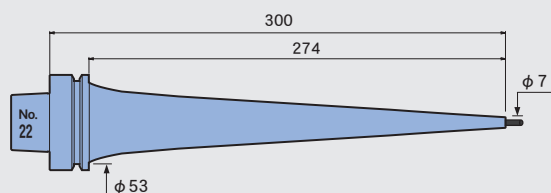
F63-SLRA4-95-M42

F63-SLFB4-120-M67

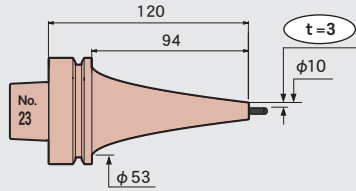
F63-SLSA4-150 CV

F63-SLSA4-240 CV

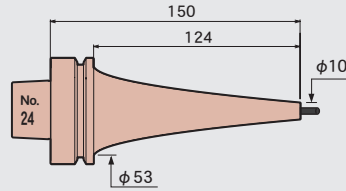
F63-SLSA4-300 CV



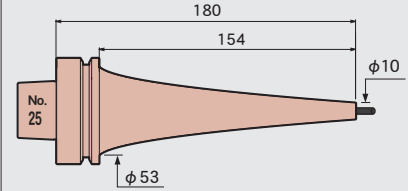
F63-SLRA4-120 CV



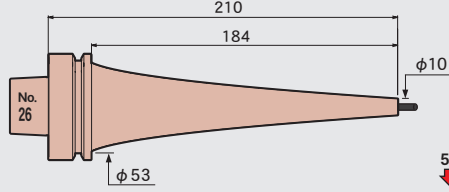
F63-SLRA4-150 CV



F63-SLRA4-180 CV

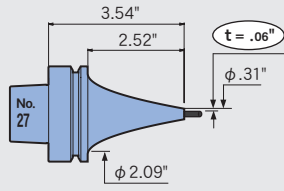


F63-SLRA4-210 CV

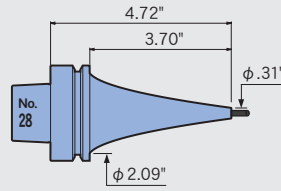


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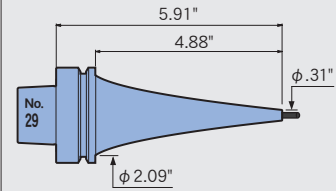
F63-SLSA3/16-90 CV



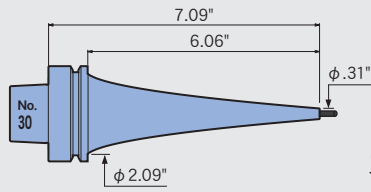
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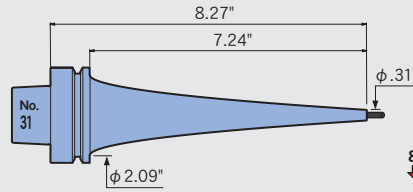
F63-SLSA3/16-150 CV



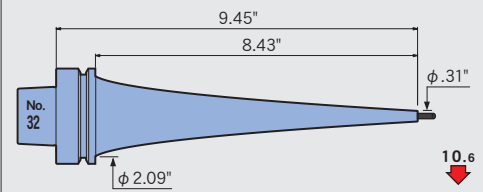
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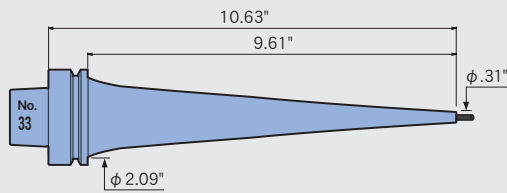
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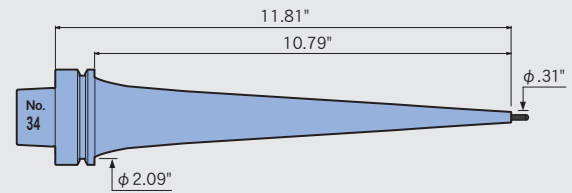
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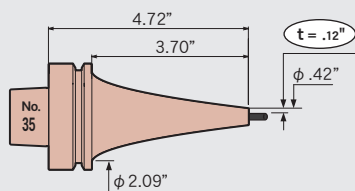
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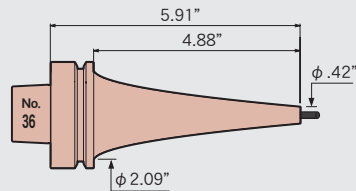
F63-SLSA3/16-300 CV



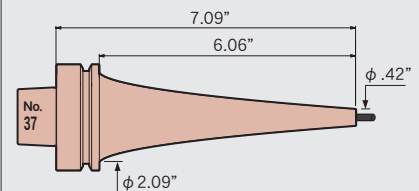
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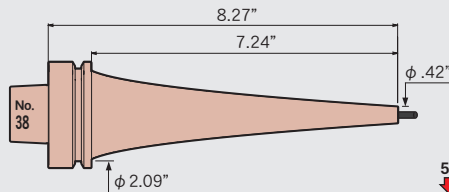
F63-SLRA3/16-150 CV



F63-SLRA3/16-180 CV



F63-SLRA3/16-210 CV



Feature

Shrink-fit Heater

MONO 3° MONO CURVE

MONO Series

2PIECE type

UNO

HYPER VERSION

Z

STRAIGHT arbor

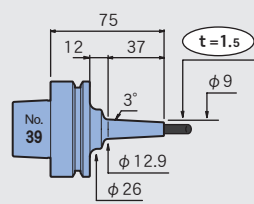
OTHERS

PERIPHERALS

Technical data

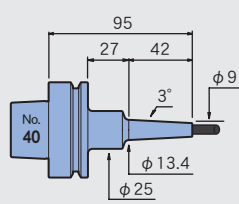
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F63-SLSA6-75-M37



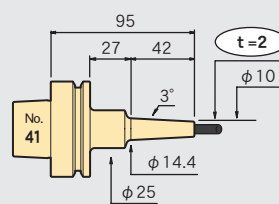
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F63-SLSA6-95-M42



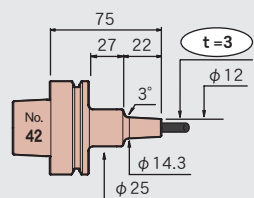
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F63-SLSB6-95-M42



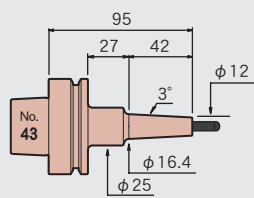
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F63-SLRA6-75-M22



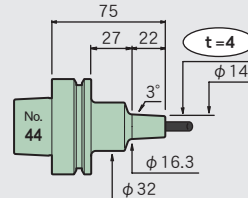
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F63-SLRA6-95-M42



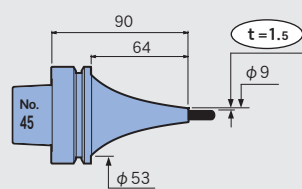
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F63-SLFB6-75-M22



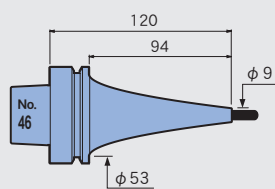
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F63-SLSA6-90 CV



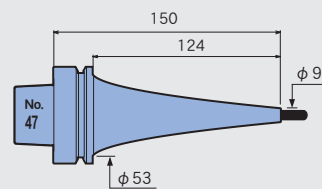
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F63-SLSA6-120 CV



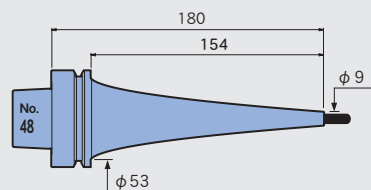
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F63-SLSA6-150 CV



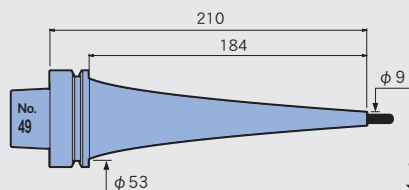
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F63-SLSA6-180 CV



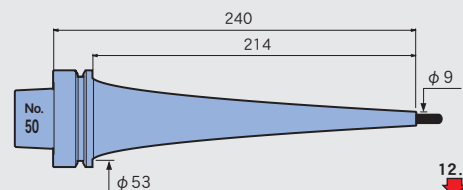
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F63-SLSA6-210 CV



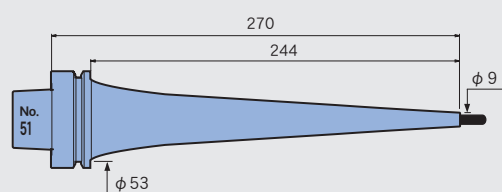
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F63-SLSA6-240 CV



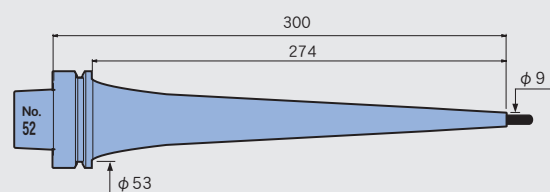
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F63-SLSA6-270 CV



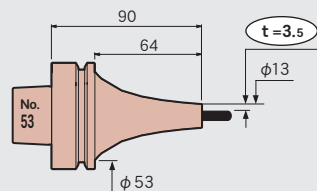
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F63-SLSA6-300 CV



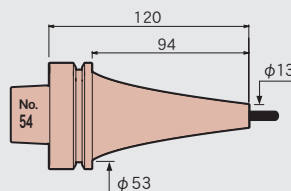
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F63-SLRA6-90 CV



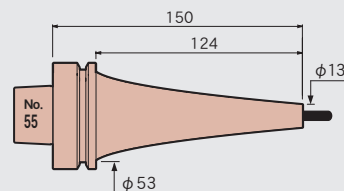
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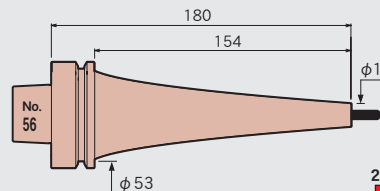
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F63-SLRA6-150 CV



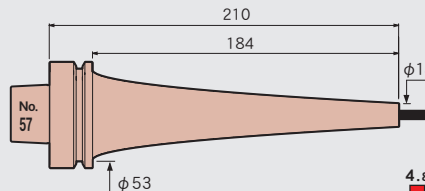
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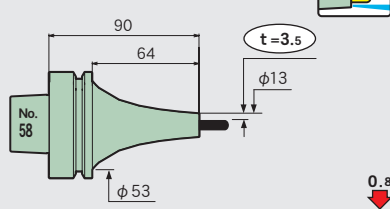
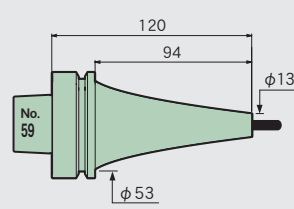
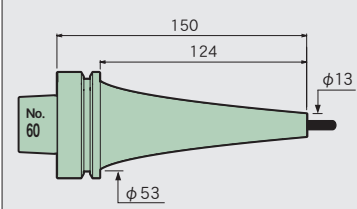
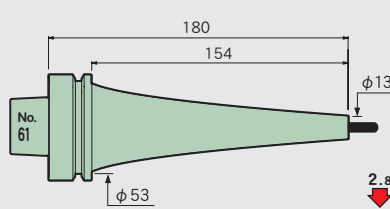
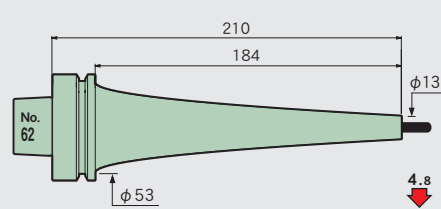
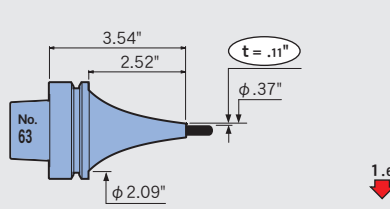
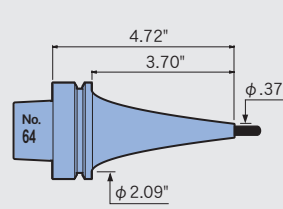
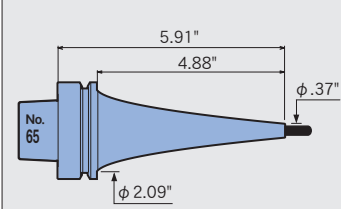
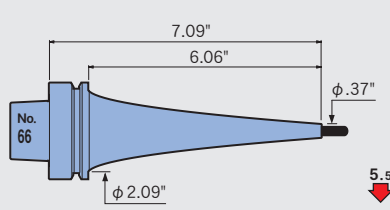
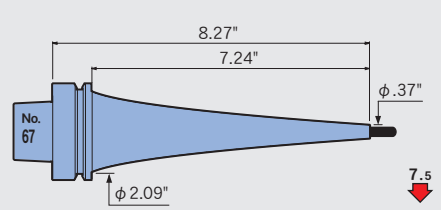
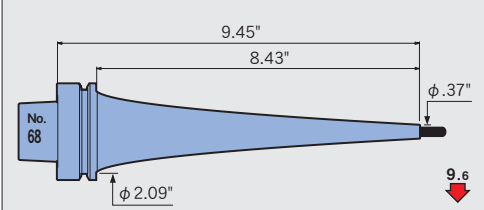
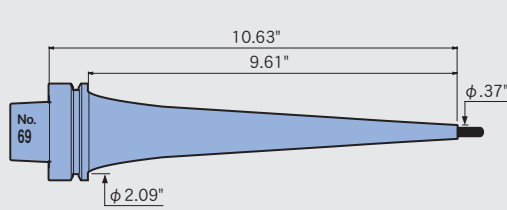
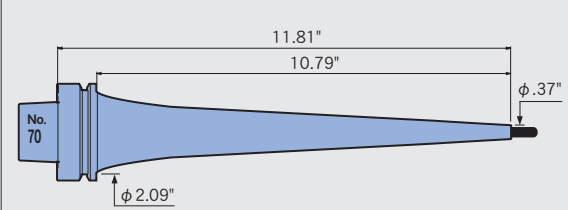
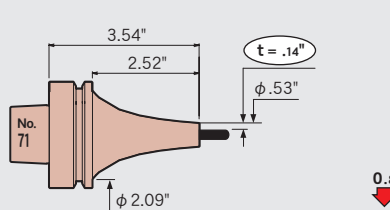
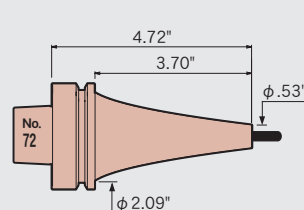
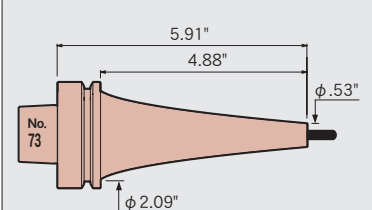
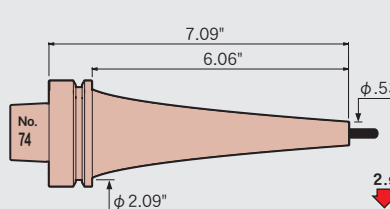
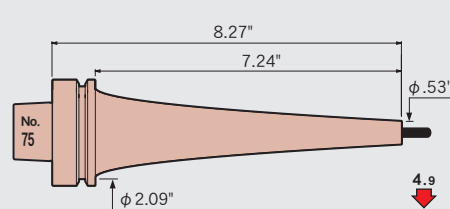


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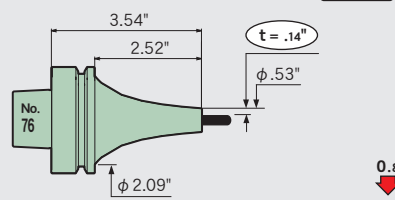
F63-SLRA6-210 CV



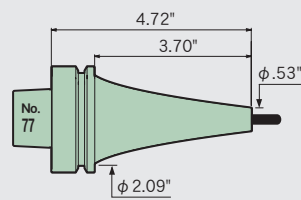
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F63-SLFA6-90 CV**F63-SLFA6-120 CV****F63-SLFA6-150 CV****F63-SLFA6-180 CV****F63-SLFA6-210 CV**
 $\phi 1/4$
F63-SLSA1/4-90 CV**F63-SLSA1/4-120 CV****F63-SLSA1/4-150 CV****F63-SLSA1/4-180 CV****F63-SLSA1/4-210 CV****F63-SLSA1/4-240 CV****F63-SLSA1/4-270 CV****F63-SLSA1/4-300 CV****F63-SLRA1/4-90 CV****F63-SLRA1/4-120 CV****F63-SLRA1/4-150 CV****F63-SLRA1/4-180 CV****F63-SLRA1/4-210 CV**

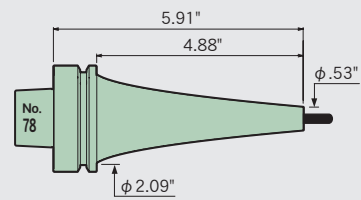
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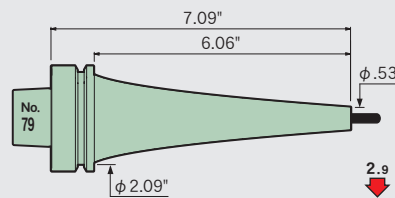
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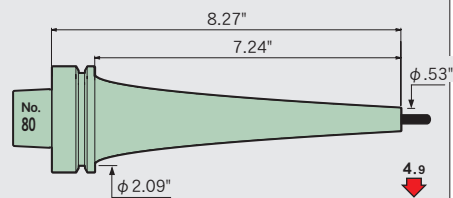
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F63-SLFA1/4-180 CV

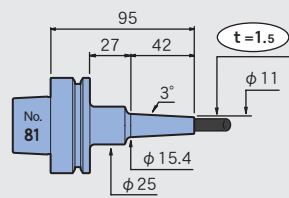


F63-SLFA1/4-210 CV

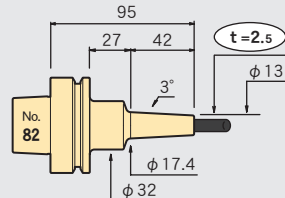


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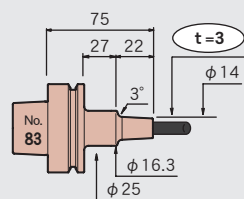
F63-SLSA8-95-M42



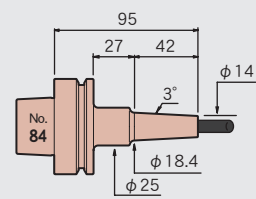
F63-SLSB8-95-M42



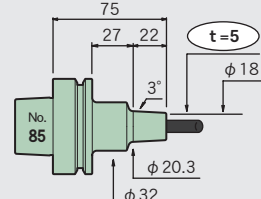
F63-SLRA8-75-M22



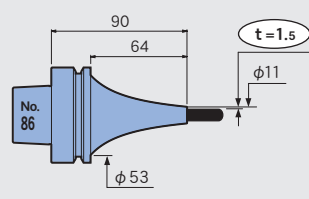
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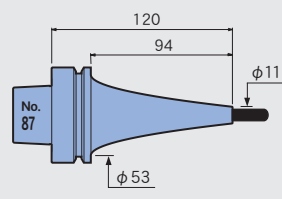
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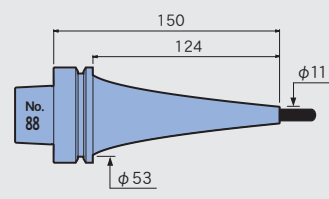
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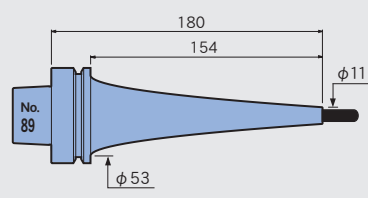
F63-SLSA8-120 CV



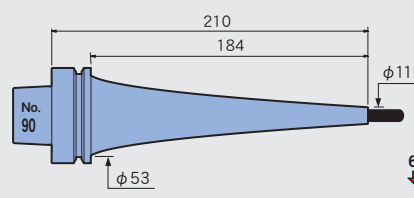
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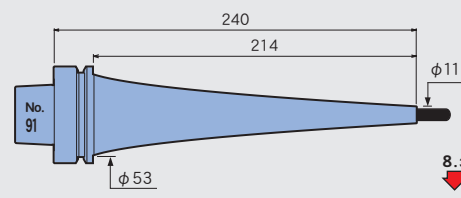
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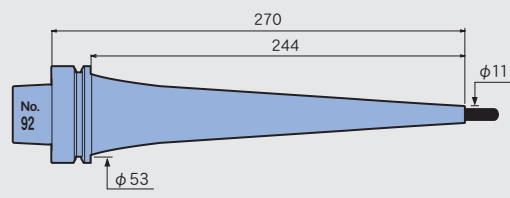
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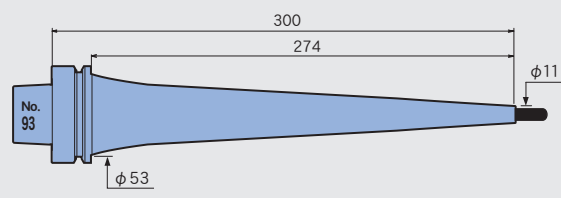
F63-SLSA8-240 CV

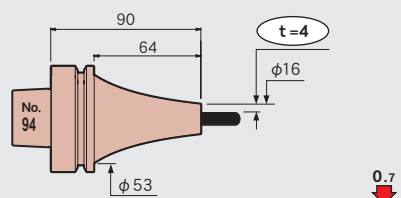
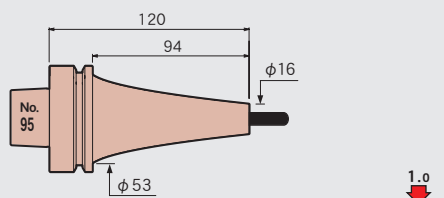
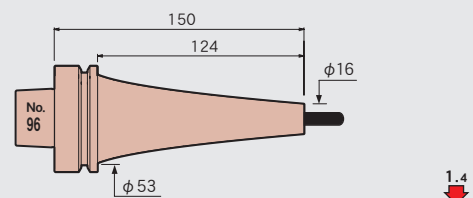
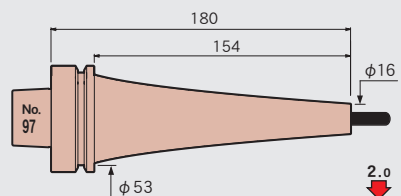
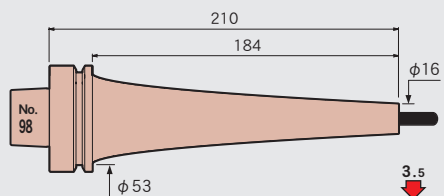
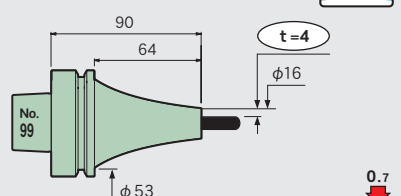
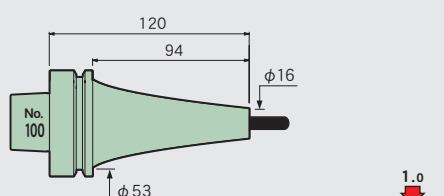
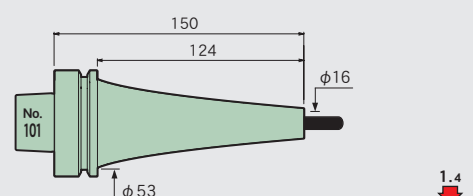
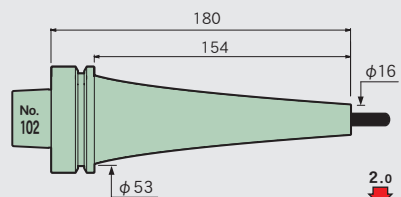
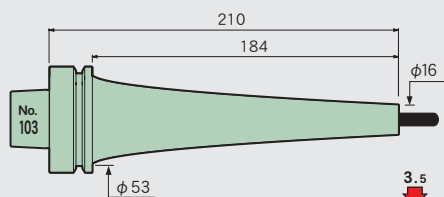


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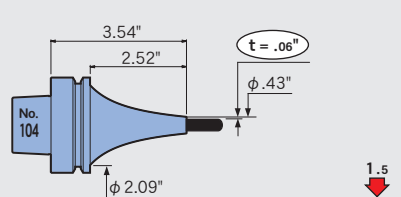
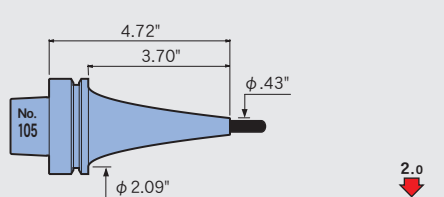
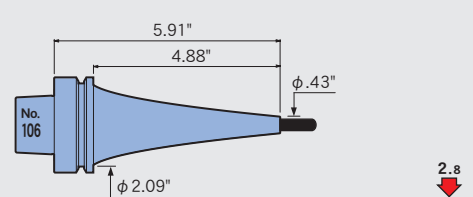
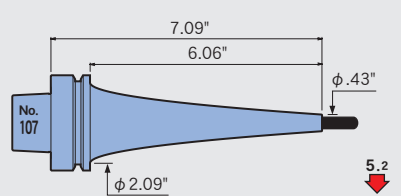
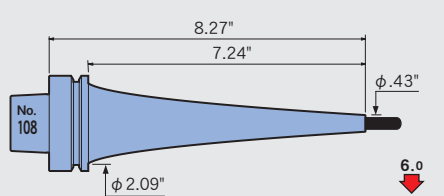
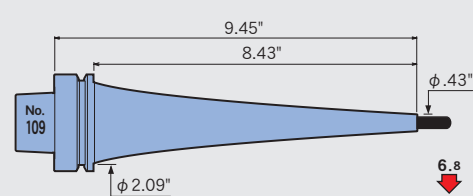
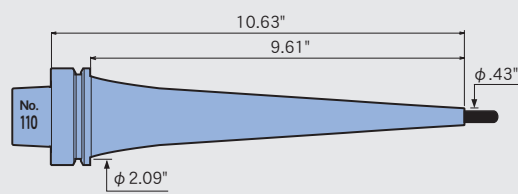
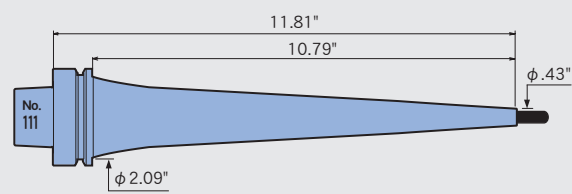


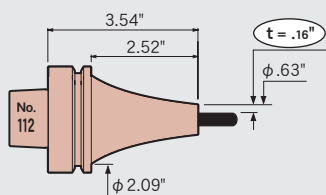
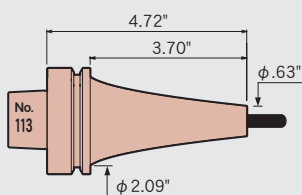
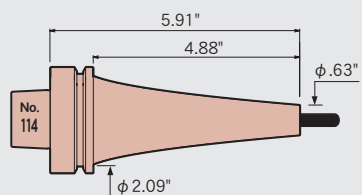
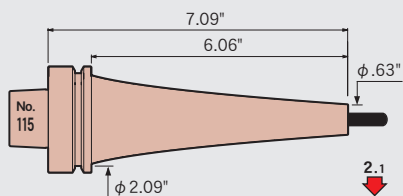
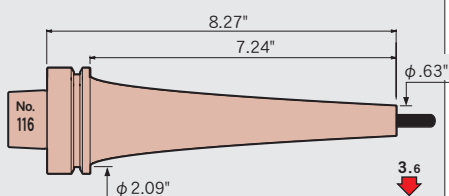
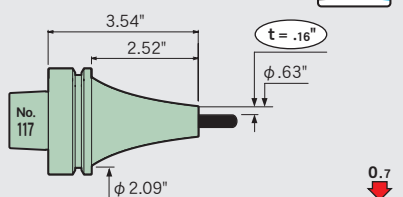
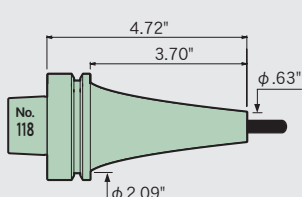
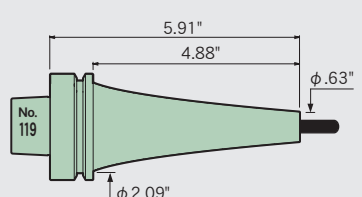
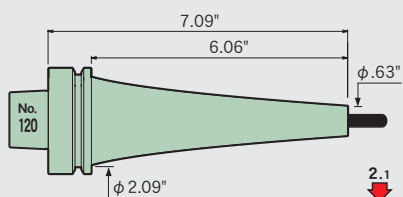
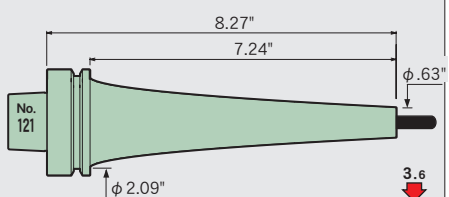
F63-SLSA8-300 CV

