

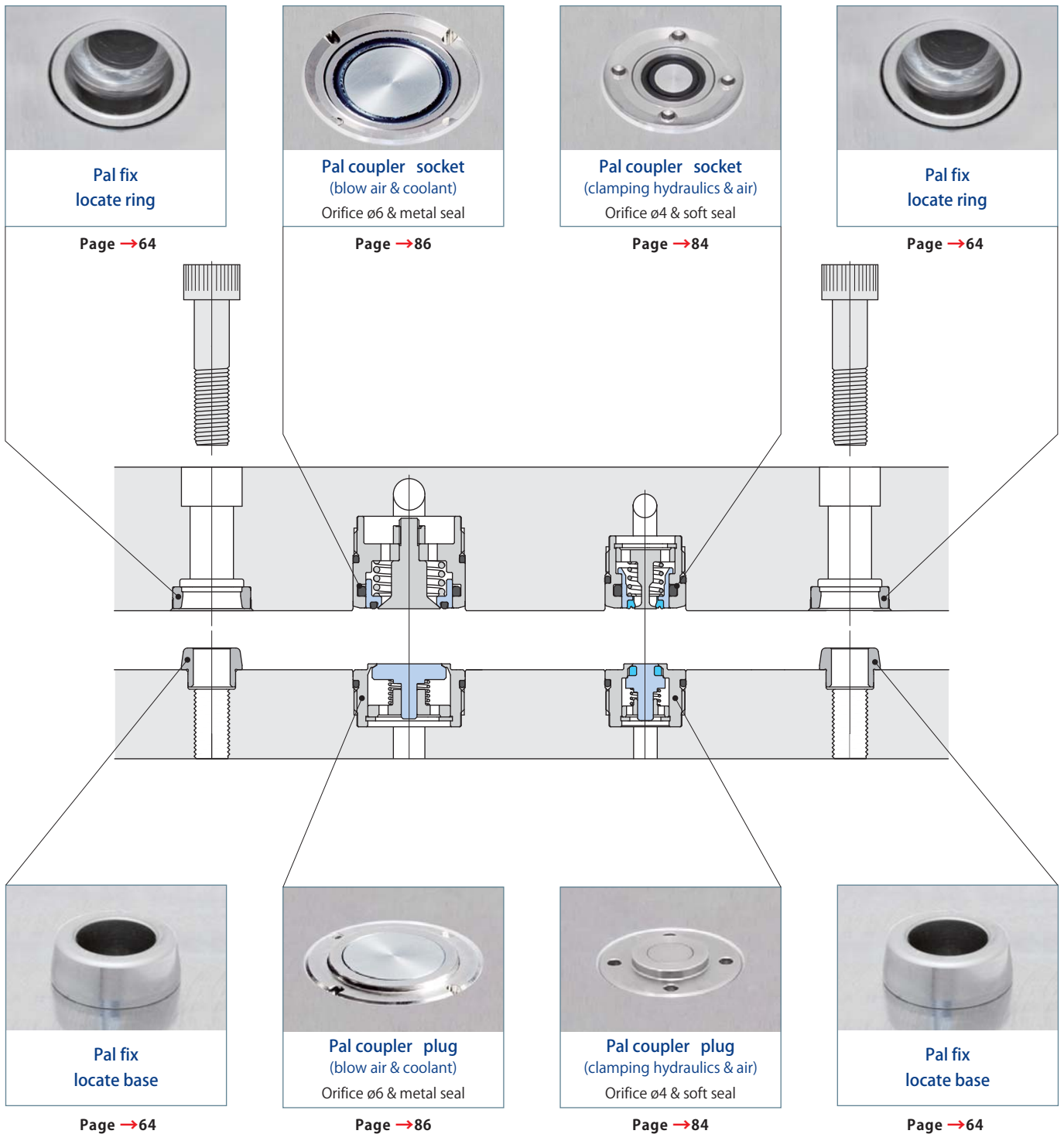
Pal fix

Manual clamp

model **CPK**

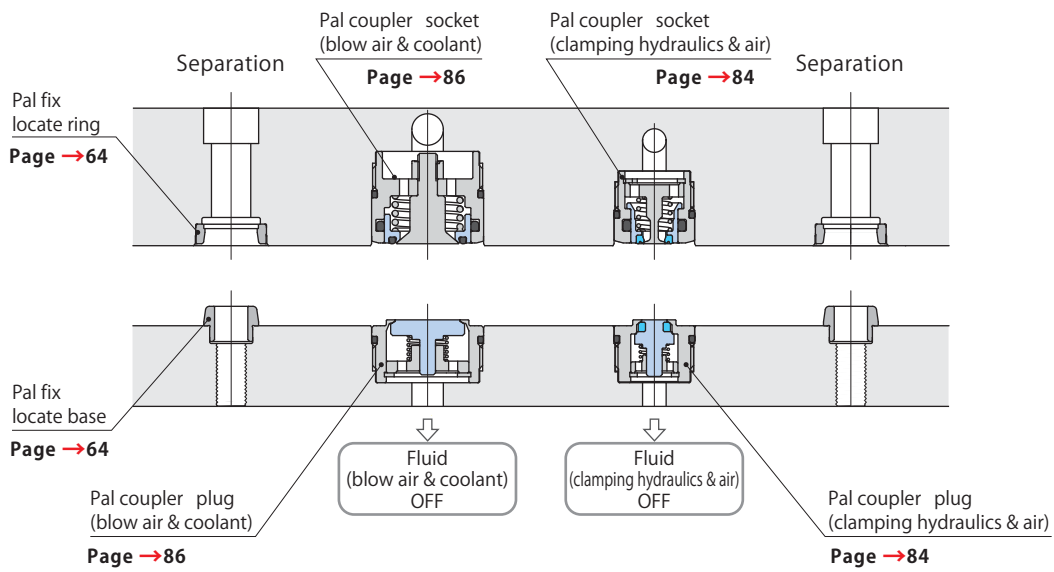


Super-compact locating device makes you utilize a working space to the full.

