

Handling

⚠ Caution

❶ Please control the cylinder within the allowable speed range:

If the cylinder is not using the speed control valve, it may occur beyond the speed range of the piston. If it is used outside the allowable speed range, it will cause cylinder damage or reduce product life. Therefore, please install the speed control valve and adjust the speed within the allowable range. The product allowable speed is shown in Table 1.

❷ Please note the speed control during vertical installation:

When the cylinder is used vertically, if the load rate is large, it will cause the speed control valve to exceed the upper limit and could cause sudden unintended acceleration which will affect the product life. Therefore, it is recommended to use a dual speed controller.

❸ The lateral load of the cylinder during the operation must be within the allowable range:

Exceeding the allowable value will prevent the cylinder from operating properly and affect the life of the product.

❹ Do not scratch the mounting surface of the cylinder body and end plate to avoid affecting the flatness:

If the flatness of the mounting surface is poor, the cylinder will malfunction. The mounting surface of the cylinder body and the end plate should have a flatness of less than 0.05 mm.

❺ Do not cause surface damage or impact marks on the operating parts of the piston rod and the guide rod:

Damage to the appearance will result in damage to the seal ring which could cause leakage or malfunction of the cylinder.

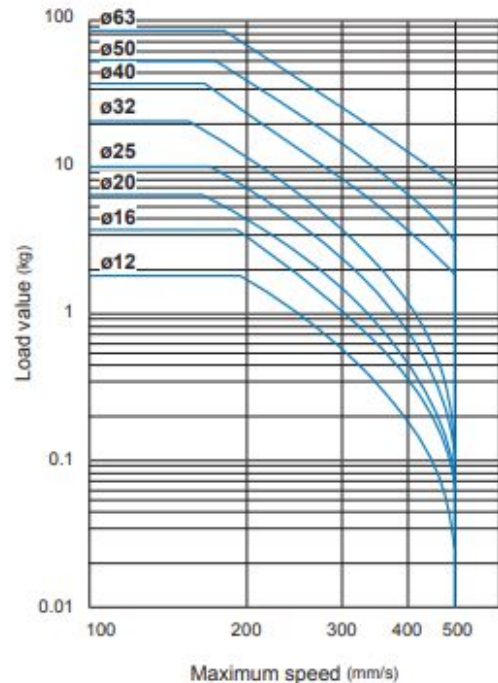


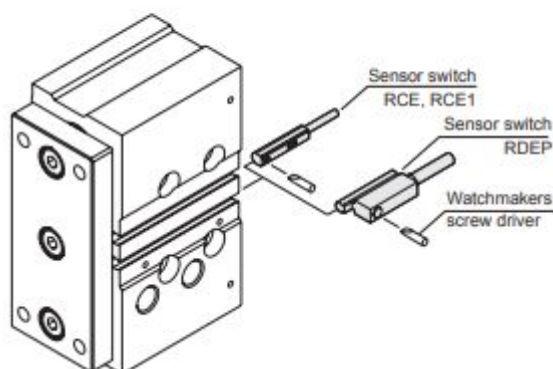
Table 1

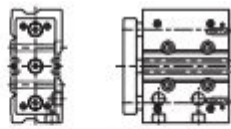


Features

- Proven track record in manufacturing precision guided cylinders.
- Multi-Ports as standard enabling two direction mounting option.
- Flush fitting sensors.
- Inbuilt high density rubber pad absorbs energy at the end of stroke.
- Magnetic as standard.

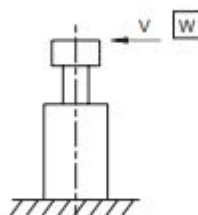
Installation of sensor switch



Model		
Acting type	Double acting	
Tube I.D. (mm)	12,16	20,25,32
Port size	M5×0.8	Rc1/8
Medium	Air	
Operating pressure range	0.1~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Cushion	With rubber cushion pad	
Available speed range	50~500 mm/sec	
Lubrication	Not required	
Sensor switch (*)	RCE, RCE1, RDEP	

