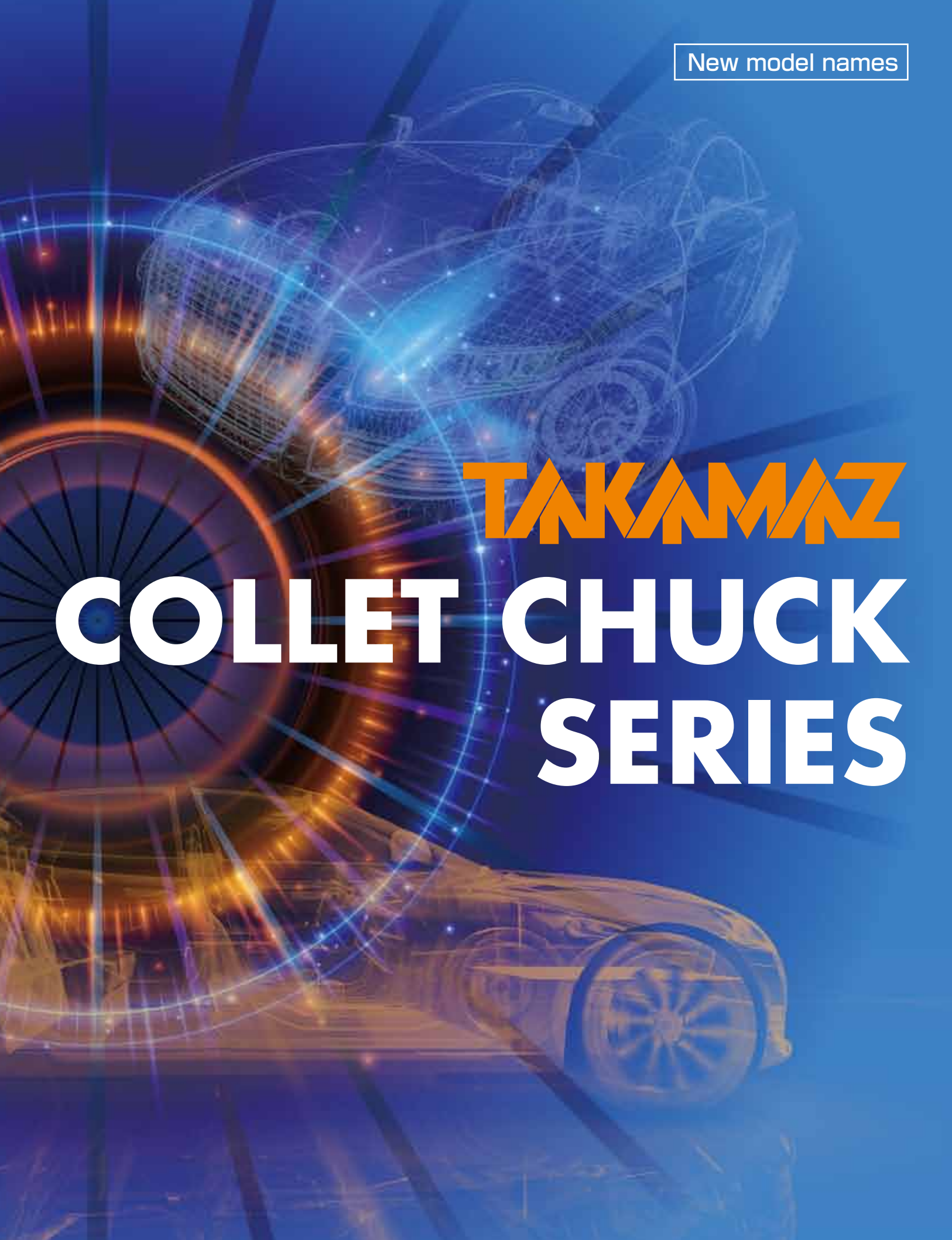
New model names



TAKAMAZ

COLLET CHUCK SERIES

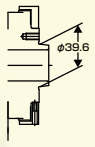
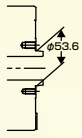
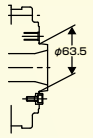
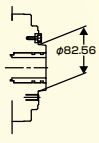
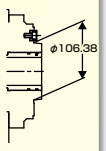
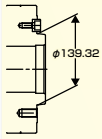
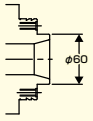
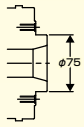
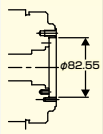
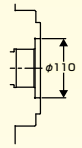
Only One Collet Chuck

High-precision high-quality collets for clamping of various workpieces

TAKAMAZ collet chucks, characterized by excellent spring properties, high resistance to abrasion, and high precision, are manufactured from well-selected materials in a streamlined and dedicated factory starting from machining through to heat treatment and grinding, all of which are based on production methods developed over many years of experience.
As a proof of reliability, the "TAKAMAZ" mark is inscribed on the face of each collet when it has passed the strict inspections.

Custom-made collet chucks are also available upon request.

Applicable Collet Chucks and Spindle Nose Shapes

A3-S2	A2-3	A2-4	A2-5	A2-6	A2-8	ϕ60	ϕ75	ϕ82.5	ϕ110	
										
	P.2·3	P.2·3	P.2·3	P.2·3		P.2·3	P.2·3	P.2·3	P.2·3	TSC-D26 850 collet chuck
P.4	P.4									TSC-D19 TZ collect chuck
			P.2·5	P.2·5						TSC-D43 2A collect chuck
				P.5						TSC-D55 ϕ51-mm through-hole collet chuck
				P.5	P.5					TSC-D68 ϕ65-mm through-hole collet chuck
P.4	P.6·7	P.6·7	P.5·6·7	P.5·6·7		P.6·7	P.6·7	P.6·7	P.6·7	TPC1 YouTube Fixed plate locator type collet chuck
			P.8	P.8·9				P.8		TPC2-D YouTube Fixed pin locator type collet chuck
P.10	P.10		P.10·11 12·13	P.10·11 12·13	P.13		P.11·12	P.11		TPC3-CS YouTube Push-sleeve collet chuck
P.15	P.15	P.15	P.14	P.14·15			P.14			TOC YouTube Overclamp collet chuck
			P.16	P.16						TWC-OC W-taper collet chuck
			P.16	P.16						TWC-IC W-taper collet chuck
P.17			P.17	P.17		P.17	P.17	P.17	P.17	TIC Pull-type internal clamp collet chuck
P.18			P.18·19	P.19				P.18	P.19	TIC-PP Push-type internal clamp collet chuck
			P.19	P.19					P.19	TIC-DD Pull-down-type internal clamp collet chuck
P.20	P.20	P.20	P.20	P.20	P.20	P.20	P.20	P.20	P.20	Design chuck

O.D. clamp

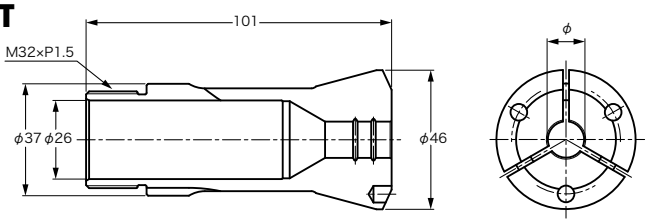
I.D. clamp

YouTube Contents can be viewed on YouTube.

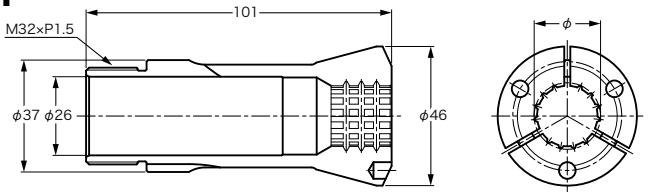
Information as of July 2019

Standard Collet

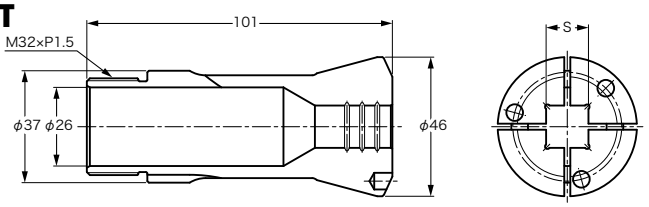
TSC-D26-ST
Standard(Round)



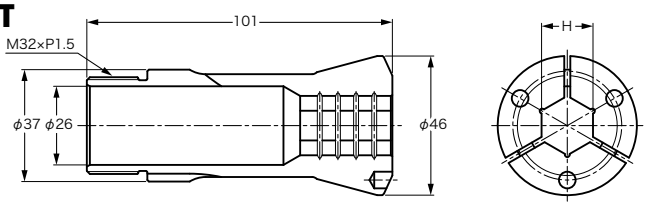
TSC-D26-ST
Standard
(Round, hi-grip)



TSC-D26-ST
Standard(Square)



TSC-D26-ST
Standard(Hexagon)



D26

Unit (mm)

Aperture type	Collet sizes available	Max size
ϕ(Round)	2≦ϕ≦26 (0.1 mm increment)	ϕ=26
H (Hex)	5≦H≦23 (1 mm increment)	H=23
S (Square)	5≦S≦19 (1 mm increment)	S=19
Blank	See page 22.	–

Order example
Standard collet with ϕ10-mm round aperture
TSC-D26-ST-ϕ10

Standard collet with ϕ15-mm hexagon aperture
TSC-D26-ST-H15

Standard collet with ϕ15-mm square aperture
TSC-D26-ST-S15

〈 Hi-grip collet 〉

The aperture has non-slip grooves in the vertical and horizontal directions to enhance the clamping force in both the axial and radial directions, which is suitable for heavy 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.

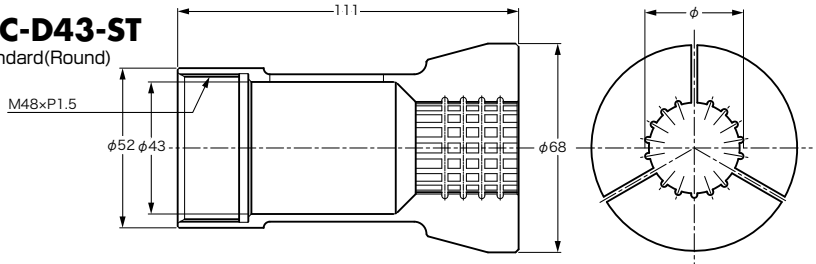
Unit (mm)

Aperture size (ϕ)	ϕ14～ϕ18	ϕ19～ϕ22	ϕ23～ϕ26
Number of equally spaced axial grooves	12	15	18

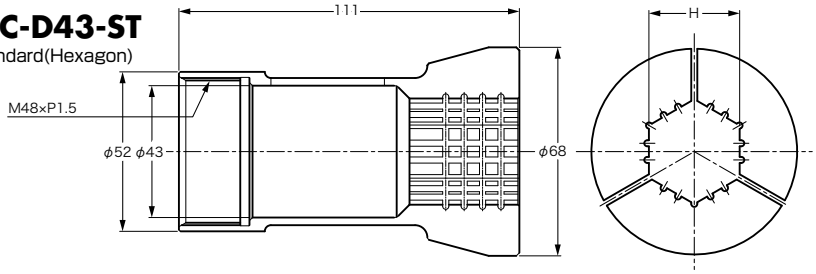
*Normal inventory consists of collets sized from 14 mm to 26 mm, in 1 mm increments.
*Non-standard sizes can be made by order.

Order example
Standard collet with ϕ10-mm round aperture, hi-grip type
TSC-D26-ST-ϕ10-HG

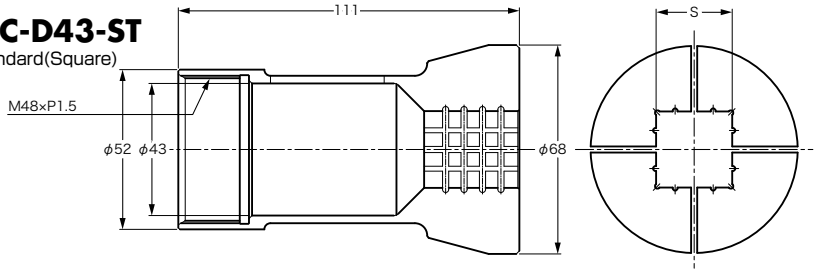
TSC-D43-ST
Standard(Round)



TSC-D43-ST
Standard(Hexagon)



TSC-D43-ST
Standard(Square)



D43

Unit (mm)

Aperture type	Collet sizes available	Max size
ϕ(Round)	15≦ϕ≦42 (1 mm increment)	ϕ=42
H (Hex)	15≦H≦36 (1 mm increment)	H=36
S (Square)	15≦S≦28 (1 mm increment)	S=28
Blank	See page 22.	–

*Normal inventory consists of collets sized from 14 mm to 26 mm, in 1 mm increments.

Unit (mm)

Aperture dia. (ϕ)		Groove depth	Number of equally spaced axial grooves
The number of antiskid grooves	ϕ15～ϕ20	1	12
	ϕ20～ϕ25	1.5	12
	ϕ25～ϕ30	1.5	15
	ϕ30～ϕ35	1.5	18
	ϕ35～ϕ42	1.5	24

Order example
Standard collet with ϕ30-mm round aperture
TSC-D43-ST-ϕ30

Standard collet with ϕ23-mm hexagon aperture
TSC-D43-ST-H23

Standard collet with ϕ25-mm square aperture
TSC-D43-ST-S25

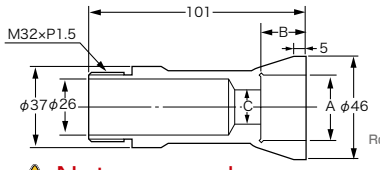
TSC-D26 Formerly : Ordinary collet

This type can clamp a workpiece even with no external stopper by bringing the workpiece end face into contact with the internal end face of the collet to stabilize the product length.
Round, hexagon, square and other types of apertures are available for the standard and stepped collet chucks.

Stepped collet Unit (mm)

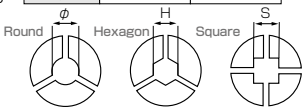
		Available size
Max. size A	ϕ(Round)	ϕ30
	H(Hex)	H25
	S(Square)	S20
Max. depth B		18

TSC-D26 collet (Ordinary collet)



Standard collet (size A) Unit (mm)

	Available size	Max size
ϕ(Round)	2≦ϕ≦27	ϕ=27
H(Hex)	5≦H≦23	H=23
S(Square)	5≦S≦19	S=19



Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Maximum size of workpiece : round : ϕ30 mm, hexagon : 25 mm (H), square : 20 mm (S), with a depth of 18 mm (B)
3. If the workpiece size is larger than the above, select the TSC D (F50~F100) or TSC D (060~0120).

Order example
Stepped collet ····· TSC-D26-ϕ20×5×ϕ10
Standard collet ····· TSC-D26-ϕ15

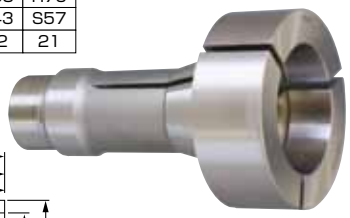
TSC-D26-F50·F60·F80·F100 Formerly : Flanged collet

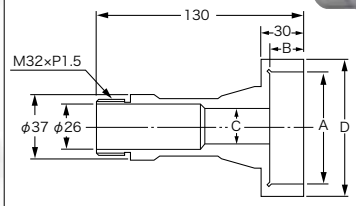
This type can clamp a large-sized workpiece which cannot be clamped with the TSC-D26 (ordinary collet). A blank collet (TSC-D26-F50-ST-B~F100-ST-B) is provided as standard for machining according to the product size. (See page 22.)

Stepped collet Unit (mm)

		F50	F60	F80	F100
D		ϕ46	ϕ58	ϕ78	ϕ98
Max. size A	ϕ(Round)	ϕ32	ϕ44	ϕ62	ϕ82
	H(Hex)	H27	H37	H53	H70
	S(Square)	S22	S30	S43	S57
Max. depth B		35	23	22	21

TSC-D26-F80 collet (Flanged 80 collet)





Note on use

* Do not use the F100 for a spindle speed of 4,000 min^{-1} or higher. The clamping force may become insufficient.

Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Consult us for sizes A and B larger than those shown in the table.

Order example F80 stepped collet ····· TSC-D26-F80-ϕ50×20×ϕ26

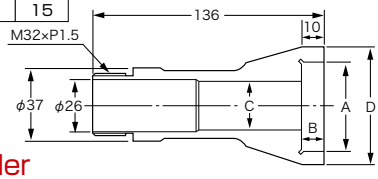
TSC-D26-060·080·0120 Formerly : Oversize collet

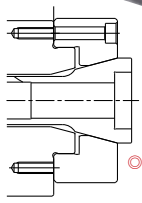
This type is suitable for a large-sized workpiece which requires a large clamping force. A blank collet (TSC-D26-060-ST-B~0120-ST-B) is provided as standard for machining according to the product size. (See page 22.)

Stepped collet Unit (mm)

		060	080	0120
D		ϕ60	ϕ78	ϕ118
Max. size A	ϕ(Round)	ϕ44	ϕ60	ϕ100
	H(Hex)	H37	H51	H85
	S(Square)	S30	S42	S70
Max. depth B		15	15	15

TSC-D26-060 collet (Oversize 60 collet)





◎TSC-F is required for this type. (See page 25.)