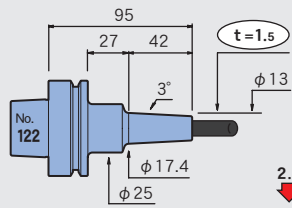
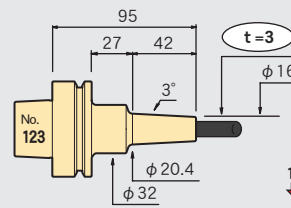
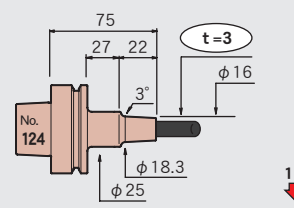
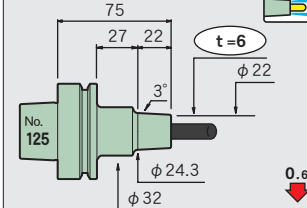
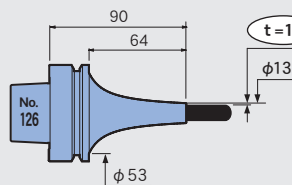
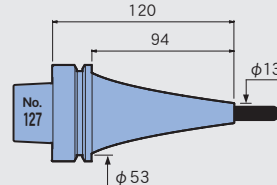
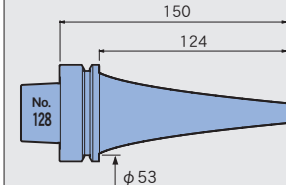
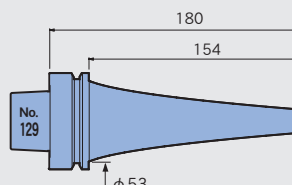
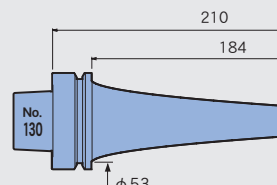
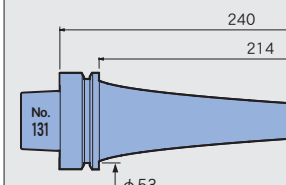
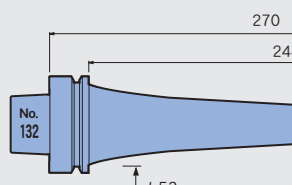
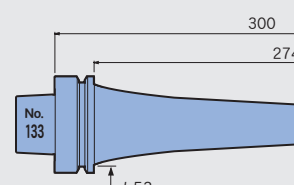
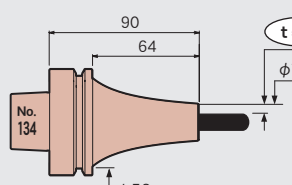
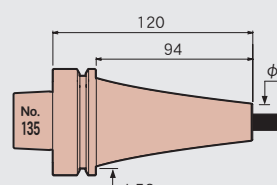
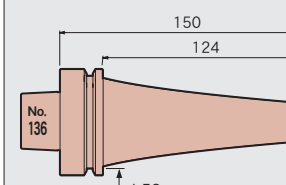
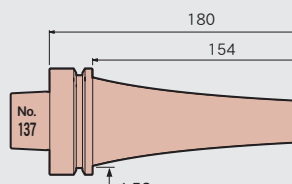
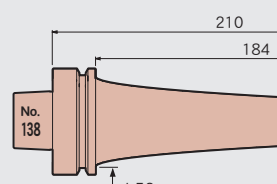
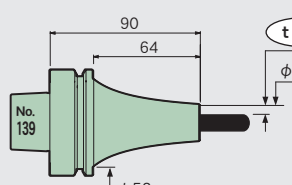
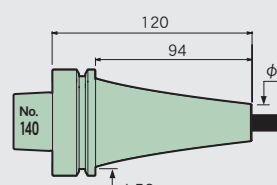
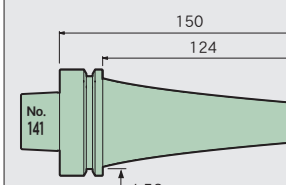


F63-SLRA8-90 CV**F63-SLRA8-120 CV****F63-SLRA8-150 CV****F63-SLRA8-180 CV****F63-SLRA8-210 CV****F63-SLFA8-90 CV****F63-SLFA8-120 CV****F63-SLFA8-150 CV****F63-SLFA8-180 CV****F63-SLFA8-210 CV**

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F63-SLSA5/16-90 CV**F63-SLSA5/16-120 CV****F63-SLSA5/16-150 CV****F63-SLSA5/16-180 CV****F63-SLSA5/16-210 CV****F63-SLSA5/16-240 CV****F63-SLSA5/16-270 CV****F63-SLSA5/16-300 CV**

F63-SLRA5/16-90 CV**F63-SLRA5/16-120 CV****F63-SLRA5/16-150 CV****F63-SLRA5/16-180 CV****F63-SLRA5/16-210 CV****F63-SLFA5/16-90 CV****F63-SLFA5/16-120 CV****F63-SLFA5/16-150 CV****F63-SLFA5/16-180 CV****F63-SLFA5/16-210 CV**

$\phi 10$ **F63-SLSA10-95-M42****F63-SLSB10-95-M42****F63-SLRA10-75-M22****F63-SLFB10-75-M22****F63-SLSA10-90 CV****F63-SLSA10-120 CV****F63-SLSA10-150 CV****F63-SLSA10-180 CV****F63-SLSA10-210 CV****F63-SLSA10-240 CV****F63-SLSA10-270 CV****F63-SLSA10-300 CV****F63-SLRA10-90 CV****F63-SLRA10-120 CV****F63-SLRA10-150 CV****F63-SLRA10-180 CV****F63-SLRA10-210 CV****F63-SLFA10-90 CV****F63-SLFA10-120 CV****F63-SLFA10-150 CV**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

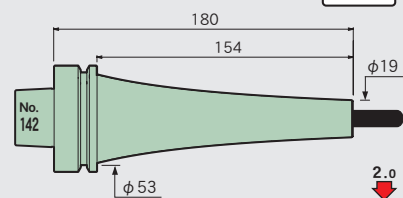
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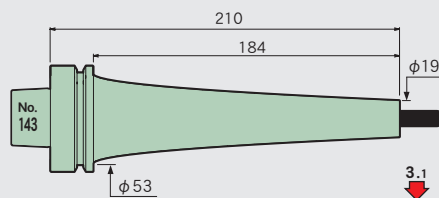
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Technical
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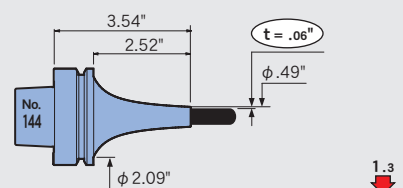


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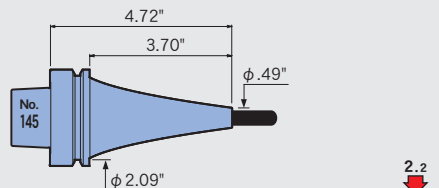


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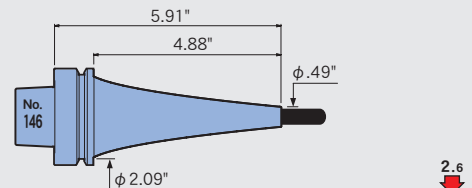
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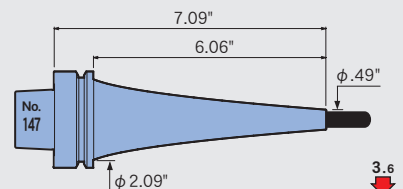
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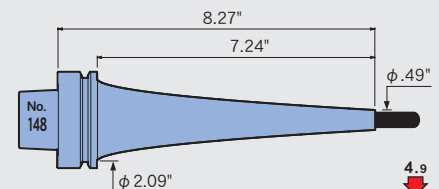
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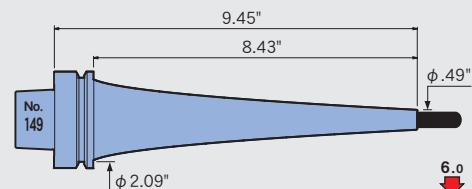
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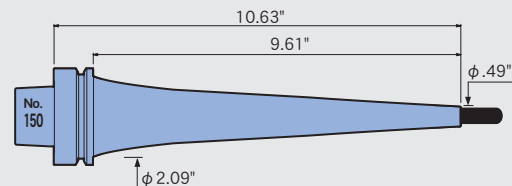
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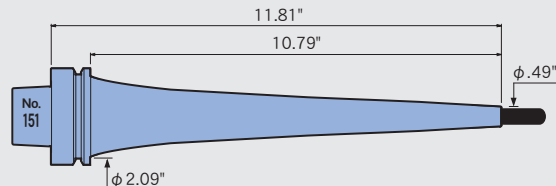
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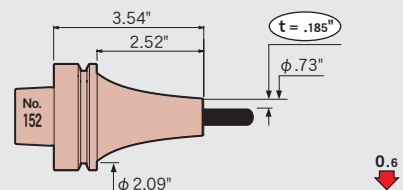
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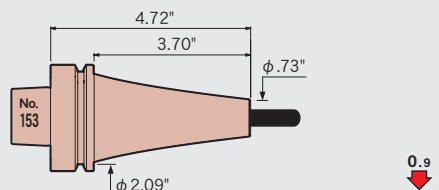
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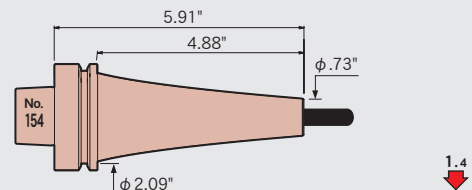
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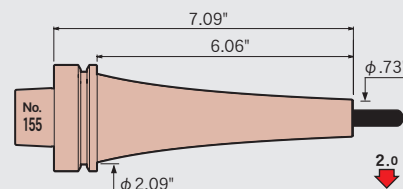
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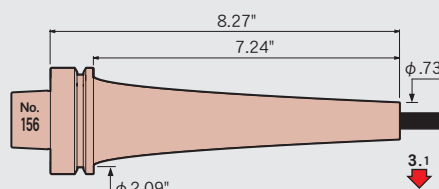
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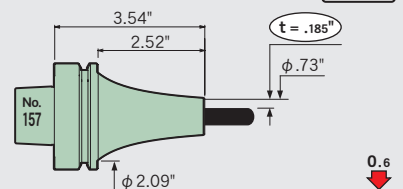
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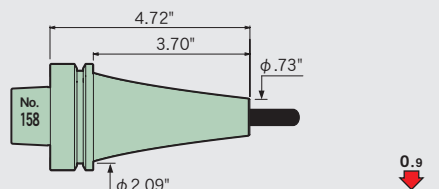
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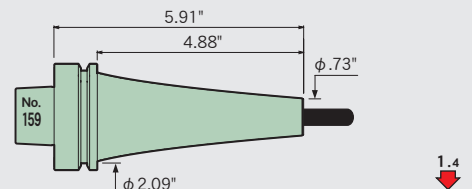
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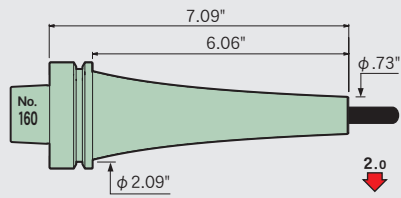
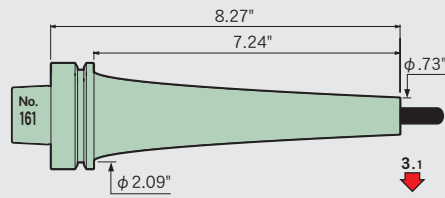
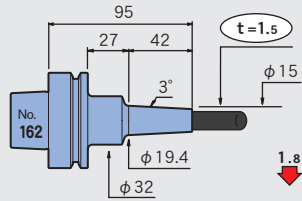
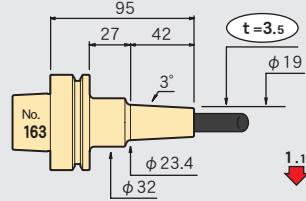
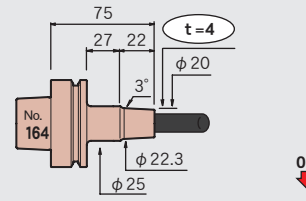
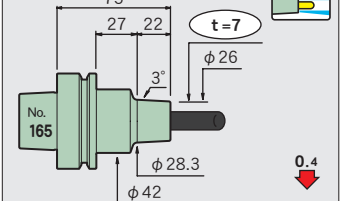
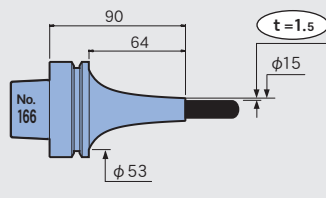
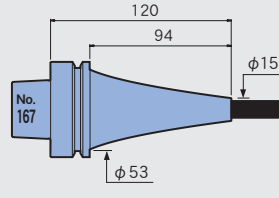
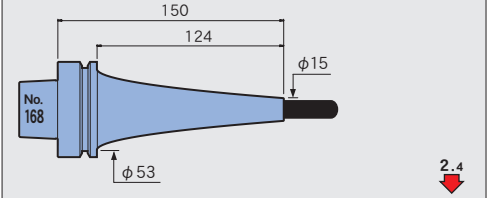
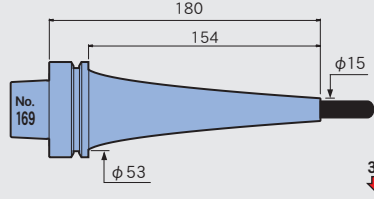
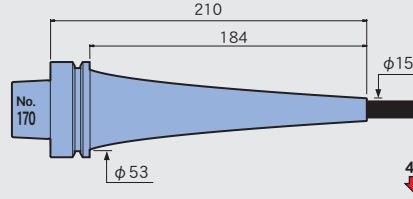
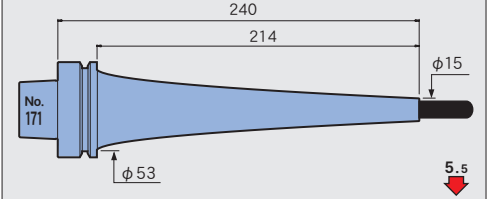
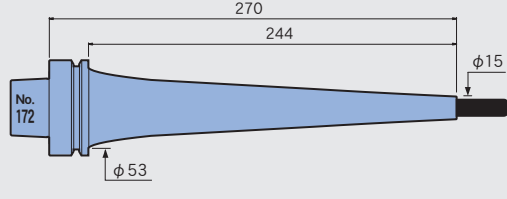
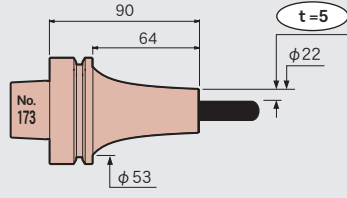
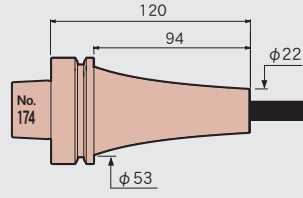
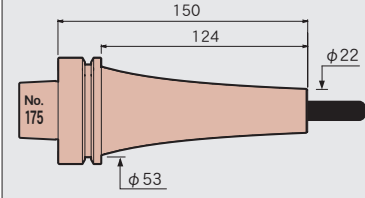
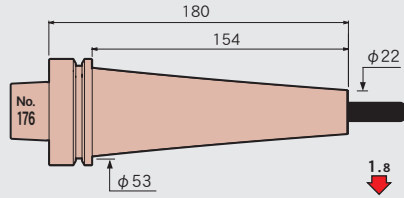
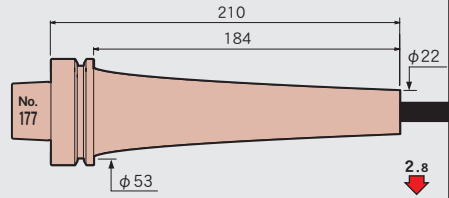


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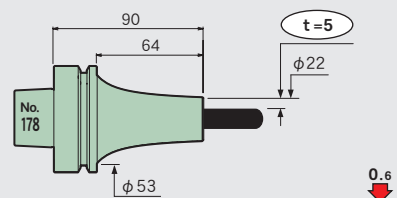


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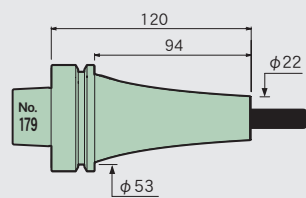


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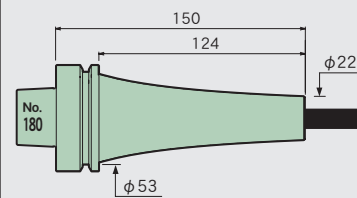
F63-SLFA12-90 CV



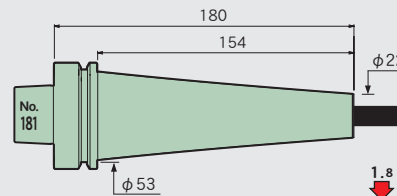
F63-SLFA12-120 CV



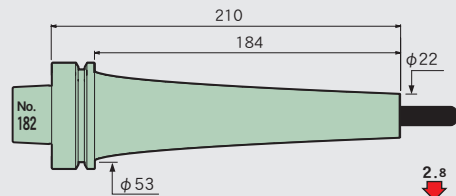
F63-SLFA12-150 CV



F63-SLFA12-180 CV

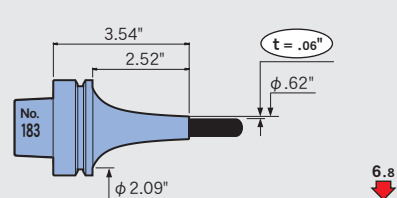


F63-SLFA12-210 CV

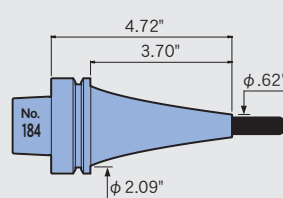


$\phi 1/2$

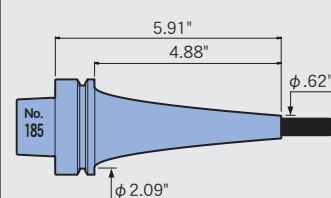
F63-SLSA1/2-90 CV



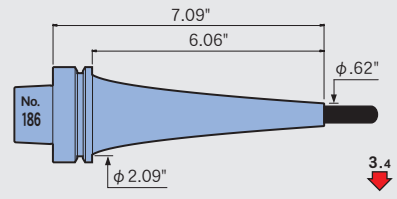
F63-SLSA1/2-120 CV



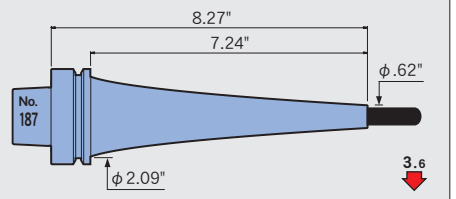
F63-SLSA1/2-150 CV



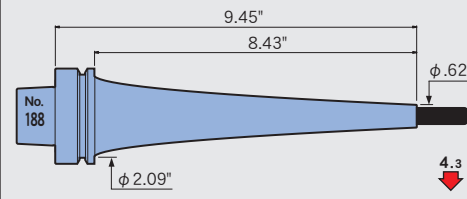
F63-SLSA1/2-180 CV



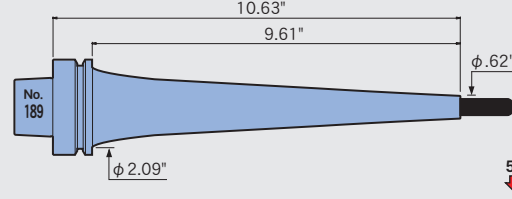
F63-SLSA1/2-210 CV



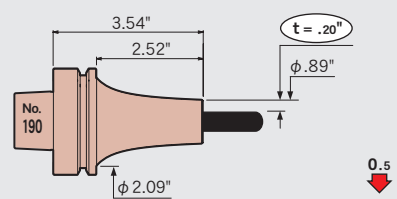
F63-SLSA1/2-240 CV



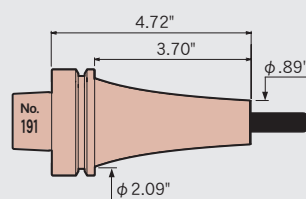
F63-SLSA1/2-270 CV



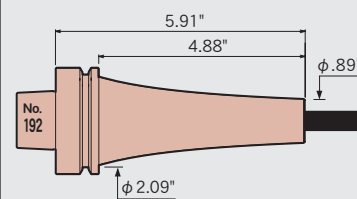
F63-SLRA1/2-90 CV



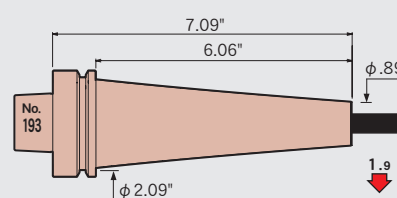
F63-SLRA1/2-120 CV



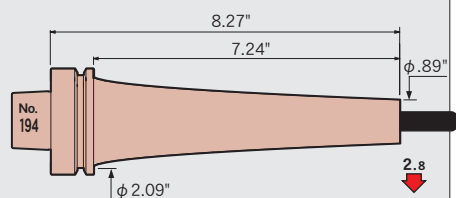
F63-SLRA1/2-150 CV

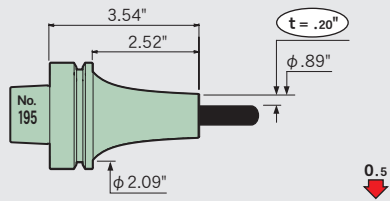
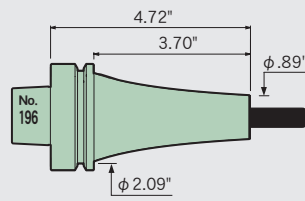
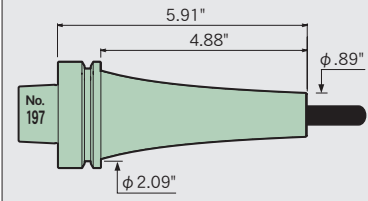
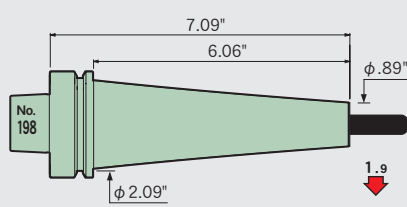
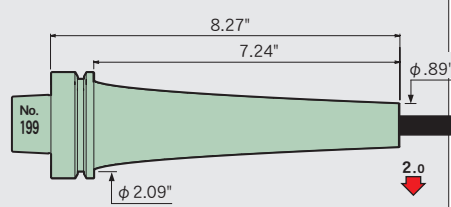
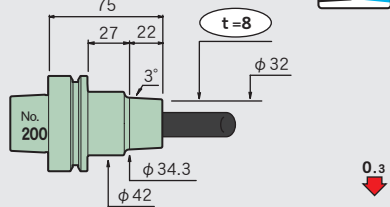
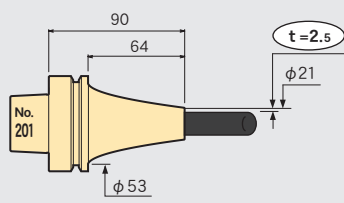
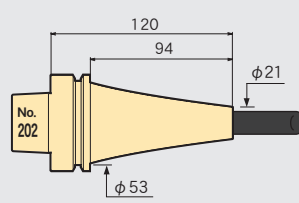
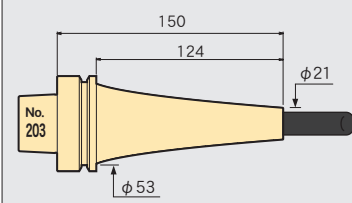
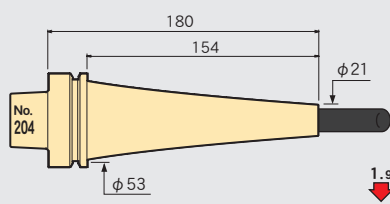
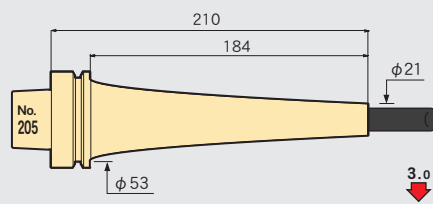
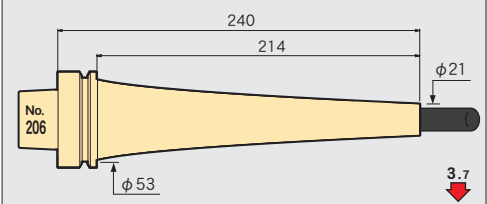
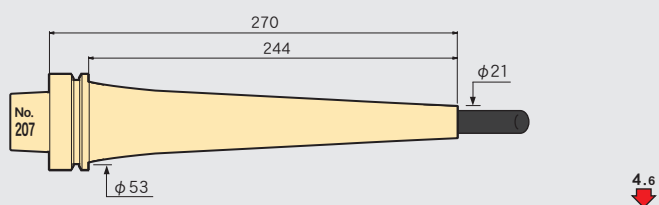


F63-SLRA1/2-180 CV



F63-SLRA1/2-210 CV



F63-SLFA1/2-90 CV**F63-SLFA1/2-120 CV****F63-SLFA1/2-150 CV****F63-SLFA1/2-180 CV****F63-SLFA1/2-210 CV****φ 16****F63-SLFB16-75-M22****F63-SLSB16-90 CV****F63-SLSB16-120 CV****F63-SLSB16-150 CV****F63-SLSB16-180 CV****F63-SLSB16-210 CV****F63-SLSB16-240 CV****F63-SLSB16-270 CV**

Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

STRAIGHT
arbor

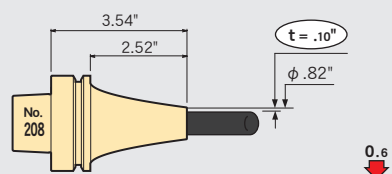
OTHERS

PERIPHERALS

Technical
data

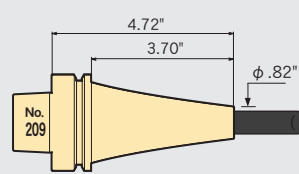
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F63-SLSB5/8-90 CV



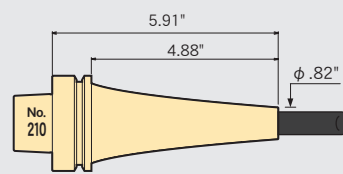
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F63-SLSB5/8-120 CV



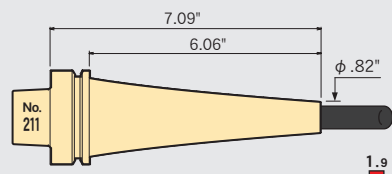
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F63-SLSB5/8-150 CV



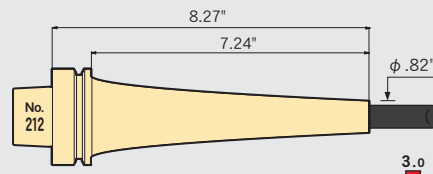
1.5

F63-SLSB5/8-180 CV



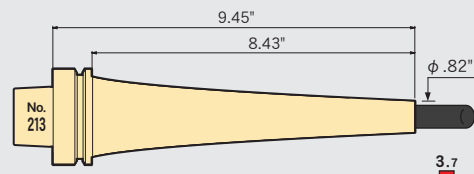
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F63-SLSB5/8-210 CV



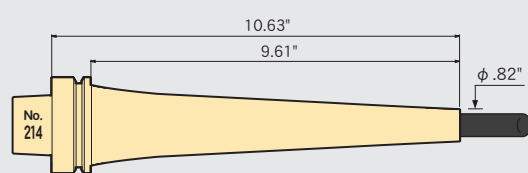
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F63-SLSB5/8-240 CV



3.7

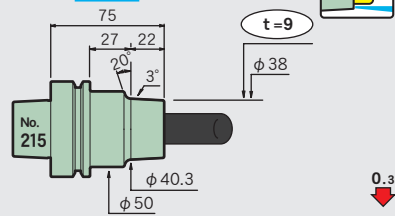
F63-SLSB5/8-270 CV



4.6

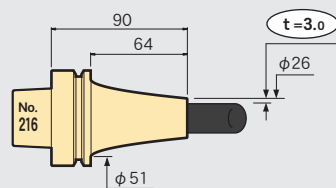
 $\phi 20$

F63-SLFB20-75-M22



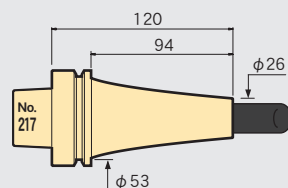
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F63-SLSB20-90 CV



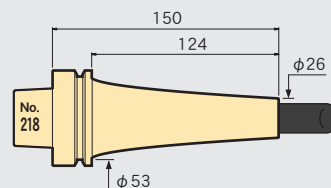
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F63-SLSB20-120 CV



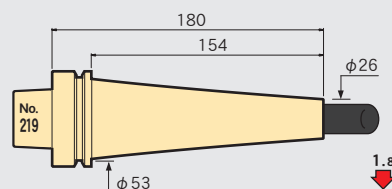
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F63-SLSB20-150 CV



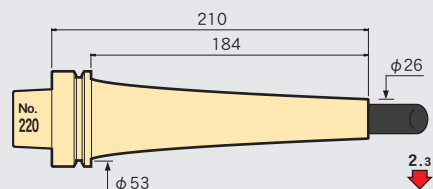
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F63-SLSB20-180 CV



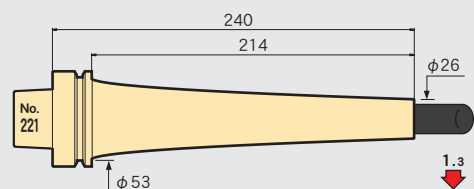
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F63-SLSB20-210 CV



