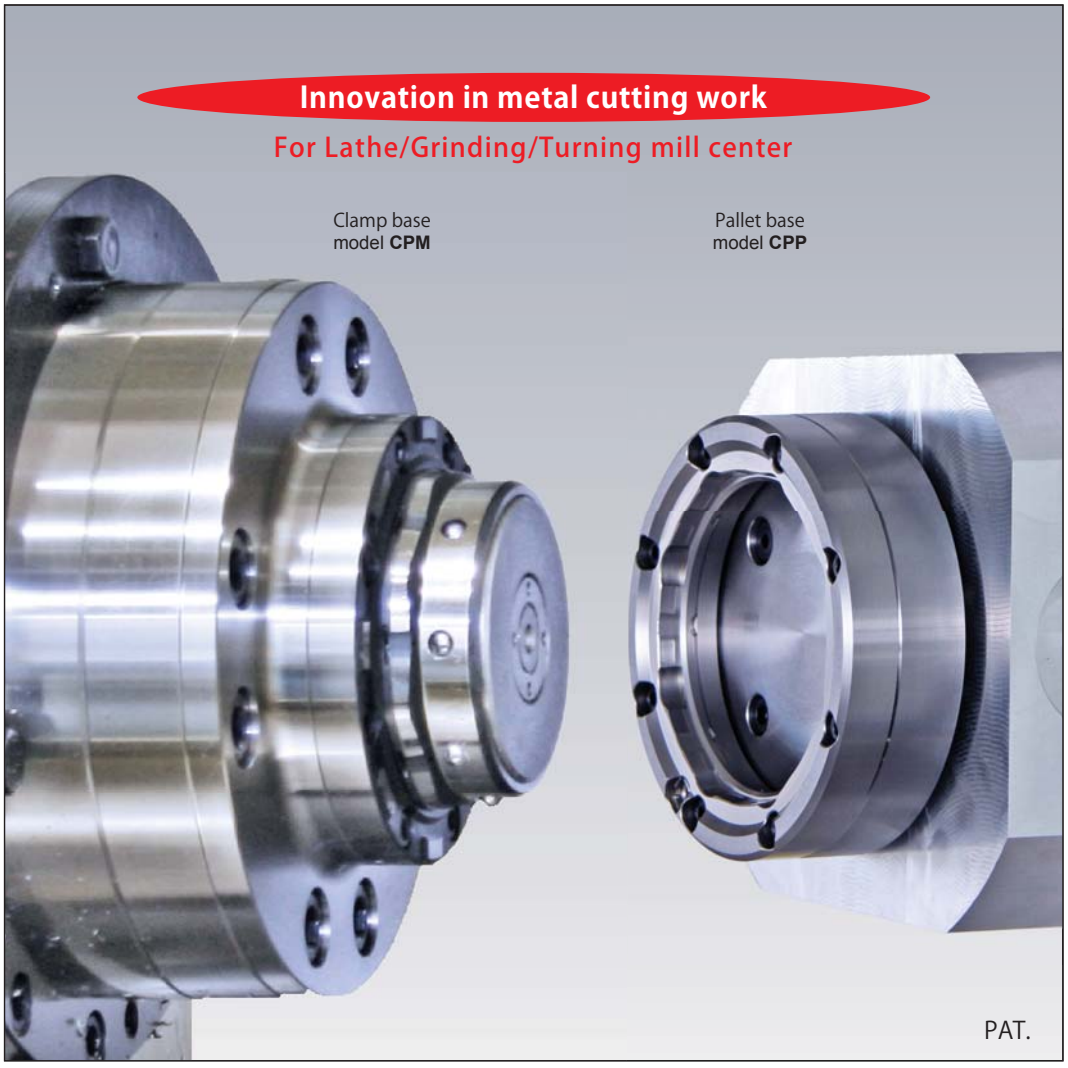
Pal coupling

Octagonal taper cone coupling



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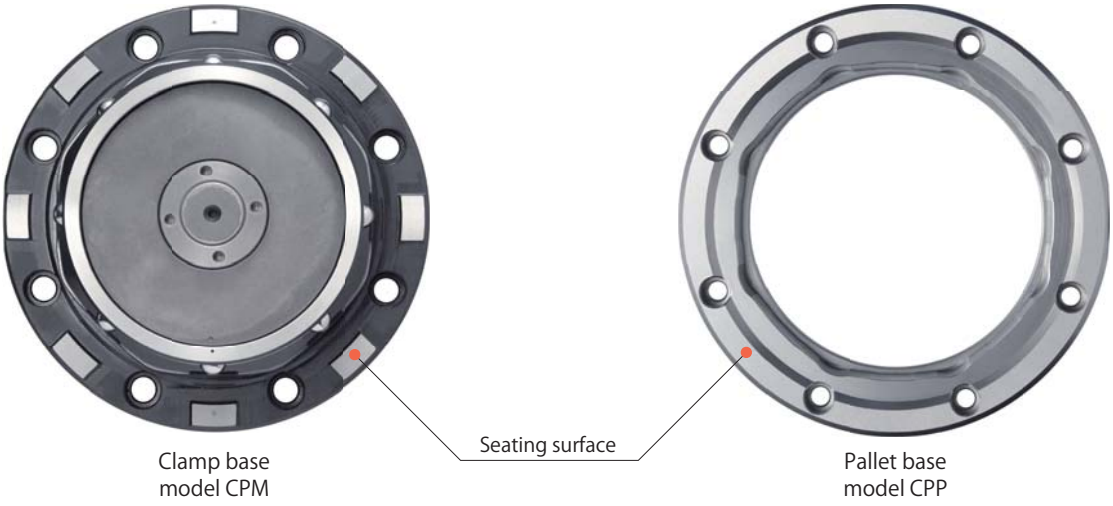
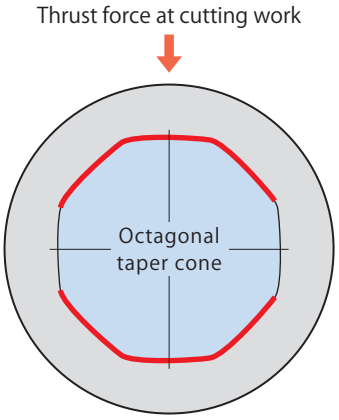
Octagonal taper cone coupling

Single clamp can provide highly accurate centering and high rigid clamping by engaging the octagonal taper cone to restrain X, Y and θ axes as well as the seating surface to restrain Z axis.
Thermal displacement has little influence on the centering accuracy of the part, as the displacement radiates equally from the center. High accuracy on secondary machining can be accomplished by taking the center of the previous cutting work as the datum point.