TSC-D26-080 collet (Oversize 80 collet)

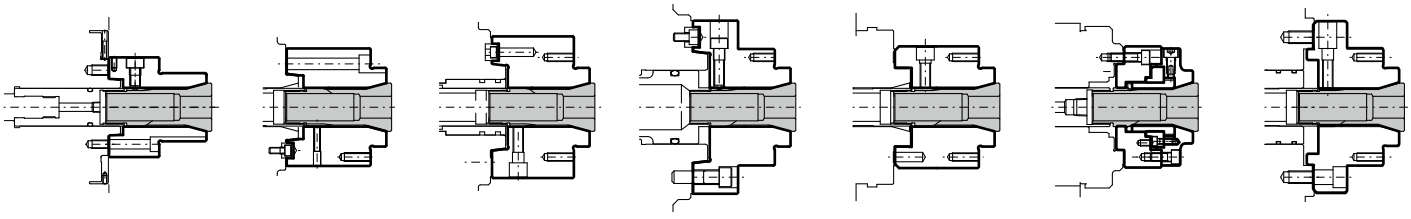
TSC-D26-0120 collet (Oversize 120 collet)

Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Consult us for sizes A and B larger than those shown in the table.
3. When size A is no larger than the maximum size, a depth B of 15 mm or deeper is possible - consult us.

Order example 080 stepped collet ····· TSC-D26-080-ϕ50×10×ϕ26

Assembly drawings for spindle types

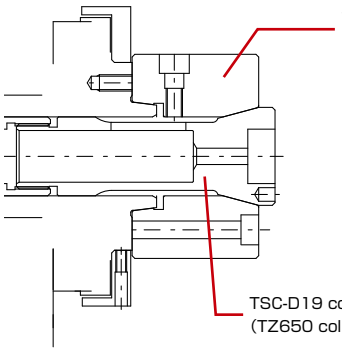


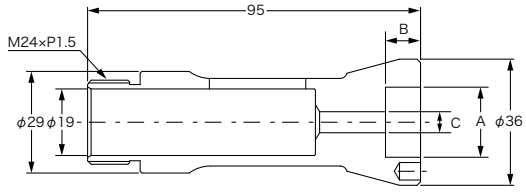
(A2-3) (A2-4) (A2-5) (A2-6) (ϕ60,ϕ75) (ϕ82.5) (ϕ110)

TSC-D19

Formerly : TZ650 collet

Round, hexagon, square and other types of apertures are available for the standard and stepped collet chucks.





Unit (mm)

		Stepped	Standard
Max. size A	ϕ (Round)	ϕ22	ϕ18
	H (Hex)	H19	H16
	S (Square)	S15	S13
Max. depth B		11	—

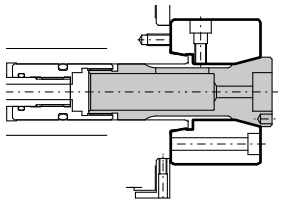
∗ When size A is no larger than the maximum size, a depth B of 11 mm or deeper is possible - consult us.

∗ The figure shows the A3-S2 type.

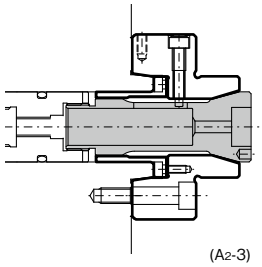
Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Consult us for sizes A and B larger than those shown in the table.

Assembly drawings for spindle types



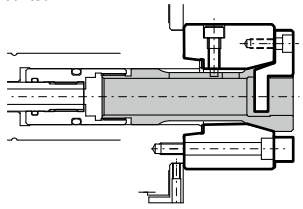
(A3-S2)



(A2-3)

Assembly drawings for spindle types

TPC1 can be mounted.
(TPC1-D19)

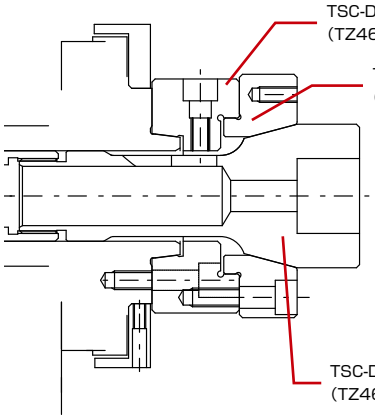


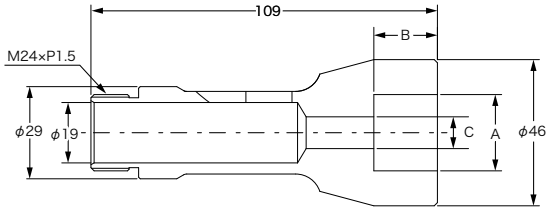
(A3-S2)

TSC-D19-046

Formerly : TZ46 collet

Round, hexagon, square and other types of apertures are available for the standard and stepped collet chucks.





Unit (mm)

		Stepped	Standard
Max. size A	ϕ (Round)	ϕ30	ϕ18
	H (Hex)	H25	H16
	S (Square)	S20	S13
Max. depth B		23	—

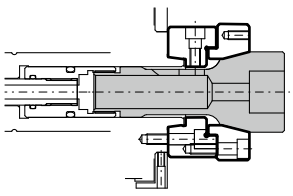
∗ When size A is no larger than the maximum size, a depth B of 23 mm or deeper is possible - consult us.

∗ The figure shows the A3-S2 type.

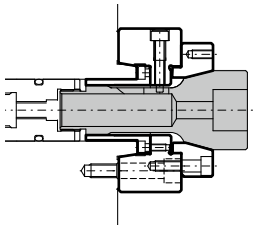
Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Consult us for sizes A and B larger than those shown in the table.

Assembly drawings for spindle types



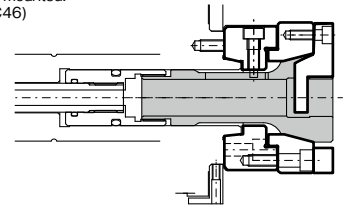
(A3-S2)



(A2-3)

Assembly drawings for spindle types

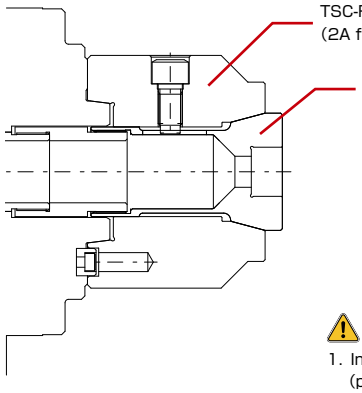
TPC1 can be mounted.
(TPC1-D19-C46)

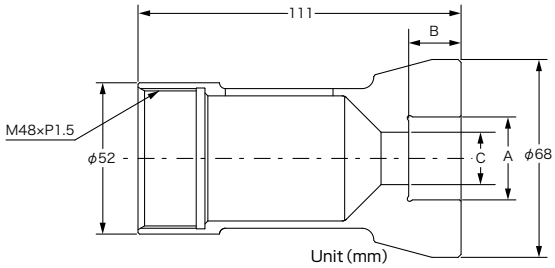


(A3-S2)

TSC-D43

Formerly : 2A collet





Unit (mm)

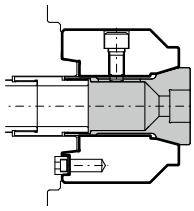
		Stepped
Max. size A	ϕ(Round)	ϕ52
	H(Hex)	H44
	S(Square)	S36
Max. depth B		12
Through-hole dia.		ϕ42

∗ The figure shows the A2-5 type.

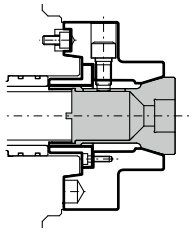
⚠ Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Consult us for sizes A and B larger than those shown in the table.

Assembly drawings for spindle types



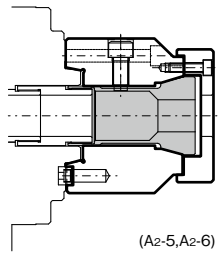
(A2-5)



(A2-6)

Assembly drawings for spindle types

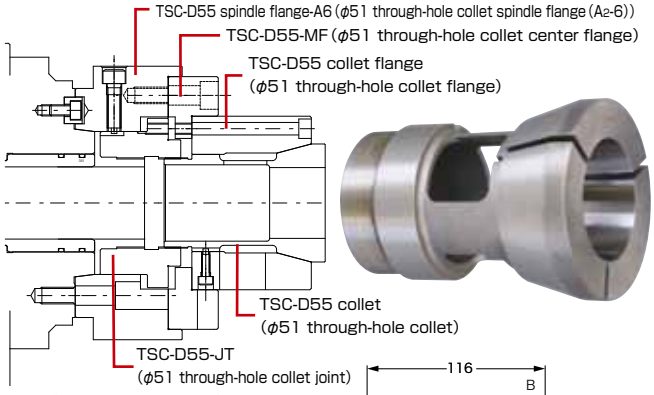
(TPC1-D43)



(A2-5,A2-6)

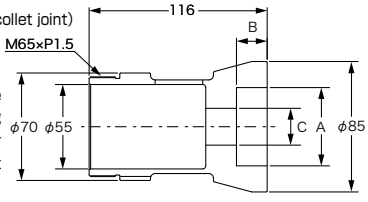
TSC-D55

Formerly : ϕ51 through-hole collet



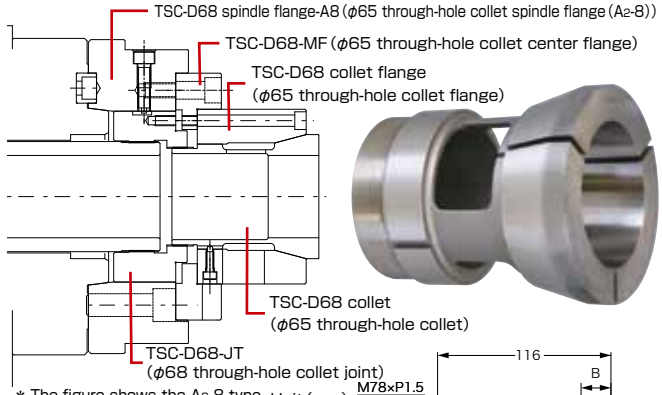
∗ The figure shows the A2-6 type.

∗ One collet can be used as a pull-back type or a dead-length type by only changing the MF (center flange). With no need for changing the collet, this achieves cost reduction. (See page 13.)



TSC-D68

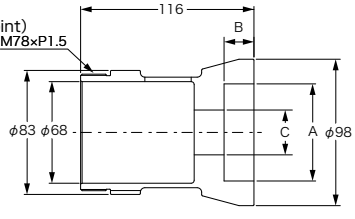
Formerly : ϕ65 through-hole collet



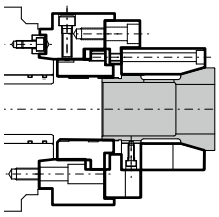
∗ The figure shows the A2-8 type.

Unit (mm)

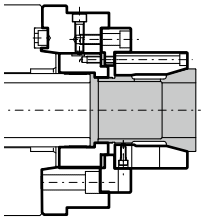
		D55	D68
Max. size A	ϕ(Round)	ϕ69	ϕ82
	H(Hex)	H59	H71
	S(Square)	S48	S57
Max. depth B		12	12
Through-hole dia.		ϕ54	ϕ67



Assembly drawings for spindle types



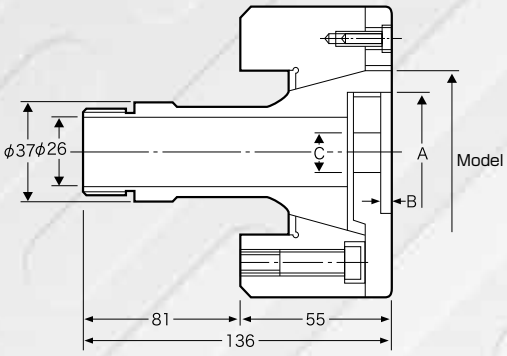
(A2-6)



(A2-8)

Opens by advancing the collet
Closes by retracting the collet

TPC1-D26-C50·C60·C80·C120



◎TPC1-F is required for this type. (See page 25.)

Unit (mm)

Model		C50	C60	C80	C120
Max. size A	ϕ(Round)	ϕ32	ϕ44	ϕ60	ϕ100
	H (Hex)	H27	H37	H51	H85
	S (Square)	S22	S30	S42	S70

∗ The minimum clamping diameter is ϕ15 mm.

⚠ Notes on order

1. Inform us of the dimensions "A(clamp dia.) x B(clamp depth) x C(recessed hole dia.)".
2. Depth B can be machined to 3 mm or deeper; however, limitations apply according to the workpiece diameter - consult us.
3. Seating confirmation is available as an option.
4. The rear air blower is available as an option. Consult us for the special specifications.

YouTube

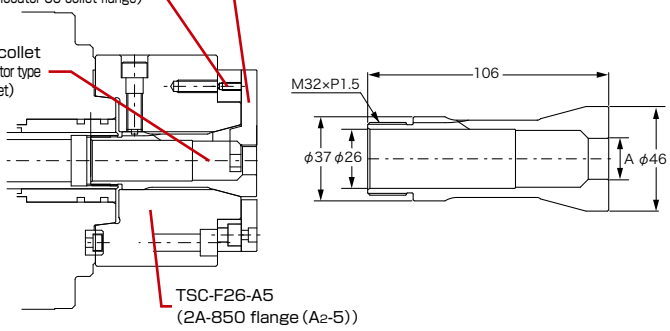
A product demo video can be viewed by scanning QR code.

TPC1-D26-C50 Formerly : Fixed plate locator type flanged 50 collet

TPC1-PL50
(Fixed plate locator type 50 collet, fixed plate locator)

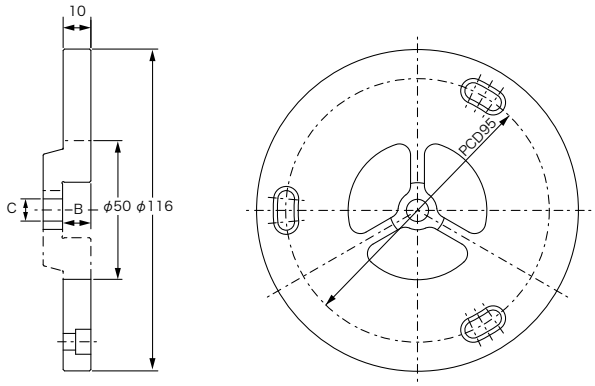
TPC1-F50-D75
(VIK fixed plate locator 50 collet flange)

TPC1-C50 collet
(Fixed plate locator type flanged 50 collet)



∗ The figure shows the A2-5 type.

TPC1-PL50 (Formerly : Fixed plate locator type 50 collet, fixed plate locator)

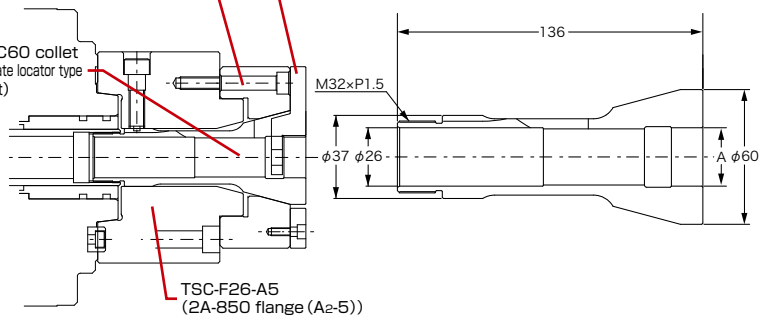


TPC1-D26-C60 Formerly : Fixed plate locator type 60 collet

TPC1-PL60
(Fixed plate locator type 60 collet, fixed plate locator)

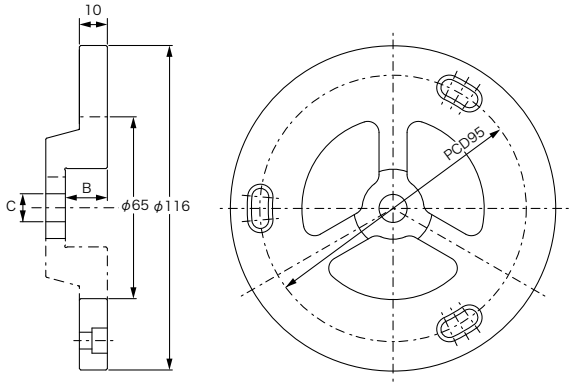
TPC1-F60-D75
(VIK fixed plate locator 60 collet flange)

TPC1-C60 collet
(Fixed plate locator type 60 collet)

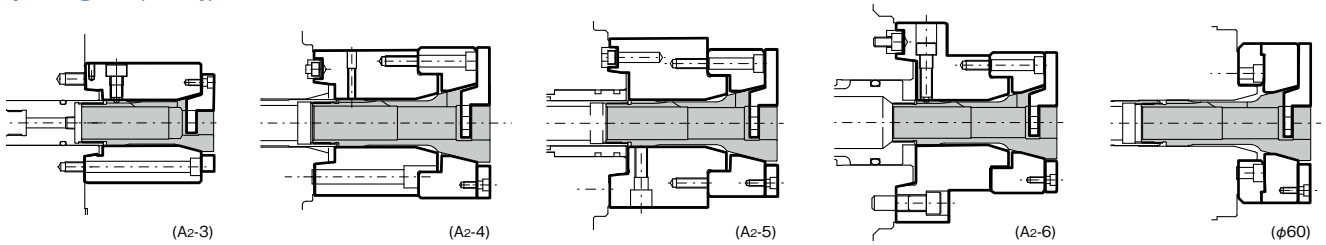


∗ The figure shows the A2-5 type.

