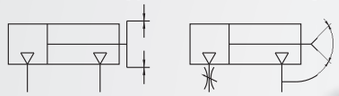
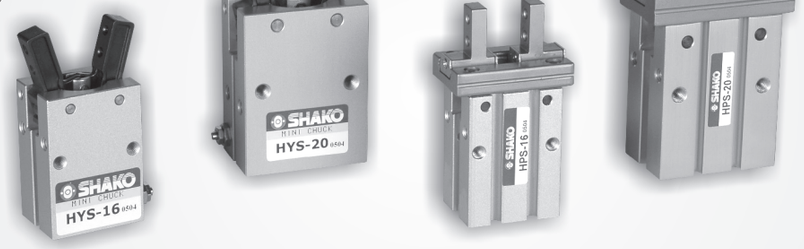
Symbol

HPS:Parallel type HYS:Fulcrum type





Features

- Identical to SMC mounting hole.
- Precision and no vibration.
- Endurable and strong mechanism.
- SUS440C gripper provides a long life of product.
- Aluminum alloy body with hard anodizing for wear and corrosion resistance.

How to order

HPS

Mini chuck	
HPS	Parallel type (Linear mechanism)
HYS	Fulcrum type

16

Bore size	
16	ϕ16
20	ϕ20

N

Type of gripper (For HPS only)	
W	Wide
N	Narrow

SR

Sensor type	
Blank	W/O sensor
SS	Square type (HPS)
SR	Round type

AL-11R

AL-07R

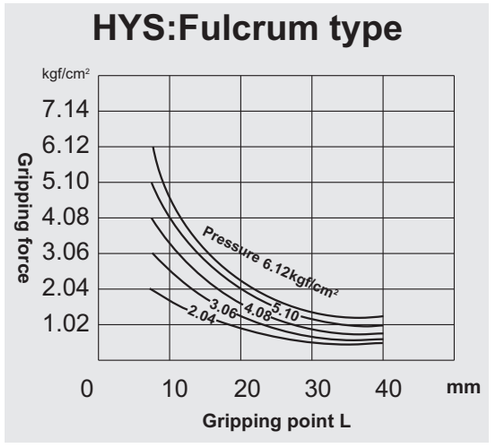
1

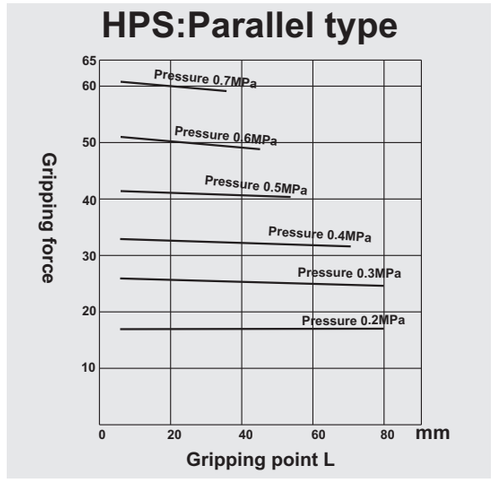
Number of sensor	
1	1 pc
2	2 pcs

Specifications

Bore size	ϕ16	ϕ20
Port size	M 5	
Gripping gap distance (Wide type)	When open：22mm, When closed：14mm	When open：26mm, When closed：16mm
Gripping gap distance (Narrow type)	When open：15.2mm, When closed：7mm	When open：17.2mm, When closed：7.7mm
Internal gripping force(For HPS)	40N	65.5N
External gripping force(For HPS)	30N	42N
Fluid	Compressed air	
Acting	Double acting	
Operating pressure range	Fulcrum type：1.0~6.1 kgf/cm² , Parallel type：1.0~7 kgf/cm²	
Max. operating pressure	7 kgf/cm²	
Lubrication	Not required or few	
Body material	Aluminum alloy (6061T6)	
Gripper material	SUS(Parallel type), S45C(Fulcrum type)	
Magnet	Built-in	
Ambient temperature	0℃ ～ 60℃	
Operating frequency	HPS: 160 c.p.m. HYS:180 c.p.m	
Operating angle (For HYS)	-10° ～ 30°	

