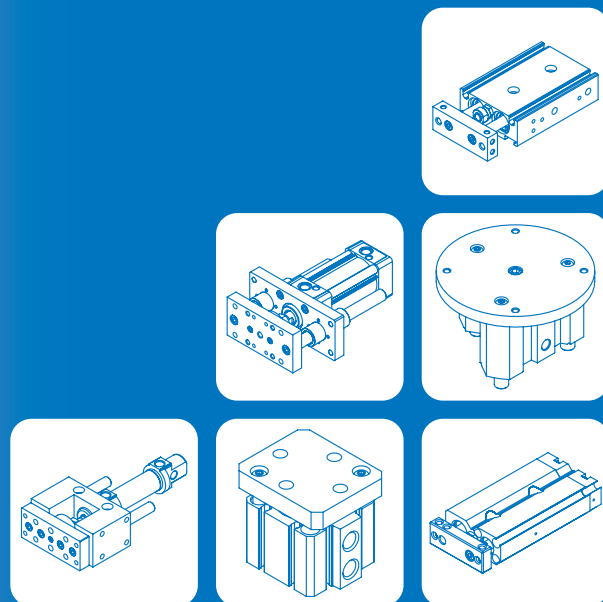
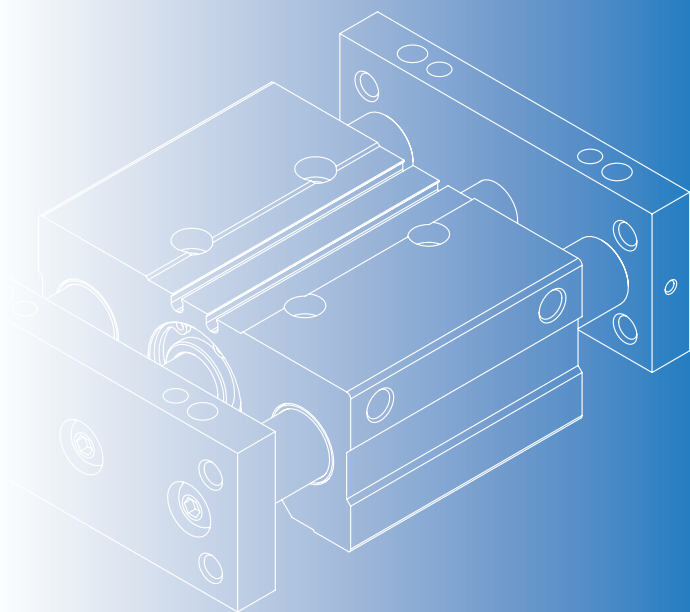


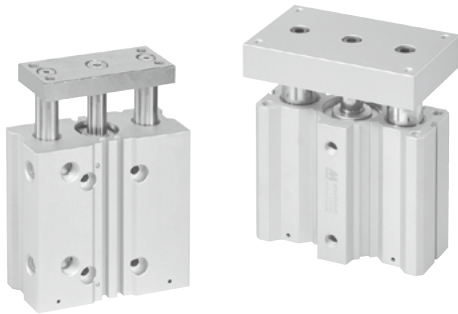
GUIDE CYLINDER



	TWIN-GUIDE CYLINDER	
MCG*	4-2
MCGA	STOP / LIFT type	4-3
	PUSH type	4-9
MCG*	Precaution	4-12
F MCGS	ø6, ø10.....	4-13
	ø12~ø63.....	4-15
MCEB	ø12~ø32.....	4-26
MCEI	ø20~ø100.....	4-32
MCEM	ø12~ø100.....	4-35
MGT*	4-41
	MGTK.....	4-43
	MGTB / MGTU	4-44
	MGTX.....	4-49
	Rear Flange Coupling	4-51
	TWIN-GUIDE SLIDE CYLINDER	
MCGD	ø12~ø32.....	4-53
	TRIPLE-GUIDE CYLINDER	
MCG3	ø63, ø80.....	4-58
	DUAL-ROD CYLINDER	
F MCDA	ø6~ø32.....	4-63
MCDJ	ø6, ø10.....	4-68

F Fast delivery

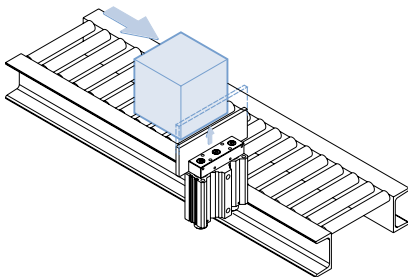
Our goal is to achieve 3-day lead time, if there is stock of component set. For more information, please go to our [MINDMAN website \(www.mindman.com.tw\)](http://www.mindman.com.tw) and click on the "Component Set Inventory" button.



Several uses

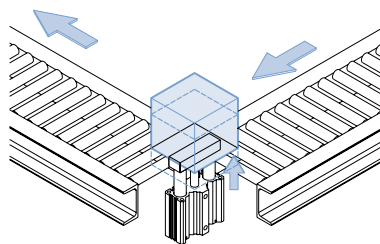
- **S-Stopper cylinder** Takes very high lateral loadings as such can stop very wide and heavy objects.
- **L-Lift cylinder** Large bearing area enables heavy off-set loads to be applied.
- **P-Pusher cylinder** Long strokes available with extremely rigid guidance, precise movement of load is possible.

S Stopper cylinder



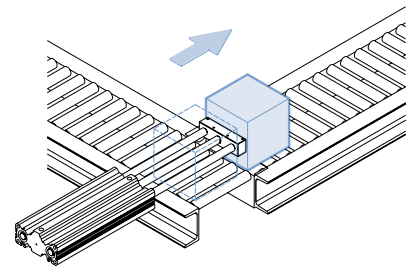
Tough type of stopping a large-load work carrier at a fixed point, and for the straggle of a number of work carriers, etc.

L Lift cylinder



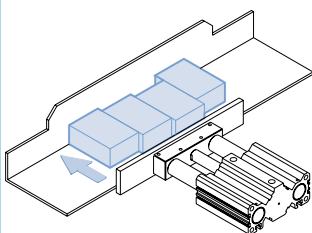
Special design which stands the large one-sided load. Lifts the work carrier at a fixed point not changing the posture.

P Pusher cylinder



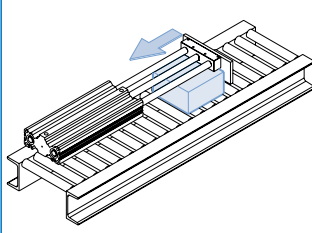
Long strokes available, the highly precise pushing work transfers and places a work carrier and changes the direction.

Multi-Purpose



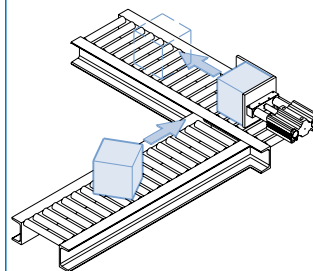
Arranges in line

Can move loads into a parallel position from different start points.



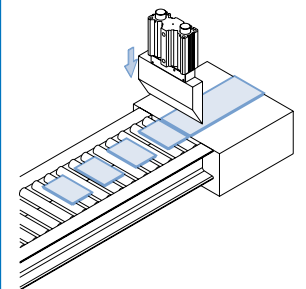
Draws in

Can move high loads consistently on the inward stroke of the cylinder.



Corrects misalignment

Repositions uneven loads.



Cuts sheets

Can be used as the power source for cutting sheets on a shearing machine.

MCGA series Stop / Lift

TWIN-GUIDE CYLINDER



Push type



Applications



Technical data



Caution for safety
(Read before installing)



Order example

MCGA — 03 — 20 — 50 — G

MODEL

TUBE I.D.

STROKE

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

PURPOSE / TYPE OF BEARING

Code	Purpose / Type of bearing
03	Stop / Slide bush
13	Lift / Linear bearing (*)
53	Lift / Slide bush

* The type is not available as a stopper.

Features

- Strong cylinder capable of high loads, used extensively for stopping work carriers in both the vertical and horizontal position.
- Large diameter guide rods enable cylinder to take high off-set loads.
- Can be used as 90 degree pusher on large conveyor systems.
- Magnetic as standard.

Specification

Model	MCGA			
Model (Stop type view)				
Acting type	Double acting			
Tube I.D.	20	32,40	50,63	80
Port size	Rc1/8		Rc1/4	Rc3/8
Medium	Air			
Operating pressure range	0.1~1 MPa			
Proof pressure	1.5 MPa			
Lubrication	Not required			
Cushion	With rubber cushion pad			
Ambient temperature	-5~+60°C (No freezing)			
Available speed range	50~500 mm/sec			
Sensor switch	RCB			

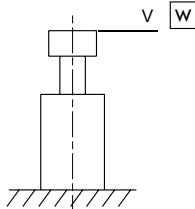
Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm)			
		30	50	75	100
MCGA-03 (Slide bush)	ø20				
	ø32				
	ø40				
	ø50				
	ø63				
	ø80				
MCGA-13 (Linear bearing)	ø20				
	ø32				
	ø40				
	ø50				
	ø80				
MCGA-53 (Slide bush)	ø20				
	ø32				
	ø40				
	ø50				
	ø63				
	ø80				

- The other stroke lengths that fall in the range between our standard strokes will be manufacture by the next large standard stroke with additional spacer.
ex: The 40mm stroke length will be made by 50mm stroke with additional spacer.
- Please contact us if the stroke is out of specification.

Capacity graph

Capacity for the use as a stopper

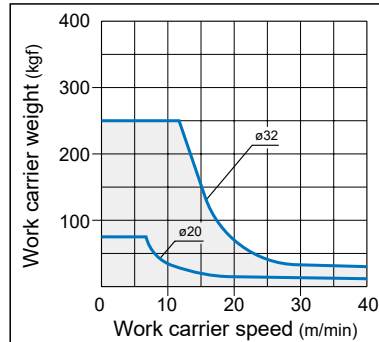


Caution

Linear bearing type is not available as a stopper.

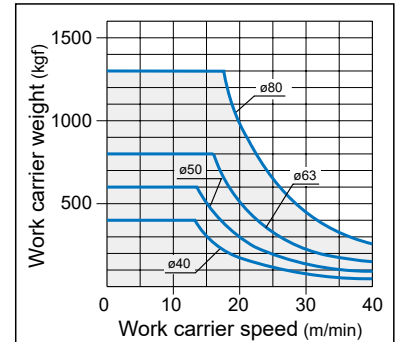
Stop capacity

MCGA-03...ø20,ø32-30st



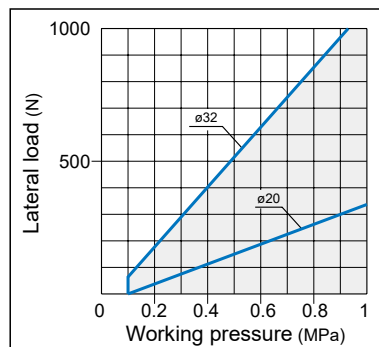
Stop capacity

MCGA-03...ø40,ø50,ø63,ø80-50st



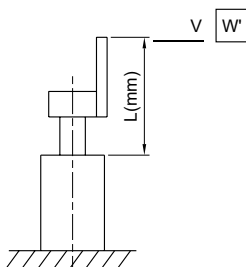
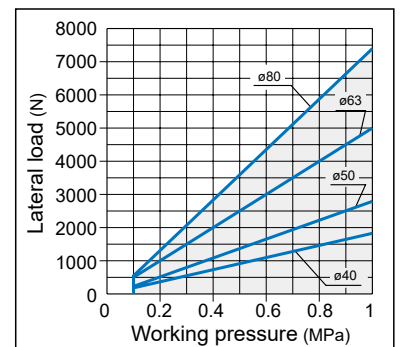
Normal lateral load

MCGA-03...ø20,ø32-30st



Normal lateral load

MCGA-03...ø40,ø50,ø63,ø80-50st



Coefficients for conversion

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

MCGA series	ø20	ø32	ø40	ø50	ø63	ø80
ℓ	48	55	80	85	90	98

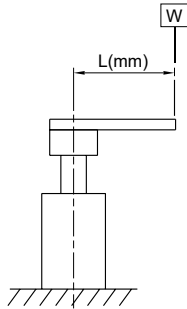
W : The maximum weight of the work carrier in the above graph for the stopper's.

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

Capacity graph

Capacity for the use as a lifter

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

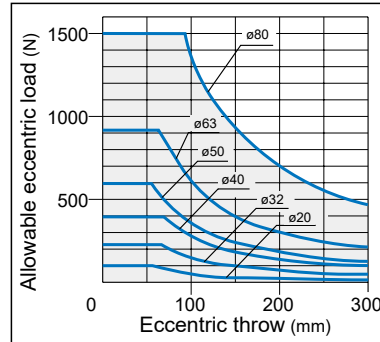


Show the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.

Linear bearing

MCGA-13... $\phi 20, \phi 32\sim 100st$

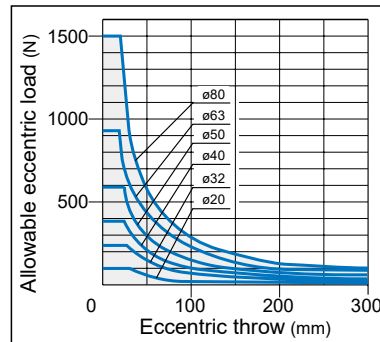
MCGA-13... $\phi 40, \phi 50, \phi 63, \phi 80\sim 100st$



Slide bush

MCGA-53... $\phi 20, \phi 32\sim 30st$

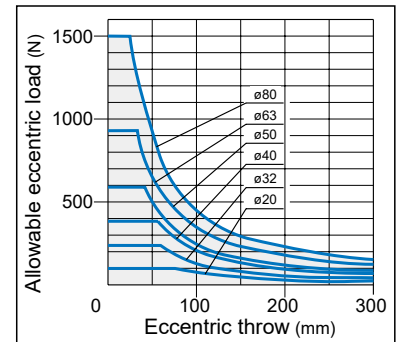
MCGA-53... $\phi 40, \phi 50, \phi 63, \phi 80\sim 50st$



Slide bush

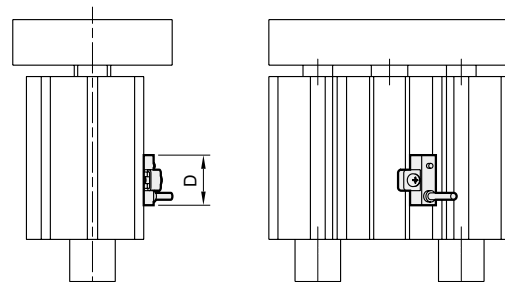
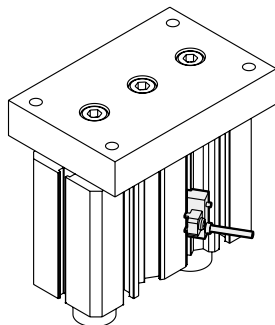
MCGA-53... $\phi 20, \phi 32\sim 50\sim 100st$

MCGA-53... $\phi 40, \phi 50, \phi 63, \phi 80\sim 75\sim 100st$

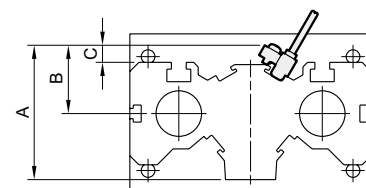


■ Installation of sensor switch (For Stop / Lift / Push type)

Sensor switch: RCB



Code Tube I.D.	A	B	C	D
20	39.5	24.5	7.5	22
32	59.5	30.5	8	22
40	64	31	5	22
50	71.5	33.5	2.5	22
63	88.5	40.5	1.5	22
80	103	43	0	22

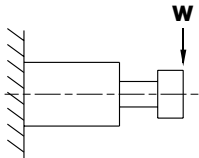


TWIN-GUIDE CYLINDER

Unit: N

Capacity table

Allowable lateral load

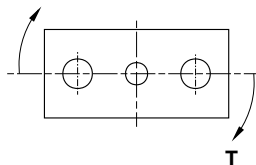


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

Tube I.D.	Bearing type	Stroke (mm)			
		30	50	75	100
$\phi 20$	Slide bush	58.84	88.26	73.55	58.84
	Linear bearing	78.45	63.74	49.03	39.23
$\phi 32$	Slide bush	117.7	147.1	117.7	98.07
	Linear bearing	156.9	127.5	98.07	78.45
$\phi 40$	Slide bush	—	147.1	166.7	137.3
	Linear bearing	—	225.6	186.3	156.9
$\phi 50$	Slide bush	—	147.1	176.5	147.1
	Linear bearing	—	245.2	196.1	166.7
$\phi 63$	Slide bush	—	215.7	274.6	215.7
	Linear bearing	—	—	323.6	284.4
$\phi 80$	Slide bush	—	245.2	294.2	245.2
	Linear bearing	—	—	588.4	539.4

Unit: N.m

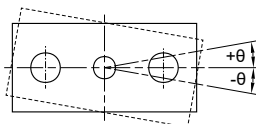
Allowable rotating torque



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

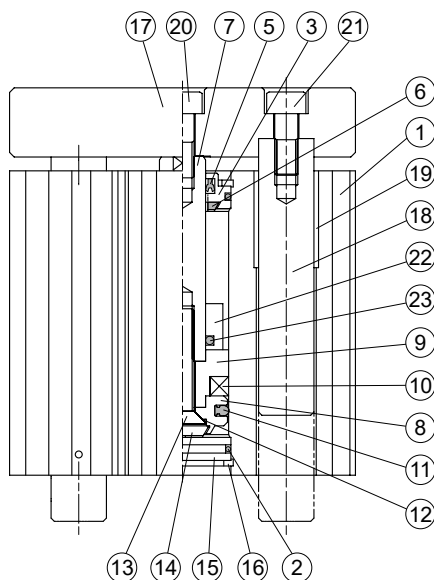
Tube I.D.	Bearing type	Stroke (mm)			
		30	50	75	100
$\phi 20$	Slide bush	0.686	0.981	0.785	0.686
	Linear bearing	0.883	0.686	0.539	0.441
$\phi 32$	Slide bush	2.059	2.55	2.059	1.765
	Linear bearing	4.609	2.157	1.765	1.471
$\phi 40$	Slide bush	—	3.628	3.727	3.236
	Linear bearing	—	4.609	3.825	3.236
$\phi 50$	Slide bush	—	4.315	5.099	4.511
	Linear bearing	—	6.865	5.786	4.903
$\phi 63$	Slide bush	—	6.276	8.041	6.276
	Linear bearing	—	—	9.512	8.336
$\phi 80$	Slide bush	—	10.79	13.73	12.75
	Linear bearing	—	—	27.46	24.52

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
$\phi 20$	Slide bush	$\pm 0.08^\circ$
	Linear bearing	$\pm 0.03^\circ$
$\phi 32$	Slide bush	$\pm 0.07^\circ$
	Linear bearing	$\pm 0.03^\circ$
$\phi 40$	Slide bush	$\pm 0.06^\circ$
	Linear bearing	$\pm 0.03^\circ$
$\phi 50$	Slide bush	$\pm 0.05^\circ$
	Linear bearing	$\pm 0.02^\circ$
$\phi 63$	Slide bush	$\pm 0.05^\circ$
	Linear bearing	$\pm 0.02^\circ$
$\phi 80$	Slide bush	$\pm 0.04^\circ$
	Linear bearing	$\pm 0.02^\circ$