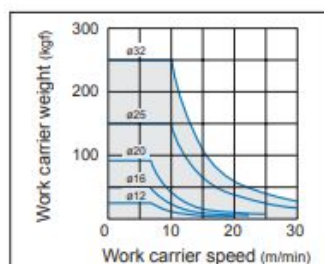
Capacity graph

Capacity for the use as a stopper

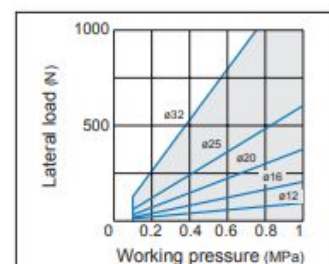


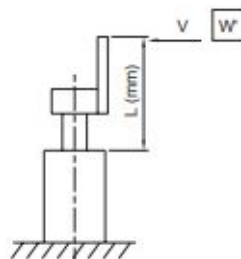
Linear bearing type is not available as a stopper.

Stop capacity



Stop capacity

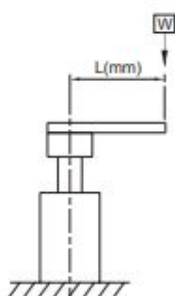




For the use of attaching a plate to the link bar, choose a bore size referring to the formula below.

Capacity for the use as a lifter

Allowable eccentricity load for the use as a lifter (at supply pressure 0.5 MPa)



Show the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.

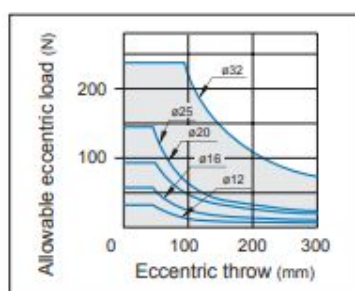
Coefficients for conversion

$$W = W' \times \frac{L}{\ell}$$

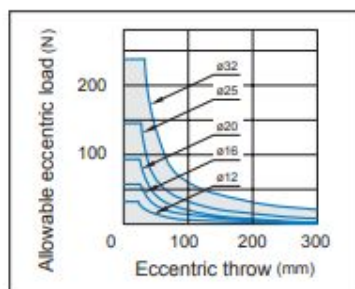
	ø12	ø16	ø20	ø25	ø32
ℓ	40	42	42	42	44

W: The maximum weight of the work carrier in the above graph for the stopper's capacity.

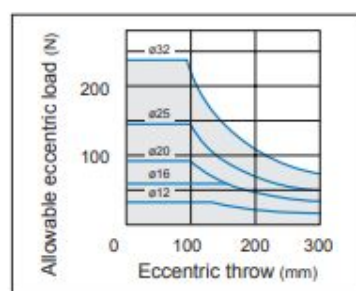
Slide bush



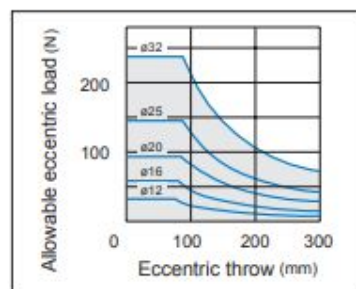
Linear bearing



Slide bush

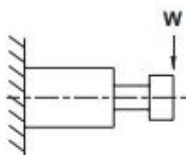


Linear bearing



Capacity table

Allowable lateral load

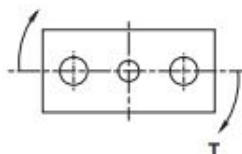


Shows the dynamic allowable value, when actuating the cylinder with lateral load **W** at the guide rods' top (vertical load against the guide rods).