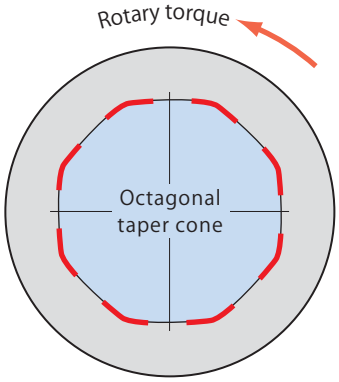
PAT.

Model		Clamp base / Pallet base	CPM-100 CPP-100	CPM-125 CPP-125	CPM-160 CPP-160	CPM-200 CPP-200
Size øD		mm	100	125	160	200
Clamping force		kN	10	16	25	40
Max. allowable load	Horizontal mount	kN	11	18	29	40
	Vertical mount	kN	5	7	9	16
Power			Clamp：Spring / Unclamp：Hydraulic, Mechanical			

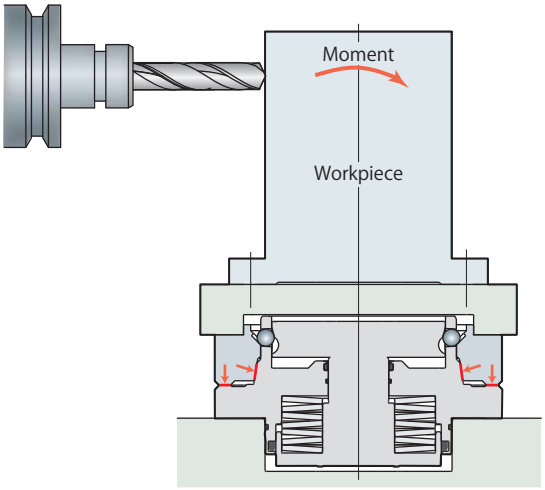


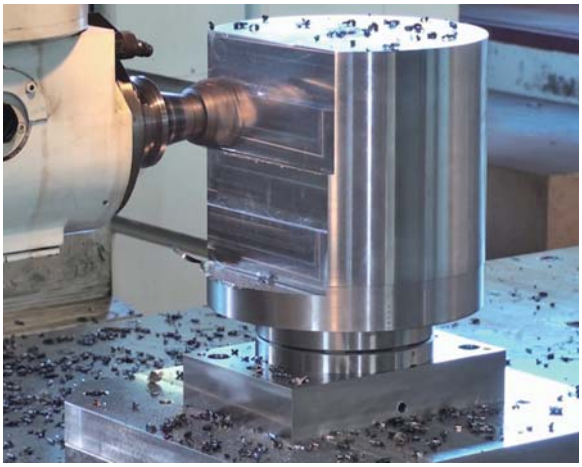


Under the thrust force of cutting work with 3(6) faces, high machining accuracy and quality is obtained by a stable clamping force.



Superior rotational restraint and highly favorable cut surface can be obtained by receiving rotary torque with 8-faces.





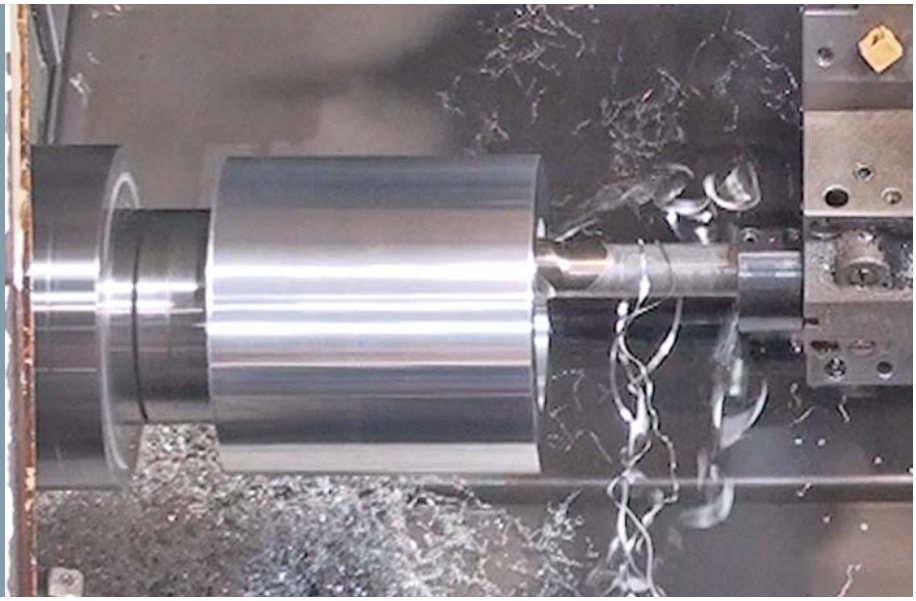
High rigidity can be obtained by receiving moment with large-diameter seating surfaces and restrained taper faces.

Pal coupling enables combined process, high precision and high efficiency machining.

