

COLLET CHUCK SERIES

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TAKAMAZ COLLET CHUCK SERIES

TAKAMAZ

TAKAMAZ Collets:

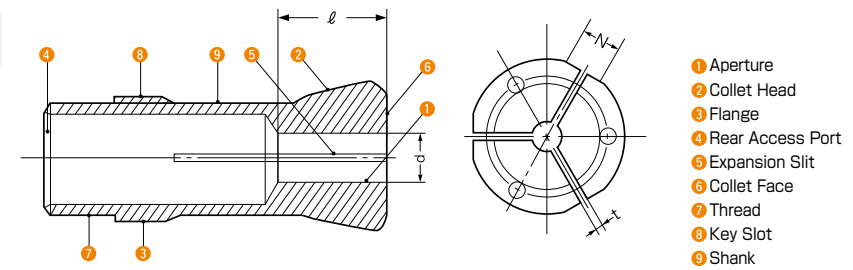
The high quality and accuracy that we're so proud of makes them ideal for you and your product.

TAKAMAZ Collets and the techniques used to make them are the culmination of many years experience and response to the needs of our customers. Their unsurpassed qualities of springiness, toughness, abrasion resistance and concentricity make them the collet to demand.

To make TAKAMAZ Collets we start with carefully selected, high quality steel and meticulously work it into shape, then proceed to harden and toughen it with heat treatment and finish it off with a careful last grinding and polishing, at all stages using our own original methods. The finished collet must then pass a strict examination of accuracy before we finally engrave the TAKAMAZ mark on the collet face as our quality guarantee to you.

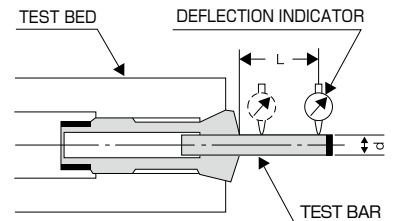
TAKAMAZ manufactures special collets for other manufacturers.

Collet schematic



Item: d = Aperture Diameter
 ℓ = Contact Length = $d + 10\text{mm}$
 t = Slit Width = 1mm (for $d \leq 6\text{mm}$)
 $= 2\text{mm}$ (for $d > 6\text{mm}$)

The flattened area N is less than 12mm across
 The vital dimensions (aperture, etc.) are engraved on the collet face



Linearity Test

ROUND STRAIGHT COLLET DEFLECTION LIMITS Unit(mm)

	L	JIS (previous)		TAKAMAZ STANDARD		
		A GRADE	B GRADE	AA GRADE	A GRADE	B GRADE
$1.6 < d \leq 3$	10					
$3 < d \leq 6$	16	0.01	0.02	—	0.01	0.015
$6 < d \leq 10$	25			0.005		
$10 < d \leq 18$	40			0.008		
$18 < d \leq 24$	50	0.015	0.03	0.01	0.015	0.02
$24 < d \leq 30$	60	—				
$30 < d \leq 40$	80		0.04	—	—	—

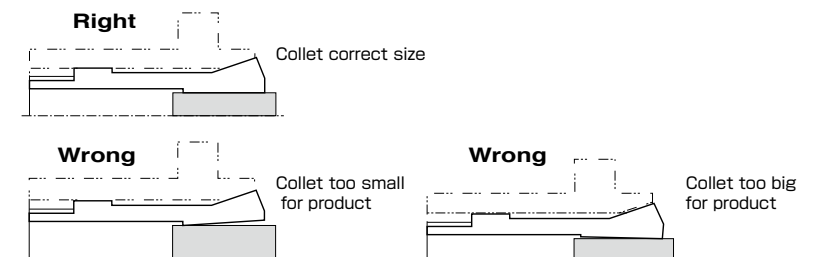
HEX & SQUARE STRAIGHT COLLET DEFLECTION LIMITS Unit(mm)

	L	JIS (previous)		TAKAMAZ STANDARD		
		A GRADE	B GRADE	AA GRADE	A GRADE	B GRADE
$3 < d \leq 6$	16	0.07	0.20	—	0.07	
$6 < d \leq 10$	25	0.10		0.07	0.10	0.30
$10 < d \leq 18$	40		0.30			
$18 < d \leq 24$	50	—		0.10	—	
$24 < d \leq 30$	60					—

*For the dimensions of H and S, see the figure on page 2.

Always Practice Correct Chucking

Our collets are made with a slight outward flare so that when open they are just larger than the product size they are designed for. For best results you should ensure that the collet jaws close on your product as shown below. (Any difference in size should be less than 0.03mm.)



- Be aware that improper clamping of the part can cause damage to the collet.
- The inconsistencies on the clamping part or on the outer diameter of the workpiece can cause bigger variations on the overall length of the finished workpiece. In order to prevent variations, TAKAMAZ recommends using the dead length collet system.

A note to our customers

In order to obtain maximum usefulness and extended life from our collets please inform us of the following details when ordering:

[When ordering] *Please provide the following items.

- The model name and model number of the machine you will be using.
- A plan of the product and/or a work-sample.
- Miscellaneous technical details (required accuracy ; shape of original blank ; quality of material to be worked ; etc)
- A schematic detailing how the product is to be gripped.
- The date of last order/manufacture, if previously ordered/manufactured.

[When Using] For accuracy when using the collet, adjust the stroke during replacement.

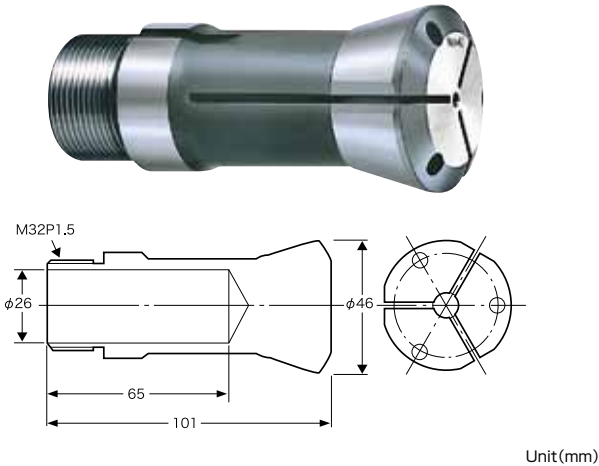
[Periodic Maintenance]

In order to maintain high accuracy over a long period, disassemble the collet unit, clean and grease up the unit at least once a month.

Blank Collet

Normal Inventory

This item comes with the expansion slits pre-cut, and has not yet undergone heat treatment (case hardening). It can be worked so as to precisely match the size and shape of your product.

