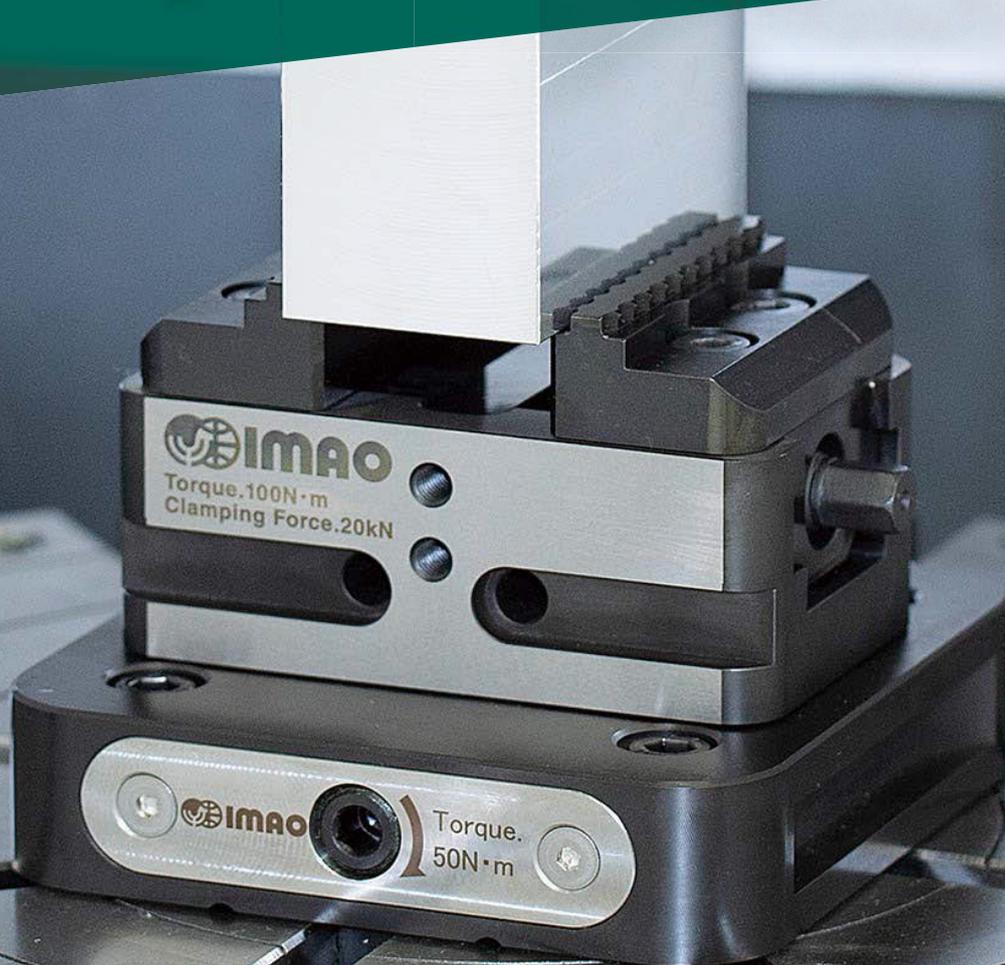
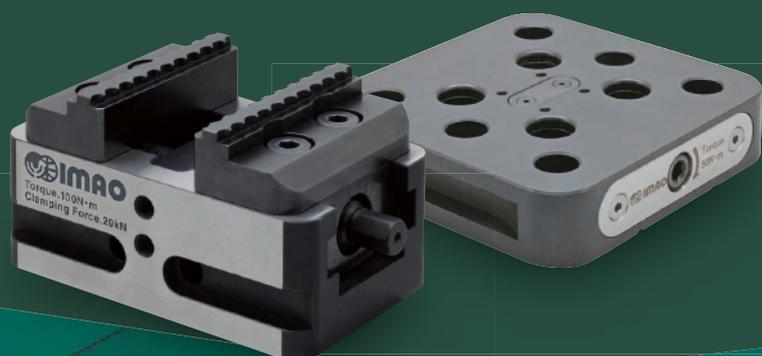
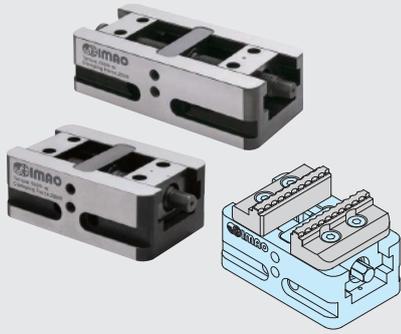


 IMAO[®] fixtureworks[®]

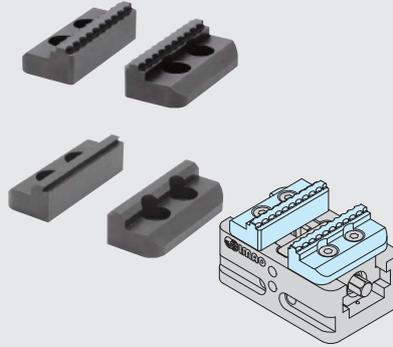
5-Axis Clamping System





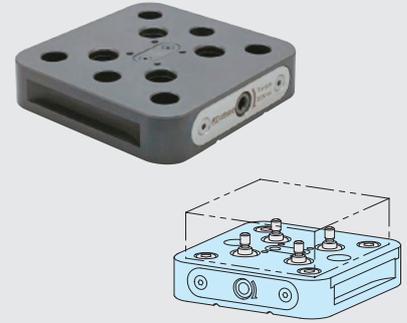
CENTERING CLAMPS

Part No. CP170-N



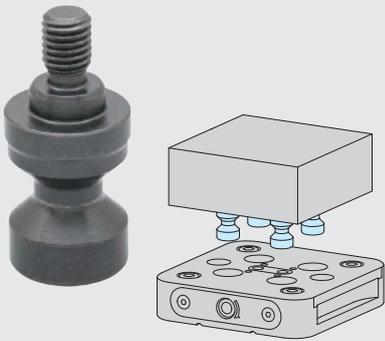
JAWS

Part No. CP175



FLEX ZERO BASES

Part No. CP180



CLAMPING PINS

Part No. CP185



PROTECTING COVER

Part No. CP185-P

CENTERING CLAMP

Perfect Workholding for 5-axis Machining!