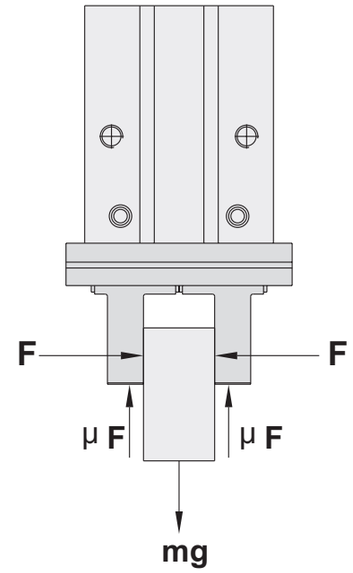
Gripping force graph





Pressure/Gripping point/Gripping force graph
※Please note that gripping force need 10~20 times greater than the work piece weight.

Effective gripping force calculation



When gripping a work piece as in the left figure , the following definitions are applied: :

F: Gripping force (N)
μ : Coefficient of friction between the attachments and the work piece
m: Work piece mass (kg)
g: Gravitational acceleration (=9.8m/s²)
mg: Work piece weight (N)

the conditions under which the work piece will not drop are～

$$\frac{2}{\text{Number of fingers}} \times \mu F > mg$$

and therefore

$$F > \frac{mg}{2 \times \mu}$$

With "a" representing the extra margin, F is determined by the following formula:

$$F > \frac{mg}{2 \times \mu} \times a$$

Example:
<The "10 to 20 times or more of the work piece weight">

When μ =0.2	When μ =0.1
$F=\frac{mg}{2 \times 0.2} \times 4 = 10 \times mg$	$F=\frac{mg}{2 \times 0.1} \times 4 = 20 \times mg$
10 x work piece weight	20 x work piece weight

※Even in cases where the coefficient of friction is greater than μ =0.2, for reasons of safety, a gripping force should be selected at least 10 to 20 times greater than the work piece weight.
※It is necessary to allow a greater margin for high accelerations and strong impacts.

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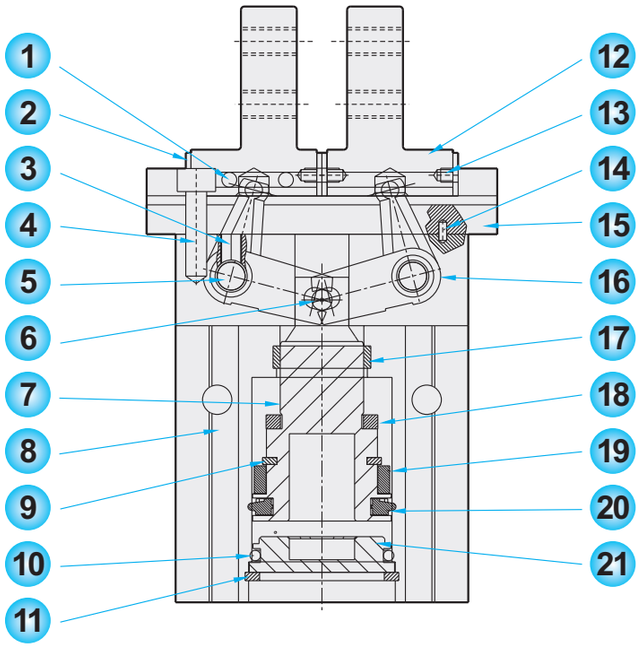
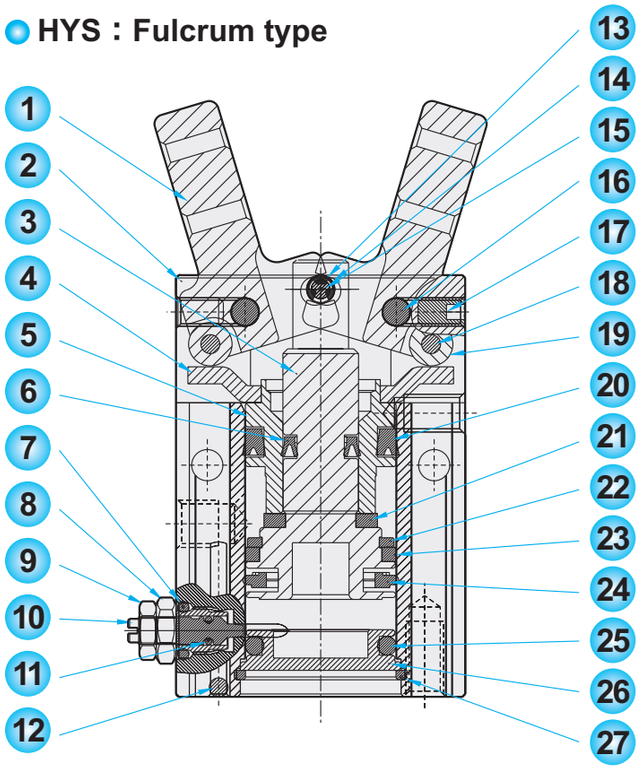
Material of parts