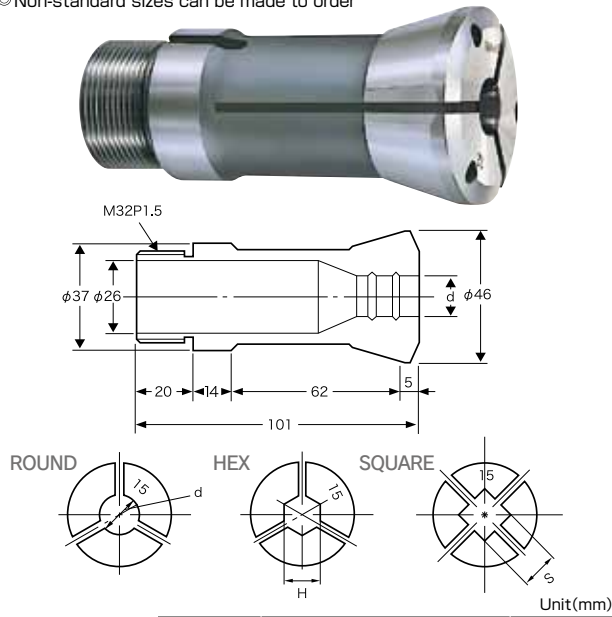


Standard Collet

Patent (laying open)
No.H9-192910
Normal Inventory

Our standard collet is available in a choice of round, hex, or square apertures, each carefully made in many standard sizes.

© Non-standard sizes can be made to order



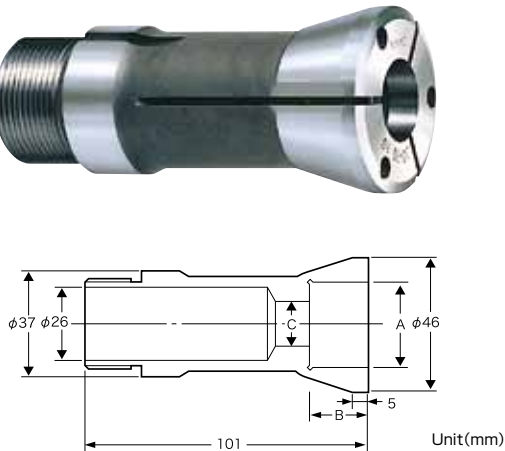
Aperture Type	Collet Sizes Available	Max Size
Round	2≤d≤26 (0.1mm increment)	d = 26
Hex	5≤H≤23 (1mm increment)	H = 23
Square	5≤S≤19 (1mm increment)	S = 19
Blank	—	—

※Linear accuracy (normal inventory) : Takamaz Standard B Grade.
※If a higher grade collet is required please let us know.
※To prevent cuttings and dust from infiltrating through the expansion slits rubber inserts are available as an option.

Stepped Collet

Custom Made

This collet is used when you wish to limit the insertion depth of the product, in order to facilitate working the whole length of the product. They are available in your choice of round, hex, or square apertures, each precisely crafted to specification.



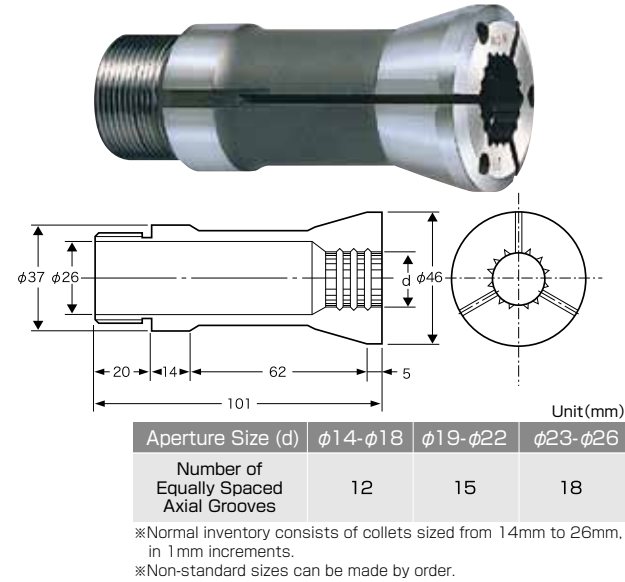
- When ordering
1. We need to know the required dimensions of A & B & C.
 2. The maximum sizes available are : A-d=30mm, H=25mm , S=20mm , B=18mm.
 3. If your product is bigger than these limits, please refer to following sections describing our Flanged Collets and/or Oversize Collets.

Hi-Grip Collet

Normal Inventory

This collet has deep grooves cut both along and across the contact region, serving to prevent both axial slippage and rotational spinning when working the product. As this collet provides an especially strong clamping action, it is particularly suitable for work requiring extensive and/or deep cutting.

© This collet should only be used with rough finish products(e.g - cast iron, etc.) where the presence of marks and scratches from the collet jaws won't show or doesn't matter.

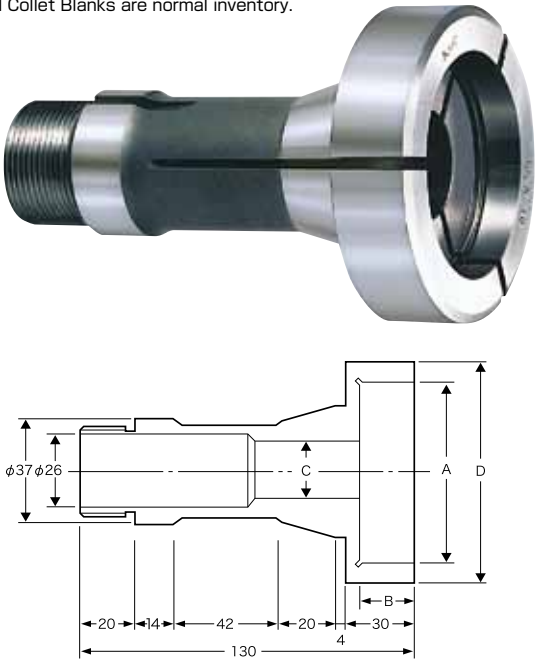


Flanged Collet

Custom Made

This collet is used when the product is too wide for the biggest standard size chuck. As only the flange, not the taper, is oversize it can be used with a standard spindle nose. Your selection of flange diameter (from a choice of : 50mm, 60mm, 80mm & 100mm) should match the size of the product.

© Flanged Collet Blanks are normal inventory.



		Unit(mm)			
Nominal Size		φ50	φ60	φ80	φ100
D		46	58	78	98
Maximum Aperture Diameter A	Round	32	44	62	82
	Hex	27	37	53	70
	Square	22	30	43	57
Maximum Depth B		35	23	22	21

※If a collet with a depth B greater than the given maximum is required, it can be made, but only by special order.

