

MCHJ2 series

PARALLEL GRIPPER (3-Finger)



Model selection



Technical data



Caution for safety
(Read before installing)



Order example

MCHJ2 — 50 — SD

MODEL

SIZE

50, 66, 80,
100, 125, 160

ACCESSORIES (Options)

P (*1)

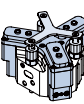
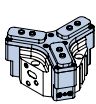
SD (*2)

PSD (*1)

Pressure
piece

Dust-proof
Module

P+SD



*1. Only for size 50~100.

*2. When the size 50 is assembled with the dust-proof module, the proximity sensor cannot be used.

Accessories

SD — MCHJ — 50

SD: Dust-proof module
P: Pressure piece

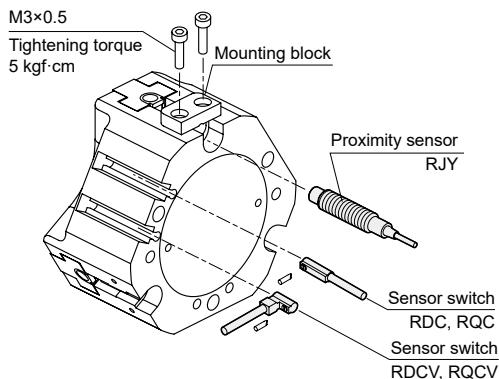
SIZE

50 ~ 160 (*1)

*1. Pressure piece (P) only for size 50~100.

*2. Use the same accessories with MCHJ series.

Installation of sensor switch & speed controller



Features

- Compact design to ensure minimum interference while operating; robust T rail design, ensure accurate gripping.
- Can reach maximum torque suitable for long jaws design.
- Circular piston-driven design ensure maximum clamping force.
- Hose-free direct connection: Air supply channel can connect directly without piping or through thread to assure the flexibility of supplying compressed air on any kind of automation system.
- Assembling with a dust-proof module can prevent foreign matters (>0.5mm) entering the gripper.
- Magnetic as standard.

Dust-proof module

- For dusty environment usage.
- When installing soft-jaws, the length of jaws are measured from the the body surface.
- Heat resistance type of modules are also available. Please contact our sales department.

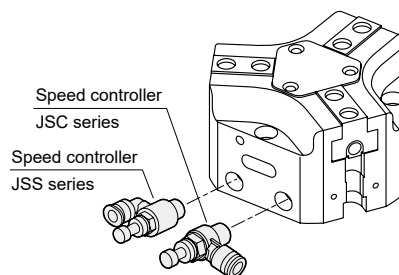
Pressure piece

- A special design for the gripper to eject the workpiece after gripper opens.

Specification

Model	MCHJ2					
Acting type	Double acting					
Size	50	66	80	100	125	160
Stroke per-jaw (mm)	4	6	8	10	12	16
Effective external gripping force (N) (*)	95	177	297	527	917	1756
Close/Open time (1/s)	0.025	0.03	0.05	0.1	0.2	0.25
Medium	Air					
Operating pressure range	0.2~0.8 MPa					
Compressed air consumption (cm³)	9.2	21.5	47	100	195	485
Ambient temperature	+5°C~ +80°C					
Lubrication	Not required					
Sensor switch	RDCV RQCV 	RDC(V), RQC(V) 				
Proximity sensor	—	RJY 				
Accessories	Mounting block, Accessory kits					
Weight (kg)	0.22	0.5	0.85	1.6	2.8	5.2

* Under the condition of clamping length 40mm and operation pressure 0.6 MPa.

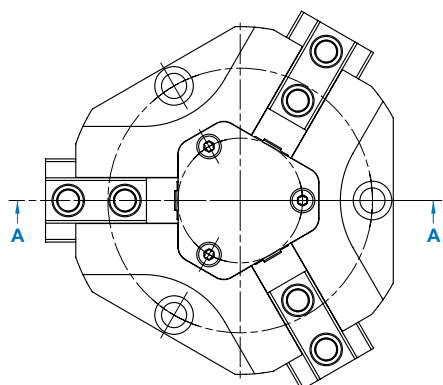


* Each gripper needs at least two speed control valves to control speed.