Clamping unit for machining full sides of the workpiece
Ideal for 5-axis machining center or rotary table!

CENTERING CLAMP

Mechanical Self Centering Vise



The centering movement of the jaws ensures to keep the workpiece center in the same place, even if the size of the workpiece varies. Ideal for clamping raw workpieces on 5-axis machining centers.

20 kN Clamping Force

Rigid design enables strong 20kN clamping force. The jaws clamp powerfully with a gripping height of only 3.5 mm, resulting in less waste of material.

Two Types of Jaws

Serrated Jaw



The jaw has serrated edges on both sides.



Dovetail Jaw



CP170-N

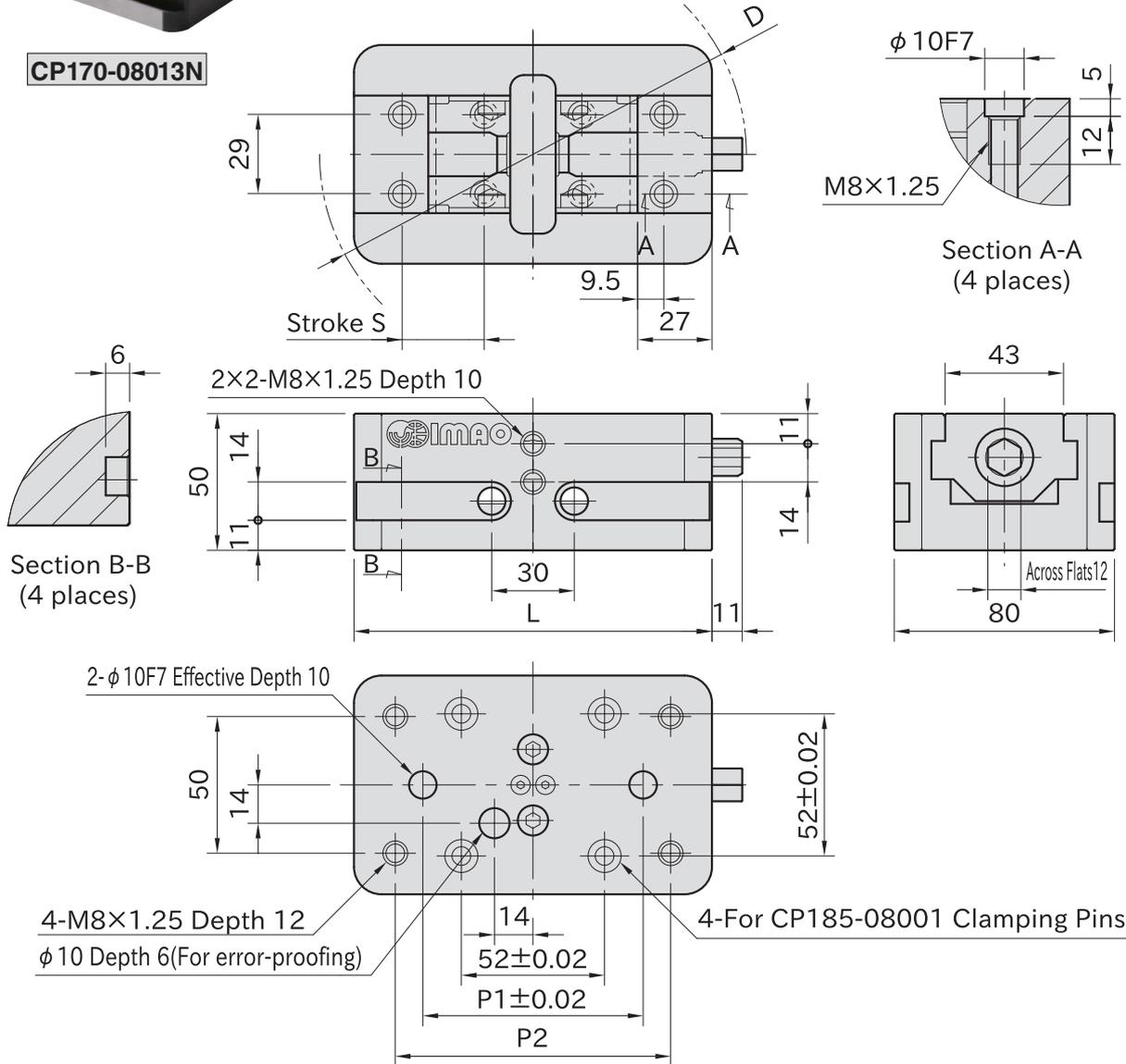
CENTERING CLAMPS



Body	Jaws Bases
SCM440 steel Induction hardened Black oxide finished Precision ground	SCM440 steel Black oxide finished

CP170-08013N

CP170-08017N



Part Number	D	L	P ₁	P ₂	S	Allowable Tightening Torque (Nm)	Weight (kg)
CP170-08013N	160	130	80	100	29.7	100	3.1
CP170-08017N	195	170	120	120	49.7		3.9

Part Number	Proper Jaws			
	Serrated Jaws		Dovetail Jaws	
	Part Number	Clamping Force (kN)	Part Number	Clamping Force (kN)
CP170-08013N	CP175-08001RS	20	CP175-08001D	20
CP170-08017N				