- When ordering
1. If your product requires a chuck size over the given limits, please consult with us.
 2. We need to know the required dimensions of A & B & C.
 3. For the φ100 size, do not use high speed rotation over 4,000rpm.
The collet may not be able to maintain sufficient gripping force at these speeds.

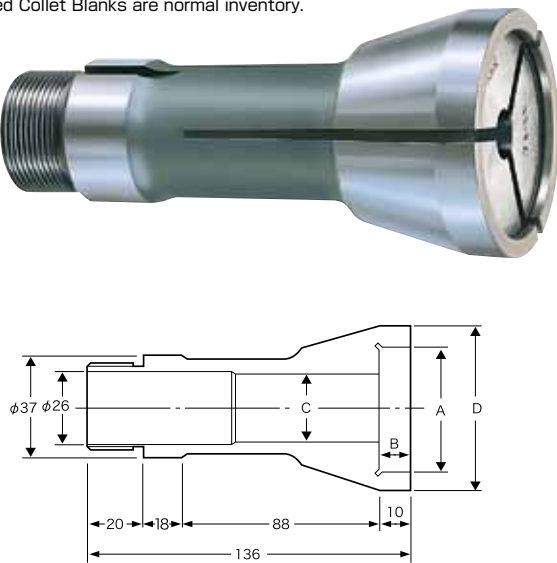
Oversize Collet

Custom Made

This collet is used when the product is both wide and long, thus requiring a strong grip to prevent work piece oscillation. Note that, as the flange head is oversize, it must be used with the appropriate Collet Chuck.

Your selection of collet head diameter (from a choice of : 60mm, 80mm & 120mm) should match the size of the product.

© Oversized Collet Blanks are normal inventory.



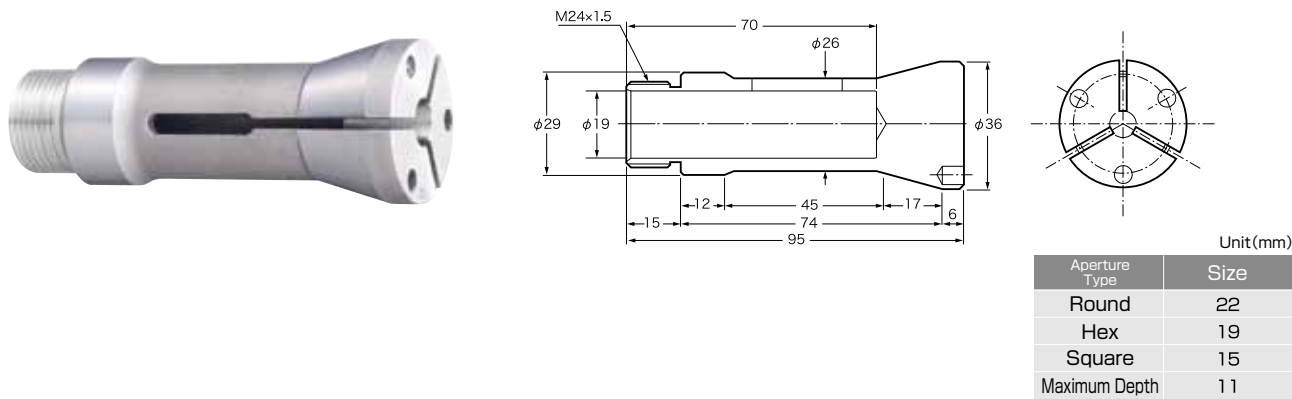
		Unit(mm)		
Nominal Size		φ60	φ80	φ120
D		60	78	118
Max. Aperture Size A	Round	44	60	100
	Hex	37	51	85
	Square	30	42	70
Maximum Depth B		15	15	15

※If a collet with a depth B greater than the given maximum is required, it can be made, but only by special order.

- When ordering
1. If your product requires a collet size over the given limits, please consult with us.
 2. We need to know the required dimensions of A & B & C.
 3. We also require the model name and model number of the machine you will be using.

Model TZ650 Collet

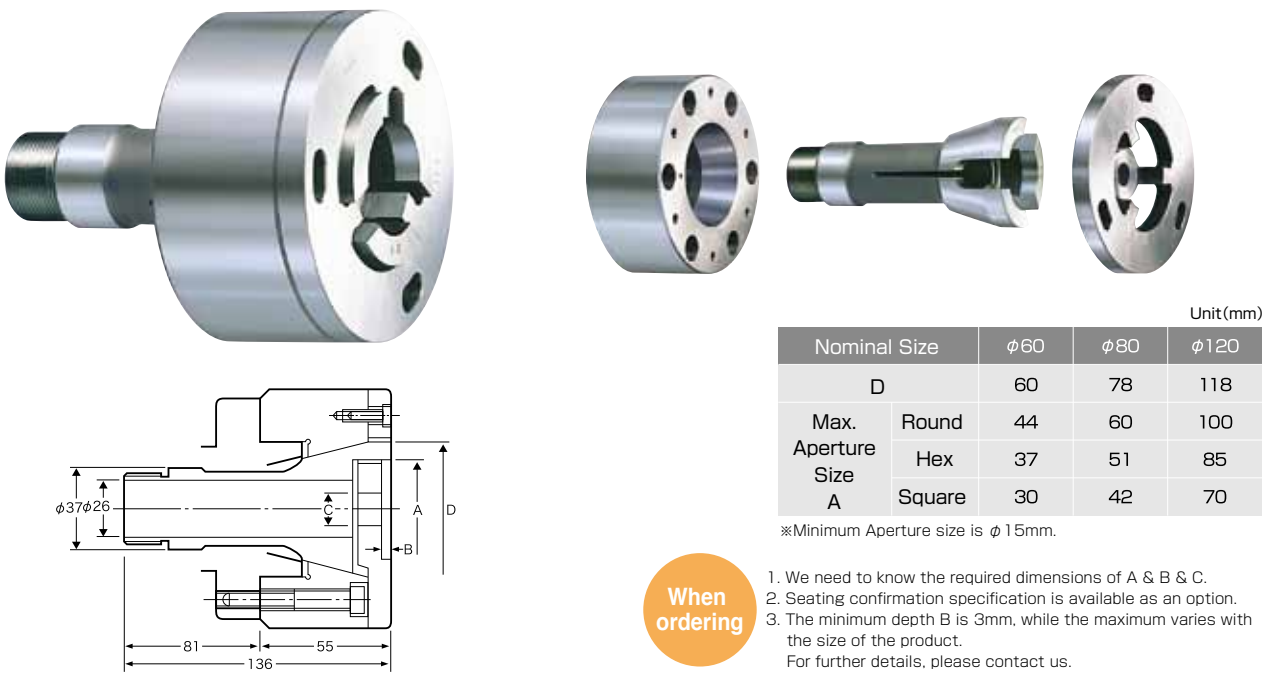
Custom Made



Fixed Plate Locator Style

Custom Made

This collet design is a drawn in system with a fixed plate locator. This eliminates variations on the overall length specification of the finished workpiece.