HPS : Parallel type



No.	Description	Material	Qty
1	Steel ball	Carbon steel	24
2	Roller stopper	Stainless steel	4
3	Plug	Fe+Ni	2
4	Hex socket head cap screw	Stainless steel	4
5	Lever shaft	Stainless steel	2
6	Center pin	Stainless steel	1
7	Piston	Aluminum alloy	1
8	Body	Aluminum alloy	1
9	Snap ring	Fe+Ni	1
10	O-ring	NBR	1
11	C type snap ring	Stainless steel	1
12	Gripper	Stainless steel	2
13	Screw	Fe+Ni	8
14	Parallel pin	Stainless steel	2
15	Guide	Stainless steel	1
16	Lever	Stainless steel	2
17	U-ring	NBR	1
18	Bumper	PU	1
19	Magnet	Rare earth magnet	1
20	U-piston seal	NBR	1
21	End cover	Aluminum alloy	1

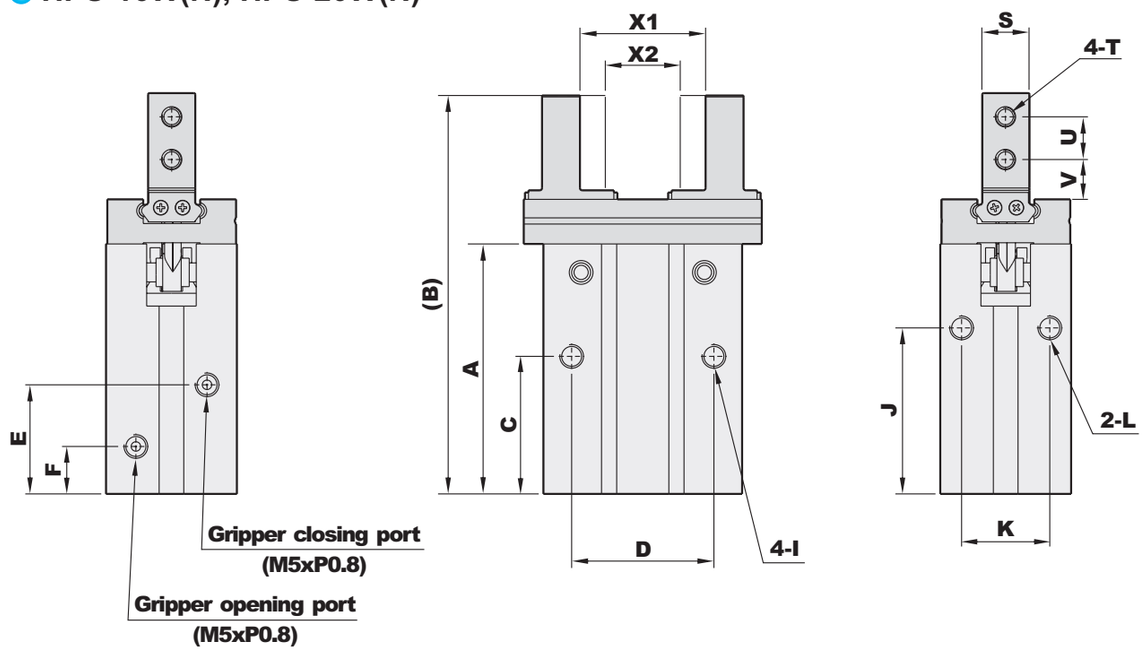
HYS : Fulcrum type

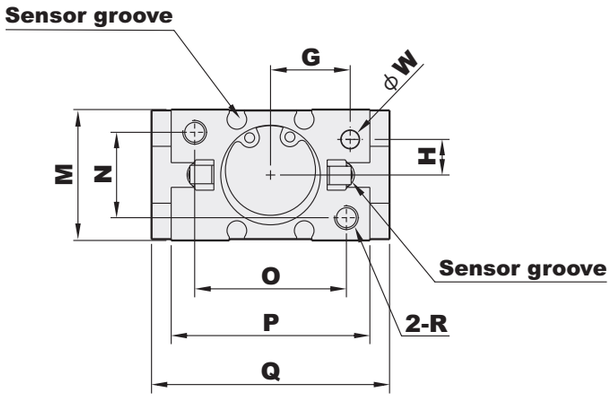


No.	Description	Material	Qty
1	Gripper	Carbon steel	2
2	Body	Aluminum alloy	1
3	Piston	Aluminum alloy	1
4	Plate	Carbon steel	1
5	Sleeve	Aluminum alloy	1
6	U-ring	NBR	1
7	O-ring	NBR	1
8	Bolt	Cu	1
9	Nut	Fe+Ni	1
10	Speed regulating needle	Cu	1
11	O-ring	NBR	1
12	Steel ball	Carbon steel	1
13	Snap ring	Stainless steel	1
14	Center roller	Stainless steel	2
15	Center pin	Stainless steel	1
16	Lever shaft	Stainless steel	2
17	Plug	Fe+Ni	2
18	Roller pin	Stainless steel	2
19	Roller	Stainless steel	2
20	U-ring	NBR	1
21	Bumper	PU	1
22	Snap ring	Fe+Ni	1
23	Magnet	Rare earth magnet	1
24	U-piston ring	NBR	1
25	O-ring	NBR	1
26	End cover	Aluminum alloy	1
27	C type snap ring	Stainless steel	1

Dimensions

HPS-16W(N), HPS-20W(N)