Material

No.	Part name	Material	Qty	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Cover ring	NBR	2	●
3	Rod cover	Aluminum alloy	1	
4	Rod bush	Bearing alloy	1	
5	Rod packing	NBR	1	●
6	Rod cushion	NBR	1	●
7	Piston rod	Carbon steel	1	
8	Piston	Aluminum alloy	1	
9	Piston for magnet ring	Aluminum alloy	1	
10	Magnet ring	Magnet material	1	
11	Piston packing	NBR	1	●
12	Piston gasket	NBR	1	●
13	Bolt for piston	Carbon steel	1	
14	Head cushion	NBR	1	●
15	End cover	Aluminum alloy	1	
16	Snap ring	Spring steel	2	
17	Plate	Aluminum alloy	1	
18	Guide rod	Carbon steel	2	
19	Guide rod bush	Bearing alloy	4	
20	Bolt for piston rod	Carbon steel	1	
21	Bolt for guide rod	Carbon steel	2	
22	Spacer	Aluminum alloy	1	
23	O-ring	NBR	1	

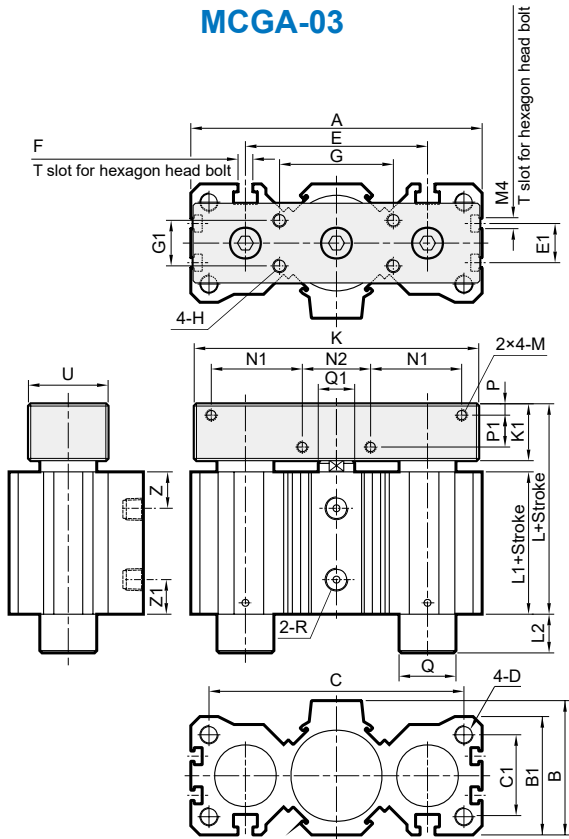
Order example of repair kits

Tube I.D.	Repair kits
ø20	PS-MCGA-20
ø32	PS-MCGA-32
ø40	PS-MCGA-40
ø50	PS-MCGA-50
ø63	PS-MCGA-63
ø80	PS-MCGA-80

TWIN-GUIDE CYLINDER

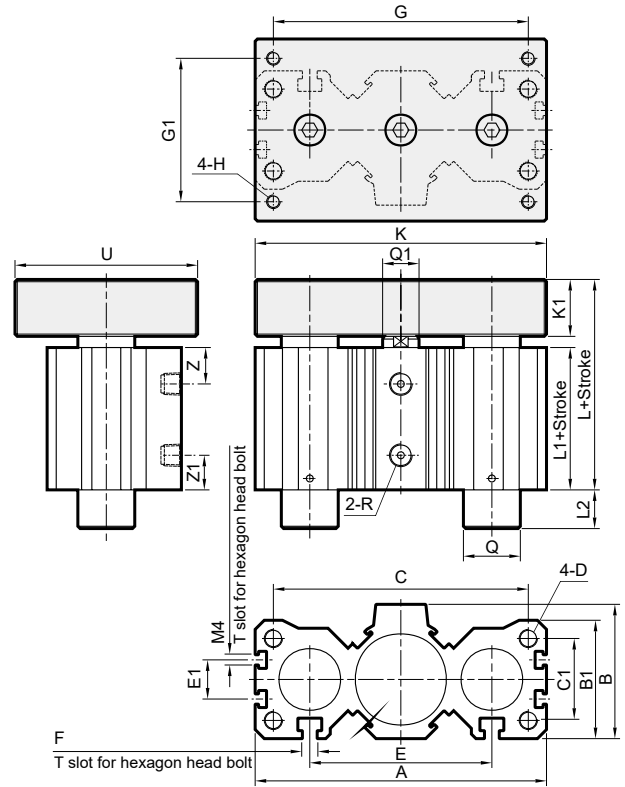
Stop type

MCGA-03



Lift type

MCGA-53/13



MCGA-03

Code Tube I.D.	A	B	B1	C	C1	D	E	E1	F	G	G1	H	K	K1	L	L1	M	N1	N2	P	P1	Q	Q1	R	U	Z	Z1
20	75	34	32	63	20	M5×0.8×15dp	45	—	M4	32	16	M5×0.8×10dp	75	15	54	36	M4×0.7×8dp	22.5	20	4	6	ø12	ø10	Rc1/8	25	11	10
32	106	51.5	45	90	30	M8×1.25×20dp	63	—	M6	40	18	M6×1.0×12dp	100	20	66.5	41.5	M5×0.8×10dp	32	25	5	9	ø20	ø16	Rc1/8	30	12	12
40	128	59	52	112	36	M8×1.25×20dp	80	—	M6	50	20	M6×1.0×12dp	125	25	81	51	M5×0.8×10dp	40	30	5	14	ø25	ø16	Rc1/8	35	16	16.5
50	150	69	62	132	45	M10×1.5×25dp	100	20	M8	63	25	M8×1.25×16dp	140	30	87	52	M6×1.0×12dp	37.5	50	6	16	ø30	ø20	Rc1/4	40	16	17.5
63	180	87	78	156	53	M12×1.75×30dp	118	25	M10	80	40	M10×1.5×20dp	175	35	100	60	M8×1.25×16dp	47.5	60	9	16	ø35	ø20	Rc1/4	60	17.5	21
80	243	110	100	212	71	M16×2.0×40dp	160	30	M12	106	56	M10×1.5×20dp	224	40	110.5	62.5	M10×1.5×20dp	60	80	10	18	ø45	ø25	Rc3/8	75	22	19.5

L2 dimensions list

MCGA-53/13

Code Tube I.D.	G	G1	K	Q	U
20	63	32	75	ø12 (ø8)	45
32	90	50	106	ø20 (ø13)	70
40	112	63	128	ø25 (ø16)	80
50	132	71	150	ø30 (ø20)	100
63	150	85	175	ø35 (ø25)	110
80	212	125	236	ø45 (ø35)	150

(): For MCGA-13 type

MCGA-03/53

Code Tube I.D.	Stroke (mm)			
	30	50	75	100
20	0	17	17	17
32	0	18.5	18.5	18.5
40	0	0	22	22
50	0	0	18	18
63	20	20	20	20
80	0	0	38.5	38.5

MCGA-13

Code Tube I.D.	Stroke (mm)			
	30	50	75	100
20	18	18	18	18
32	29.5	29.5	29.5	29.5
40	30	30	30	30
50	—	39	39	39
63	11	11	70	70
80	19.5	19.5	19.5	89.5

MCGA series Push type

TWIN-GUIDE CYLINDER



Stop / lift type



Applications



Technical data



Caution for safety
(Read before installing)



Order example

MCGA - 23 - 20 - 50 - G

MODEL

TUBE I.D.

STROKE

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

PURPOSE / TYPE OF BEARING

Code	Purpose / Type of bearing
23	Push / Linear bearing
63	Push / Slide bush

Features

- Long stroke type of the anti-turn accuracy, improved by integrating the guides and cylinder.
- Linear bearing type available for high accuracy in the high speed work.
- On the link bar at the top, many thread holes for mounting attachments are provided for easy mounting.
- Lift type of long stroke is available by replacing the link bar with table plate.
- Magnetic as standard.

Specification

Model	MCGA					
Model	<p>(for 23/63 type ø80 stroke over 100mm)</p>					
Acting type	Double acting					
Tube I.D. (mm)	20	32	40	50	63	80
Port size (Rc)	1/8	1/4 1/8	1/4 1/8	3/8 1/4	3/8	3/8
Medium	Air					
Operating pressure range	0.1~1 MPa					
Proof pressure	1.5 MPa					
Lubrication	Not required					
Cushion	With rubber cushion pad					
Ambient temperature	-5~+60°C (No freezing)					
Available speed range	50~500 mm/sec					
Sensor switch	RCB					

: For MCGA-23 type, stroke 30~100mm.

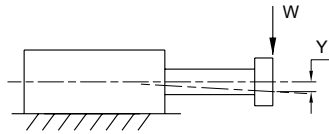
Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm)										
		30	50	75	100	200	300	350	400	500	600	700
MCGA-23 (Linear bearing)	ø20	█	█	█	█	█	█	█	█	█	█	█
	ø32	█	█	█	█	█	█	█	█	█	█	█
	ø40	█	█	█	█	█	█	█	█	█	█	█
	ø50	█	█	█	█	█	█	█	█	█	█	█
	ø63	█	█	█	█	█	█	█	█	█	█	█
	ø80	█	█	█	█	█	█	█	█	█	█	█
MCGA-63 (Slide bush)	ø20	█	█	█	█	█	█	█	█	█	█	█
	ø32	█	█	█	█	█	█	█	█	█	█	█
	ø40	█	█	█	█	█	█	█	█	█	█	█
	ø50	█	█	█	█	█	█	█	█	█	█	█
	ø63	█	█	█	█	█	█	█	█	█	█	█
	ø80	█	█	█	█	█	█	█	█	█	█	█

- Please contact us if the stroke is out of specification.
- Tube I.D. ø20~ø63 the max stroke is 350mm.

Capacity graph

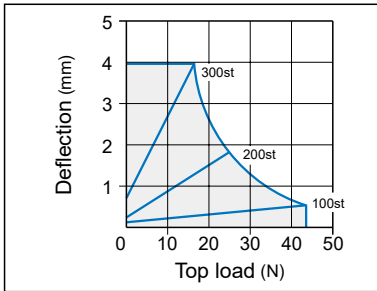
Capacity for the use as a pusher



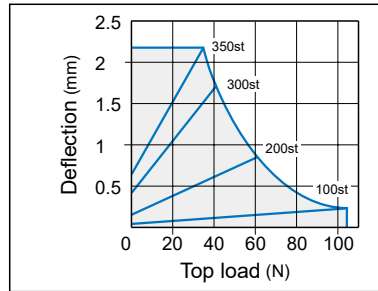
MCGA-23 / MCGA-63, deflection and allowable top load.

- In the actual operation, load at the top should be below the allowable top load.
- Y—Deflection
- W—Allowable top load

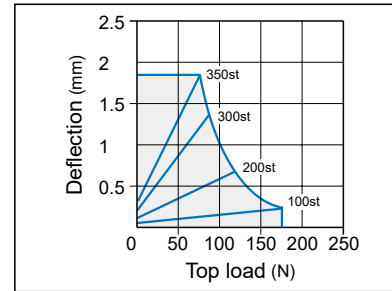
MCGA-23... $\varnothing 20$



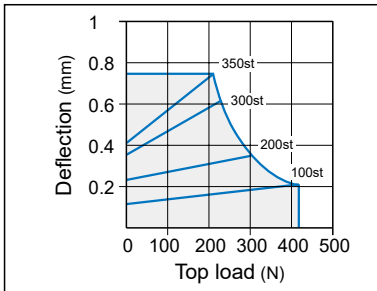
MCGA-23... $\varnothing 32$



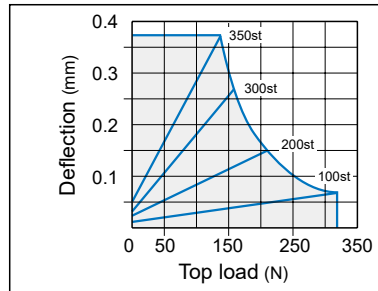
MCGA-23... $\varnothing 40$



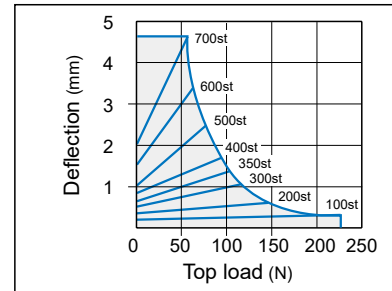
MCGA-23... $\varnothing 50$



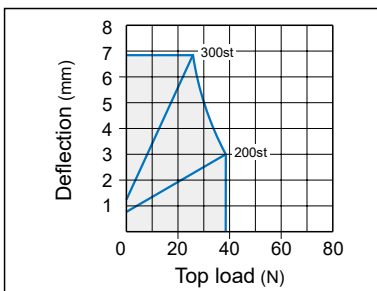
MCGA-23... $\varnothing 63$



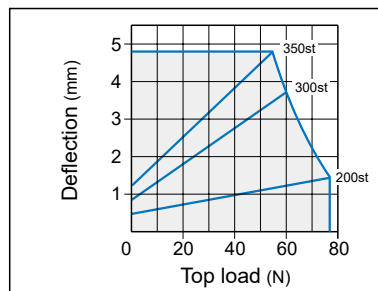
MCGA-23... $\varnothing 80$



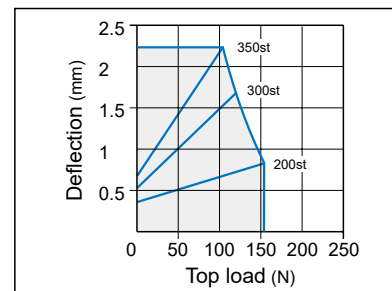
MCGA-63... $\varnothing 20$



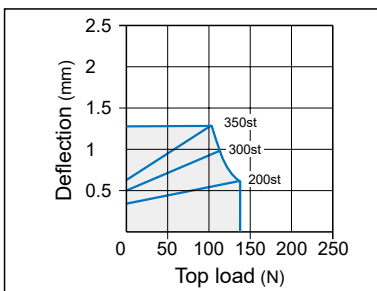
MCGA-63... $\varnothing 32$



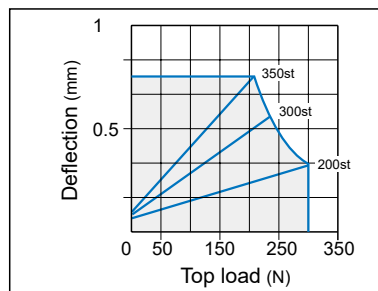
MCGA-63... $\varnothing 40$



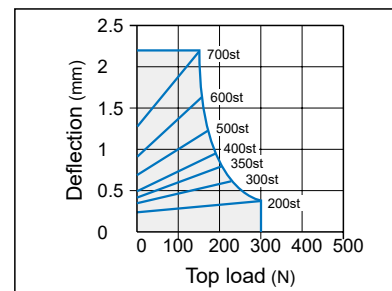
MCGA-63... $\varnothing 50$



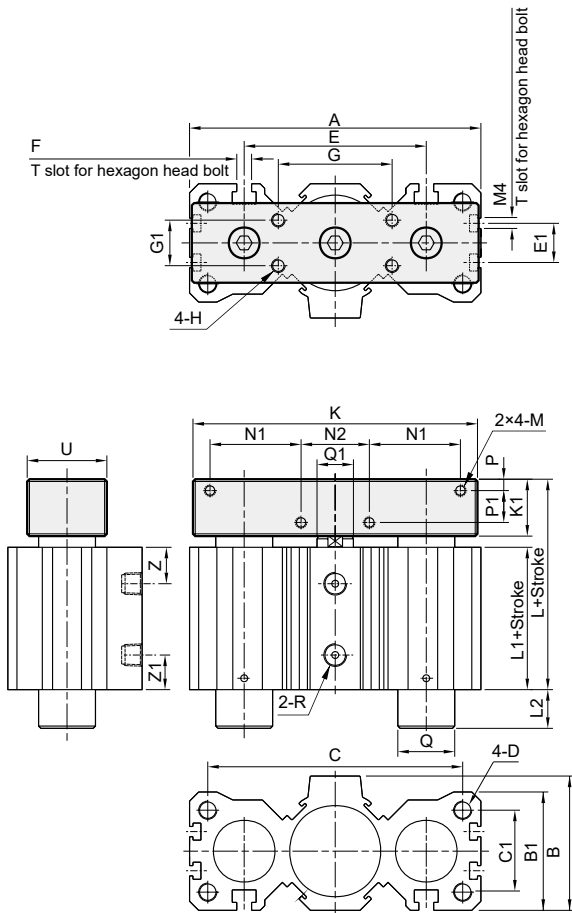
MCGA-63... $\varnothing 63$



MCGA-63... $\varnothing 80$

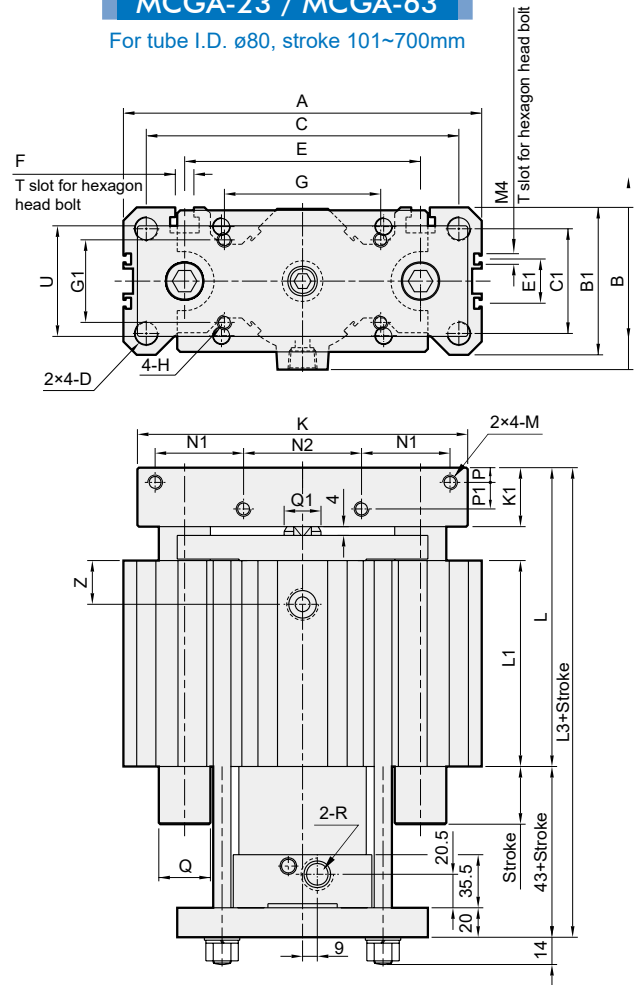


MCGA-23 / MCGA-63



MCGA-23 / MCGA-63

For tube I.D. ø80, stroke 101~700mm



MCGA-23 / MCGA-63

Code Tube I.D.	A	B	B1	C	C1	D	E	E1	F	G	G1	H	K	K1	L	L1	L2	M	N1	N2	P	P1	Q	Q1	R	U	Z	Z1
20	75	34	32	63	20	M5×0.8×15dp	45	—	M4	32	16	M5×0.8×10dp	75	15	54	36	18	M4×0.7×8dp	22.5	20	4	6	ø8	ø10	Rc1/8	25	11	10
32	106	51.5	45	90	30	M8×1.25×20dp	63	—	M6	40	18	M6×1.0×12dp	100	20	66.5	41.5	29.5	M5×0.8×10dp	32	25	5	9	ø13(ø12)	ø16	Rc1/4 [1/8]	30	12	12
40	128	59	52	112	36	M8×1.25×20dp	80	—	M6	50	20	M6×1.0×12dp	125	25	81	51	30	M5×0.8×10dp	40	30	5	14	ø16	ø16	Rc1/4 [1/8]	35	16	16.5
50	150	69	62	132	45	M10×1.5×25dp	100	20	M8	63	25	M8×1.25×16dp	140	30	87	52	39	M6×1.0×12dp	37.5	50	6	16	ø20	ø20	Rc3/8 [1/4]	40	16	17.5
63	180	87	78	156	53	M12×1.75×30dp	118	25	M10	80	40	M10×1.5×20dp	175	35	100	60	68	M8×1.25×16dp	47.5	60	9	16	ø25	ø20	Rc3/8	60	17.5	21
80	243	110	100	212	71	M16×2.0×40dp	160	30	M12	106	56	M10×1.5×20dp	224	40	110.5	62.5	*	M10×1.5×20dp	60	80	10	18	ø35	ø25	Rc3/8	75	22	19.5

* With stroke 30~75mm L2=17.5, stroke 100mm L2=87.5

□: For MCGA-23 type, stroke 30~100mm, (): For MCGA-63 type.