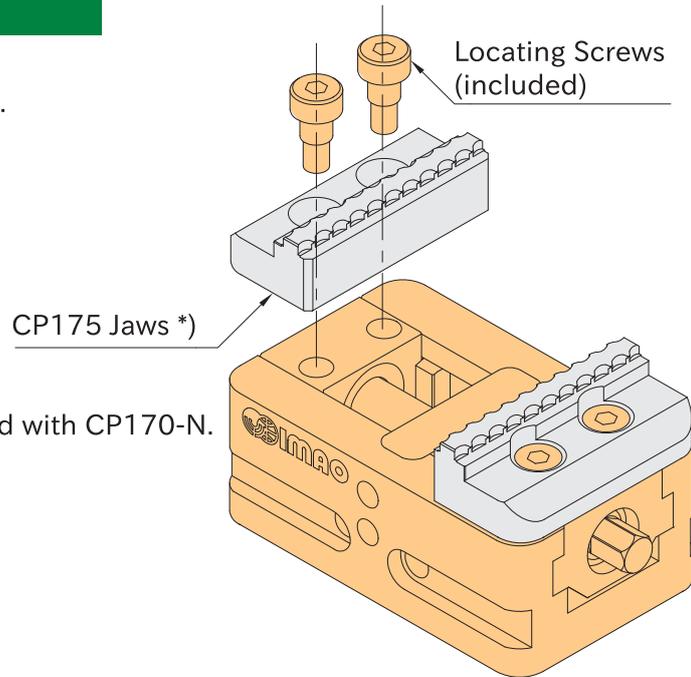
Feature

Manual compact self-centering vise.
Recommended machining allowance is 0.4mm or more per side of the workpiece.

How To Use

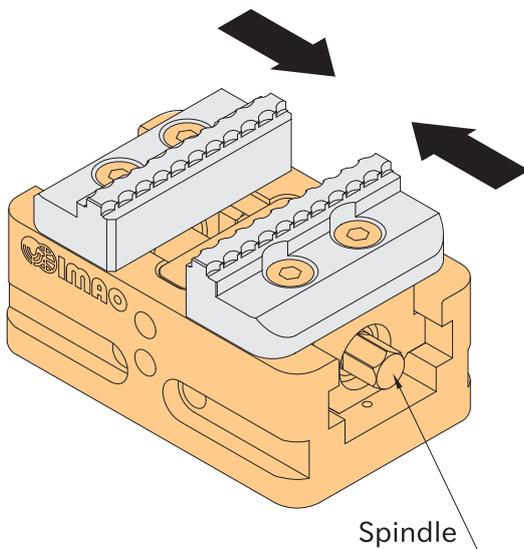
How to Mount Jaws

- Mount Jaws to the jaw bases of CP170-N.
- Use included locating screws to fix Jaws.



*) Jaws are not supplied with CP170-N.

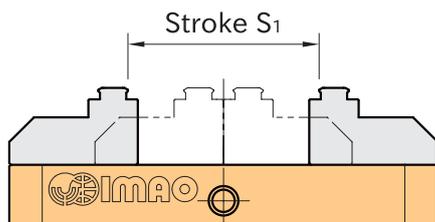
How to Operate



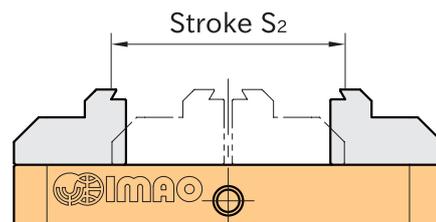
- Both jaws move inward to the center by turning the spindle clockwise.
- Both jaws move outward from the center by turning the spindle counterclockwise.