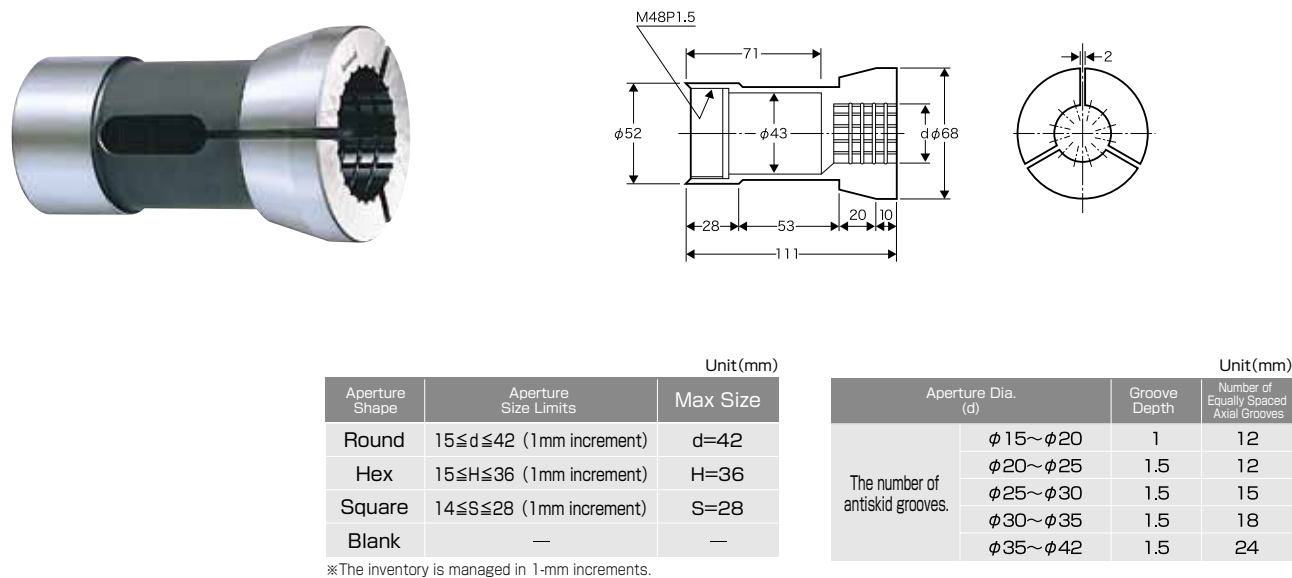
Model D-2A Collet

Hi-Grip Collet

Normal Inventory

This non-slip collet is for use with our NC Lathes and is available in 1mm incremental sizes from $\phi 15$ mm to $\phi 42$ mm.

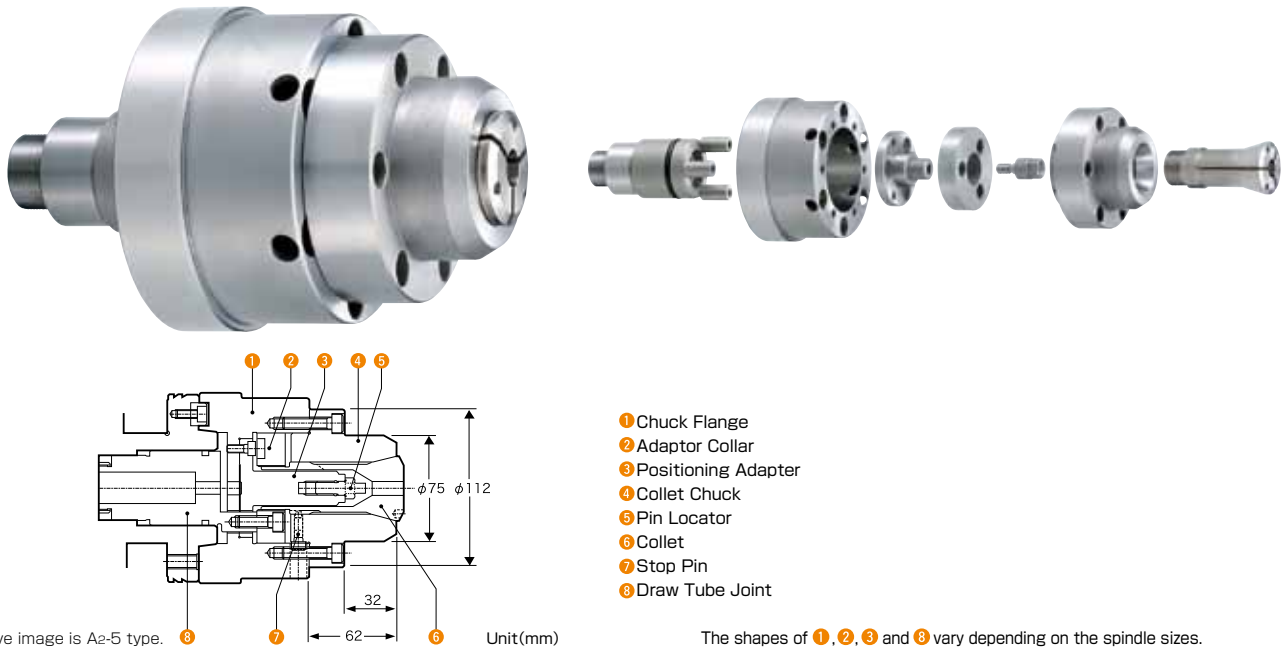
©Step collets can be made to order, as the D-850 style collets.



Fixed Pin Locator Style

Custom Made

The pin locator for the work is located at the center. The collet is drawn in during clamping. The collet and pin locator changeover can be done with ease. Therefore, system is suitable for cutting different small amount of parts.