MCGA-23 / MCGA-63 Tube I.D. ø80, stroke 101~700mm

Code Tube I.D.	A	B	B1	C	C1	D	E	E1	F	G	G1	H	K	K1	L	L1	L3	M	N1	N2	P	P1	Q	Q1	R	U	Z	Z1
80	243	110	100	212	71	M16×2.0×40dp	160	30	M12	106	56	M10×1.5×20dp	224	40	213	150	256	M10×1.5×20dp	60	80	10	18	ø35	ø25	Rc3/8	75	40	—

TWIN-GUIDE CYLINDER

Handling

⚠ Caution

① 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.

② 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.

③ 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.

④ 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.

⑤ 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.

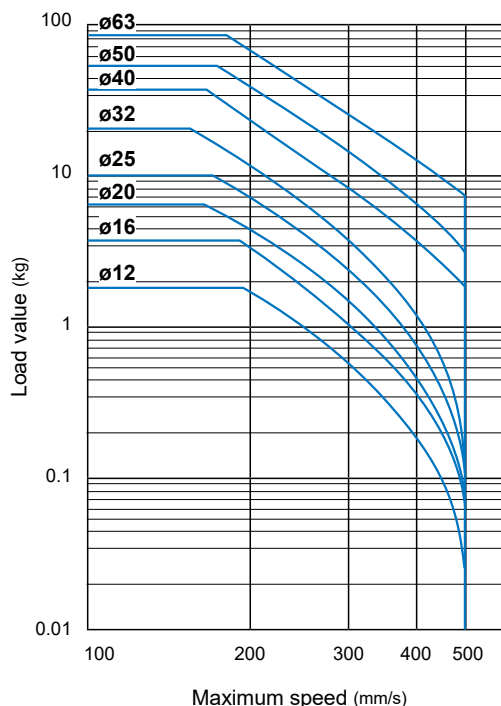


Table 1



$\phi 12 \sim \phi 63$



Applications



Technical data



Caution for safety
(Read before installing)



Order example

MCGS - 6 - 10

MODEL

TUBE I.D.

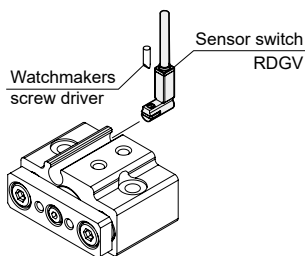
STROKE

Cylinder weight

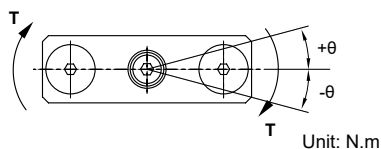
Unit: g

Tube I.D.	Stroke (mm)			
	5	10	15	20
$\phi 6$	29	34	39	—
$\phi 10$	41	49	57	65

Installation of sensor switch



Allowable rotational torque & Non-rotating accuracy



Unit: N.m

Tube I.D.	Stroke (mm)				Non-rotating accuracy θ
	5	10	15	20	
$\phi 6$	0.9	0.7	0.6	—	$\pm 0.15^\circ$
$\phi 10$	4.7	3.9	3.3	2.8	

Features

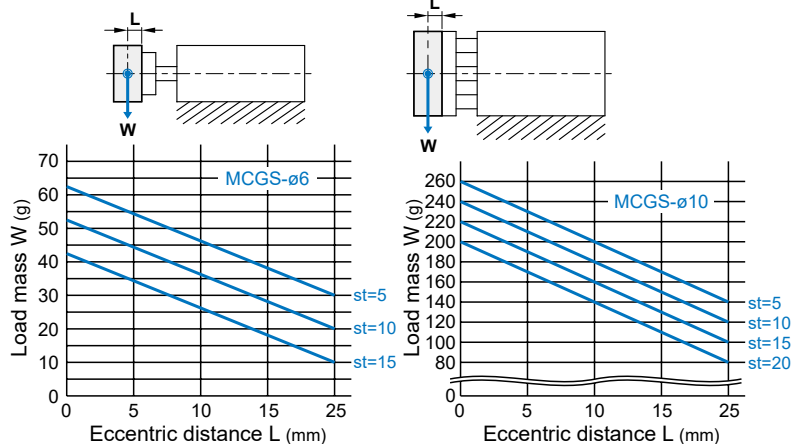
- Multi-ports as standard enabling both direction mounting.
- Embedding type sensors.
- The sensor cable will be in the same direction as the piping tube if vertical type sensor switch (Angle cable) is used.
- Magnetic as standard.

Specification

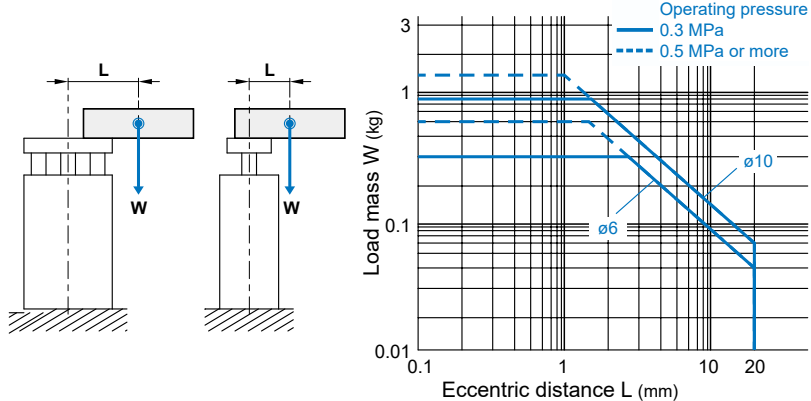
Model	MCGS	
Acting type	Double acting	
Tube I.D. (mm)	6	10
Stroke (mm)	5, 10, 15	5, 10, 15, 20
Port size	M3 \times 0.5	
Medium	Air	
Max. operating pressure	0.7 MPa	
Min. operating pressure	0.15 MPa	
Proof pressure	1 MPa	
Lubrication	Not required	
Ambient temperature	-5~+60°C (No freezing)	
Available speed range	50~400 mm/sec	
Sensor switch	RDGV	

* This product is not applicable for stopper purpose.

Allowable lateral load

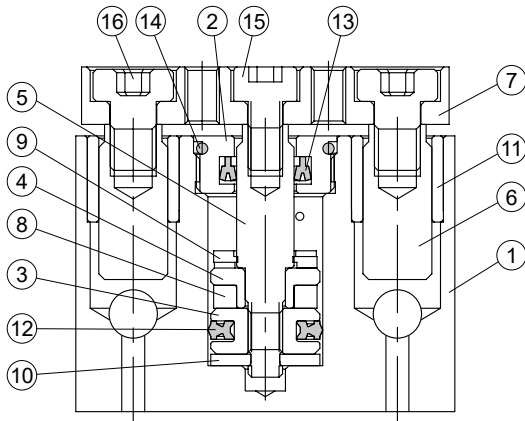


Allowable eccentric load



TWIN-GUIDE CYLINDER

Inside structure & Parts list



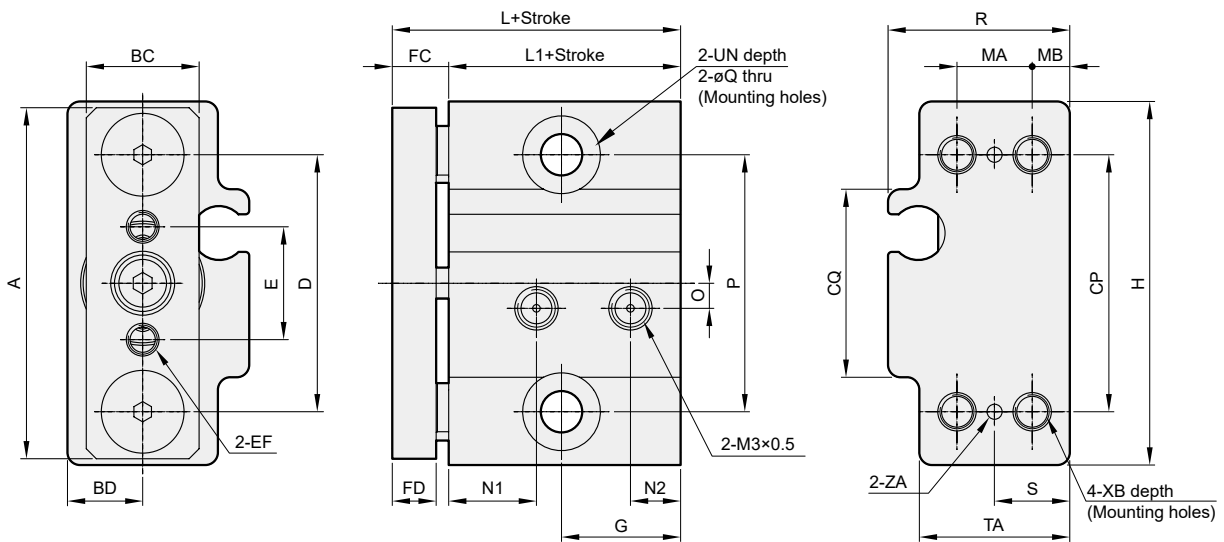
Material

No.	Part name	Material	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Rod cover	Aluminum alloy	1	
3	Piston-H	Aluminum alloy	1	
4	Piston-R	Aluminum alloy	1	
5	Piston rod	Stainless steel	1	
6	Guide rod	Carbon steel	2	
7	Plate	Aluminum alloy	1	
8	Magnet ring	Magnet material	1	
9	Cushion	NBR	1	●
10	Cushion	NBR	1	●
11	Bush	Copper	2	
12	Piston seal	NBR	1	●
13	Rod seal	NBR	1	●
14	O-ring	NBR	1	●
15	Screw	Carbon steel	1	
16	Screw	Carbon steel	2	

Order example of repair kits

Tube I.D.	Repair kits
$\varnothing 6$	PS-MCGS-6
$\varnothing 10$	PS-MCGS-10

Dimensions



Code Tube I.D.	A	BC	BD	CP	CQ	D	E	EF	FC	FD	G	H	L	L1	MA	MB	N1	N2
6	28	9	6	20.5	15	20.5	9	M2.5×0.45 thru	4.5	3.5	9.5	29	23	18.5	6	3	7	4
10	32	10	7.5	23	17.5	23	11	M3×0.5 thru	6	5	8.5	33	25	19	8	3.5	7	4.5

Code Tube I.D.	O	P	Q	R	S	TA	UN	XB	ZA
6	2	20.5	3.3	14.5	6	12	$\varnothing 6.2 \times 0.5$	M3×0.5×5	$\varnothing 1.2$
10	3	23	4.3	17	7.5	15	$\varnothing 8 \times 0.5$	M4×0.7×5	$\varnothing 2$



$\phi 6, \phi 10$



Applications



Technical data



Caution for safety
(Read before installing)



Features

- Proven track record in manufacturing precision guided cylinders.
- Multi-Ports as standard enabling two direction mounting option.
- Flush fitting sensors.
- Magnetic as standard

Specification

Model	MCGS		
Model			
Acting type	Double acting		
Tube I.D. (mm)	12,16	20,25,32,40	50,63
Port size	M5×0.8	Rc1/8	Rc1/4
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		

Order example

MCGS - 03 - 12 - 50 - 20 - G

MODEL

TUBE I.D.

STROKE

ADJUST STROKE
(for 07, 27 type)

PORT THREAD
Blank: M5×0.8
(for $\phi 12, \phi 16$)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for $\phi 20\sim\phi 63$)

PURPOSE / TYPE OF BEARING

Code	Purpose / Type of bearing
03	Stop / Slide bush
07	Stop / Slide bush / Stroke adjustable
23	Push / Linear bearing (Could attach a table for the use as a lifter)
27	Push / Linear bearing / Stroke adjustable (Could attach a table for the use as a lifter)

* For precautions

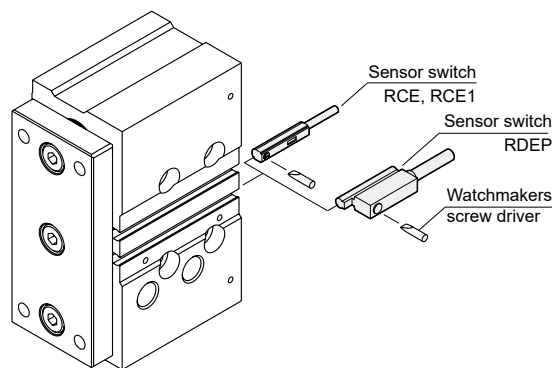
Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
MCGS-03 MCGS-07 (Slide bush)	$\phi 12$																
	$\phi 16$																
	$\phi 20$																
	$\phi 25$																
	$\phi 32^*$																
	$\phi 40$																
	$\phi 50$																
MCGS-23 MCGS-27 (Linear bearing)	$\phi 12$																
	$\phi 16$																
	$\phi 20$																
	$\phi 25$																
	$\phi 32^*$																
	$\phi 40$																
	$\phi 50$																
$\phi 63$																	

* Tube I.D. $\phi 32$: 25mm for the shortest standard stroke.

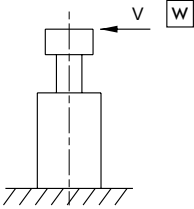
* Adjustable air cushion type, please contact us.

Installation of sensor switch

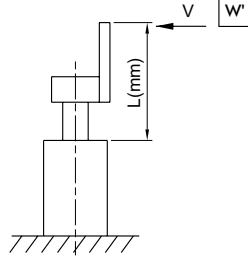


Capacity graph

Capacity for the use as a stopper



Linear bearing type is not available as a stopper.



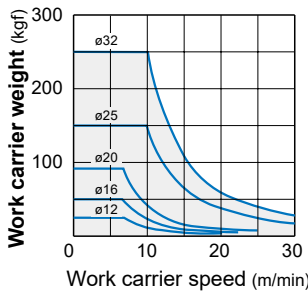
$$W = W' \times \frac{L}{\ell}$$

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

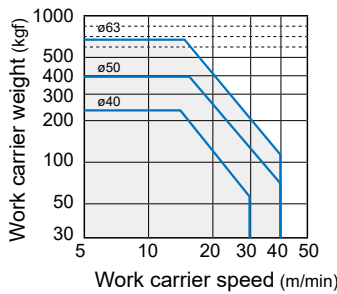
W: The maximum weight of the work carrier in the above graph for the stopper's capacity.

Stop capacity

MCGS-03/07...30st $\phi 12 \sim \phi 32$

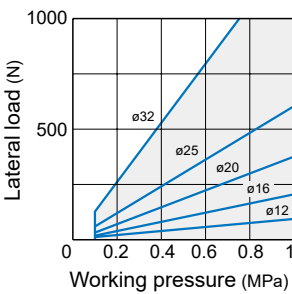


MCGS-03/07...25st $\phi 40 \sim \phi 63$



Normal lateral load

MCGS-03/07...30st



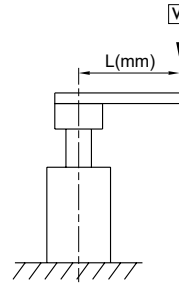
Coefficients for conversion

Tube I.D.	ℓ
$\phi 12$	40
$\phi 16$	42
$\phi 20$	42
$\phi 25$	42
$\phi 32$	44
$\phi 40$	72
$\phi 50$	78
$\phi 63$	78

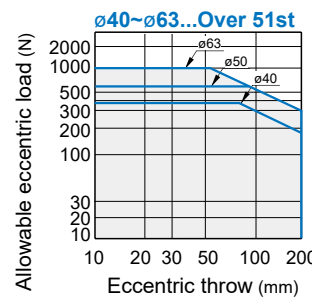
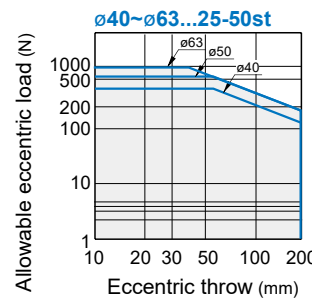
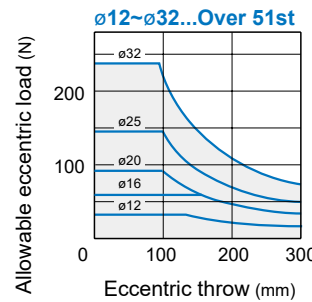
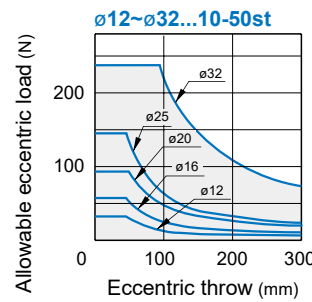
Capacity for the use as a lifter

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

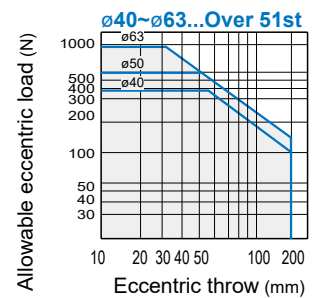
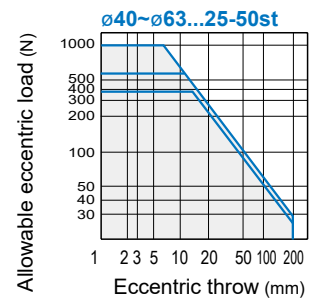
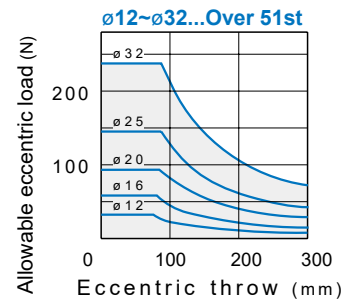
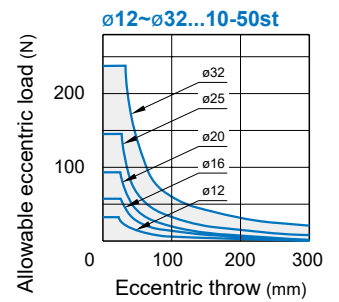
Show the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.