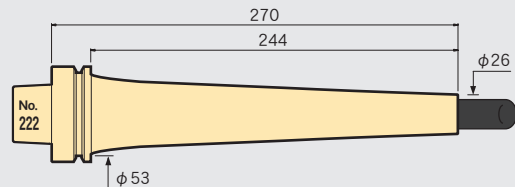
2.3

F63-SLSB20-240 CV



1.3

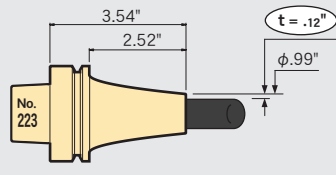
F63-SLSB20-270 CV



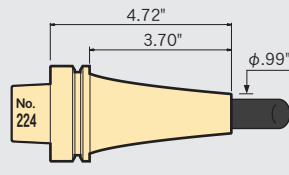
3.4

φ 3/4

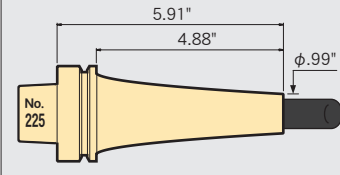
F63-SLSB3/4-90 CV



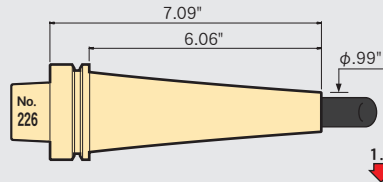
F63-SLSB3/4-120 CV



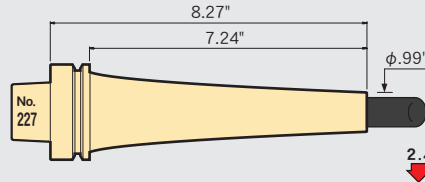
F63-SLSB3/4-150 CV



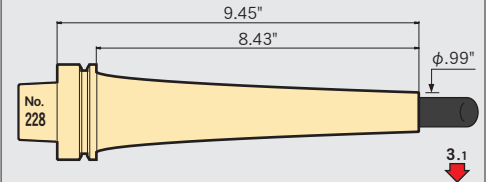
F63-SLSB3/4-180 CV



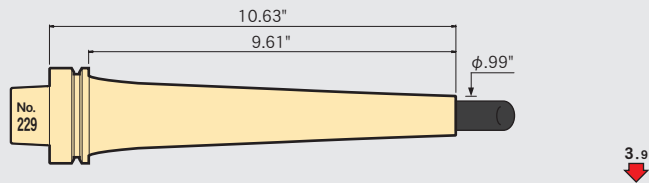
F63-SLSB3/4-210 CV



F63-SLSB3/4-240 CV

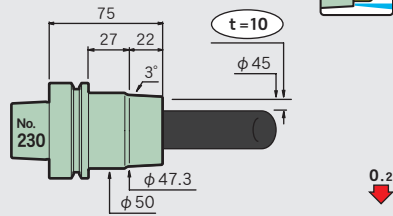


F63-SLSB3/4-270 CV



φ 25

F63-SLFB25-75-M22



15T

15TR3-SLSA3-60

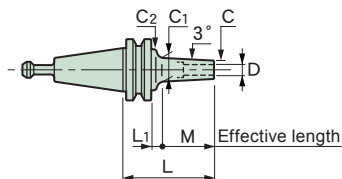
MONO 3°

Rigidity value
($\mu\text{m/kgf}$)

P.258

Imbalance
value(g·mm)

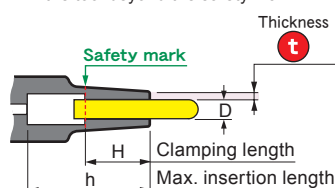
P.261

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

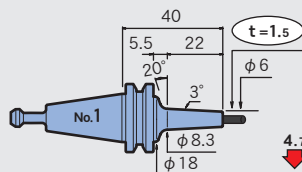
Thickness

CODE	ϕD	ϕC	t	L	M	L ₁	ϕC_1	ϕC_2	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

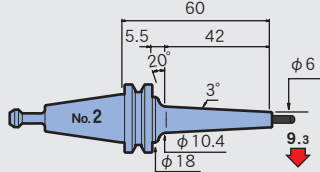
S=1:3

φ 3

15TR3-SLSA3-40

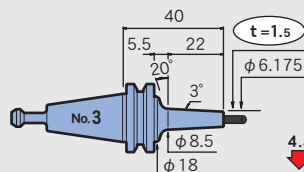


15TR3-SLSA3-60

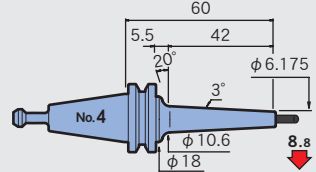


φ 3.175

15TR3-SLSA3.175-40

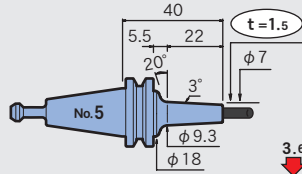


15TR3-SLSA3.175-60

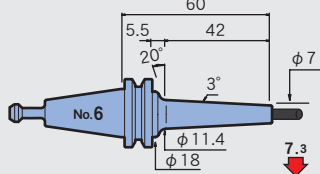


φ 4

15TR3-SLSA4-40

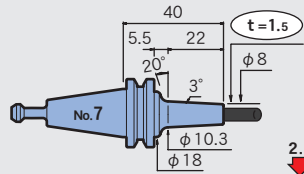


15TR3-SLSA4-60

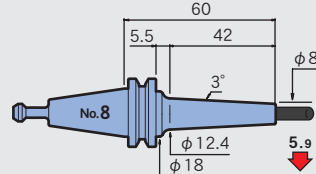


φ 5

15TR3-SLSA5-40

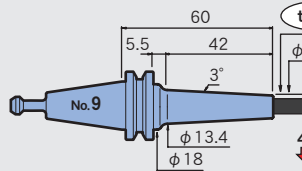


15TR3-SLSA5-60

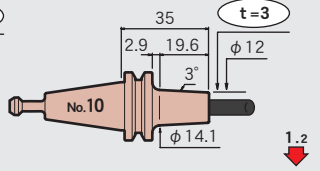


φ 6

15TR3-SLSA6-60

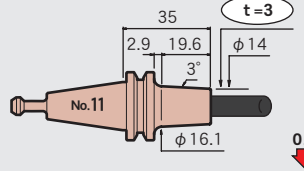


15TR3-SLRA6-35



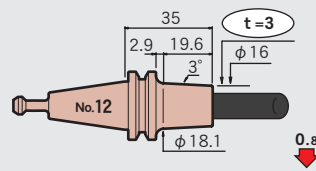
φ 8

15TR3-SLRA8-35



φ 10

15TR3-SLRA10-35



S20T

S20TR2-SLRA8-35

MONO 3°

Rigidity value
(μm/kgf)

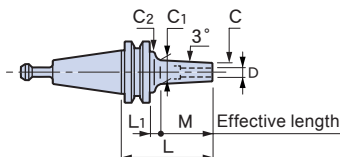
⊙ P.258

Imbalance value(g·mm)

⊙ P.261

SUGINO

Xion-II-5AX
NSV9
V9

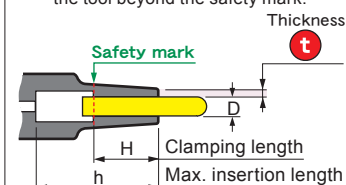


Compatibility table
for HRD-01S

[○] Available [×] Not available

Caution

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

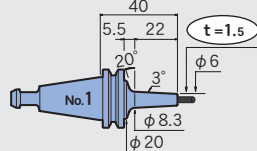


CODE	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg	N	S	Scale model
S20TR2-SLSA 3-40	3	6	1.5	40	22	5.5	8.3	20	9	46	0.1	0.4	4.6	○ 1
-60				60	42		10.4			66			9.2	○ 2
S20TR2-SLSA3.175-40	3.175	6.175	1.5	40	22	5.5	8.5	20	9	46	0.1	0.4	4.4	○ 3
-60				60	42		10.6			66			8.8	○ 4
S20TR2-SLSA 4-40	4	7	1.5	40	22	5.5	9.3	20	12	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

S=1:4

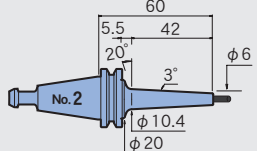
φ3

S20TR2-SLSA3-40

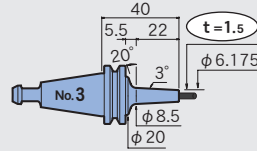


φ3.175

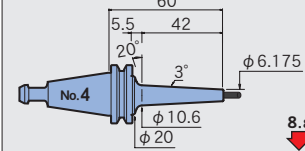
S20TR2-SLSA3-60



S20TR2-SLSA3.175-40

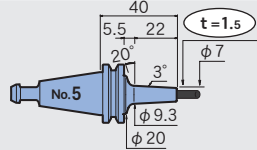


S20TR2-SLSA3.175-60



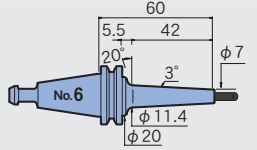
φ4

S20TR2-SLSA4-40

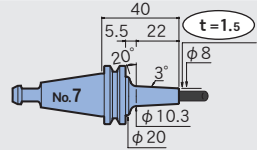


φ5

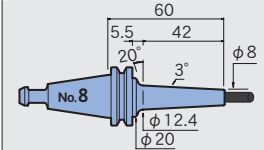
S20TR2-SLSA4-60



S20TR2-SLSA5-40

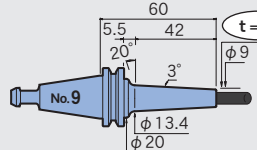


S20TR2-SLSA5-60



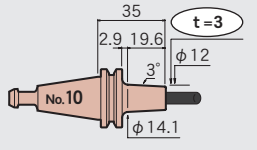
φ6

S20TR2-SLSA6-60

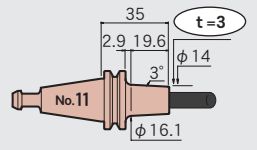


φ8

S20TR2-SLRA6-35

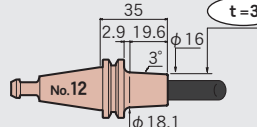


S20TR2-SLRA8-35



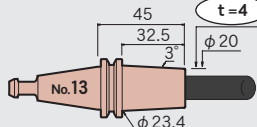
φ10

S20TR2-SLRA10-35



φ12

S20TR2-SLRA12-45



RS20

RS20-SLSA3.175-35

MONO 3°

Rigidity value
($\mu\text{m/kgf}$)

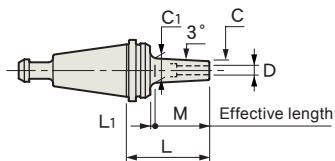
Ⓐ P.258

Imbalance
value(g·mm) **(N)**

Ⓐ P.261

ROKU-ROKU

MEGA

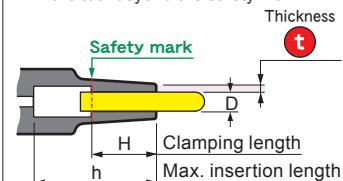


Compatibility table
for HRD-01S

[○] Available [x] Not available

Caution

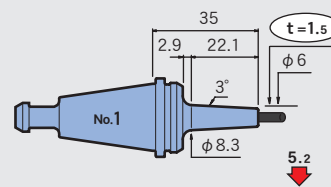
• Setting cutters...Be sure to insert
the tool beyond the safety mark.



CODE	ϕD	ϕC	t	L	M	L ₁	ϕC_1	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	x 5
-SLRA 8-30	8	14	3	30	17.2	2.8	15.8	20	51	0.1	0.3	0.9	x 6
-SLRA10-30	10	16	3	30	17.6	2.4	17.9	20	51	0.1	0.4	0.7	x 7

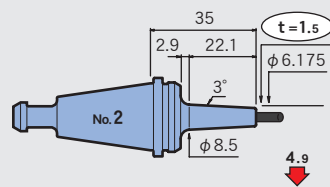
φ 3

RS20-SLSA3-35



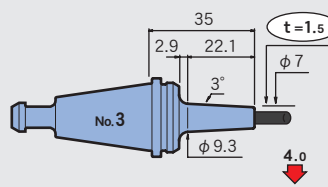
φ 3.175

RS20-SLSA3.175-35



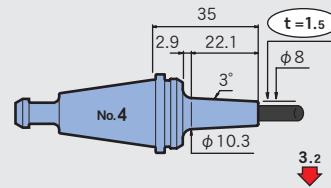
φ 4

RS20-SLSA4-35



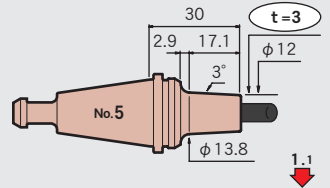
φ 5

RS20-SLSA5-35



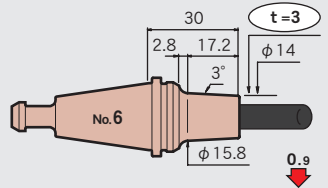
φ 6

RS20-SLRA6-30



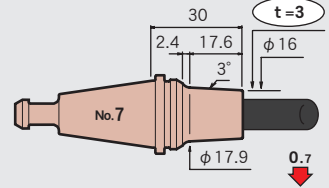
φ 8

RS20-SLRA8-30



φ 10

RS20-SLRA10-30



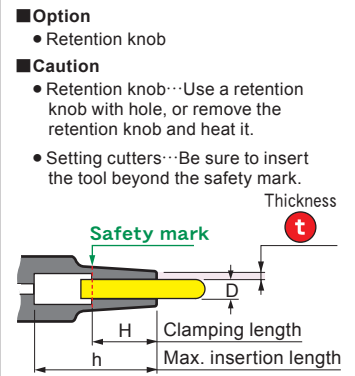
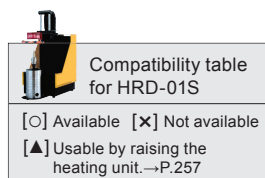
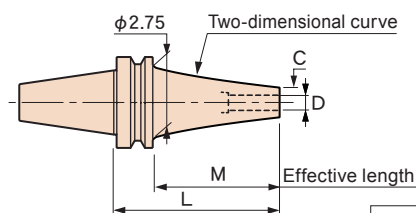
CT50

CT50-SLSA1/4-225 cv

MONO CURVE

Rigidity value
($\mu\text{m/kgf}$)
P.258

Imbalance
value(g·mm)
P.261

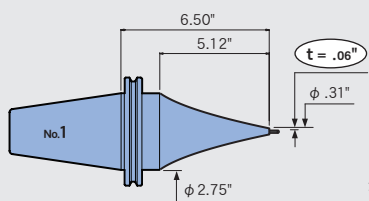


CODE	ϕD	ϕC	t	L	M	H	h	lbs	N	S	Scale model
CT50-SLSA3/16-165 cv	3/16	.31	.06	6.50	5.12	.59	8.66	8.4	13.7	2.6	1
-195 cv				7.68	6.30		9.84	8.7	14.7	4	2
-225 cv				8.86	7.48		11.02	9.1	15.7	5.9	3
-255 cv				10.04	8.66		12.20	9.4	17.4	8.2	4
-285 cv				11.22	9.84		13.39	10.0	18.9	10.5	5
-315 cv				12.40	11.02		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

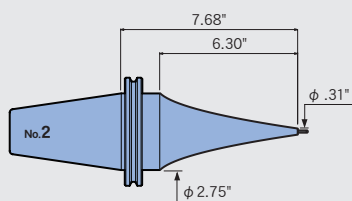
Feature	CODE	φD	φC	t	L	M	H	h	lbs	N	S	Scale model
Shrink-fit Heater	CT50-SLRA3/8-165 CV	3/8	.73	.18	6.50	5.12	1.18	8.66	8.8	15.4	1	33
	-195 CV				7.68	6.30		9.84	9.2	16.9	1.5	34
	-225 CV				8.86	7.48		11.02	10.1	18.5	1.9	35
	-255 CV				10.04	8.66		12.20		20.1	3	36
	-285 CV				11.22	9.84		13.39	11.3	23.3	3.3	37
MONO 3° MONO CURVE	-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
MONO Series	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
2PIECE type	-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
UNO	-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
HYPER VERSION	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
Z	-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
STRAIGHT arbor	-315 CV				12.40	11.02		14.57	11.7	32.6	4.1	70
OTHERS												
PERIPHERALS												
Technical data												

$\phi 3/16$

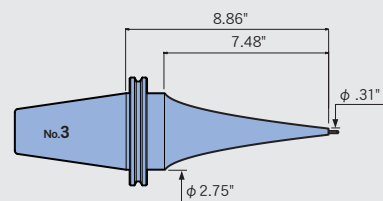
CT50-SLSA3/16-165 CV



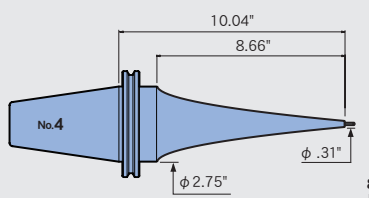
CT50-SLSA3/16-195 CV



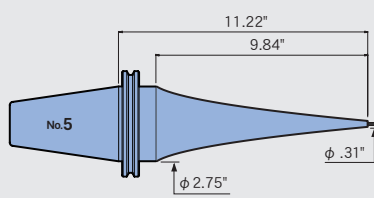
CT50-SLSA3/16-225 CV



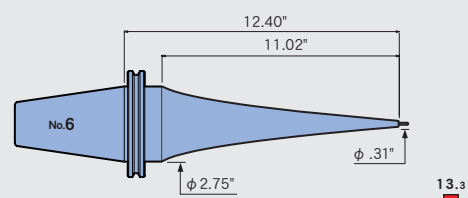
CT50-SLSA3/16-255 CV



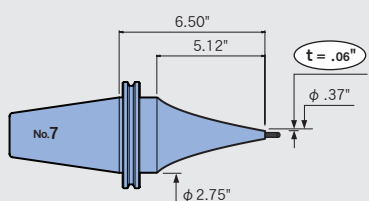
CT50-SLSA3/16-285 CV



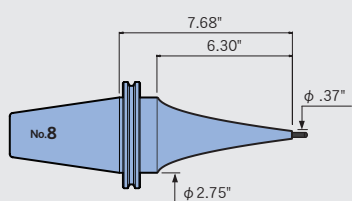
CT50-SLSA3/16-315 CV

 $\phi 1/4$

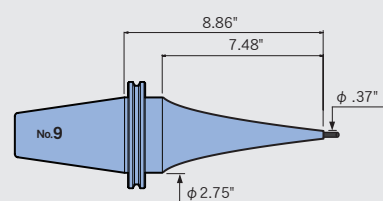
CT50-SLSA1/4-165 CV



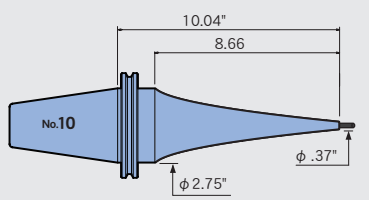
CT50-SLSA1/4-195 CV



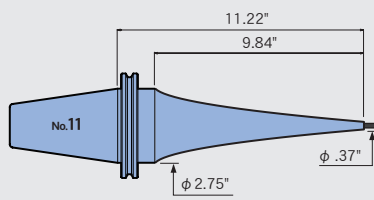
CT50-SLSA1/40-225 CV



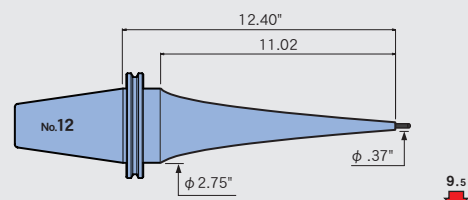
CT50-SLSA1/4-255 CV



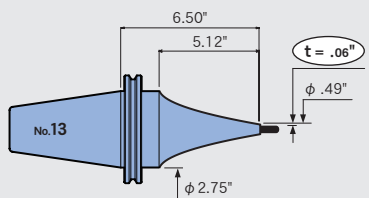
CT50-SLSA1/4-285 CV



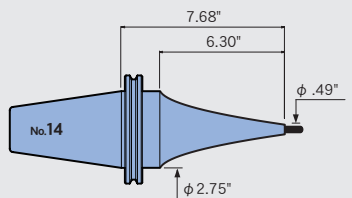
CT50-SLSA1/4-315 CV

 $\phi 5/16$

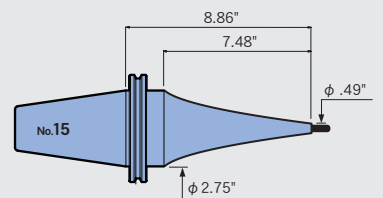
CT50-SLSA5/16-165 CV



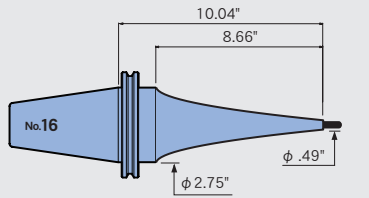
CT50-SLSA5/16-195 CV



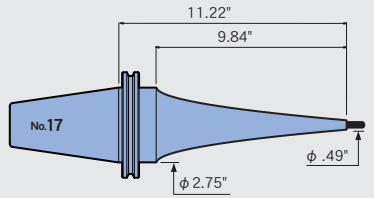
CT50-SLSA5/16-225 CV



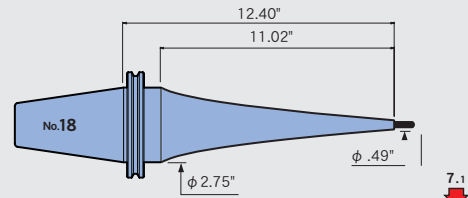
CT50-SLSA5/16-255 CV



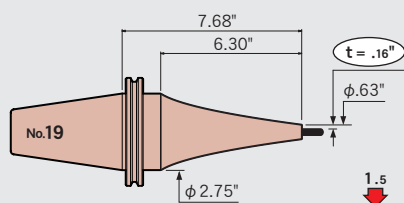
CT50-SLSA5/16-285 CV



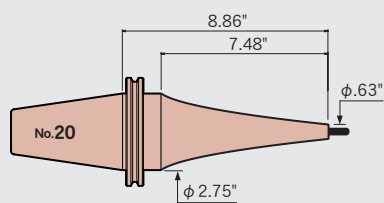
CT50-SLSA5/16-315 CV



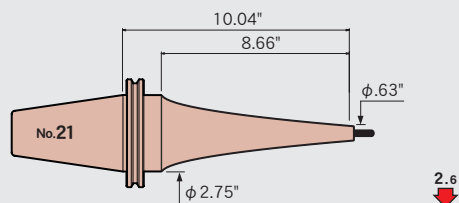
CT50-SLRA5/16-195 CV



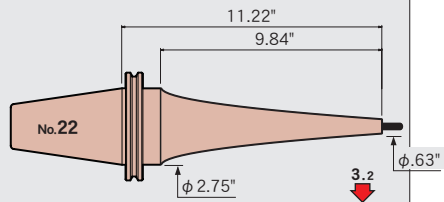
CT50-SLRA5/16-225 CV



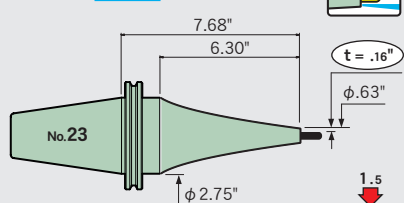
CT50-SLRA5/16-255 CV



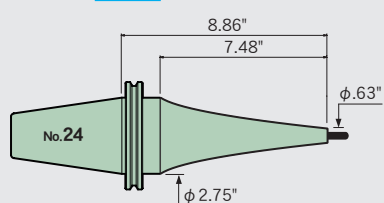
CT50-SLRA5/16-285 CV



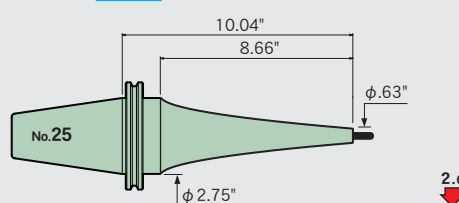
CT50-SLFA5/16-195 CV



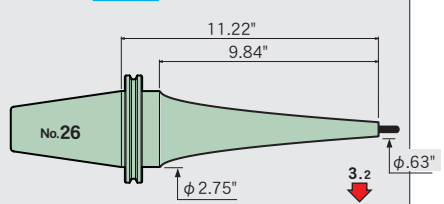
CT50-SLFA5/16-225 CV



CT50-SLFA5/16-255 CV

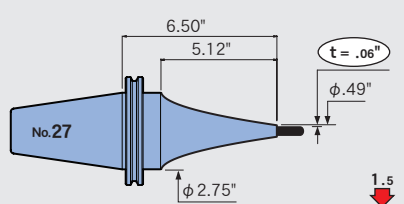


CT50-SLFA5/16-285 CV

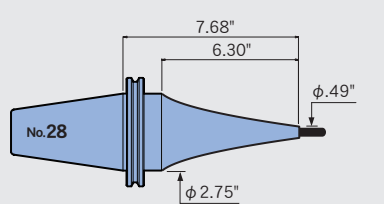


φ 3/8

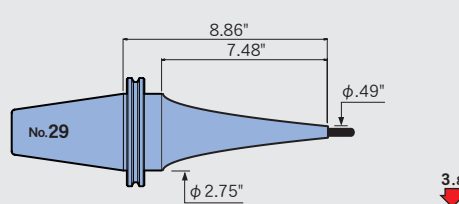
CT50-SLSA3/8-165 CV



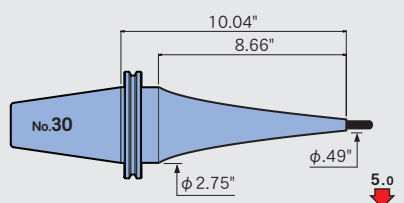
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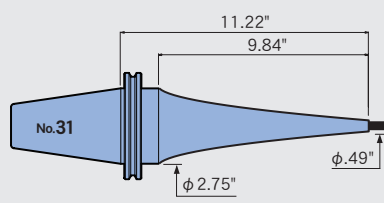
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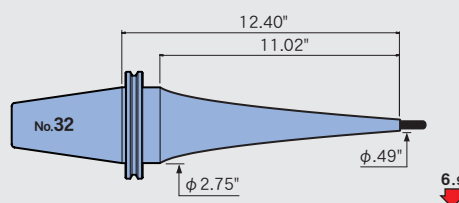
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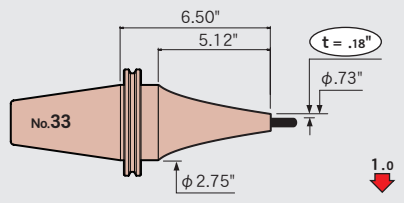
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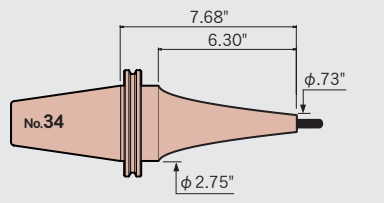
CT50-SLSA3/8-315 CV



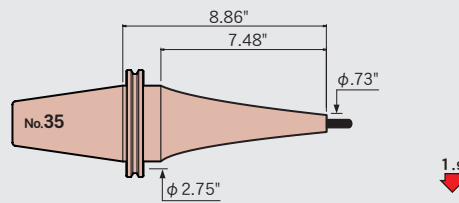
CT50-SLRA3/8-165 CV



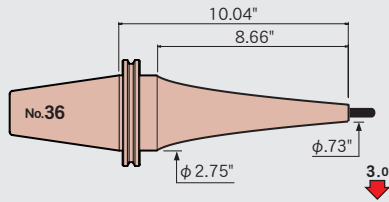
CT50-SLRA3/8-195 CV



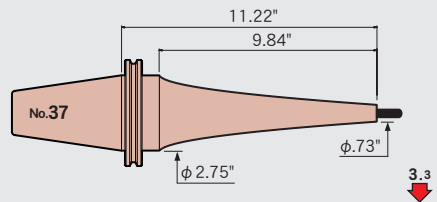
CT50-SLRA3/8-225 CV



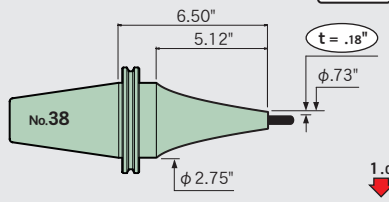
CT50-SLRA3/8-255 CV



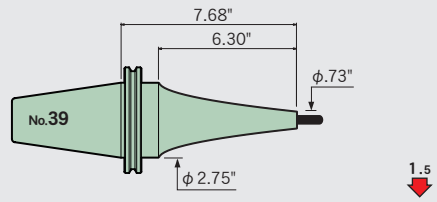
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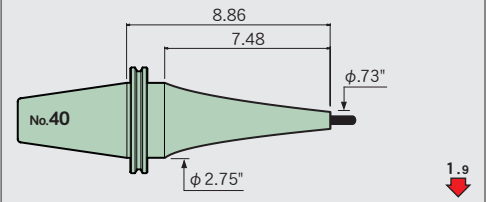
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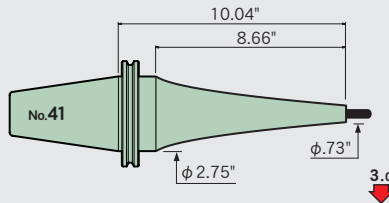
CT50-SLFA3/8-195 CV



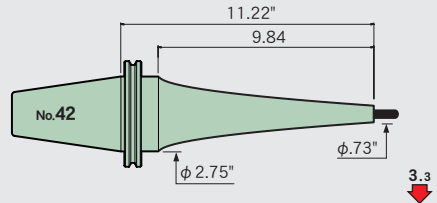
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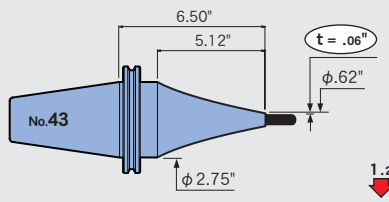
CT50-SLFA3/8-255 CV



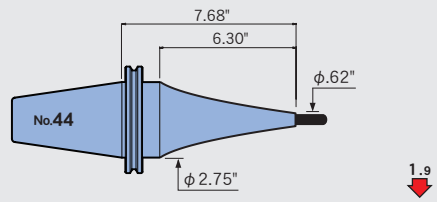
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 $\phi 1/2$