1

OP1

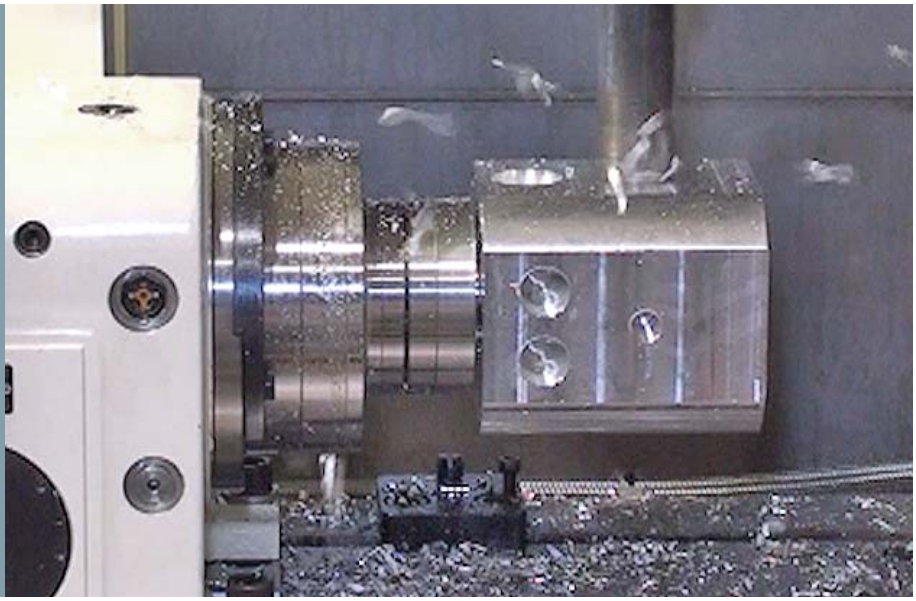
Machining by a lathe



2

OP2

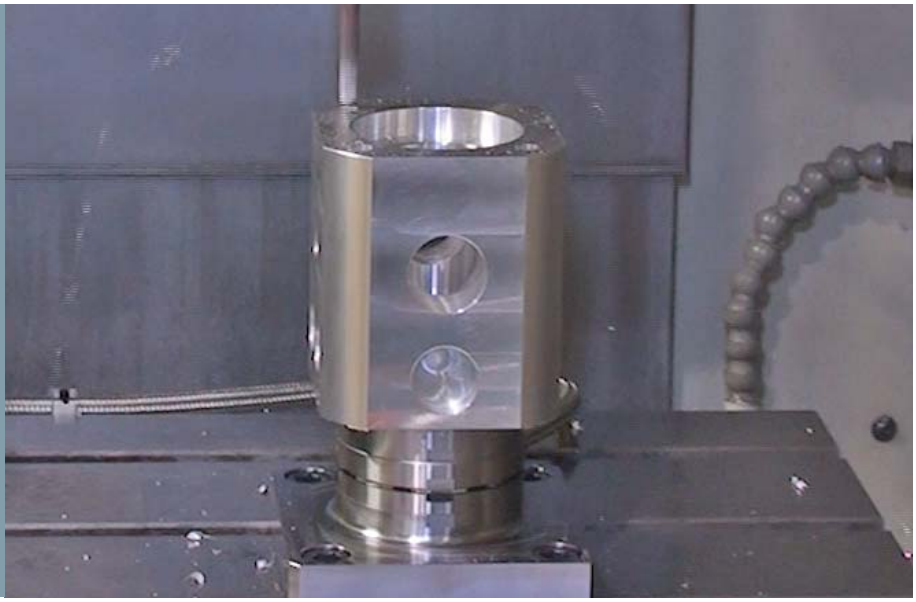
4-plane machining with an index table