Slide bush MCGS-03/07



Linear bearing MCGS-23/27

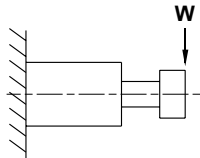


TWIN-GUIDE CYLINDER

Unit: N

Capacity table

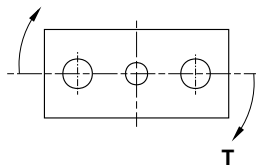
Allowable lateral load



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

Tube I.D.	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
ø12	Slide bush	31	24	—	19	16	13	37	31	15	13	12	10	9	—	—	—
	Linear bearing	23	17	—	14	34	30	23	19	12	11	9	8	6	—	—	—
ø16	Slide bush	50	39	—	32	27	24	54	45	27	24	21	19	16	—	—	—
	Linear bearing	36	29	—	24	59	52	40	33	20	17	15	13	10	—	—	—
ø20	Slide bush	—	51	—	44	39	35	54	46	74	66	59	54	28	24	21	19
	Linear bearing	—	43	—	36	98	87	69	57	46	40	36	32	32	27	23	20
ø25	Slide bush	—	68	—	59	52	46	72	61	98	88	79	72	53	46	41	37
	Linear bearing	—	67	—	56	148	132	105	87	70	62	55	50	42	36	30	27
ø32	Slide bush	—	—	165	—	—	129	106	90	138	123	111	101	88	77	68	61
	Linear bearing	—	—	104	—	—	74	165	138	114	100	90	81	66	56	48	42
ø40	Slide bush	—	—	203	—	—	164	182	159	142	127	190	174	150	132	118	106
	Linear bearing	—	—	113	—	—	78	129	106	130	114	106	95	78	67	58	50
ø50	Slide bush	—	—	296	—	—	245	273	241	216	195	190	174	150	132	118	106
	Linear bearing	—	—	120	—	—	83	178	148	148	129	106	95	78	67	58	50
ø63	Slide bush	—	—	296	—	—	245	273	241	216	195	—	—	—	—	—	—
	Linear bearing	—	—	117	—	—	81	176	145	145	126	—	—	—	—	—	—

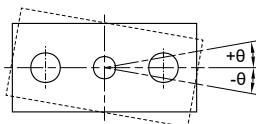
Allowable rotating torque



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

Tube I.D.	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
ø12	Slide bush	0.64	0.48	—	0.39	0.32	0.28	0.75	0.63	0.15	0.13	0.12	0.11	0.09	—	—	—
	Linear bearing	0.47	0.35	—	0.29	0.71	0.62	0.40	0.38	0.13	0.11	0.09	0.08	0.07	—	—	—
ø16	Slide bush	1.14	0.90	—	0.74	0.63	0.55	1.23	1.04	0.31	0.27	0.24	0.22	0.18	—	—	—
	Linear bearing	0.84	0.66	—	0.54	1.35	1.19	0.93	1.76	0.23	0.19	0.17	0.15	0.12	—	—	—
ø20	Slide bush	—	1.14	—	1.21	1.07	0.95	1.49	1.25	2.03	1.81	1.63	1.48	0.37	0.32	0.29	0.26
	Linear bearing	—	1.19	—	0.99	2.69	2.40	1.89	1.56	1.26	1.10	0.98	0.88	0.43	0.36	0.31	0.27
ø25	Slide bush	—	2.19	—	1.88	1.65	1.47	2.31	1.94	3.15	2.80	2.52	2.30	0.85	0.74	0.66	0.59
	Linear bearing	—	2.14	—	1.79	4.74	4.22	3.36	2.78	2.25	1.98	1.76	1.59	0.68	0.57	0.49	0.42
ø32	Slide bush	—	—	6.61	—	—	5.16	4.23	3.59	5.52	4.93	4.45	4.06	1.72	1.50	1.33	1.20
	Linear bearing	—	—	4.17	—	—	2.95	6.60	5.52	4.56	4.02	3.59	3.24	1.29	1.09	0.94	0.82
ø40	Slide bush	—	—	7.00	—	—	5.66	6.27	5.48	4.87	4.38	5.21	4.79	4.13	3.63	3.23	2.92
	Linear bearing	—	—	5.24	—	—	4.25	7.19	6.33	7.81	7.11	2.93	2.61	2.16	1.83	1.58	1.39
ø50	Slide bush	—	—	13.0	—	—	10.8	12.0	10.6	9.50	8.60	5.88	5.41	4.66	4.09	3.65	3.29
	Linear bearing	—	—	7.02	—	—	5.76	12.3	10.9	11.2	10.2	3.30	2.94	2.43	2.06	1.78	1.57
ø63	Slide bush	—	—	14.7	—	—	12.1	13.5	12.0	10.7	9.69	—	—	—	—	—	—
	Linear bearing	—	—	7.77	—	—	3.35	13.7	12.2	12.5	11.4	—	—	—	—	—	—

Anti-roll accuracy



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

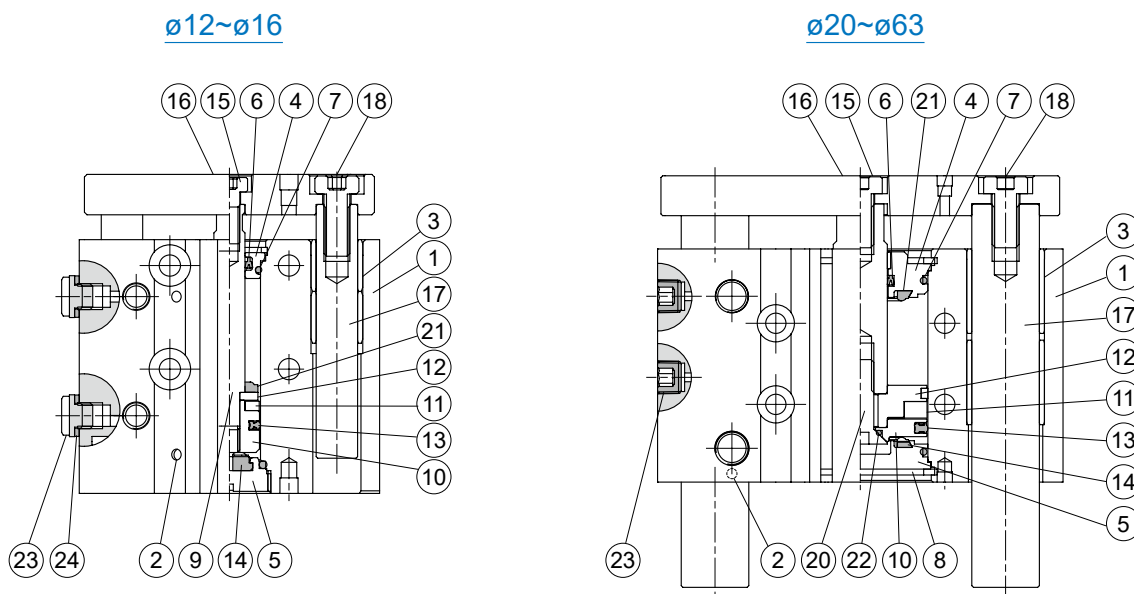
Tube I.D.	Bearing type	Anti-roll accuracy
		θ
ø12	Slide bush	$\pm 0.09^\circ$
	Linear bearing	$\pm 0.06^\circ$
ø16	Slide bush	$\pm 0.08^\circ$
	Linear bearing	$\pm 0.06^\circ$
ø20	Slide bush	$\pm 0.08^\circ$
	Linear bearing	$\pm 0.03^\circ$
ø25	Slide bush	$\pm 0.07^\circ$
	Linear bearing	$\pm 0.05^\circ$
ø32	Slide bush	$\pm 0.07^\circ$
	Linear bearing	$\pm 0.03^\circ$
ø40	Slide bush	$\pm 0.06^\circ$
	Linear bearing	$\pm 0.08^\circ$
ø50	Slide bush	$\pm 0.05^\circ$
	Linear bearing	$\pm 0.06^\circ$
ø63	Slide bush	$\pm 0.05^\circ$
	Linear bearing	$\pm 0.06^\circ$

MCGS-03 Inside structure & Parts list



TWIN-GUIDE CYLINDER

Mindman



Material

No.	Tube I.D. Part name	12	16	20	25	32	40	50	63	Qty	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1~3	
3	Slide bush	Bronze alloy						Bearing alloy		4	
4	Rod cover	Aluminum alloy								1	
5	Head cover	(*1)	Carbon steel				Aluminum alloy			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				Aluminum alloy				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 bush	—					Bearing alloy			1	
20	Piston bolt	—					SCM			1	
21	Rod cushion	NBR								1	●
22	Piston gasket	—					NBR			1	●
23	Screw	Bronze alloy		Carbon steel (*2)						2	
24	Washer	PET		—						2	

*1. Aluminum alloy *2. The material changes into bronze alloy when the part thread is BSPF. (JISPF)

Order example of repair kits

Tube I.D.	Repair kits
ø12	PS-MCGS-12
ø16	PS-MCGS-16
ø20	PS-MCGS-20
ø25	PS-MCGS-25
ø32	PS-MCGS-32
ø40	PS-MCGS-40
ø50	PS-MCGS-50
ø63	PS-MCGS-63

Cylinder weight Unit: g

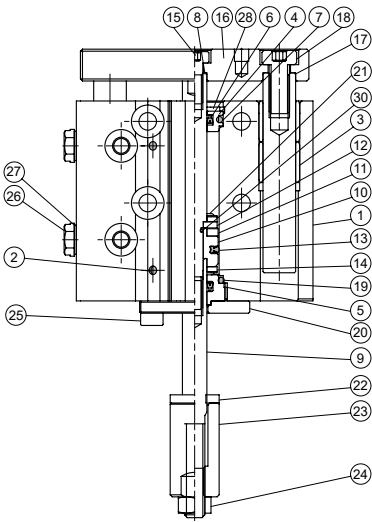
Model	Basic weight MCGS-03	Stroke 5mm MCGS-03
Tube I.D.		
ø12	191	21
ø16	283	28
ø20	450	45
ø25	670	63
ø32	1,210	90
ø40	1,474	88
ø50	2,540	140
ø63	3,295	151

MCGS-07 Inside structure & Parts list

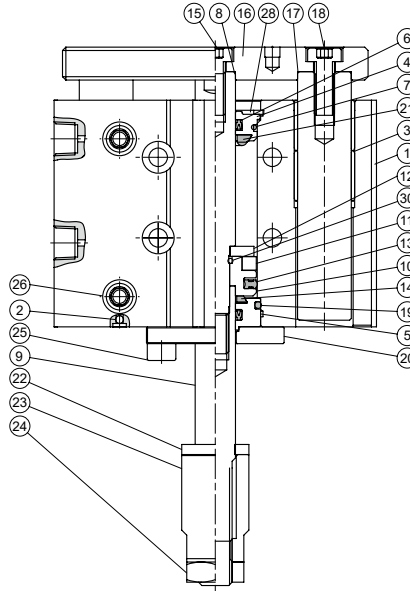
TWIN-GUIDE CYLINDER



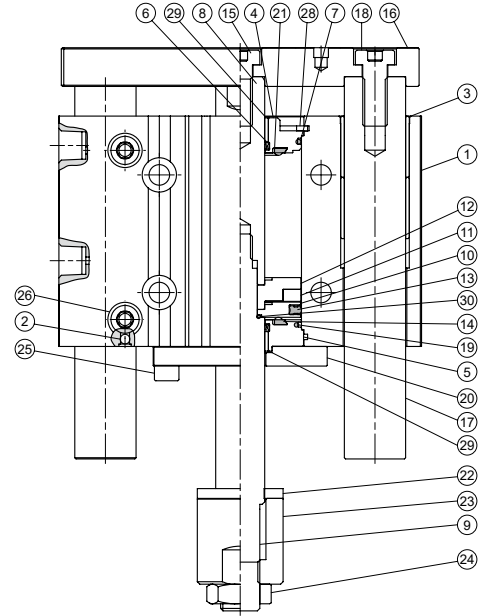
ø12~ø16



ø20~ø32



ø40~ø63



Material

No.	Tube I.D. Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1~3	
3	Slide bush	Bronze alloy						Bearing alloy		4	
4	Rod cover #1	Aluminum alloy								1	
5	Rod cover #2	Aluminum alloy								1	
6	Rod packing	NBR								2	●
7	Cover ring #1	NBR								1	●
8	Piston rod #1	Stainless steel	Carbon steel							1	
9	Piston rod #2	Stainless steel	Carbon steel							1	
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel				Aluminum alloy				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	Bolt	SCM								2	
19	Cover ring #2	NBR								1	●
20	FBC board	Carbon steel								1	
21	Rod cushion	NBR								1	●
22	Gasket	PU								1	
23	Adjustable nut	Carbon steel								1	
24	Nut	Carbon steel								1	
25	Bolt	Stainless steel	SCM							2	
26	Screw	Bronze alloy	Carbon steel (*)							2	
27	Washer	PET	—							2	
28	Snap ring	Spring steel								1	
29	Bush	—					Bearing alloy			2	
30	Piston gasket	NBR								1	●

Order example of repair kits

Tube I.D.	Repair kits
ø12	PS-MCGS-2-12
ø16	PS-MCGS-2-16
ø20	PS-MCGS-2-20
ø25	PS-MCGS-2-25
ø32	PS-MCGS-2-32
ø40	PS-MCGS-2-40
ø50	PS-MCGS-2-50
ø63	PS-MCGS-2-63

* The material changes into bronze alloy when the part thread is BSPF. (JISPF)

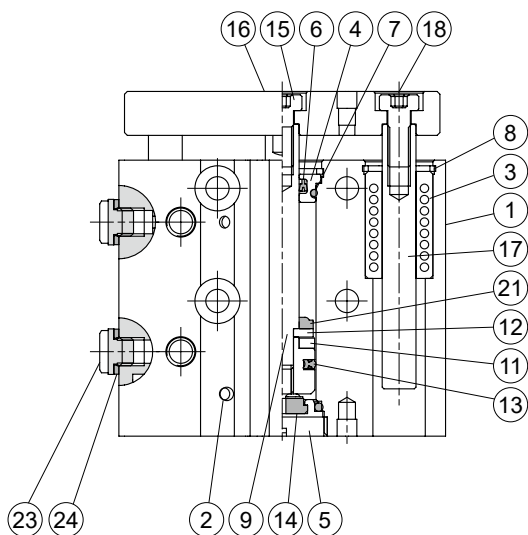
MCGS-23 Inside structure & Parts list



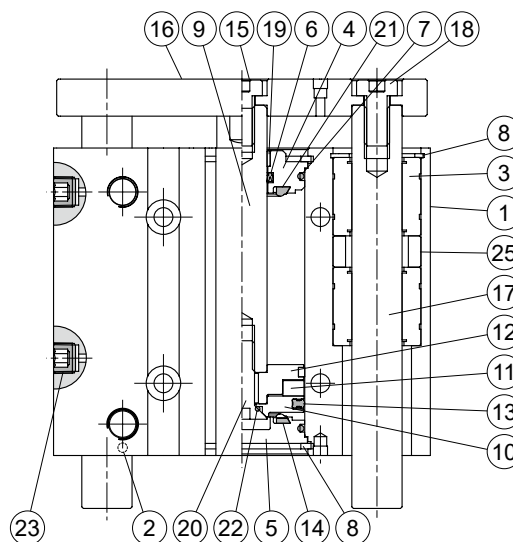
TWIN-GUIDE CYLINDER

Mindman

ø12~ø16



ø20~ø63



Material

No.	Tube I.D. Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)	
1	Body	Aluminum alloy								1		
2	Ball	Stainless steel								1~3		
3	Linear bearing	—								2 or 4		
4	Rod cover	Aluminum alloy								1		
5	Head cover	(*1)	Carbon steel			Aluminum alloy				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			Aluminum alloy					1		
13	Piston packing	NBR								1	●	
14	Head cushion	NBR								1	●	
15	Bolt	SCM								1		
16	Plate	Carbon steel								1		
17	Guide rod	Special steel								2		
18	Screw	SCM								2		
19	Rod bush	—			Bearing alloy					1		
20	Piston bolt	—			SCM					1		
21	Rod cushion	NBR								1	●	
22	Piston gasket	—			NBR					1	●	
23	Screw	Bronze alloy	Carbon steel (*2)								2	
24	Washer	PET	—								2	
25	Collar (*3)	Aluminum alloy	Carbon steel								2	

Order example of repair kits

Tube I.D.	Repair kits
ø12	PS-MCGS-12
ø16	PS-MCGS-16
ø20	PS-MCGS-20
ø25	PS-MCGS-25
ø32	PS-MCGS-32
ø40	PS-MCGS-40
ø50	PS-MCGS-50
ø63	PS-MCGS-63

Cylinder weight

Unit: g

Model	Basic weight MCGS-23	Stroke 5mm MCGS-23
Tube I.D.		
ø12	211	18
ø16	260	30
ø20	470	45
ø25	740	60
ø32	1,170	85
ø40	1,300	98
ø50	2,360	150
ø63	3,010	168

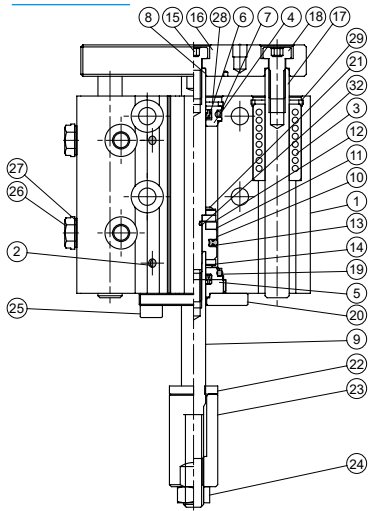
*1. Aluminum alloy *2. The material changes into bronze alloy when the part thread is BSPF. (JISPF) *3. Use for stroke 101 or more.