TPC1-PL60 (Formerly : Fixed plate locator type 60 collet, fixed plate locator)

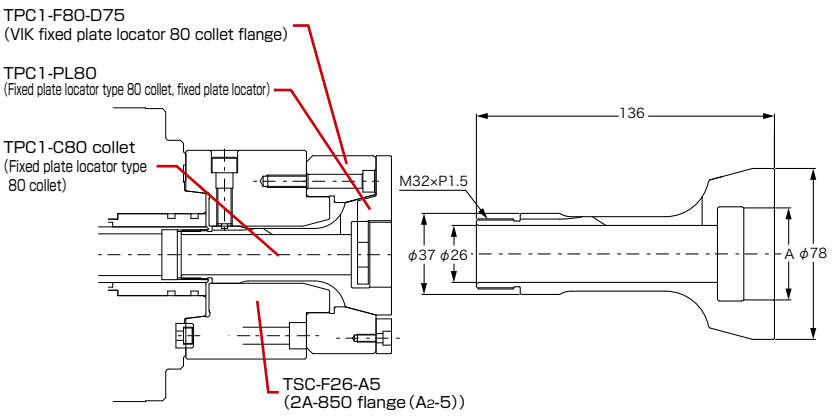


Assembly drawings for spindle types



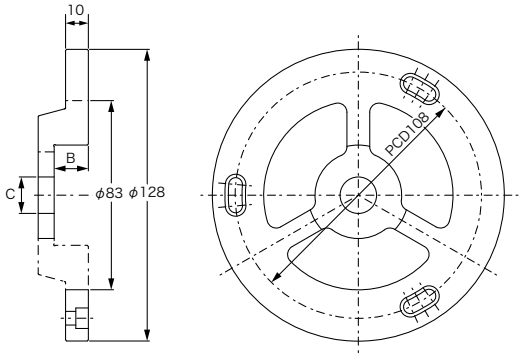
Pull-back type collet equipped with a fixed plate locator, ensuring stable product length.

TPC1-D26-C80 Formerly : Fixed plate locator type 80 collet

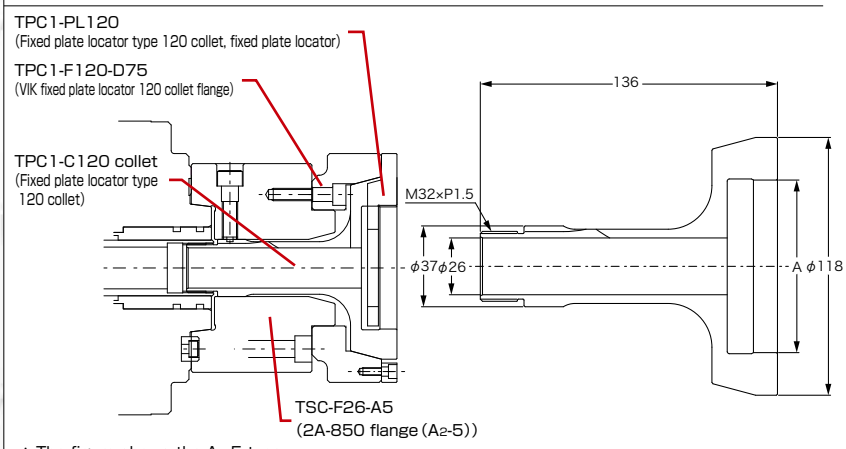


＊ The figure shows the A2-5 type.

TPC1-PL80 (Formerly : Fixed plate locator type 80 collet, fixed plate locator)

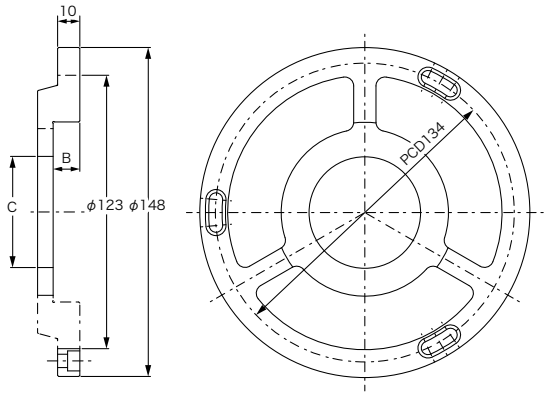


TPC1-D26-C120 Formerly : Fixed plate locator type 120 collet

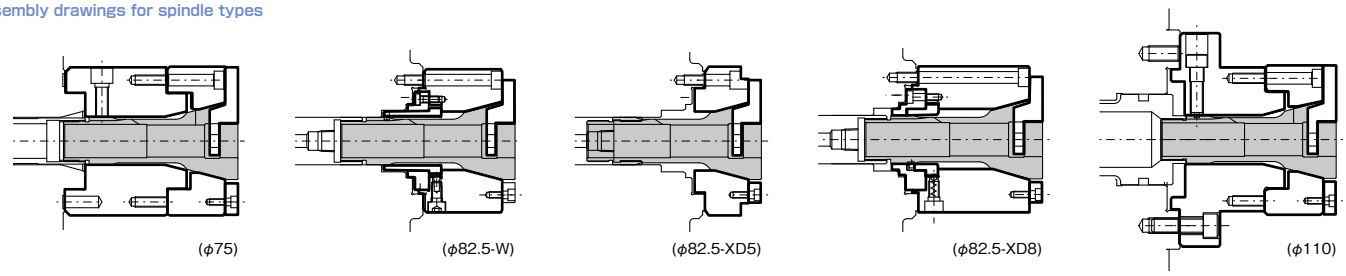


＊ The figure shows the A2-5 type.

TPC1-PL120 (Formerly: Fixed plate locator type 120 collet, fixed plate locator)



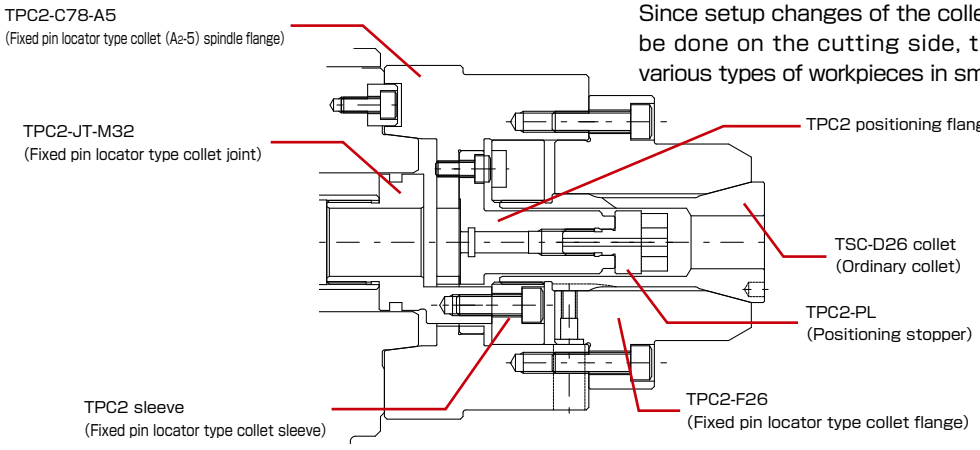
Assembly drawings for spindle types



TPC2-D26・D43・D150

TPC2-D26 Formerly : Ordinary fixed pin locator collet

This type clamps a workpiece by drawing back the collet while the fixed pin locator is fastened in the center.
Since setup changes of the collet and fixed pin locator can easily be done on the cutting side, this type is suitable for cutting various types of workpieces in small quantities.

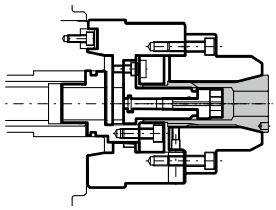


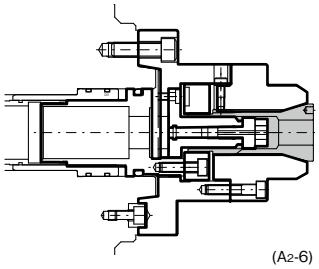
∗ The figure shows the A2-5 type.

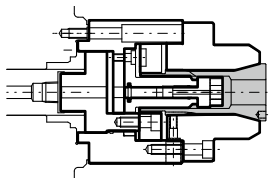
Notes on order

1. Seating confirmation is available as an option.
2. The rear air blower is available as an option.
   Consult us for the special specifications.

Assembly drawings for spindle types

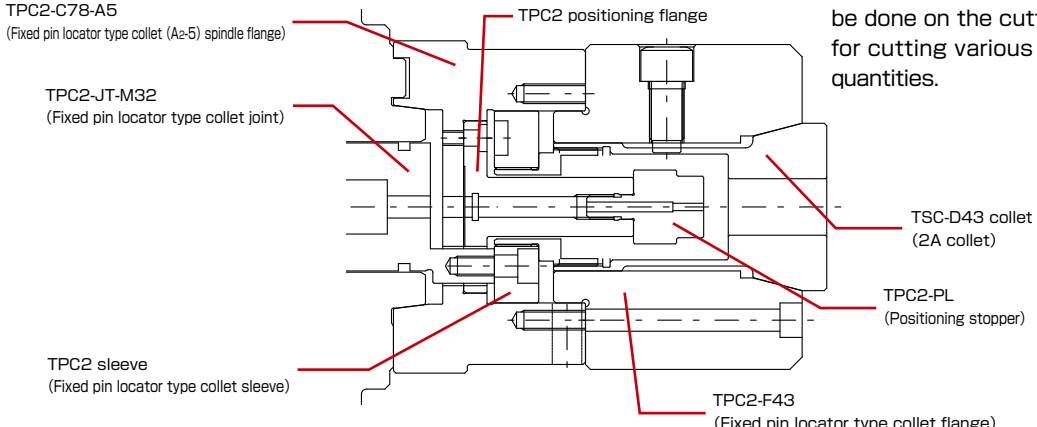

(A2-5)


(A2-6)


(82.5-XD8)

TPC2-D43 Formerly : 2A fixed pin locator collet

This type clamps a workpiece by drawing back the collet while the fixed pin locator is fastened in the center.
Since setup changes of the collet and fixed pin locator can easily be done on the cutting side, this type is suitable for cutting various types of workpieces in small quantities.

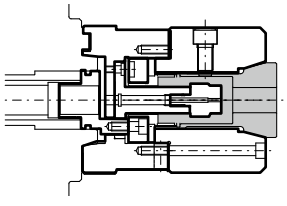


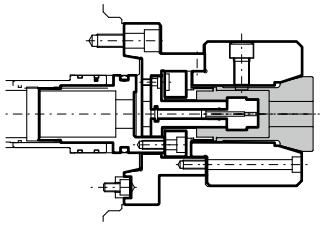
∗ The figure shows the A2-5 type.

Notes on order

1. Seating confirmation is available as an option.
2. The rear air blower is available as an option.
   Consult us for the special specifications.

Assembly drawings for spindle types

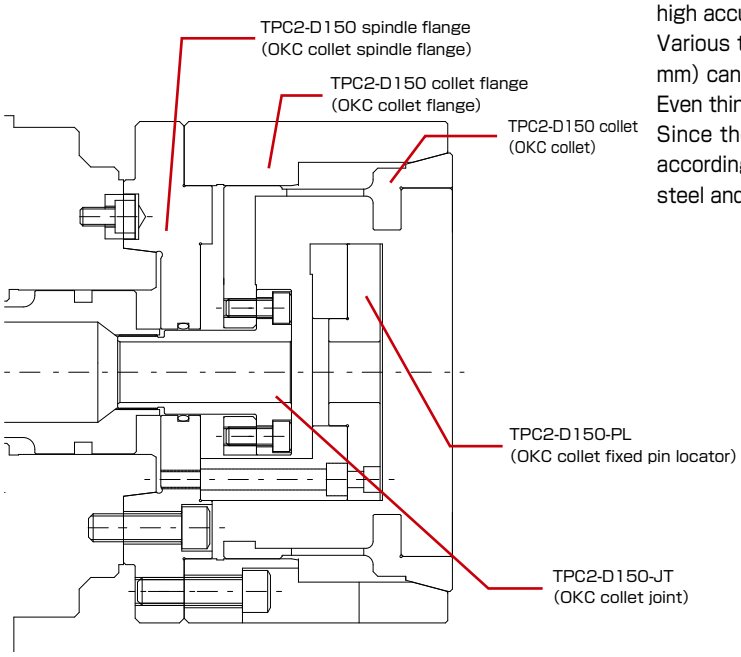

(A2-5)


(A2-6)

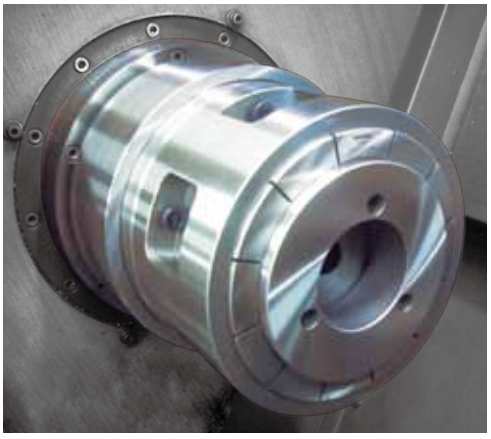
TPC2-D150

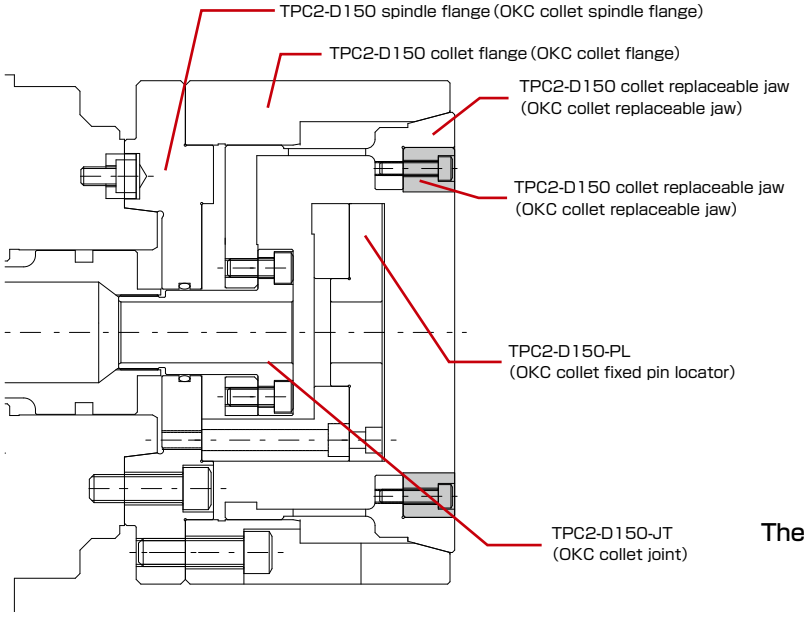
Formerly : OKC collet

This type clamps a workpiece by drawing back the collet while the fixed pin locator is fastened in position.
This fixed pin locator collet feature is suitable for cutting which requires high accuracy in Z-axis positioning.
Various types of workpieces from small to large diameter (up to ϕ150 mm) can be clamped, meeting the wide-ranging needs of customers.
Even thin workpieces having a small clamping area can be held securely.
Since the clamping shape and method can be selected and adjusted according to your needs, a wide variety of materials, such as aluminum, steel and brass, can be clamped.



* The figure shows the A2-6 type.





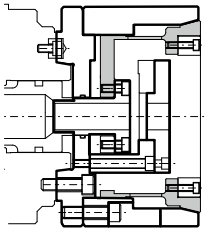
* The figure shows the A2-6 type.

The photo shows the replaceable jaw type.

⚠ Notes on order

1. Seating confirmation is available as an option.
2. The rear air blower is available as an option.
3. The replaceable jaw type is available as an option. Consult us for the special specifications.

Assembly drawings for spindle types

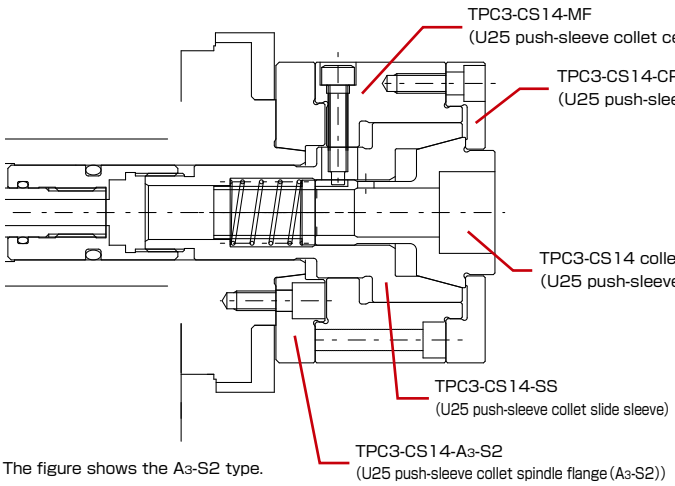


(A2-6)

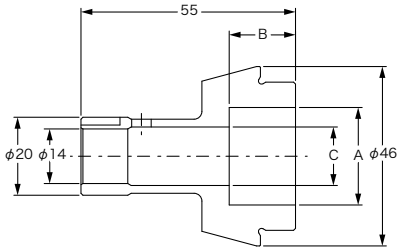
YouTube

A product demo video can be viewed by scanning QR code.

TPC3-CS14 Formerly : U25 push-sleeve collet



∗ The figure shows the A3-S2 type.



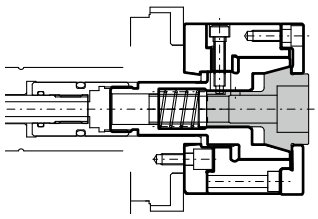
⚠ Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Seating confirmation is available as an option.
3. The rear air blower is available as an option. Consult us for the special specifications.

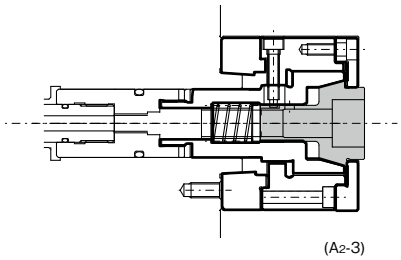
Unit (mm)

		Stepped
Max. size A	ϕ(Round)	ϕ30
	H(Hex)	H25
	S(Square)	S21
Max. depth B		25
Through-hole dia.		ϕ18

Assembly drawings for spindle types

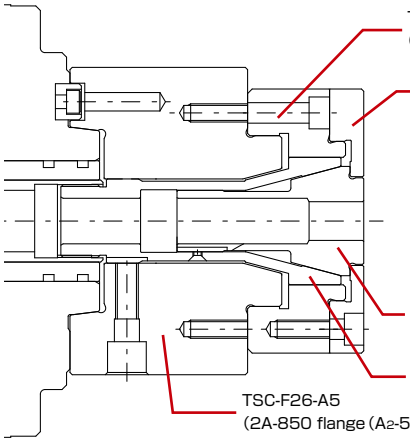


(A3-S2)

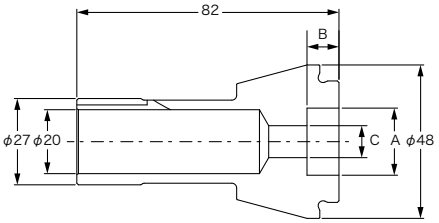


(A2-3)

TPC3-CS20 Formerly : Push-sleeve collet



∗ The figure shows the A2-5 type.