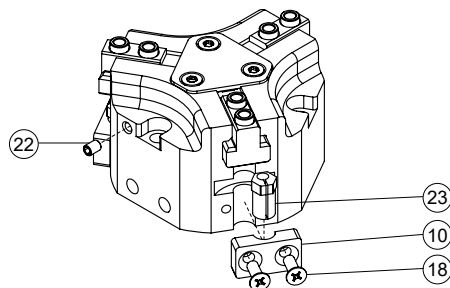
* Speed controller specification

MCHJ2 Inside structure & Parts list

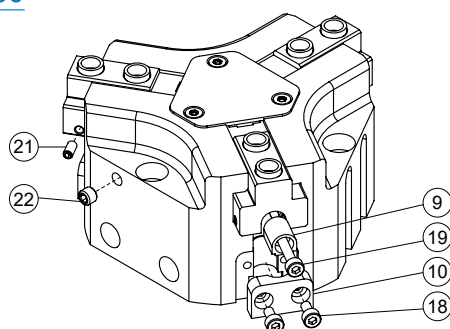
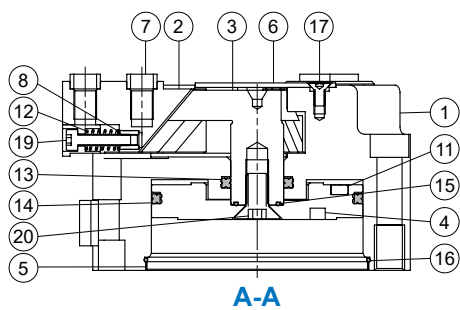
PARALLEL GRIPPER (3-Finger)



50



66~160



Material

No.	Size Part name	Material			Q'y						Repair kits (inclusion)
		50	66	80~160	50	66	80	100	125	160	
1	Body	Aluminum alloy			1						
2	Finger	Carbon steel			3						
3	Rod	Carbon steel			1						
4	Piston	Aluminum alloy			1						
5	End cover	Stainless steel			1						
6	Plate cover	Stainless steel			1						
7	Centering sleeve	Stainless steel			6 (Included in accessory kits)						
8	Thread insert	—		Brass	—		3				
9	Sensor adj block	—	Aluminum alloy		—	2					
10	Magnet holder	*1	Resina		2						
11	Magnet	Magnet material			4	1			4	6	
12	Spring	—	SWP		—	2					
13	Rod packing	NBR			1						●
14	Piston packing	NBR			1						●
15	O-ring	NBR			1						●
16	O-ring	NBR			1						●
17	Screw	Alloy steel			3						
18	Bolt	*2	Stainless steel		4						
19	Hex bolt	—	Stainless steel		2						
20	Bolt	Alloy steel			1						
21	Hex screw	—	Stainless steel		—	4					
22	Hex screw	*2	Stainless steel		3						
23	Adjust socket	SUS	—		2	—					

*1. Aluminum alloy *2. Alloy steel

Order example of repair & accessory kits

Size	Repair kits	Accessory kits
50	PS-MCHJ-50	AK-MCHJ-50
66	PS-MCHJ-66	AK-MCHJ-66
80	PS-MCHJ-80	AK-MCHJ-80
100	PS-MCHJ-100	AK-MCHJ-100
125	PS-MCHJ-125	AK-MCHJ-125
160	PS-MCHJ-160	AK-MCHJ-160

* Use the same kits with MCHJ series.

Accessory kits

O-ring (×2) Material: NBR	Iron plug (×2) Stainless steel + NBR
PIN (×2)* Bearing steel	Centering sleeve (×6) Stainless steel

* Refer to the table below.