MCGS-27 Inside structure & Parts list

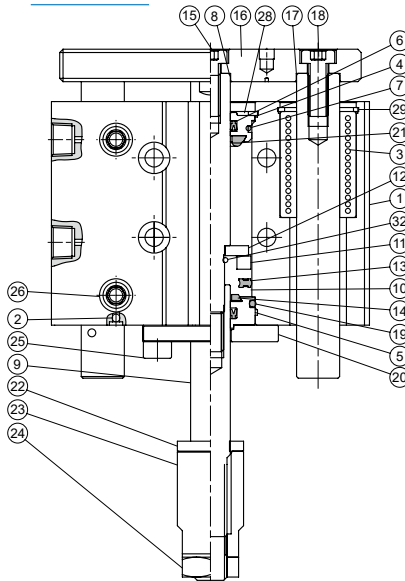
TWIN-GUIDE CYLINDER



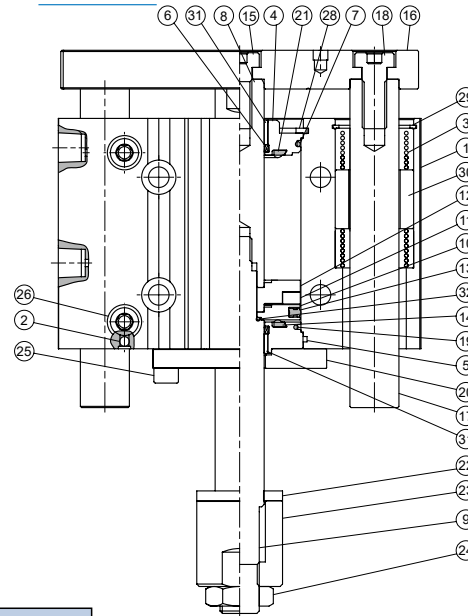
ø12~ø16



ø20~ø32



ø40~ø63



Material

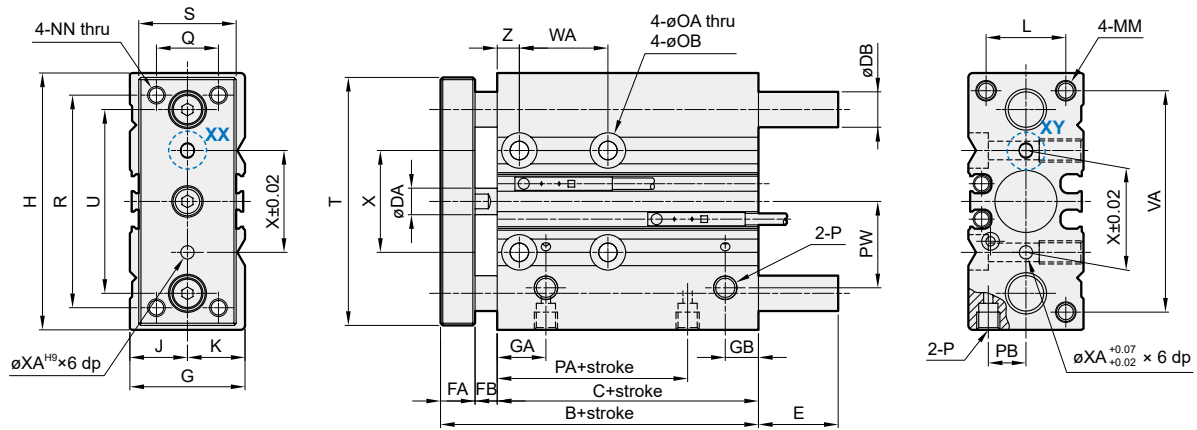
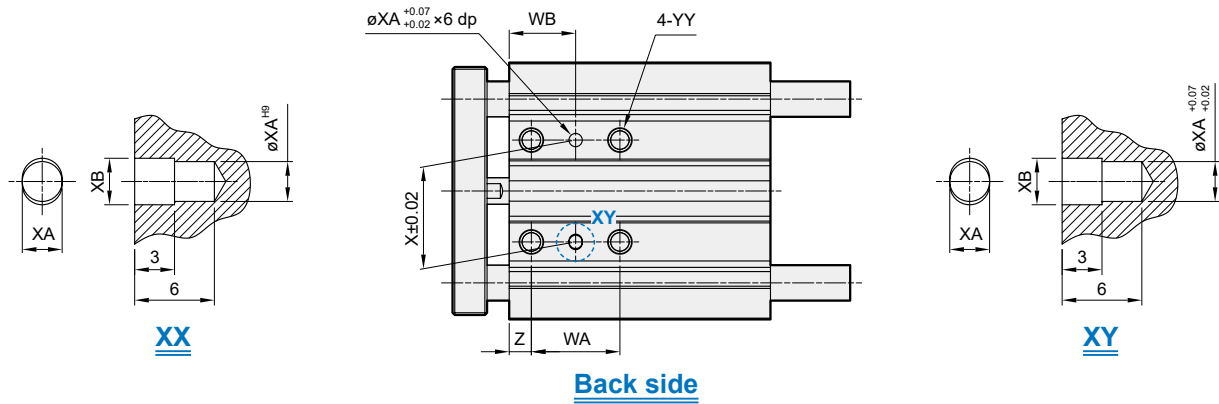
No.	Tube I.D. Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)	
1	Body	Aluminum alloy									1	
2	Ball	Stainless steel									1~3	
3	Linear bearing	—									2 or 4	
4	Rod cover #1	Aluminum alloy									1	
5	Rod cover #2	Aluminum alloy									1	
6	Rod packing	NBR									2	●
7	Cover ring #1	NBR									1	●
8	Piston rod #1	Stainless steel			Carbon steel					1		
9	Piston rod #2	Stainless steel			Carbon steel					1		
10	Piston	Aluminum alloy									1	
11	Magnet ring	Magnet material									1	
12	Magnet holder	Stainless steel		Aluminum alloy						1		
13	Piston packing	NBR									1	●
14	Head cushion	NBR									1	●
15	Bolt	SCM									1	
16	Plate	Carbon steel									1	
17	Guide rod	Special steel									2	
18	Bolt	SCM									2	
19	Cover ring #2	NBR									1	●
20	FBC board	Carbon steel									1	
21	Rod cushion	NBR									1	●
22	Gasket	PU									1	
23	Adjustable nut	Carbon steel									1	
24	Nut	Carbon steel									1	
25	Bolt	Stainless steel		SCM						2		
26	Screw	Bronze alloy	Carbon steel (*2)							2		
27	Washer	PET	—							2		
28	Snap ring #1	Spring steel									1	
29	Snap ring #2	Spring steel									2	
30	Collar (*1)	Aluminum alloy	Carbon steel							2		
31	Bush	—			Bearing alloy					2		
32	Piston gasket	NBR									1	●

Order example of repair kits

Tube I.D.	Repair kits
ø12	PS-MCGS-2-12
ø16	PS-MCGS-2-16
ø20	PS-MCGS-2-20
ø25	PS-MCGS-2-25
ø32	PS-MCGS-2-32
ø40	PS-MCGS-2-40
ø50	PS-MCGS-2-50
ø63	PS-MCGS-2-63

*1. Use for stroke 101 or more.
*2. The material changes into bronze alloy when the part thread is BSPF. (JISPF)

TWIN-GUIDE CYLINDER



MCGS-03 / MCGS-23

Code Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	H	J	K	L	MM	NN	OA	OB	P	PA	PB
				03 type	23 type																
12	42	29	6	8	6	8	5	26	11	15 ^(*1)	58	13	13	18	M4×0.7×10dp	M4×0.7	4.3	8.0×4.5dp	M5×0.8	14	8.5
16	46	33	8	10	8	8	5	30	11	18 ^(*2)	64	15	15	22	M5×0.8×12dp	M5×0.8	4.3	8.0×4.5dp	M5×0.8	15	10.0
20	53	37	10	12	10	10	6	36	10.5	8.5	85	17	19	24	M5×0.8×13dp	M5×0.8	5.2	9.5×5.5dp	Rc1/8	12.5	11.5
25	53.5	37.5	12	16	13	10	6	42	11.5	9	96	21	21	30	M6×1.0×15dp	M6×1.0	5.2	9.5×5.5dp	Rc1/8	12.5	13.5
32	59.5	37.5	16	20	16	12	10	51	12.5	9	116	26	25	34	M8×1.25×20dp	M8×1.25	6.6	11.0×7.5dp	Rc1/8	7	16.0

Code Tube I.D.	PW	Q	R	S	T	U	VA	X	XA	XB	YY	Z
12	18	14	48	22	56	41.5	50	23	3	3.5	M5×0.8×10dp	5
16	19	16	54	25	62	46	56	24	3	3.5	M5×0.8×10dp	5
20	25	18	70	30	81	55	72	28	3	3.5	M6×1.0×12dp	17
25	28.5	26	78	38	91	65	82	34	4	4.5	M6×1.0×12dp	17
32	34	30	96	44	110	80	98	42	4	4.5	M8×1.25×16dp	21

Code Tube I.D.	WA					WB				
	~39st	40~100st	125~200st	201st~300st	301st~	~39st	40~100st	125~200st	201~300st	301st~
12	20	40	110	200	—	15	25	60	105	—
16	24	44	110	200	—	17	27	60	105	—
20	24	44	120	200	300	29	39	77	117	167
25	24	44	120	200	300	29	39	77	117	167

Code Tube I.D.	WA					WB				
	25~49st	50~100st	125~200st	201st~300st	301st~	25~49st	50~100st	125~200st	201~300st	301st~
32	24	48	124	200	300	33	45	83	121	171

MCGS-03

Code Tube I.D.	E		
	10~50st	51~100st	101st~
	10~50st	51~200st	201st~
12	—	18.5	43
16	—	18.5	49
20	—	31.5	69
25	—	31.5	68.5
32	37.5	42.5	80.5

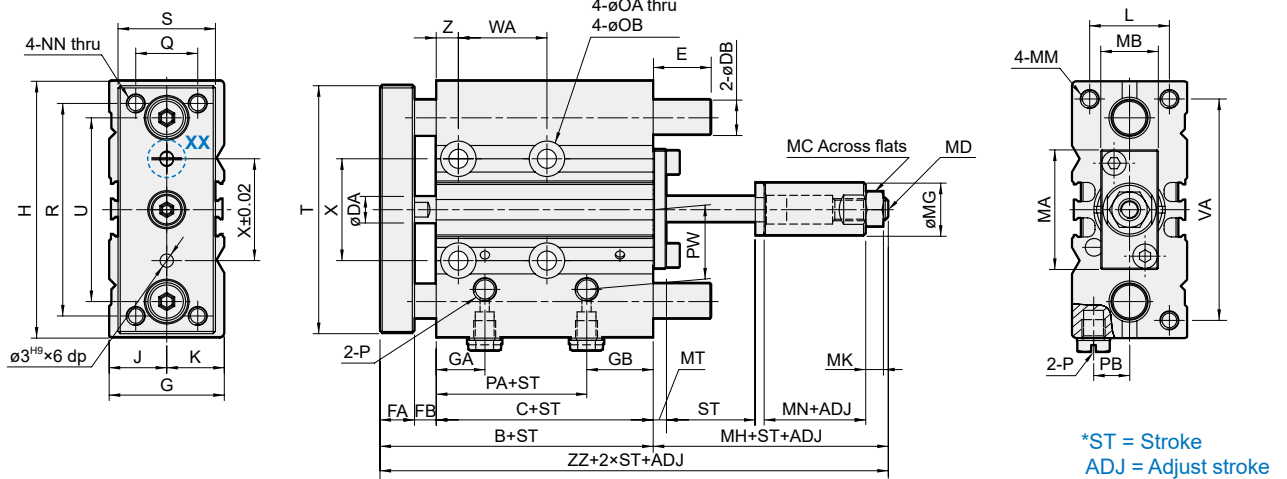
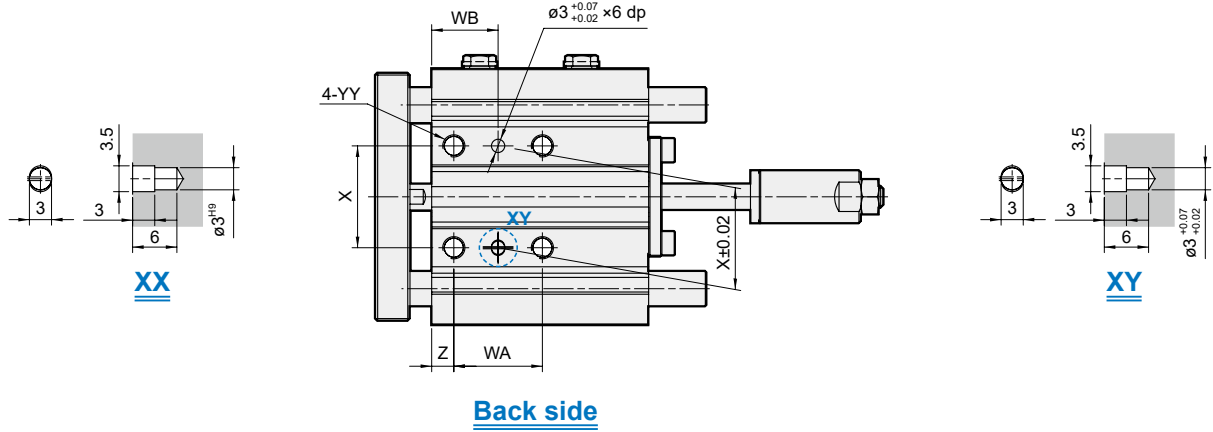
MCGS-23

Code Tube I.D.	E			
	10~30st	31~100st	101st~	
	20~30st	31~100st	101~200st	201st~
12	1	13	43	
16	3	19	49	
20	10	27	51	69
25	16	32	51	68.5
32	21.5	38.5	58.5	80.5

*1. When stroke length is equal to 19mm or less, GB=7.5 mm
 *2. When stroke length is equal to 19mm or less, GB=9 mm

MCGS-07/27 Dimensions $\varnothing 12\sim\varnothing 20$

TWIN-GUIDE CYLINDER



MCGS-07 / MCGS-27

Code Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	H	J	K	L	MA	MB	MC	MD	MG	MH	MK	MN	MM	MT
				07 type	27 type																			
12	42	29	6	8	6	8	5	26	11	15 ^(*1)	58	13	13	18	27	13	8	M5×0.8	12	23	4	13	M4×0.7×10dp	3
16	46	33	8	10	8	8	5	30	11	18 ^(*2)	64	15	15	22	28	16	10	M6×1.0	15	26	5	15	M5×0.8×12dp	3
20	53	37	10	12	10	10	6	36	10.5	8.5	85	17	19	24	33	22	13	M8×1.25	20	26	5	12	M5×0.8×13dp	4

Code Tube I.D.	NN	OA	OB	P	PA	PB	PW	Q	R	S	T	U	VA	X	YY	Z	ZZ
12	M4×0.7	4.3	8×4.5dp	M5×0.8	14	8.5	18	14	48	22	56	41.5	50	23	M5×0.8×10dp	5	65
16	M5×0.8	4.3	8×4.5dp	M5×0.8	15	10.0	19	16	54	25	62	46	56	24	M5×0.8×10dp	5	72
20	M5×0.8	5.2	9.5×5.5dp	Rc1/8	12.5	11.5	25	18	70	30	81	55	72	28	M6×1.0×12dp	17	79

MCGS-07

Code Tube I.D.	WA				WB					
	10~39st	40~100st	125~200st	201st~300st	10~39st	40~100st	125~200st	201~300st		
12	20	40	110	200	15	25	60	105		
16	~39st	40~100st	125~200st	201st~300st	~39st	40~100st	125~200st	201st~300st		
	24	44	110	200	17	27	60	105		
20	~39st	40~100st	125~200st	201st~300st	301st~	~39st	40~100st	125~200st	201st~300st	301st~
	24	44	120	200	300	29	39	77	117	167

Code Tube I.D.	E		
	~50st	51~100st	101st~
12	0	18.5	43
16	10~50st	51~100st	101st~
	0	18.5	49
20	~50st	51~200st	201st~
	0	31.5	69

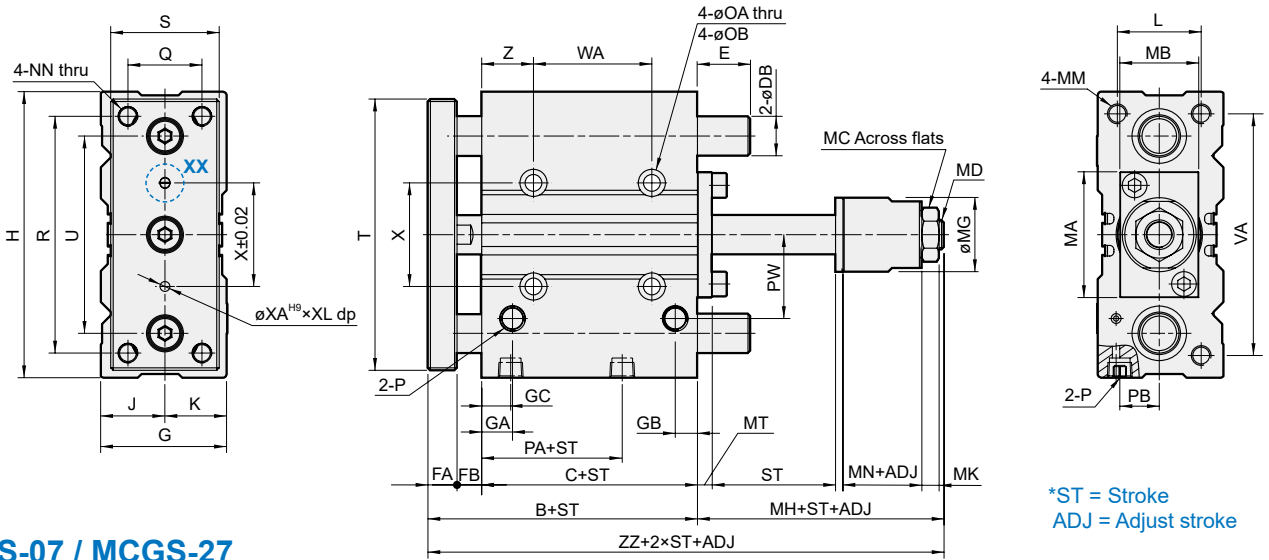
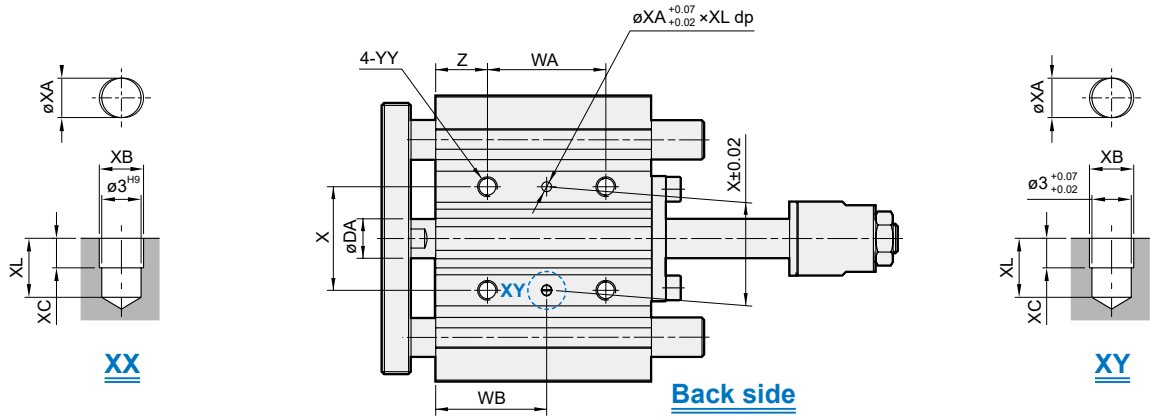
MCGS-27