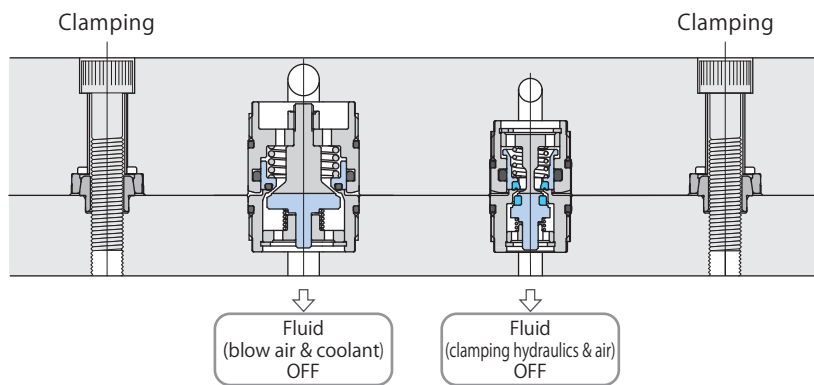


It is a taper cone model with dual surface contact to position high-accuracy.

Pallet change and coupler disconnected

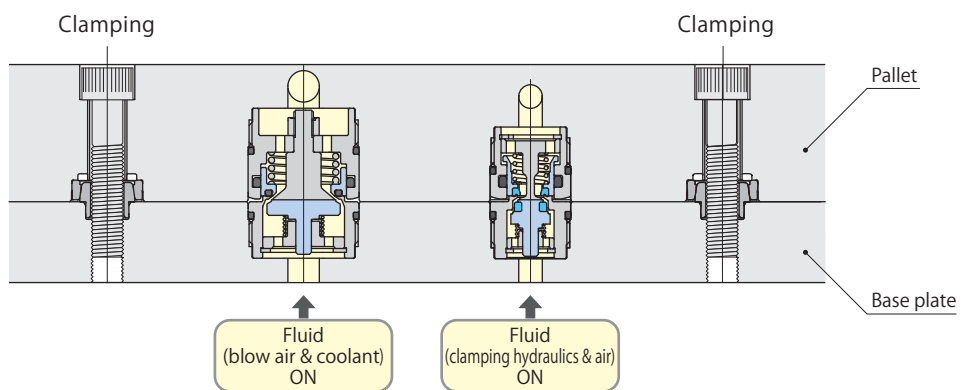


Pallet clamped and coupler connected



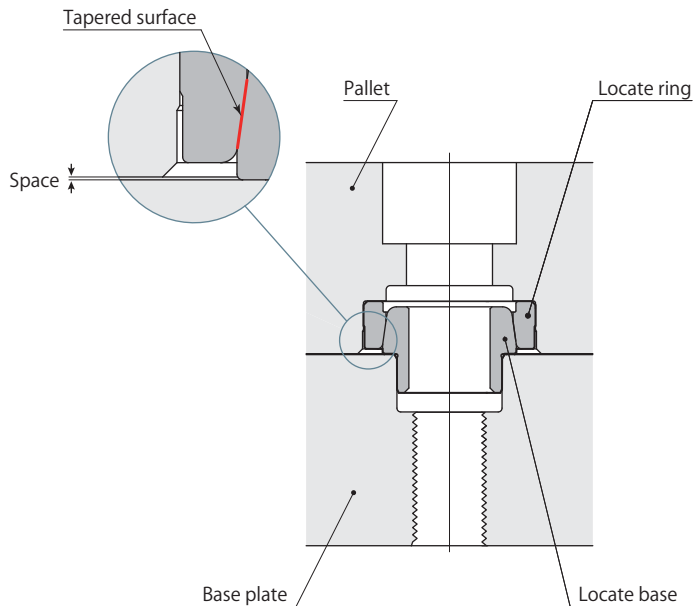
Precise positioning can be made by simply tightening the screws, and couplers can be connected at the same time.

Pallet clamped and circuit pressurized



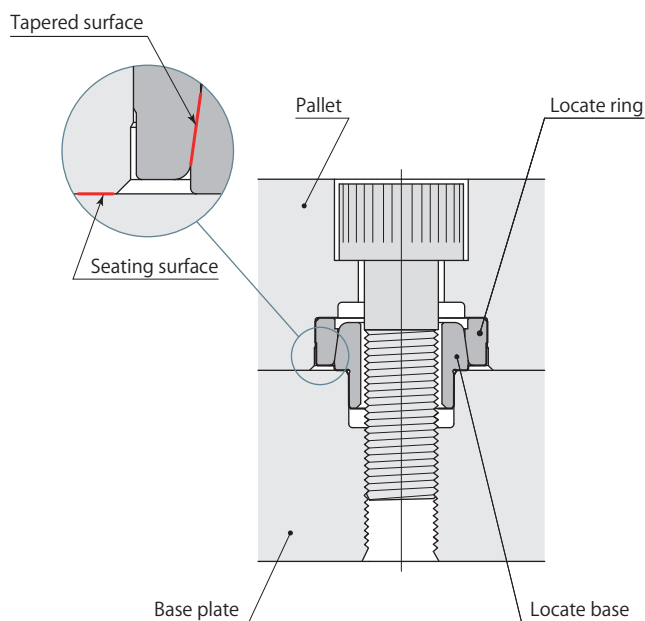
Pallet setting

- Bring pallet above the base plate. Lower it slowly after positioning. Pallet is centered along the tapered surface of the locate base.



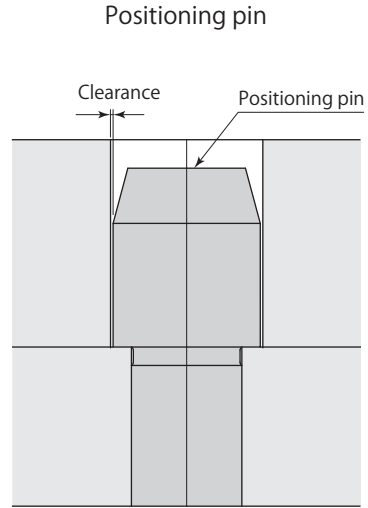
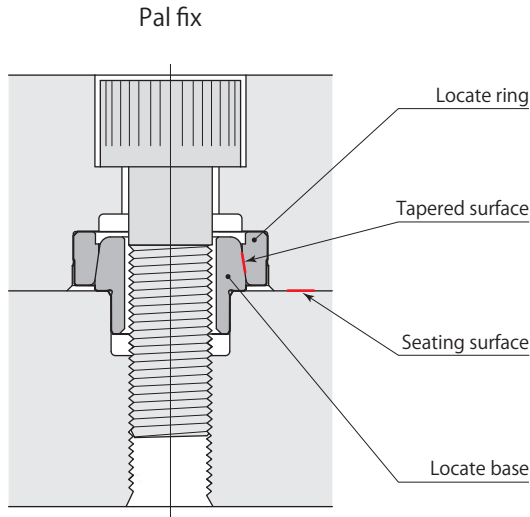
XYZ positioning (dual surface positioning)

- Tapered surface of locate ring is expanded and deformed in radial direction by the locate base to firmly position X axis and Y axis. Pallet is attached to seating surface of base plate and positions Z axis. The positioning of X, Y and Z axes by tapered surface and seating surface completes the XYZ positioning (dual surface positioning).