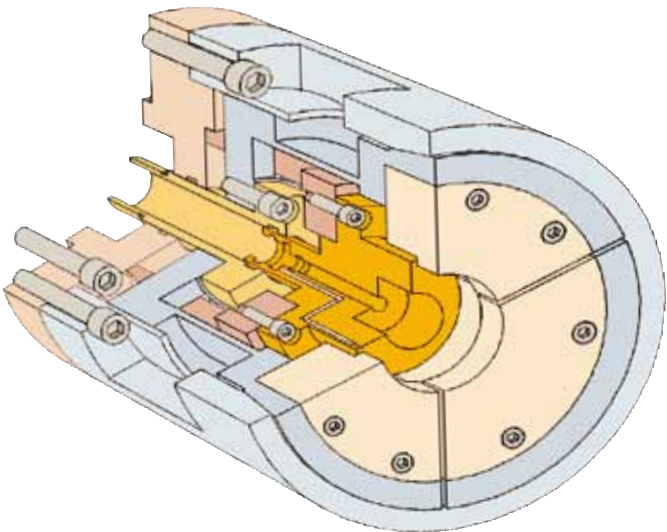
OKC-15

Custom Made

With the feature of the Dead Length Type Collet, it is suitable for cutting that requires Z axis positioning accuracy. This collet can be used for parts with small diameter to 150 mm dia. range. Chuck clamping area of thin workpieces delivers a good hold. Clamp shape, clamp methods and others can be selected and adjusted. Therefore, it is adaptable to any material such as aluminum, iron and brass.



Standard type



Parts calibration samples (replacement jaw specifications)

Unit(mm)

Clamp Size	Maximum Depth	Chuck Dimension
$\phi 50 \sim \phi 150$	30	$\phi 215 \times 141$

※May vary depending on specifications.

Flexible High Grip Collet

Custom Made

NEW

One collet chuck can be used in two ways by only changing the flange according to your needs. A collet chuck with a maximum through-hole diameter of $\phi 65$ mm is now available. No need to prepare two types of collet chucks, such as for loader workpieces and bar materials, allowing you to achieve cost reduction.



Common Collet Chuck

Pull back type

If clamping loader workpiece, the collet is movable.



Opens by advancing the collet
Closes by retracting the collet

Dead length push type

If clamping barstock, the flange is movable.

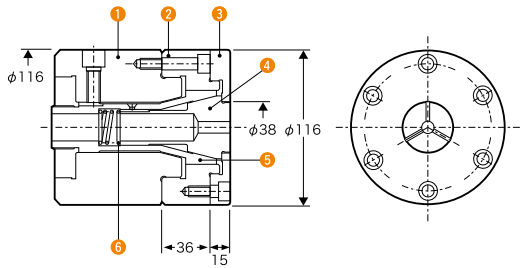


Opens by retracting the flange
Closes by advancing the flange

Push Sleeve Style

Custom Made

The collet is pushed with the slide sleeve from the rear to clamp the workpiece.



※The above image is 1A Flange type.

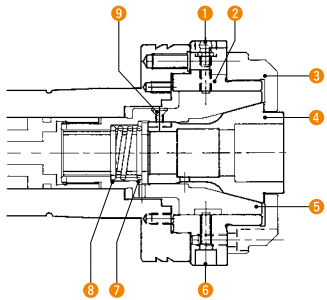
	Unit(mm)	
		Push Sleeve
1 Chuck Flange	Round	26
2 Collet Chuck	Hex	22
3 Collet Cap	Square	15
4 Collet	Maximum Depth	24
5 Collet Sleeve	Thru Hole I.D.	19
6 Spring		

When ordering

1. If the dimensions A and B exceed the dimensions in the table, this will be a special collet. Please contact TAKAMAZ.
2. Please advise about the dimensions of A, B, and C.
3. For $\phi 100$ specification, do not rotate the spindle at more than 4,000 rpm. There is a possibility that the collet cannot maintain a sufficient gripping force.

XD-5 Push Sleeve Style

(Mountable on J-WAVE-XW-50-XD-8PLUS)
Custom Made



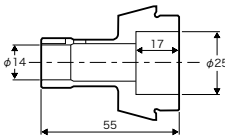
- 1 Grease Nipple
- 2 Collet Chuck
- 3 Cap
- 4 Collet
- 5 Collet Sleeve
- 6 Stop Pin (Key Bolt)
- 7 Spring Collar
- 8 Spring
- 9 M4×8 Flathead screw

	Unit(mm)	
		XD-5 Push Sleeve
Round		30
Hex		25
Square		21
Maximum Depth		25
Thru Hole I.D.		21

When ordering

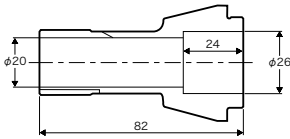
1. As the Collet Chuck required varies from machine to machine, if you order the full chuck unit, we need to know the model name and model number of your machine.

U25 Push Sleeve



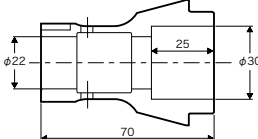
Unit(mm)	
Item	
Round	25
Hex	21
Square	17
Maximum Depth	17
Thru Hole I.D.	13

Push Sleeve



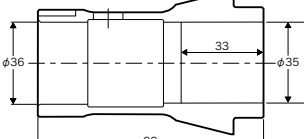
Unit(mm)	
Item	
Round	26
Hex	22
Square	15
Maximum Depth	24
Thru Hole I.D.	19

XD-5 Push Sleeve



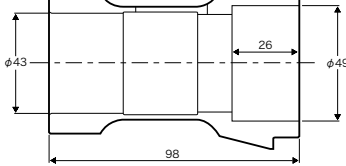
Unit(mm)	
Item	
Round	30
Hex	25
Square	21
Maximum Depth	25
Thru Hole I.D.	18

35 Push Sleeve



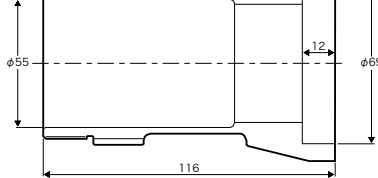
Unit(mm)	
Item	
Round	35
Hex	30
Square	24
Maximum Depth	33
Thru Hole I.D.	35

43 Push Sleeve



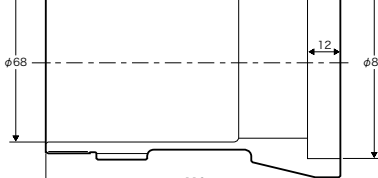
Unit(mm)	
Item	
Round	49
Hex	42
Square	34
Maximum Depth	26
Thru Hole I.D.	42

$\phi 51$ Through-hole



Unit(mm)	
Item	
Round	69
Hex	59
Square	48
Maximum Depth	12
Thru Hole I.D.	51

$\phi 65$ Through-hole



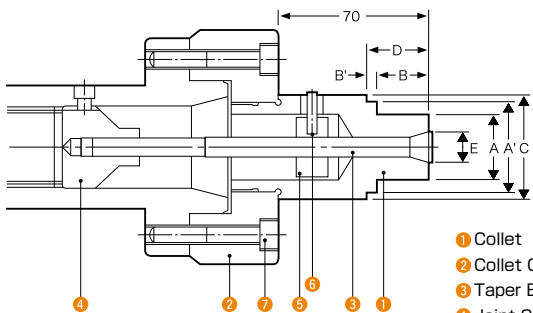
Unit(mm)	
Item	
Round	82
Hex	71
Square	57
Maximum Depth	12
Thru Hole I.D.	65

Pull Style

Custom Made

This collet has a clamping action actuated by the central taper bolt being pulled back into the collet.
(Blank collets of this type are normal inventory.)