Pin size

Size	Pin
50	ø4×8.8L
66	ø4×14.8L
80	ø5×14.8L
100	ø5×14.8L
125	ø6×17.8L
160	ø6×17.8L

Effective gripping force

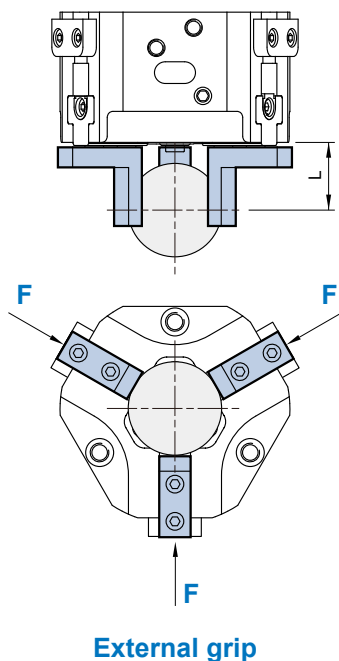
* Model selection 

Indication of effective gripping force.

The effective gripping force shown in the graphs to the right is expressed as F, which is the thrust of one finger, when three fingers and attachments are in full contact with the workpiece as shown in the figure below.

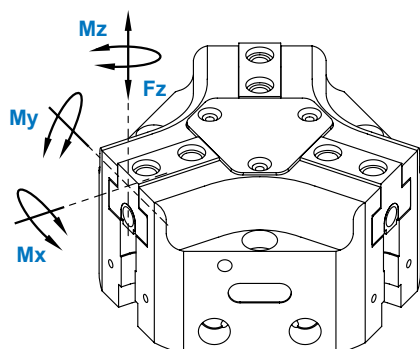
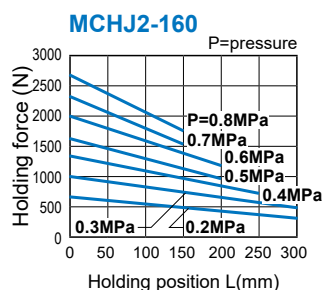
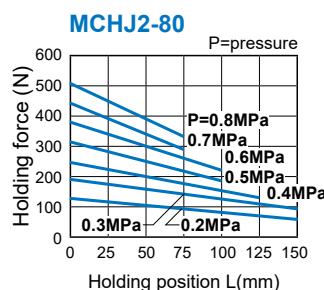
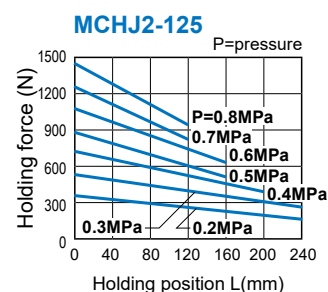
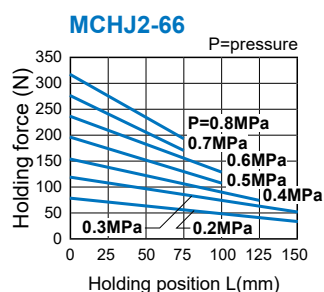
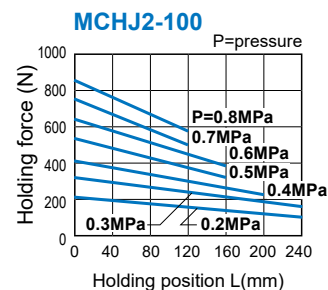
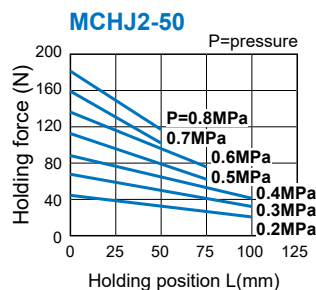
1N=0.102 kgf