Code Tube I.D.	E			
	~30st	31~100st	101st~	
12	1	13	43	
16	10~30st	31~100st	101st~	
	3	19	49	
20	20~30st	31~100st	101~200st	201st~
	10	27	51	69

*1. When stroke length is equal to 19mm or less, GB=7.5 mm
*2. When stroke length is equal to 19mm or less, GB=9 mm

MCGS-07/27 Dimensions $\varnothing 25 \sim \varnothing 63$

TWIN-GUIDE CYLINDER



MCGS-07 / MCGS-27

Code Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	GC	H	J	K	L	MA	MB	MC	MD	MG	MH	MK	MN	MM	MT
				07 type	27 type																				
25	53.5	37.5	12	16	13	10	6	42	11.5	9	11.5	96	21	21	30	41	25	17	M10×1.25	20	27	6	12	M6×1.0×15dp	5
32	59.5	37.5	16	20	16	12	10	51	12.5	9	12.5	116	26	25	34	51	32	19	M12×1.25	30	30	7	12	M8×1.25×20dp	6
40	66	44	16	20	16	12	10	54	14	10	14	120	27	27	40	60	32	19	M12×1.25	30	30	7	12	M8×1.25×20dp	6
50	72	44	20	25	20	16	12	64	14	11	12	148	32	32	46	71	38	24	M16×1.5	35	38	8	15	M10×1.5×22dp	8
63	77	49	20	25	20	16	12	78	16.5	13.5	16.5	162	39	39	58	84	50	24	M16×1.5	35	38	8	15	M10×1.5×22dp	8

Code Tube I.D.	NN	OA	OB	P	PA	PB	PW	Q	R	S	T	U	VA	X	XA	XB	XC	XL	YY	Z	ZZ
25	M6×1.0	5.2	9.5×5.5dp	Rc1/8	12.5	13.5	28.5	26	78	38	91	65	82	34	4	4.5	3	6	M6×1.0×12dp	17	80.5
32	M8×1.25	6.6	11×7.5dp	Rc1/8	7	16	34	30	96	44	110	80	98	42	4	4.5	3	6	M8×1.25×16dp	21	89.5
40	M8×1.25	6.8	11×7.5dp	Rc1/8	13	18	38	30	104	44	118	86	106	50	4	4.5	3	6	M8×1.25×16dp	22	96
50	M10×1.5	8.6	14×9dp	Rc1/4	9	21.5	47	40	130	60	146	110	130	66	5	6	4	8	M10×1.5×20dp	24	110
63	M10×1.5	8.6	14×9dp	Rc1/4	14	28	55	50	130	70	158	124	142	80	5	6	4	8	M10×1.5×20dp	24	115

Code Tube I.D.	WA					WB					
	~39st	40~100st	125~200st	201st~300st	301st~	~39st	40~100st	125~200st	201~300st	301st~	
25	24	44	120	200	300	29	39	77	117	167	
32	~49st	50~100st	125~200st	201st~300st	301st~	~49st	50~100st	125~200st	201st~300st	301st~	
	24	48	124	200	300	33	45	83	121	171	
40	~49st	50~69st	70~100st	125~200st	201st~300st	~49st	50~69st	70~100st	125~200st	201st~300st	301st~
	24	48	48	124	200	300	34	46	84	122	172
50	~49st	50~69st	70~100st	125~200st	201st~300st	~49st	50~69st	70~100st	125~200st	201st~300st	301st~
	24	48	48	124	200	300	36	48	86	124	174
63	~49st	50~100st	125st~			~49st	50~100st	125st~			
	28	52	128			38	50	88			

MCGS-07

Code Tube I.D.	E		
	~50st	51~200st	201st~
25	0	31.5	68.5
32	37.5	42.5	80.5
40	31	36	63.5
50	34.5	46	78.5
63	~50st	51st~	
	29.5	41	

MCGS-27

Code Tube I.D.	E			
	20~30st	31~100st	101~200st	201st~
25	16	32	51	68.5
	~20st	~50st	51~100st	101~200st
32	21.5	38.5	58.5	80.5
	~69st	70~100st	101~200st	201st~
40	15	32	52	72.5
	~69st	70~100st	101st~	
50	21	42	62	87.5
	~69st	70~100st	101st~	
63	16	37	57	
	~69st	70~100st	101st~	



Applications



Technical data



Caution for safety
(Read before installing)



Order example

MCGB – 03 – 12 – 50 – G

MODEL

TUBE I.D. STROKE

PURPOSE / TYPE OF BEARING

Code	Purpose / Type of bearing
03	Stop / Slide bush
23	Push / Linear bearing (Could attach a table for the use as a lifter)

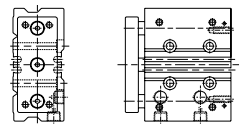



PORT THREAD

Blank: M5×0.8
(for ø12, ø16)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø20~ø32)

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.

Specification

Model	MCGB	
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 	

Installation of sensor switch

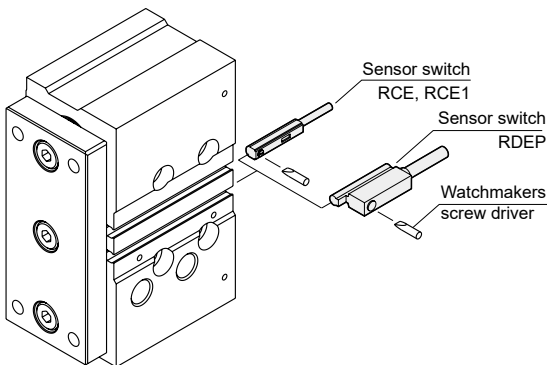


Table for standard stroke

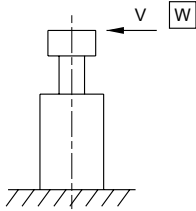
Series variety (Bearing type)	Tube I.D.	Stroke (mm)												
		10	20	25	30	40	50	75	100	125	150	175	200	
MCGB-03 (Slide bush)	ø12													
	ø16													
	ø20													
	ø25													
	ø32*													
MCGB-23 (Linear bearing)	ø12													
	ø16													
	ø20													
	ø25													
	ø32													

* 1. MCGB-03 Tube I.D.ø32: 25mm for the shortest standard stroke.

*2. Please contact us if the stroke is out of specification.

Capacity graph

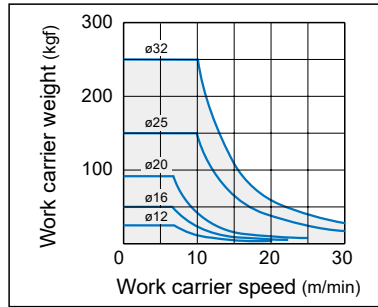
Capacity for the use as a stopper



Linear bearing type is not available as a stopper.

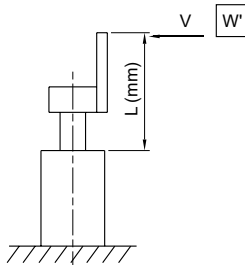
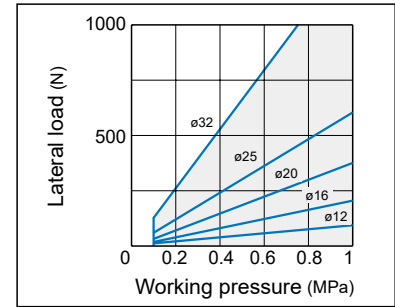
Stop capacity

MCGB-03...30st



Stop capacity

MCGB-03...30st



Coefficients for conversion

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

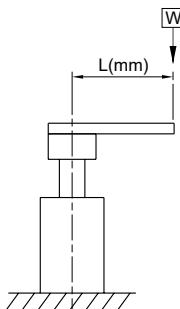
MCGB series	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$
ℓ	40	42	42	42	44

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

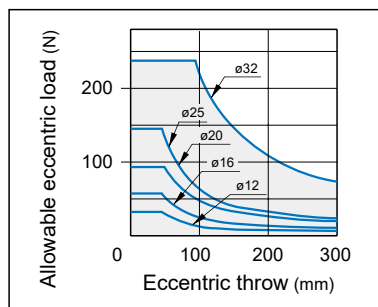
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5 MPa)



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

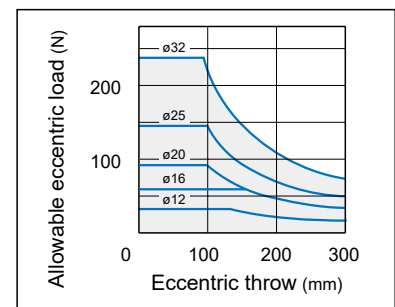
Slide bush

MCGB-03...10-50st



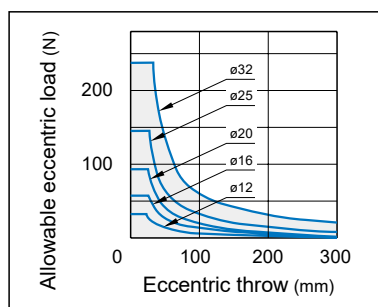
Slide bush

MCGB-03...75-200st



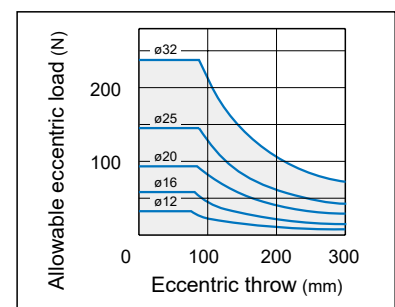
Linear bearing

MCGB-23...10-50st



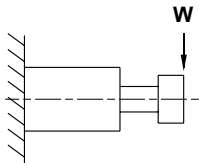
Linear bearing

MCGB-23...75-200st



Capacity table

Allowable lateral load

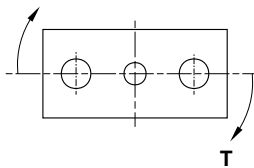


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

Unit: N

Tube I.D.	Bearing type	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
$\phi 12$	Slide bush	31	24	—	19	16	13	37	31	—	—	—	—
	Linear bearing	23	17	—	14	34	30	23	19	—	—	—	—
$\phi 16$	Slide bush	50	39	—	32	27	24	54	45	—	—	—	—
	Linear bearing	36	29	—	24	59	52	40	33	—	—	—	—
$\phi 20$	Slide bush	—	51	—	44	39	35	54	46	74	66	59	54
	Linear bearing	—	43	—	36	98	87	69	57	46	40	36	32
$\phi 25$	Slide bush	—	68	—	59	52	46	72	61	98	88	79	72
	Linear bearing	—	67	—	56	148	132	105	87	70	62	55	50
$\phi 32$	Slide bush	—	—	165	—	—	129	106	90	138	123	111	101
	Linear bearing	—	—	104	—	—	74	165	138	114	100	90	81

Allowable rotating torque

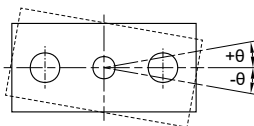


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

Tube I.D.	Bearing type	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
$\phi 12$	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	—	—	—	—
$\phi 16$	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	—	—	—	—
$\phi 20$	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
$\phi 25$	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
$\phi 32$	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

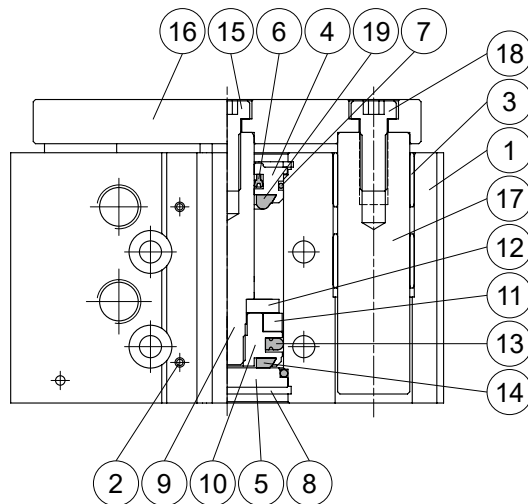


- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

Tube I.D.	Bearing type	Anti-roll accuracy
		θ
$\phi 12$	Slide bush	$\pm 0.09^\circ$
	Linear bearing	$\pm 0.06^\circ$
$\phi 16$	Slide bush	$\pm 0.08^\circ$
	Linear bearing	$\pm 0.06^\circ$
$\phi 20$	Slide bush	$\pm 0.08^\circ$
	Linear bearing	$\pm 0.03^\circ$
$\phi 25$	Slide bush	$\pm 0.07^\circ$
	Linear bearing	$\pm 0.05^\circ$
$\phi 32$	Slide bush	$\pm 0.07^\circ$
	Linear bearing	$\pm 0.03^\circ$

MCGB-03 Inside structure & Parts list

TWIN-GUIDE CYLINDER



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	●

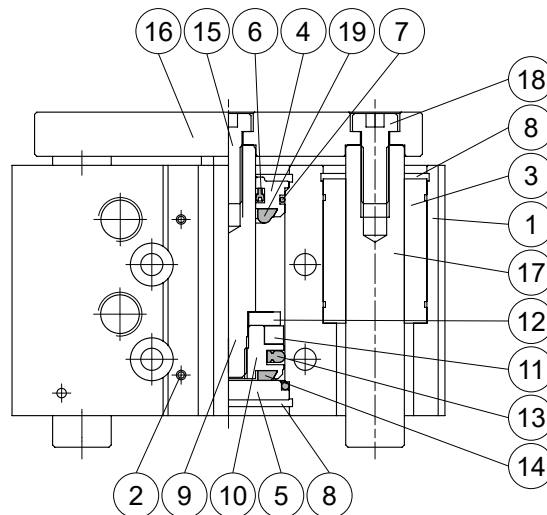
*Aluminum alloy

Order example of repair kits

Tube I.D.	Repair kits
ø12	PS-MCGB-12
ø16	PS-MCGB-16
ø20	PS-MCGB-20
ø25	PS-MCGB-25
ø32	PS-MCGB-32

Cylinder weight Unit: g

Model	Basic weight MCGB-03	Stroke 5mm MCGB-03
Tube I.D.		
ø12	191	21
ø16	283	28
ø20	450	45
ø25	670	63
ø32	1,210	90



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	●

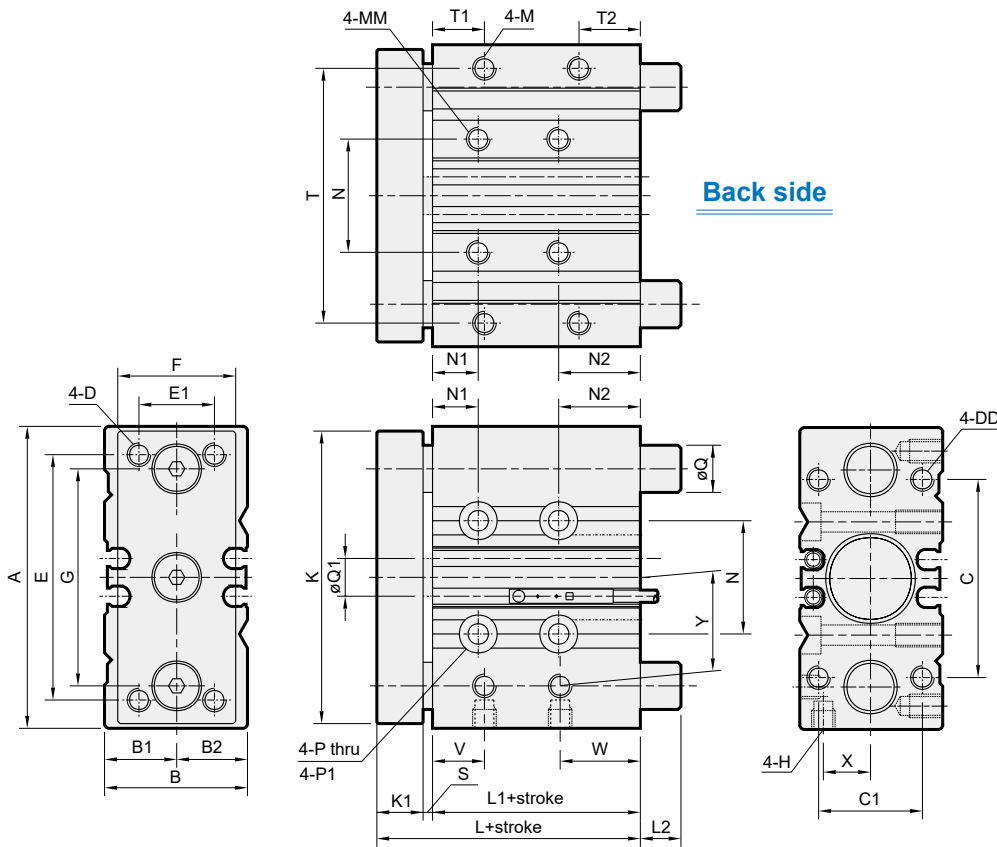
*Aluminum alloy

Order example of repair kits

Tube I.D.	Repair kits
ø12	PS-MCGB-12
ø16	PS-MCGB-16
ø20	PS-MCGB-20
ø25	PS-MCGB-25
ø32	PS-MCGB-32

Cylinder weight Unit: g

Model	Basic weight MCGB-23	Stroke 5mm MCGB-23
Tube I.D.		
ø12	211	18
ø16	260	30
ø20	470	45
ø25	740	60
ø32	1,170	85



MCGB-03 / MCGB-23

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
						MCGB-03	MCGB-23									
12	23	5	20	∅4.3	∅8×4.5 dp	8	6	6	2	50	12	12	11	15	8.5	19.5
16	24	5	22	∅4.3	∅8×4.5 dp	10	8	8	4	54	11	13	11	17	10	23
20	28	19	16	∅5.3	∅9.5×5.5 dp	12	10	10	2	64	11	14	12	23	11.5	24.5
25	34	22	12.5	∅5.3	∅9.5×5.5 dp	16	13	12	2	76	12	13.5	11	23.5	13.5	24
32	42	22	14.5	∅6.6	∅11×6.5 dp	20	16	16	2	100	12	16.5	11.5	25	16	31

* L2 dimensions list

MCGB-03

Code Tube I.D.	Stroke (mm)											
	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	42	42	42	42	42

MCGB-23

Code Tube I.D.	Stroke (mm)											
	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



Special spec



Applications



Technical data



Caution for safety
(Read before installing)



Table for standard stroke

Tube I.D.	Stroke (mm)
ø20,25	5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100
ø32,40	5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 150, 200
ø50,63,80,100	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 150, 200, 250, 300

* Please contact us if the stroke is out of specification.

Order example

MCGI – 12 – 20 – 25

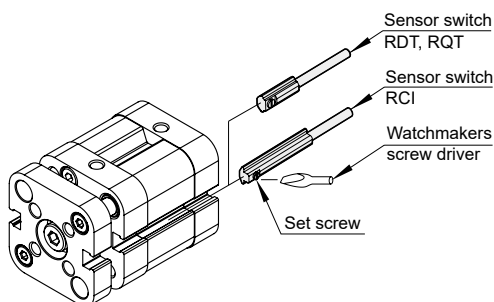
MODEL

TUBE I.D. STROKE

PURPOSE / TYPE OF BEARING

Code	Purpose / Type of bearing
12	Lift / Slide bush



Installation of sensor switch



Features


- Higher loading capacity compared to unguided standard compact cylinders.
- Wide range of bore sizes and strokes.
- Ultra compact, light weight and space saving.
- Sensor slots on RCI sides for flush mounting of proximity sensors.
- Magnetic as standard.

