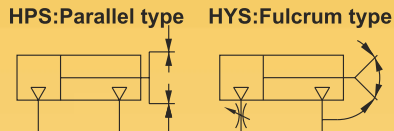


TANAIR

GRIPPER CYLINDER

Simbol



Features

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



How to order

HPS		16	N	SR	1
Mini chuck		Bore size	Type of gripper (For HPS only)	Sensor type	Number of sensor
HPS	Parallel type (Linear mechanism)	10 ϕ 10	W Wide	Blank	1 pc
HYS	Fulcrum type	16 ϕ 16	N Narrow	W/O sensor	2 pcs
		20 ϕ 20		SQ (HPS)	
		25 ϕ 25		Square type AL-30R	
				SR Round type	
				AL-07R	
				SU Square type	
				AL-16R	

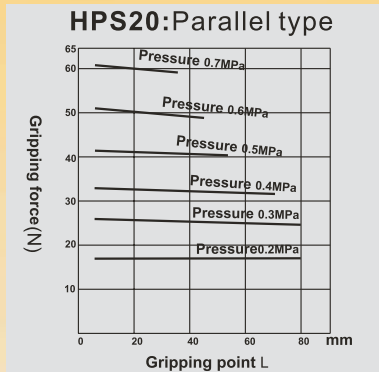
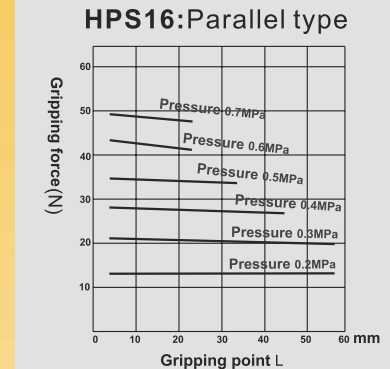
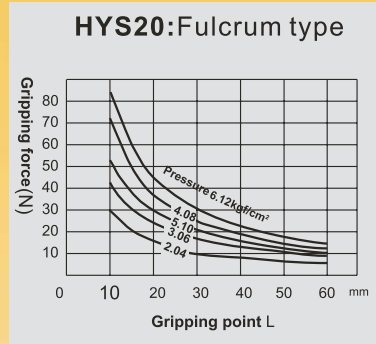
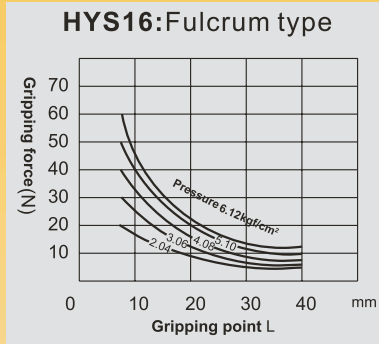
Specifications

Bore size	ϕ 10	ϕ 16	ϕ 20	ϕ 25
Port size	M3		M5	
Gripping gap distance (Wide type)	Full open : 15.2mm, Full closed : 11.2mm	Full open : 22mm, Full closed : 14mm	Full open : 26mm, Full closed : 16mm	Full open : 33.3mm, Full closed : 19.3mm
Gripping gap distance (Narrow type)	Full open : 9.7mm, Full closed : 5.7mm	Full open : 15.2mm, Full closed : 7mm	Full open : 17.2mm, Full closed : 7.7mm	Full open : 22.8mm, Full closed : 8.8mm
Internal gripping force(For HPS)	16.5N	44N	65.5N	102N
External gripping force(For HPS)	10.5N	33N	42N	63.5N
Fluid	Compressed air			
Acting	Double acting			
Operating pressure range	Fulcrum type : 1.0~6.1 kgf/cm ² , Parallel type : 1.0~7 kgf/cm ²			
Max. operating pressure	7 kgf/cm ²			
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°			

TAN AIR

GRIPPER CYLINDER

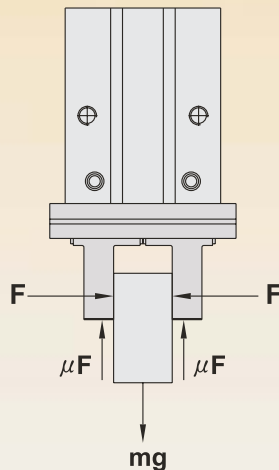
Gripping force graph



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:

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

※Even in cases where the coefficient of friction is

greater than $\mu = 0.2$, 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.

Example:

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

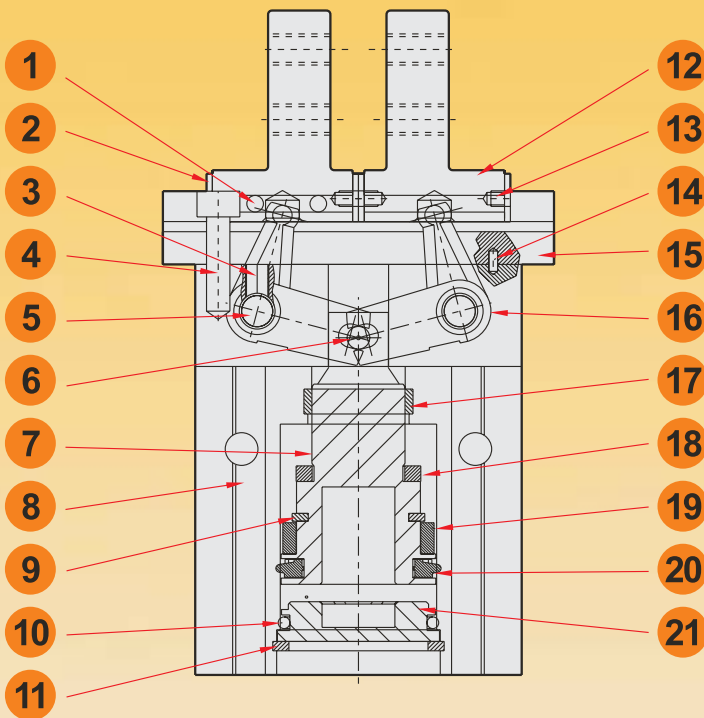
When $\mu = 0.2$	When $\mu = 0.1$
$F = \frac{mg}{2 \times 0.2} \times 4$ $= 10 \times mg$	$F = \frac{mg}{2 \times 0.1} \times 4$ $= 20 \times mg$
10 x work piece weight	20 x work piece weight