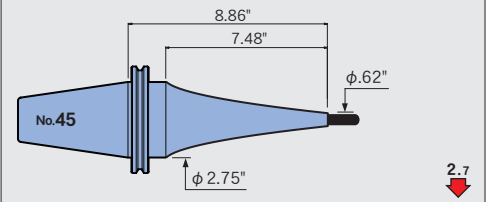
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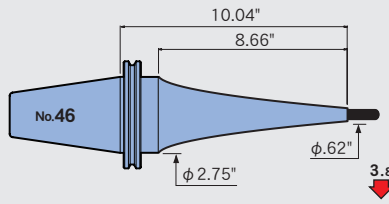
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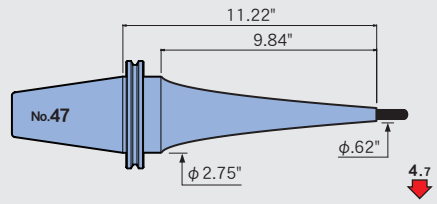
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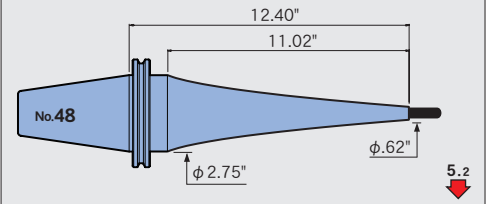
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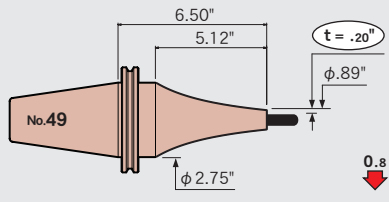
CT50-SLSA1/2-285 CV



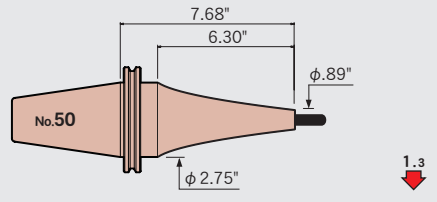
CT50-SLSA1/2-315 CV



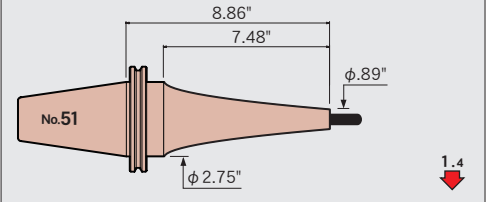
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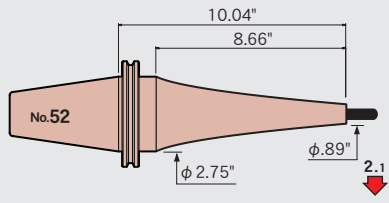
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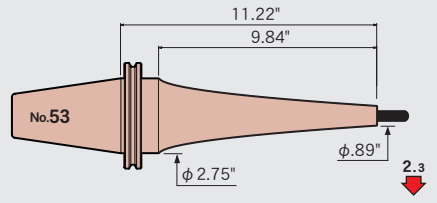
CT50-SLRA1/2-225 CV



CT50-SLRA1/2-255 CV



CT50-SLRA1/2-285 CV



Feature

Shrink-fit Heater

MONO 3°
MONO CURVE

MONO Series

2PIECE type

UNO

HYPER
VERSION

Z

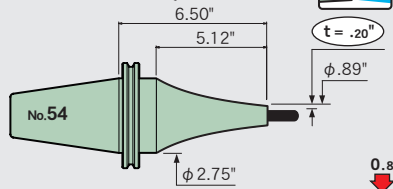
STRAIGHT
arbor

OTHERS

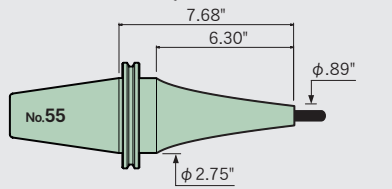
PERIPHERALS

Technical
data

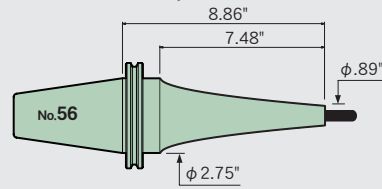
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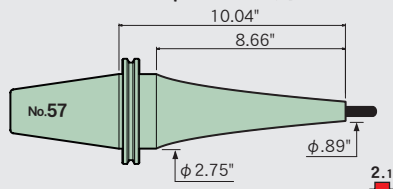
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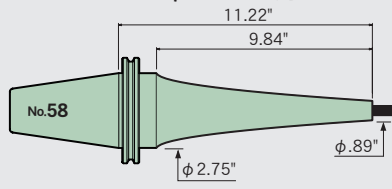
CT50-SLFA1/2-225 CV



CT50-SLFA1/2-255 CV

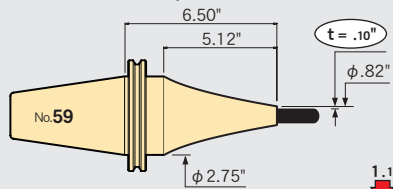


CT50-SLFA1/2-285 CV

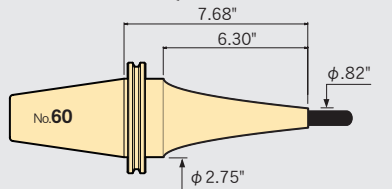


φ5/8

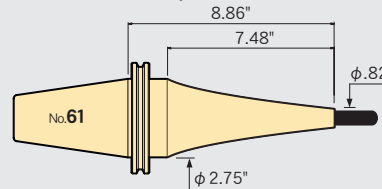
CT50-SLSB5/8-165 CV



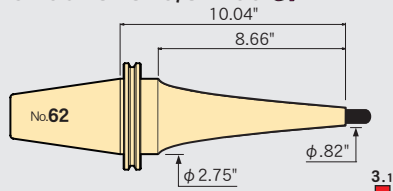
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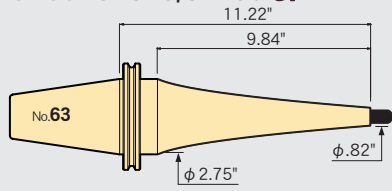
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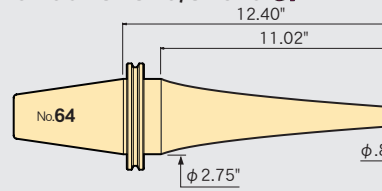
CT50-SLSB5/8-255 CV



CT50-SLSB5/8-285 CV

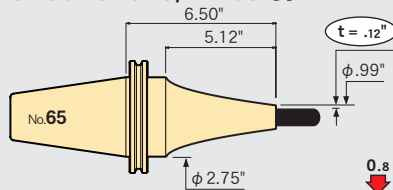


CT50-SLSB5/8-315 CV

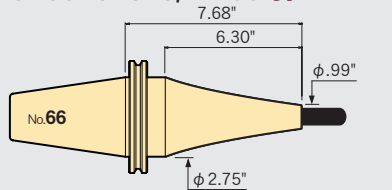


φ3/4

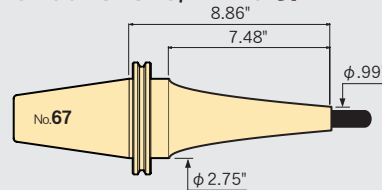
CT50-SLSB3/4-165 CV



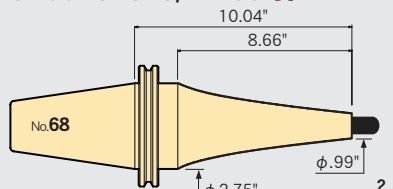
CT50-SLSB3/4-195 CV



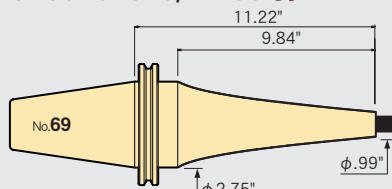
CT50-SLSB3/4-225 CV



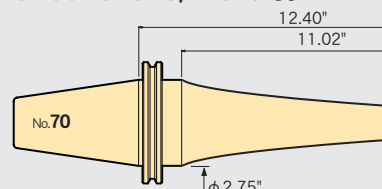
CT50-SLSB3/4-255 CV



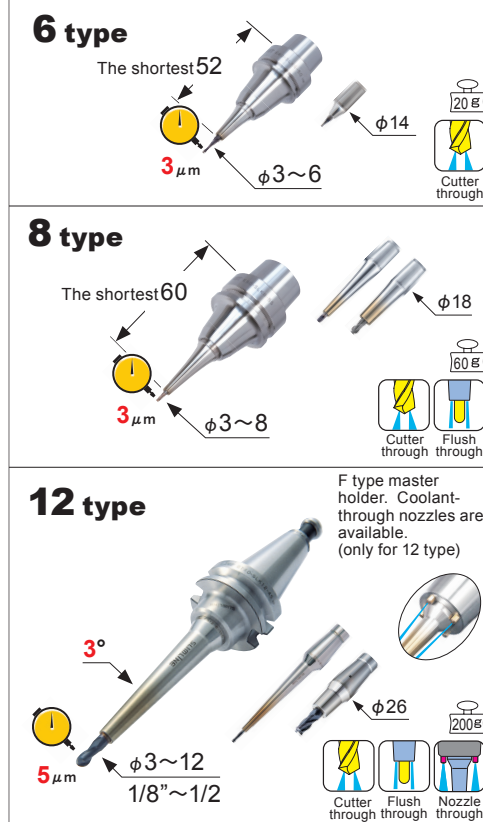
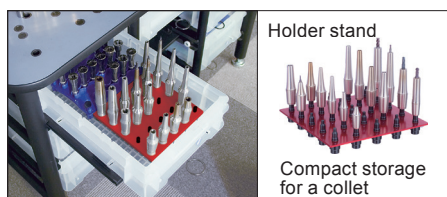
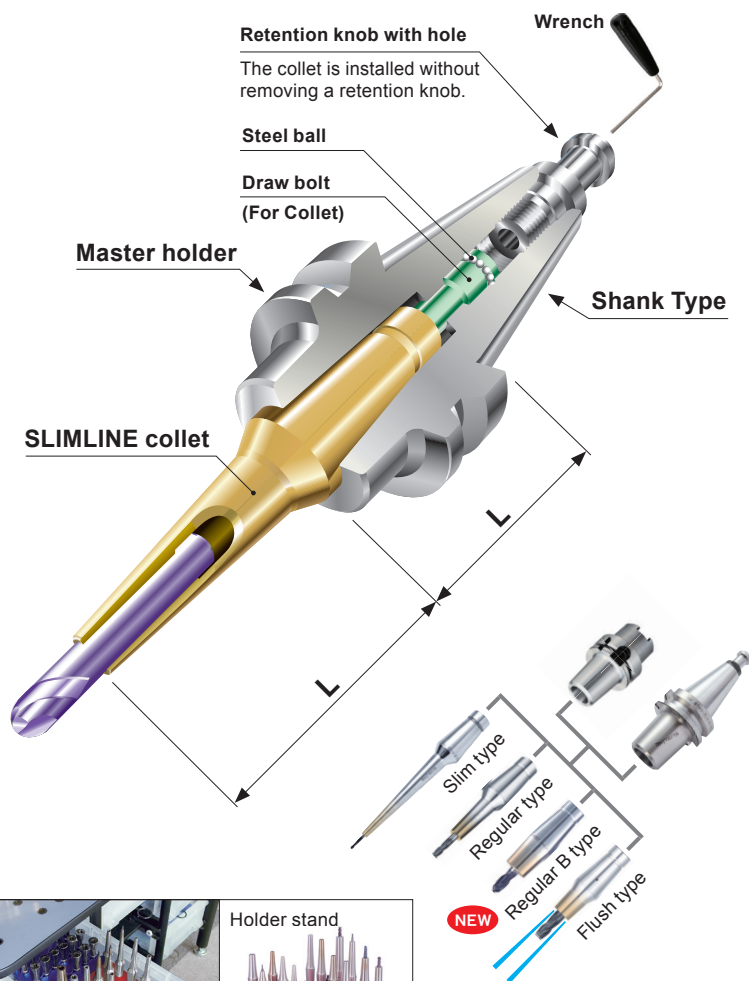
CT50-SLSB3/4-285 CV



CT50-SLSB3/4-315 CV



2 PIECE type



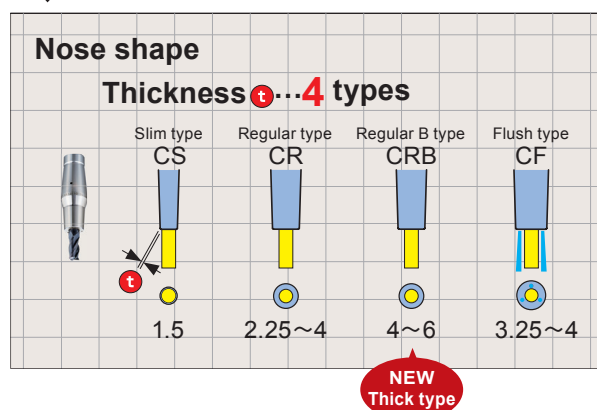
MASTER HOLDER
BT40 – SL K 12 – 45 F

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

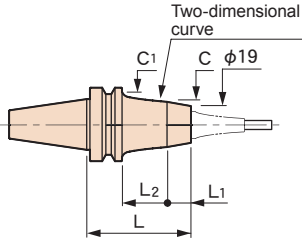
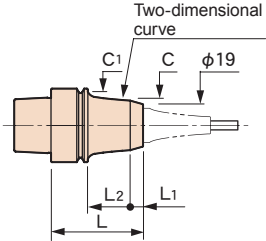


Fig. 2

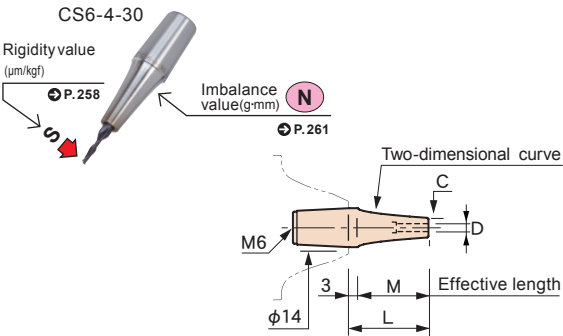


CODE	Fig.	L	L ₁	L ₂	φC	φC ₁		
BT30-SLK 6-35-MAS1	1	35	13	—	—	34	0.5	1.4
-MAS2								
-65-MAS1		65	15	28	25.1		0.6	2.2
-MAS2								
A40 -SLK 6-37	2	37	17	—	—	34	0.2	3
50		50	7	23	23.5		0.3	3.9
A50 -SLK 6-42	2	42	16	—	—	42	0.4	5.3
55		55	7	22	24.6		0.5	6.4
E32 -SLK 6-37	2	37	7	10	26	—	0.2	1.3
-50		50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

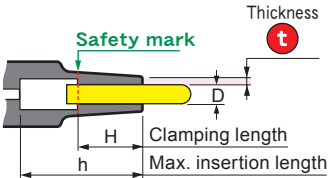
- Option**
 - SLIMLINE collet 6 type
 - Wrench.

■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

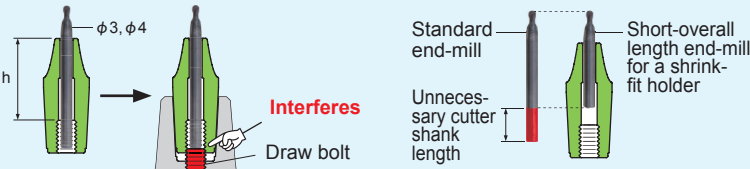


- Note**
 -  refers to the deflection value of an E32-SLK6-37 and the SLIMLINE collet 6 type combination. The values are comparable for any shank combination.
- Caution**
 - Setting cutters...Be sure to insert the tool beyond the safety mark.



CODE	φD	φC	Thickness 	L	M	H	 S			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.



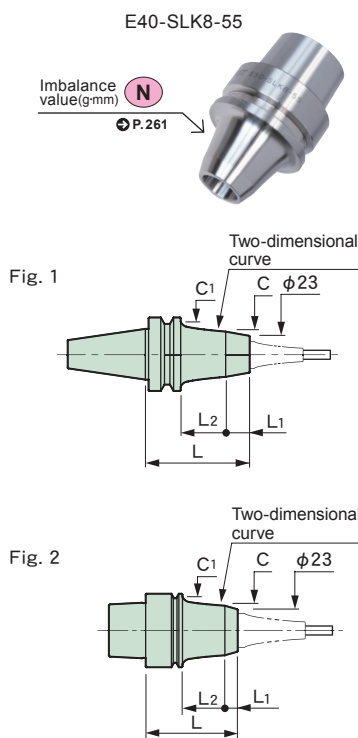
- Wrench (both for 6 and 8 type)**
- Used for clamping of master holders (type 6 & type 8) and SLIMLINE collet (type 6 & type 8).

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

- Holder stand**
- 



Master holder 8 type



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

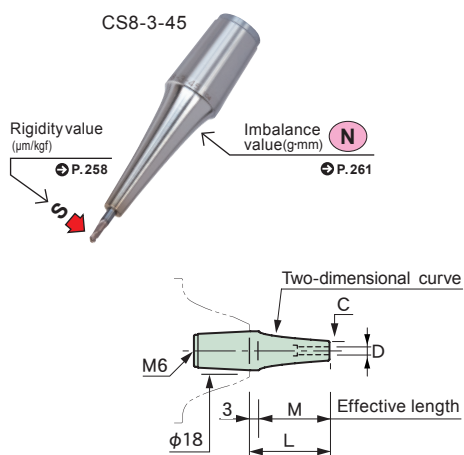
Note

- 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

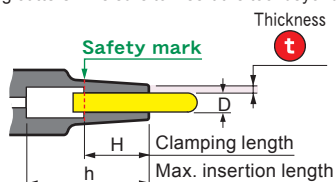


Note

- **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

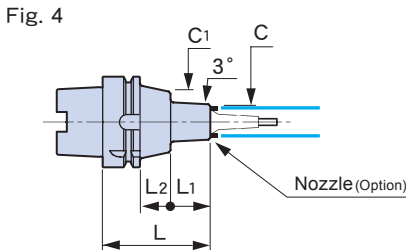
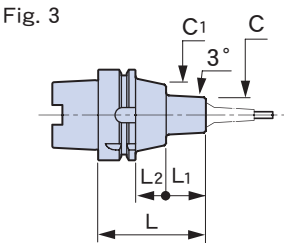
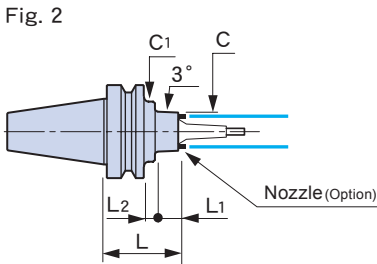
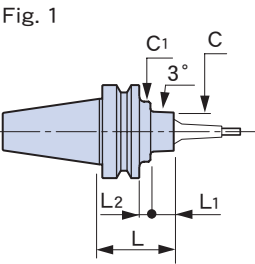
- Setting cutters...Be sure to insert the tool beyond the safety mark.



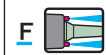
CODE	φD	φC	t	L	M	H	S	(N)	Kg	h
CS8-3-25	3	6	1.5	25	22	9	2.1	0.2	60	37.5
-45				45	42		4.8	0.4	70	57.5
-65				65	62		10.3	0.6	80	77.5
CR8-3-45	3	7.5	2.25	45	42	9	3.6	0.5	70	57.5
-65				65	62		7.4	0.7	90	77.5
CF8-3-45				45	42		2.8	0.5	80	57.5
-65	3	9.5	3.25	65	62	9	5.3	0.8	100	77.5
CS8-4-25				25	22	12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



Master holder 12 type



CODE	Fig.	L	φC	L ₁	L ₂	φC ₁		
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			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.

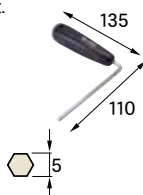
Caution

- 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

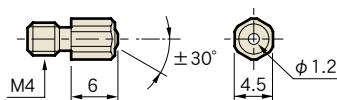


Note

- 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

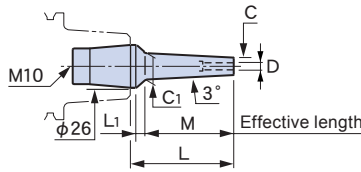
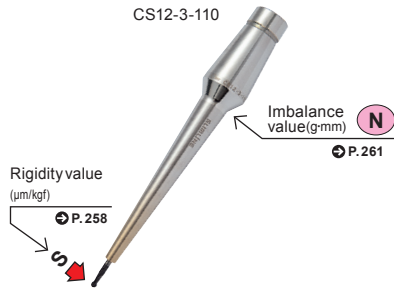
- Four nozzles are required on the flush type master holder.

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

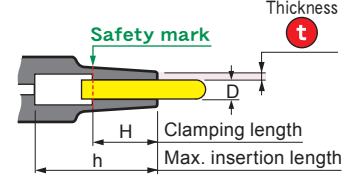


Note

- $\downarrow S$ 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.



CODE	φD	φC	t	L	M	L ₁	φC ₁	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
- 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
- 55				55	42		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

Feature	CODE	φD	φC	t	L	M	L ₁	φC ₁	H	S	N	Kg lbs	h
Shrink-fit Heater	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		
Shrink-fit Heater	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
MONO 3° MONO CURVE	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	
MONO Series	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	
MONO Series	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	
2PIECE type	CRB12-10- 35	10	22	6	35	22	9.5	24.3	30	0.6	0.9	0.2	60
	- 55				55	—		25.5		0.9	—	0.3	
	- 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	
UNO	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	
HYPER VERSION	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	
Z	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	
STRAIGHT arbor	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		4.8	1.7	0.77	
OTHERS	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		1.8	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		1.8	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]

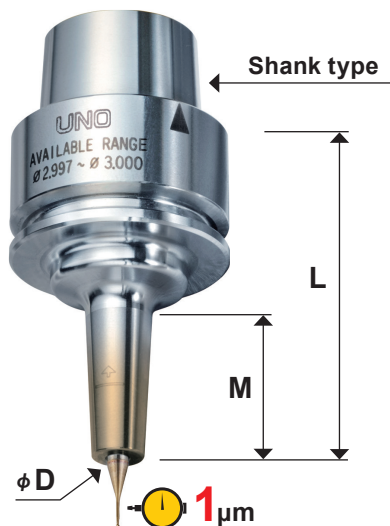


Front face



Back face

UNO



Run-out accuracy **1 μm**



E32 - SL SA 3 - 50 - M22 UNO

Shank type

SLIMLINE

φD

L

Effective length

UNO
BLACK UNO

UNO

E25
E32
E40
E50
F63

BLACK UNO

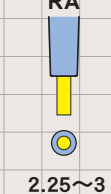
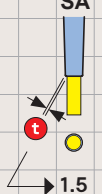
E25
E32

Nose shape

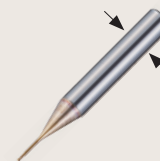
Thickness **2 types**

Slim A type

Regular A type



Required cutter shank tolerance



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

Recommended cutting tools



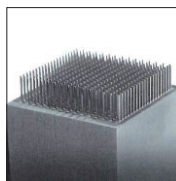
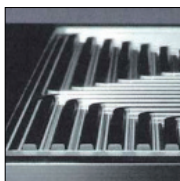
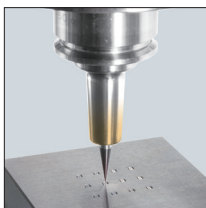
株式会社 イフタツール
IWATA TOOL Co., Ltd.

NS TOOL

住友電工
SUMITOMO ELECTRIC

MOLDINO
The Edge To Innovation

KYOWA

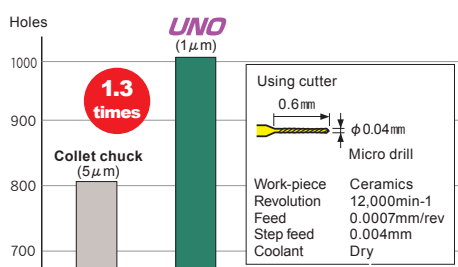


It allows superior finishing surface quality and extends the tool life of micro-cutting tools.

Runout accuracy

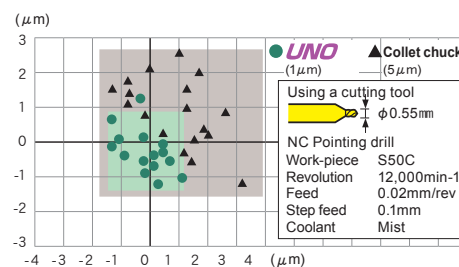
Tool life

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.

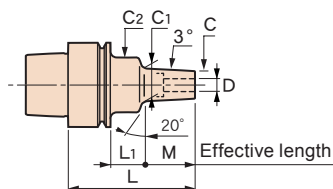
We inspect all the holders and mark "▲" at the highest run-out point.



Delivered with the accuracy inspection sheet.

UNO

E32-SLRA4-50-M22 UNO



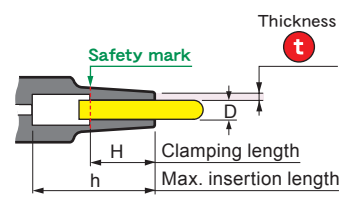
Thickness

Note

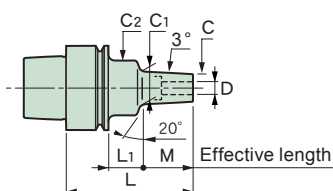
- SLIMLINE UNO is available for other shank designs and internal bore sizes not listed in this chart. For more information, please contact us.

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.



CODE	φD	φC	t	L	M	L1	φC1	φC2	H	h	Kg	N	S
E25-SLRA3-35 U	3	7.5	2.25	35	17	8	9.3	18	9	29	0.05	0.37	2.3
-SLRA4-35 U	4	10	3				11.8		12		0.06	0.38	1.4
-SLRA6-35 U	6	12					13.8		18	26	0.07	0.39	1.1
-SLSA3.175-35 U	3.175	6.175	1.5				8		9	29	0.05	0.37	3.5
E32-SLRA3-50-M22 U	3	7.5	2.25	50	22	8	9.8	20	9	42	0.14	0.4	2.8
-SLRA4-50-M22 U	4	10	3				12.3		12		0.15		1.7
-SLRA6-50-M22 U	6	12					14.3	26	18	39	0.2	0.5	1.2
-SLSA3.175-50-M22 U	3.175	6.175	1.5				8.5	20	9	42	0.14	0.4	4.4
E40-SLRA3-50-M22 U	3	7.5	2.25	50	22	8	9.8	20	9	42	0.2	0.7	2.8
-SLRA4-50-M22 U	4	10	3				12.3		12				1.6
-SLRA6-50-M22 U	6	12					14.3	26	18	39			1.2
-SLSA3.175-50-M22 U	3.175	6.175	1.5				8.5	20	9	42			4.4
E50-SLRA3-75-M22 U	3	7.5	2.25	75	22	27	9.8	25	9	65	0.5	1.7	2.8
-SLRA4-75-M22 U	4	10	3				12.3		12				1.7
F63-SLRA3-75-M22 U	3	7.5	2.25	75	22	27	9.8	25	9	54	0.7	1.8	2.8
-SLRA4-75-M22 U	4	10	3				12.3		12	58			1.7

**BLACK
UNO**E32-SLRA4-50-M22
BLACK UNO

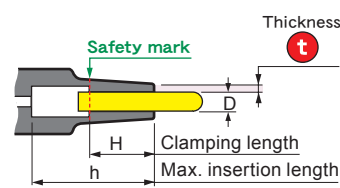
Thickness

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.



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

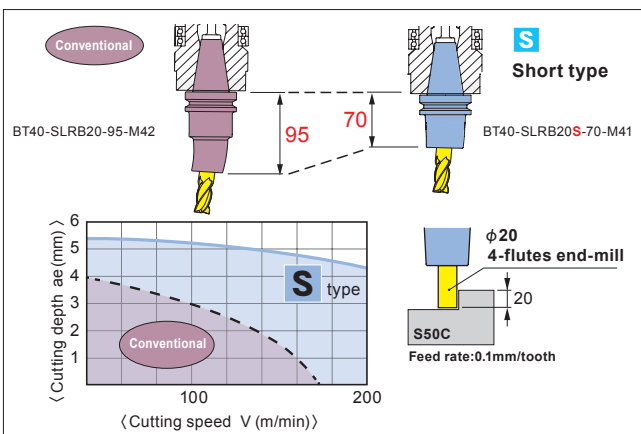


HYPER VERSION

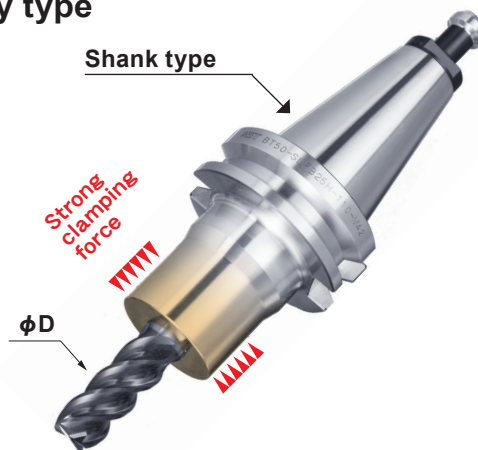
S Short type



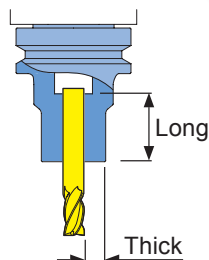
Machining efficiency **2 times**
(Compared to conventional holders.)