1MPa=10.2 kgf/cm²



External grip

External gripping force



Code Size	Mx max. (Nm)	My max. (Nm)	Mz max. (Nm)	Fz max. (N)
50	15	15	8	700
66	50	45	35	1200
80	80	60	50	1800
100	100	90	75	2500
125	120	120	100	3200
160	160	180	140	5000

Effective gripping force

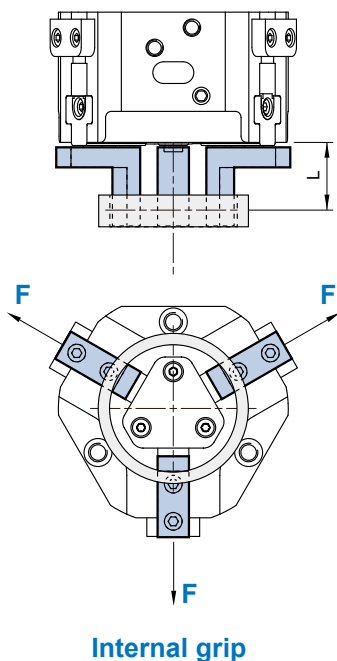
* Model selection 

Indication of effective gripping force.

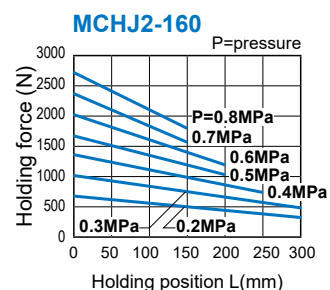
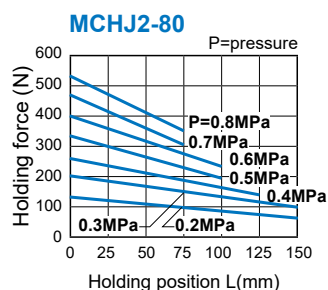
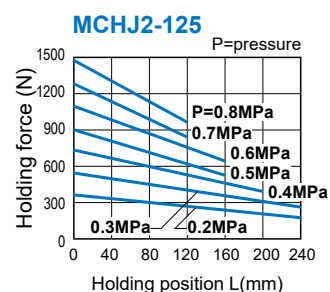
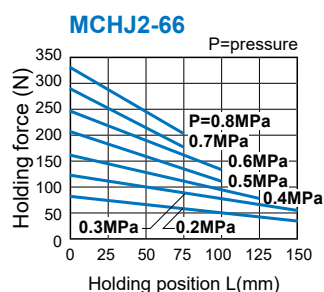
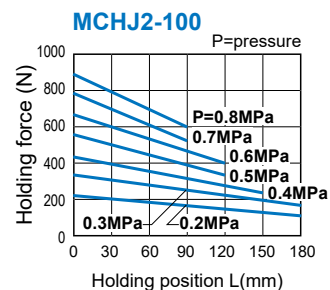
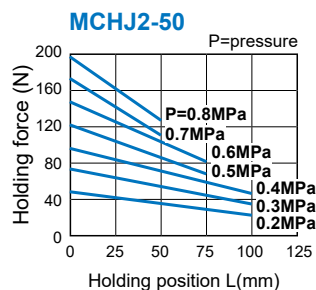
The effective gripping force shown in the graphs to the right is expressed as F, which is the thrust of one finger, when three fingers and attachments are in full contact with the workpiece as shown in the figure below.