TAN AIR

GRIPPER CYLINDER

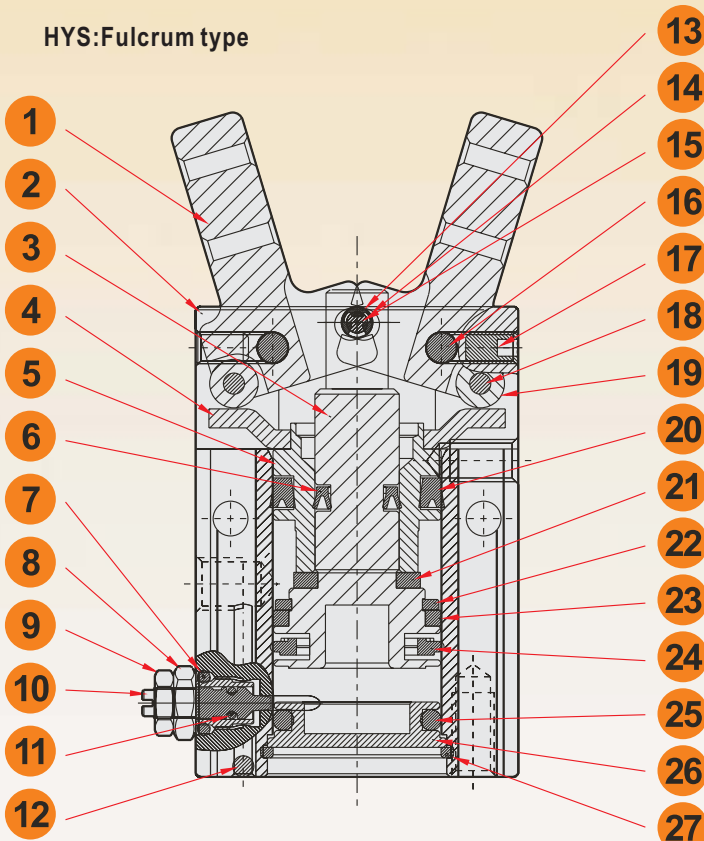
Material Of Parts

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



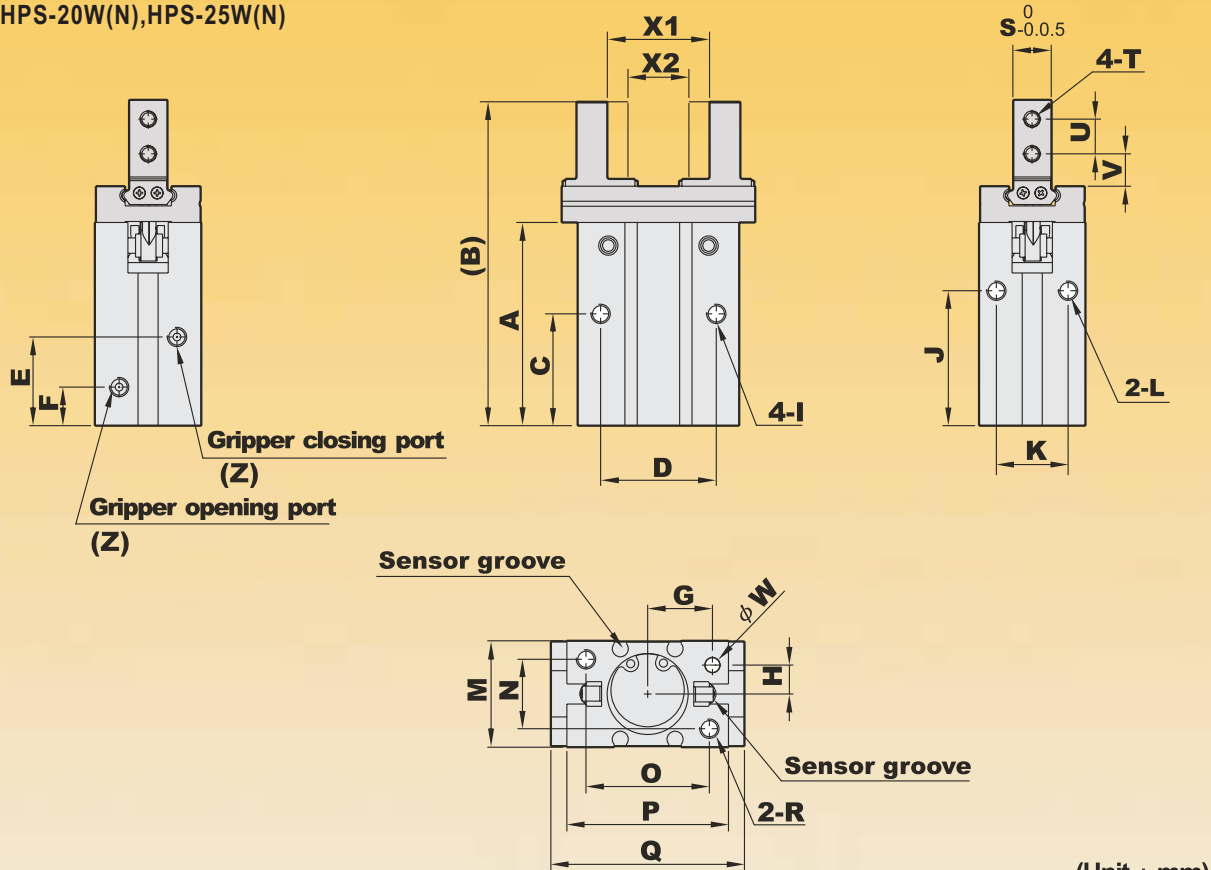
No.	Description	Material	Qty
1	Gripper	Carbon steel	2
2	Body	Aluminum alloy	1
3	Piston	Aluminum alloy	1
4	Plate	Carbon steel	1
5	Sleeve	Aluminum alloy	1
6	U-ring	NBR	1
7	O-ring	NBR	1
8	Bolt	Cu	1
9	Nut	Fe+Ni	1
10	Speed regulating needle	Cu	1
11	O-ring	NBR	1
12	Steel ball	Carbon steel	1
13	Snap ring	Stainless 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