Specification

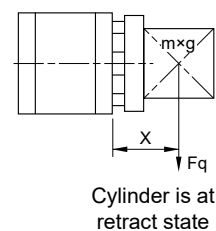
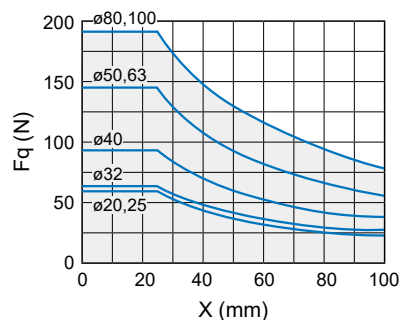
Model	MCGI	
Acting type	Double acting	
Tube I.D. (mm)	20,25	32,40,50,63,80,100
Port size	M5×0.8	G1/8
Medium	Air	
Operating pressure range	0.15~1 MPa	0.1~1 MPa
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Cushion	Rubber bumper	
Available speed range	50~500 mm/sec	
Stroke length tolerance (*)	+0~+1.0 mm	
Lubricator	Without lubrication	
Sensor switch	RDT, RQT  , RCI 	

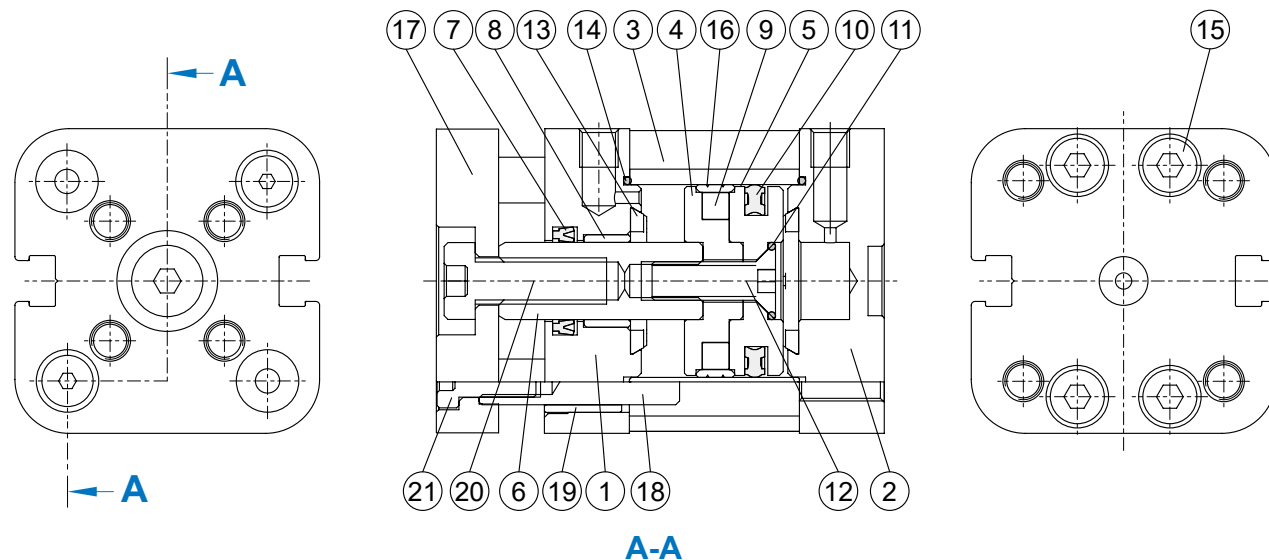
* Stroke length tolerance does not include the amount of bumper change.

Order example of mounting accessories

Code	FBC		
Mounting Tube I.D.			
ø20	FAC-J2-20	ø50	FAC-J2-50
ø25	FAC-J2-25	ø63	FAC-J2-63
ø32	FAC-J2-32	ø80	FAC-J2-80
ø40	FAC-J2-40	ø100	FAC-J2-100

Maximum lateral force (Fq) and Extension length (X) Relationship





Material

No.	Part name	Material	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Rod cover	Aluminum alloy	1	●	
2	End cover	Aluminum alloy	1	●	
3	Tube	Aluminum alloy	1		
4	Piston-R	Aluminum alloy	1	●	
5	Piston-H	Aluminum alloy	1	●	
6	Piston rod	*1	1		
7	Rod packing	NBR	1	●	●
8	Bush	Bearing alloy	1	●	
9	Magnet ring	Magnet material	1	●	
10	Piston packing	NBR	1	●	●
11	O-ring	NBR	1	●	●
12	Screw	Carbon steel	1	●	
13	Cushion	NBR	2	●	●
14	O-ring	NBR	2	●	●
15	Screw	Stainless steel	6	●	
16	Wear ring	Resin	1	●	
17	Plate	Aluminum alloy	1	●	
18	Guide rod	Medium carbon steel	2		
19	Guide rod bush	Bearing alloy	2	●	
20	Bolt for piston rod	Carbon steel	1	●	
21	Bolt for guide rod	Carbon steel	2	●	

*1. Material $\phi 20, \phi 25$: Stainless steel; $\phi 32 \sim \phi 100$: Medium carbon steel



Order example of component parts / repair kits

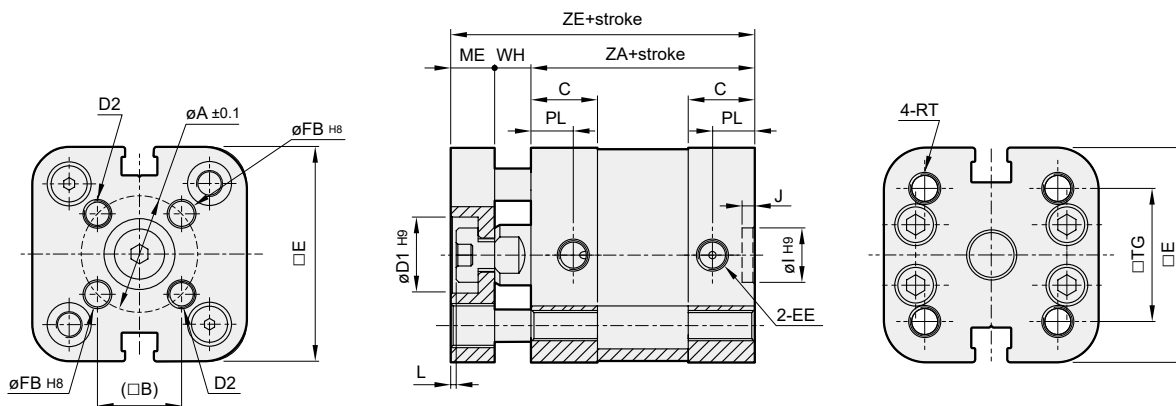
Tube I.D.	Component parts	Repair kits
$\phi 20$	CP-MCGI-20	PS-MCJI-20
$\phi 25$	CP-MCGI-25	PS-MCJI-25
$\phi 32$	CP-MCGI-32	PS-MCJI-32
$\phi 40$	CP-MCGI-40	PS-MCJI-40
$\phi 50$	CP-MCGI-50	PS-MCJI-50
$\phi 63$	CP-MCGI-63	PS-MCJI-63
$\phi 80$	CP-MCGI-80	PS-MCJI-80
$\phi 100$	CP-MCGI-100	PS-MCJI-100

*Use the same repair kits with MCJI.

Cylinder weight

Unit: g

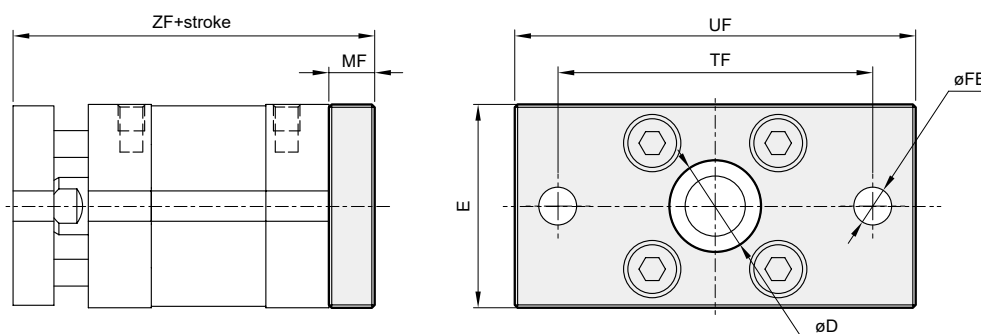
Model	Basic weight MCGI-12	Stroke 5mm MCGI-12
Tube I.D.		
$\phi 20$	146	18
$\phi 25$	172	22
$\phi 32$	280	28
$\phi 40$	378	40
$\phi 50$	614	58
$\phi 63$	871	60
$\phi 80$	1,564	94
$\phi 100$	2,595	100



Code Tube I.D.	A	B	C	D1	D2	E	EE	FB	I	J	L	ME	PL	RT	TG	WH	ZA	ZE
20	17	12	11	11	M4×0.7	35.5	M5×0.8	4	9	2.1	1	8	7	M5×0.8	22	6	37	51
25	22	15.6	11	14	M5×0.8	39.5	M5×0.8	5	9	2.1	1	8	7	M5×0.8	26	6	39	53
32	28	19.8	14	17	M5×0.8	47	G1/8	5	9	2.1	1.5	10	7.5	M6×1.0	32.5	7	44	61
40	33	23.3	14	17	M5×0.8	54.5	G1/8	5	9	2.1	1.5	10	7.5	M6×1.0	38	7	45	62
50	42	29.7	14	22	M6×1.0	65.5	G1/8	6	12	2.6	1.5	12	7.5	M8×1.25	46.5	8	45	65
63	50	35.4	14.5	22	M6×1.0	75.5	G1/8	6	12	2.6	1.5	12	7.5	M8×1.25	56.5	8	49	69
80	65	46	15.5	24	M8×1.25	95.5	G1/8	8	12	2.6	2	14	8	M10×1.5	72	10	54	78
100	80	56.6	18.5	24	M10×1.5	113.5	G1/8	10	12	2.6	2	14	9.5	M10×1.5	89	10	67	91

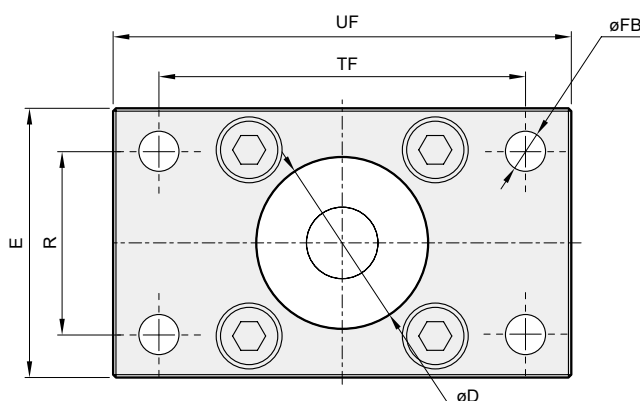
FBC

$\phi 20, \phi 25$



$\phi 32 \sim \phi 100$

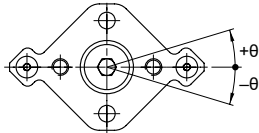
Code Tube I.D.	D	E	FB	MF	R	TF	UF	ZF
20	16	35.5	6.6	8	—	55	70	59
25	16	39.5	6.6	8	—	60	76	61
32	30	47	7	10	32	64	80	71
40	35	54.5	9	10	36	72	90	72
50	40	65.5	9	12	45	90	110	77
63	45	75.5	9	12	50	100	120	81
80	45	95.5	12	16	63	126	150	94
100	55	113.5	14	16	75	150	175	107



Capacity table

Non-rotating accuracy

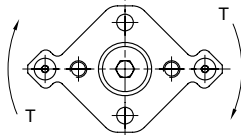
Non-rotating accuracy without load is same or less than the figures shown in below at the retracted cylinder plate.



Tube I.D.	Non-rotating accuracy
$\phi 12, 16$	$\pm 0.2^\circ$
$\phi 20 \sim 100$	$\pm 0.1^\circ$

Allowable rotational torque

Make sure to operate within the allowable rotation torque to the plate. Operation outside of the limits may result in shorter product life and damage.



Unit: N.m

Tube I.D.	Stroke (mm)					
	5	10	15	20	25	30
$\phi 12$	0.11	0.10	0.08	0.07	0.07	0.06
$\phi 16$	0.15	0.12	0.11	0.10	0.09	0.08
$\phi 20$	0.37	0.32	0.28	0.25	0.23	0.21
$\phi 25$	0.40	0.35	0.31	0.28	0.25	0.23
$\phi 32$	0.66	0.59	0.53	0.49	0.45	0.42
$\phi 40$	1.06	0.96	0.88	0.81	0.75	0.70
$\phi 50$	-	1.70	1.56	1.45	1.35	1.26
$\phi 63$	-	3.90	3.62	3.37	3.15	2.96
$\phi 80$	-	7.44	6.98	6.56	6.20	5.87
$\phi 100$	-	11.85	11.19	10.61	10.08	9.60

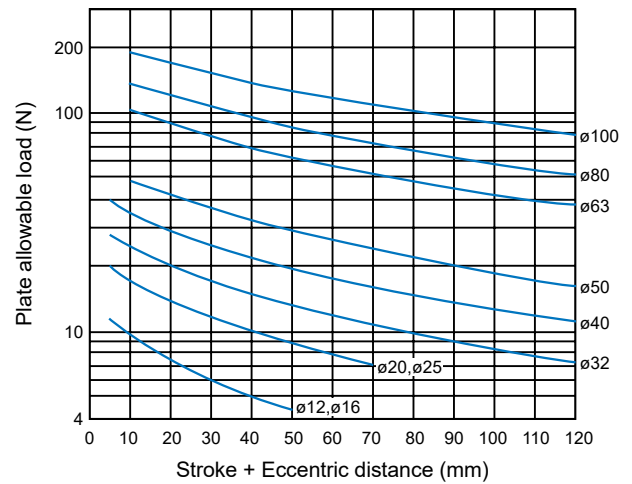
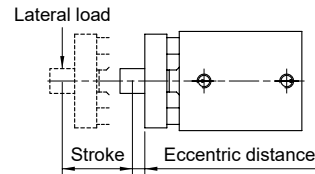
Tube I.D.	Stroke (mm)					
	35	40	45	50	75	100
$\phi 20$	0.19	0.18	0.17	0.16	-	-
$\phi 25$	0.21	0.20	0.18	0.17	-	-
$\phi 32$	0.39	0.36	0.34	0.32	0.25	0.20
$\phi 40$	0.65	0.61	0.58	0.55	0.43	0.36
$\phi 50$	1.19	1.12	1.06	1.01	0.80	0.67
$\phi 63$	2.80	2.65	2.51	2.39	1.92	1.61
$\phi 80$	5.57	5.31	5.07	4.84	3.98	3.37
$\phi 100$	9.17	8.77	8.41	8.07	6.73	5.77

Capacity graph

Allowable lateral load

Make sure to operate within the allowable lateral load to the plate.

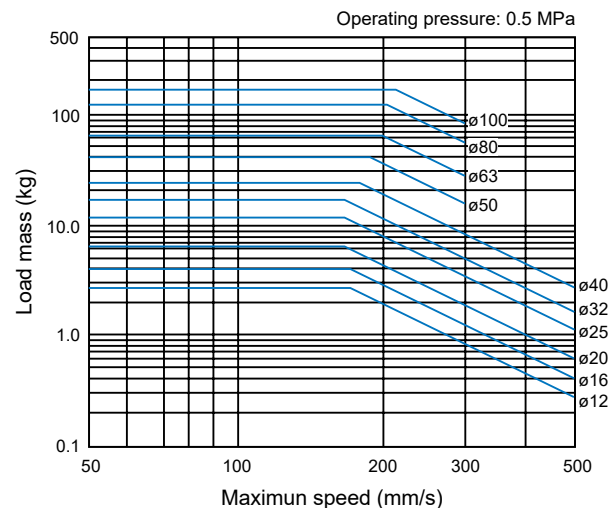
Operation outside of the limits may result in shorter product life and damage.



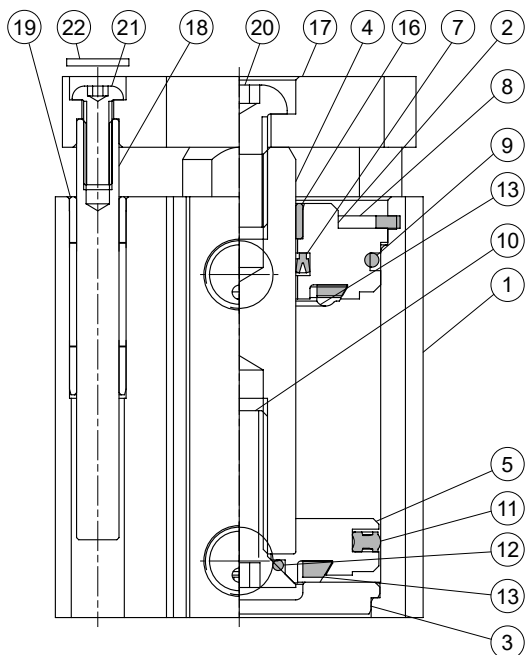
Allowable kinetic energy

Make sure to operate within the allowable load mass and maximum speed.

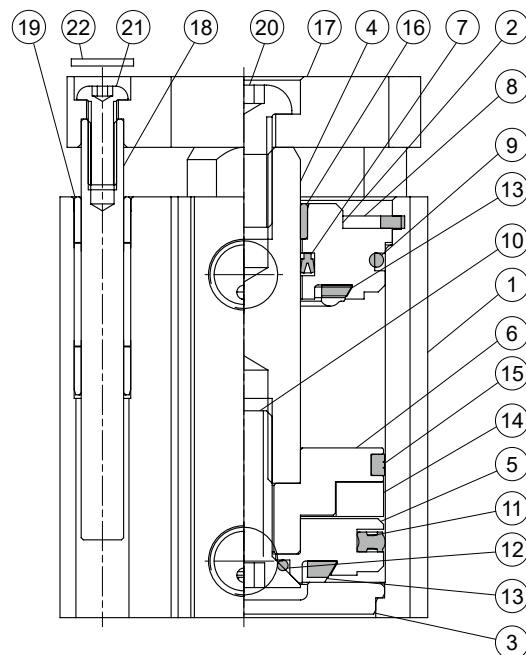
Operation outside of the limits may cause excessive impact, which may result in the damage to the product.