1N=0.102 kgf

1MPa=10.2 kgf/cm²



Internal gripping force



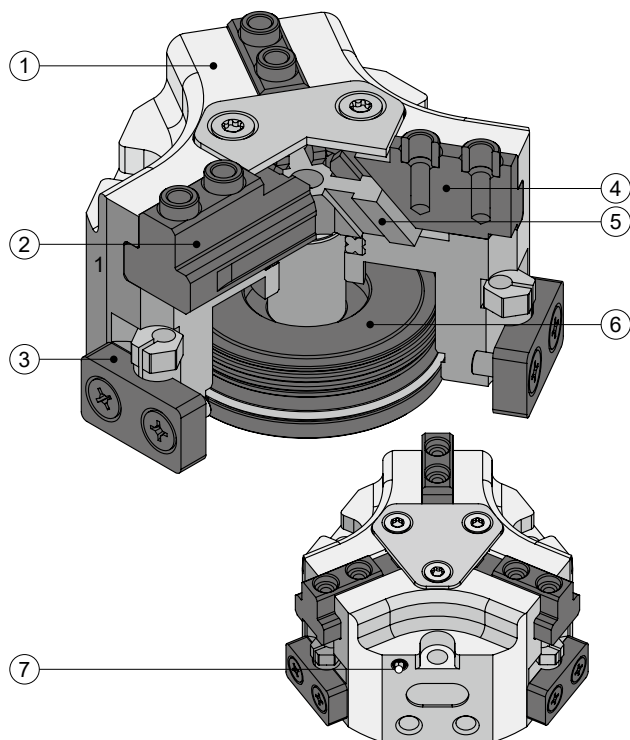
MCHJ2 Internal structure & Application examples

PARALLEL GRIPPER (3-Finger)



Internal structure & Movement description

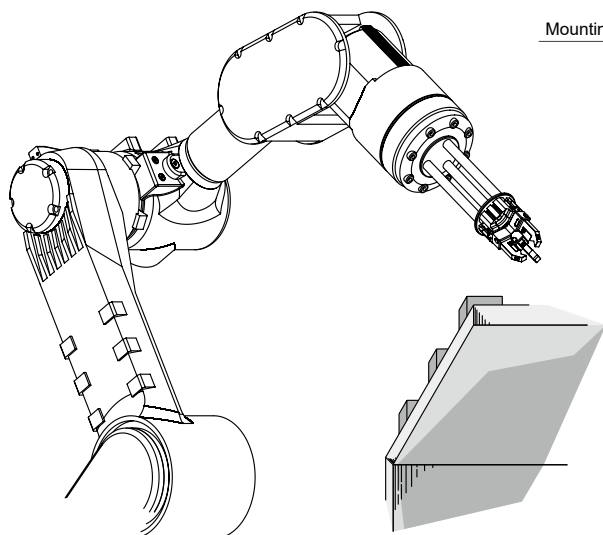
Compressed air will push or press the circular piston.
By tilting the working surface, the wedge hook will transfer the movement to side movement, and initiate the action of the three base jaws simultaneously.



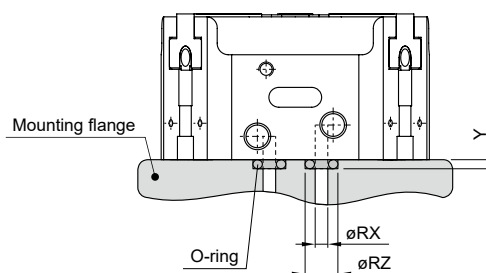
- ① **Material**
Anodized high rigid aluminum alloy to reduce weight.
- ② **Rail**
Bearing rails load the base jaw, which ensure the minimal vibration of long jaw.
- ③ **Sensor system**
Sensor switch or proximity sensor are available.
- ④ **Base jaw**
Jaws connected to work piece.
- ⑤ **Wedge hook**
High power transmission center jaws.
- ⑥ **Large circular piston**
Generate larger structural strength.
- ⑦ **Air purge connection (External vents)**
The air purge is used in order to make it more difficult for dirt and dust to penetrate into the product and the guiding areas.
* The air purge is effective only when the gripper is opened.
* Install a valve to control the air purge.

Application examples

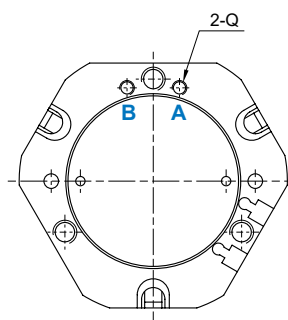
The wedge hook can pass through the inclined working surface, change the action to sideways and simultaneously actuate the three-jaw clamping movement.
It can be used in the robot arm system environment when matched with various accessory.