TAN AIR

GRIPPER CYLINDER

Dimensions

HPS-10W(N),HPS-16W(N)
HPS-20W(N),HPS-25W(N)



(Unit : mm)

Model	A	B	C	D	E	F	G	H	I	J	K	L	M
HPS-10W	37.8	57	23	16	19	9	7.6	5.2	M3xP0.5xL6.0	27	11.4	M3xP0.5xL6.0	16.4
HPS-10N	37.8	57	23	16	19	9	7.6	5.2	M3xP0.5xL6.0	27	11.4	M3xP0.5xL6.0	16.4
HPS-16W	42.4	67	24.5	24	19	7.5	11	6.5	M4xP0.7xL8.0	30	16	M4xP0.7xL4.5	23.6
HPS-16N	42.4	67	24.5	24	19	7.5	11	6.5	M4xP0.7xL8.0	30	16	M4xP0.7xL4.5	23.6
HPS-20W	52.7	84	29	30	23	10	16.8	7.5	M5xP0.8xL10.0	35	18.6	M5xP0.8xL10.0	27.6
HPS-20N	52.7	84	29	30	23	10	16.8	7.5	M5xP0.8xL10.0	35	18.6	M5xP0.8xL10.0	27.6
HPS-25W	63.6	102.7	30	36	23.5	10.7	21.8	10	M6xP1.0xL12.0	36.5	22	M6xP1.0xL10.0	33.6
HPS-25N	63.6	102.7	30	36	23.5	10.7	21.8	10	M6xP1.0xL12.0	36.5	22	M6xP1.0xL10.0	33.6