©Blank collets come with the expansion slits pre-cut and need to be finished to the relevant dimensions ($\phi A \times B \times \phi A \times B$) before use.



- 1 Collet
- 2 Collet Chuck
- 3 Taper Bolt
- 4 Joint S
(A19mm T-wrench is required to install.)
- 5 Guide Ring
- 6 Lock Screw
(Hex Socket : M6×20)
- 7 Bolt (Hex Socket : M8×45)



Unit(mm)

Group Number	A	D	C	Taper Bolt		
				E	Thread	
Standard Size Collets	1 $\phi 10 \sim \phi 13$	30	$\phi 47$	8	M6	P1
	2 $\phi 13 \sim \phi 17$			11	M8	P1.25
	3 $\phi 17 \sim \phi 21$			15	M10	
	4 $\phi 21 \sim \phi 25$			19	M12	P1.5
	5 $\phi 25 \sim \phi 47$			22	M14	
Special Over Size Collets	6 $\phi 47 \sim \phi 58$	50	$\phi 58$	40		
	7 $\phi 58 \sim \phi 68$			50		
	8 $\phi 68 \sim \phi 78$			60	M14	P1.5
	9 $\phi 78 \sim \phi 88$			70		
	10 $\phi 88 \sim \phi 98$					

※ D : Maximum Collet Head Length
C : Maximum Collet Head Diameter

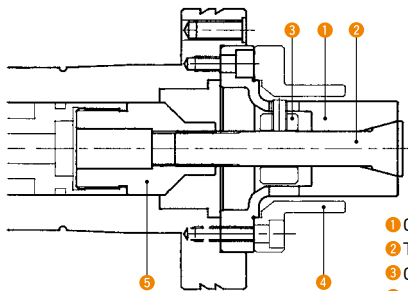
Unit(mm)

Group Number	A	D	C	Taper Bolt		
				E	Thread	
Standard Size Collets	1 $\phi 10 \sim \phi 13$	30	$\phi 38$	8	M6	P1
	2 $\phi 13 \sim \phi 17$			11	M8	P1.25
	3 $\phi 17 \sim \phi 21$			15	M10	
	4 $\phi 21 \sim \phi 25$			19	M12	P1.5
	5 $\phi 25 \sim \phi 38$			22	M14	

※ D : Maximum Collet Head Length
C : Maximum Collet Head Diameter

When ordering

- As the Taper Bolt head diameter (E) varies according to the collet head diameter (A), we need to know either the Group Number you require or the relevant dimensions (internal diameter, external diameter, length, etc.) of the product.
- As the Collet Chuck required varies from machine to machine, if you order the full chuck unit, we need to know the model name and model number of your machine.
- The length of the taper bolt is custom made per machine model. Please notify TAKAMAZ about the machine model.

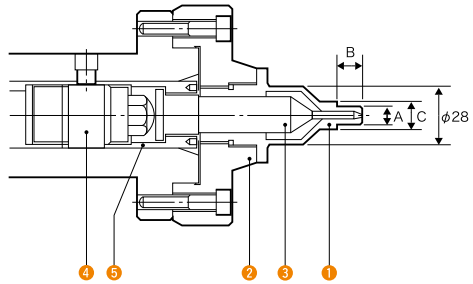
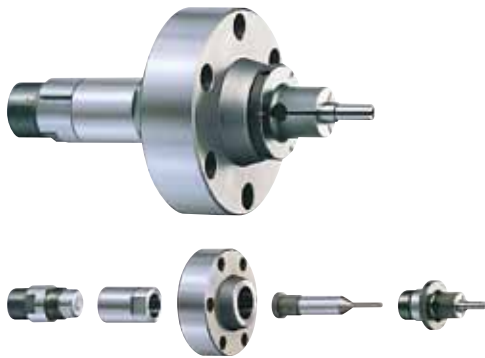


- 1 Collet
- 2 Taper Bolt
- 3 Guide Ring
- 4 Special External Stopper
- 5 Joint S

Push Style

Custom Made

This collet has a clamping action actuated by the central taper pin being pushed forward into the collet, suitable for products with a small internal diameter ($\phi 8\text{mm} \sim \phi 15\text{mm}$).



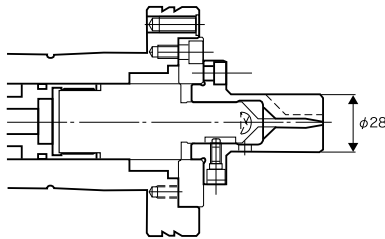
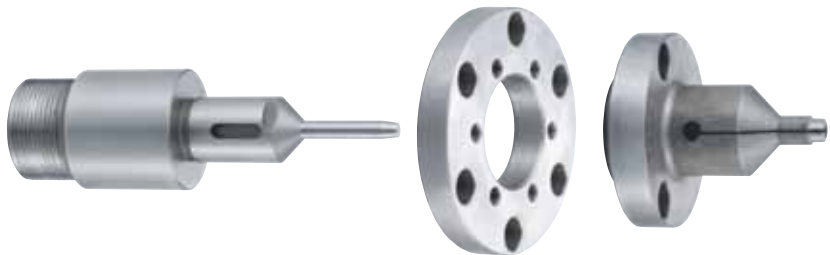
- 1 Collet Head
- 2 Collet Chuck
- 3 Internal Taper Pin
- 4 Joint
- 5 Cap Nut

Unit(mm)

A	B	C
$\phi 8 \sim \phi 15$	2~20	Up to $\phi 28$

Push Style

Custom Made



Unit(mm)

Grip Diameter	Grip Length
$\phi 8 \sim \phi 15$	2~18

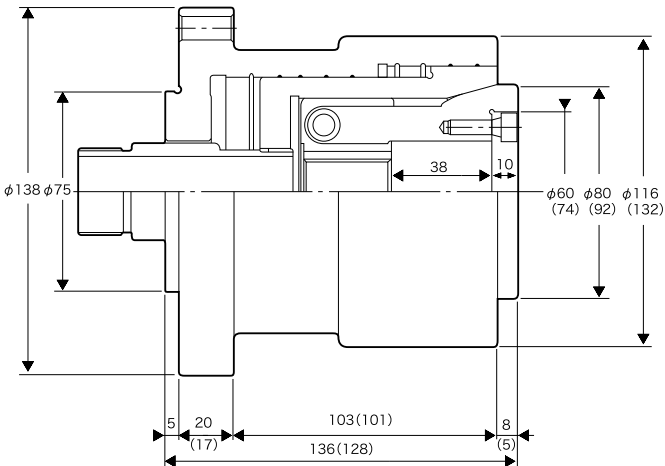
Pull Style

Custom Made

Various designs to correspond to customer needs.