Hose-free direct connection



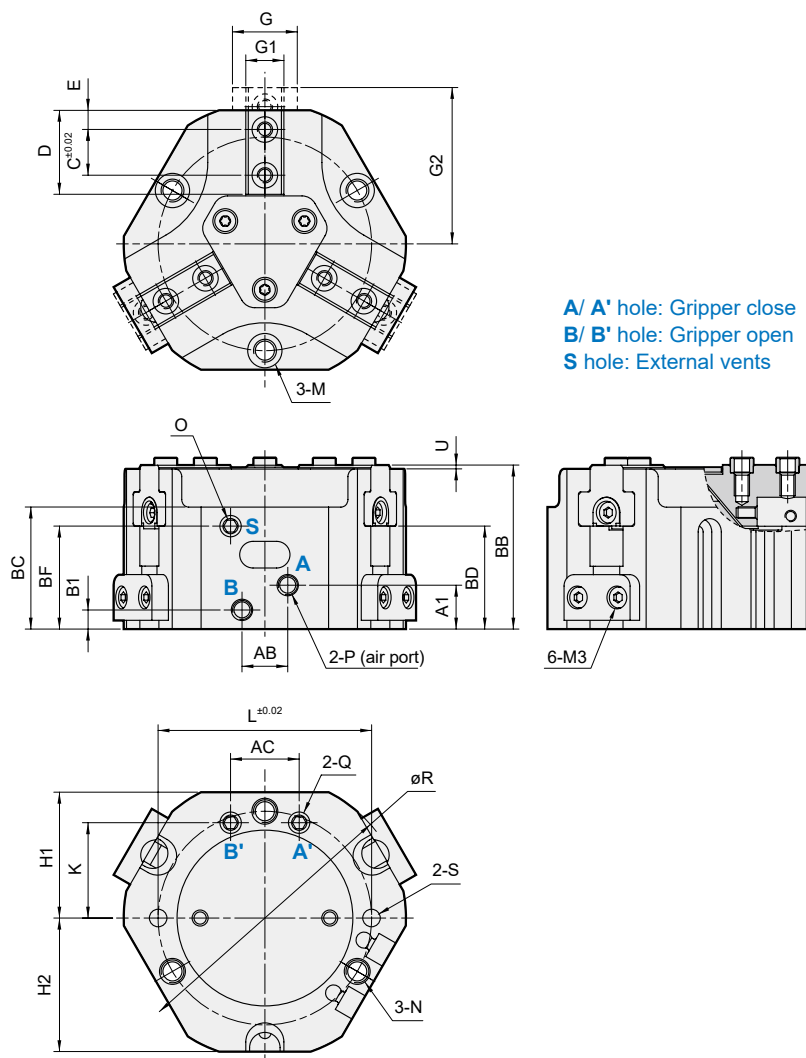
Code Size	Q	RX	RZ	Y
50	M3	3	5	0.7
66	M5	5	8	1.2
80	M5	5	8	1.2
100	M5	5	8	1.2
125	M5	5	8	1.2
160	M5	5	8	1.2



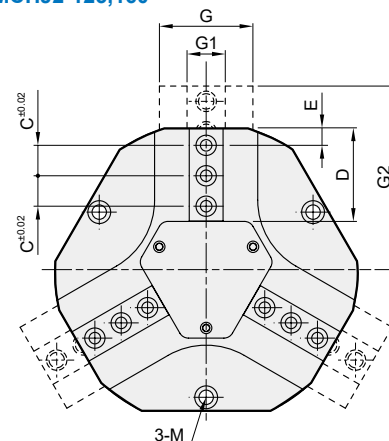
A hole: Gripper close
B hole: Gripper open