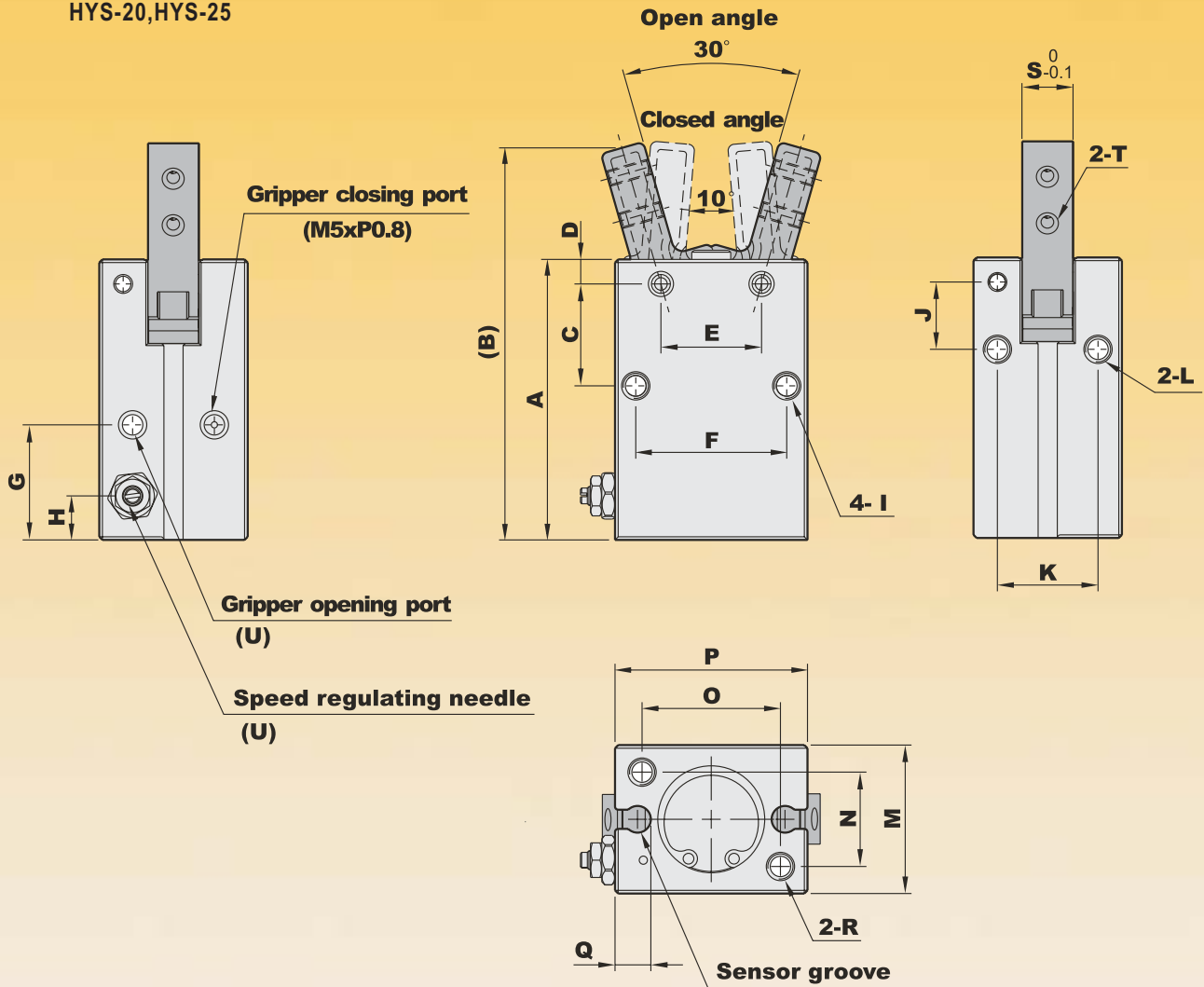
Model	N	O	P	Q	R	S	T	U	V	W	X1	X2	Z
HPS-10W	12	19	23	29	M3xP0.5xL6.0	5	M2.5xP0.45	7	5.7	2	15.2	11.2	M3xP0.5
HPS-10N	12	19	23	29	M3xP0.5xL6.0	5	M2.5xP0.45	7	5.7	2	9.7	5.7	M3xP0.5
HPS-16W	15	22	30.6	38.1	M4xP0.7xL8.0	8	M3xP0.5	7	6.3	3	22	14	M5xP0.8
HPS-16N	15	22	30.6	38.1	M4xP0.7xL8.0	8	M3xP0.5	7	6.3	3	15.2	7	M5xP0.8
HPS-20W	18	32	42	50.2	M5xP0.8xL10.0	10	M4xP0.7	9	8.4	4	26	16	M5xP0.8
HPS-20N	18	32	42	50.2	M5xP0.8xL10.0	10	M4xP0.7	9	8.4	4	17.2	7.7	M5xP0.8
HPS-25W	22	40	52	63	M6xP1.0xL12.0	12	M5xP0.8	9	12	4	33.3	19.3	M5xP0.8
HPS-25N	22	40	52	63	M6xP1.0xL12.0	12	M5xP0.8	9	12	4	22.8	8.8	M5xP0.8

TANAIR

GRIPPER CYLINDER

Dimensions

HYS-10,HYS-16
HYS-20,HYS-25



(Unit : mm)

Model	A	B	C	D	E	F	G	H	I	J	K
HYS-10	38.6	52.4	12.8	2.8	10	16	18.8	7.2	M3xP0.5xL5	8.8	11.4
HYS-16	44.6	62.5	16.2	3.9	16	24	18.3	7	M4xP0.7xL8	10.7	16
HYS-20	55.2	77.7	21.7	4.5	20	30	22.2	7.5	M5xP0.8xL10	15.7	18.6
HYS-25	60.4	92	25.8	4.6	25	36	23.5	7.7	M6xP1.0xL12	19.3	22

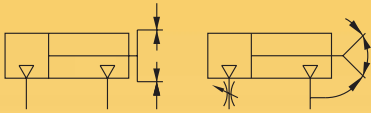
Model	L	M	N	O	P	Q	R	S	T	U
HYS-10	M3xP0.5xL6	16.4	12	18	23	5.4	M3xP0.5xL6	6.4	M2.5xP0.45through	M3xP0.5
HYS-16	M4xP0.7xL6.5	23.6	15	22	30.6	5.7	M4xP0.7xL8	8	M3xP0.5through	M5xP0.8
HYS-20	M5xP0.8xL8	27.6	18	32	42	8.8	M5xP0.8xL10	10	M4xP0.7through	M5xP0.8
HYS-25	M6xP1.0xL10	33.6	22	40	52	11.5	M6xP1.0xL12	12	M5xP0.8through	M5xP0.8

TAN AIR

GRIPPER CYLINDER

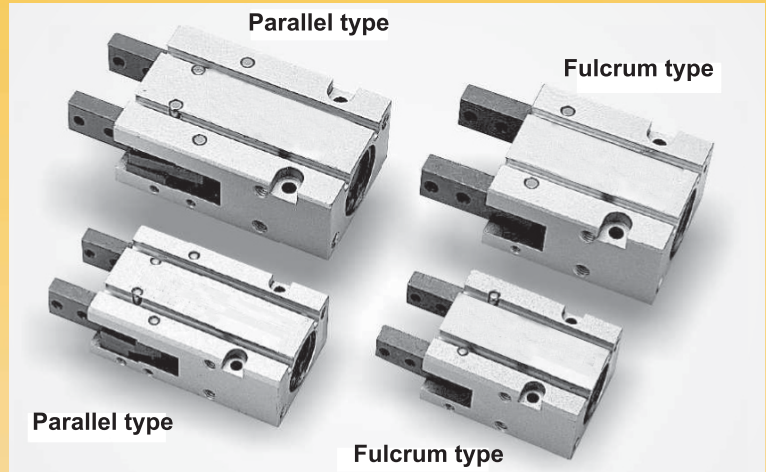
Symbol

HPC:Parallel type HYC:Fulcrum type



Features

- a. The gripper open and close are controlled by pneumatic system.
- b. Miniature design, space saving.
- c. Sensor installation is available.