H Heavy type



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



BT40 - SLRB20S - 60 - M42

Shank type SLIMLINE ϕD HYPER VERSION L Effective length

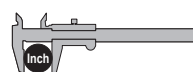
S Short type

BT30
BT40
A63

H Heavy type

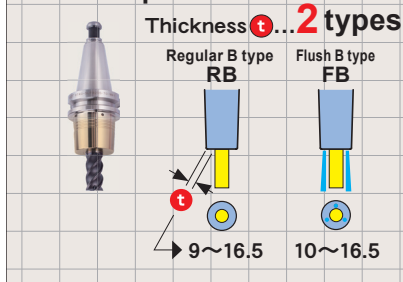
BT40
BT50
A63
A100

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

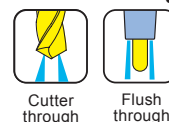


● Inch. size I.D is available upon request.

Nose shape



Coolant-through



Short type

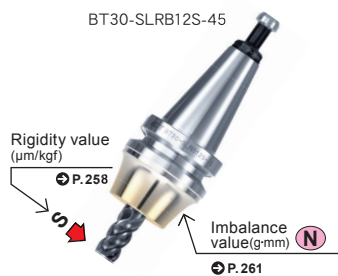


Fig. 1

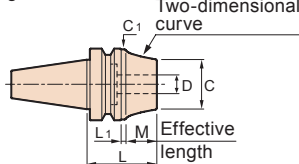


Fig. 2

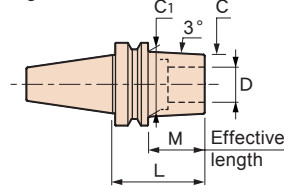


Fig. 3

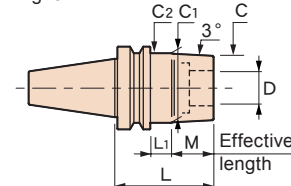


Fig. 4

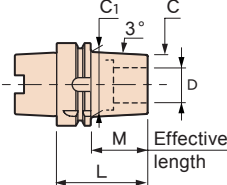
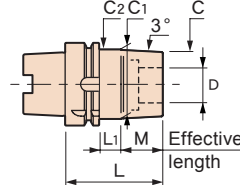


Fig. 5



■Option

- Retention knob (BT)→P.244

■Std. Access.

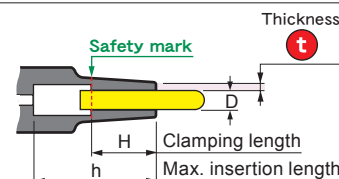
- Coolant duct (fixed type), (HSK-A63)→P.246

■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)



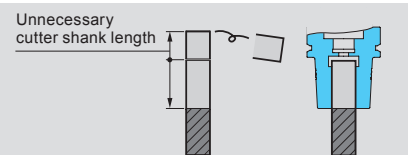
Thickness

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



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

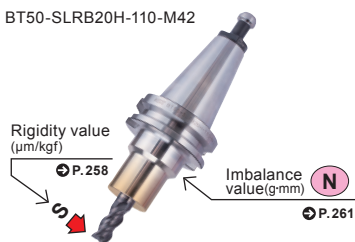


Fig. 1

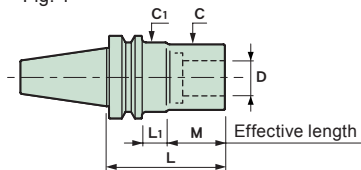
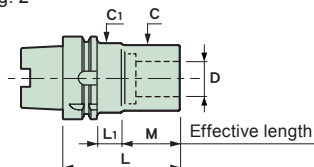


Fig. 2



An appropriate heating coil for HRD-02S

■ Option

- Retention knob (BT)→P.244

■ Std. Access.

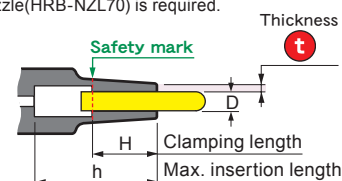
- Coolant duct (fixed type), (HSK-A)→P.246

■ 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.



CODE	Fig.	φD	φC	t	L	M	L ₁	φC ₁	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														7
-SLRB20H- 90-M42		20	50	15	90	42			47	100	1.6	6.3		
-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														



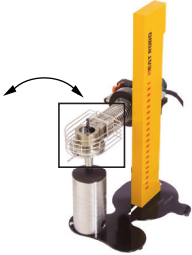
CODE	Fig.	φD	φC	t	L	M	L ₁	φC ₁	H	h	 Kg	 N	 S	
A100-SLRB12H- 95-M32	2	12	36	12	95	32	34	53	35	63	2.7	26.9	0.3	6
-SLFB12H- 95-M32														
-SLRB16H- 95-M32		16	42	13					37			27.2		
-SLFB16H- 95-M32														
-SLRB20H-110-M42		20	50	15	110	42	39	63	47	78	3.2	31.3	0.2	7
-SLFB20H-110-M42														
-SLRB25H-110-M42		25	58	16.5					52			31.8		
-SLFB25H-110-M42									50					



φ70 Nozzle (HRB-03S)

Required for shrinking the Heavy-duty type.

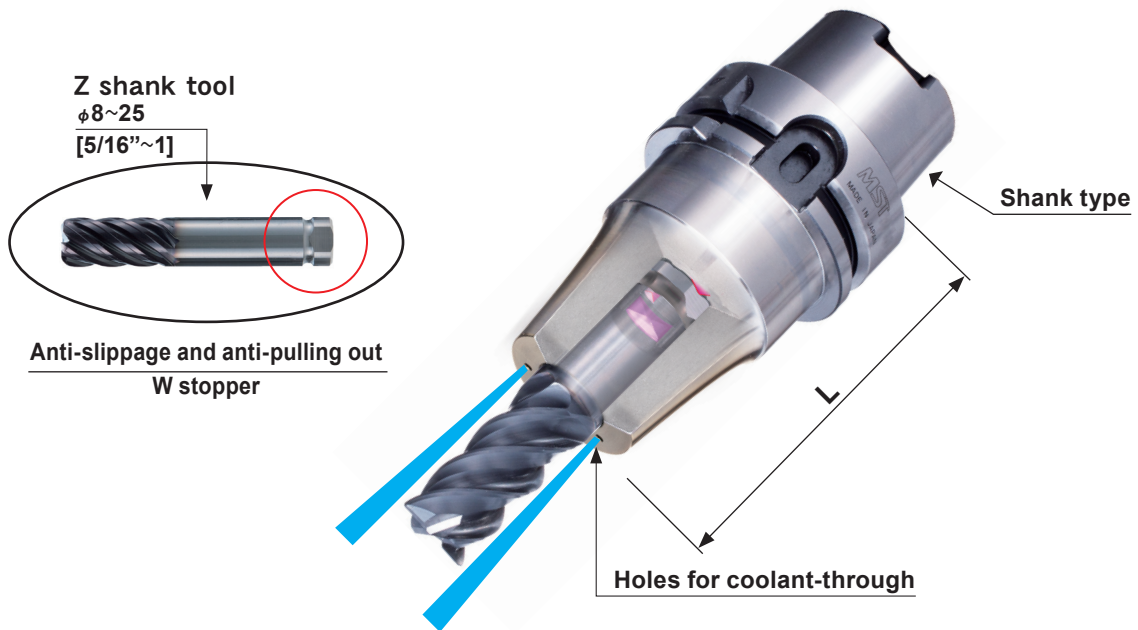
CODE
HRB-NZL70



HEAT ROBO Baby3000S

■ ANTI-SLIPPAGE, SHRINK-FIT HOLDER

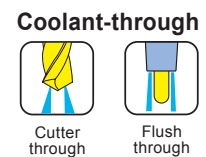
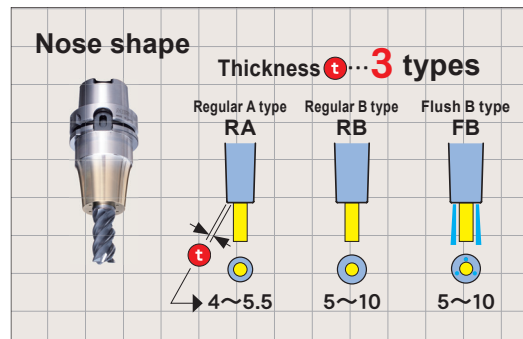
SLIMLINE Z



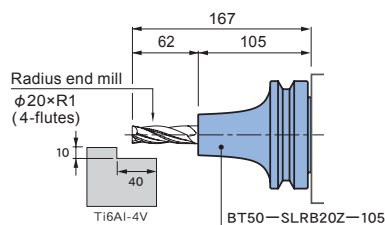
BT40 – SL RB 16 Z – 90

Shank type SLIMLINE φD SLIMLINE Z L

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



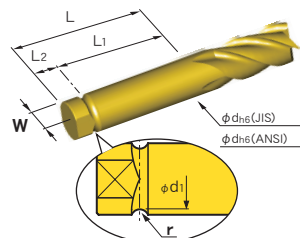
Machining examples



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



Metric

φd (h6)	W	φd1	L	L1	L2	r
			min. max.		min. max.	
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	φd1	L	L1	L2	r
			min. max.		min. max.	
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

They can provide a tool for SLIMLINE Z

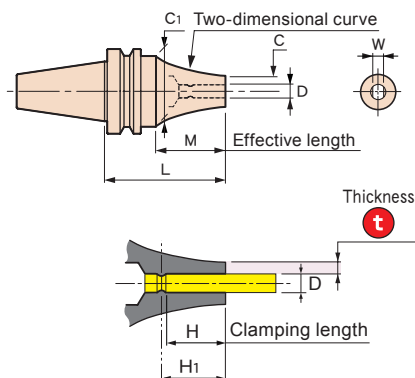


BT

BT50-SLRB16Z-120

Rigidity value
($\mu\text{m/kgf}$)

P.258

Imbalance
value(g·mm)N
P.261
 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	ϕC_1	H	H ₁	W	Kg	N	S
BT40-SLRB 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
-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
-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		



HSK-A

A63-SLRB16Z-120

Rigidity value
($\mu\text{m/kgf}$)
P.255

Imbalance value(g·mm)
N
P.261

Fig. 1

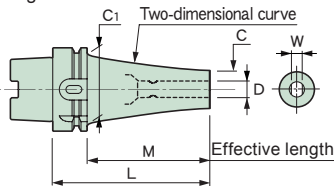
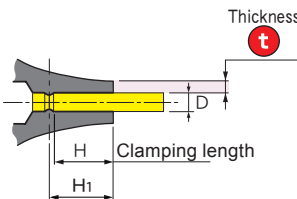
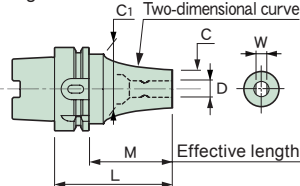


Fig. 2



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

CODE	Fig.	ϕD	ϕC	t	L	M	$\phi C1$	H	H ₁	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

CODE	Fig.	φD	φC	t	L	M	φC ₁	H	H ₁	W				
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				
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		





DN40AD-SLRB16Z-90

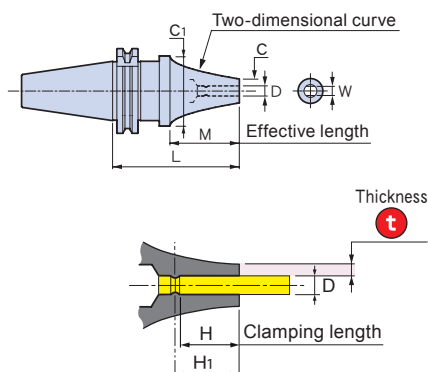
Rigidity value
($\mu\text{m/kgf}$)

Ⓟ P.258

Imbalance
value(gmm)

(N)

Ⓟ P.261



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).

CODE	φD	φC	t	L	M	φC1	H	H1	W		(N)	
DN40AD-SLRB 8Z- 90	8	18	5	90	52	50	24	29	6.5	1.1	7.8	0.6
-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
-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
-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
-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
-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
-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
-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
-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
-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
-120				120		53				1.8	12.8	0.4
-150				150		2.2				16	0.6	



CODE	ϕD	ϕC	t	L	M	ϕC ₁	H	H ₁	W				
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	3
-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.

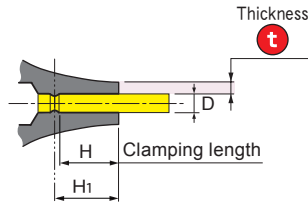
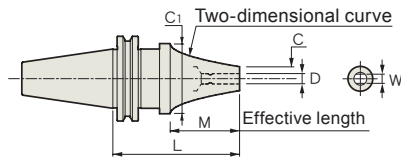
CT40-SLRB5/8Z-90

Rigidity value
($\mu\text{m}/\text{kgf}$)

→ P.258

Imbalance
value(g·mm)

→ P.261



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

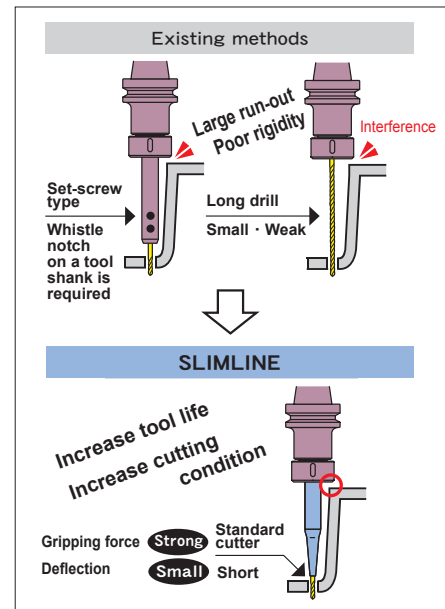
CODE	ϕD	ϕC	t	L	M	ϕC_1	H	H ₁	W	lbs	N	S	
CT40-SLRB5/16Z- 95	5/16	.71	.20	3.74	2.05	2.09	.94	1.13	.25	2.6	7.6	0.7	2
-120				4.72						3.3	10.2		
-150				5.91						4.2	13.4	0.8	
-180				7.09						5.1	16.6	1	
-SLFB 5/16Z- 95	5/16	.71	.20	3.74	2.05	2.09	.94	1.13	.25	2.6	7.6	0.7	2
-120				4.72						3.3	10.2		
-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	H ₁	W		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	
-195				7.68	6.30					10.6	22.1	0.8	2
-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	
-SLFB1/2Z-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	
-SLFB5/8Z-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	
-SLFB3/4Z-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	



STRAIGHT ARBOR

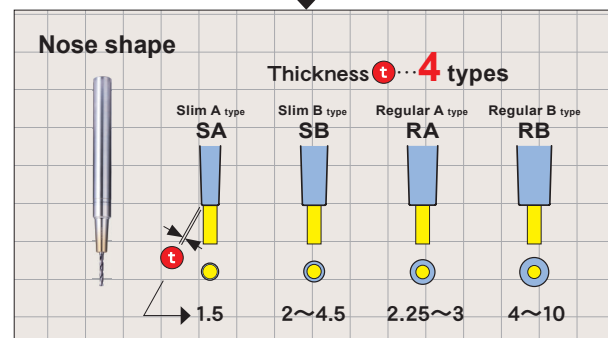


ST 10 C - SL SA 3 - 110 - M42

Carbide shank SLIMLINE φD L Effective length

METRIC	10
	12
	16
	20
	25
	32
	42

INCH	19.05
	25.4



Standard type

ST25-SLSA10-255



Fig. 1

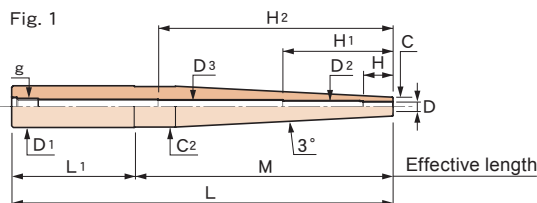
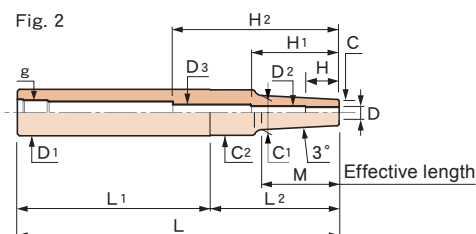


Fig. 2

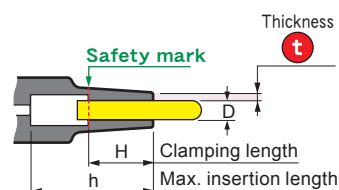


Compatibility table
for HRD-01S

[○] Available [×] Not available
[▲] Usable by raising the
heating unit.→P.257

■ Caution

- Setting cutters: Be sure to insert the tool beyond the safety mark.



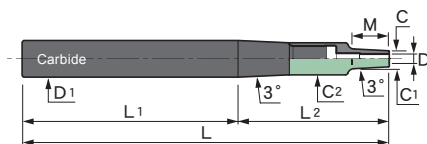
CODE	Fig.	φD	φC	t	L	M	D1	H	L1	L2	φC1	φC2	g	h	kg lbs	φD2	φD3	H1	H2	
ST10-SLSA3- 80-M 35	1	3	6	1.5	80	35	10	9	45	—	—	9.3	M 6	64	0.03	4	—	49.6	—	○
ST16-SLRA3- 90-M 22	2		7.5	2.25	90	22	16		60	30	9.8	15.5	M10	62	0.09			33.7		○
-SLSA3-115-M 42			6	1.5	115	42				55	10.4			87				53.7		○
-SLRA3-115-M 42			7.5	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		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		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	—

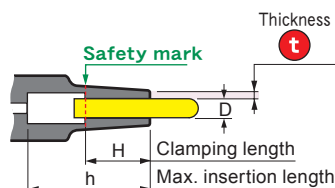


Carbide type



Caution

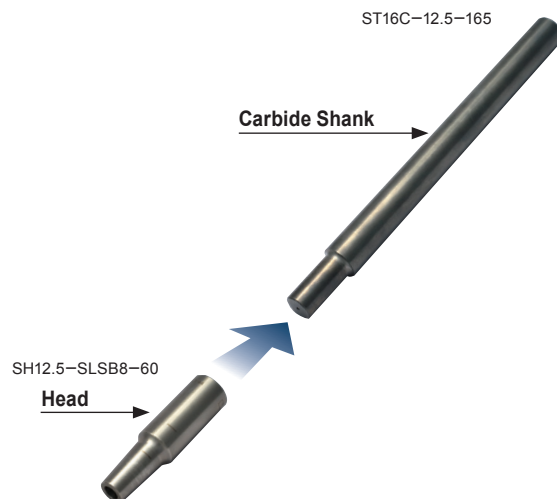
- Setting cutters · Be sure to insert the tool beyond the safety mark.



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			

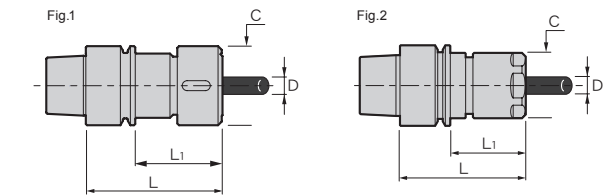
The Parts Code List for Carbide Straight Arbor

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

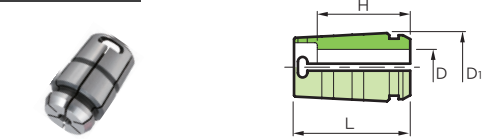
COLLET HOLDER (CTH/CTS)



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

Spanner / Wrench

Fig.1

Fig.2

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

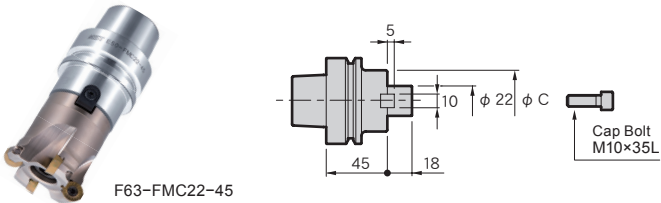
Accuracy

Runout accuracy	Nominal shank size
Precision Collet	5 μm

※Accuracy of collet alone

D	L
~ 10	4 × D
10.2 ~ 20	40

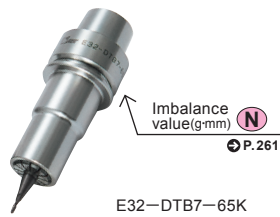
Face Mill Arbor (FMC)



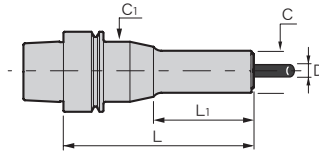
CODE	Cutter dia	φC	KG
E50-FMC22-45	50 , 63	42	0.7
F63-FMC22-45		45	1.0

- Std. Access.
 •Cap Bolt
 •Stopper Key
- Note
 •The cap bolt may differ depending upon the shape of the cutter.

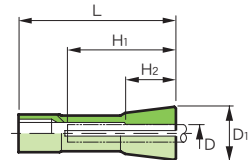
DETa-1 Collet Holder (DTA / DTB)



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

■Option *DETa-1 Collet *Wrench

■Std.Access. *Rod(DTA3)

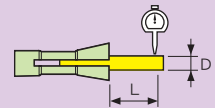
■Caution *※=It cannot use collapsibility of a collet. The holding diameter applies only to the reference diameter of collet.
*HSK-E and F shank don't come with a coolant duct and cannot be attached. Consult us if you need it.

CODE	ϕD	Collapsibility	$\phi D1$	L	H1	H2	Holder type
Precision Collet							
D 3- 0.6-P	0.5 ~ 0.6	0.1	7	40	36	6.9	DTA 3
- 0.8-P	0.6 ~ 0.8	0.2					DTB 3
- 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
- 2 -P	1.5 ~ 2					10	DTB 7
- 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						

Accuracy

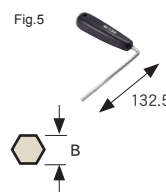
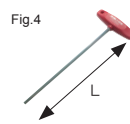
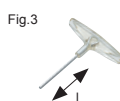
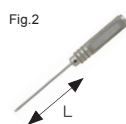
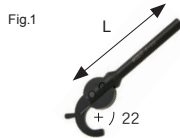
Runout accuracy	D3	D7-D12
Precision Collet	3 (6) μm	5 (10) μm

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



D	L
~10	4 × D
10 ~ 13	40

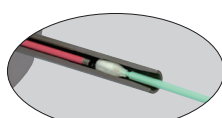
Spanner · Wrench



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				1.4
	-DTB12		132.5		1.8

Cleaning Tool (DTA3 / DTB3)

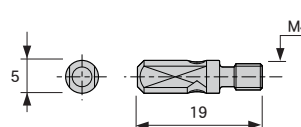
Please use to clean the inside of the holder.



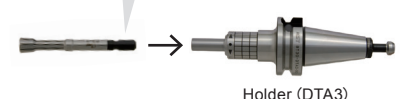
CODE	Q'ty
PCT01-10	10
-25	25

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



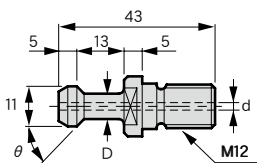
Retention knob



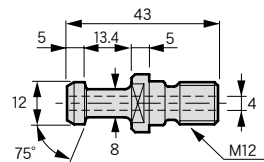
- **Caution**
- Retention knobs in this catalog are typical models for various machine tool companies. Confirm the correct retention knob design using the machine specifications sheet.
 - We manufacture other kinds of retention knobs. Please consult us for the detail.
 - When heating Mono Series shrink-fit 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	P50T-2	P-419	—	P-499	P-419
OKK	—		P40T-1 (MILLAC series)	P-297	P-143	—	—	—	—
OHTORI	—		P40T-1	P-297	P50T-1	P-299	—	—	—
KITAMURA	P30T-1	P-445	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	P-297	P50T-1	P-299	—	P-323-1	P-299
	—		(V series)		(Aseries, MCCseries, Vseries,)		—		
	—		P-348	P-323-1	P-400		(Aseries, 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		—	—	P-288-1
YAMAZAKI GIKEN	—		P40T-1	P-297	(YBM1218V)		—	—	(YBM1218V)
MAZAK	—		P-227		P50T-2	P-419	—	—	—
	—		—		P-514		—	P-227	P-514

BT30

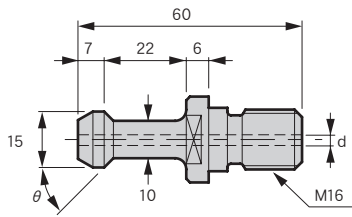


CODE	φD	φd	θ	NOTE
P30T-1	7	—	45	MAS —1
P-445		3		P30T —1 through hole
P30T-2		—	60	MAS —2
P-497		2		P30T —2 through hole
-522	8	4	45	FANUC center-through
-511	7.5	2.5	60	BROTHER center-through

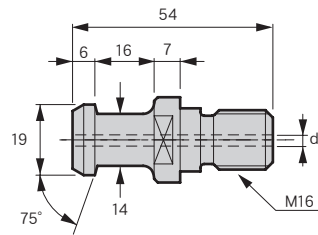


CODE	NOTE
P-399	JIS30P

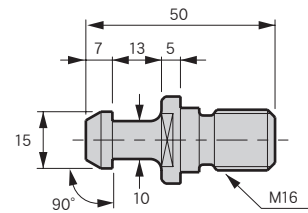
BT40



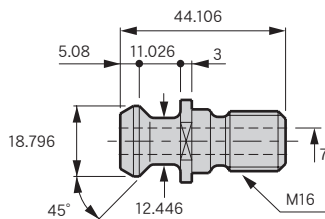
CODE	ϕd	θ	NOTE
P40T-1	—	45	MAS—1
P-297	4		P40T—1 through hole
P40T-2	—	60	MAS—2
P-339	4		P40T—2 through hole
P-141	—	90	—
-498	4		P—141 through hole
-505	3	45	KOMATSU NTC center-through



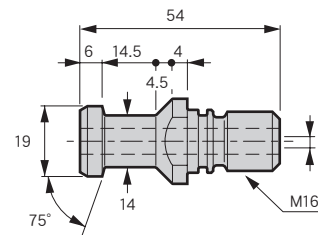
CODE	ϕd	NOTE
P-348	—	JIS40P
-323-1	7	P—348 through hole
-499	4	OKUMA center-through
-438	7	YASDA through hole
-509		YASDA center-through



CODE	NOTE
P-007	MITSUI SEIKI

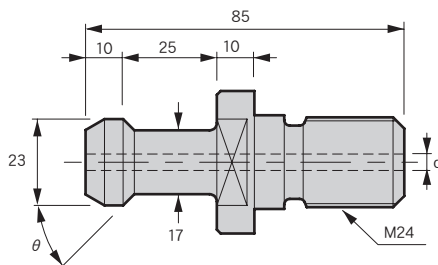


CODE	NOTE
P-227	MAZAK

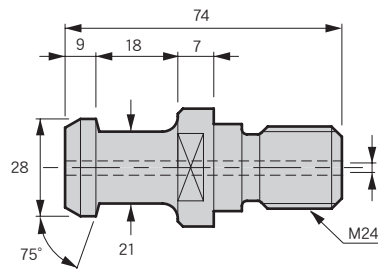


CODE	NOTE
P-435	DMG MORI center-through

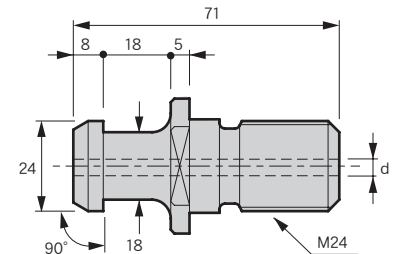
BT50



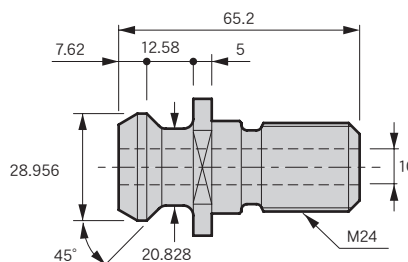
CODE	ϕd	θ	NOTE
P50T-1	—	45	MAS—1
P-299	6		P50T—1 through hole
P50T-2	—	60	MAS—2
P-419	6		P50T—2 through hole
P-143	—	90	—
-402	7		P—143 through hole
P-459	7	45	YASDA center-through
-513	8	90	DMG MORI center-through
-384	5.5	45	KOMATSU NTC center-through



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.

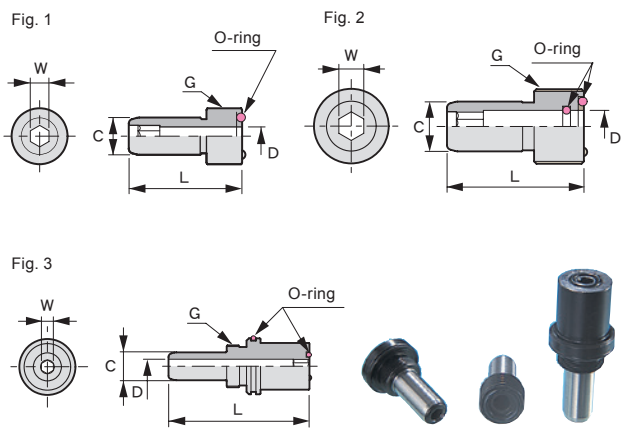


Coolant duct (HSK-A)

Coolant duct (fixed type)

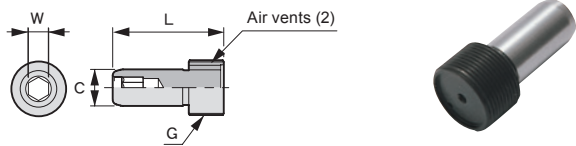
A coolant duct comes with below shank holders as a standard accessory.

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			



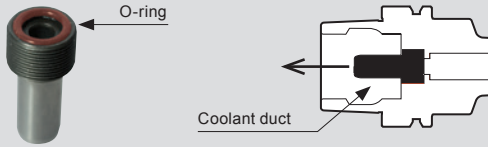
Dummy duct

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.