Unit: N

Tube I.D.	Bearing type	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
ø12	Slide bush	31	24	—	19	16	13	37	31	—	—	—	—
	Linear bearing	23	17	—	14	34	30	23	19	—	—	—	—
ø16	Slide bush	50	39	—	32	27	24	54	45	—	—	—	—
	Linear bearing	36	29	—	24	59	52	40	33	—	—	—	—
ø20	Slide bush	—	51	—	44	39	35	54	46	74	66	59	54
	Linear bearing	—	43	—	36	98	87	69	57	46	40	36	32
ø25	Slide bush	—	68	—	59	52	46	72	61	98	88	79	72
	Linear bearing	—	67	—	56	148	132	105	87	70	62	55	50
ø32	Slide bush	—	—	165	—	—	129	106	90	138	123	111	101
	Linear bearing	—	—	104	—	—	74	165	138	114	100	90	81

Allowable rotating torque

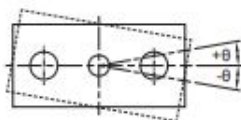


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque **T** at the guide rods' top.

Unit: N.m

Tube I.D.	Bearing type	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
ø12	Slide bush	0.64	0.48	—	0.39	0.32	0.28	0.75	0.63	—	—	—	—
	Linear bearing	0.47	0.35	—	0.29	0.71	0.62	0.40	0.38	—	—	—	—
ø16	Slide bush	1.14	0.90	—	0.74	0.63	0.55	1.23	1.04	—	—	—	—
	Linear bearing	0.84	0.66	—	0.54	1.35	1.19	0.93	1.76	—	—	—	—
ø20	Slide bush	—	1.14	—	1.21	1.07	0.95	1.49	1.25	2.03	1.81	1.63	1.48
	Linear bearing	—	1.19	—	0.99	2.69	2.40	1.89	1.56	1.26	1.10	0.98	0.88
ø25	Slide bush	—	2.19	—	1.88	1.65	1.47	2.31	1.94	3.15	2.80	2.52	2.30
	Linear bearing	—	2.14	—	1.79	4.74	4.22	3.36	2.78	2.25	1.98	1.76	1.59
ø32	Slide bush	—	—	6.61	—	—	5.16	4.23	3.59	5.52	4.93	4.45	4.06
	Linear bearing	—	—	4.17	—	—	2.95	6.60	5.52	4.56	4.02	3.59	3.24

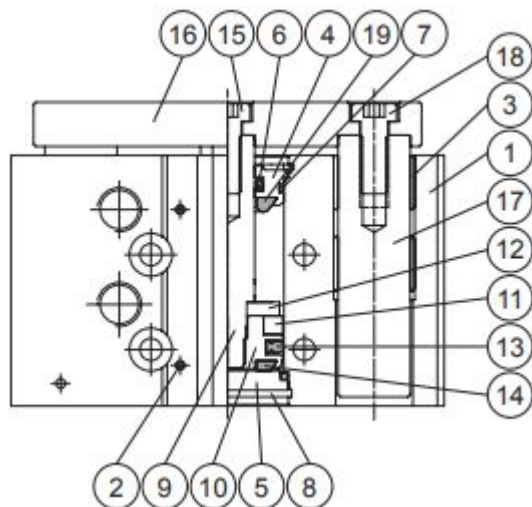
Anti-roll accuracy



- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

Tube I.D.	Bearing type	Anti-roll accuracy
		θ
ø12	Slide bush	±0.09°
	Linear bearing	±0.06°
ø16	Slide bush	±0.08°
	Linear bearing	±0.06°
ø20	Slide bush	±0.08°
	Linear bearing	±0.03°
ø25	Slide bush	±0.07°
	Linear bearing	±0.05°
ø32	Slide bush	±0.07°
	Linear bearing	±0.03°

TWIN-GUIDE CYLINDER G



Material

No.	Tube I.D. Part name	12	16	20	25	32	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy					1	
2	Ball	Stainless steel					3	
3	Slide bush	Bronze alloy					4	
4	Rod cover	Aluminum alloy					1	
5	Head cover	(*)	Carbon steel				1	
6	Rod packing	NBR					1	●
7	Cover ring	NBR					2	●
8	Snap ring	Spring steel					2	
9	Piston rod	Stainless steel			Carbon steel		1	
10	Piston	Aluminum alloy					1	
11	Magnet ring	Magnet material					1	
12	Magnet holder	Stainless steel					1	
13	Piston packing	NBR					1	●
14	Head cushion	NBR					1	●
15	Bolt	SCM					1	
16	Plate	Carbon steel					1	
17	Guide rod	Carbon steel					2	
18	Screw	SCM					2	
19	Rod cushion	NBR					1	●