Stroke

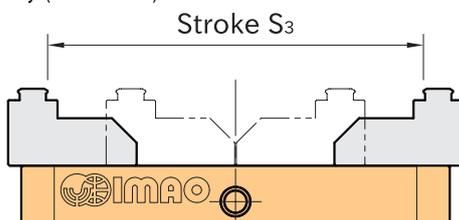
With CP175-08001RS Serrated Jaws



With CP175-08001D Dovetail Jaws



With Reversely (Inside-out) Mounted CP175-08001RS Serrated Jaws

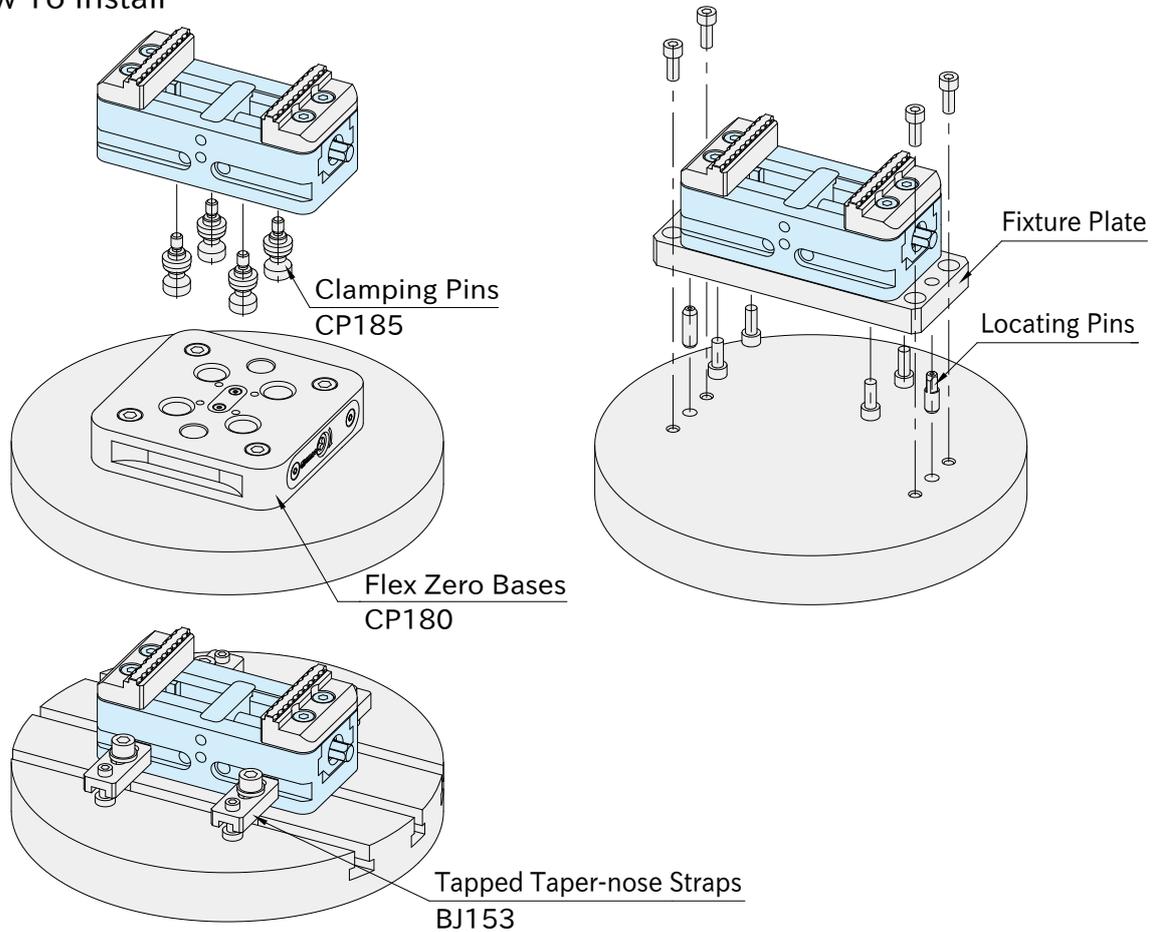


Part Number	S ₁	S ₂	S ₃
CP170-08013N	6 - 58	11.5 - 71	54.5 - 114
CP170-08017N	6 - 98	11.5 - 111	54.5 - 154

*) The maximum rotation diameter is the dimension D in the chart on previous page.

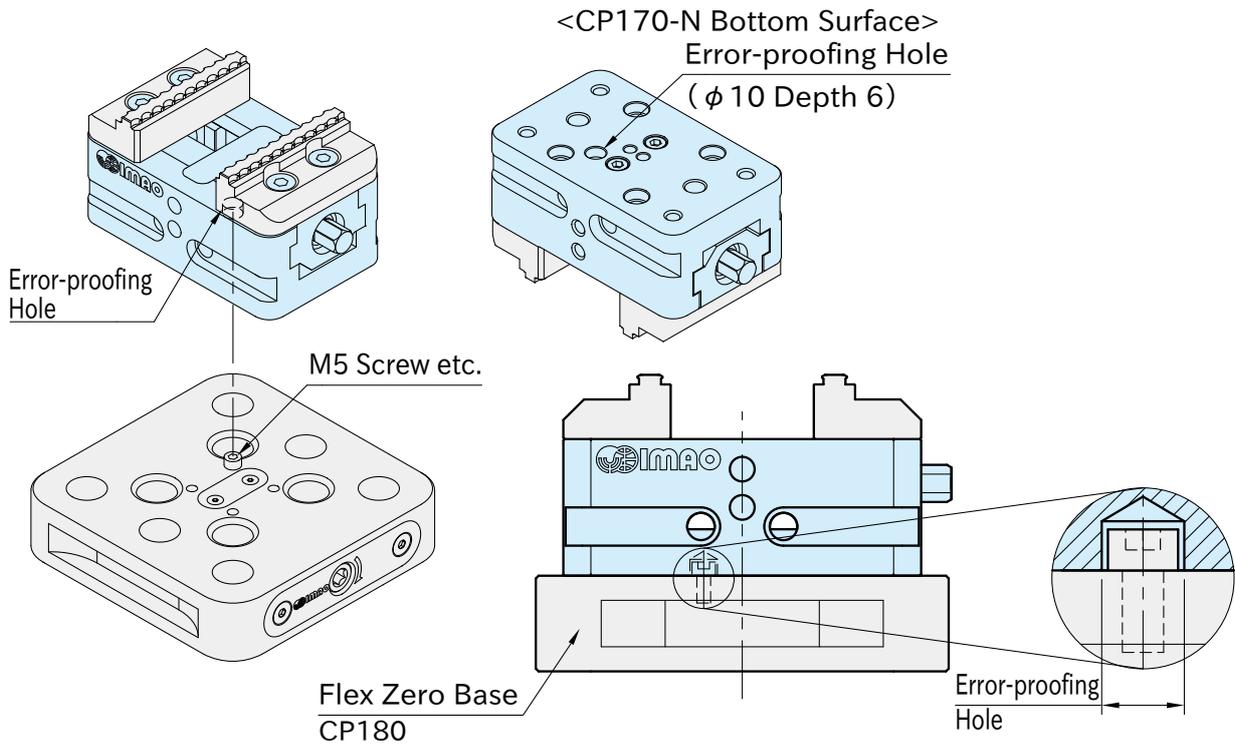
Continuing on Next Page

■ How To Install



■ Usage Example of Error-proofing Hole

Prepare a screw etc. on M5x0.8 Depth 12 hole on **CP180** Flex Zero Base to prevent mounting **CP170-N** Centering Clamp in wrong direction.



Supplied With

4 of Locating Screw for jaw mounting.

Related Product

- **CP175** JAWS
- **CP180** FLEX ZERO BASES
- **CP185** CLAMPING PINS

CP175

JAWS

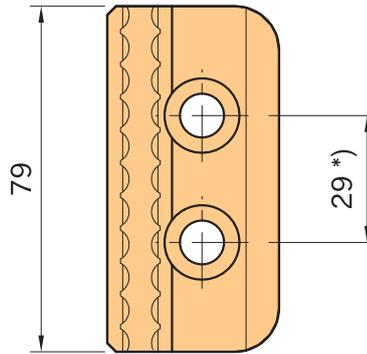


CP175-08001RS (Serrated)