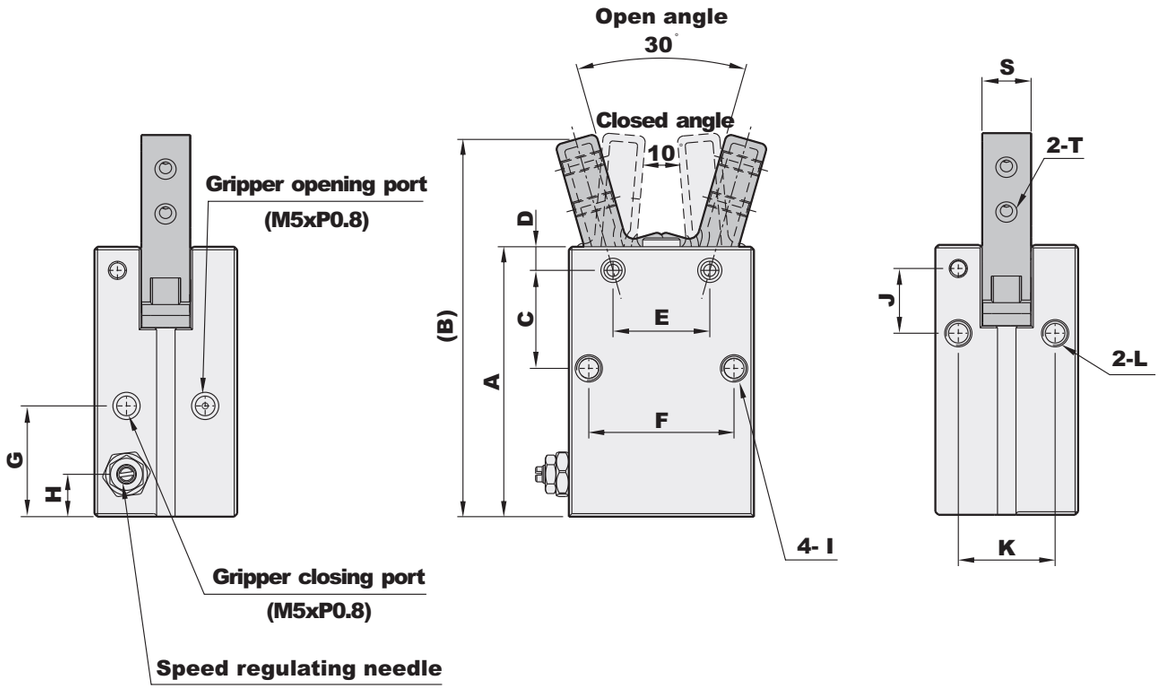
(Unit : mm)

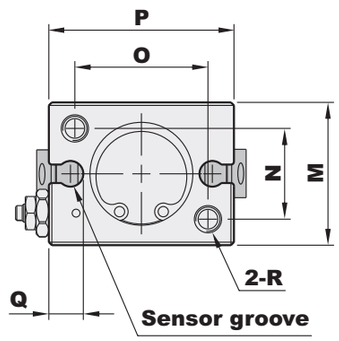
Model	A	B	C	D	E	F	G	H	I	J	K	L
HPS-16W	42.4	67	24.5	24	19	7.5	11	6.5	M4xP0.7xL8.0	30	16	M4xP0.7xL4.5
HPS-16N	42.4	67	24.5	24	19	7.5	11	6.5	M4xP0.7xL8.0	30	16	M4xP0.7xL4.5
HPS-20W	52.7	84	29	30	23	10	16.8	7.5	M5xP0.8xL10.0	35	18.6	M5xP0.8xL10.0
HPS-20N	52.7	84	29	30	23	10	16.8	7.5	M5xP0.8xL10.0	35	18.6	M5xP0.8xL10.0

Model	M	N	O	P	Q	R	S	T	U	V	W	X1	X2
HPS-16W	23.6	15	22	30.6	38.1	M4xP0.7xL8.0	8	M3xP0.5	7	6.3	3	22	14
HPS-16N	23.6	15	22	30.6	38.1	M4xP0.7xL8.0	8	M3xP0.5	7	6.3	3	15.2	7
HPS-20W	27.6	18	32	42	50.2	M5xP0.8xL10.0	10	M4xP0.7	9	8.4	4	26	16
HPS-20N	27.6	18	32	42	50.2	M5xP0.8xL10.0	10	M4xP0.7	9	8.4	4	17.2	7.7

Dimensions

HYS-16, HYS-20





(Unit : mm)

Model	A	B	C	D	E	F	G	H	I	J	K
HYS-16	44.6	62.5	16.2	3.9	16	24	18.3	7	M4xP0.7xL8.0	10.7	16
HYS-20	55.2	77.7	21.7	4.5	20	30	22.2	7.5	M5xP0.8xL10.0	15.7	18.6

Model	L	M	N	O	P	Q	R	S	T
HYS-16	M4xP0.7xL6.5	23.6	15	22	30.6	5.7	M4xP0.7xL8.0	8	M4xP0.7xL6.5
HYS-20	M5xP0.8xL8.0	27.6	18	32	42	8.8	M5xP0.8xL10.0	10	M5xP0.8xL8.0

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