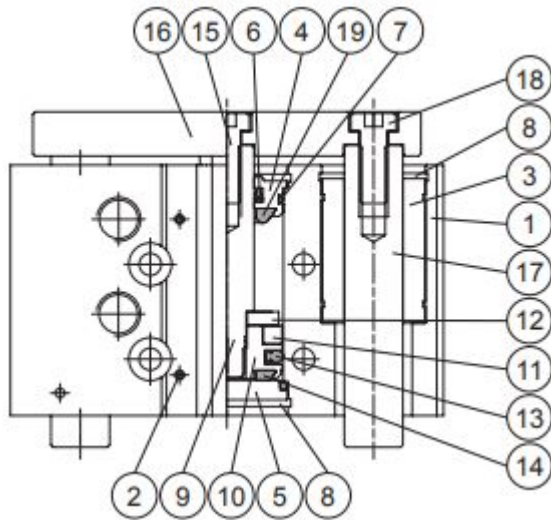
*Aluminum alloy

Cylinder weight

Unit: g

Model	Basic weight	Stroke 5mm
Tube I.D.		
ø12	191	21
ø16	283	28
ø20	450	45
ø25	670	63
ø32	1,210	90

TWIN-GUIDE CYLINDER K



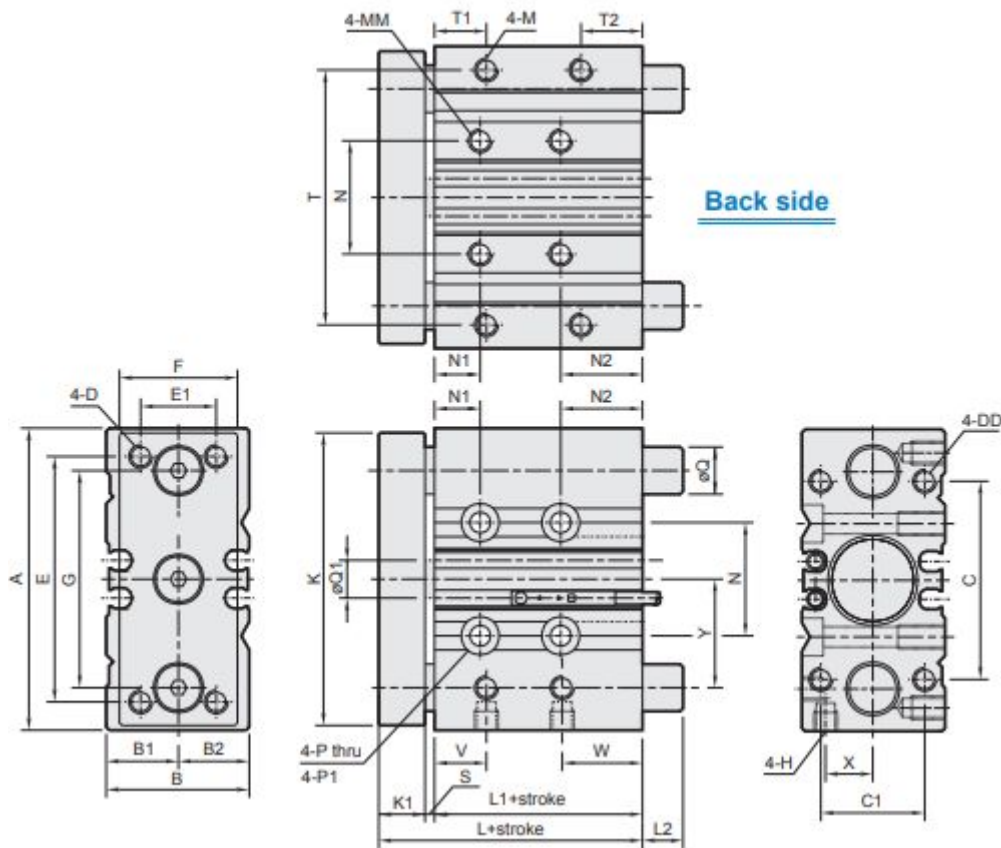
Material

No.	Tube I.D. Part name	12	16	20	25	32	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy					1	
2	Ball	Stainless steel					3	
3	Linear bearing	—					4	
4	Rod cover	Aluminum alloy					1	
5	Head cover	(*)	Carbon steel				1	
6	Rod packing	NBR					1	●
7	Cover ring	NBR					2	●
8	Snap ring	Spring steel					2	
9	Piston rod	Stainless steel			Carbon steel		1	
10	Piston	Aluminum alloy					1	
11	Magnet ring	Magnet material					1	
12	Magnet holder	Stainless steel					1	
13	Piston packing	NBR					1	●
14	Head cushion	NBR					1	●
15	Bolt	SCM					1	
16	Plate	Carbon steel					1	
17	Guide rod	Carbon steel					2	
18	Screw	SCM					2	
19	Rod cushion	NBR					1	●

Cylinder weight

Unit: g

Model	Basic weight	Stroke 5mm
Tube I.D.		
ø12	211	18
ø16	260	30
ø20	470	45
ø25	740	60
ø32	1,170	85



Code Tube I.D.	A	B	B1	B2	C	C1	D	DD	E	E1	F	G	H	K	K1	L	L1	L2	M	MM
12	58	26	13	13	40	18	M4×0.7	M4×0.7×9 dp	48	14	22	41.5	M5×0.8	56	8	39	29		M4×0.7×7 dp	M5×0.8×10 dp