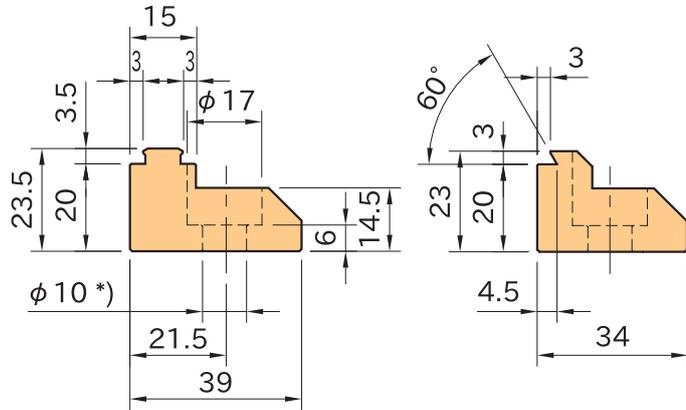


CP175-08001D (Dovetail)

Part Number	Type	Weight (g)
CP175-08001RS	Serrated	710
CP175-08001D	Dovetail	600



Body
SCM440 steel
Quenched & tempered
Black oxide finished



CP175-08001RS

(Serrated)(2 pcs. as a set)

CP175-08001D

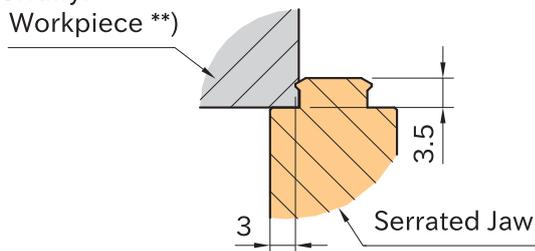
(Dovetail)(2 pcs. as a set)

How To Use

Use as jaws of **CP170-N** Centering Clamps.

■ Serrated Jaw

The serrated tips bite into workpiece and clamp powerfully.

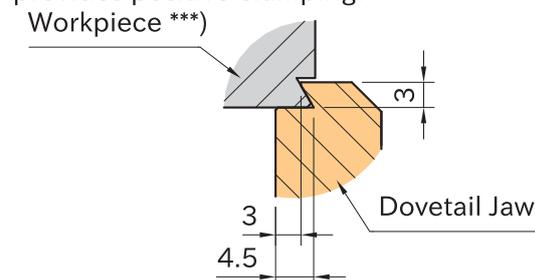


***) Workpiece hardness should be HRC38 or less for use of serrated jaw.

*)To produce Jaws at customers, prepare $\phi 10F8$ mounting holes with 29 ± 0.02 pitch.

■ Dovetail Jaw

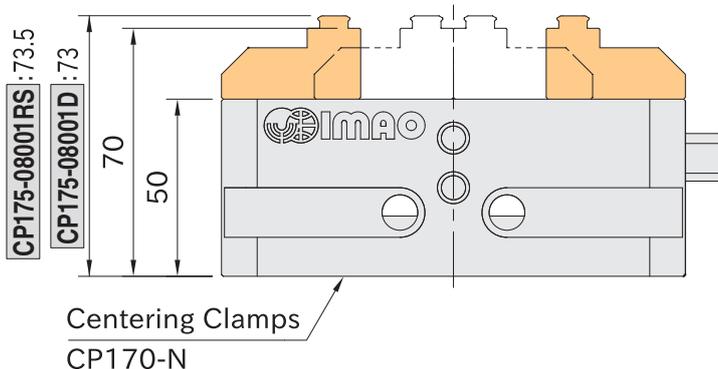
Dovetail jaw holds workpiece at two surfaces and provides positive clamping.



***) Preparation of dovetail groove on workpieces is required. Usable as edge clamping jaws without dovetail preparation.

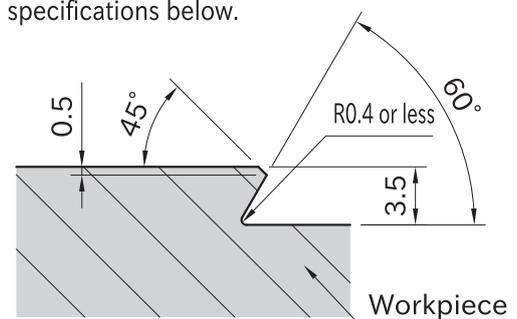
Technical Information

■ Dimensions of Centering Clamps with Jaws



■ Dovetail groove preparation

Machine dovetail grooves on workpiece to the specifications below.

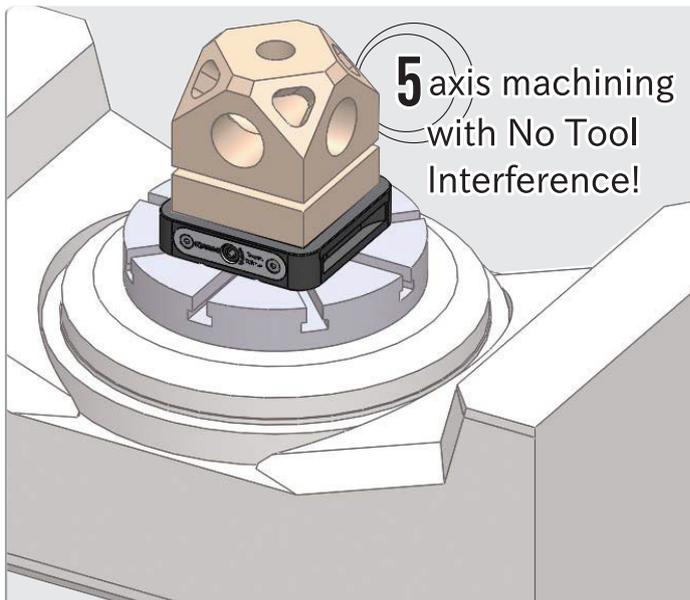


FLEX ZERO BASES



FLEX ZERO BASES

Powerfully clamp both workpiece or fixture.
Pull clamp mechanism maximizes machining area.