Stepped workpieces can be difficult to machine, especially away from the clamped end. By opening over the flanged section and closing behind it, further up the length of the workpiece, a much stronger, stabler clamp is achieved and workpiece flex and oscillation is suppressed. Furthermore, the collet unit is designed with removable/replaceable jaws, so changeover to match the workpiece is both easy and fast.



※Above drawing is TOC-1.Measurement in () is TOC-2.



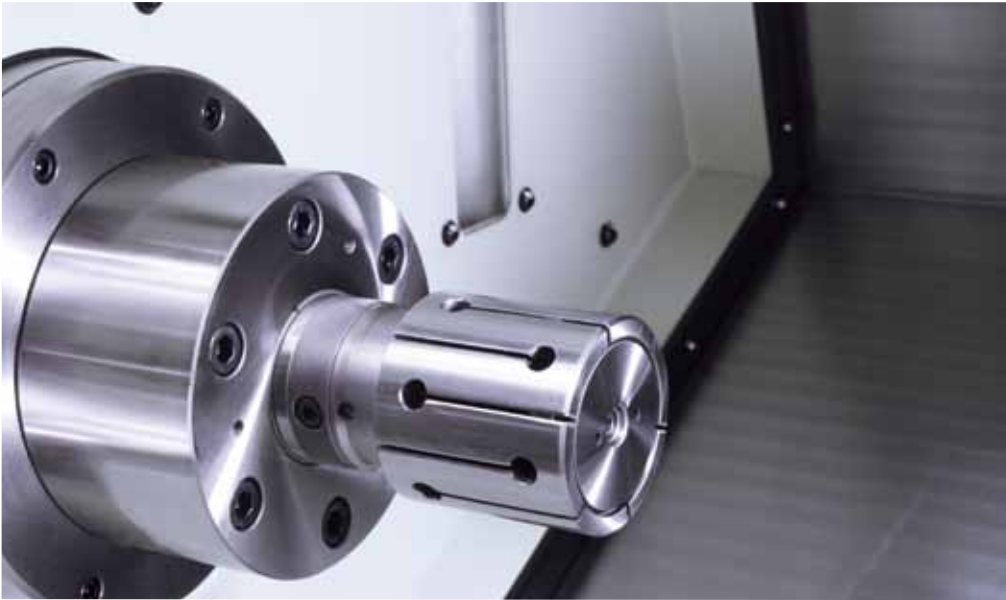
Workpiece Sample

Item	Unit	TOC Z1	TOC-H(high-speed type)	TOC-1	TOC-2	T-TOC
Chucking Range (Diameter)	mm	~φ16	~φ29	~φ25	~φ30	~φ46
Max. Flange/Shank Step Height	mm	φ2	φ5	φ10	φ14	φ7
Maximum Workpiece Flange Diam.	mm	φ18	φ34	φ38	φ45	φ53
Sleeve Stroke Length	mm	5	12	17	20	20
Internal Contact Length	mm	15	15	15	15	20
Maximum Insertion Depth	mm	15	28	38	35	30
Removable Pad Jaw (Ext. Dia.)	mm	φ42	φ56	φ60	φ74	φ85
Clamping Pressure	Mpa	1.0~1.4	1.0~2.5	1.0~2.5	1.0~2.5	1.0~3.0
Weight (Mass)	kg	3.3	5	7.5	10	17

W-Taper Style

Custom Made

There are OD Clamp and ID Clamp Types.



※The picture shows ID Clamp Type.

SSW-52

Custom Made

With the special structure, the two types of movement "Support" and "Grip" can be accommodated with a single cylinder.



Adjustable Eccentric Collet Chuck Unit

Custom Made

This unit enables eccentric cutting process by mounting a TAKAMAZ standard collet. (Eccentricity adjustable from 6 to 12mm.)

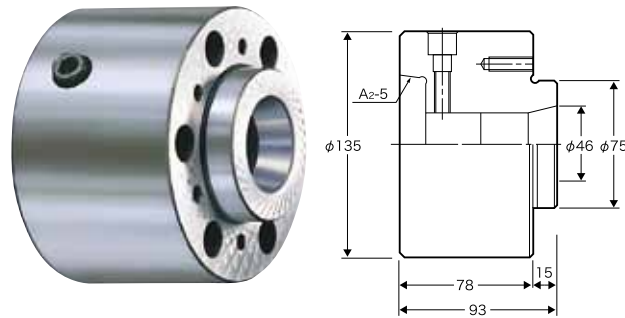


Collet Chuck for use with NC Machines.

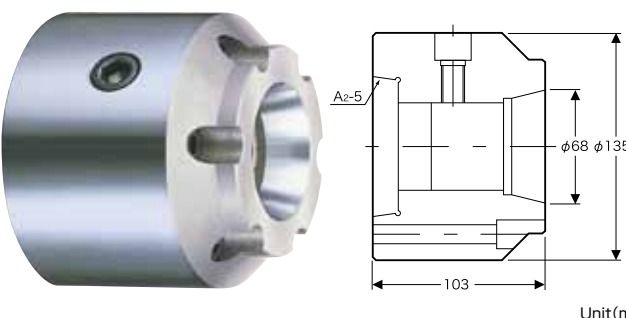
These items are used to adapt NC machines to use our collets. They are designed for maximum utility of the machine and collet. (Several variants of each are available, corresponding to different machine and spindle nose types)