16	64	30	15	15	42	22	M5×0.8	M5×0.8×11 dp	52	16	25	46	M5×0.8	62	8	43	31		M5×0.8×8 dp	M5×0.8×10 dp
20	85	36	17	19	52	26	M5×0.8	M5×0.8×13 dp	60	18	30	55	Rc1/8	81	10	47	35	(*)	M5×0.8×7 dp	M6×1.0×12 dp
25	96	42	21	21	62	32	M6×1.0	M6×1.0×15 dp	70	26	38	65	Rc1/8	91	10	47.5	35.5		M6×1.0×9 dp	M6×1.0×12 dp
32	116	51	26	25	80	38	M8×1.25	M8×1.25×18 dp	96	30	44	80	Rc1/8	110	12	47.5	33.5		M8×1.25×11 dp	M8×1.25×16 dp

Code Tube I.D.	N	N1	N2	P	P1	Q	Q1	S	T	T1	T2	V	W	X	Y
12	23	5	20	ø4.3	ø8×4.5 dp	8	6	6	2	50	12	12	11	15	19.5
16	24	5	22	ø4.3	ø8×4.5 dp	10	8	8	4	54	11	13	11	17	23
20	28	19	16	ø5.3	ø9.5×5.5 dp	12	10	10	2	64	11	14	12	23	24.5
25	34	22	12.5	ø5.3	ø9.5×5.5 dp	16	13	12	2	76	12	13.5	11	23.5	24
32	42	22	14.5	ø6.6	ø11×6.5 dp	20	16	16	2	100	12	16.5	11.5	25	31

TWIN-GUIDE CYLINDER G

Code Tube I.D.	10	20	25	30	40	50	75	100	125	150	175	200
12	0	0	—	0	0	0	18	18	—	—	—	—
16	0	0	—	0	0	0	21	21	—	—	—	—
20	—	0	—	0	0	0	14	14	31	31	31	31
25	—	0	—	0	0	0	14	14	31	31	31	31
32	—	—	20	20	20	20	20	20	42	42	42	42

TWIN-GUIDE CYLINDER K

Code Tube I.D.	10	20	25	30	40	50	75	100	125	150	175	200
12	0	0	—	0	14	14	14	14	—	—	—	—
16	0	0	—	0	21	21	21	21	—	—	—	—
20	—	0	—	0	27	27	27	27	50	50	50	50
25	—	2	—	2	35	35	35	35	50	50	50	50
32	—	—	8	8	8	8	42	42	55	55	55	55