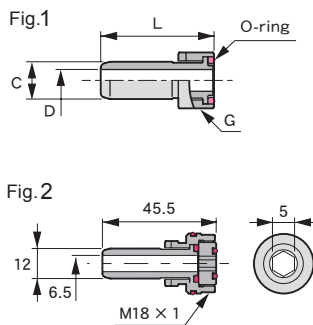
Remove the coolant duct when using the hot air heater.
If not, the O-ring will be damaged by the heat.
(Removal is not necessary with the induction heater.)
Use the dummy duct when the spindle coolant capability is not in use.
The dummy duct does not need to be removed when heated.



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



TOOL SET UP STATION

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

Work table

6S DESK

CODE

6SD-01

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

Sorting
Systematizing
Sweeping
Sanitizing
Self-discipline

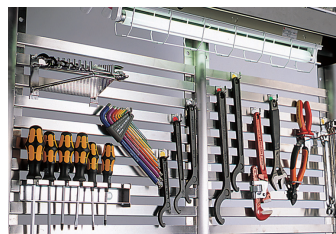
6S
5S + S Safety



Backside
•Dust Shooter
•Tool Cap Dispenser
•Hanger



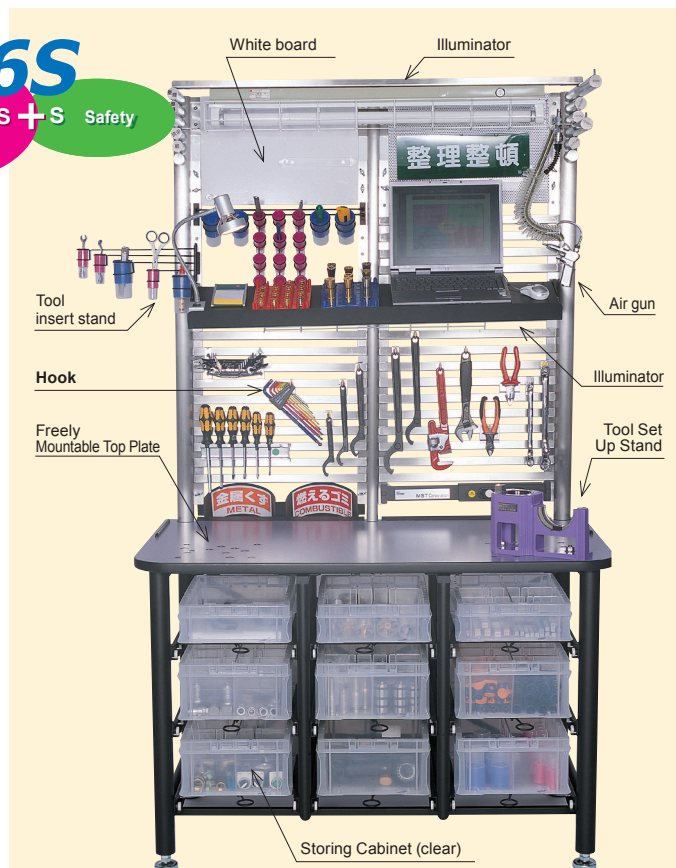
Freely Removable Drawer



Freely mountable and interchangeable hooks



Tools and vises can be freely clamped/mounted.



*This image includes the options.

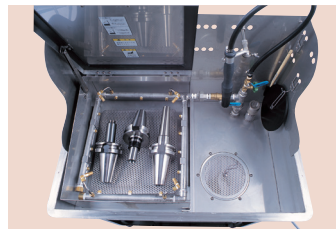
Tool washing machine

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



Cover can be opened during washing.

Washing shower equipped with automatic shutoff function, when opened

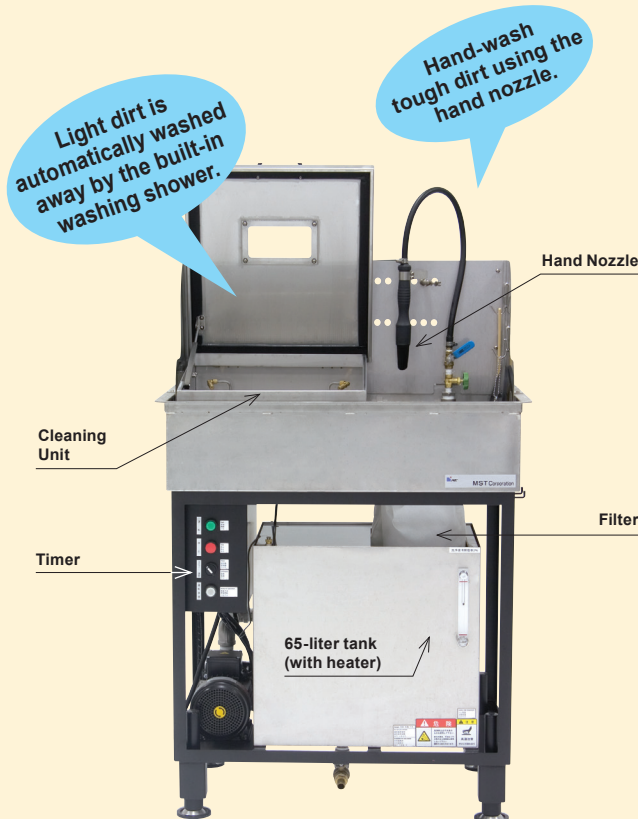


Hand washing



Automatic washing from 18 nozzles.

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



*This image includes the options.

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.

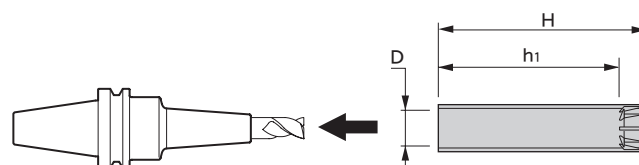
The cutting tool cover protects the user from injury at the time of work while protecting breakage of the cutting edge.



Not slip off



CODE	ϕ D	h ₁	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



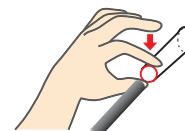
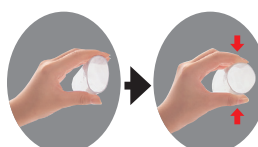
Variety Set

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.

TCA type

TCB type



General catalog for further reference...

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!

フットボール
Petit Ball40
BT40

マイキューブ
MYCUBE50
BT50
マイキューブ
MYCUBE100
HSK-A100

HF SERIES

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

Freely set
vertically or
horizontally



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

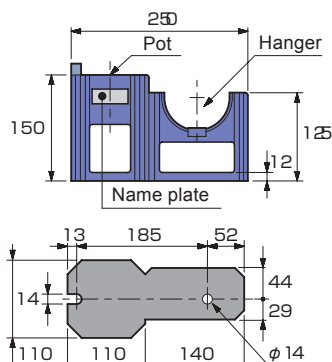
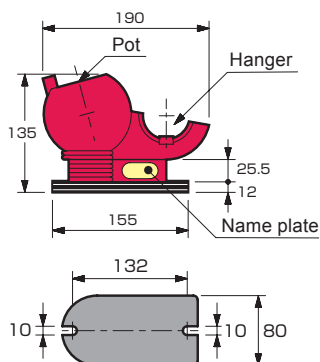
- Adapter (Petit Ball, MY CUBE 50)

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

Adapter for pot



Adapter for hanger



Adapter for pot



Adapter for hanger

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

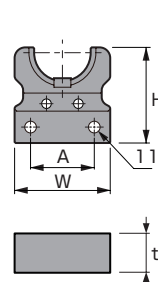


Fig. 2

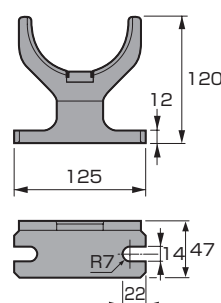
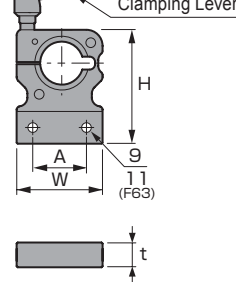


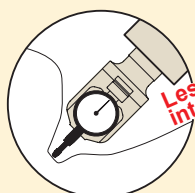
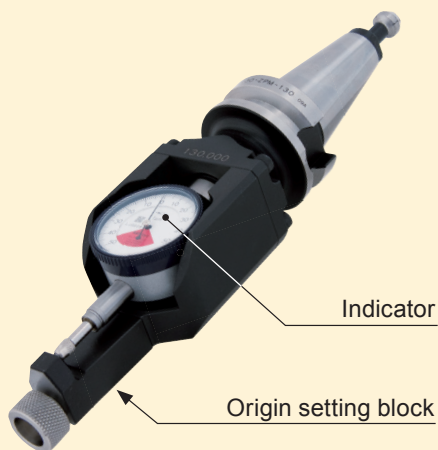
Fig. 3



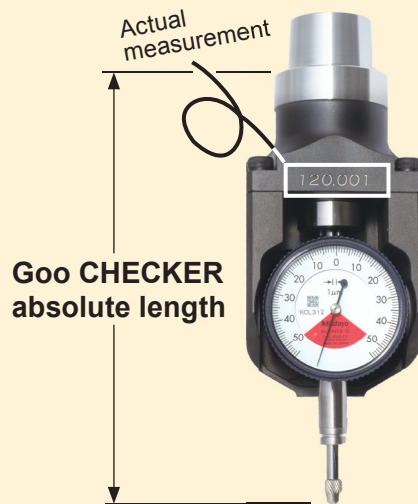
Goo CHECKER ZPMtype

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!

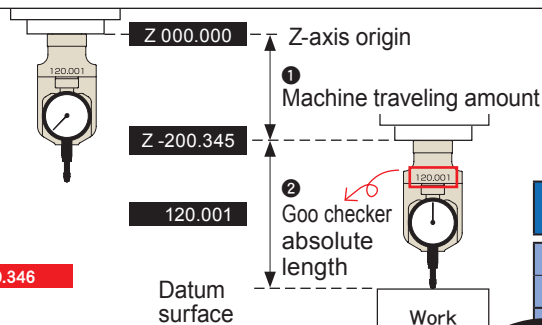


Available for using 5-axis machine.



Easy Z-axis origin setting

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



(Ex.)

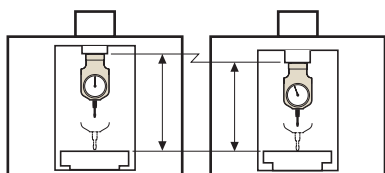
Distance from Z-axis origin to work-piece datum surface.

$$200.345 + 120.001 = 320.346$$

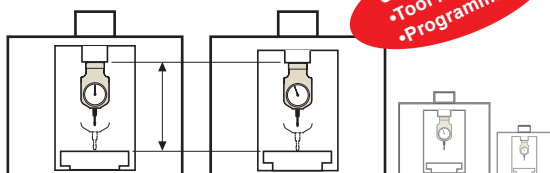
- 1 Machine traveling amount 2 Goo checker absolute length

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, multiple machining centers can share Z-axis origin.

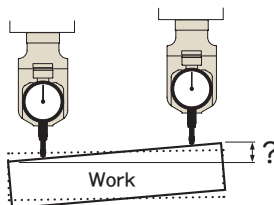


Correcting actual measurement variations



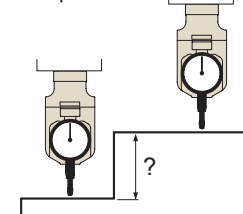
Work-piece position measuring

Precise measurement for flatness



Step distance measurement

Measurement for steps on the work-piece



CODE	L	Kg
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
E 32-ZPM-120	120	0.7
-165	165	1.0
HSK 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)

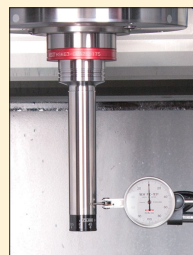
TEST BAR CHECKMATE

For machine spindle maintenance

Ideal for checking machine spindle run-out accuracy easily.

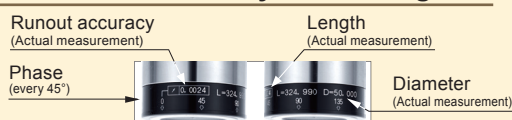
Managing spindle accuracy will maximize tool holder performance and increase productivity.

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



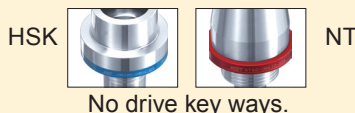
You can recognize the exact run-out accuracy and the highest run-out of the spindle.

The actual measurement values are marked on the body.



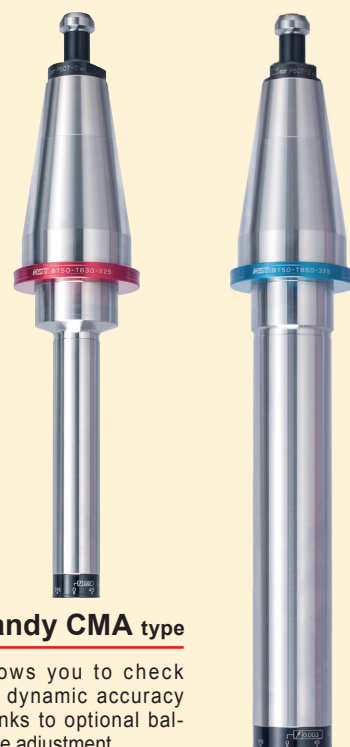
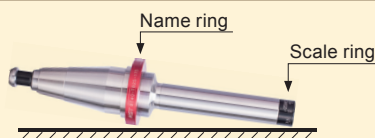
It can be installed into the spindle in every phase.

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



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	φD ₁	L	L ₁	L ₂	L ₃	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
HSK-A / -E	NT50-CMB50-325		50	53		60	250		5.7
	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

■ Std. Access.

- Accuracy inspection sheet

■ Option

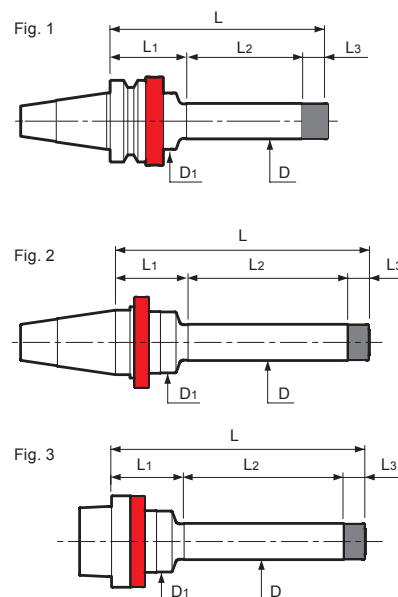
- Coolant duct(HSK-A)
 - Retention knob(BT)
 - Special retention knob(CAT. / DIN)
 - Balance adjustment (only for CMA type) less than G2.5 / 30000min⁻¹
- *Please order by adding "BL" to the end of the code.
(Ex. : HSK63-CMA25-175 BL)

■ 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)



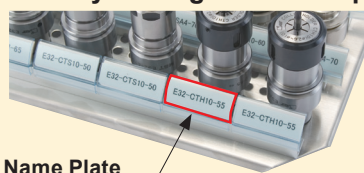
Exclusive retention knob

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

TOOL HOLDER STORING CABINET

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

Orderly storing with name plate



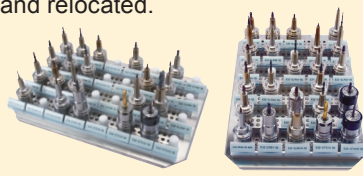
Name Plate

Transparent case!!

HBX

Arrangeable

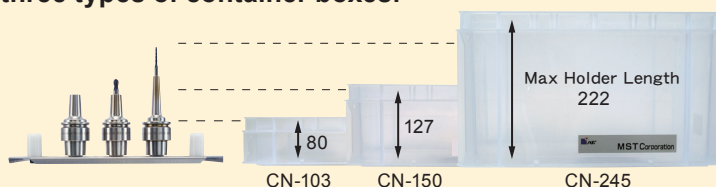
A multi-hole base plate is employed. Supports a variety of holder specifications using pins that can be freely changed and relocated.



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

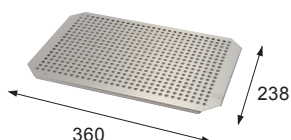
●Rail ●Name Plate ●Lid for Container Box ●Eyenut

Note

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

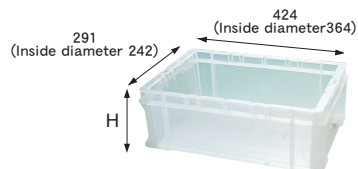
Base plate

CODE
HBX-BP01



Container box

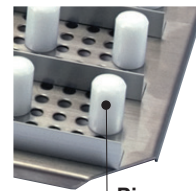
CODE	H		Shank type
	Outside diameter	Inside diameter	
CN-103	103	88	—
-150	150	135	E25, 32, 40/15T/20T
-245	245	230	A50, E50, F63



Pin

CODE	Q' ty	Size
HBX-PNE25	10	φ 13.5 × H20
-PNE32		φ 16.5 × H25
-PNE40	5	φ 20.5 × H29
-PNE50		φ 25.5 × H36
-PN15T		φ 26.5 × H54
-PN20T		φ 30.5 × H62

■ Std. Access. ●Mounting bolt (M5)



Pin

Eyenut

CODE	Q' ty
HBX-ENM6	2

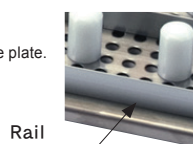
■ Std. Access.
●Mounting bolt M6



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.

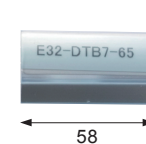


Rail

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



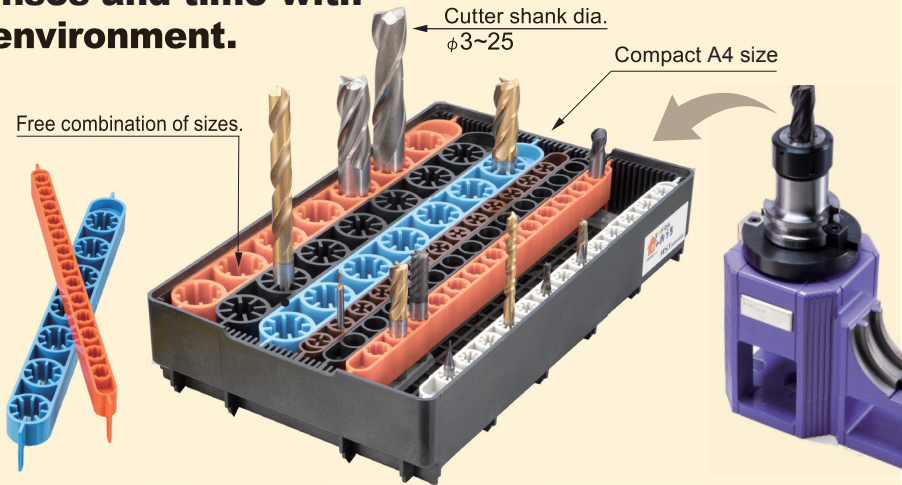
Are you having trouble storing your cutting tools?



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.



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

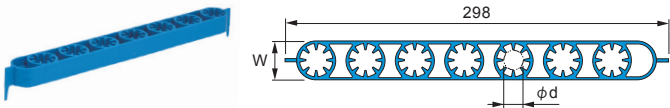
φ3:13pcs. φ4 :26pcs. φ6 :39pcs.
φ8:26pcs. φ10:26pcs. φ12:26pcs.

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

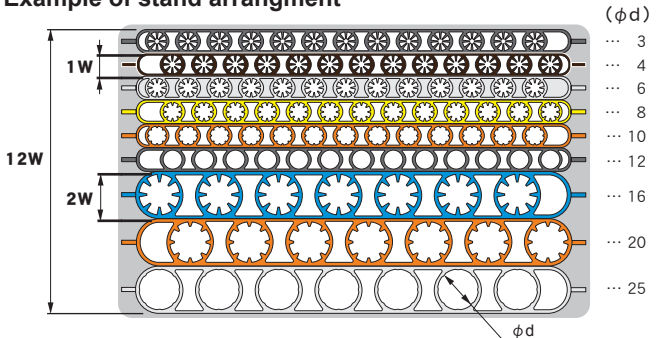
Container for holding the stands. Stands can be arranged by changing the combination of stands freely.

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 arrangement

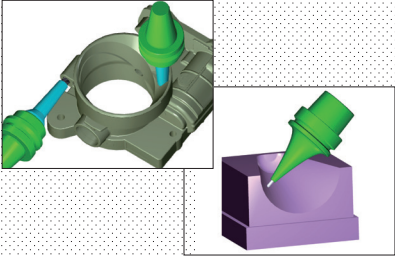
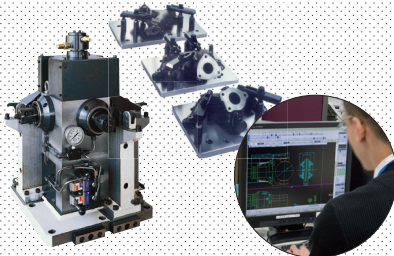


Technical support

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.

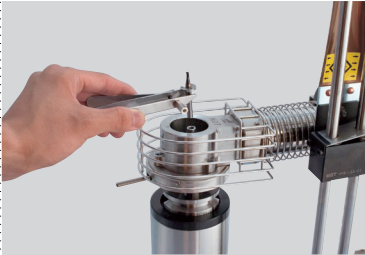
Tool selection

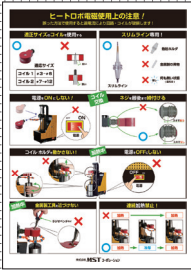
Interference check with 3D drawings

Designing jig fixtures

2 On delivery

You will receive instructions.



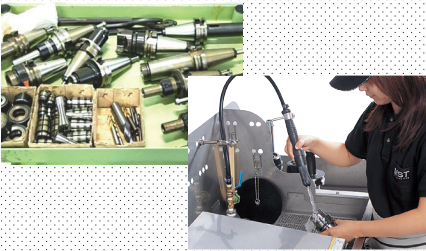


Instructions for a heater

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 accuracy 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



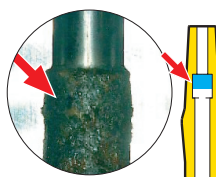
Daily maintenance.

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.

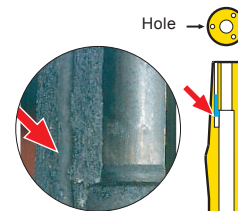
Coolant-through-spindle

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.



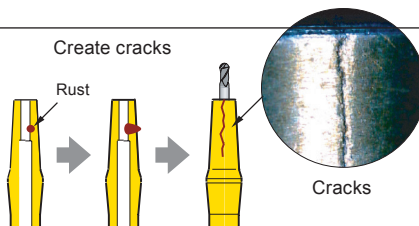
Flush type

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

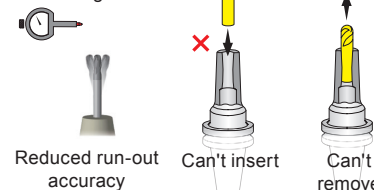


What happens after rusting?

- 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 accuracy.



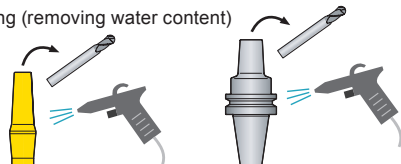
Internal bore distortion of the cutting tool



What should be done to prevent rusting?

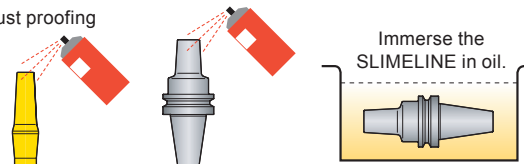
Iron rusting occurs if there are water content and air (oxygen). It can be prevented by removing water content by rustproofing or by ensuring that the metal is not directly exposed to air (oxygen).

1 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.

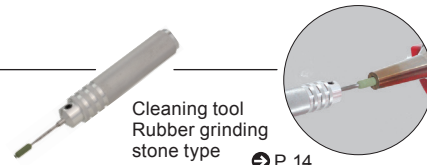
2 Rust proofing



- 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

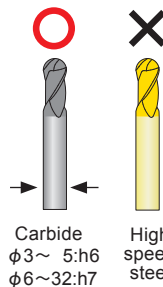
You must clean the cutter shank and internal bore of holder before you shrink-fit it. Please use our brush-type cleaning tool to clean out dust and dirt inside before you shrink-fit.



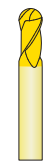
Cleaning tool
Brush type → P. 14

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 forcibly, when you cannot remove it, please reheat again.



Carbide
 $\phi 3 \sim 5:h6$
 $\phi 6 \sim 32:h7$



High speed steel

Using heat-resistant gloves

Use these gloves to protect from burns during operation.



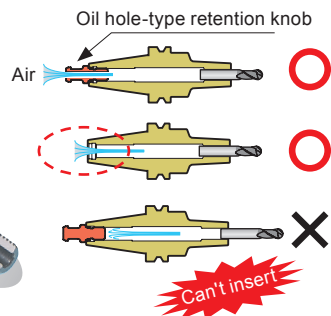
Heat-resistant gloves
→ P. 13



Be careful about burn injury!

Retention knob with hole (BT)

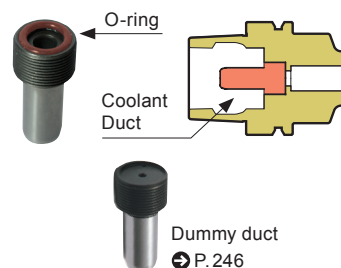
Use a retention knob that has a through hole, or remove the retention knob and heat it. The typical retention knob has no vent to release air which prevents tools from being inserted.



Through hole-type retention knob

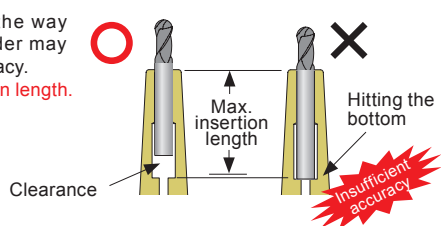
Coolant Duct (HSK-A)

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.



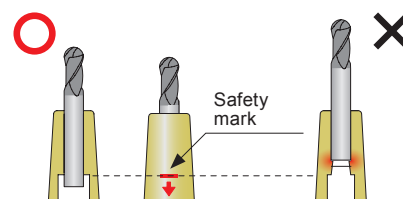
Max. insertion length

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



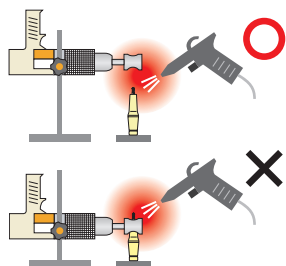
Min. holding length

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.



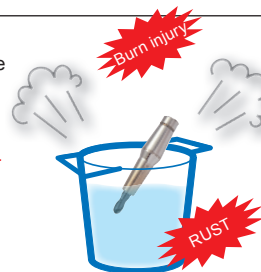
Cooling by outside air

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 result 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.



Regular type (CR/CRB)
Flush type (CF)

2.25~4

Copper hammer

Copper plate or aluminum plate

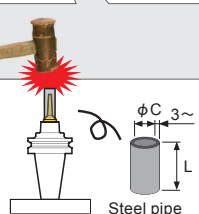
Flat, thick steel plate

Slim type (CS)

1.5

Steel pipe
L=Longer than(M)
C=Bigger than($\phi C1$) and
smaller than ($\phi 26$)

※Refer to code list for
(M) and ($\phi C1$).



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

Low oil content



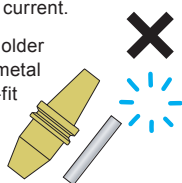
Please contact MST if you cannot remove a collet using the method above.

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)



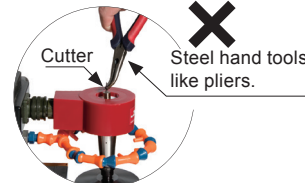
Attaching an air filter

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.

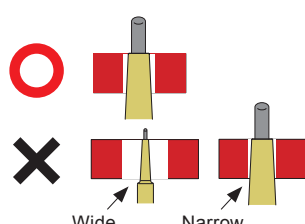


Changing coils...

Be sure to turn off the power

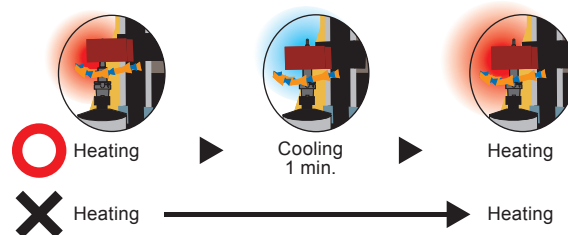


Use the appropriate coil size

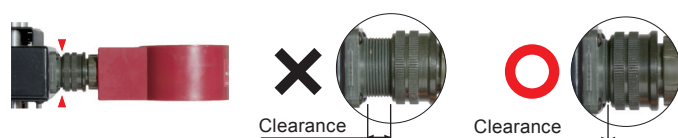


Do not repeat heating

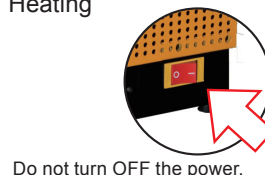
Always conduct a cooling operation for at least one minute after a heating operation, as continuous heating may damage the unit.



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



Heating



Do not 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.