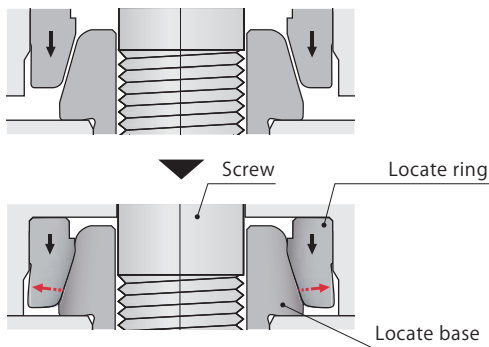


Realizing high-accuracy positioning

- In the case of ordinary positioning pin, it is common knowledge that the clearance is provided between the pin and the hole to allow the dimensional tolerance between the two pins, and to facilitate the positioning operation, however there is a risk of impairing the positioning repeatability depending on the volume of clearance so that the positioning re-adjustment must be done when re-setting the objects. Pal fix can exert $3\ \mu\text{m}$ of repeatability and requires no re-adjustment after setting the objects.



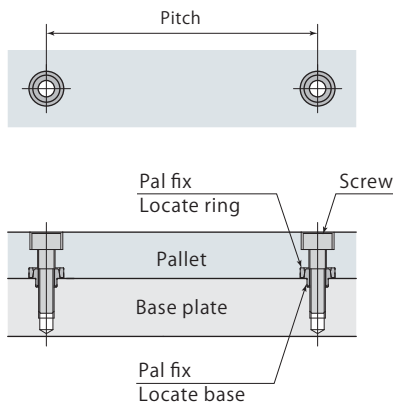
Taper cone makes attaching / detaching easy



By means of elastic deformation

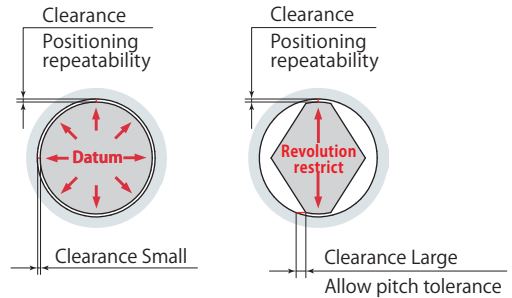
- Positioning repeatability : **Within $3\ \mu\text{m}$**
- Pitch tolerance allowance : **$\pm 0.02\text{mm}$**

Pal fix only keeps pitch accuracy.



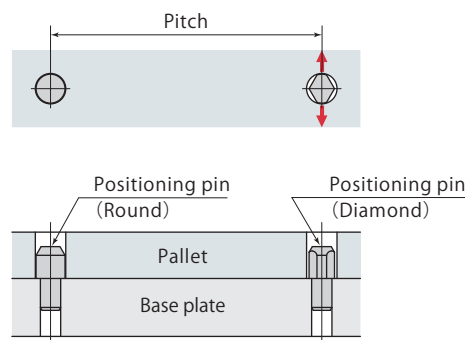
Round

Diamond



The positioning repeatability spoils when providing a large clearance.
A small clearance impairs the operability.

The diamond pin must be mounted perpendicularly toward round pin in addition to keeping the pitch accuracy between the two.



Combination of round and diamond pin

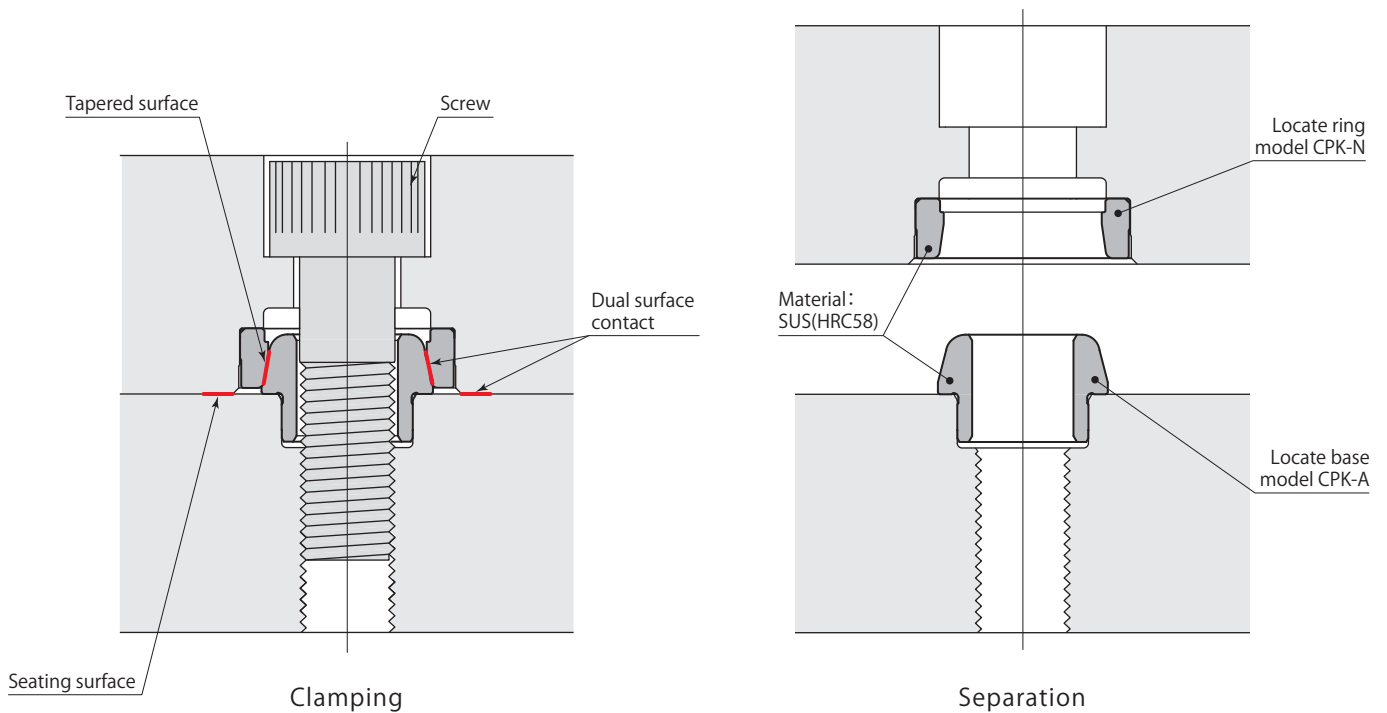
Pal fix

model **CPK** PAT.