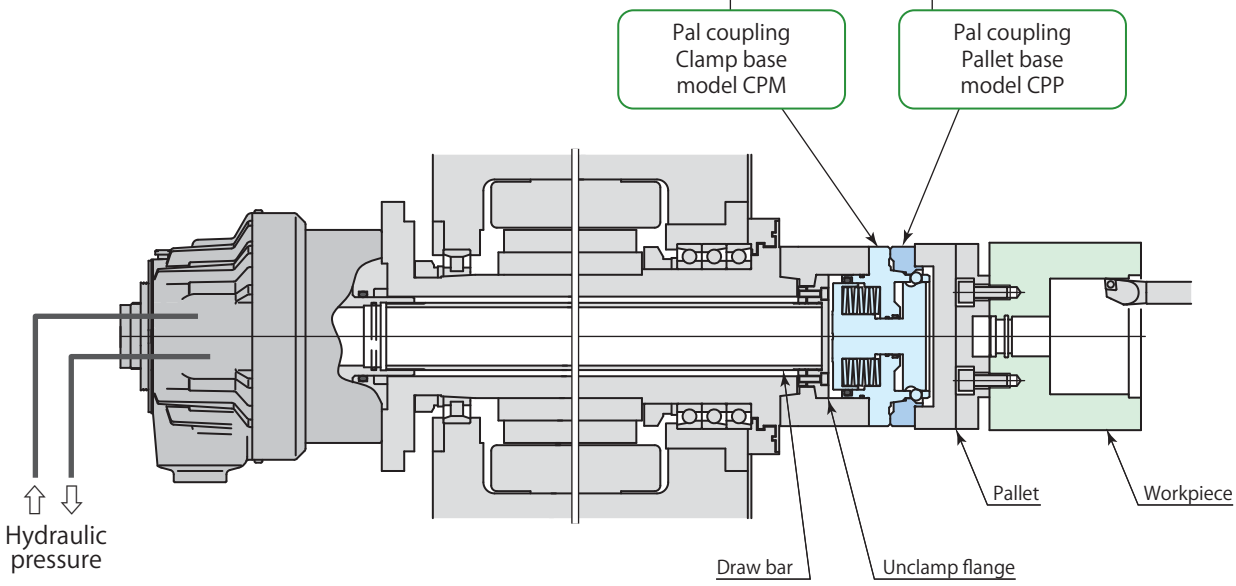
3

OP3

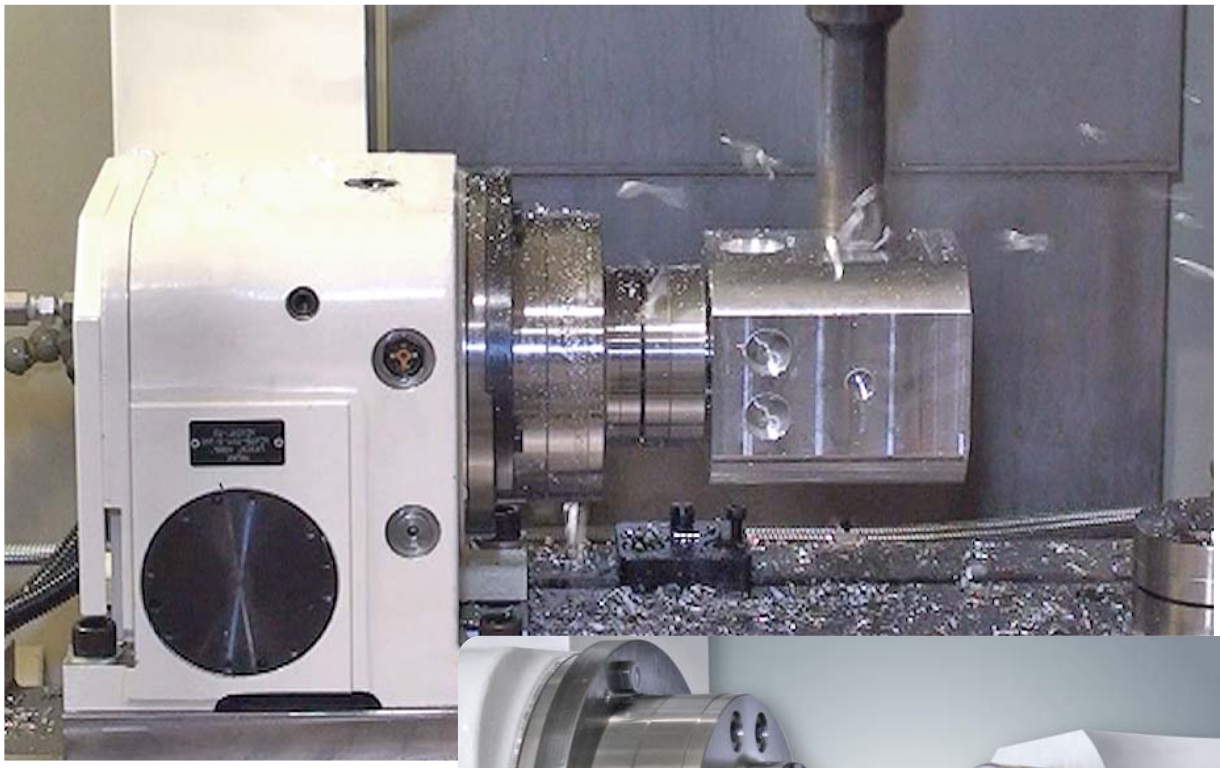
The remaining one plane to be machined with Pal coupling on vertical machine