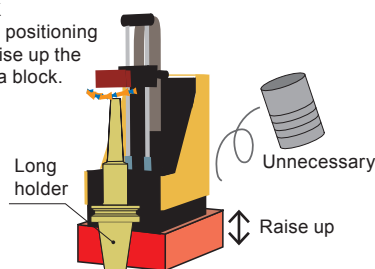
Compatibility table for HRD-01S

[○] Available [X] Not available
[▲] Usable by raising the heating unit. → P.257

N	G	S	Code list
3.3	6.9	4.8	○
11	12.1	14.6	▲

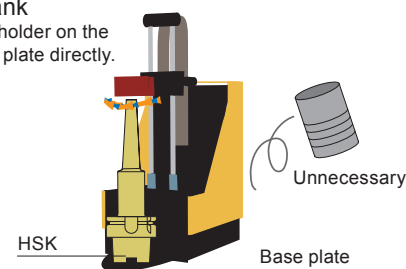
BT shank

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



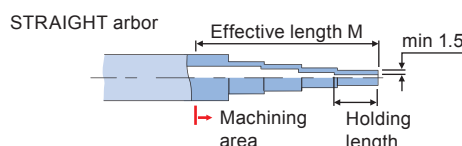
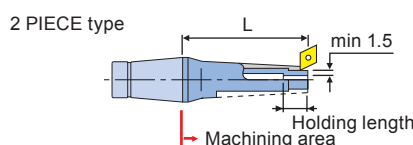
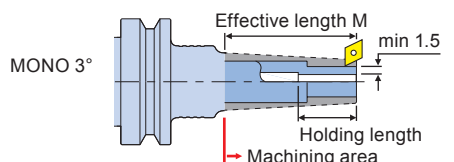
HSK shank

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.



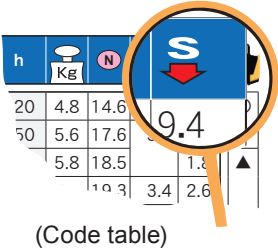
About custom-machining (turning)

- 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-steel 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

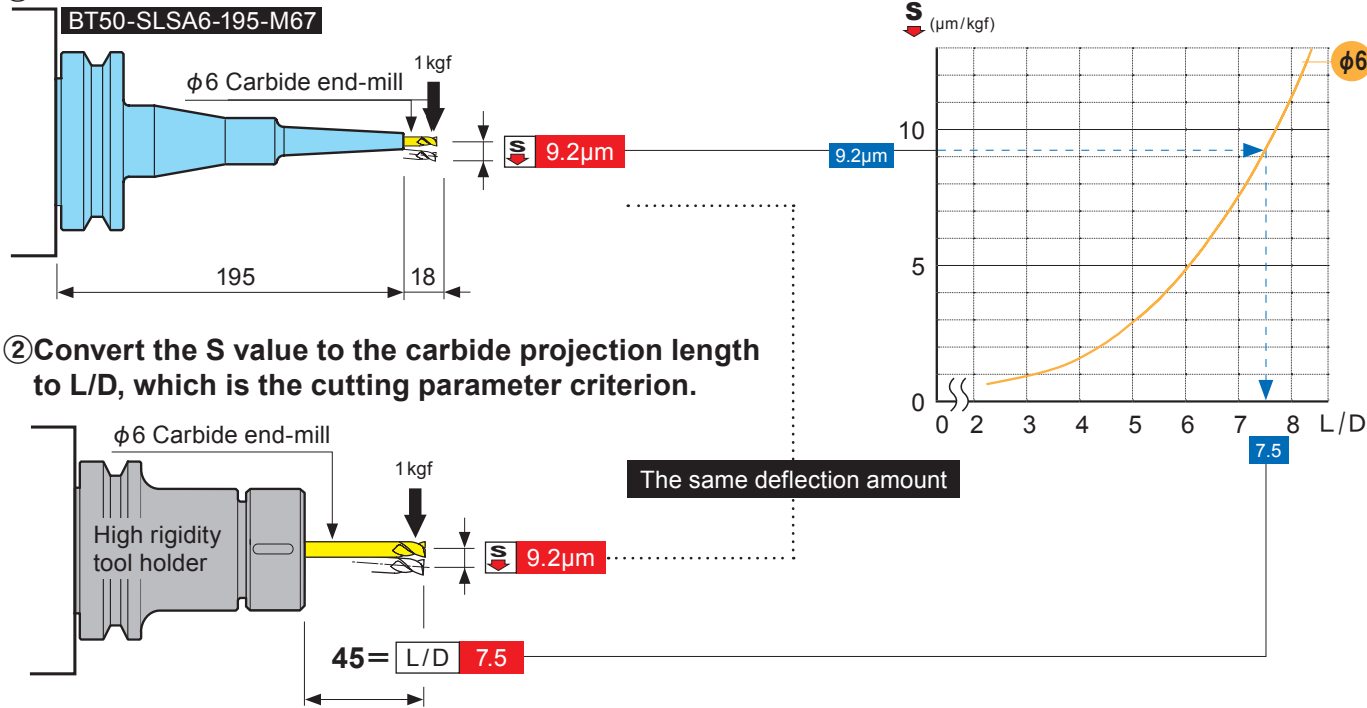
Relationship between SLIMLINE rigidity S and L/D

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.



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

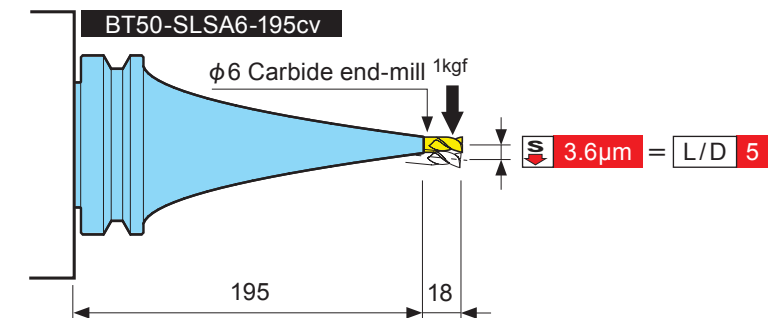
① SLIMLINE MONO 3°



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

③ Even 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 $S = 3.6\mu m$, $L/D = 5$, enabling more stable machining.



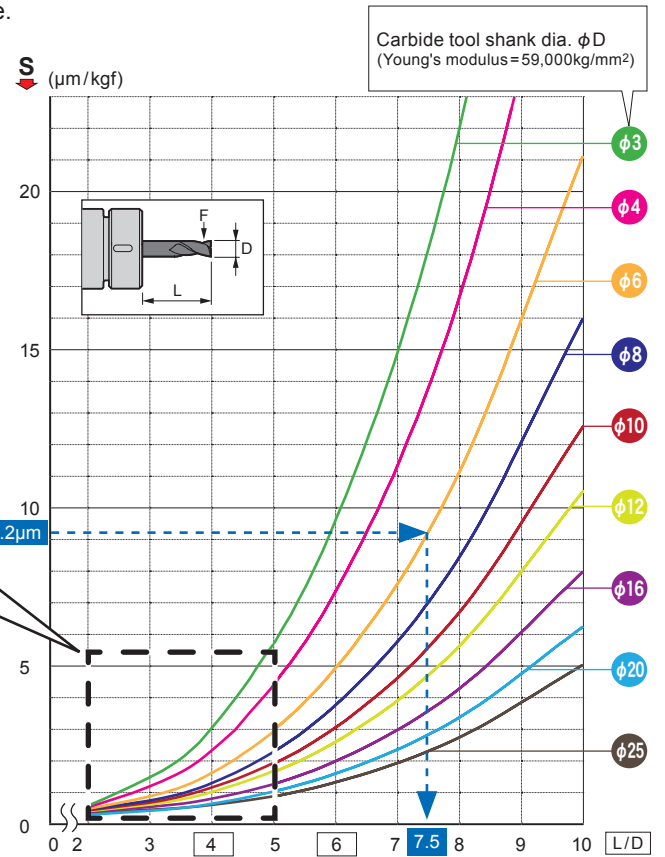
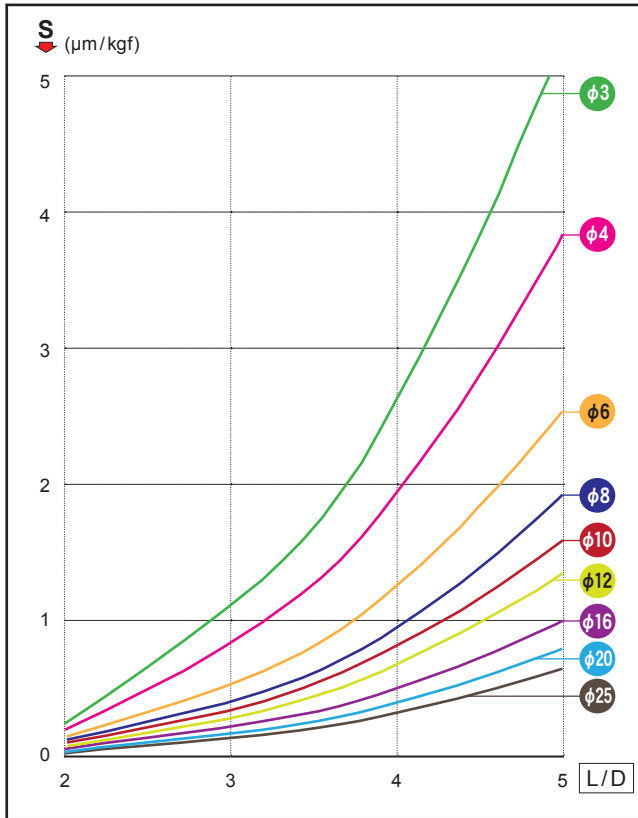
SLIMLINE rigidity calculation software

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.



The graph of relationship between rigidity S and L/D

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



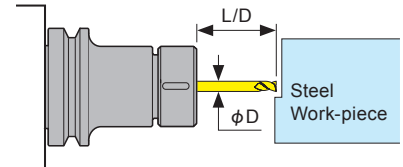
The formula to determine rigidity S (deflection)

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

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

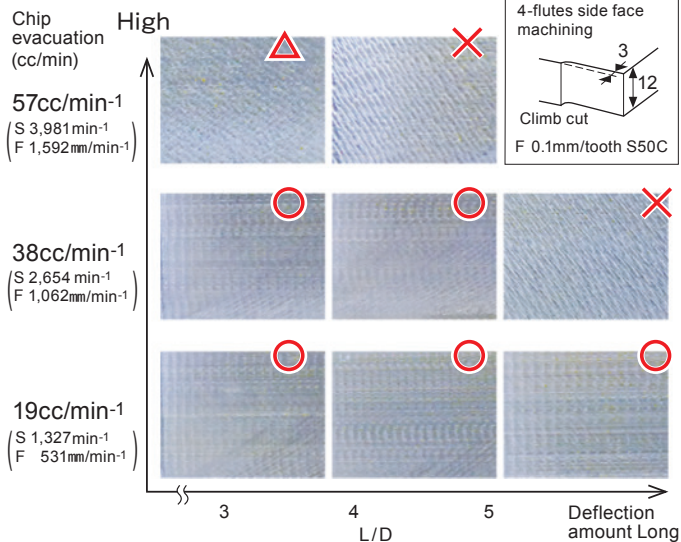
Cutting condition indication

	Cutting condition	
	Standard	Need to consider
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

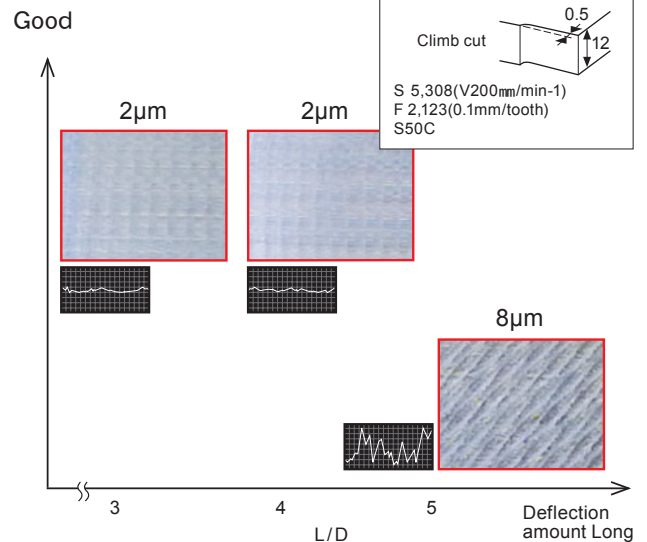


Tool life, surface finishing quality, and productivity comparison by different carbide cutter lengths (L/D)

Machinability



Finishing surface



SLIMLINE Rigidity calculation software

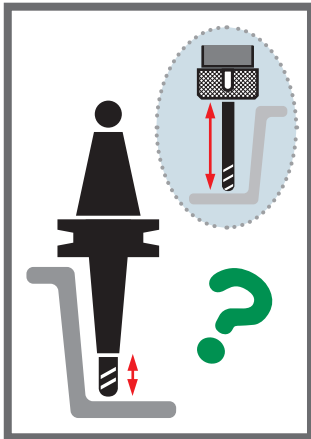


Free of charge

Indispensable
for CAM operators!

PAT.

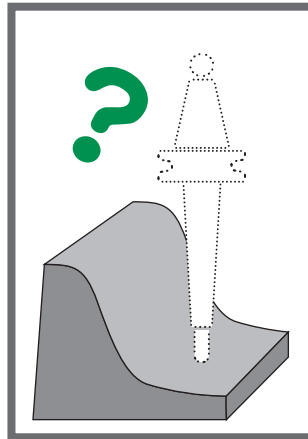
Do you have similar problems?



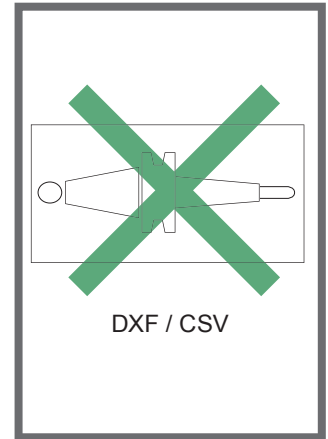
How much more rigidity is there in SLIMLINE compared to con-ventional holders?



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.

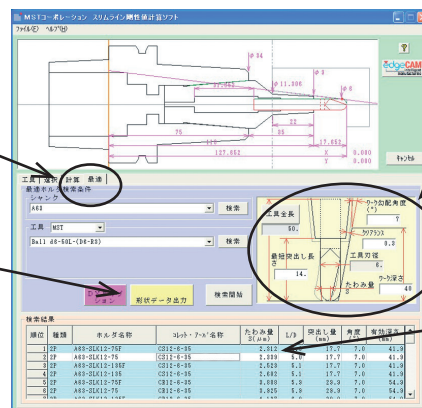
- The most suitable SLIMLINE
- +
- Cutter
- +
- Cutter projection

④ Displaying the main dimensions

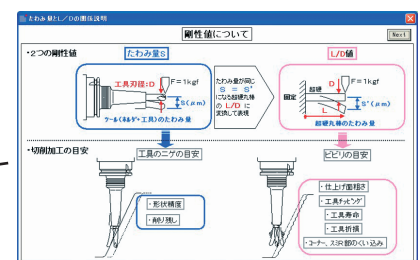
③ The most suitable SLIMLINE holder with the highest rigidity for the shape of the work piece is automatically selected.

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

② Holders are listed in order of rigidity.



① Input 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.

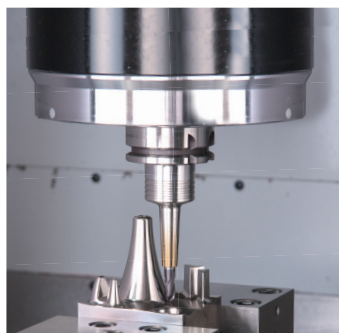
CAM-TOOL CAM-TOOL	edgcam EDGECAM	worknc WORK NC	hyperMILL HYPER MILL	JBM JBM	GENETEC GENETEC	SIEMENS Siemens PLM Software
FF/cam FF/cam	tebis TEBIS	PowerMILL PowerMill	CADmeister CAD meister	VISI VISI	VERICUT VERICUT	

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

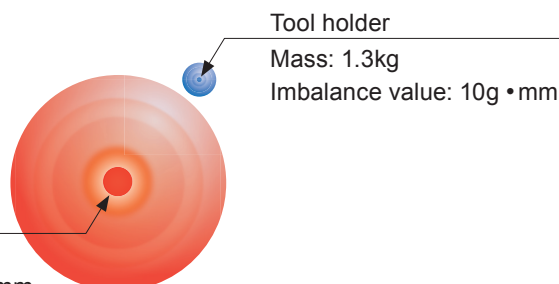
For high-speed spindle rotation

■ 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.



Spindle
Mass: 20kg
Imbalance value: 28g • mm



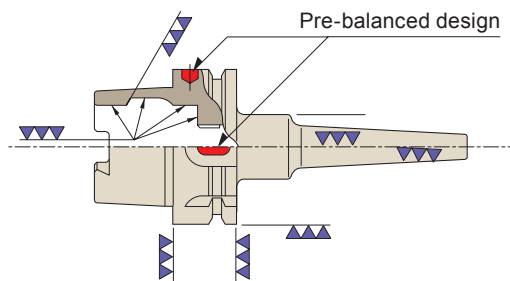
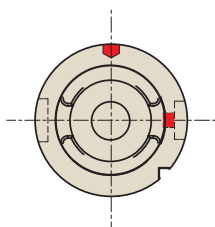
Points to keep in mind at high-speed rotation.

- 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.

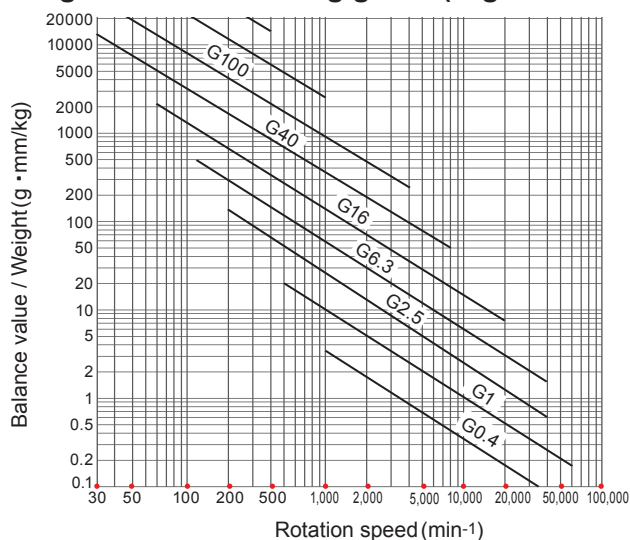
■ PRE-BALANCED DESIGN

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 rati on against the balancing grade (G grade value)

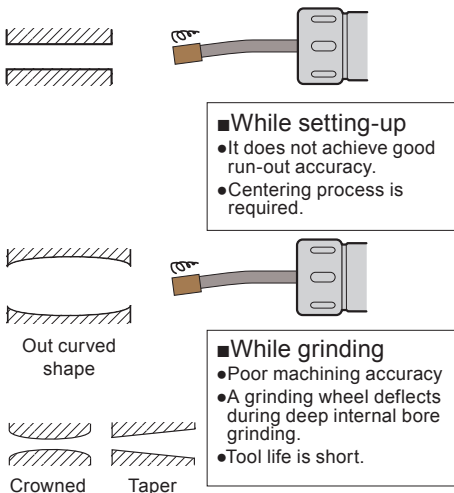


Application examples using SLIMLINE

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



Ideal for internal grinding.

Improves grinding accuracy

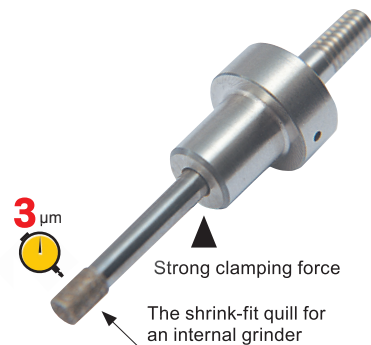
Problem resolution



Specialized brochure available

Comparison data

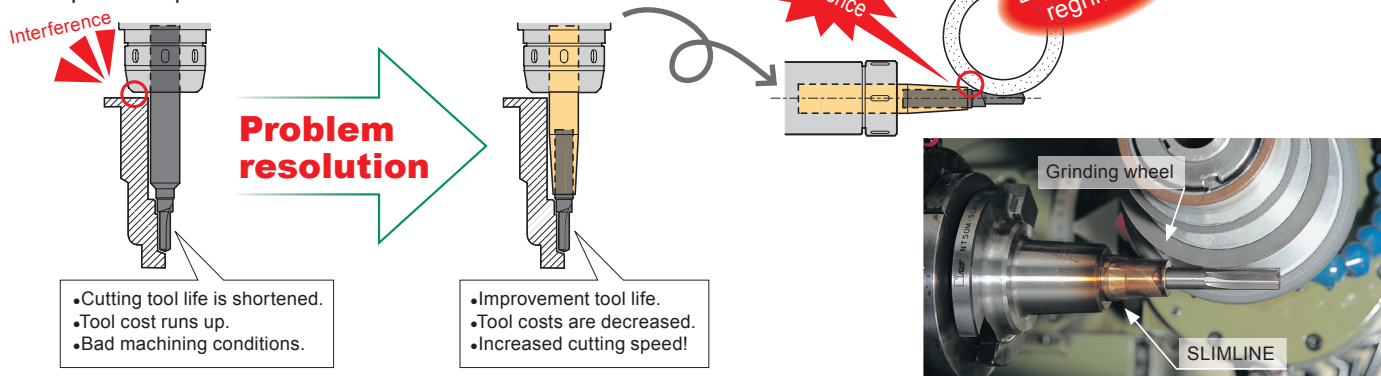
Measurements	SLIMLINE	COLLET HOLDER
Roundness	0.3 μm	0.6 μm
Surface roughness(R _y)	1.38 μm	2.7 μm



Tool grinding applications

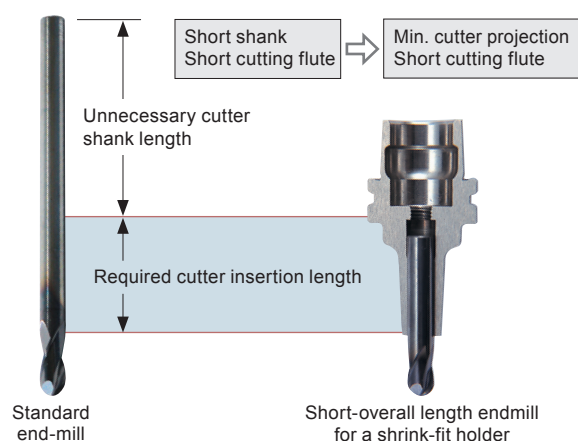
The chucking accuracy of a grinding wheel largely influences grinding accuracy (roundness and surface roughness, etc.). A shrink-fit quill SLIMLINE holder further enhances processing accuracy.

Examples of improvements



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.



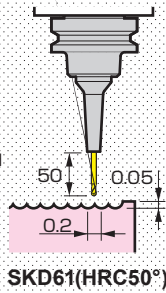
DIJET Super short ball end mill DZ-SSB	MITSUBISHI MATERIALS Impact miracle ball end mill VF-2SSB	MOLDINO The Edge To Innovation Shrink master ball FSHB-TH
NS TOOL Short shank ball end mill MSB230SF	SG Short over all length type WXL end mill WXL-HS-EBD WXL-HS-LN-EBD	UNION TOOL High-efficiency short shank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



SKD61(HRC50°)

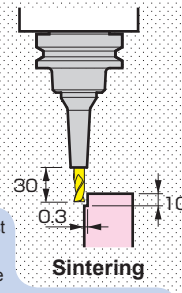
User's voice

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

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



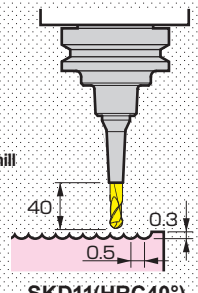
Sintering

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.

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



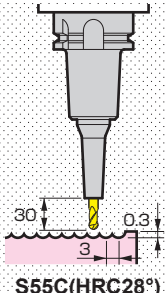
SKD11(HRC40°)

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

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



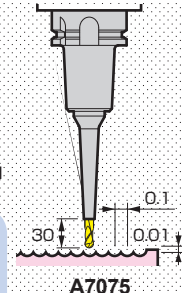
S55C(HRC28°)

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.

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



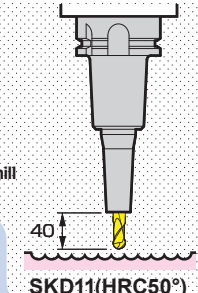
A7075

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.

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



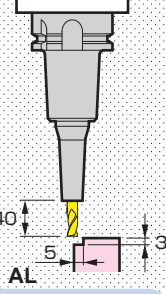
SKD11(HRC50°)

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.

A63-SLK12-75 CR12-10-55

N : 20000 min⁻¹
F : 6000 mm
V : 628 m
f : 0.15 mm/flute

φ10 Endmill
2flutes



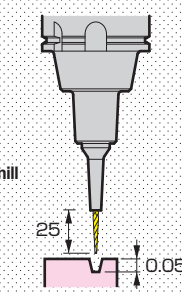
AL

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.

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



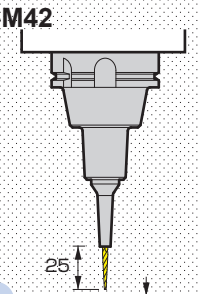
HPM7(HRC32°)

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

BT40-SLSA6-95-M42

N : 2000 min⁻¹
F : 100 mm
V : 38 m
f : 0.025 mm/flute

φ6 Carbide endmill
2flutes



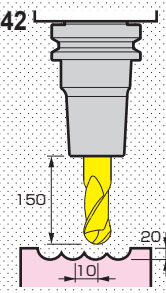
ADC12

Cutting surface and holding accuracy improved.

BT50-SLRB20-110-M42

N : 4500 min⁻¹
F : 4400 mm
V : 283 m
f : 0.489 mm/flute

R10 Carbide ball endmill
2flutes



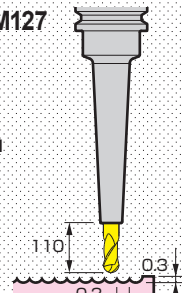
Plastic

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

BT40-SLSB12-180-M127

N : 2500 min⁻¹
F : 500 mm
V : 94 m
f : 0.1 mm/flute

R6 Carbide ball endmill
2flutes



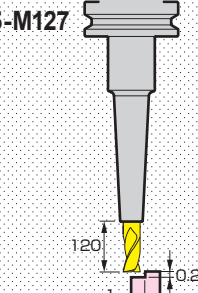
Gr

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

BT50-SLSB16-225-M127

N : 5600 min⁻¹
F : 2000 mm
V : 281 m
f : 0.179 mm/flute

φ16 Carbide endmill
2flutes



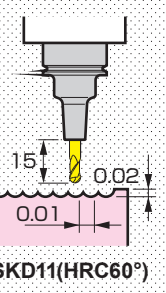
S55C

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

E40-SLRA6-50

N : 20000 min⁻¹
F : 1500 mm
V : 377 m
f : 0.038 mm/flute

R3 Carbide ball endmill
2 flutes



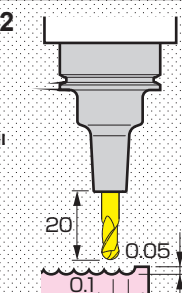
SKD11(HRC60°)

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

F63-SLSA4-75-M22

N : 16000 min⁻¹
F : 1200 mm
V : 100 m
f : 0.038 mm/flute

R1 Carbide ball endmill
2flutes



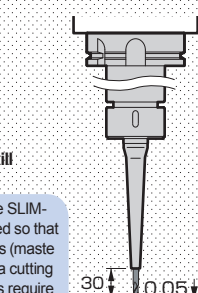
SKD61(HRC55°)

The cutter life extended because of great accuracy.

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



P×5

The rigidity and accuracy of the SLIMLINE system has been improved so that it only requires two components (master 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.

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

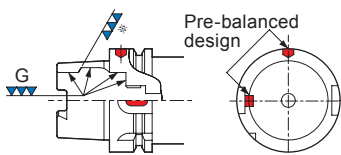
This type is for turning with turning-mill machines.

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 hollow. In order to further improve the balance, MST has carried out finish machining after heat treatment.

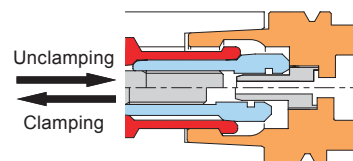
	MST	DIN standard
A 63	15 g·mm	75 g·mm
A100	28 g·mm	170 g·mm



Three times stronger clamping force

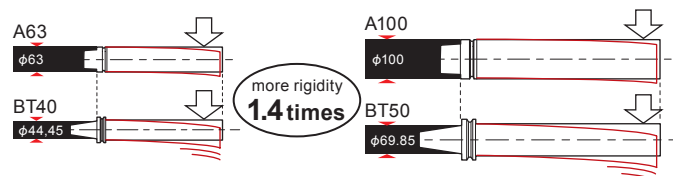
HSK uses a clamping mechanism, which utilizes the wedge effect, to provide a tool gripping power 2.5 to 3.0 times greater than in the pull-stud system (BT40 and BT50), thereby increasing rigidity.

	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



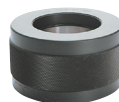
RIGIDITY COMPARISON WITH BT SHANK

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



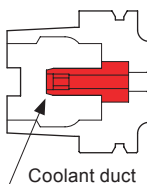
1/10 taper plug gauge



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

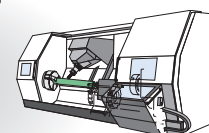
TOOLING SYSTEMS for HSK-T

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.