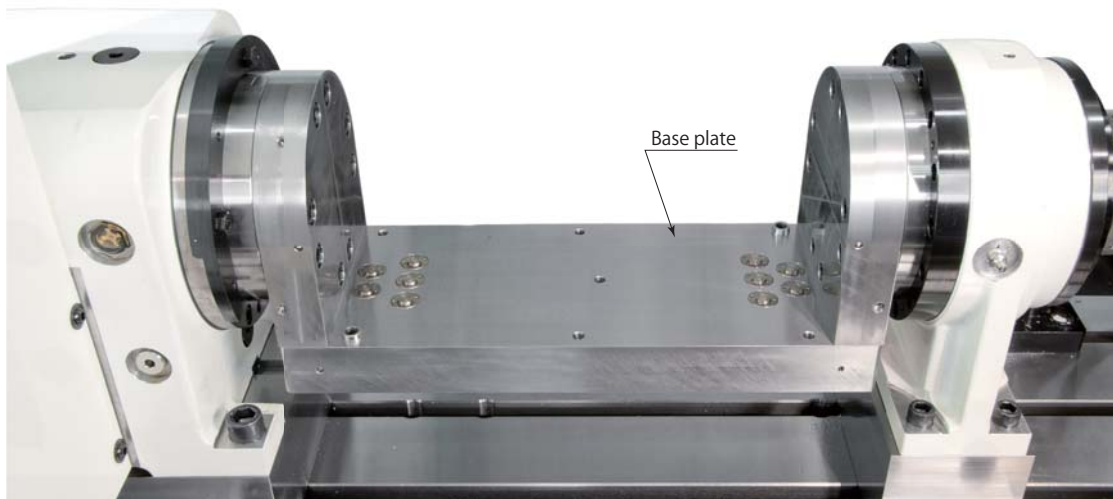
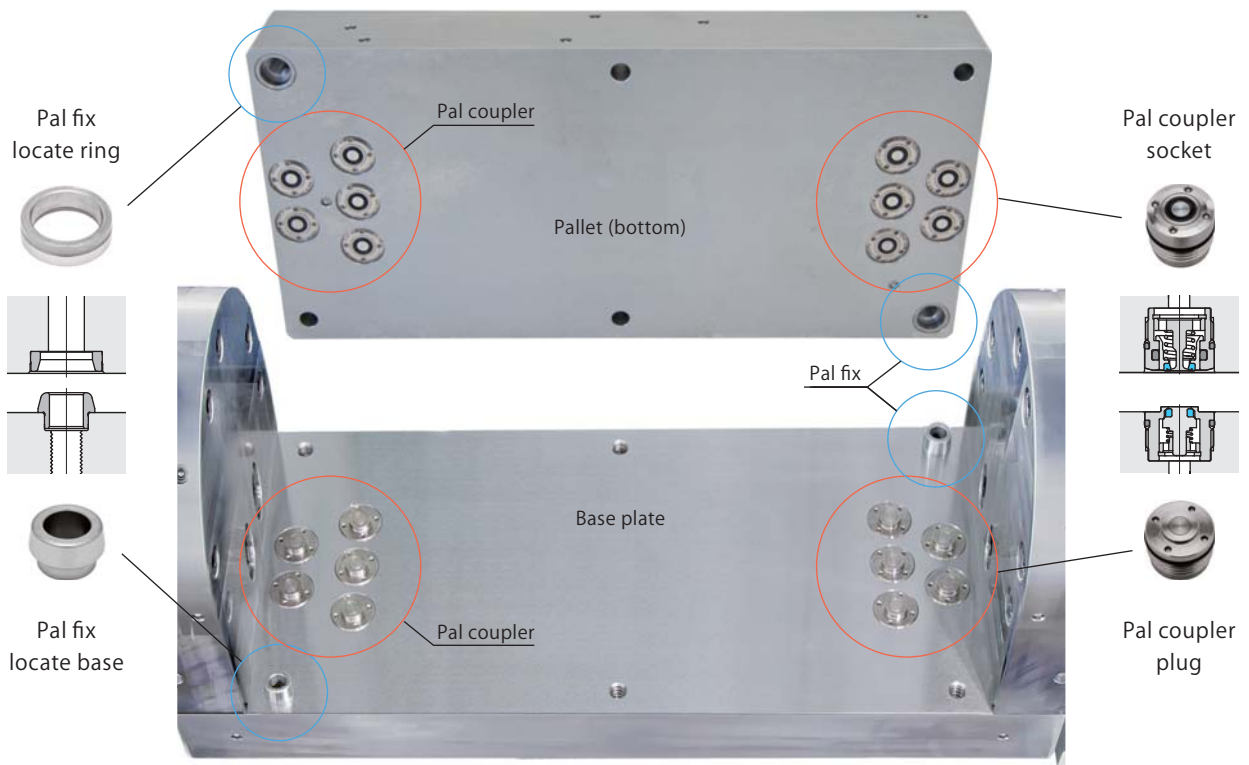
The dual surface contact taper cone combines high precision machining (repeatability: 3 μm*) and makes attaching or detaching easy.

*: Repeatability dependent on mounting orientation and mass (weight)



- Specifications page → 67
- Dimensions page → 68
- Mounting details page → 69
- Option page → 71

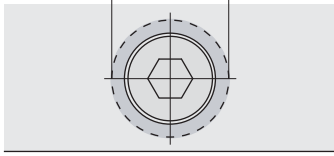
Usage example



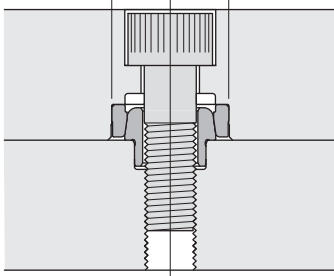
Compacting

Pal fix

Space (small)

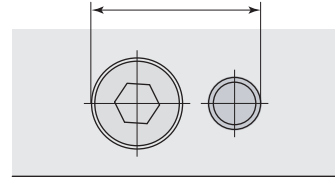


Space (small)

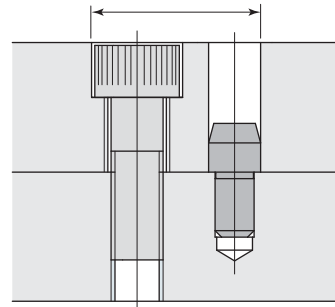


Positioning pin

Space (big)