CP180

FLEX ZERO BASES



CP180-1515-35

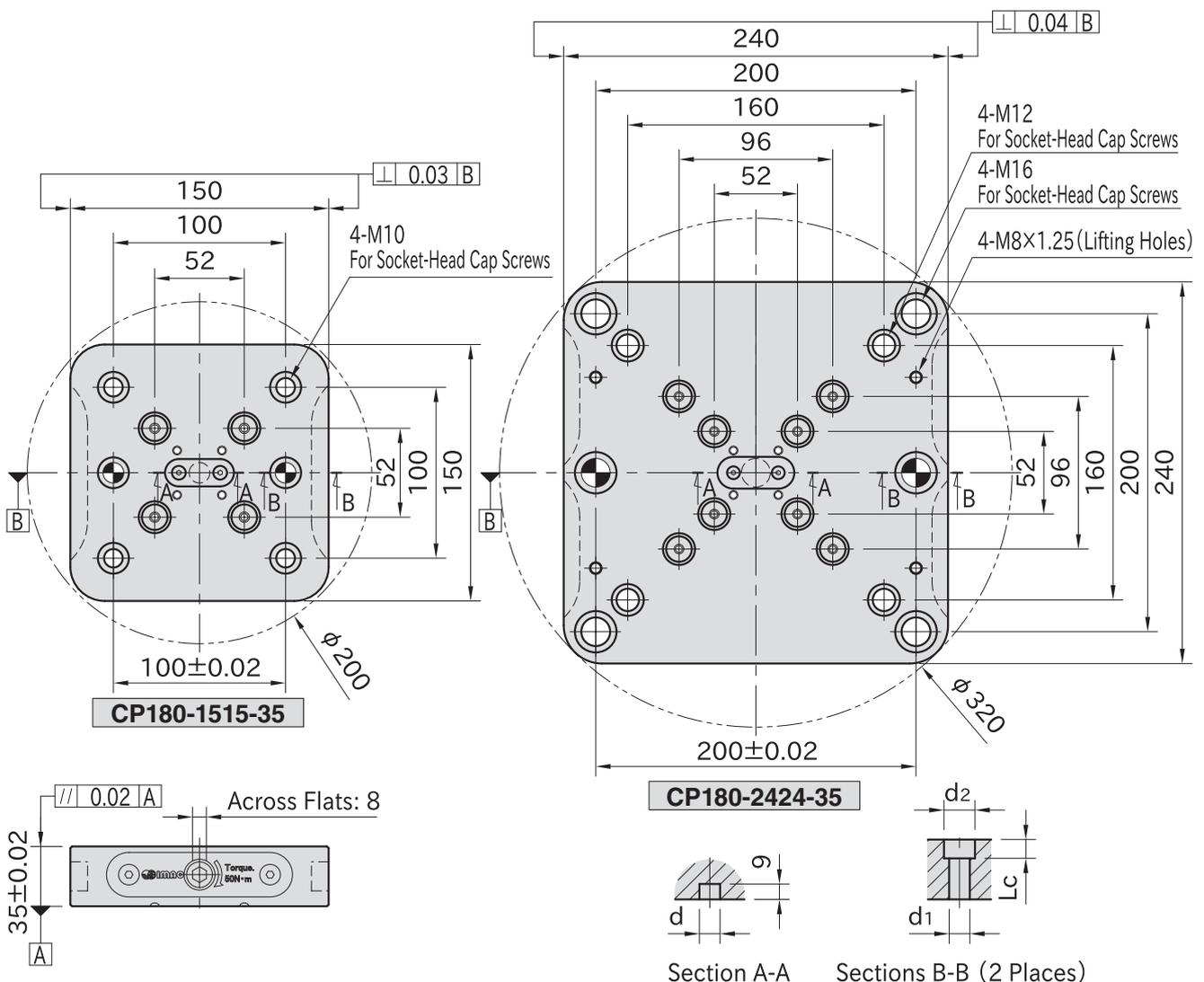


CP180-2424-35

★Key Point

Clamp the fixture by single operation!

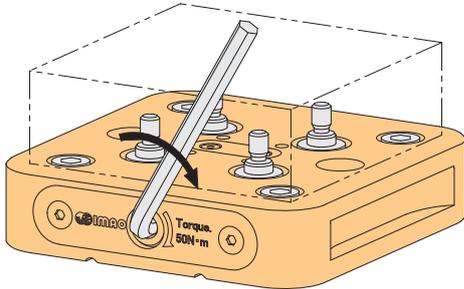
Part Number	Body	Threaded Spindle	Clamping Socket
CP180-1515-35	S50C steel Nitrocarburized HV 400 (Effective depth 0.1mm)	SCM440 steel Black oxide finished	S45C steel Black oxide finished
CP180-2424-35	NAK55 Steel HRC37-43		



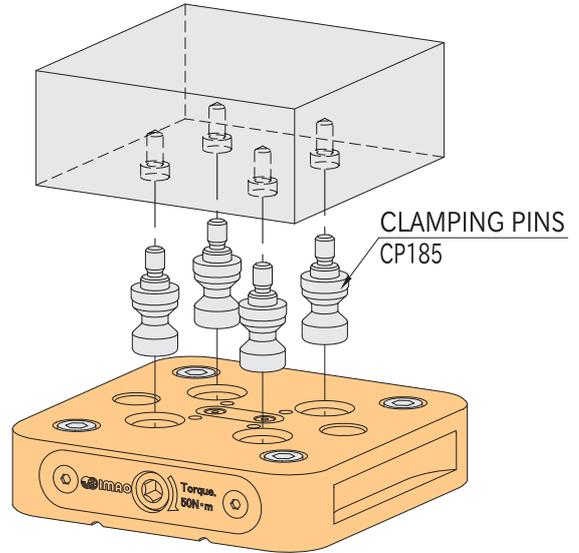
Part Number	d (H9)	d ₁ (H9)	d ₂	Lc	Clamping Force (kN)	Allowable Tightening Torque (N·m)	Weight (kg)
CP180-1515-35	12	12	18	11	12	50	5
CP180-2424-35	18	18	26	20			13.5

Feature

- Can be clamped by one operation.
- Pins are fully clamped by approx. 3 rotations of the clamping socket.