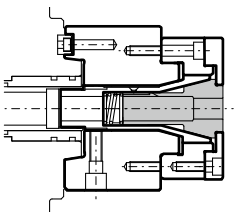
⚠ Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Seating confirmation is available as an option.
3. The rear air blower is available as an option. Consult us for the special specifications.

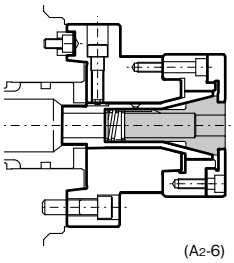
Unit (mm)

		Stepped
Max. size A	ϕ(Round)	ϕ26
	H(Hex)	H22
	S(Square)	S15
Max. depth B		24
Through-hole dia.		ϕ19

Assembly drawings for spindle types

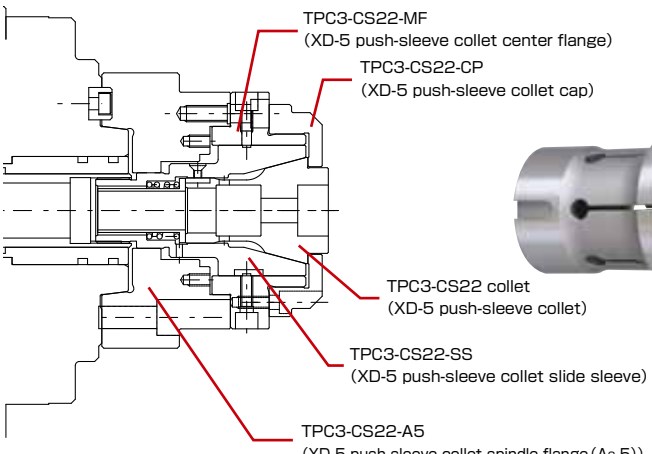


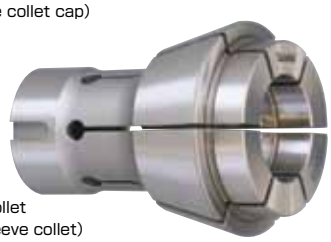
(A2-5)

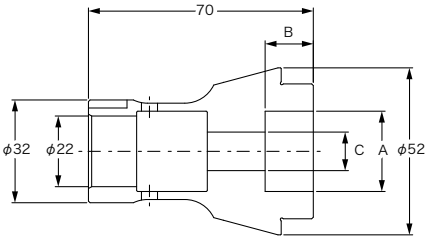


(A2-6)

TPC3-CS22 Formerly : XD-5 push-sleeve collet







∗ The figure shows the A2-5 type.

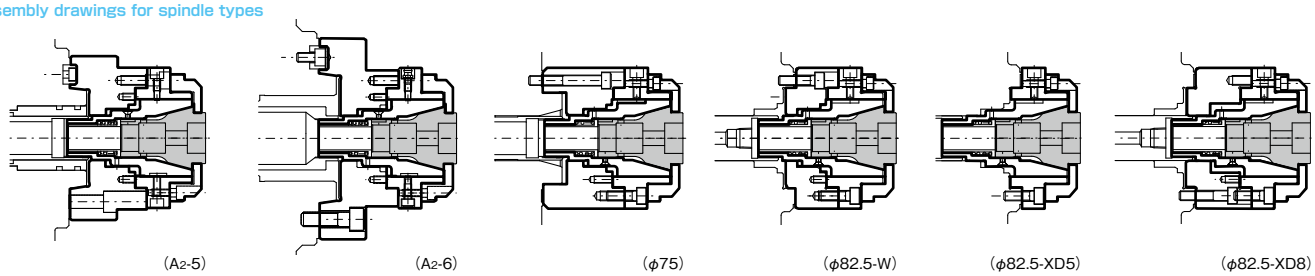
Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Seating confirmation is available as an option.
3. The rear air blower is available as an option. Consult us for the special specifications.

Unit (mm)

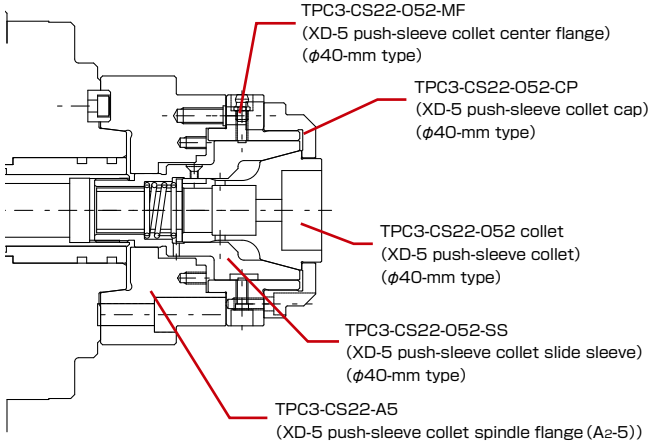
		Stepped
Max. size A	ϕ(Round)	ϕ30
	H(Hex)	H25
	S(Square)	S21
Max. depth B		25
Through-hole dia.		ϕ18

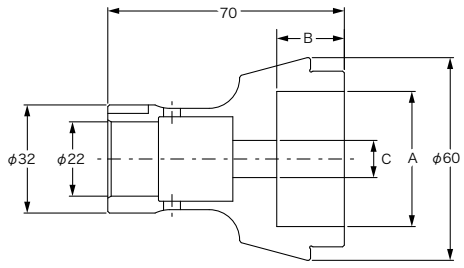
Assembly drawings for spindle types



(A2-5) (A2-6) (ϕ75) (ϕ82.5-W) (ϕ82.5-XD5) (ϕ82.5-XD8)

TPC3-CS22-O52 Formerly : XD-5 push-sleeve collet, ϕ40-mm type





∗ The figure shows the A2-5 type.

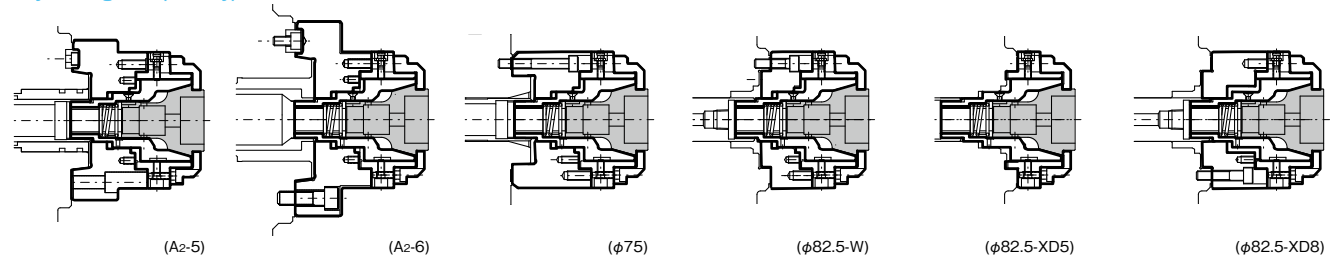
Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Seating confirmation is available as an option.
3. The rear air blower is available as an option. Consult us for the special specifications.

Unit (mm)

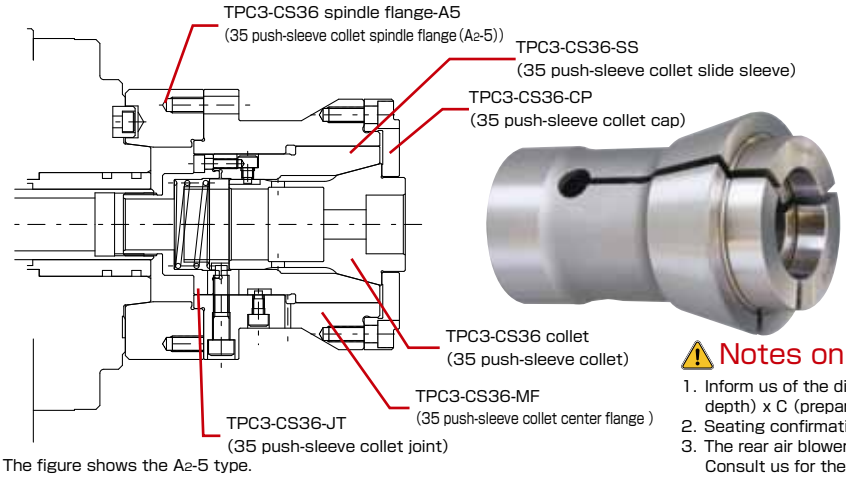
		Stepped
Max. size A	ϕ(Round)	ϕ40
	H(Hex)	H33
	S(Square)	S27
Max. depth B		17
Through-hole dia.		ϕ18

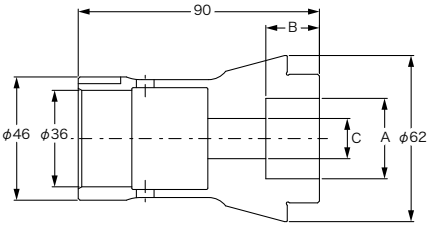
Assembly drawings for spindle types



(A2-5) (A2-6) (ϕ75) (ϕ82.5-W) (ϕ82.5-XD5) (ϕ82.5-XD8)

TPC3-CS36 Formerly : 35 push-sleeve collet





∗ The figure shows the A2-5 type.

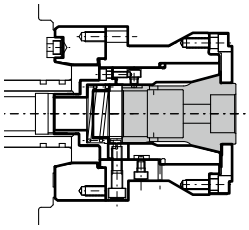
Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Seating confirmation is available as an option.
3. The rear air blower is available as an option. Consult us for the special specifications.

Unit (mm)

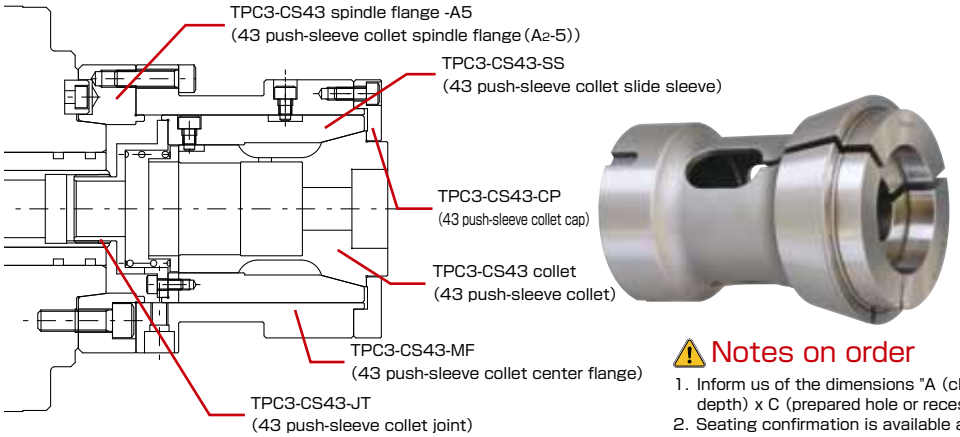
		Stepped
Max. size A	ϕ(Round)	ϕ35
	H (Hex)	H30
	S (Square)	S24
Max. depth B		33
Through-hole dia.		ϕ35

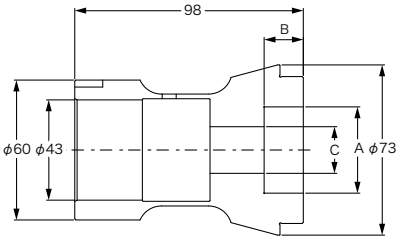
Assembly drawings for spindle types



(A2-5)

TPC3-CS43 Formerly : 43 push-sleeve collet





∗ The figure shows the A2-5 type.

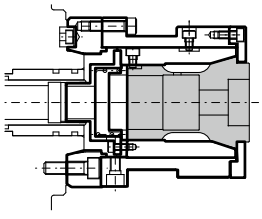
Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)".
2. Seating confirmation is available as an option.
3. The rear air blower is available as an option. Consult us for the special specifications.

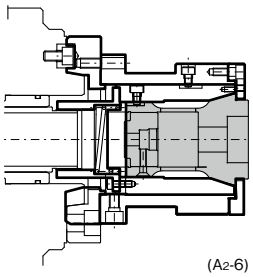
Unit (mm)

		Stepped
Max. size A	ϕ(Round)	ϕ49
	H (Hex)	H42
	S (Square)	S34
Max. depth B		26
Through-hole dia.		ϕ42

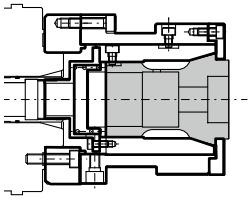
Assembly drawings for spindle types



(A2-5)

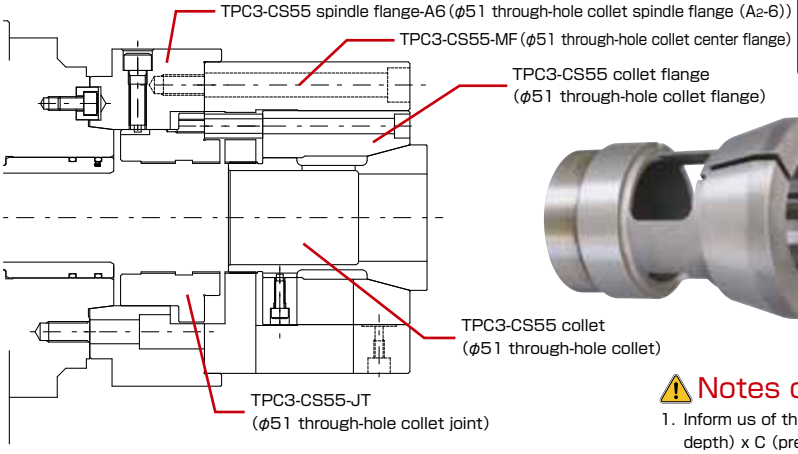


(A2-6)



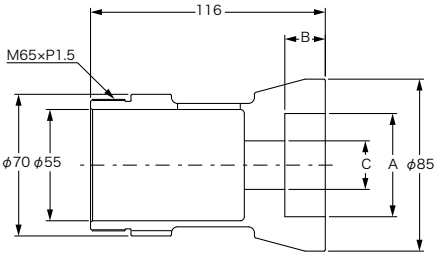
(ϕ75)

TPC3-CS55 Formerly : ϕ51 through-hole push-sleeve collet



∗ The figure shows the A2-6 type.

∗ One collet can be used as a pull-back type or a dead-length type by only changing the MF (center flange). With no need for changing the collet, this achieves cost reduction. (See page 5.)



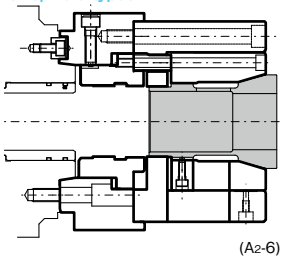
Unit (mm)

		Stepped
Max. size A	ϕ (Round)	ϕ69
	H (Hex)	H59
	S (Square)	S48
Max. depth B		12
Through-hole dia.		ϕ51

⚠ Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)". Consult us for the special specifications.

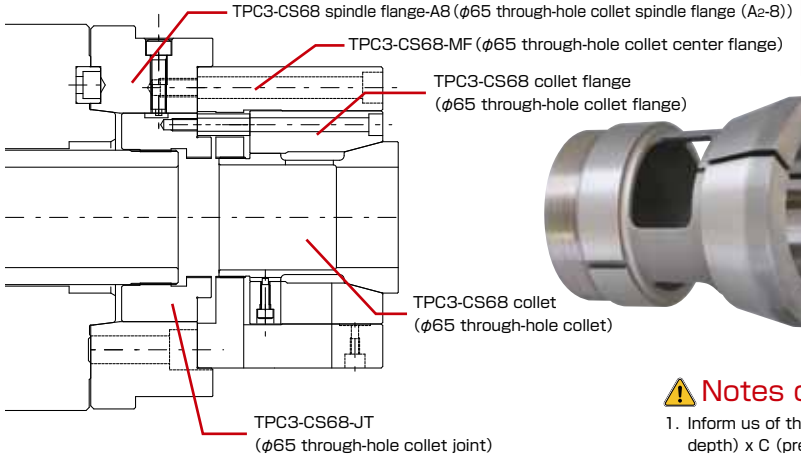
Assembly drawings for spindle types

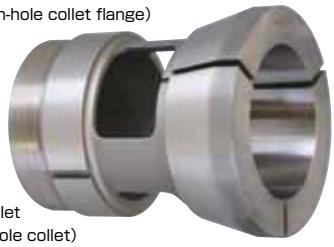


(A2-6)

Opens by retracting the flange
Closes by advancing the flange

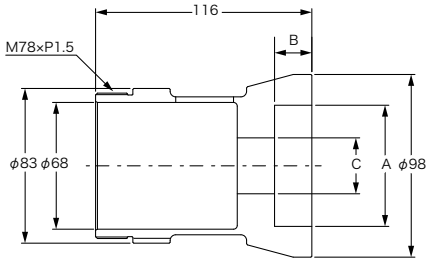
TPC3-CS68 Formerly : ϕ65 through-hole push-sleeve collet





∗ The figure shows the A2-8 type.

∗ One collet can be used as a pull-back type or a dead-length type by only changing the MF (center flange). With no need for changing the collet, this achieves cost reduction. (See page 5.)