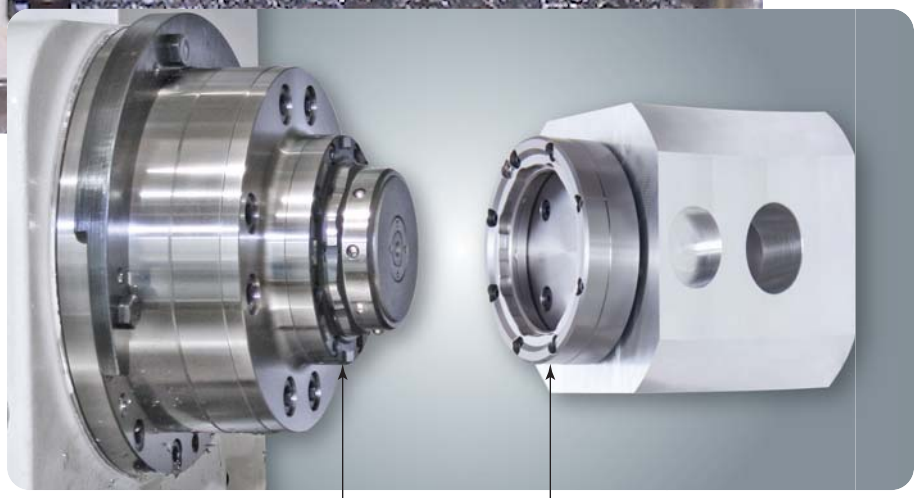


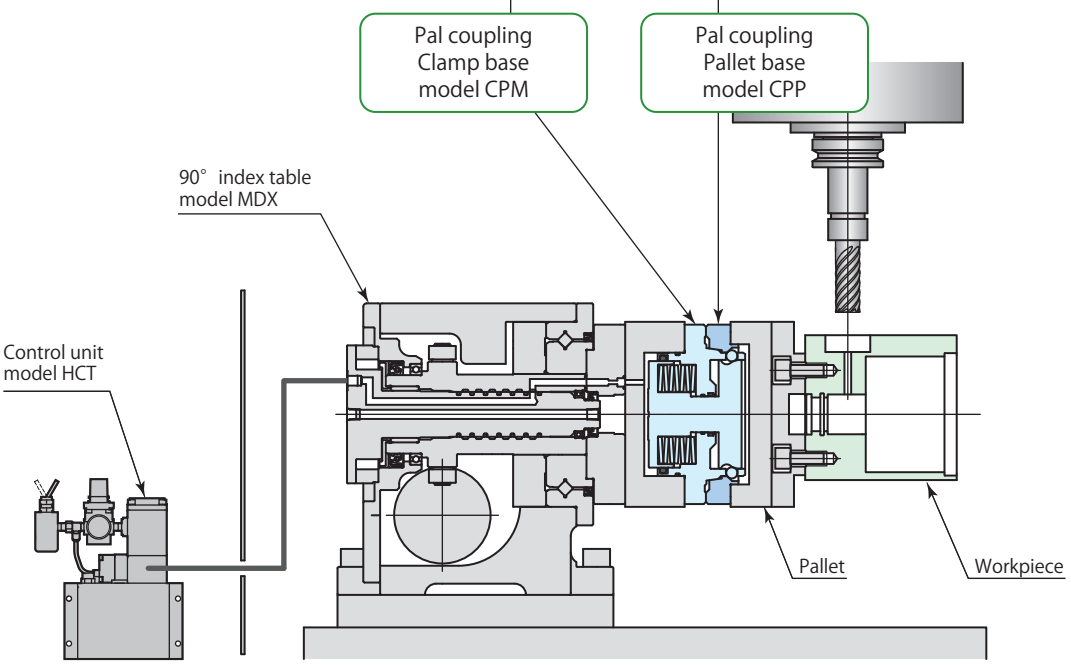
Machining by a lathe



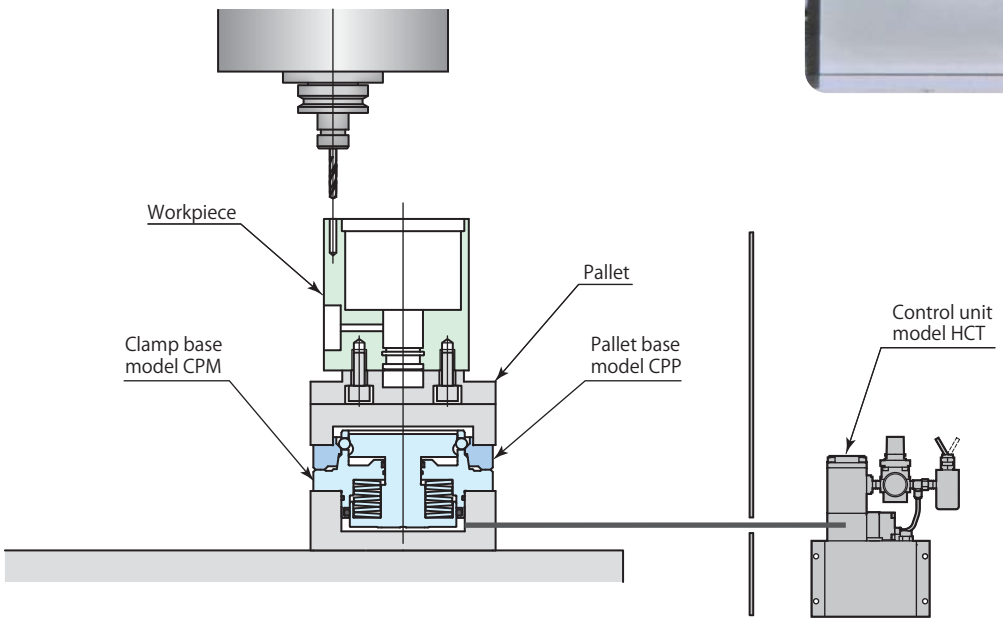
4-plane machining with an index table



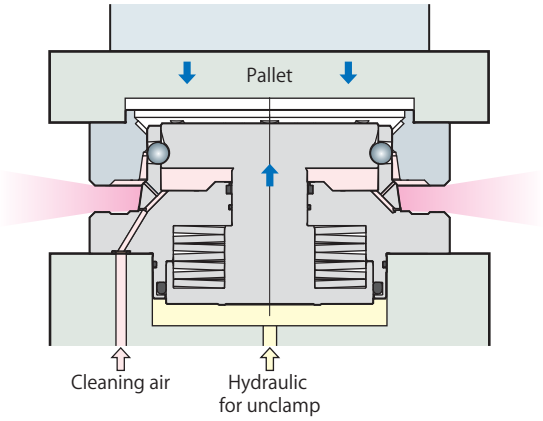


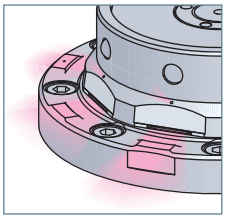


The remaining one plane to be machined with Pal coupling on vertical machine



at loading a pallet

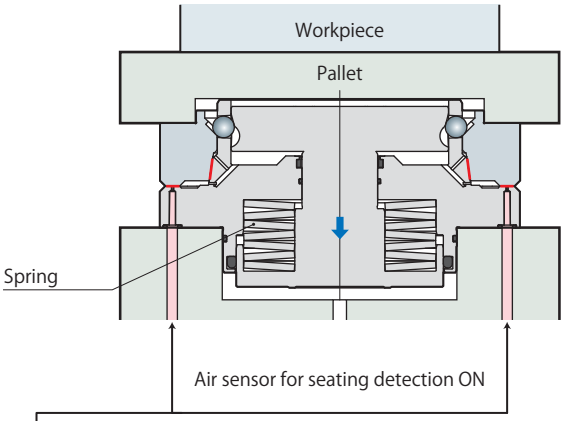


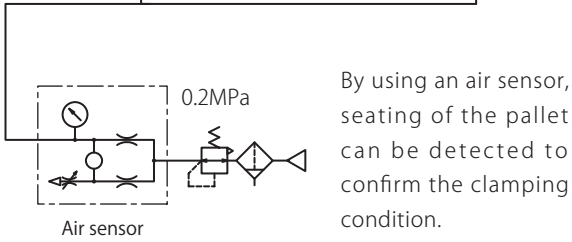


Air cleaning circuit ensures seating surface cleanliness to prevent jamming.

at clamping a pallet

Pal coupling clamps with spring.