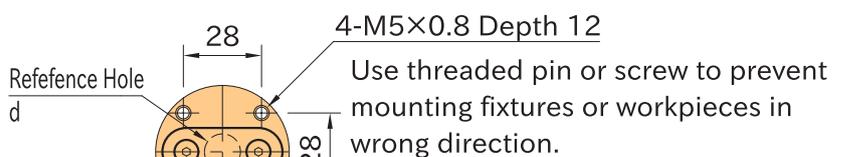
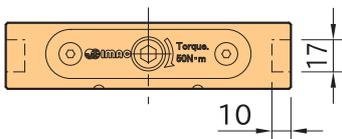
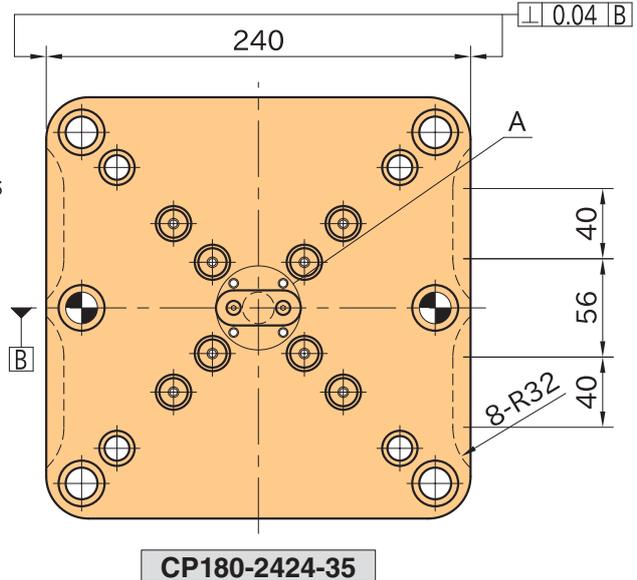
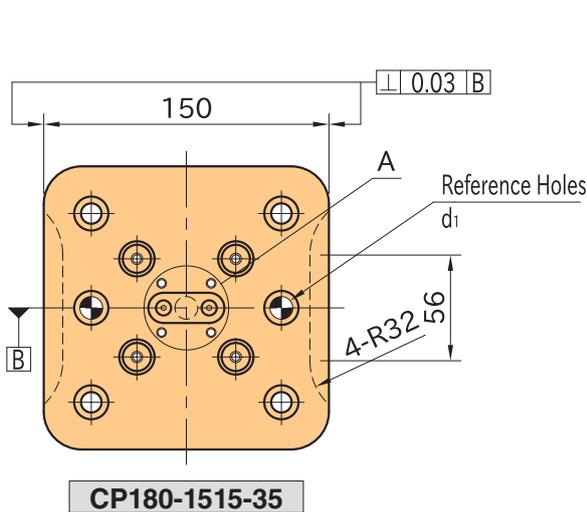


How To Use



How To Locate

Can be positioned by reference holes or finished side surfaces.