A₂-5 Nose

2A-850 COLLET CHUCK



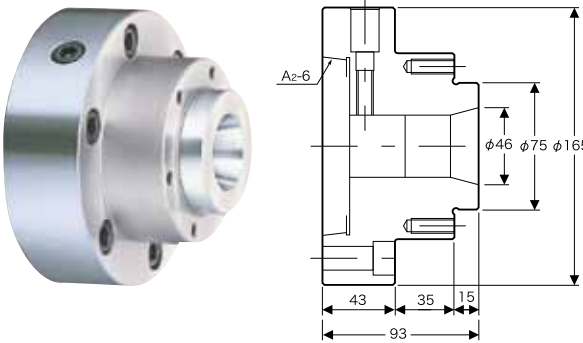
2A COLLET CHUCK



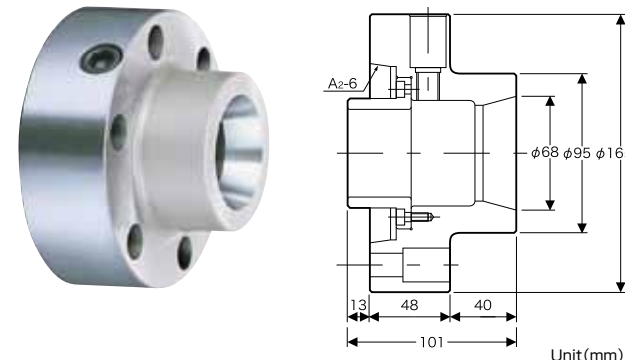
Unit(mm)

A₂-6 Nose

A₂-6 T850 COLLET CHUCK



A₂-6 2A COLLET CHUCK



Unit(mm)

Short Collet Chuck

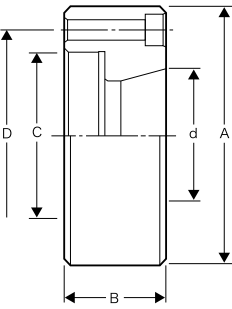
Several variants are available, corresponding to different spindle nose types.



Unit(mm)

Collet Chuck for use with Oversize Collet

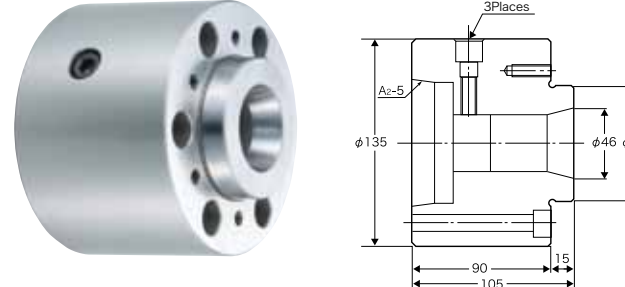
This item is designed for use with the oversize Collet. (Several variants are available, corresponding to different spindle nose types and chuck sizes)



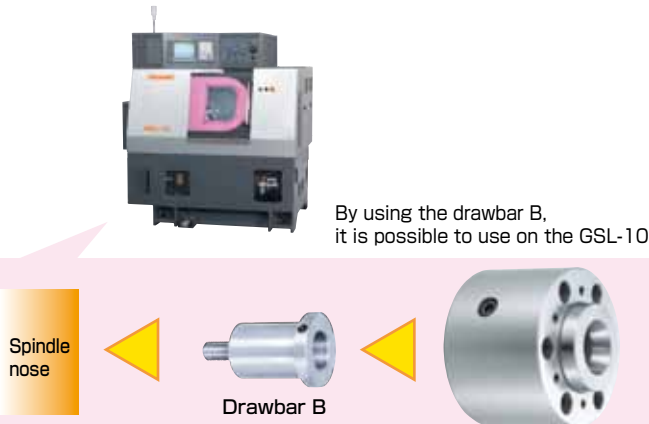
Nominal Size	d	Unit(mm)			
		A	B	C	D
60	60	106	48	60	80
		116	45	75	95
80	78	128	48	60	80
		45	75	95	
120	118	136	48	60	80
		45	75	95	

※ For Mentory machine model.

X-10 COLLET CHUCK



Unit(mm)

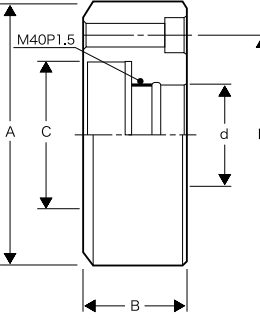


Spindle nose

Drawbar B

Collet Chuck for use with Internal Clamp (Pull Type) Collet

This item is designed for use with the Pull Type Internal Clamp Collet.



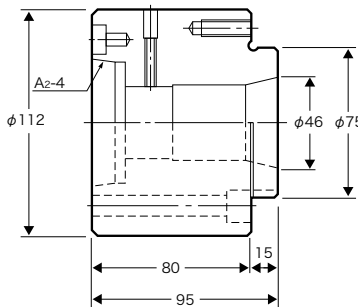
Type	A	B	C	D	d
T850	106	41	60	80	40
VIK	116	38	75	95	40

Collet Chuck for use with NC Machines.

These items are used to adapt NC machines to use our collets.
They are designed for maximum utility of the machine and collet.
(Several variants of each are available, corresponding to different machine and spindle nose types)

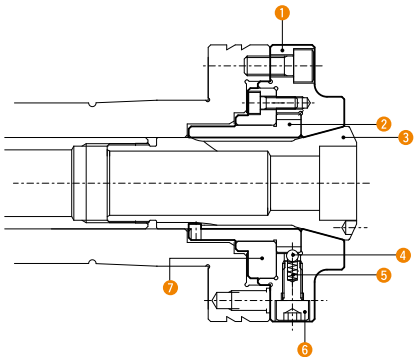
Other Nose

1A HIGH-SPEED COLLET CHUCK



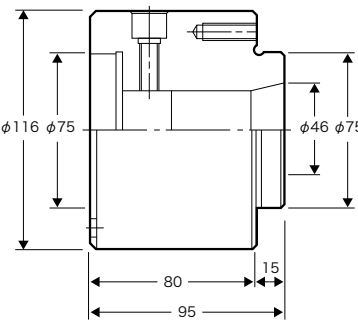
Standard Collet on XD-5

This item is designed for use with the T850 standard collet on XD-5.

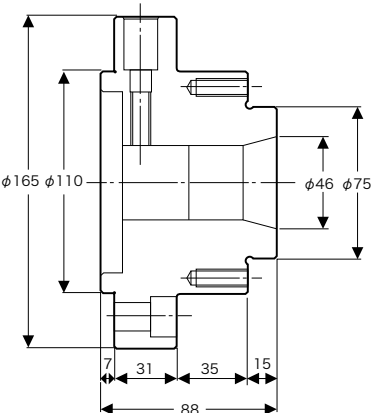


- 1 T850 Collet Chuck
- 2 Adjusting Gear (with Collet Key)
- 3 Collet
- 4 Steel Ball
- 5 Coil Spring
- 6 Stop pin
- 7 Chuck Guide

1A COLLET CHUCK



XC-150 COLLET CHUCK



Unit(mm)

Unit(mm)



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