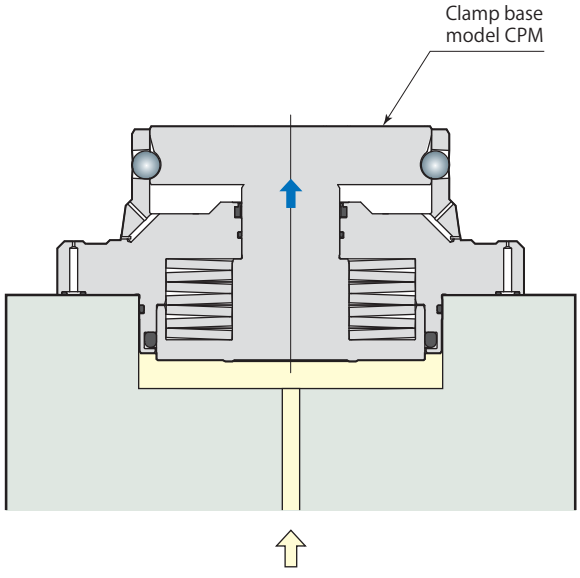




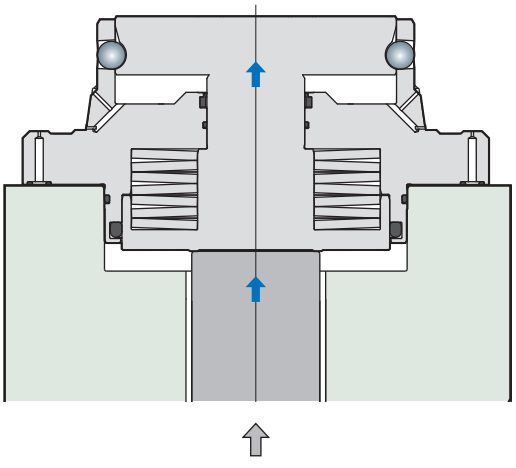
By using an air sensor, seating of the pallet can be detected to confirm the clamping condition.

Pallet unclamp system

2 choices in actuator - Hydraulic or mechanical



Unclamp (Hydraulic)



Unclamp (Mechanical)

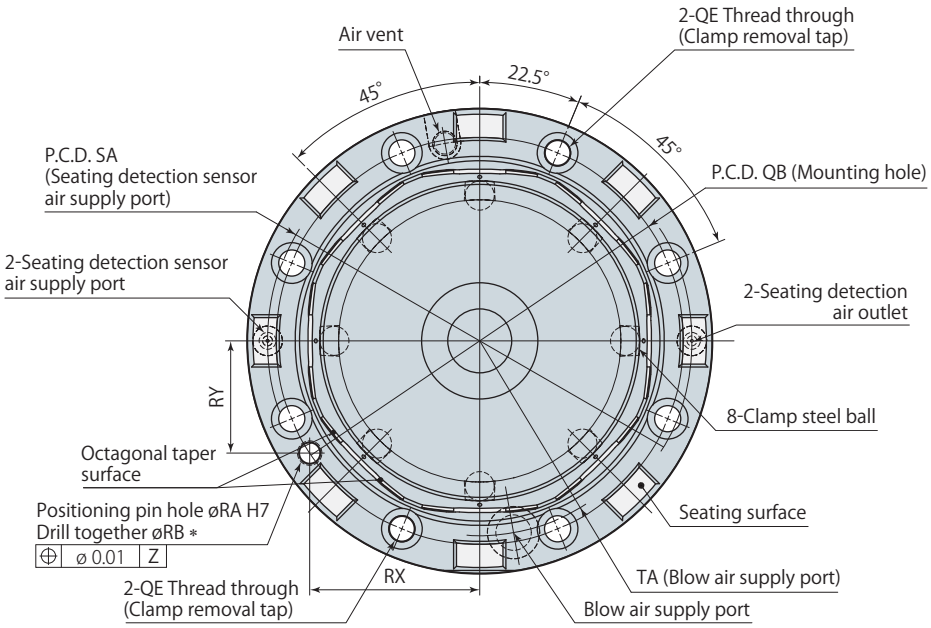
Specification

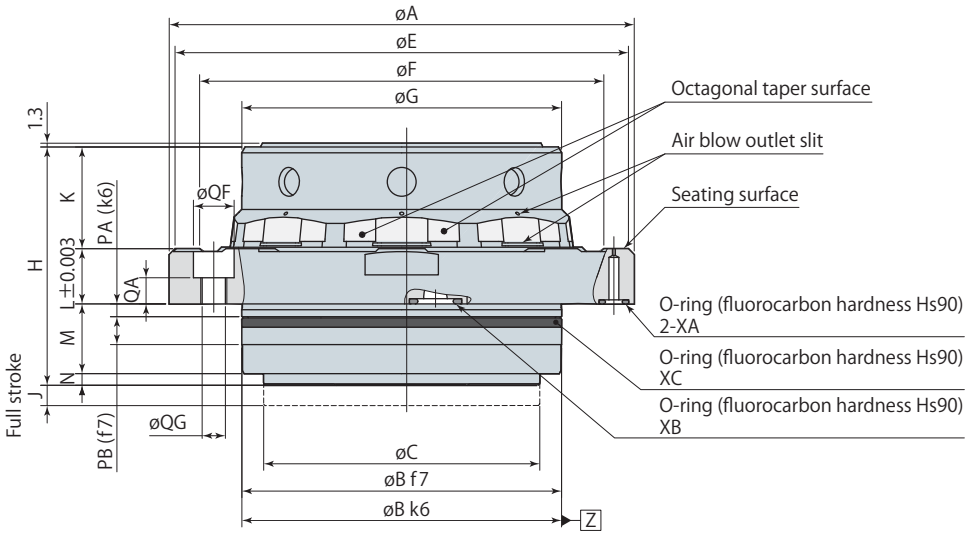
Model		Clamp base / Pallet base		CPM-100 CPP-100	CPM-125 CPP-125	CPM-160 CPP-160	CPM-200 CPP-200
Clamping force			kN	10	16	25	40
Cylinder capacity (unclamp)			cm^3	14.1	28.7	49.6	77.9
Full stroke			mm	5	6.5	7	7.5
Clamp stroke			mm	3	4	4.5	5
Stroke margin			mm	2	2.5	2.5	2.5
Lift stroke*			mm	0.3	0.3	0.3	0.3
Max. allowable eccentricity at pallet setting			mm	±1	±1	±1	±1.5
Lifting force	Hydraulic pressure 3.5 MPa		kN	1.5	3.2	4.6	4.5
	Hydraulic pressure 5 MPa		kN	5.7	9.8	15.3	20.1
	Hydraulic pressure 7 MPa		kN	11.4	18.7	29.4	40.9
Max. allowable load	Horizontal mounting		kN	11	18	29	40
	Vertical mounting		kN	5	7	9	16
Mass	Clamp base		kg	1.8	3.4	6.8	12
	Pallet base		kg	0.4	0.8	1.6	3

- Min. working pressure：3.5 MPa (required to release locking function at unclamp)
- Max. working pressure：7 MPa
- Proof pressure：10.5 MPa
- Operating temperature：0~70℃

＊：This is the amount for lifting pallet when unclamping.