How to order

HYC

Mini chuck

HPC	Parallel type
HYC	Fulcrum type



32

Bore size

10	φ 10
16	φ 16
20	φ 20
25	φ 25
32	φ 32

SR

Sensor type

Blank	W/O sensor
SR	Round type
	
SU	Square type
	

1

Number of sensor

1 pc
2 pcs

Specifications

Bore size	φ 10	φ 16	φ 20	φ 25	φ 32
Port size	M3	M5			
Gripping gap distance (For HPC)	4mm	8mm	12mm	14mm	16mm
Gripping force (For HPC)	5N	17.6N	34.3N	58.8N	83.3N
Operating angle (For HYC)	-10° ~ +30°				
Fluid	Compressed air				
Acting	Double acting				
Operating pressure range	1.5 ~ 7 kgf/cm ²				
Max. operating pressure	10.5 kgf/cm ²				
Lubrication	Not required or few				
Body material	Aluminum alloy				
Magnet	Built-in				
Ambient temperature	0°C ~ 60°C				
Operating frequency	50 ~ 700 mm/Sec.				

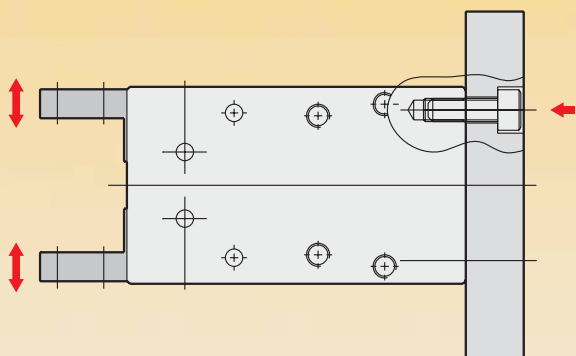
TAN AIR

GRIPPER CYLINDER

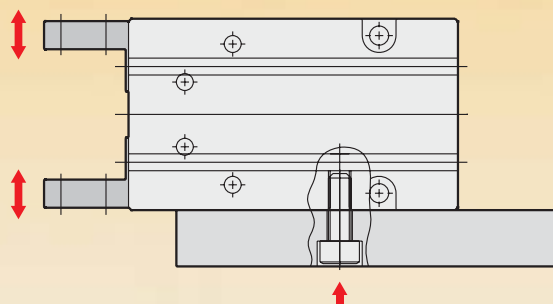
Theoretical force

Bore size	Piston area cm ²	Operating pressure kgf/cm ²					
		2	3	4	5	6	7
φ 10	0.79	1.58	2.37	3.16	3.95	4.74	5.53
φ 16	2.01	4.02	6.03	8.04	10.5	12.06	14.07
φ 20	3.14	6.28	9.42	12.56	15.7	18.84	21.98
φ 25	4.91	9.82	14.73	19.64	24.55	29.46	34.37
φ 32	8.04	16.08	24.12	32.16	40.2	48.24	56.28