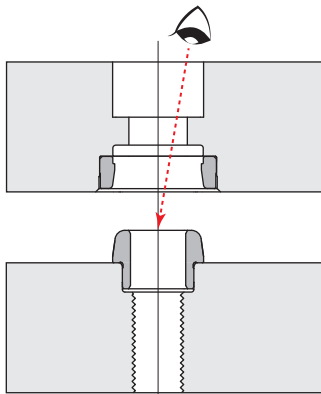


Space (big)



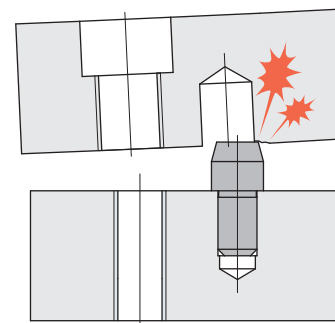
Easy attaching and detaching

Pal fix

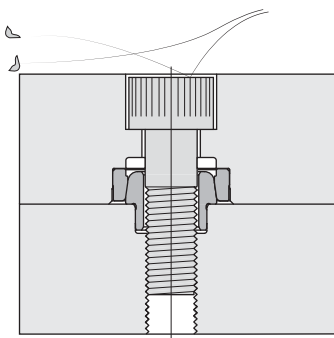


● Visual attaching and detaching.

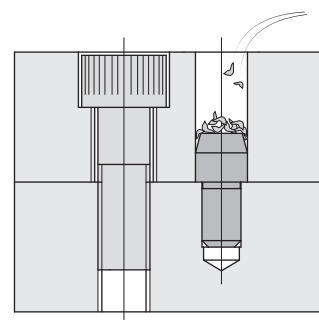
Positioning pin



● With no visual, it is difficult to detach and attach. Seating surface will also be damaged.



● Prevents intrusion of chips and foreign substances.



● Chips accumulate and are trapped, becoming difficult to remove.

Specifications

		Size
		06
		08
		10
		12
		16
CPK	—	
	A : Locate base	
	N : Locate ring	

Model			CPK-□06	CPK-□08	CPK-□10	CPK-□12	CPK-□16	
Max. allowable load*1	Repeatability 3 μm	Horizontal mounting	kN	0.85	1.0	1.2	1.5	2.0
		Vertical mounting	kN	0.17	0.2	0.25	0.3	0.4
	Repeatability 5 μm	Horizontal mounting	kN	2.5	3.0	3.7	4.5	6.0
		Vertical mounting	kN	0.5	0.6	0.75	0.9	1.2
Min. clamping force*2			kN	7.5	9.0	12.5	15.5	21.5
Max. allowable eccentricity for pallet changing			mm	±0.5	±0.5	±0.5	±0.5	±1.0
Mass	Locate base		g	3.0	5.0	7.0	10.0	21.0
	Locate ring		g	3.0	4.0	7.0	11.0	22.0

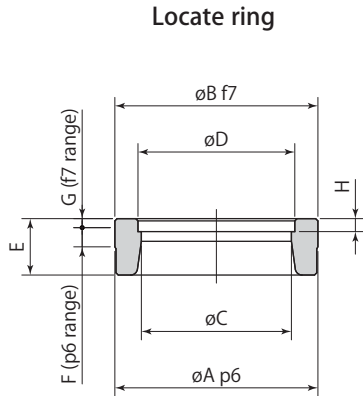
*1: This is maximum allowable load of pallet, regardless of how many Pal fix are used.

*2: Indicates necessary force to position one pair of locate base and locate ring.



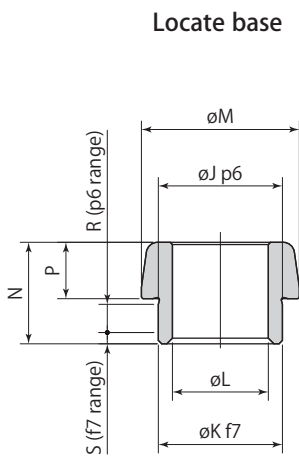
Scale 1:1

Dimensions



Locate ring

Model	CPK-N06	CPK-N08	CPK-N10	CPK-N12	CPK-N16
øA	15 ^{+0.029} / _{+0.018}	18 ^{+0.029} / _{+0.018}	22 ^{+0.035} / _{+0.022}	25 ^{+0.035} / _{+0.022}	32 ^{+0.042} / _{+0.026}
øB	15 ^{-0.016} / _{-0.034}	18 ^{-0.016} / _{-0.034}	22 ^{-0.020} / _{-0.041}	25 ^{-0.020} / _{-0.041}	32 ^{-0.025} / _{-0.050}
øC	10.9	13.3	16.1	18.4	24
øD	11.4	13.9	16.9	19.4	25.2
E	4.5	5	6	7	9
F	1.7	1.7	1.7	1.7	2
G	0.8	0.8	1	1.3	2
H	1.15	1.15	1.15	1.15	1.35

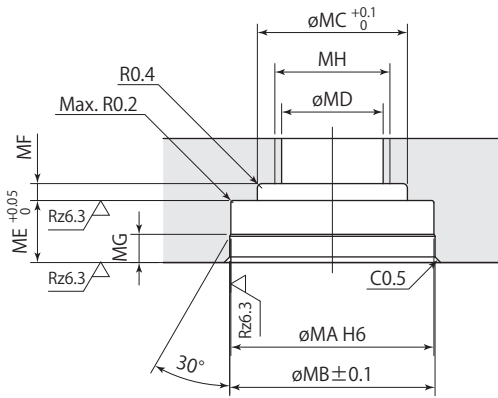


Locate base

Model	CPK-A06	CPK-A08	CPK-A10	CPK-A12	CPK-A16
øJ	9 ^{+0.024} / _{+0.015}	11 ^{+0.029} / _{+0.018}	14 ^{+0.029} / _{+0.018}	16 ^{+0.029} / _{+0.018}	21 ^{+0.035} / _{+0.022}
øK	9 ^{-0.013} / _{-0.028}	11 ^{-0.016} / _{-0.034}	14 ^{-0.016} / _{-0.034}	16 ^{-0.016} / _{-0.034}	21 ^{-0.020} / _{-0.041}
øL	6.5	8.5	11	13	17
øM	11.5	14	17	19.5	25.5
N	8.5	9	10	11.5	13.5
P	4.5	5	6	7	9
R	2.5	2.5	2.5	3	3
S	1	1	1	1	1