Dimensions





mm

Model	øA	øB	øC	øE	øF	øG	H	J	K	L	M	N	øRA	øRB*	RX	RY
CPM-100	100	74	60	97	89	70	55	5	21	12	21	1	5	6	38	25
CPM-125	125	89	75	121	111	86	71.5	6.5	29	15	21	6.5	6	8	47	31
CPM-160	160	110	95	156	140	110	82	7	35	19	24	4	8	10	60	39
CPM-200	200	130	115	194	178	142	92.5	7.5	41	23	25	3.5	10	12	77	49

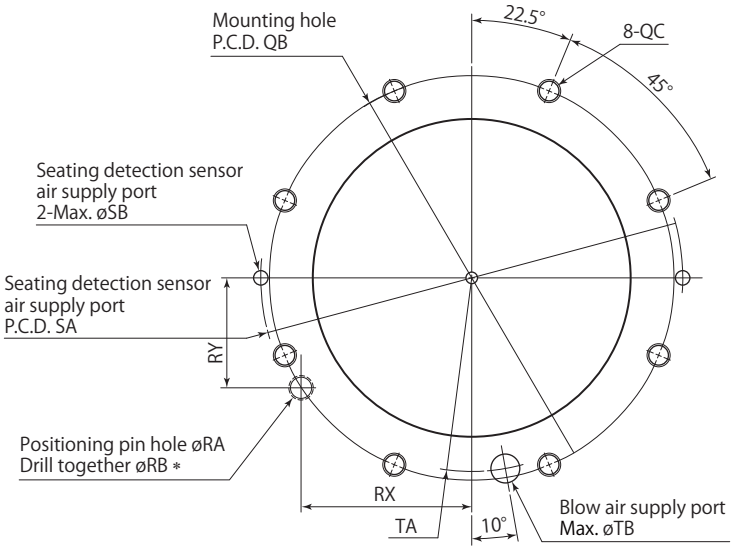
mm

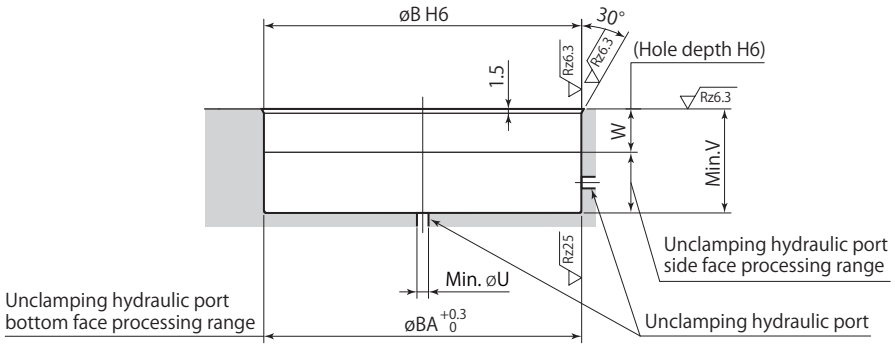
Model	PA	PB	QA	QB	QE	øQF	øQG	SA	TA	O-ring XA	O-ring XB	O-ring XC
CPM-100	4.4	5.6	5.5	89	M6×1	9.5	5.5	90	R43.5	P4	P7	AS568-147
CPM-125	4.4	5.6	7.5	110	M8×1.25	11	6.8	115	R55	P4	P8	AS568-152
CPM-160	4.4	5.6	9	140	M10×1.5	14	9	146	R67	P7	P14	AS568-155
CPM-200	4.4	5.6	11	175	M12×1.75	17.5	11	186	R81.5	P7	P14	AS568-158

● Mounting screws, positioning pin are not included.

∗ : Drill body together with mounting surface.