MCHJ2 Dimensions 50~160

PARALLEL GRIPPER (3-Finger)

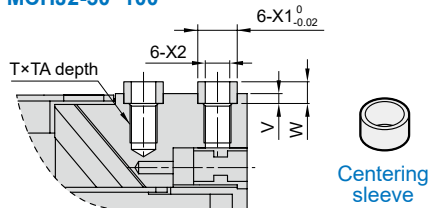


MCHJ2-125,160

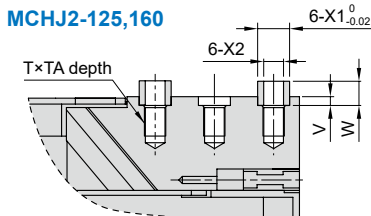


Centering sleeve

MCHJ2-50~100



MCHJ2-125,160

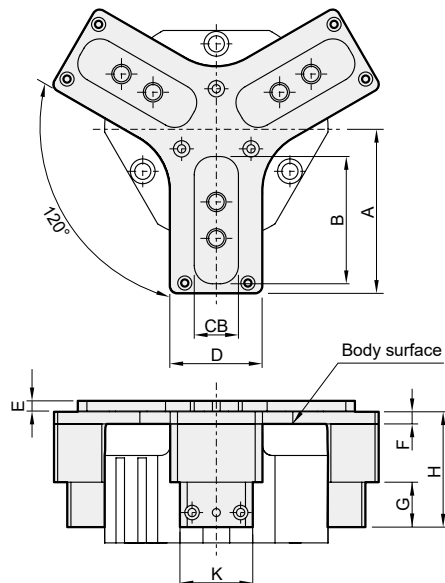
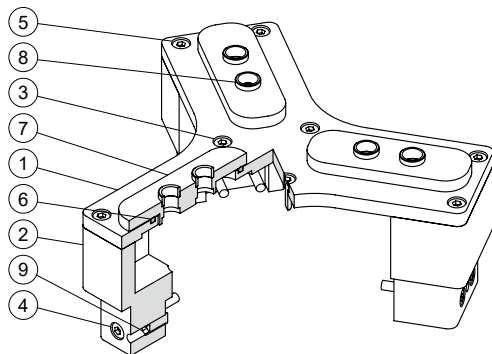


Code Size	A1	AB	AC	B1	BB	BC	BD	BF	C	D	E	G	G1	G2	H1	H2	K	L
50	5	12	12	5	35	26	23	23	8	16	4	12	6.5	31	26	27	19	45
66	11.5	12	18	5	43	32	27	27	12	22	5	17	10	41	33	35	25	56
80	8	26	18	8	50	36	31	31	15	26.7	6	22	12	51.5	40.5	43.5	32	70
100	13.5	24	24	10	60	41	38	34	18	34.2	10	26	14	64	51	54	42	90
125	17	30	30	10	68	49	42.5	37	12.5	42.3	10	31	15.5	79	64	67	53	112
160	20	44	38	10.5	80	55	48	45	18	54.8	10	39	20	102	81	86	67.5	146

Code Size	M	N	O	P	Q	R	S	T	TA	U	V	W	X1	X2
50	ø7.3×4.1dp, ø4.3 thru, P.C.D.ø45	M5×0.8×8dp	M3	M5×0.8	M3	57	ø4H7×5	6-M3×0.5	7	1	2	3.9	ø5	ø3
66	ø9×5.1dp, ø5.1 thru, P.C.D.ø56	M6×1.0×10dp	M5	M5×0.8	M5	74	ø4H7×8	6-M4×0.7	8	1	2	3.9	ø6	ø4
80	ø10.2×6.1dp, ø6.8 thru, P.C.D.ø70	M8×1.25×12dp	M5	G1/8	M5	92	ø5H7×8	6-M6×1.0	10	1	2	3.9	ø8	ø6
100	ø10.5×6.5dp, ø6.8 thru, P.C.D.ø90	M8×1.25×12dp	M5	G1/8	M5	114	ø5H7×8	6-M6×1.0	12	1	2	3.9	ø10	ø6
125	ø13.5×8.1dp, ø8.6 thru, P.C.D.ø112	M10×1.5×15dp	M5	G1/8	M5	139	ø6H7×10	9-M6×1.0	14	1	2	3.9	ø10	ø6
160	ø13.5×8.1dp, ø8.6 thru, P.C.D.ø146	M10×1.5×24dp	M5	G1/8	M5	179	ø6H7×10	9-M8×1.25	14	1	2	3.9	ø12	ø8