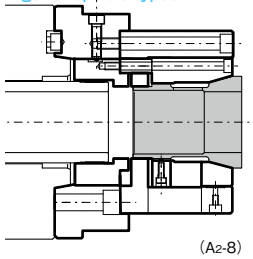
Unit (mm)

		Stepped
Max. size A	ϕ (Round)	ϕ82
	H (Hex)	H71
	S (Square)	S57
Max. depth B		12
Through-hole dia.		ϕ65

⚠ Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth) x C (prepared hole or recessed hole dia.)". Consult us for the special specifications.

Assembly drawings for spindle types



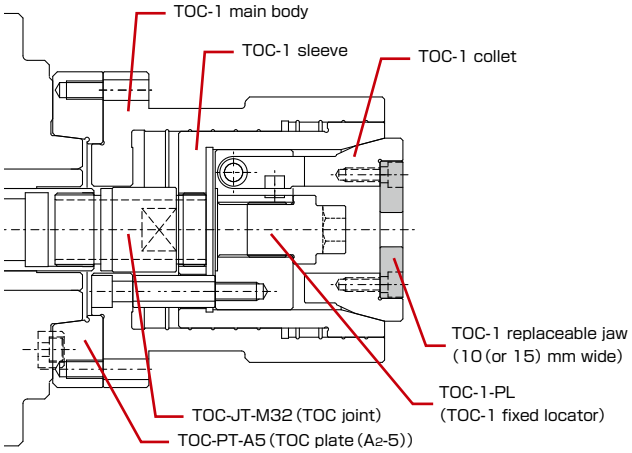
(A2-8)

Opens by retracting the flange
Closes by advancing the flange

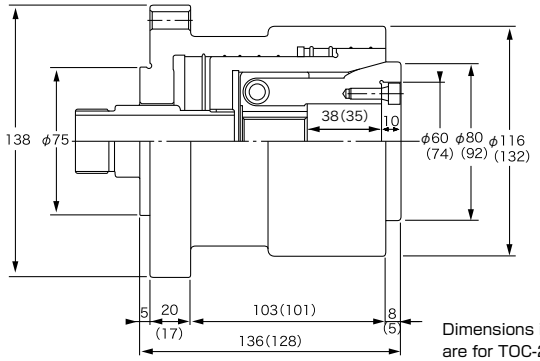
YouTube

A product demo video can be viewed by scanning QR code.

TOC-1 ＊Applicable to A2-5, A2-6 and ϕ75-mm spindles



＊The figure shows the A2-5 type.

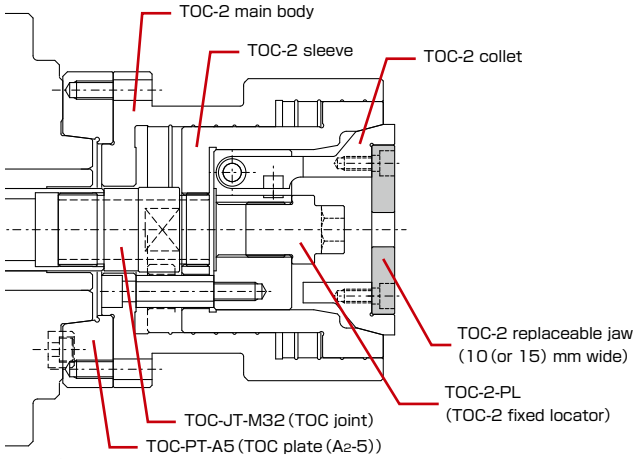


Dimensions in parentheses are for TOC-2.

⚠ Notes on order

1. Seating confirmation is available by using a fixed locator.
2. Rear coolant can be used by using a fixed locator.
3. Specify size A (clamp dia.) when placing an order.
4. Specify sizes B and C if an internal step is required on the rear. Consult us for the special specifications.

TOC-2 ＊Applicable to A2-5, A2-6 and ϕ75-mm spindles

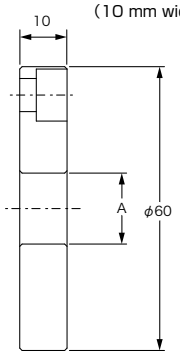


＊The figure shows the A2-5 type.

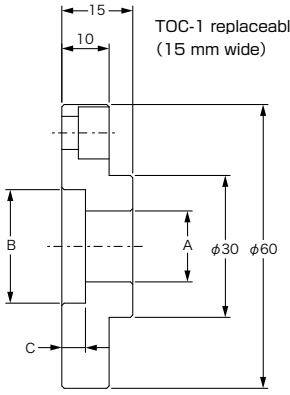
TOC replaceable jaw

Standard shape

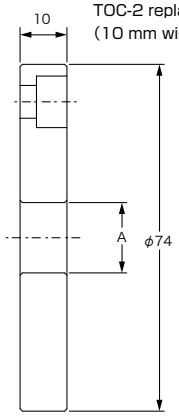
TOC-1 replaceable jaw (10 mm wide)



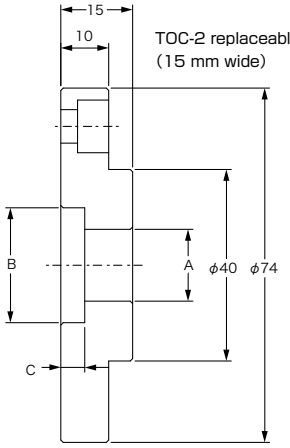
TOC-1 replaceable jaw (15 mm wide)



TOC-2 replaceable jaw (10 mm wide)

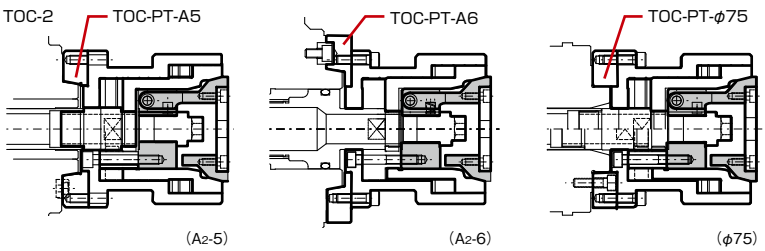


TOC-2 replaceable jaw (15 mm wide)



Assembly drawings for spindle types

＊Applicable to various models by changing the plate



YouTube

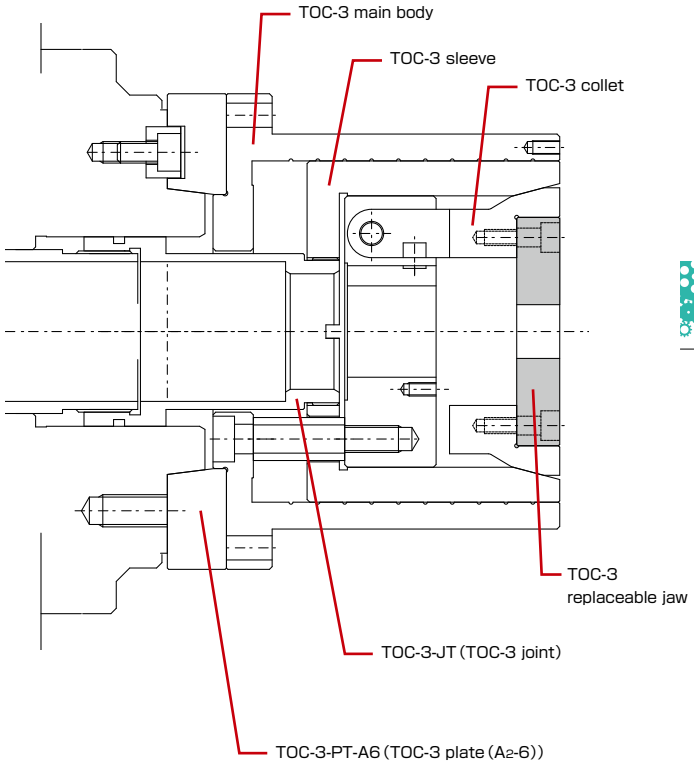
A product demo video can be viewed by scanning QR code.

This type clamps a stepped workpiece at a position close to the cutting position skipping over the stepped (flanged) section so that runout or distortion during cutting can be prevented. Setup change can easily be done because of the replaceable jaw structure.


Workpiece Sample

TOC-3 Formerly : T・TOC

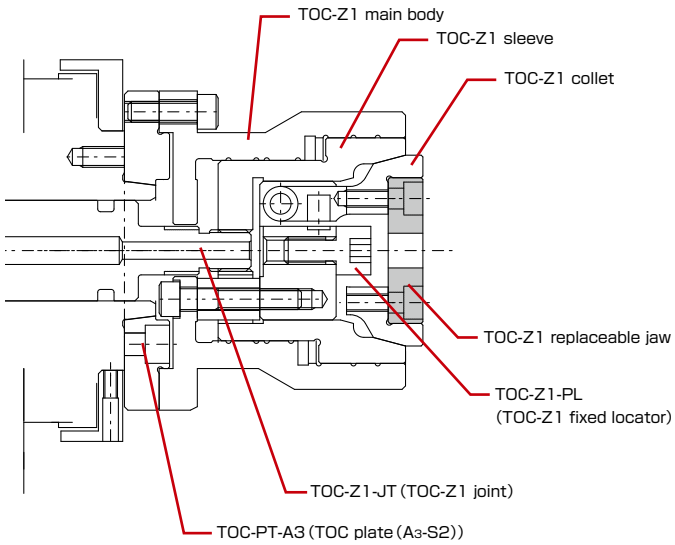
＊ Applicable to A2-6 spindle



＊ The figure shows the A2-6 type.

TOC-Z1

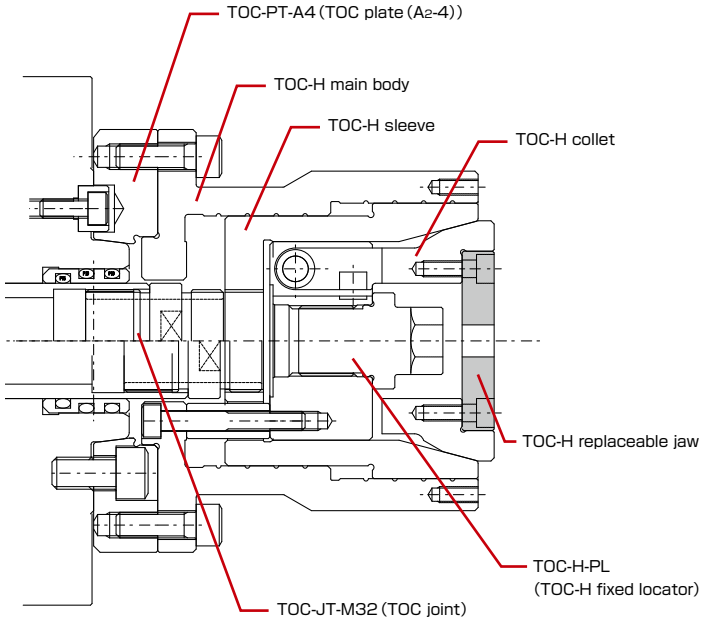
＊ Applicable to A3-S2 and A2-3 spindles



＊ The figure shows the A3-S2 type.

TOC-H

＊ Applicable to A2-4 spindle



＊ The figure shows the A2-4 type.

⚠ Notes on order

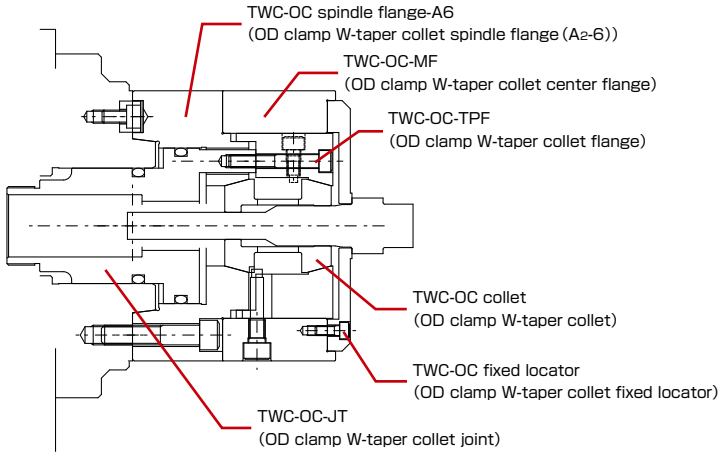
1. Seating confirmation is available by using a fixed locator.
2. Rear coolant can be used by using a fixed locator.
   Consult us for the special specifications.

Applicable spindle nose type		A3-S2・A2-3	A2-4	A2-5・A2-6・ϕ75	A2-5・A2-6・ϕ75	A2-6
Item / Type	Unit	TOC-Z1	TOC-H (high-speed type)	TOC-1	TOC-2	TOC-3
Chucking range (A)	mm	~ϕ16	~ϕ29	~ϕ25	~ϕ30	~ϕ46
Max. step (in dia.)	mm	ϕ2	ϕ5	ϕ10	ϕ14	ϕ7
Max. flange dia.	mm	ϕ18	ϕ34	ϕ38	ϕ45	ϕ53
Sleeve stroke	mm	5	12	17	20	20
Internal contact length	mm	15	15	15	15	20
Max. insertion depth	mm	15	28	38	35	30
Replaceable jaw OD	mm	ϕ42	ϕ56	ϕ60	ϕ74	ϕ85
Chucking pressure	MPa	1.0~1.4	1.0~2.5	1.0~2.5	1.0~2.5	1.0~3.0
Weight	kg	3.3	5	7.5	10	17

This is a long-stroke collet chuck. Check the stroke of the machine to use.

TWC-OC

Formerly : OD clamp W-taper collet

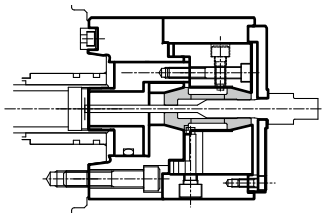


∗ The figure shows the A2-6 type.

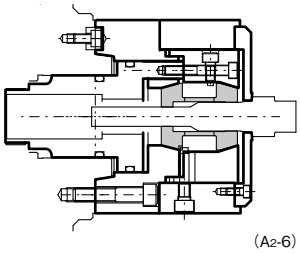
Notes on order

1. Seating confirmation is available by using a fixed locator. Consult us for the special specifications.

Assembly drawings for spindle types



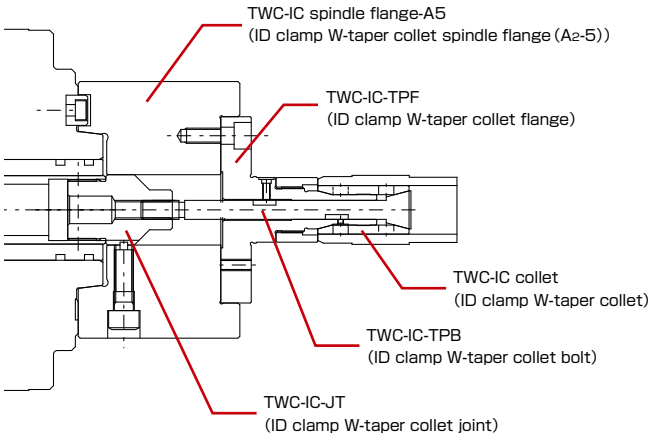
(A2-5)



(A2-6)

TWC-IC

Formerly : ID clamp W-taper collet

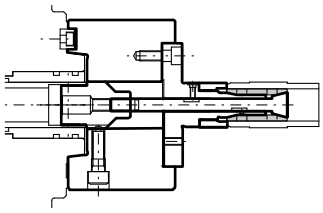


∗ The figure shows the A2-5 type.

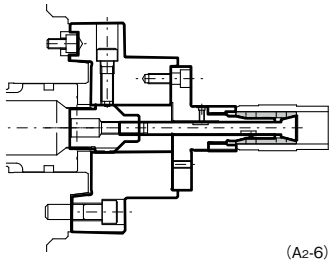
Notes on order

1. Seating confirmation is available by using a fixed locator. Consult us for the special specifications.

Assembly drawings for spindle types

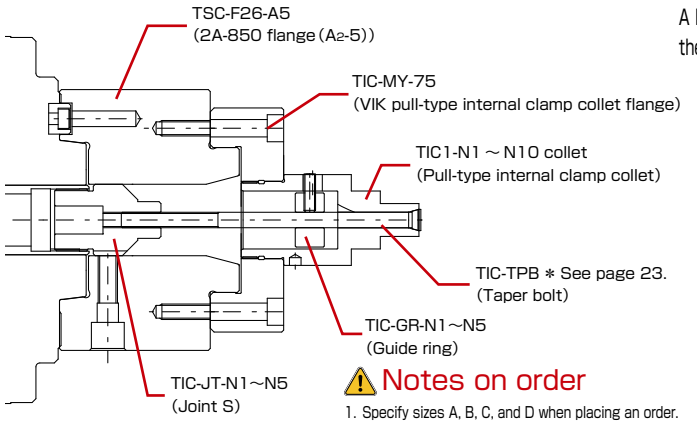


(A2-5)



(A2-6)

TIC1-N1～N10 Formerly : Pull-type internal clamp collet

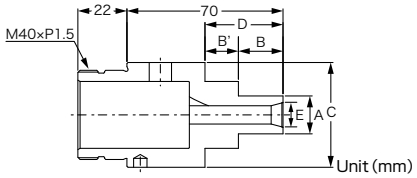


∗ The figure shows the A2-5 type.
∗ For TIC-TPB, see page 23.

⚠ Notes on order

1. Specify sizes A, B, C, and D when placing an order.
2. A custom-made fixed locator is available.
3. Seating confirmation is available by using a custom-made fixed locator.
   Consult us for the special specifications.

This type clamps a workpiece by drawing back the center from the rear by the taper bolt and expanding the collet chuck while the flange and the collet mating section are fastened at the straight section.
A blank collet (TIC1-N1 ～ N5-ST-B) is provided as standard for machining according to the product size. (See page 23.)