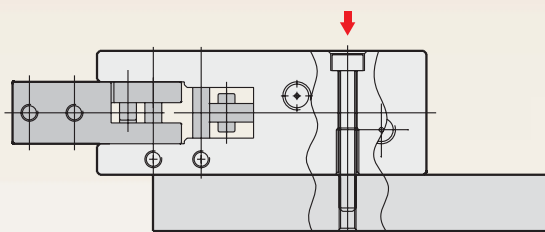
Mounting example



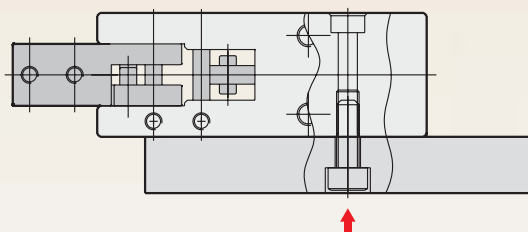
Bottom mounting



Side mounting



Top face mounting



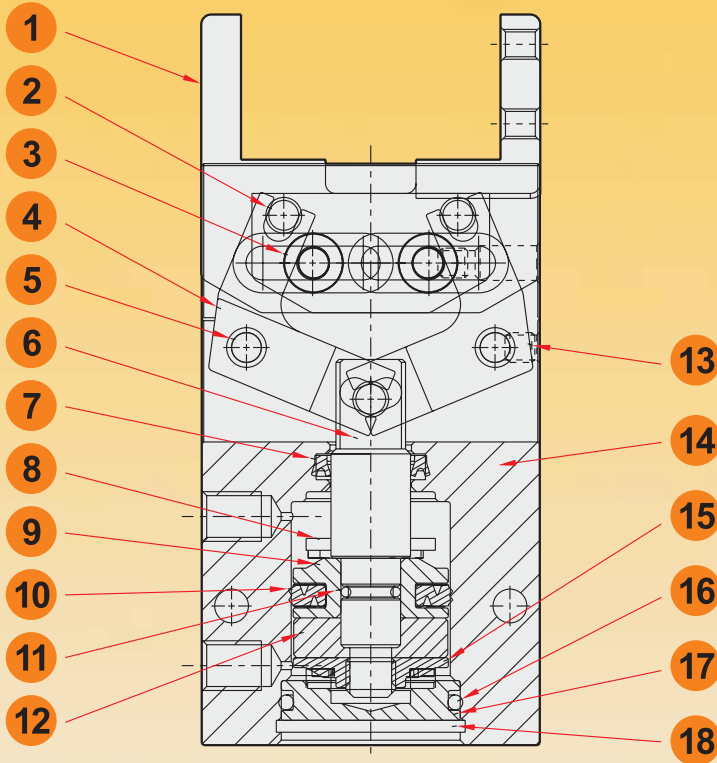
Bottom face mounting

TAN AIR

GRIPPER CYLINDER

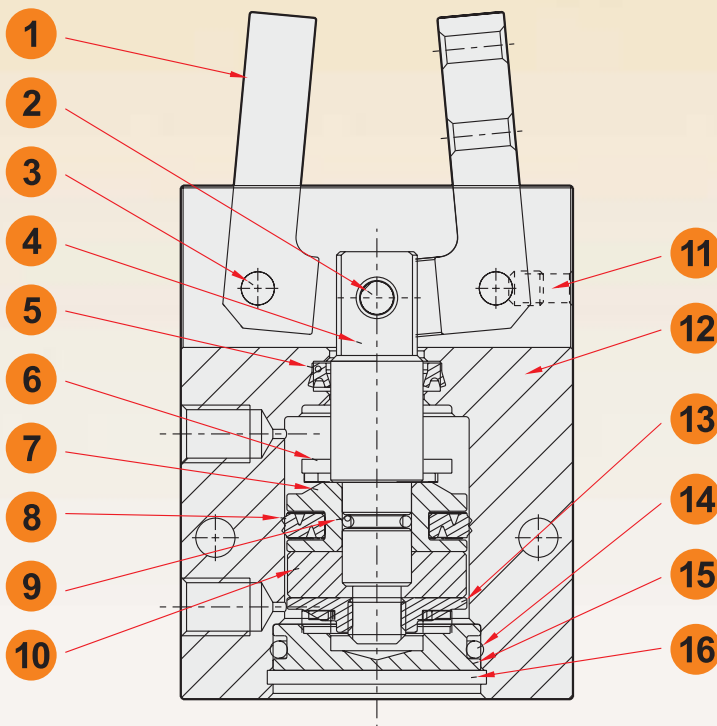
Material Of Parts

HPC:Parallel type



No.	Description	Material	Qty
1	Gripper	Stainless steel	2
2	Pin	Carbon steel	3
3	Roller	Carbon steel	4
4	Lever	Stainless steel	2
5	Lever shaft	Carbon steel	4
6	Piston rod	S45C+Cr	1
7	U-ring	NBR	1
8	Gasket	NBR	2
9	Piston	Aluminum alloy	1
10	U-piston seal	NBR	1
11	O-ring	NBR	1
12	Magnet	Ferrite magnet	1
13	Plug	Carbon steel	4
14	Body	Aluminum alloy	1
15	Magnet holder	Aluminum alloy	1
16	O-ring	NBR	1
17	End cover	Aluminum alloy	1
18	C type snap ring	Fe+Ni	1