HSK-A Rotating tools

HSK-T Turning tools



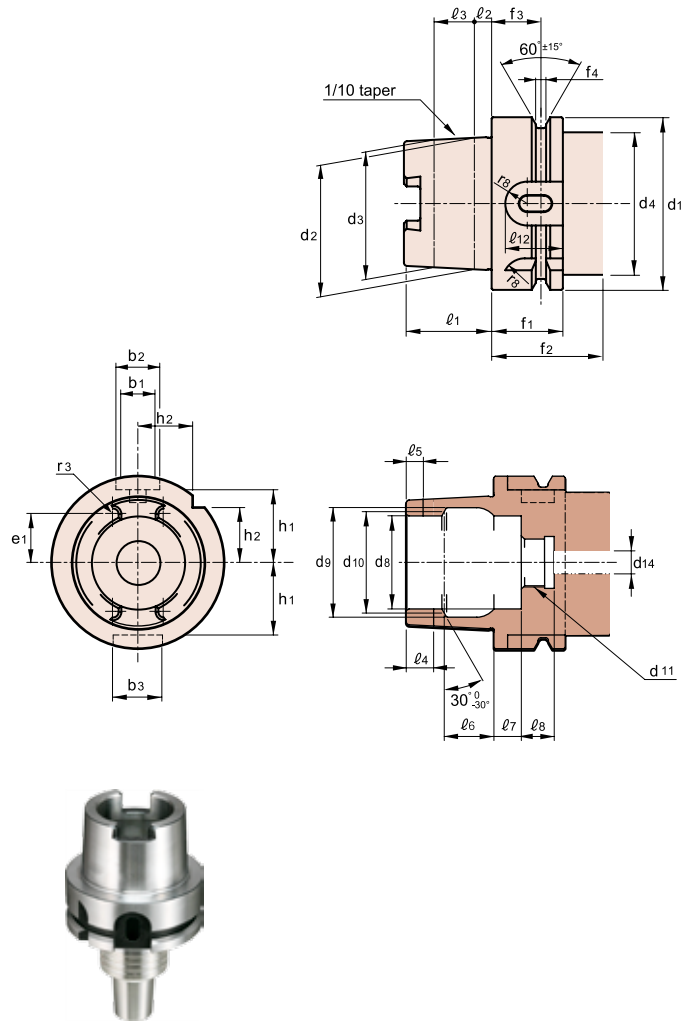
Turning mill machine

Technical data

The shank dimensions

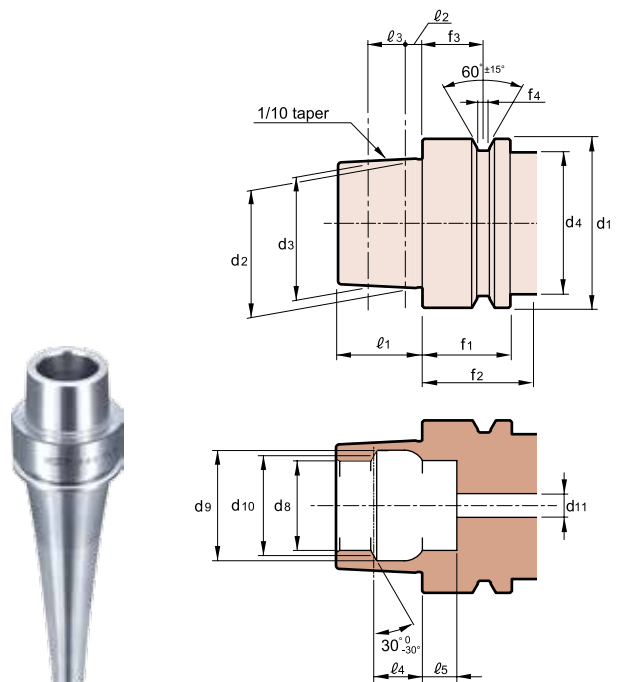
HSK-A (Extracts from DIN 69893-1;1993-07)

Shank	A40	A50	A63	A100	A125
b₁ (H10)	8	10.5	12.5	20	25
b₂ (H10)	9	12	16	20	25
b₃ (H10)	11	14	18	22	28
d₁ (h10)	40	50	63	100	125
d₂	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
d₃	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
d₄ (max.)	34	42	53	85	105
d₈ (H10)	21	26	34	53	67
d₉ (H11)	25.5	32	40	63	80
d₁₀	23	29	37	58	73
d₁₁	M12 × 1	M16 × 1	M18 × 1	M24 × 1.5	M30 × 1.5
d₁₄ (max.)	5	6.8	8.4	12	14
e₁	10.88	13.797	17.862	27.329	35.324
f₁ ($-\frac{0}{0.1}$)	20	26	26	29	29
f₂ (min.)	35	42	42	45	45
f₃ (± 0.1)	16	18	18	20	20
f₄ ($+\frac{0.15}{0}$)	2	3.75	3.75	3.75	3.75
h₁ ($-\frac{0}{0.2}$)	17	21	26.5	44	55.5
h₂ ($-\frac{0}{0.3}$)	12	15.5	20	31.5	39.5
ℓ₁ ($-\frac{0}{0.2}$)	20	25	32	50	63
ℓ₂	4	5	6.3	10	12.5
ℓ₃	9.5	11	14.7	24	30.5
ℓ₄ ($+\frac{0.2}{0}$)	6	7.5	10	15	19
ℓ₅ ($+\frac{0.2}{0}$)	3.5	4.5	6	10	12
ℓ₆ (JS10)	11.42	14.13	18.13	28.56	36.27
ℓ₇ ($-\frac{0}{0.1}$)	8	10	10	12.5	16
ℓ₈ ($-\frac{0}{0.3}$)	8	10	12	16	18
ℓ₁₂	12	19	21	24	24
r₃ ($+\frac{0.05}{-0.05}$)	1.88	2.38	2.88	4.88	5.88
r₈	4.5	6	8	10	5



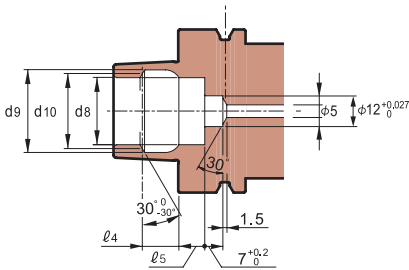
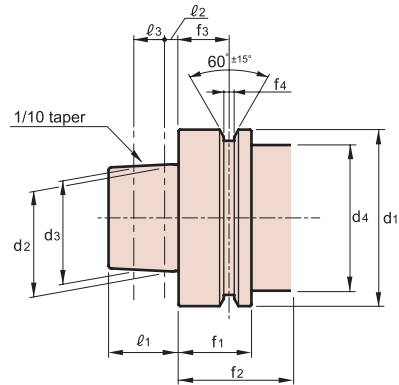
HSK-E (Extracts from DIN V 69893-5;1996-01)

Shank	E25	E32	E40	E50
d₁ (h10)	25	32	40	50
d₂	19	24	30	38
	+0.006 +0.004	+0.007 +0.005	+0.007 +0.005	+0.009 +0.006
d₃	18.15	23.27	29.05	36.90
	+0.004 +0.002	+0.005 +0.003	+0.005 +0.003	+0.006 +0.003
d₄ (max.)	20	26	34	42
d₈ (H10)	14	17	21	26
d₉ (H11)	16.4	21	25.5	32
d₁₀	15	19	23	29
d₁₁ (max.)	3	4.2	5	6.8
ℓ₁ ($-\frac{0}{0.2}$)	13	16	20	25
ℓ₂	2.5	3.2	4	5
ℓ₃	8.5	7.3	9.5	11
ℓ₄ (JS10)	7.21	8.92	11.42	14.13
ℓ₅ ($-\frac{0}{0.1}$)	6	8	8	10
f₁ ($-\frac{0}{0.1}$)	10	20	20	26
f₂ (min.)	20	35	35	42
f₃ (± 0.1)	4.5	16	16	18
f₄ ($+\frac{0.15}{0}$)	2	2	2	3.75



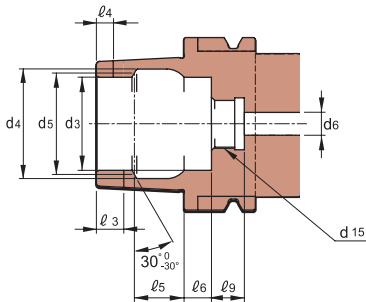
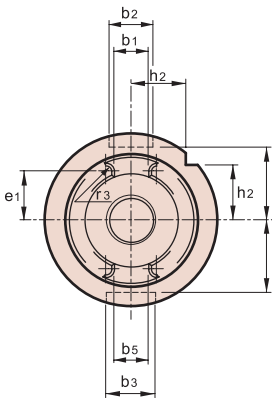
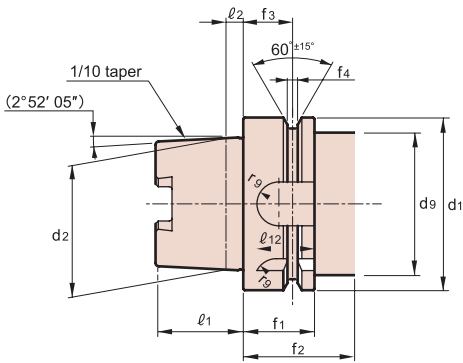
HSK-F (Extracts from DIN V 69893-6;1996-01)

Shank	F63	F80
d1 (h10)	63	80
d2	38	48
	+0.009 +0.006	+0.011 +0.007
d3	36.9	46.53
	+0.006 +0.003	+0.007 +0.003
d4 (max.)	53	67
d8 (H10)	26	34
d9 (H11)	32	40
d10	29	37
f1 ($-\frac{0}{0.1}$)	26	26
f2 (min.)	42	42
f3 (± 0.1)	18	18
f4 ($+\frac{0.15}{0}$)	3.75	3.75
ℓ 1 ($-\frac{0}{0.2}$)	25	32
ℓ 2	5	6.3
ℓ 3	11	14.7
ℓ 4 (Js10)	14.13	18.13
ℓ 5 ($-\frac{0}{0.1}$)	10	10
f1 ($-\frac{0}{0.1}$)	26	26
f2 (min.)	42	42
f3 (± 0.1)	18	18
f4 ($+\frac{0.15}{0}$)	3.75	3.75



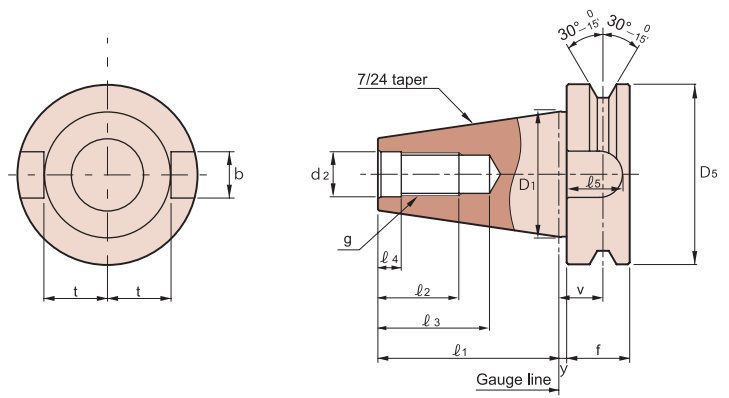
HSK-T (Extracts from ISO 12164-3;2008) For turning with turning mill machines

Shank	T40	T50	T63	T100	T125
b1 ($+\frac{0.03}{-0.04}$)	8.05	10.54	12.54	20.02	25.02
b2 (H10)	9	12	16	20	25
b3 (H10)	11	14	18	22	28
b5	7.932	10.425	12.425	19.91	24.915
	+0.03 0		+0.035 0		+0.04 0
d1 (h10)	40	50	63	100	125
d2	30.007	38.009	48.010	75.013	95.016
d3 (H10)	21	26	34	53	67
d4 (H11)	25.5	32	40	63	80
d5	23	29	37	58	73
d6 (max.)	5	6.8	8.4	12	14
d9 (max.)	39	49	62	99	124
d15	M12 × 1	M16 × 1	M18 × 1	M24 × 1.5	M30 × 1.5
e1	11	13.88	17.99	27.37	35.37
f1 ($-\frac{0.1}{0}$)	20	26	26	29	29
f2 (min.)	23	30	30	34	34
f3 (± 0.1)	16	18	18	20	20
f4 ($+\frac{0.15}{0}$)	2	3.75	3.75	3.75	3.75
h1 ($-\frac{0}{0.2}$)	17	21	26.5	44	55.5
h2 ($-\frac{0}{0.2}$)	12	15.5	20	31.5	39.5
ℓ 1 ($-\frac{0}{0.2}$)	20	25	32	50	63
ℓ 2	4	5	6.3	10	12.5
ℓ 3 ($+\frac{0.2}{0}$)	6	7.5	10	15	19
ℓ 4 ($+\frac{0.2}{0}$)	3.5	4.5	6	10	12
ℓ 5 (JS10)	11.42	14.13	18.13	28.56	36.27
ℓ 6 ($-\frac{0}{0.1}$)	8	10	10	12.5	16
ℓ 9 ($-\frac{0.1}{0}$)	8	10	12	16	18
ℓ 12	12	19	21	24	24
r3 ($+\frac{0.05}{-0.05}$)	1.88	2.38	2.88	4.88	5.88
r9	4.5	6	8	10	5



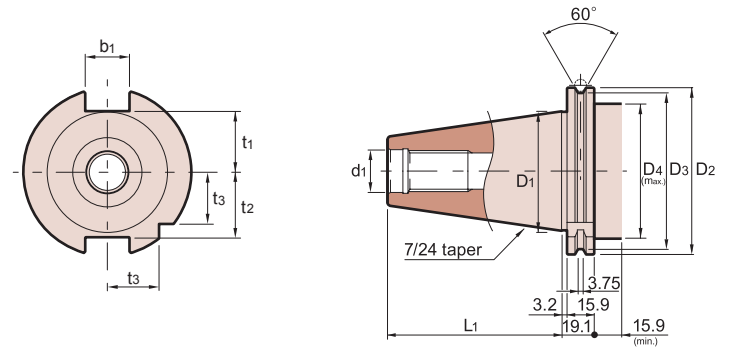
BT (Extracts from MAS 403)

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



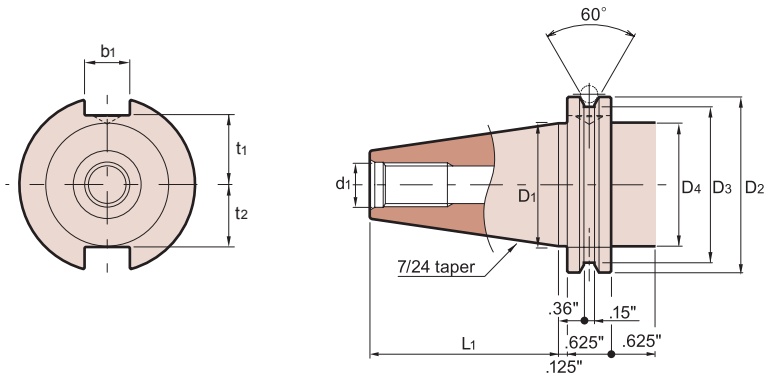
DIN (DIN69871-1)

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/cm ²
1	1.0197 × 10 ⁻⁵
9.80665 × 10 ⁴	1

Stress

Pa	kgf/mm ²
1	1.0197 × 10 ⁻⁷
9.80665 × 10 ⁶	1

OVERSEAS NETWORK

Logistic center (J-COMPO) •USA/Chicago •Germany/Nuremburg •Thai



2110

<Europe>

AUSTRIA 1 distributor		BELGIUM 2 distributors	
STEINDL Vertriebs GmbH Söding TEL 43-3137272240 info@steindl.at FAX 43-3137272246		DIATool BVBA TURNHOUT TEL 32-14401830 info@diatool.be FAX 32-14438880	
		MachinImmo BVBA LOKEREN mc@machinimmo.com TEL 32-93288811	
CZECH REPUBLIC 2 distributors		ESTONIA 1 distributor	
Creative Tools s.r.o. SKALKA TEL 420-725588988 info@creative-tools.cz FAX 420-582384485		OSG BRATISLAVA info@osg-belgium.com TEL 421-43291295	
		Naglis & Err sia RIGA info@naglis-err.com TEL 37-166100336	
DENMARK 2 distributors		FINLAND 1 distributor	
Balling Maskiner ApS KOLDING mbp@balling-maskiner.dk TEL 45-24790300		OSG SCANDINAVIA A/S ROSKILDE TEL 45-46756555 osg@osg-scandinavia.com FAX 45-46756700	
		OY FMS TOOLS AB HELSINKI TEL 358-98190950 info@fmstools.fi FAX 358-981909550	
FRANCE 2 distributors		GERMANY 3 distributors	
DOGA S.A. MAUREPAS TEL 33-130664141 doga@doga.fr FAX 33-130664199		OSG France s.a.r.l. ROISSY TEL 33-149901010 sales@osg-france.com FAX 33-149901015	
		Aura Frästechnik GMBH BREIDENBACH TEL 49-64659119414 kontakt@aura-tools.de FAX 49-64659119429	
ITALY 6 distributors		MAKINO GMBH	
FEBAMETAL S.P.A. TORINO TEL 39-0117701412 febametal@tin.it FAX 39-0117701524		TEL 49-7021503201	
MMC ITALIA SRL MILANO TEL 39-029377031 info@mmc-italia.it FAX 39-0293589093		OSG GMBH Göppingen TEL 49-716160640 info@osg-germany.de FAX 49-7161606444	
OSG ITALIA SRL TORINO TEL 39-0117705211 info@osg-italia.it FAX 39-0117071402		HUNGARY 1 distributor	
		GesKor Kft. KUNSZIGET office@geskor.com TEL 36-96200075	
LATVIA 1 distributor		LITHUANIA 1 distributor	
Naglis & Err sia RIGA info@naglis-err.com TEL 37-166100336		Naglis & Err sia RIGA info@naglis-err.com TEL 37-166100336	
NORWAY 2 distributors		NETHERLANDS 2 distributors	
AS NOR-SWISS OSLO TEL 47-23241020 norswiss@norswiss.no FAX 47-23241021		Machining Innovations NL bv-Machinno MERSELO info@machinno.com TEL 32-93288811	
		SVM Freestechnik B.V. BERGEIJK TEL 31-648490933 info@svmfreestechnik.nl	
POLAND 3 distributors		POLAND 3 distributors	
Aura Frästechnik GMBH k.kosla@aura-tools.de TEL 48-666011225 FAX 49-64659119429		MB Michał Rzepka OBORNIKI TEL 48-504647666 mb@mb-frezy.pl FAX 48-61622339	
		MMC HARDMETAL POLAND Sp. z o.o. WROCLAW TEL 48-655467284 sales@mitsubishicarbide.com.pl FAX 48-655467283	
PORTUGAL 1 distributor		ROMANIA 2 distributors	
AMTOOLS MARINHA GRANDE TEL 351-244560456 geral@amtools.pt FAX 351-244560668		MAZAROM IMPEX SRL BUCHAREST TEL 40-212328001 mazarom@mazarom.ro FAX 40-212328002	
		TOP METROLOGY S.R.L BUCHAREST office@topmetrology.ro TEL 40-314358402	
RUSSIA 2 distributors		SLOVAKIA 2 distributors	
Company PromArsenal LLC CHELYABINSK sales@promarsenal.ru TEL 7-3512253138		MAKINO S.R.O. BRATISLAVA TEL 421-249612100 FAX 421-249612400	
		OSG BRATISLAVA TEL 421-911775678 info@osg-belgium.com FAX 421-249612400	
SLOVENIA 2 distributors		SPAIN 3 distributors	
Aura Frästechnik GMBH ŽALEC info@kactrade.si TEL 386-37104080		DELFIN COMPONENTES S.L. VIZCAYA TEL 34-944105544 delfincomponentes@delfincomponentes.com FAX 34-944105544	
		JANA TOOLS SL SONDIKA TEL 34-944538224 info@jana-tools.com FAX 34-944538225	
		UTILTALL S.A. BARCELONA TEL 34-934984465 comercial@utiltall.es FAX 34-933086993	
SWEDEN 1 distributor		SWITZERLAND 1 distributor	
OSG SCANDINAVIA A/S BROMÖLLA TEL 46-40412255 osg@osg-scandinavia.com FAX 46-40413255		STREULI TECHNOLOGIES AG BIRMENSCHDORF TEL 41-17394070 info@streuli-techno.ch FAX 41-17394077	

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FORM TEKNİK ISTANBUL MR. ISMAIL CINAR TEL 90-2122973397 info@form-teknik.com FAX 90-2122566215	TANDEM TAKIM TEZGAHLARI ISTANBUL MR. TANKUT KOCAK TEL 90-2163131413 tankut.kocak@tandem.com.tr FAX 90-2163131411	TEKNİKA HIRDAVAT SANAVİ VE TİCARET LTD. STL. ISTANBUL MR. MEHMET AKKAYA TEL 90-2126742864 info@teknikatools.com FAX 90-2126742863
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UK 4 distributors

MATSUURA MACHINERY LTD LEICESTERSHIRE TEL 44-1530511400 FAX 44-1530511442	MMC HARDMETAL U.K. LTD TAMWORTH sales@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.com TEL 44-1189795200 FAX 44-1189795295		

<North America>

U.S.A 9 distributors

Kitagawa NorthTech Inc. HQ - Schaumburg, IL MR. SHAWN LUSCHIE TEL 1-800-222-4138 info@kitagawa-usa.com FAX 1-847-310-9484 North South and West, West CANADA MR. DAVID TAKAHASHI TEL 1-562-522-9749 dtakahashi@kitagawa-usa.com FAX 1-847-310-9484 MI, Ontario CANADA MR. ED BORSOS TEL 1-847-254-5422 eborsos@kitagawa-usa.com FAX 1-847-310-9484 MN, IA, ND, SD, NE MR. REID SWANSON TEL 1-612-281-7476 reidswans@msn.com FAX 1-847-310-9484	North East MR. MATT GENOVESE TEL 1-203-912-8906 mgenovese@kitagawa-usa.com FAX 1-847-310-9484 South MR. MIKE ROBERTS TEL 1-847-284-7626 mroberts@kitagawa-usa.com FAX 1-847-310-9484 IN, OH, PA MR. MIKE JOHNSTON TEL 1-847-254-1025 mjohnston@kitagawa-usa.com FAX 1-847-310-9484	MITSUBISHI MATERIALS USA CORP. IL TECHNICAL SERVICE TEL 1-800-486-2341 marketingservices@mmus.com FAX 1-847-519-1732 ON TARGET TOOLING LLC WI MR. SCOTT SHIPPELL TEL 1-847-628-9942 Scott@cimteklc.com FAX 1-847-628-1987 OSG TAP & DIE, INC. IL MR. DAN VOLPE TEL 1-630-790-5141 dan.volpe@osgtool.com FAX 1-630-800-837-3334
SINGLE SOURCE TECHNOLOGIES, INC. HQ - Auburn Hills, MI TEL 1-248-232-6260 sst.millingteam@singlesourcetech.com FAX 1-(248) 232-6233 OH MR. RON DICKUM TEL 1-814-969-6236 Ronald.Dickum@singlesourcetech.com FAX 1-(248) 232-6233 FL (SC, GA) MR. BEN GUEST TEL 1-321-319-5525 Ben.Guest@singlesourcetech.com FAX 1-(248) 232-6233 NY (PA) MR. PAUL MAYR TEL 1-814-833-2246 Paul.Mayr@singlesourcetech.com FAX 1-(248) 232-6233	MI MR. BRAD COOK TEL 1-248-302-6814 Brad.Cook@singlesourcetech.com FAX 1-(248) 232-6233 WI MR. STEVE KLUG TEL 1-262-202-0500 Steve.Klug@singlesourcetech.com FAX 1-(248) 232-6233 AL (TN, TX, MS, AR) MR. BOB ASH TEL 1-256-200-1100 Bob.Ash@Singlesourcetech.com FAX 1-(248) 232-6233	PRECISION TOOLS SERVICE INC. IN MR. PAUL SCHNEPP TEL 1-812-342-1234 pschnepp@ptservice.com FAX 1-812-342-1235 TOMITA USA INC. OH TEL 1-614-873-6509 FAX 1-614-873-6806 TRIUMPH TOOL LTD. NC MR. BRYANT GRONDAHL TEL 1-828-676-3677 bryantg@triumphtool.com FAX 1-828-676-3680
YAMAZEN INC. HQ - Elk Grove Village, IL MR. MATT FRYE TEL 1-800-228-2969 mattfrye@yamazen.com FAX 1-847-882-9056 AZ (NM, NV, UT, WA, OR, ID, MT, WY, CO) MR. CLARENCE WAGNER TEL 1-800-228-2969 clarencewagner@yamazen.com FAX 1-847-882-9056 GA (SC, AL, TN, MS, NC, VA) MR. JENSON KEYES TEL 1-800-228-2969 jensonkeyes@yamazen.com FAX 1-847-882-9056	IL(NE, MO, KS, WI, TX) MR. TONY GERACE JR. TEL 1-800-228-2969 tonygerace@yamazen.com FAX 1-847-882-9056 MI MR. PHIL DAVIS TEL 1-800-228-2969 phildavis@yamazen.com FAX 1-847-882-9056 CT(PA, MD, DE, MA, ME, RI, NY, VT, NH, NJ) MR. JOE TSUN TEL 1-800-228-2969 joetsun@yamazen.com FAX 1-847-882-9056	CA MR. NELSON VASQUEZ TEL 1-800-228-2969 nelsonvasquez@yamazen.com FAX 1-847-882-9056 IN (KY) MR. BILL HAFLEY TEL 1-800-228-2969 billhafley@yamazen.com FAX 1-847-882-9056

CANADA 3 distributors

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OSG CANADA LTD. ONTARIO, Burlington MR. ROB ADKINS TEL 1-905-632-8032 rob.adkins@osgcanada.com FAX 1-905-632-8466 SINGLE SOURCE TECHNOLOGIES, INC. Windsor, ON MS. RACHEL HUGHSON TEL 1-519-999-0719 rachel.hughson@singlesourcetech.com	SINGLE SOURCE TECHNOLOGIES, de R.L.de C.V. QUERETARO MR. MAURICIO MONTESINOS TEL 52-442-824-9399 mauricio.montesinos@singlesourcetech.com YAMAZEN MEXICANA SA DE CV LEON MR. GERARDO PLASCENCIA TEL 52-477-3910280 gerardo.perez@yamazen.com.mx FAX 52-477-3910278	MONTERREY MR. ROMAN CAMPOS TEL 52-442-101-6009 roman.campos@singlesourcetech.com

<South America>

BRAZIL 2 distributors

OSG FERRAMENTAS DE PRECISAO LTDA. SAN PAULO SALES DEPARTMENT TEL 55-11-6190-0900 osgsp@nethall.com.br FAX 55-11-6190-0901	INNOVATE TECHNOLOGIES Brasil LTDA SAN PAULO MR. LUCIANO CHIQUETTE TEL 55-19-3829-9280 luciano.chiquette@innovatetech.com.br
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<Oceania>

New Zealand 2 distributors

HeadlandMT Ltd AUCKLAND TEL 64-2152265	TOTAL CNC PRODUCTS AUCKLAND ✉ MS. MARGARET WILLIAMS TEL 64-92745890 ✉ admin@totalcnc.co.nz FAX 64-92745867
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<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	DONGGUAN YAJIYA Precision machinery Co., Ltd 東莞八字屋精密機械有限公司 DONGGUAN 東莞 ✉ MR. MR. JASON LEE 李 忠信 TEL 86-769-8530-7420 ✉ sales@yajiya.cn FAX 86-769-8530-7470	Dongguan Integrity Precision Machinery Co.,Ltd. 东莞市誠晉精密機械有限公司 DONGGUAN 東莞 ✉ MR. YANG YABIN 楊 亞兵 TEL 86-769-82288607 ✉ frank.yang@chengjinm.com.cn FAX 86-769-82288609
Fineness Corporation 匯穎國際貿易(上海)有限公司 SHANGHAI 上海 ✉ MR. STEVE HU 胡上干/ MR. ROY LU 呂旺動 TEL 86-21-64282885 ✉ steve@fct-tools.com FAX 86-21-64391906 CHENGDU 成都 ✉ MR. JASON HUANG 黃 琳琳 TEL 86-28-83112969 ✉ jasonhuang1121@163.com FAX 86-28-8311-2969	DONGGUAN 東莞 ✉ MR. ALAN CHEN 陳 宏 儒 TEL 86-769-82284785 ✉ alan@fct-tools.com FAX 86-769-8228-4797 TIANJIN 天津 ✉ MR. YANG JIAN 楊 建 TEL 86-22-8739-5825 ✉ isabat_yang@fct-tools.com FAX 86-22-8739-5827	GALAXY PRECISION MACHINERY LTD 佳力精密機械有限公司 SHENZHEN 深圳 ✉ MR. LIANG MING 梁 明 TEL 86-755-2966-0881 ✉ gp613@galaxy-mt.com FAX 86-755-2966-0882
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	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
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	PRO-TECHNIC MACHINERY LTD. 實力機械有限公司 HONG KONG 香港 ✉ MR. ALDO, S.K. CHEUNG 張 四 繼 TEL 852-2428-2727 ✉ aldocheung@protechnic.com.hk FAX 852-2480-4764	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 86-21-5155-7657 ✉ xuejianming@jianze.net FAX 86-21-5155-7668
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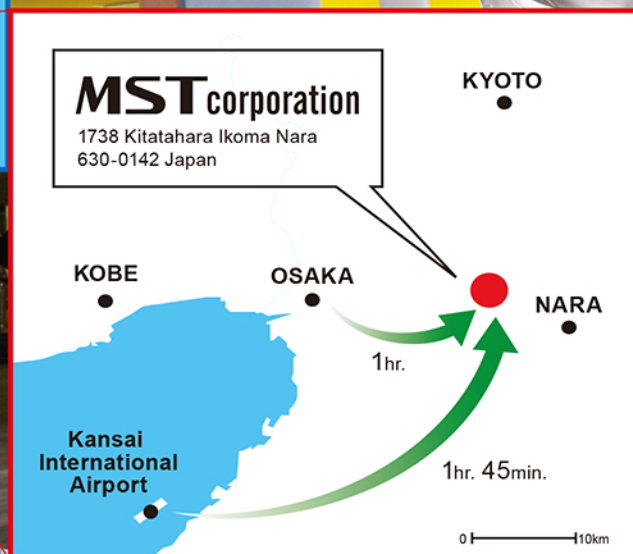
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