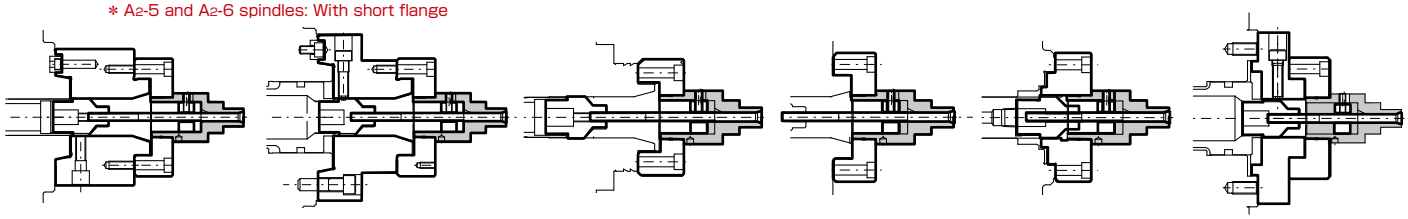


Unit (mm)

No.	A	D	C	TIC-TPB (Taper bolt)		
				E	Thread	
N1	ϕ10～ϕ13	35	ϕ47	ϕ8	M6	P1
N2	ϕ13～ϕ17			ϕ11	M8	P1.25
N3	ϕ17～ϕ21			ϕ15	M10	P1.5
N4	ϕ21～ϕ25			ϕ19	M12	
N5	ϕ25～ϕ47			ϕ22	M14	
N6	ϕ47～ϕ58	50	ϕ58	ϕ40	M14	P1.5
N7	ϕ58～ϕ68		ϕ68	ϕ50		
N8	ϕ68～ϕ78		ϕ78	ϕ60		
N9	ϕ78～ϕ88		ϕ88	ϕ70		
N10	ϕ88～ϕ98		ϕ98			

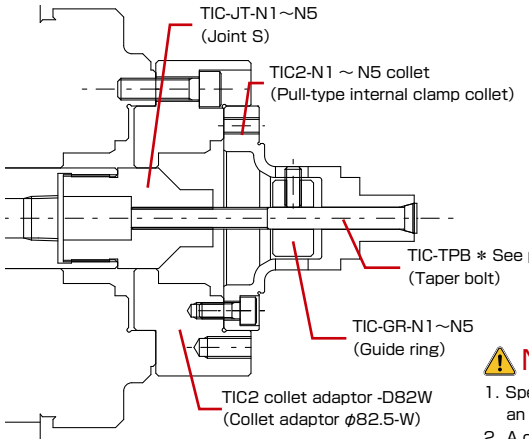
∗ Size E for N6 to N10 are the recommended ones. (See page 23.)

Assembly drawings for spindle types
∗ A2-5 and A2-6 spindles: With short flange



(A2-5) (A2-6) (ϕ60) (ϕ75) (ϕ82.5-W) (ϕ110)

TIC2-N1～N5 Formerly : Pull-type internal clamp collet

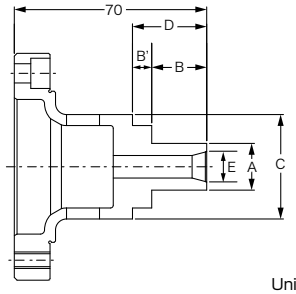


∗ The figure shows the ϕ82.5-W type.
∗ For TIC-TPB, see page 23.

⚠ Notes on order

1. Specify sizes A, B, C, and D when placing an order.
2. A custom-made fixed locator is available.
   Consult us for the special specifications.

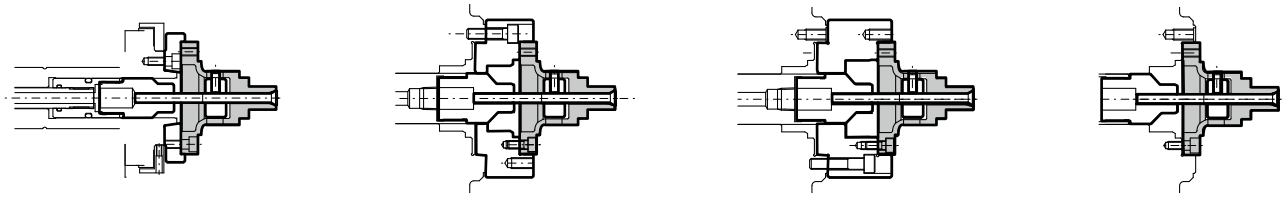
This type clamps a workpiece by drawing back the center from the rear by the taper bolt and expanding the collet chuck while the flange and the collet mating section are fastened at the straight section.



Unit (mm)

No.	A	D	C	TIC-TPB (Taper bolt・95L)		
				E	Thread	
N1	ϕ10～ϕ13	30	ϕ38	ϕ8	M6	P1
N2	ϕ13～ϕ17			ϕ11	M8	P1.25
N3	ϕ17～ϕ21			ϕ15	M10	P1.5
N4	ϕ21～ϕ25			ϕ19	M12	
N5	ϕ25～ϕ38			ϕ22	M14	

Assembly drawings for spindle types

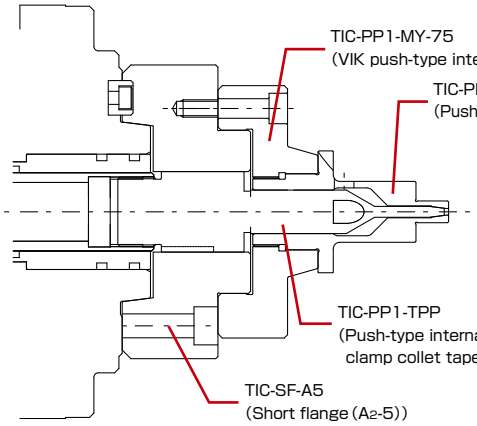


(A3-S2) (ϕ82.5-W) (ϕ82.5-XD8) (ϕ82.5-XD5)

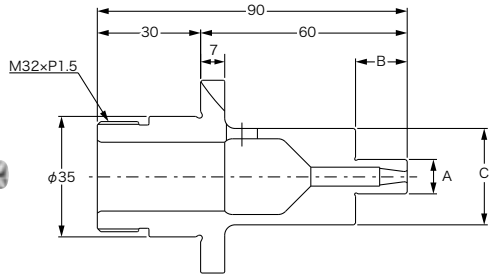
TIC-PP1・PP2

This type clamps a workpiece by pushing the collet from the rear by the taper pin and expanding the collet chuck.
Suitable for small ID workpieces. (ϕ8 to ϕ15)

TIC-PP1 Formerly : Push-type internal clamp collet



∗ The figure shows the A2-5 type.



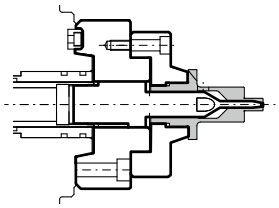
⚠ Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth.)".
2. A custom-made fixed locator is available.
3. Seating confirmation is available by using a custom-made fixed locator. Consult us for the special specifications.

Unit (mm)

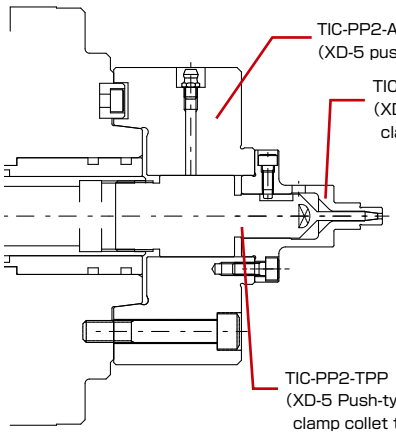
A	B	C
ϕ8~ϕ15	2~20	Within ϕ28 mm

Assembly drawings for spindle types

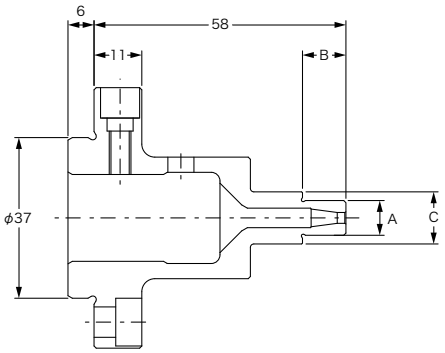


(A2-5)

TIC-PP2 Formerly : XD-5 push-type internal clamp collet



∗ The figure shows the A2-5 type.



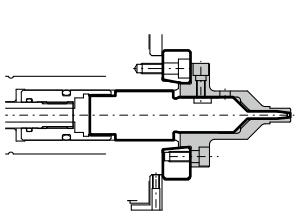
⚠ Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth.)".
2. A custom-made fixed locator is available.
3. Seating confirmation is available by using a custom-made fixed locator. Consult us for the special specifications.

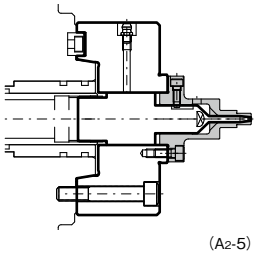
Unit (mm)

A	B	C
ϕ8~ϕ15	2~20	Within ϕ28 mm

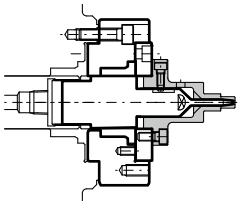
Assembly drawings for spindle types



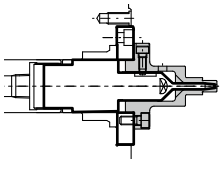
(A3-S2)



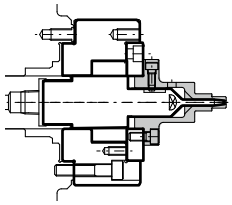
(A2-5)



(82.5-W)



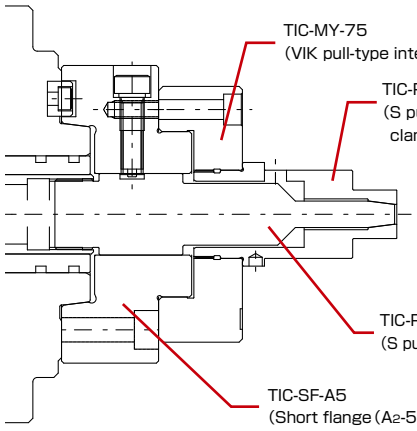
(82.5-XD5)

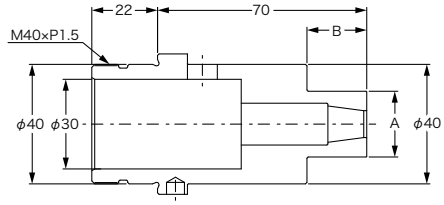


(82.5-XD8)

TIC-PPS Formerly : S push-type internal clamp collet

This type clamps a workpiece by pushing the collet from the rear by the taper pin and expanding the collet chuck.



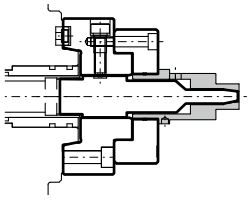


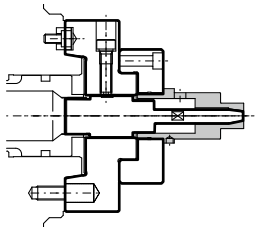
∗ The figure shows the A2-5 type.

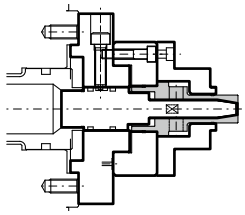
⚠ Notes on order

1. Inform us of the dimensions "A (clamp dia.) x B (clamp depth.)".
2. A custom-made fixed locator is available.
3. Seating confirmation is available by using a custom-made fixed locator. Consult us for the special specifications.

Assembly drawings for spindle types

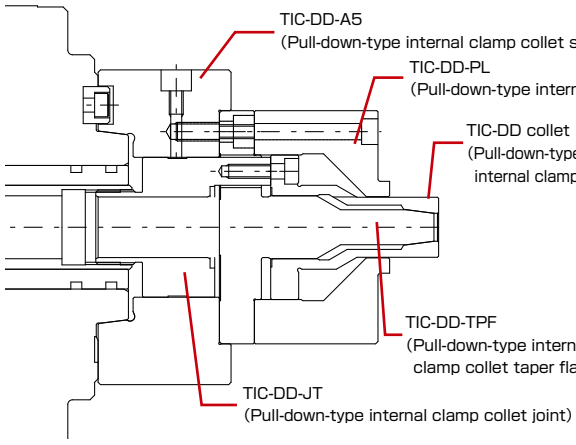

(A2-5)

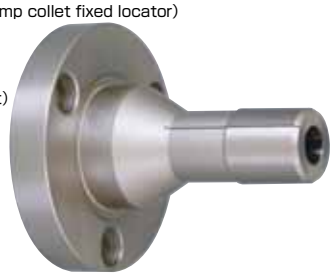

(A2-6)

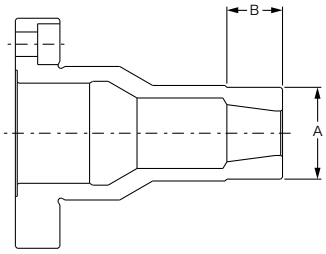

(ϕ110)

TIC-DD Formerly : Pull-down-type internal clamp collet

This type clamps a workpiece by drawing back the collet connected to a joint while the taper flange is fastened.





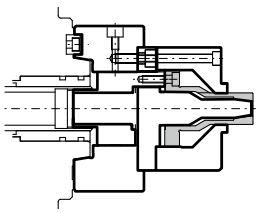


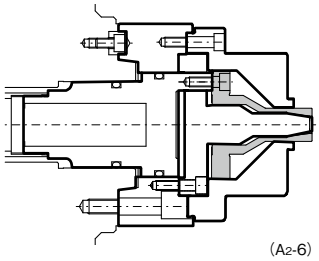
∗ The figure shows the A2-5 type.

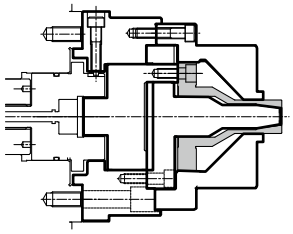
⚠ Notes on order

1. Seating confirmation is available by using a fixed locator.
2. The rear coolant is available as an option. Consult us for the special specifications.

Assembly drawings for spindle types

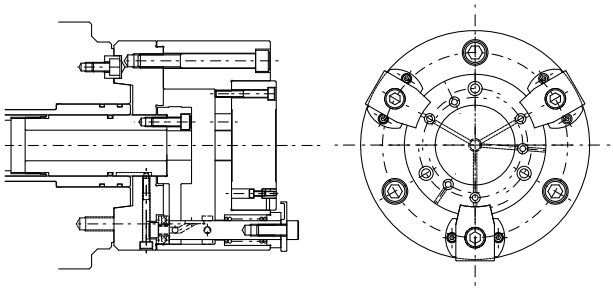

(A2-5)

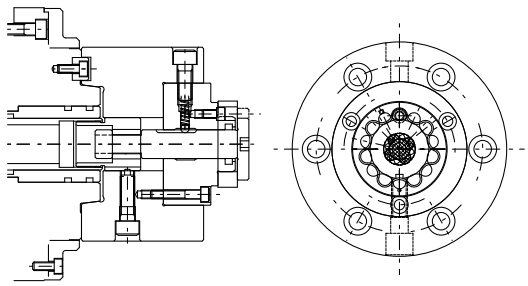

(A2-6)


(ϕ110)

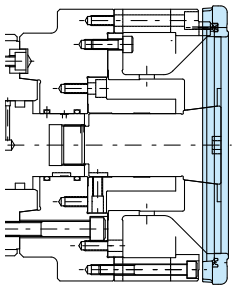
Design Chuck

Face clamp chuck

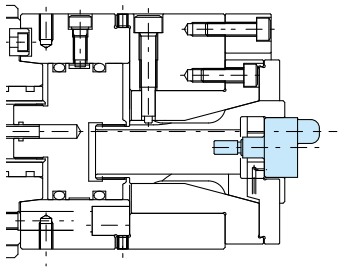




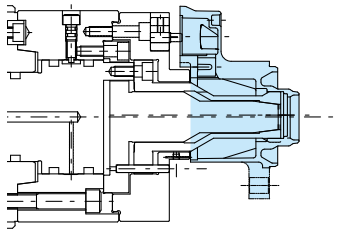
TIC-design chuck



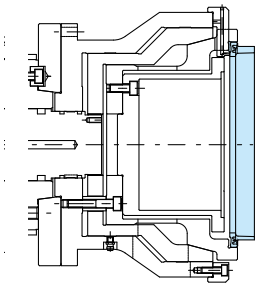
TPC1-D26-C60-design chuck

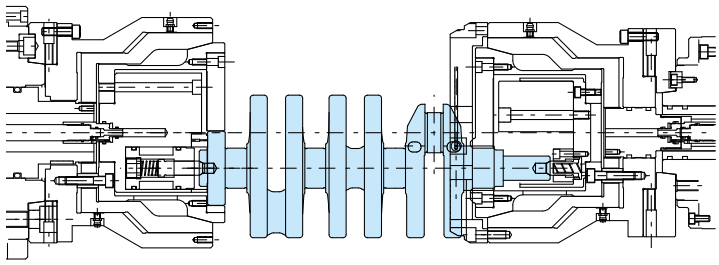


TIC-DD-design chuck



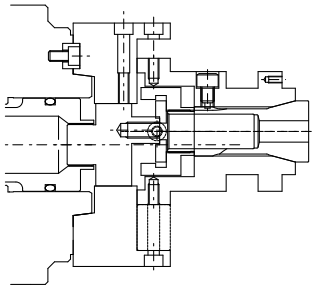
TPC3-design chuck





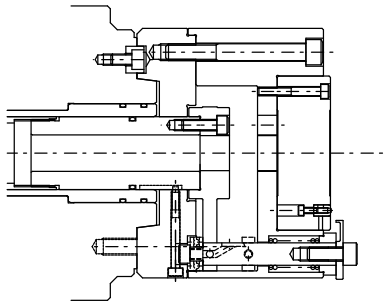
Adjustable eccentric unit

Used for eccentric cutting by directly mounting this unit on the TSC-D26 collet.
(Adjustment range of eccentricity: 6 mm to 12 mm)



SSW-52

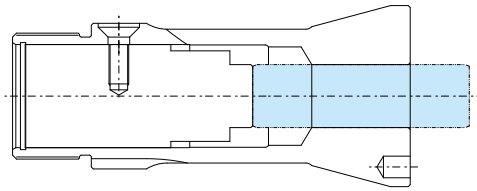
Two types of movements, "grip" and "support", are possible with a single cylinder.