Mounting details

Locate ring mounting details



Rz: ISO4287(1997)

mm

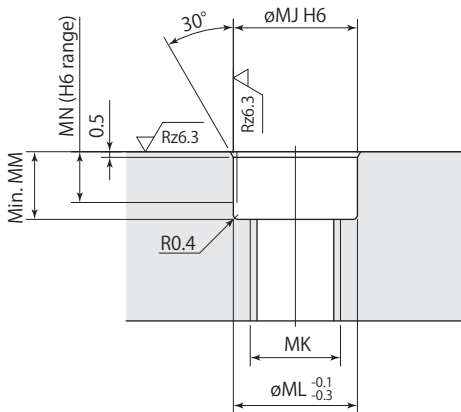
Model	CPK-N06	CPK-N08	CPK-N10	CPK-N12	CPK-N16
ϕMA	15 $^{+0.011}_0$	18 $^{+0.011}_0$	22 $^{+0.013}_0$	25 $^{+0.013}_0$	32 $^{+0.016}_0$
ϕMB	15.2	18.2	22.2	25.2	32.2
ϕMC	11.6	14.2	17.5	20.0	25.8
ϕMD	6.8	9	11	14	18
ME	5	5.5	6.5	7.5	9.5
MF	1.5	1.5	2	2	2
MG	2	2.5	3.5	4	5
MH*	M8	M10	M12	M16	M20

* : Thread MH is provided to mount model CPK-N.

Refer to **page →71** for mounting method.

● Refer to **page →70** for mounting pitch tolerance.

Locate base mounting details



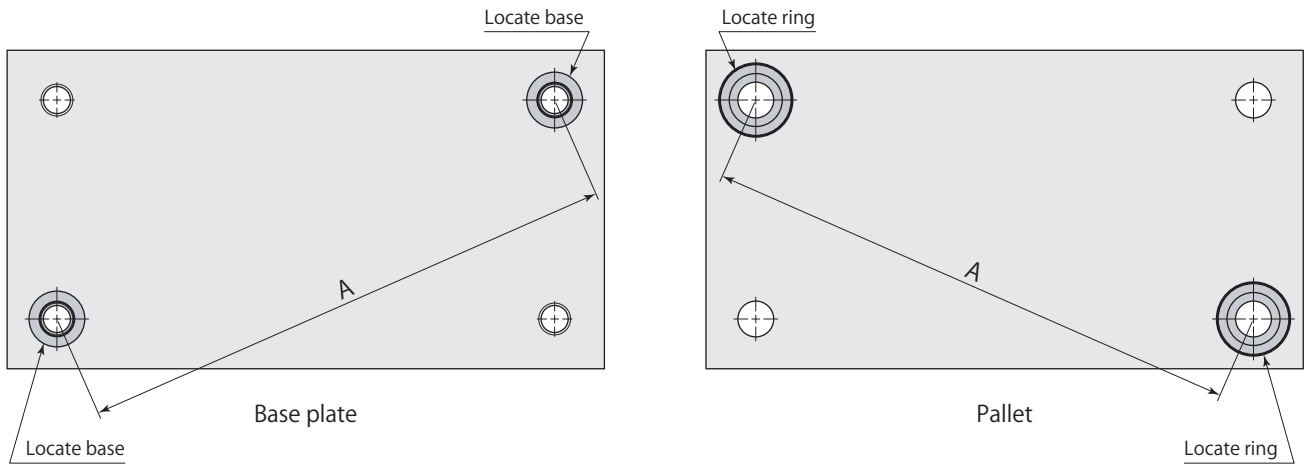
Rz: ISO4287(1997)

mm

Model	CPK-A06	CPK-A08	CPK-A10	CPK-A12	CPK-A16
ϕMJ	9 $^{+0.009}_0$	11 $^{+0.011}_0$	14 $^{+0.011}_0$	16 $^{+0.011}_0$	21 $^{+0.013}_0$
MK	M6	M8	M10	M12	M16
ϕML	9	11	14	16	21
MM	5.5	6	6	7	7
MN	4.5	4.5	4.5	5	5

● Refer to **page →70** for mounting pitch tolerance.

Mounting pitch tolerance

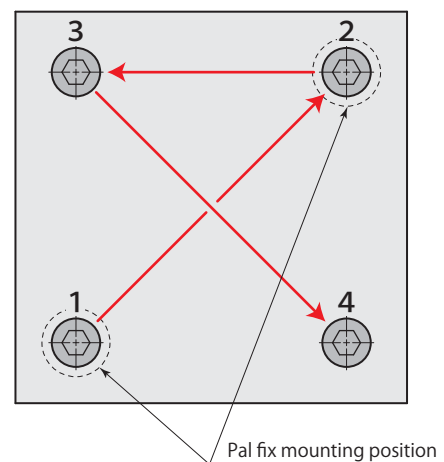


Pitch tolerance of A dimension	± 0.02 mm
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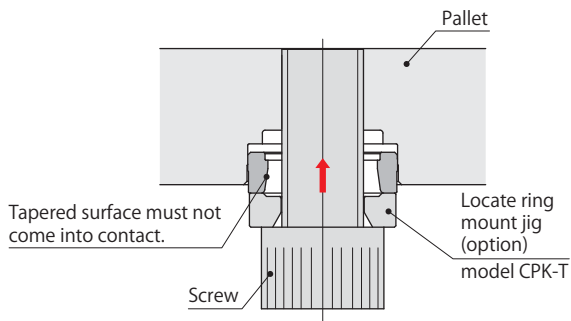
Tightening turn for screws

- ① Tighten the screw up by hand until the seating surface of screw holding to other.
 - ② Tighten the screws tentatively in order as shown in the diagram on the right with a minimum force. (**page →67**)
 - ③ Tighten all of the screws again in order shown in the diagram.
- Make sure to tighten all screws evenly. Make sure not to give extra force only one or two screws on the same side. (e.c. : 1 and 3 on the right drawing.)