Mounting details



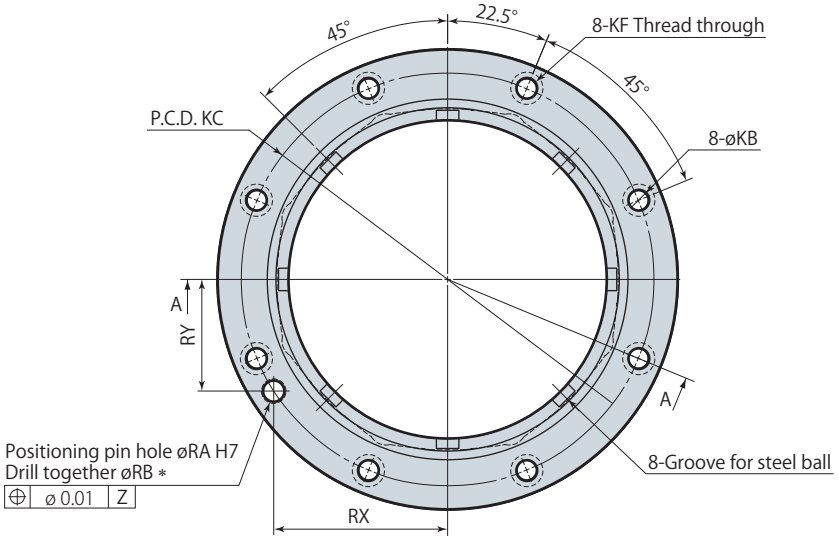


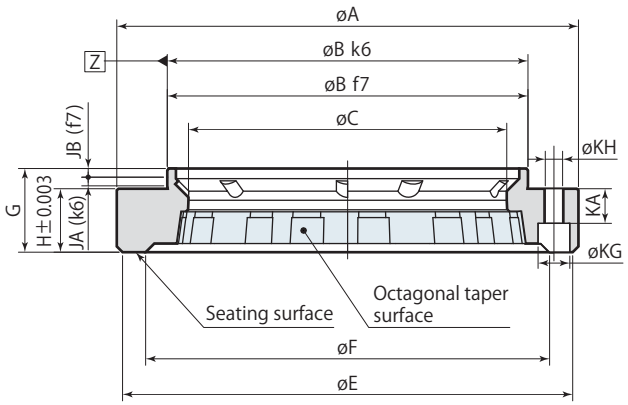
mm

Model	øB	øBA	QB	QC	SA	øSB	TA	øTB	øU	V	W	øRA	øRB*	RX	RY
CPM-100	74	73.7	89	M5	90	2.5	R43.5	5	3	28	11	5	6	38	25
CPM-125	89	88.7	110	M6	115	2.5	R55	5	3	35	11	6	8	47	31
CPM-160	110	109.7	140	M8	146	5	R67	10	4	36	11	8	10	60	39
CPM-200	130	129.7	175	M10	186	5	R81.5	10	4	37	11	10	12	77	49

∗ : Drill body together with mounting surface.

Dimensions





mm

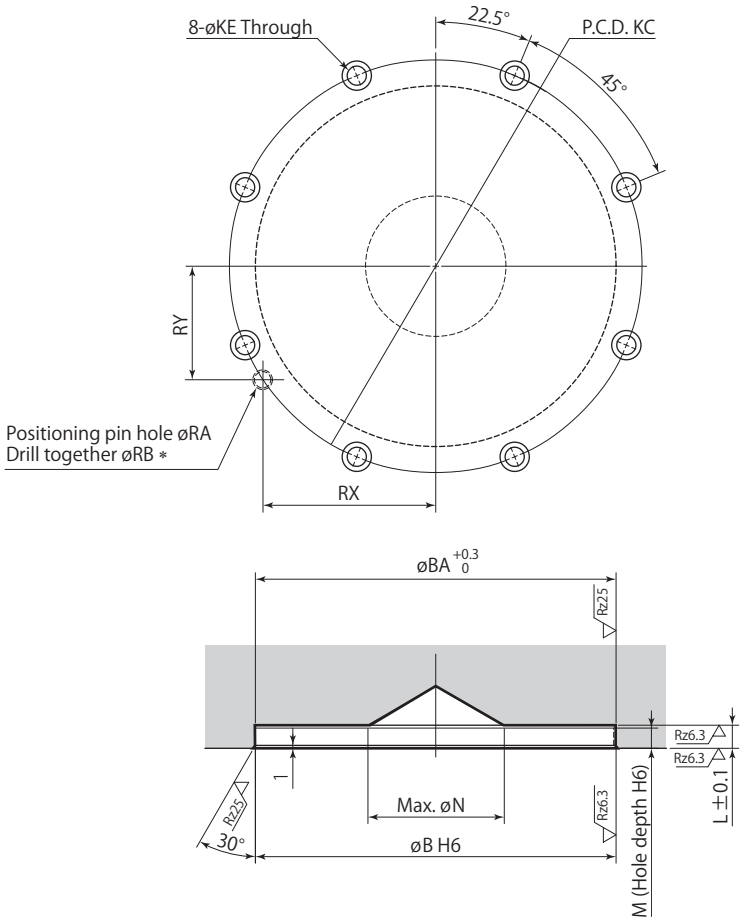
Model	øA	øB	øC	øE	øF	G	H	JA	JB	KA	KB	KC	KF	øKG	øKH	øRA	øRB※	RX	RY
CPP-100	100	82	70.3	97	89	21	15	2.5	2.5	7.5	4.5	90	M5×0.8	8	4.5	5	6	38	25
CPP-125	125	100	86.3	121	111	26	19	3	3	10	5.5	113	M6×1	9.5	5.5	6	8	47	31
CPP-160	160	125	110.3	156	140	29	22	3	3	12	6.8	143	M8×1.25	11	6.8	8	10	60	39
CPP-200	200	166	142.3	194	178	35	28	3	3	15	9	180	M10×1.5	14	9	10	12	77	49

● Mounting screws, positioning pin are not included.

∗ : Drill body together with mounting surface.

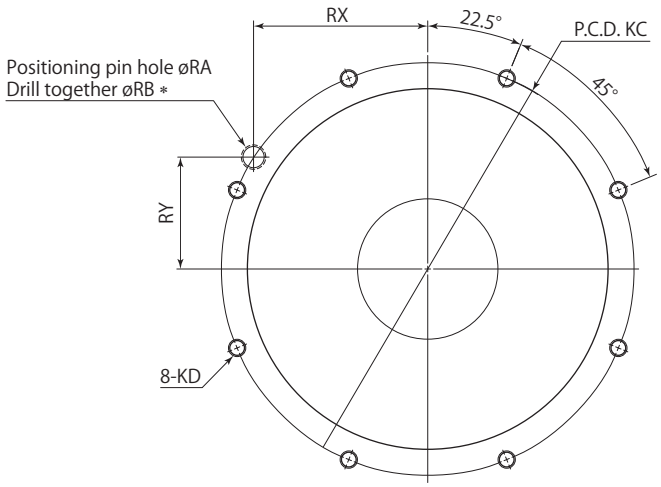
Mounting details

Top mount



Mounting details

Bottom mount



mm

Model	øB	øBA	KC	KD	øKE	L	M	øN	øRA	øRB※	RX	RY
CPP-100	82	81.7	90	M4	5.5	7	6	50	5	6	38	25
CPP-125	100	99.7	113	M5	6.8	11	7	65	6	8	47	31
CPP-160	125	124.7	143	M6	9	14	7	80	8	10	60	39
CPP-200	166	165.7	180	M8	11	14	7	120	10	12	77	49

∗ : Drill body together with mounting surface.

Pascal

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CERTIFICATE OF APPROVAL ISO9001

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2023. 05