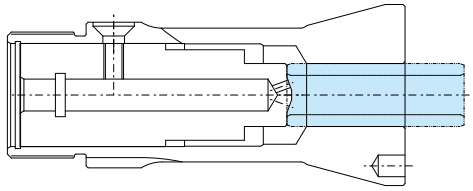
Optional Cases

BG (back guide) specification

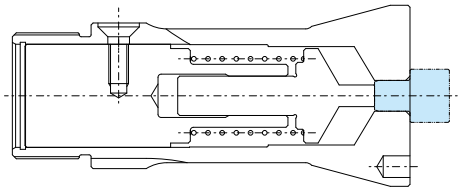
Fixed locator



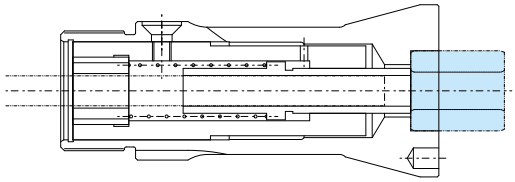
Fixed locator + Rear coolant



Ejection type

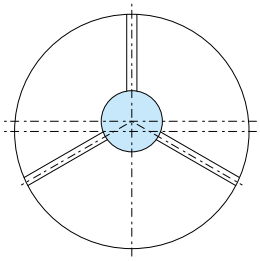


Ejection + Rear coolant

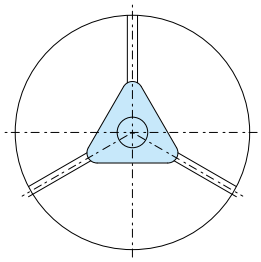


Available shapes

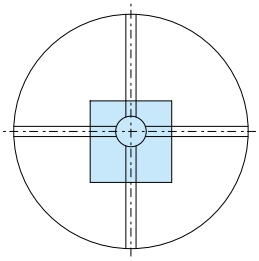
Eccentric round



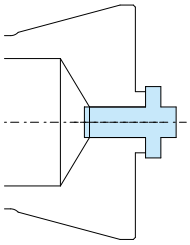
Special



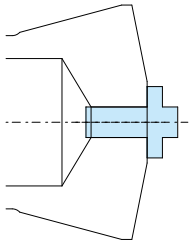
Eccentric square



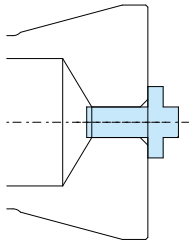
With boss on top



Tapered collet face



Chamfered aperture



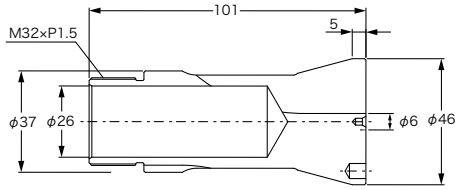
- Opening allowance : For the loader-equipped machine, a larger opening allowance can be specified so that a workpiece can easily be inserted.
  Opening allowance for normal machines : 0.5 to 0.8 mm
  Opening allowance for loader-equipped machines : 1 to 1.5 mm
- Slit chamfering : The edges of each slit and aperture can be chamfered to prevent the workpiece from being scratched when clamped or inserted in the secondary and subsequent processes.
- Number and width of slits : Normally, the number of slits is three and a slit width is 2 mm; however, this can be changed according to the size or hardness of the workpiece - consult us.
  In the case of square workpieces or gears, slanted slits can be made so that a workpiece will not be inserted into a slit.
- Eccentric collet : The collet hole can be made off-centered so that an eccentric position can be cut.
- Slit with dustproof rubber : Dustproof rubber seals can be inserted in the slits to prevent entry of cutting chips.
- Dustproof molded rubber : This is a molded rubber seal dedicated to the TSC-D26 (with 2-mm wide slits). Inserting it in each slit can prevent entry of cutting chips.
- Carbide collet : A carbide can be attached to the aperture to prevent wearing of the collet.
- End face grinding : The end face can be ground when a workpiece is to be brought into contact with the end face of the collet aperture for positioning.
- Marking : A customer-specified marking, e.g. workpiece type, can be inscribed in addition to the workpiece size.

TSC-D26-B/D43-B(Blank Collet)

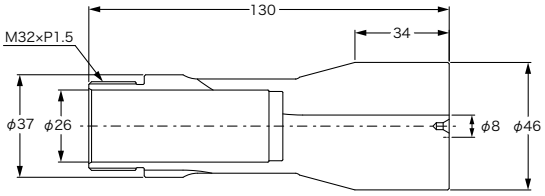
Standard

This is a blank-type collet chuck with three slits. Since no heat treatment is made, it can easily be machined as necessary according to the product size.

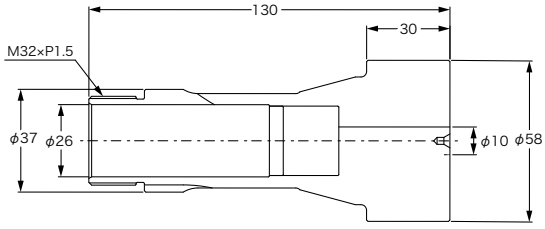
TSC-D26-ST-B (Formerly : Ordinary blank collet)



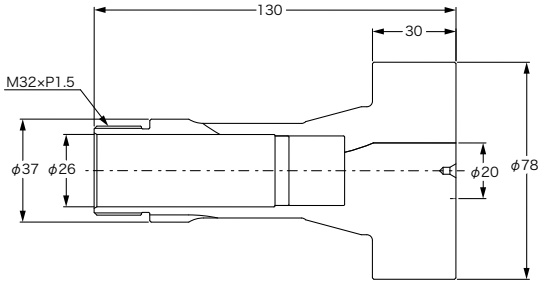
TSC-D26-F50-ST-B (Formerly : ϕ50 flanged blank collet)



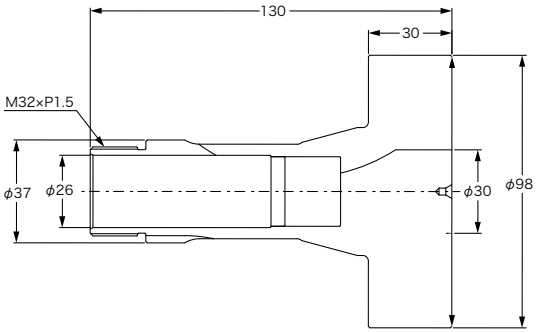
TSC-D26-F60-ST-B (Formerly : ϕ60 flanged blank collet)



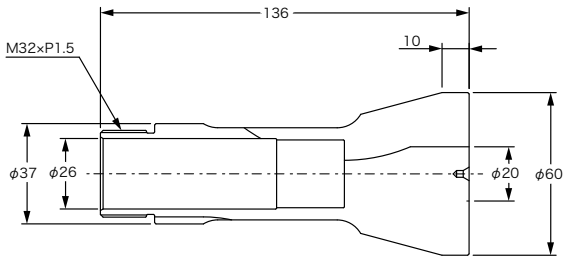
TSC-D26-F80-ST-B (Formerly : ϕ80 flanged blank collet)



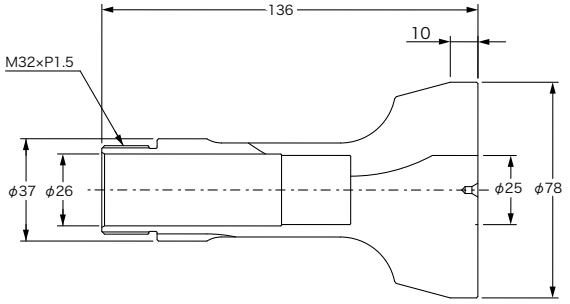
TSC-D26-F100-ST-B (Formerly : ϕ100 flanged blank collet)



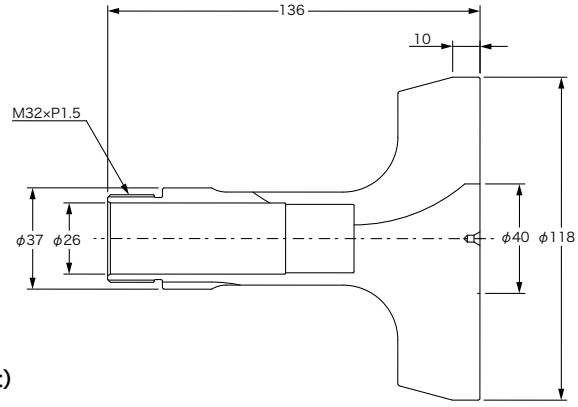
TSC-D26-060-ST-B (Formerly : ϕ60 oversize blank collet)



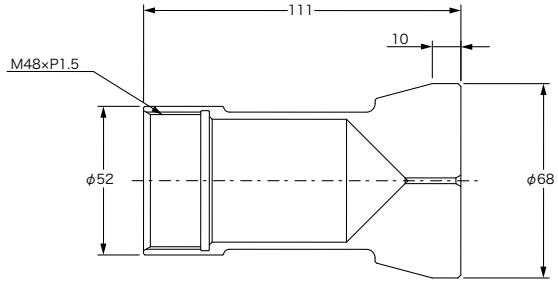
TSC-D26-080-ST-B (Formerly : ϕ80 oversize blank collet)



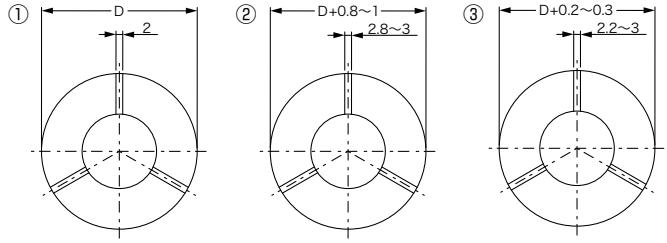
TSC-D26-0120-ST-B (Formerly : ϕ120 oversize blank collet)



TSC-D43-ST-B (Formerly : 2A blank collet)



Forming procedure



①Bore a prepared hole to the bottom surface of the slits. (When reaming the prepared hole, insert a 2-mm pin or washer into each slit to fix the collet in position to facilitate cutting.)

②Dismount the collet and expand it by 0.8 to 1 mm (by inserting a center in the hole or a wedge in a slit).

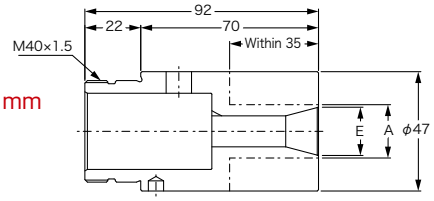
③Mount the collet on the machine, close it until it is open by about 0.2 to 0.3 mm, and perform finish cutting. (Use a 2-mm pin or washer to secure the collet for stable cutting. When cutting the collet without securing, reduce the feedrate or depth of cut.)

Standard

TIC1-N1 ～ N5-ST-B
(Formerly : Pull-type internal clamp blank collet No. 1 to No. 5)

This is a blank-type collet chuck with three slits. Since no heat treatment is made, it can easily be machined as necessary according to the product size.

No.	A	TIC-TPB (Taper bolt)		
		E	Thread	
N1	ϕ10～ϕ13	ϕ8	M6	P1
N2	ϕ13～ϕ17	ϕ11	M8	P1.25
N3	ϕ17～ϕ21	ϕ15	M10	P1.5
N4	ϕ21～ϕ25	ϕ19	M12	
N5	ϕ25～ϕ47	ϕ22	M14	



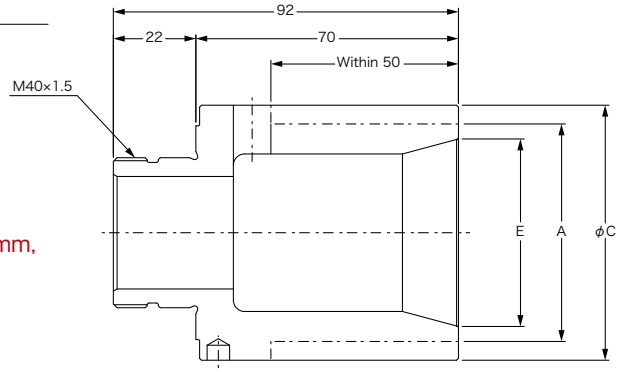
Order example: Clamping diameter : ϕ22 mm
TIC1-N4-ST-B
TIC1-[No.]-ST-B

Custom-made collets

TIC1-N6 ～ N10-B
(Formerly : Pull-type internal clamp blank collet No. 6 to No. 10)

No.	A	C	E				
			ϕ22	ϕ40	ϕ50	ϕ60	ϕ70
N6	ϕ47～ϕ58	ϕ58	○	◎	–	–	–
N7	ϕ58～ϕ68	ϕ68	△	○	◎	–	–
N8	ϕ68～ϕ78	ϕ78	△	△	○	◎	–
N9	ϕ78～ϕ88	ϕ88	△	△	△	○	◎
N10	ϕ88～ϕ98	ϕ98	△	△	△	△	◎

◎: Recommended
○: Usable
△: Consult us



Order example: Clamping diameter : ϕ70 mm, size E : ϕ60 mm
TIC1-N8-B-TP60
TIC1-[No.]-B-[TP(Size E)]

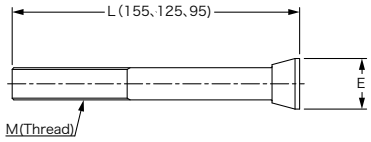
⚠Notes on order

Select a taper bolt whose diameter is as close as possible to the clamping diameter.

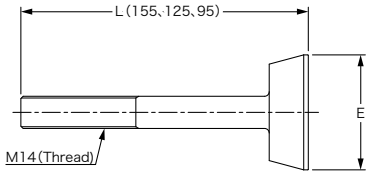
TIC-TPB Formerly : Pull-type internal clamp collet taper bolt

No.	E	M(Thread)	
N1	ϕ8	M6	P1
N2	ϕ11	M8	P1.25
N3	ϕ15	M10	P1.5
N4	ϕ19	M12	
N5	ϕ22	M14	
N6	ϕ40		
N7	ϕ50		
N8	ϕ60		
N9	ϕ70		

N1 ～ N5



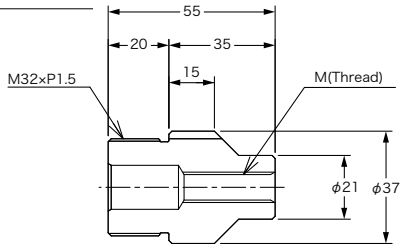
N6 ～ N9



Order example: Size E : ϕ15 mm, length : 155 mm
TIC-TPB-N3-155
TIC-TPB-[No.]-[L(Length)]

TIC-JT Formerly : Joint S

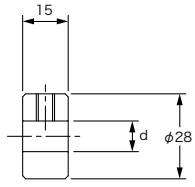
No.	M(Thread)	
N1	M6	P1
N2	M8	P1.25
N3	M10	P1.5
N4	M12	
N5	M14	



Order example: TIC-JT-[No.]

TIC-GR Formerly : Guide ring

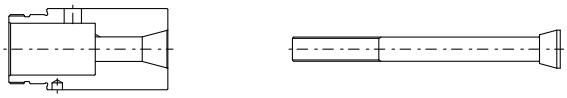
No.	d
N1	ϕ6.1
N2	ϕ8.1
N3	ϕ10.1
N4	ϕ12.1
N5	ϕ14.1



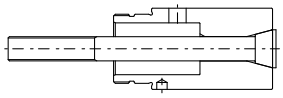
Order example: TIC-GR-[No.]

Forming procedure

①



②



①Select a taper bolt according to the collet size.

②Mount the collet on the machine, open it about 0.15 to 0.2 mm, and perform finish machining.

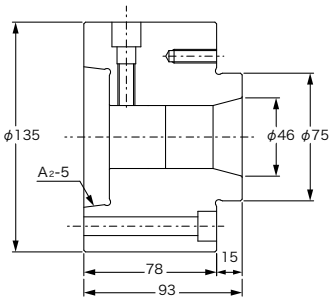
* If the collet is opened more than 0.2 mm, the tapered section will not be fitted properly, resulting in poor cutting accuracy.

Flange for NC Machines

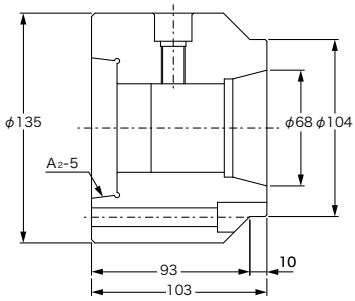
Used for mounting a collet chuck on NC machines.
Flanges are designed to make full use of the capabilities of the collet chuck. (Various types of flanges are prepared in stock and are available according to the spindle nose and machine types.)

A2-5 Nose

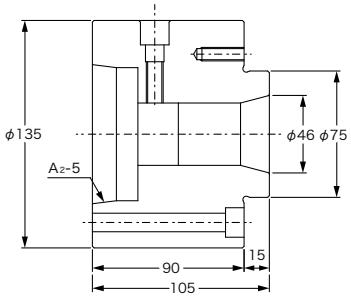
TSC-F26-A5
(Formerly:2A-850 flange)



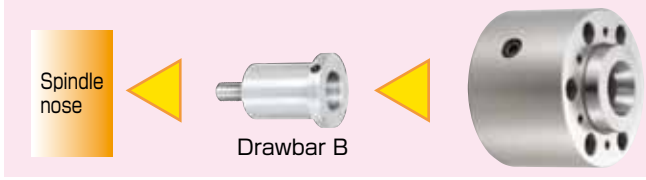
TSC-F43-A5
(Formerly:2A flange)



TSC-F26-A5(S)
(Formerly:X-10 flange)



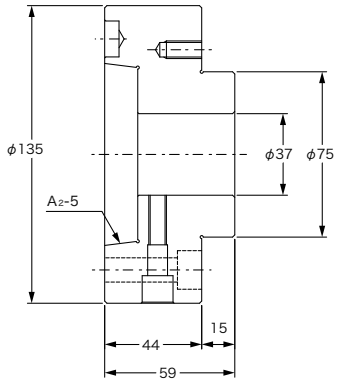
By using the drawbar B,
it is possible to use on the GSL-10H.