HYC:Fulcrum type

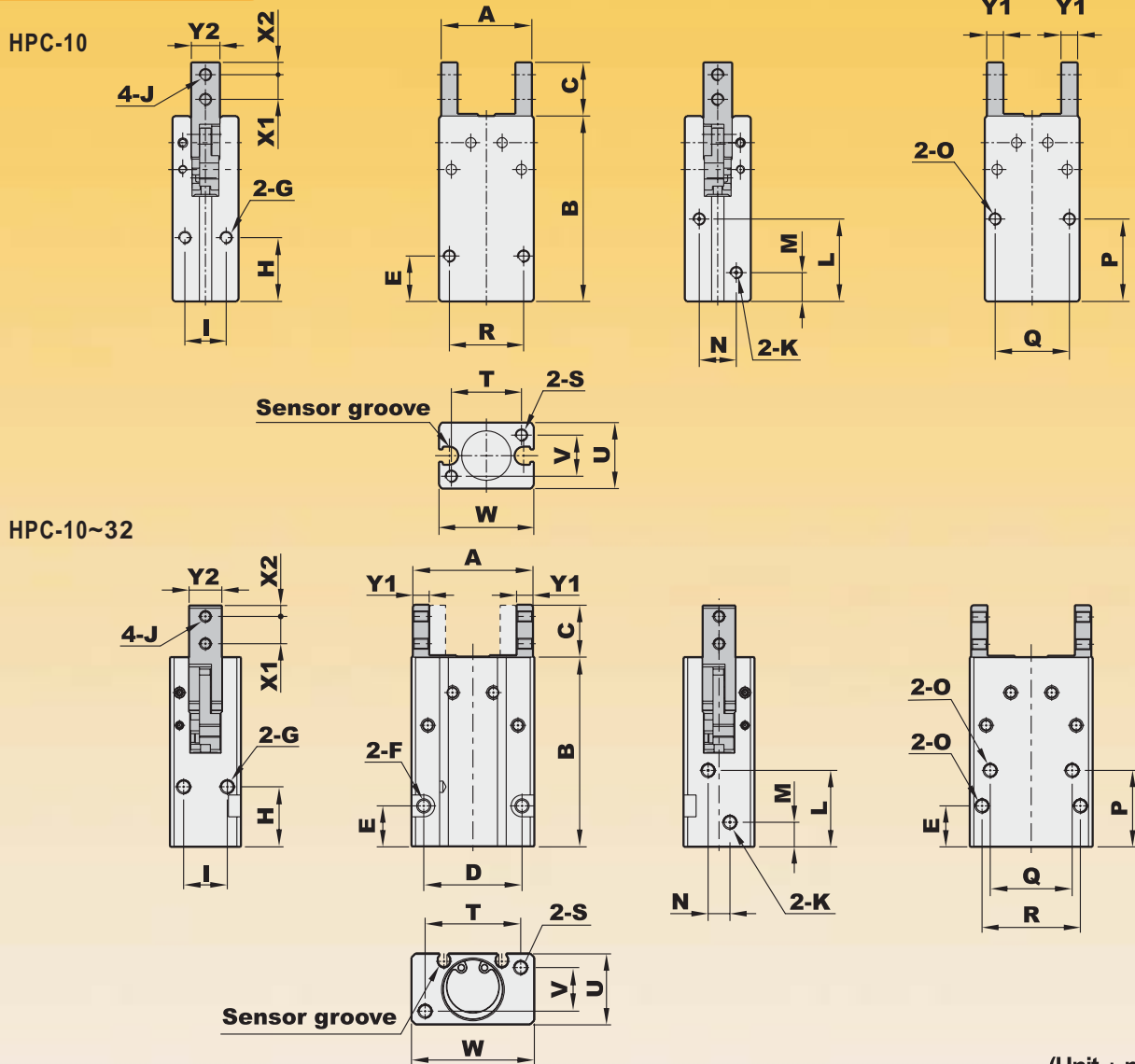


No.	Description	Material	Qty
1	Gripper	Stainless steel	2
2	Pin	Carbon steel	1
3	Lever shaft	Carbon steel	2
4	Piston rod	S45C+Cr	1
5	U-ring	NBR	1
6	Gasket	NBR	2
7	Piston	Aluminum alloy	1
8	U-piston ring	NBR	1
9	O-ring	NBR	1
10	Magnet	Ferrite magnet	1
11	Plug	Carbon steel	2
12	Body	Aluminum alloy	1
13	Magnet holder	Aluminum alloy	1
14	O-ring	NBR	1
15	End cover	Aluminum alloy	1
16	C type snap ring	Fe+Ni	1

TAN AIR

GRIPPER CYLINDER

Dimensions



(Unit : mm)

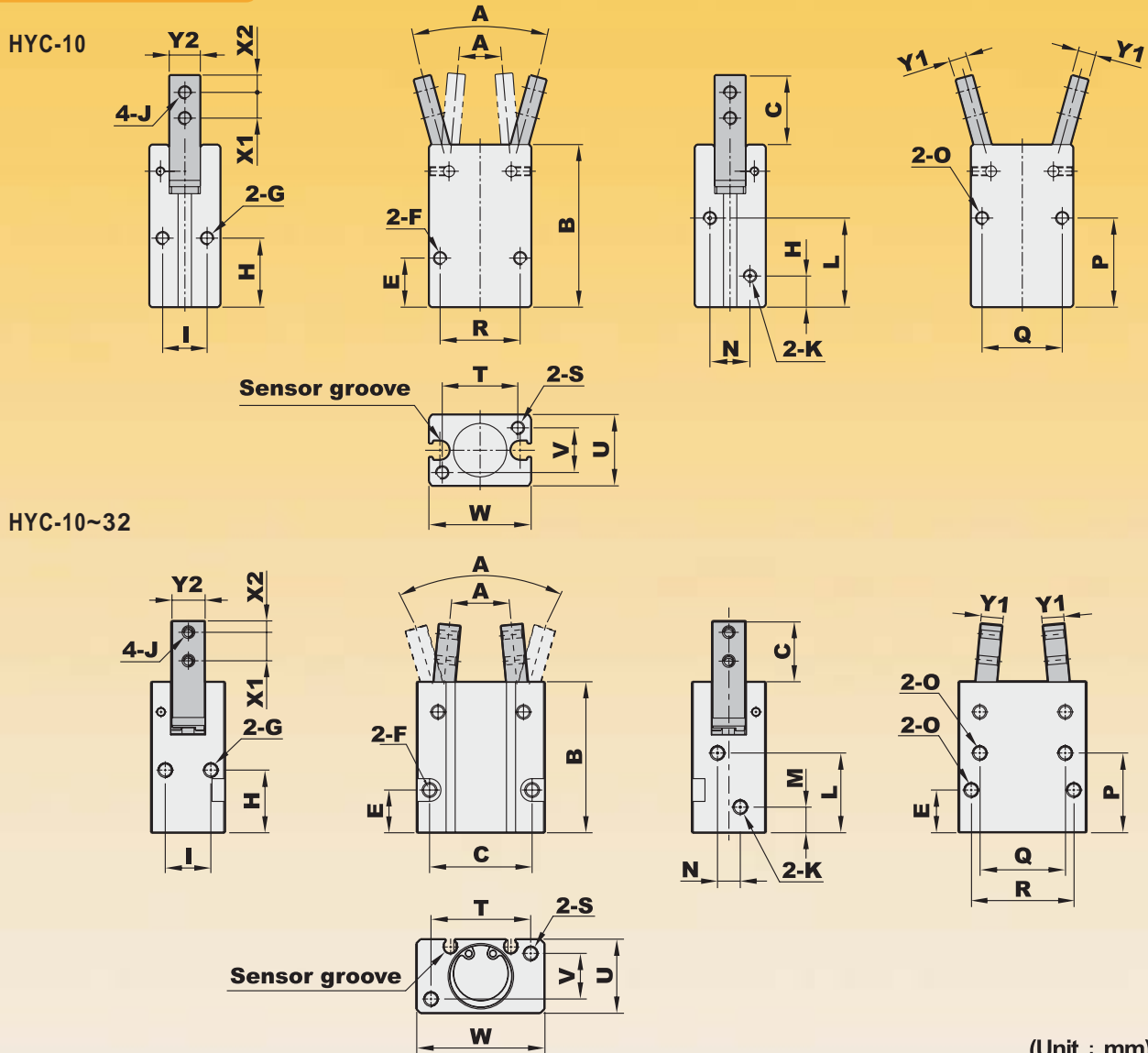
Model	A		B	C	D	E	F	G	H	I	J
	Open	Closed									
HPC-10	22	18	45	13	18	11	M3xP0.5xL8.0	M3xP0.5xDepth5.0	15.5	10	M3xP0.5 through
HPC-16	33	25	58.5	15	28	14	φ 3.4 through, φ 6 Counter bore x Depth3.5	M4xP0.7xDepth8.0	21	14	M3xP0.5 through
HPC-20	44	32	69.5	19	36	15	φ 4.3 through, φ 8 Counter bore x Depth4.5	M5xP0.8xDepth10.0	22	16	M4xP0.7 through
HPC-25	51	37	79.5	24	40	16	φ 5.3 through, φ 9.5 Counter bore x Depth5.5	M6xP1.0xDepth12.0	24.5	20	M5xP0.8 through
HPC-32	60	44	88	31	50	18	φ 5.3 through, φ 9.5 Counter bore x Depth5.5	M6xP1.0xDepth15.0	30	26	M6xP1.0 through