Tightening turn for screws

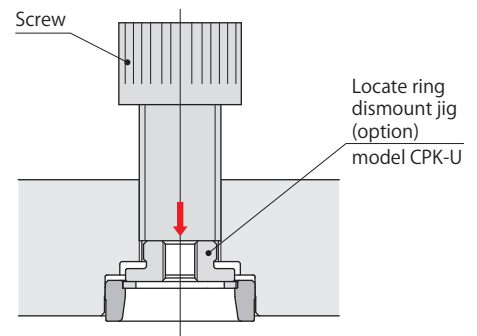
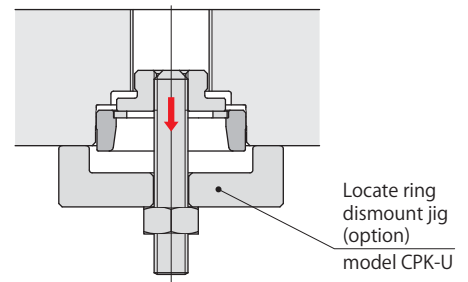


Mounting of locate ring



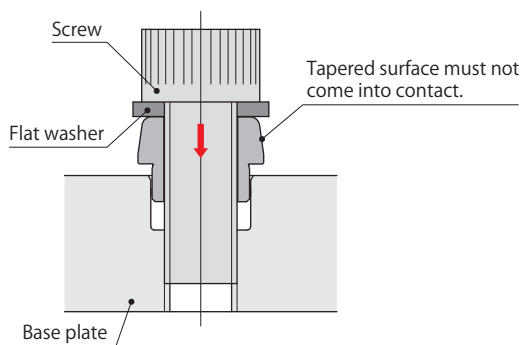
- Press a locate ring in the hole keeping it upright.

Dismounting of locate ring



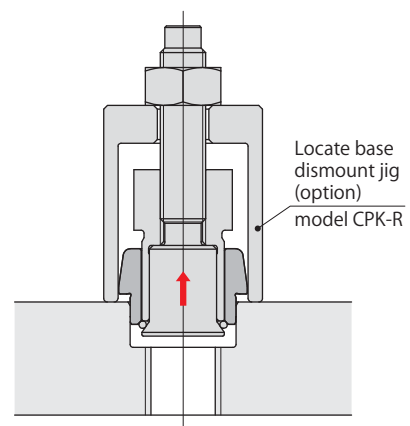
- The ring can be removed by a screw.

Mounting of locate base



- Press a locate base in the hole keeping it upright. Be sure to use a flat washer to protect the locate base from damage.

Dismounting of locate base



- Ask Pascal in the use of dismount jig of locate ring and locate base.

Size

06

08

10

12

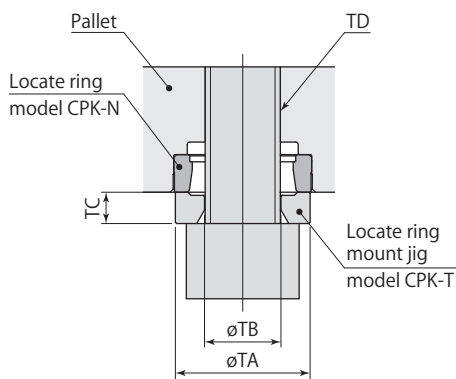
16

T : Locate ring mount jig

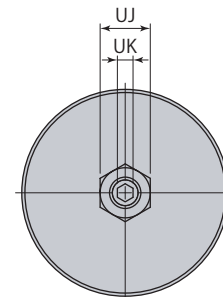
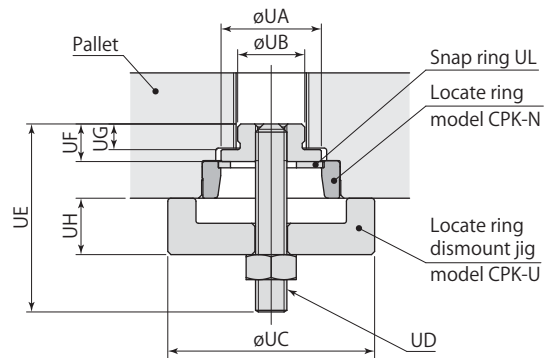
CPK —

U : Locate ring dismount jig

Locate ring mount jig



Locate ring dismount jig



mm

Locate ring mount jig	CPK-T06	CPK-T08	CPK-T10	CPK-T12	CPK-T16
Locate ring dismount jig	CPK-U06	CPK-U08	CPK-U10	CPK-U12	CPK-U16
øTA	14.5	17.5	21.5	24.5	31.5
øTB	8.2	10.2	12.2	16.2	20.2
TC	4	4	5	5	6
TD	M8	M10	M12	M16	M20
øUA	10.8	13.2	16	18.3	23.9
øUB	6.5	8.7	10.7	13.7	17.7
øUC	25	27	33	35	43
UD	M4×0.7	M4×0.7	M5×0.8	M5×0.8	M6×1.0
UE	25	25	30	30	40
UF	5.5	5.5	6	6.5	9
UG	4.1	4.1	4.1	4.6	7.1
UH	8	8	9	9.5	11.5
UJ (nut width across flats)	7	7	8	8	10
UK (hex socket)	2	2	2.5	2.5	3
UL*	RTW-11	RTW-13	RTW-16	RTW-18	RTW-24
Locate ring	CPK-N06	CPK-N08	CPK-N10	CPK-N12	CPK-N16

* : Snap ring is made by Ochiai Corporation.