Short flange

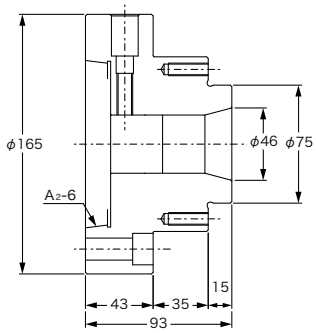
Various types of flanges are available according to the spindle nose type and machine type.

TIC-SF-A5
(Formerly:Short flange)

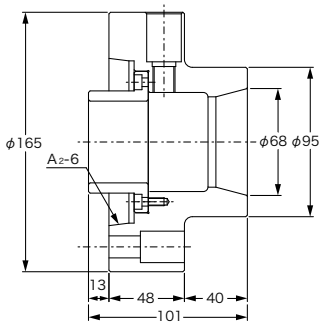


A2-6 Nose

TSC-F26-A6
(Formerly:A2-6 T850 flange)



TSC-F43-A6
(Formerly:A2-6 2A flange)



TSC-F Formerly : Oversize collet flange

TPC1-F Formerly : Fixed plate locator type collet flange

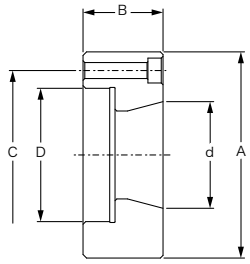
Used to mount the collet
TSC-D26-O or TPC1-D26-C.

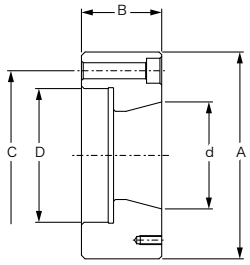
Unit (mm)

Nominal size	d	A	B	C	D
F60	ϕ60	ϕ106	48	ϕ80	ϕ60
		ϕ116	45	ϕ95	ϕ75
F80	ϕ78	ϕ128	48	ϕ80	ϕ60
			45	ϕ95	ϕ75
F120	ϕ118	ϕ136	48	ϕ80	ϕ60
			45	ϕ95	ϕ75

∗ Red : For MENTORY machines → D60 ∗ Black : For other models → D75

TSC-F60-D75
(Formerly:VIK oversize 60 collet flange)



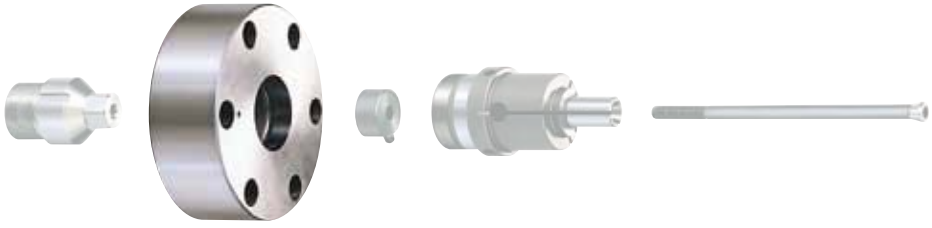


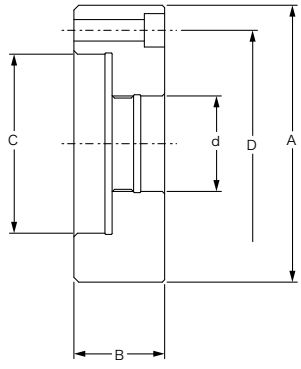
TPC1-F60-D75
(Formerly:VIK fixed plate locator type 60 collet flange)

TIC-MY (Internal clamp collet flange)

Used to mount the TIC1 collet.

TIC-MY-60 or 75
(Formerly:Internal clamp collet flange)



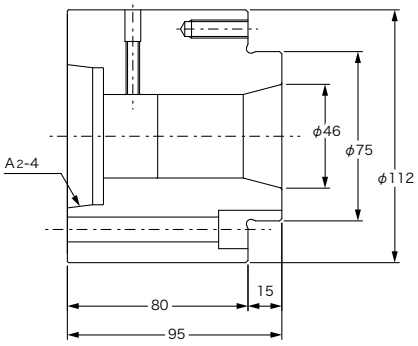


Unit (mm)

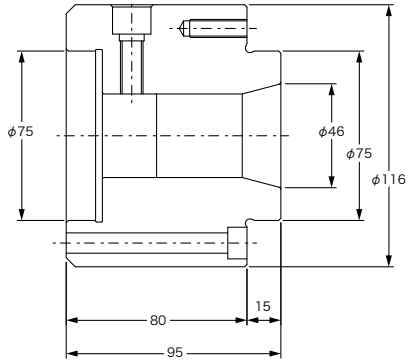
	A	B	C	D	d
TIC-MY-60 (Formerly : T850)	ϕ106	41	ϕ60	ϕ80	ϕ40
TIC-MY-75 (Formerly : VIK)	ϕ116	38	ϕ75	ϕ95	ϕ40

Other spindle noses

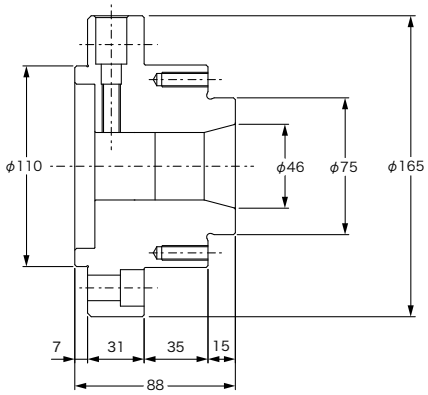
TSC-F26-A4
(Formerly:1A high-speed flange)



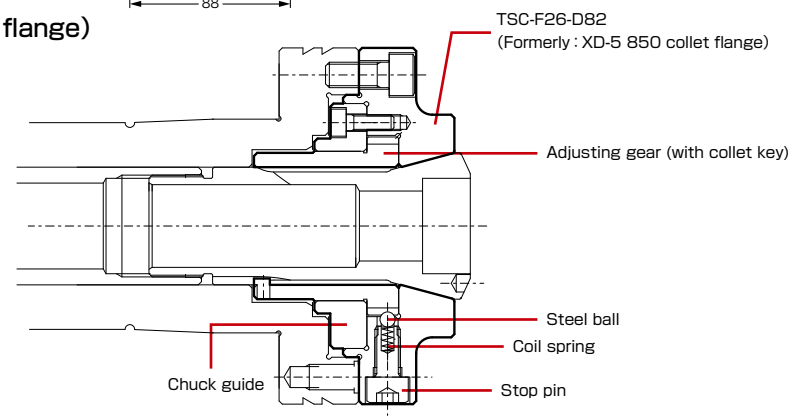
TSC-F26-D75
(Formerly:1A flange)



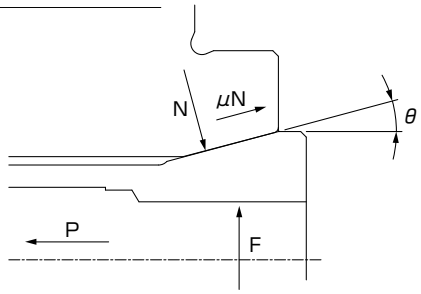
TSC-F26-D110
(Formerly:XC-150 flange)



TSC-F26-D82
(Formerly:XD-5 850 collet flange)



Clamping force calculation



The collet clamping force is calculated based on the theory of wedge friction.

$$F = \frac{\cos\theta - M\sin\theta}{\sin\theta + M\cos\theta} P$$

F : Clamping force
M : Friction coefficient
P : Thrust

For example, the clamping force of the TSC-D26 collet is calculated as "F≒2. 29P".

Pressure setting

TAKAMAZ collet chucks are designed to resist the thrust given in the table below.
If a thrust higher than the allowable limit is applied, the collet chuck may be damaged, leading to a serious accident. Be sure to set the cylinder pressure within the allowable range.

	Chuck model		F:Allowable thrust[N] (kgf)	
O.D. clamp	TSC・TPC1		18820N	(1920kgf)
	TOC1・2		11760N	(1200kgf)
I.D. clamp	TIC1・2	N1	3230N	(330kgf)
		N2	5680N	(580kgf)
		N3	9020N	(920kgf)
		N4	12940N	(1320kgf)
		N5	17640N	(1800kgf)

How to calculate the cylinder setting pressure P [MPa]
Cylinder pressure receiving area D[㎠] : Area of the cylinder being used
Collet allowable thrust F[N] : See the table on the left.

$$P[\mathrm{MPa}] = \frac{F[\mathrm{N}]}{D[\mathrm{cm}^2] \times 100}$$

The value obtained by the above formula is a theoretical value. Adjust the setting pressure according to the actual performance of the cylinder.
Example :
Cylinder pressure receiving area : 69.4 ㎠
Collet : TSC series (F=18820N)

$$P[\mathrm{MPa}] = \frac{18820[\mathrm{N}]}{69.4[\mathrm{cm}^2] \times 100} = 2.7[\mathrm{MPa}]$$

Note : If the pressure is set to 1.0 MPa or lower, operation may become unstable depending on the environmental conditions such as ambient temperature. In such a case, sufficiently perform warm-up operation to ensure that operation is stabilized.

Collet handle

Type B

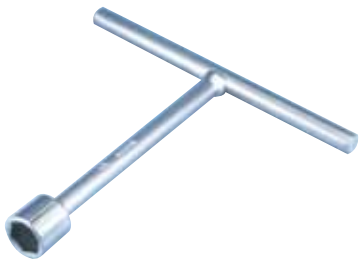
Used by inserting lugs into the slits in the collet. (2-mm wide slit)

Type D

Used by inserting lugs into the three holes in the collet.

T wrench

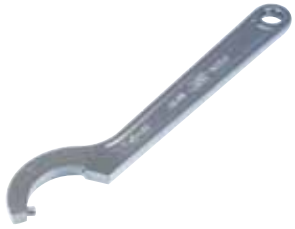
H19



Used for replacing the fixed locators TIC1-JT, TPC2-PL, and TOC.

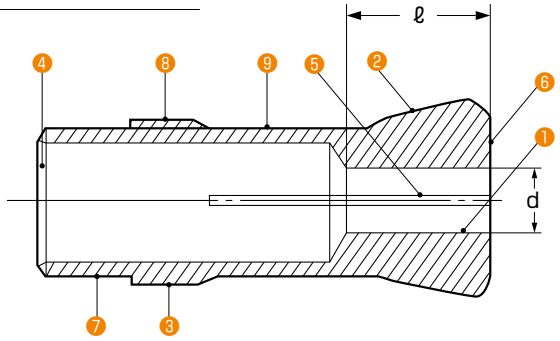
Hook spanner

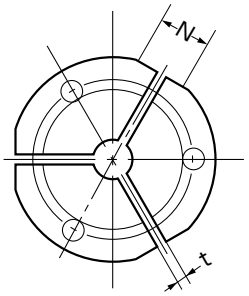
45-48



Used for mounting the collet TIC1

Collet schematic



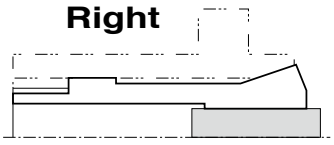


❶Aperture
❷Collet head
❸Flange
❹Rear access port
❺Expansion slit
❻Collet face
❼Thread
❽Key slot
❾Shank

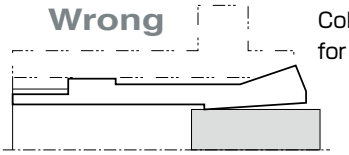
■Item : d =Aperture diameter
ℓ =Contact length=d+10 mm
t =Slit width=1 mm(for d≦6 mm)
=2 mm(for d>6 mm)

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

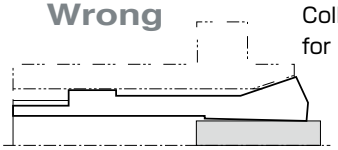
Chucking method



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 0.03 mm.)



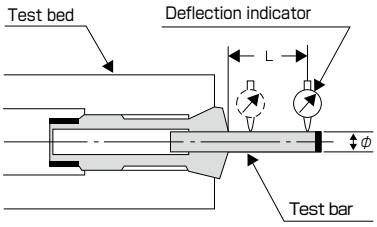
Collet too small for product



Collet too big for product

- 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.
- Attempting to chuck with no workpiece inserted (empty chucking) may lead to early breakage.

Linearity test



The maximum runout is measured by clamping a test bar in the collet mounted on the measuring instrument and applying a test indicator to the measurement points on the test bar (aperture and length L).

TSC-D26-ST-ϕ Collet deflection limits

Unit (mm)

ϕ	L	TAKAMAZ standard		
		AA grade	A grade	B grade
2<d≦3	10	—	0.01	0.015
3<d≦6	16			
6<d≦10	25	0.005		
10<d≦18	40	0.008	0.015	0.02
18<d≦24	50	0.01		
24<d≦30	60			

TSC-D26-ST-H,S Collet deflection limits

Unit (mm)

H or S	L	TAKAMAZ standard		
		AA grade	A grade	B grade
5<d≦6	16	—	0.07	0.30
6<d≦10	25	0.07	0.10	
10<d≦18	40			
18<d≦23	50	0.10	—	

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

This inspection is performed on all standard collets and only conforming ones are shipped.

TAKAMATSU MACHINERY CO.,LTD.
■HEAD OFFICE & PLANT
1-8 ASAHIGAOKA HAKUSAN-CITY ISHIKAWA JAPAN. 924-8558 TEL +81-(0)76-274-1403 FAX +81-(0)76-274-8530

TAKAMATSU MACHINERY USA INC.
■CHICAGO HEAD OFFICE
1280 LANDMEIER ROAD ELK GROVE VILLAGE, IL 60007 USA TEL +1-(0)847-981-8577 FAX +1-(0)847-981-8599
■CINCINNATI OFFICE
5233 MUHLHAUSER ROAD. WEST CHESTER TOWNSHIP, OH 45011 USA TEL +1-(0)513-870-9777 FAX +1-(0)513-870-0325
■GREENVILLE OFFICE
506 MATRIX PARKWAY PIEDMONT, SC 29673 USA TEL +1-(0)847-981-8577

TAKAMAZ MACHINERY EUROPE GmbH
INDUSTRIEGEBIET, DIEPENBROICH 27 D-51491 OVERATH, GERMANY
TEL +49-(0)2206-866-150 FAX +49-(0)2206-865-123

TAKAMAZ MACHINERY (HANGZHOU) CO.,LTD.
■HANGZHOU HEAD OFFICE
NO.6800, JIANGDONG 3RD ROAD, JIANGDONG INDUSTRIAL PARK, XIAOSHAN, HANGZHOU, ZHEJIANG, CHINA
TEL +86-(0)571-8287-9709 FAX +86-(0)571-8215-3732
■GUANGZHOU OFFICE
ROOM 1316, NO.2, KEHUI FOURTH STREET, NO.99 OF SCIENCE ROAD, LUOGANG DISTRICT, GUANGZHOU
TEL +86-(0)20-8210-9921 FAX +86-(0)20-8210-9921

TAKAMATSU MACHINERY (THAILAND) CO.,LTD.
■BANGKOK HEAD OFFICE
888/59 MOO 9, TAMBOL BANGPLA, AMPHUR BANGPLEE, SAMUTPRAKARN PROVINCE, THAILAND
TEL +66-(0)2-136-7831 FAX +66-(0)2-136-7834
■EASTERN SEABOARD BRANCH
848/14 MOO 3, TAMBOL BO WIN, AMPHUR SIRACHA, CHONBURI 20230
TEL +66-(0)38-182-509 FAX +66-(0)38-182-510

TP MACHINE PARTS CO.,LTD.
128/345 MOO 1 THEPARAK ROAD, BANGSAOTHONG SUBDISTRICT, BANGSAOTHONG DISTRICT, SAMUTPRAKARN
TEL +66-(0)2-706-3820 FAX +66-(0)2-706-3822

PT.TAKAMAZ INDONESIA
JL. FESTIVAL BOULEVARD BLOK AA 11 NO.30,31 GRAND WISATA TAMBUN, BEKASI 17510
TEL +62-(0)21-8261-6431 FAX +62-(0)21-8261-6430

TAKAMAZ MACHINERY MEXICO,S.A.DE C.V.
AVENIDA DE LOS INDUSTRIALES 522, LOCAL 4, INDUSTRIAL JULIAN DE OBREGON, 37290 LEON, GUANAJUATO MEXICO
TEL +52-477-784-0468

TAKAMATSU MACHINERY VIETNAM CO.,LTD
NO.25, NGUYEN LUONG BANG, TAN PHU WARD, DISTRICT 7, HO CHI MINH CITY, VIETNAM
TEL +84-(0)28-5417-3917 FAX +84-(0)28-5417-3919

www.takamaz.co.jp

●Distributed by:

Precautions Related to Foreign Exchange and Foreign Trade Control Laws

This product (machine and ancillary equipment) may fall under the category of controlled goods by the foreign exchange and foreign trade control laws.
As such, the exportation must be authorized by the Japanese government as stipulated in the laws

This product is manufactured in accordance with the regulations and standards that prevail in the country or region of destination.

The user must not export, sell, or relocate the product, to anycountry with different regulations or standards.

VEGETABLE OIL INK

This brochure is made from 60% recycled paper.

19.11.2B(O)