Model	K	L	M	N	O	P	Q	R	S	T	U	V	W	X1	X2	Y1	Y2
HPC-10	M3xP0.5	20	7	9	M3xP0.5xL8.0	20	18	—	M3xP0.5xL5.0	17	16	10	23	6	3	4	7
HPC-16	M5xP0.8	23	8	6	M4xP0.7xL8.0	25.5	24	28	M4xP0.7xL7.0	26	22	14	34	8	3	5	11
HPC-20	M5xP0.8	28	9	8	M5xP0.8xL10.0	28	30	36	M5xP0.8xL10.0	35	26	16	45	10	4	6	12
HPC-25	M5xP0.8	30.5	9.5	18	M6xP1.0xL12.0	31.5	36	40	M6xP1.0xL10.0	40	32	20	52	12	5	8	14
HPC-32	M5xP0.8	34	10	24	M6xP1.0xL15.0	37.5	44	50	M6xP1.0xL10.0	46	40	26	60	15	7	9	18

TAN AIR

GRIPPER CYLINDER

Dimensions



(Unit : mm)

Model	A		B	C	D	E	F	G	H	I	J
	Open	Closed									
HYC-10	30°	-10°	36.5	15.7	18	11	M3xP0.5xL8.0	M3xP0.5xL5.0	15.5	10	M3xP0.5 through
HYC-16	30°	-10°	45.5	17.5	28	14	φ3.4 through, φ6 Counter bore x L3.5	M4xP0.7xL8.0	21	14	M3xP0.5 through
HYC-20	30°	-10°	53	22	36	15	φ4.3 through, φ8 Counter bore x L4.5	M5xP0.8xL10.0	22	16	M4xP0.7 through
HYC-25	30°	-10°	61	26	40	16	φ5.3 through, φ9.5 Counter bore x L5.5	M6xP1.0xL12.0	24.5	20	M5xP0.8 through
HYC-32	30°	-10°	68	30	50	18	φ5.3 through, φ9.5 Counter bore x L5.5	M6xP1.0xL15.0	30	26	M6xP1.0 through

Model	K	L	M	N	O	P	Q	R	S	T	U	V	W	X1	X2	Y1	Y2
HYC-10	M3xP0.5	20	7	9	M3xP0.5xL8.0	20	18	—	M3xP0.5xL8.0	17	16	10	23	6	3	4	7
HYC-16	M5xP0.8	23	8	6	M4xP0.7xL8.0	25.5	24	28	M4xP0.7xL8.0	26	22	14	34	8	3	6	9
HYC-20	M5xP0.8	28	9	8	M5xP0.8xL10.0	28	30	36	M5xP0.8xL10.0	35	26	16	45	10	4	7	12
HYC-25	M5xP0.8	30.5	9.5	18	M6xP1.0xL12.0	31.5	36	40	M6xP1.0xL10.0	40	32	20	52	12	5	9	14
HYC-32	M5xP0.8	34	10	24	M6xP1.0xL15.0	37.5	44	50	M6xP1.0xL10.0	46	40	26	60	14	6	10	18