Size

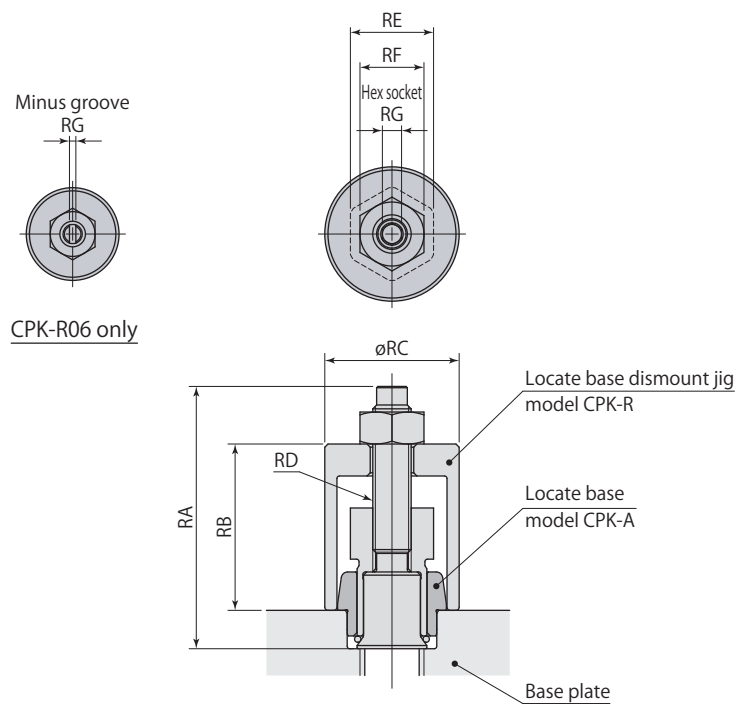
06

08

10

12

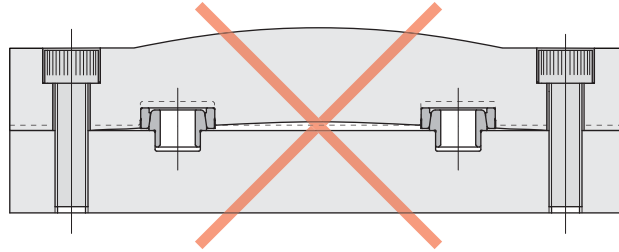
16

CPK — **R** : Locate base dismount jigLocate base dismount jig

	mm				
Locate base dismount jig	CPK-R06	CPK-R08	CPK-R10	CPK-R12	CPK-R16
RA	33	36.5	41	43.5	55.5
RB	20.5	22.5	26	27.5	37
øRC	14.5	17	21	24	31
RD	M4×0.7	M5×0.8	M6×1.0	M6×1.0	M8×1.25
RE (hex width across flats)	10	10	13	17	22
RF (nut width across flats)	7	8	10	10	13
RG	1	2.5	3	3	4
Locate base	CPK-A06	CPK-A08	CPK-A10	CPK-A12	CPK-A16

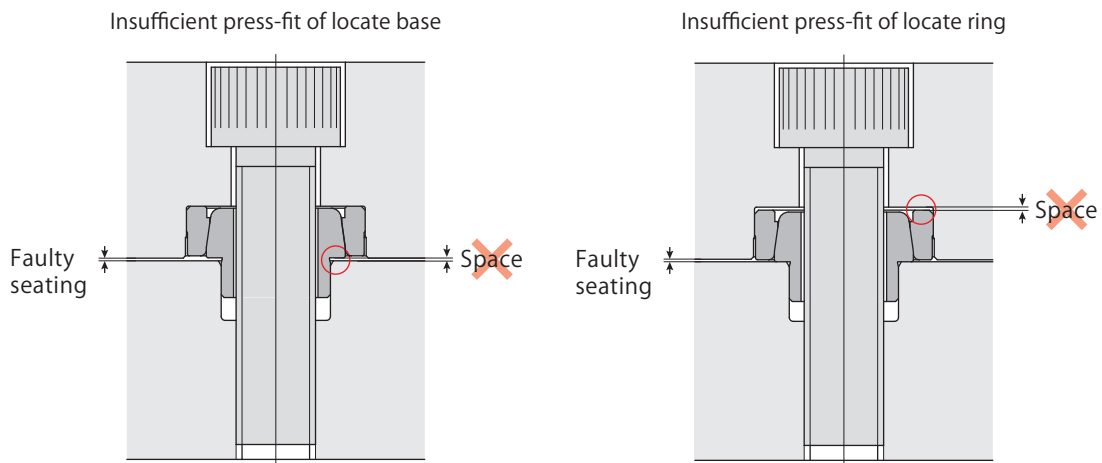
Clamping

- Put the screws through Pal fix and tighten it.
Failure of the instruction may cause impair the repeatability.



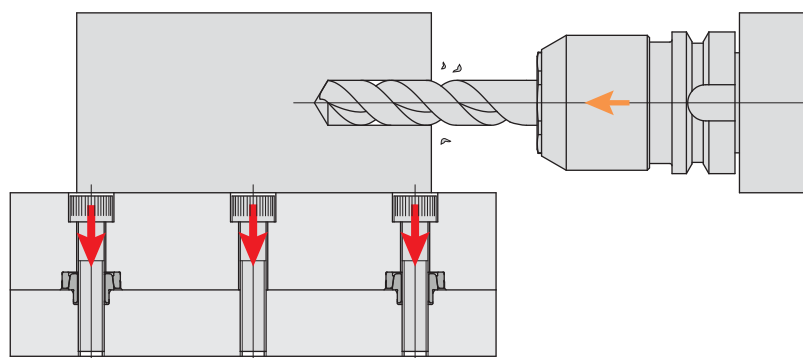
Mounting

- Make sure if locate base, locate ring are securely pressed into the end of the mounting hole.
Insufficient press-fit may cause mis-seating and excessive deformation, which results in breakage.



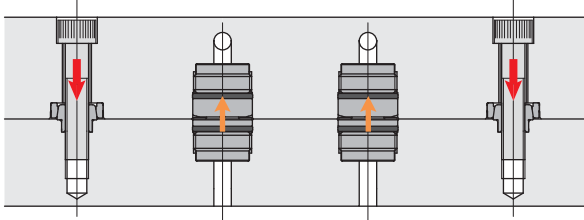
Defining fastening power

- Define the fastening power based on the load from the side.



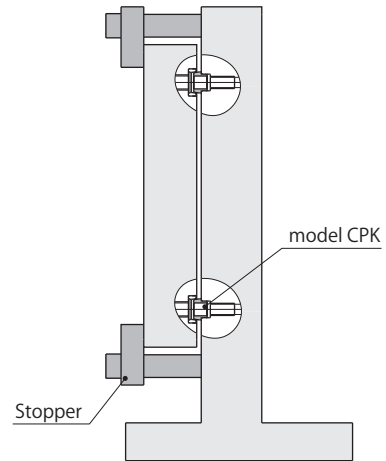
Reactive force of coupler

- Reactive force is generated when Pal couplers are used. The fastening power should be determined considering the reactive force of the coupler.



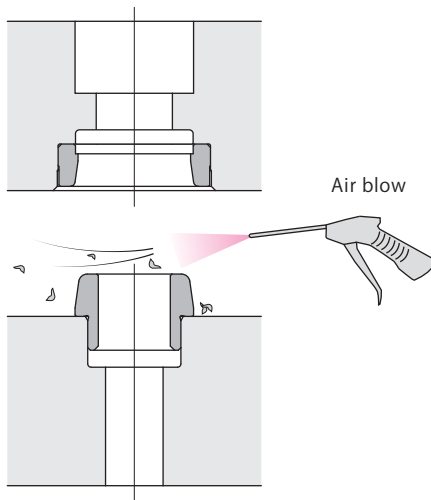
Fall protection

- The mechanical stopper must be provided to avoid pallet falling when changing the pallet.



Cleaning

- Keep the seating and tapered surface clean.



Max. allowable eccentricity

- Keep allowable eccentricity when loading or unloading the pallet.
(Refer to **page →67** for max. allowable eccentricity.)