Inside structure & Parts list / Dimensions

Dust cover 50~160

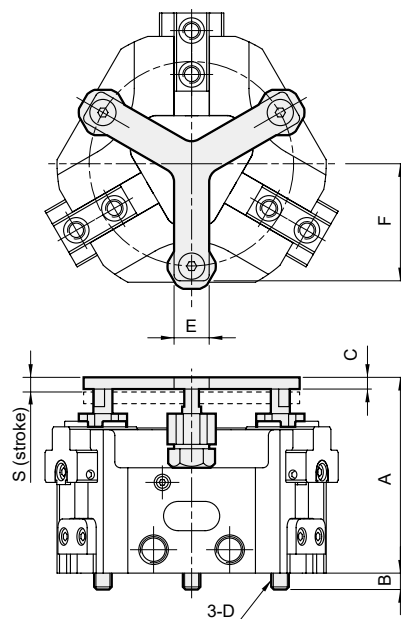
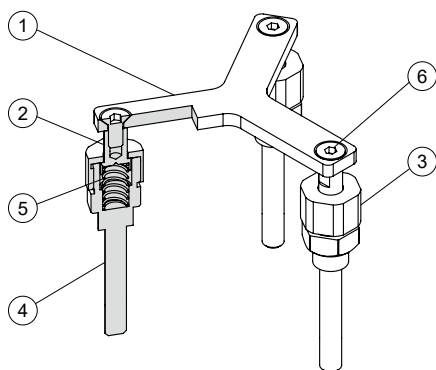


Material

No.	Part name	Material	Q'y	
			50	66~160
1	Dust cover	Aluminum alloy	1	1
2	Mounting block	Aluminum alloy	3	3
3	Bolt	Alloy steel	3	3
4	Bolt	Alloy steel	5	6
5	Bolt	Alloy steel	6	6
6	O-ring	NBR	3	3
7	Slider	Carbon steel	3	3
8	Centering sleeve	Stainless steel	6	6
9	Hexagon screw	Alloy steel	0	2

Code Size	A	B	CB	D	E	F	G	H	K	Weight (g)
50	43	30	13	17	4.5	5	16	35.5	17	105
66	51	41	16.2	24	4.5	5	19.5	45.5	24	179
80	67.5	52.4	18.1	38	4.5	5	19	48	30	381
100	80	61	22	37	4.5	5	11.5	41	37	417
125	95	72	22	50	4.5	5	14.5	47.5	37	603
160	121	93	25	60	4.5	6	13	55	50	1019

Pressure piece 50~100



Material

No.	Part name	Material	Q'y
1	Top plate	Carbon steel	1
2	Spring pressure column	Carbon steel	3
3	Nut	Carbon steel	3
4	Fixed column	Carbon steel	3
5	Spring	Stainless steel	3
6	Bolt	Alloy steel	3

Code Spec.	A	B	C	D	E	F	S	Weight (g)	Ejection force (kgf)	
									Retracted Min.	Extended Max.
50	55.5	5	2	M4×0.7	8	30	6	63	1	3.9
66	60.9	5.6	2	M5×0.8	10	35	5	93	2	3.8
80	66.9	5.6	4	M6×1.0	12	40	5	149	1.5	2.4
100	71.6	7.9	4	M6×1.0	14	50	5	180	4.1	6.3