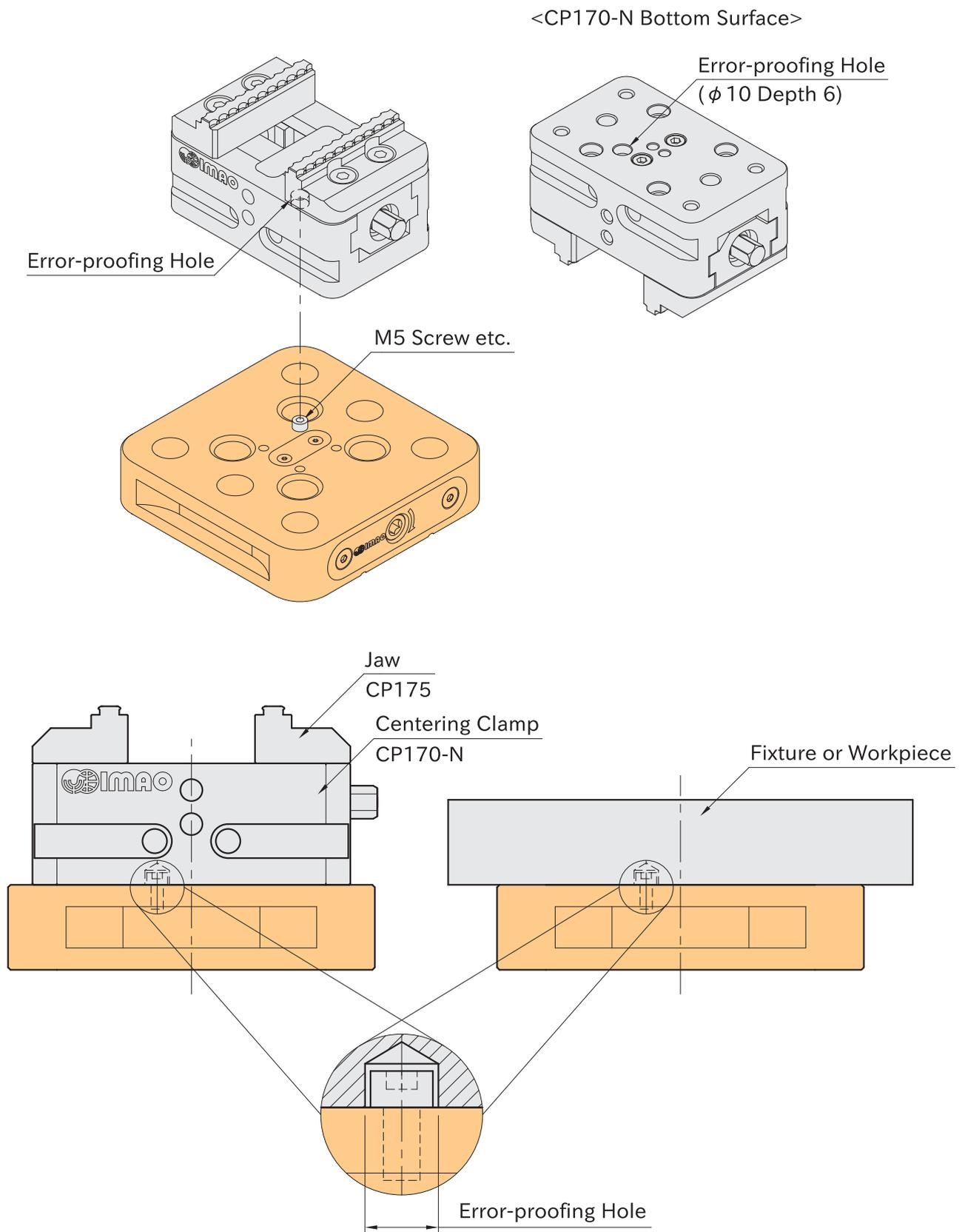


Enlarged View:A

Continuing on Next Page

■ Usage Example of Error-proofing Hole

Prepare a screw etc. on M5x0.8 Depth 12 hole on **CP180** Flex Zero Base to prevent mounting **CP170-N** Centering Clamp in wrong direction.



Technical Information

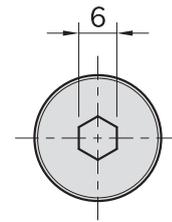
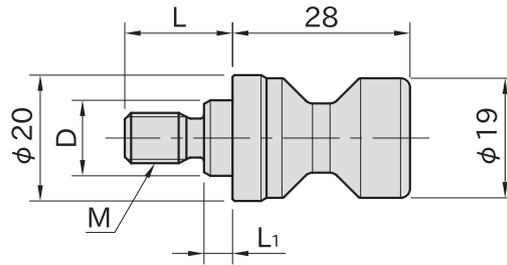
Repeatability: 5 μm

Related Product

- **CP185** CLAMPING PINS
- **CP185-P** PROTECTING COVER
- **CP170-N** CENTERING CLAMPS

CP185

CLAMPING PINS



Body
SCM440 steel
Nitrocarburized

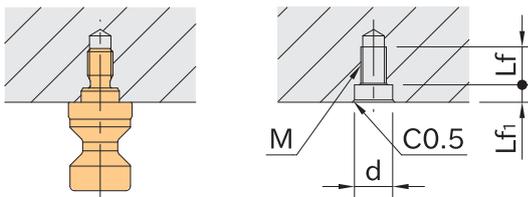
Part Number	M	D ($_{-0.03}^{-0.01}$)	L ₁	L	Weight (g)
CP185-08001	M 8X1.25	12	4.5	17	57
CP185-10001	M10X1.5	16	5.5	20.5	66

Note

Use 4 pins as a set for mounting.

How To Use

Mounting Hole Dimension



Part Number	d (H7)	Lf ₁	M	Lf
CP185-08001	12	5.5	M 8X1.25	12
CP185-10001	16	6.5	M10X1.5	16

Related Product

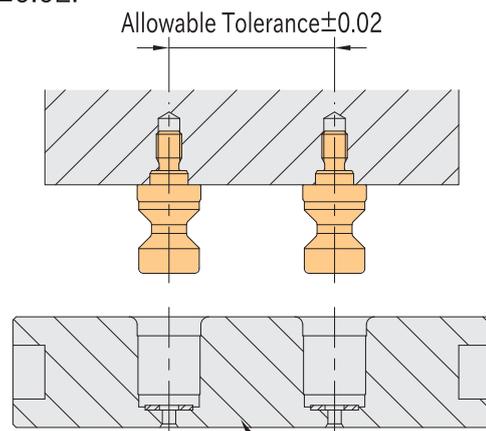
Can be used in combination with [CP170-N](#)
CENTERING CLAMPS. (P. 2038 参照)



Usage example
(CP170-08013N, CP185-08001x4pcs.)

Spacing Tolerance

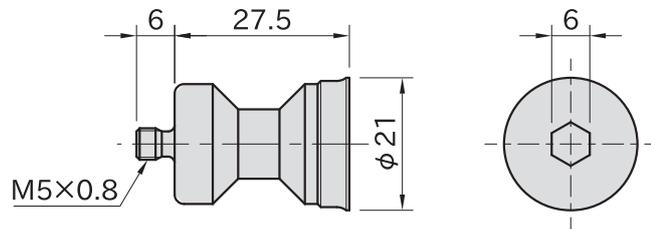
Allowable tolerance of the mounting holes should be ± 0.02 .



FLEX ZERO BASE
CP180 (P. 1924 参照)

CP185-P

PROTECTING COVER



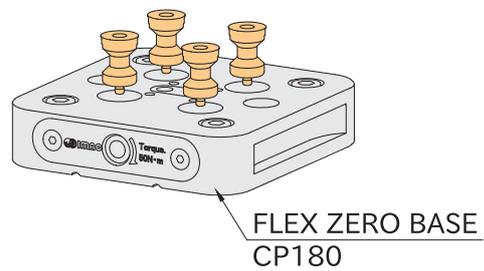
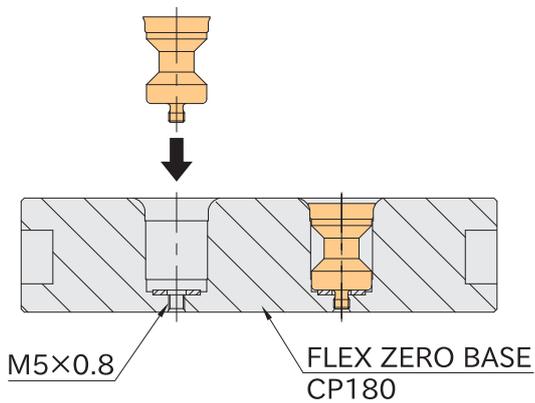
Body
S45C steel
Electroless Nickel Plated

Part Number	Weight (g)
CP185-2424P	45

How To Use

How To Mount

Mount on the unused grid of FLEX ZERO BASE by hex. key as a protective cover.





33792 Doreka Dr. Fraser, MI 48026

586-294-1188

cs@fixtureworks.com