Without magnet



With magnet



Material

No.	Tube I.D. Part name	12	16	20	25	32	40	50	63	80	100	Q/y	Repair kits (inclusion)
1	Body	Aluminum alloy										1	
2	Rod cover	Aluminum alloy										1	
3	End cover	Aluminum alloy										1	
4	Piston rod	With magnet	Stainless steel		Carbon steel						1		
		Without magnet	*1	Carbon steel									
5	Piston	Aluminum alloy										1	
6	Piston for magnet ring	Aluminum alloy										1	
7	Rod packing	NBR										1	●
8	Snap ring	Stainless steel				Spring steel						1	
9	Cover ring	NBR										1	●
10	Piston bolt	Stainless steel				SCM						1	
11	Piston packing	NBR										1	●
12	Piston gasket	—	NBR									1	●
13	Cushion packing	NBR										2	●
14	Magnet	Magnet										1	
15	Wear ring	—				Resin						1	
16	Bush	—				Bearing alloy						1	
17	Plate	Aluminum alloy										1	
18	Guide rod	Carbon steel										2	
19	Guide rod bush	Bearing alloy										4	
20	Bolt for piston rod	Carbon steel										1	
21	Bolt for guide rod	Carbon steel										2	
22	Flat washer	Carbon steel										2	

*1. Stainless steel

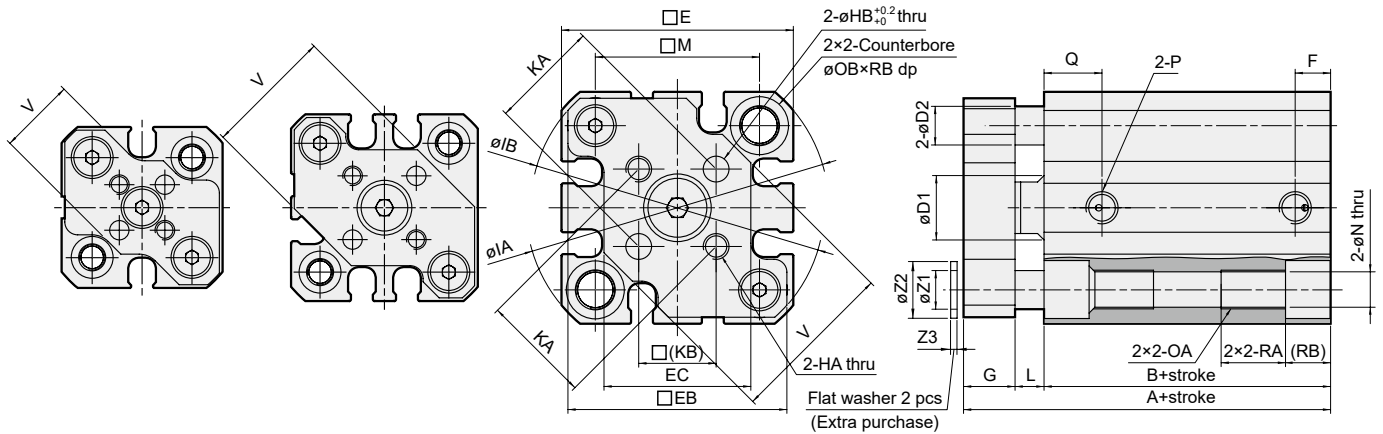
Order example of repair kits

Tube I.D.	Repair kits
ø12	PS-MCGM-12
ø16	PS-MCGM-16
ø20	PS-MCGM-20
ø25	PS-MCGM-25
ø32	PS-MCGM-32
ø40	PS-MCGM-40
ø50	PS-MCGM-50
ø63	PS-MCGM-63
ø80	PS-MCGM-80
ø100	PS-MCGM-100

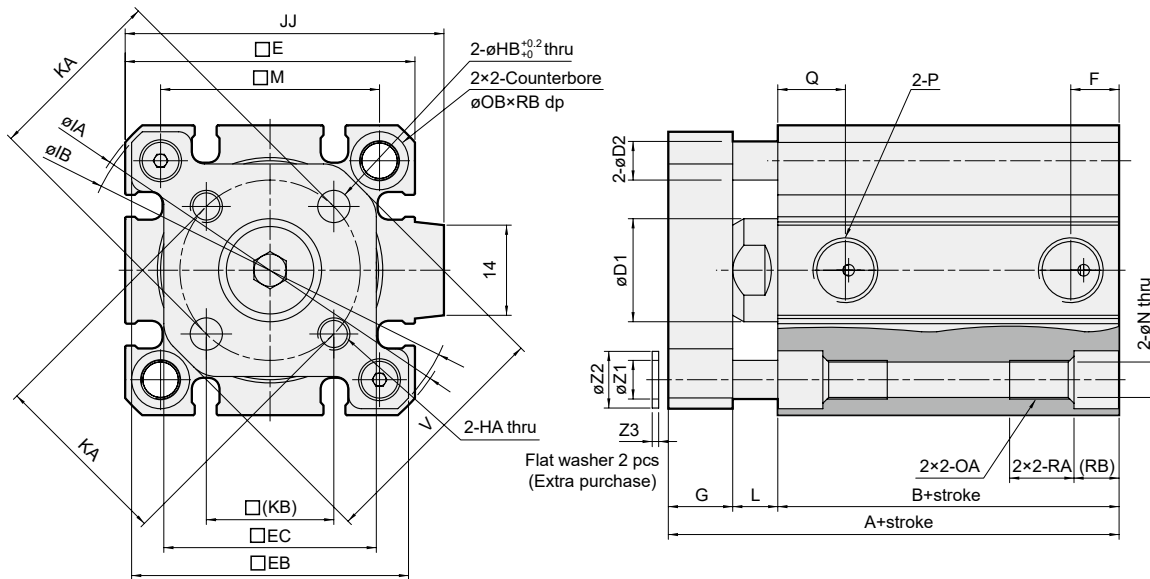
$\phi 12$

$\phi 16$

$\phi 20, \phi 25$



$\phi 32$

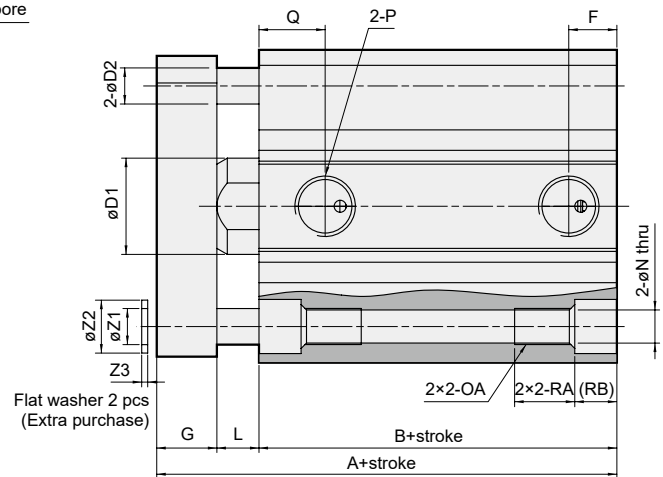
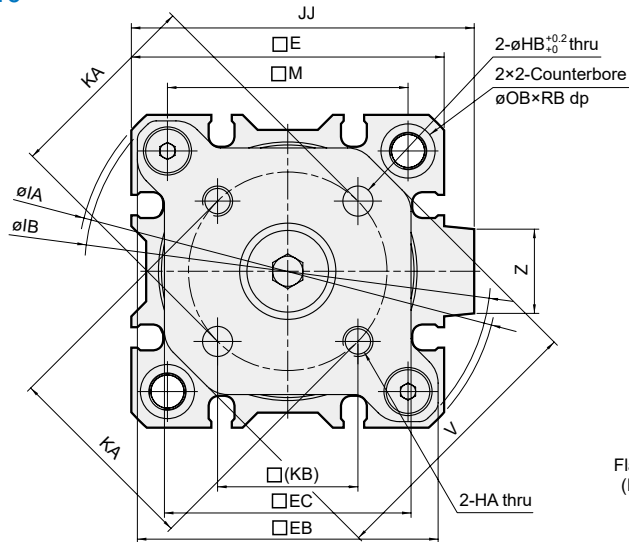


Code Tube I.D.	Stroke range	Without magnet			Magnet			D1	D2	E	EB	EC	G	HA	HB	IA	IB	JJ	KA	KB	L	M	N	OA	OB
		A	B	F	A	B	F																		
12	5~30	26.5	17	5	31.5	22	5	6	5	25	24	-	6	M3×0.5	3	32	31.5	-	10±0.1	7.1	3.5	15.5	3.5	M4×0.7	6.5
16	5~30	26.5	17	5	31.5	22	5	8	5	29	28	-	6	M3×0.5	3	38	37	-	14±0.1	9.9	3.5	20	3.5	M4×0.7	6.5
20	5~50	32	19.5	5.5	42	29.5	5.5	10	6	36	34	22.8	8	M4×0.7	4	47	45.5	-	17±0.1	12	4.5	25.5	5.5	M6×1.0	9
25	5~50	35.5	22.5	5.5	45.5	32.5	5.5	12	6	40	38	28.8	8	M5×0.8	5	52	50.5	-	22±0.1	15.6	5	28	5.5	M6×1.0	9
32	5~50	40	23	7.5 ^{*1}	50	33	7.5	16	6	45	43	33	10	M5×0.8	5	60	58.5	49.5	28±0.2	19.8	7	34	5.5	M6×1.0	9
	51~100	50	33	7.5	50	33	7.5																		

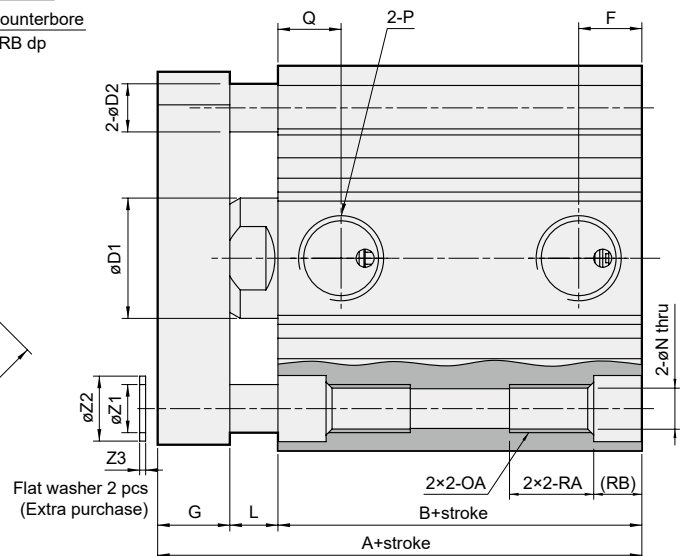
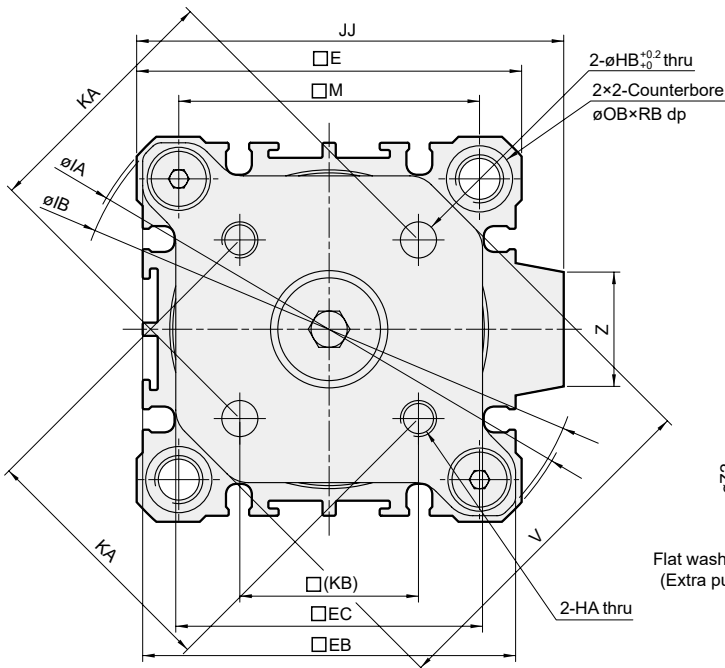
Code Tube I.D.	P	Q	RA	RB	V	Z1	Z2	Z3
12	M5×0.8	7.5	7	4	14.9	4.2	6.3	0.5
16	M5×0.8	7.5	7	4	20	4.2	6.3	0.5
20	M5×0.8	9	10	7	26	6.2	8.8	1
25	M5×0.8	11	10	7	30	6.2	8.8	1
32	Rc1/8 ^{*1}	10.5 ^{*1}	10	7	38	6.2	8.8	1

*1. Without magnet with stroke=5mm, P=M5×0.8, Q=11.5, F=5.5

$\phi 40$



$\phi 50 \sim \phi 100$



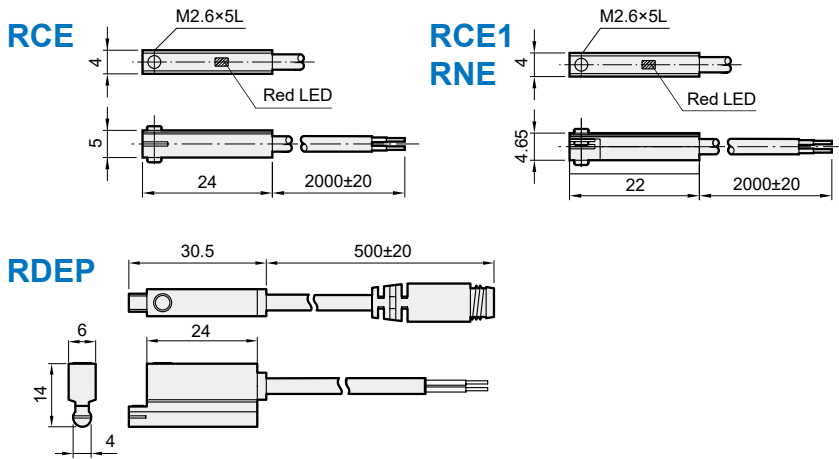
Code Tube I.D.	Stroke range	Without magnet		Magnet		F	L	Q
		A	B	A	B			
40	5~50	46.5	29.5	56.5	39.5	8	7	11
	51~100	56.5	39.5					
50	10~50	50.5	30.5	60.5	40.5	10.5	8	10.5
	51~100	60.5	40.5					
63	10~50	56	36	66	46	10.5	8	15
	51~100	66	46					
80	10~50	67.5	43.5	77.5	53.5	12.5	10	16
	51~100	77.5	53.5					
100	10~50	79	53	89	63	13	10	23
	51~100	89	63					

Code Tube I.D.	D1	D2	E	EB	EC	G	HA	HB	IA	IB	JJ	KA	KB
40	16	6	52	50	41	10	M5×0.8	5	70	67.5	57	33±0.1	23.3
50	20	8	64	62	51	12	M6×1.0	6	86	84.5	71	42±0.1	29.7
63	20	12	77	74	59.6	12	M6×1.0	6	103	100	84	50±0.1	35.4
80	25	14	98	95	77	14	M8×1.25	8	132	129	104	65±0.1	46
100	30	14	117	114	99	16	M10×1.5	10	156	153	123.5	80±0.2	56.6

Code Tube I.D.	M	N	OA	OB	P	RA	RB	V	Z	Z1	Z2	Z3
40	40	5.5	M6×1.0	9	Rc1/8	10	7	46	14	6.2	8.8	1
50	50	6.6	M8×1.25	11	Rc1/4	14	8	58	19	8.2	10.8	1
63	60	9	M10×1.5	14	Rc1/4	18	10.5	69	19	10.2	13.8	1
80	77	11	M12×1.75	17.5	Rc3/8	22	13.5	89	26	12.2	17.3	2
100	94	11	M12×1.75	17.5	Rc3/8	22	13.5	113	26	12.2	17.3	2

COMPACT TWIN-GUIDE CYLINDER

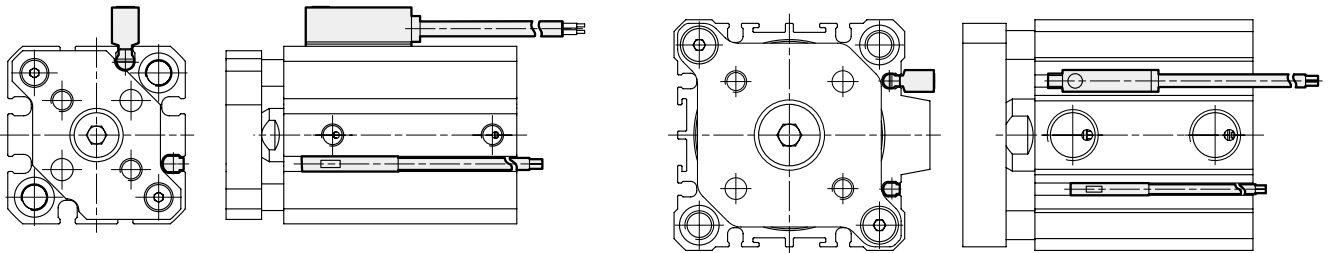
Dimensions



Installation of sensor switch

$\phi 12 \sim \phi 40$

$\phi 50 \sim \phi 100$



Order example

RCE1 — □

MODEL

RCE / RCE1 (C: Reed switch)
RNE (N: Solid state switch)
RDEP (Solid state switch)

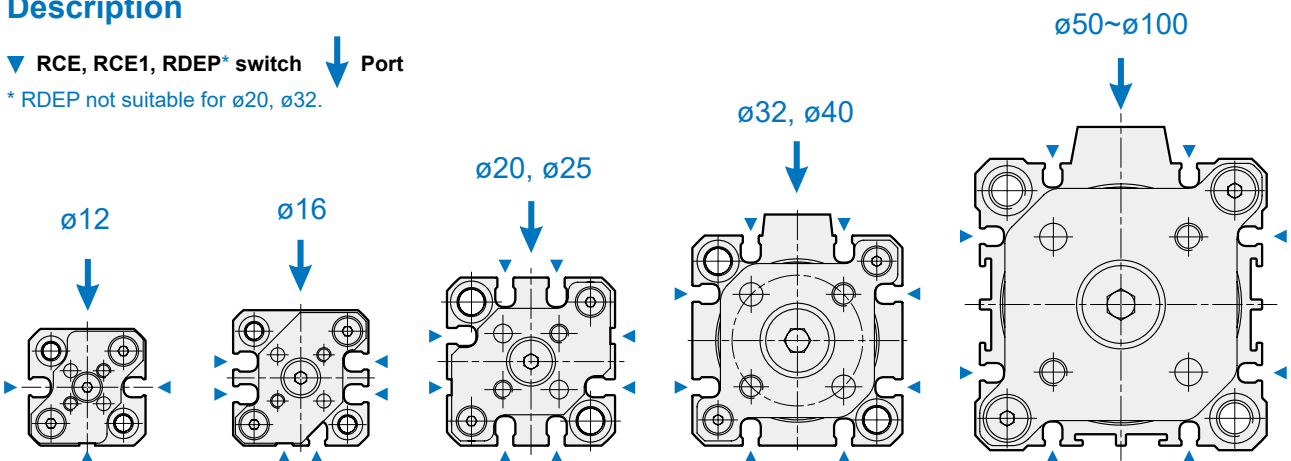
WIRE LENGTH

1M: L=1000m
2M: L=2000m
QD: M8 3Pin connector
EQD: M8 3Pin connector

Description

▼ RCE, RCE1, RDEP* switch ↓ Port

* RDEP not suitable for $\phi 20$, $\phi 32$.





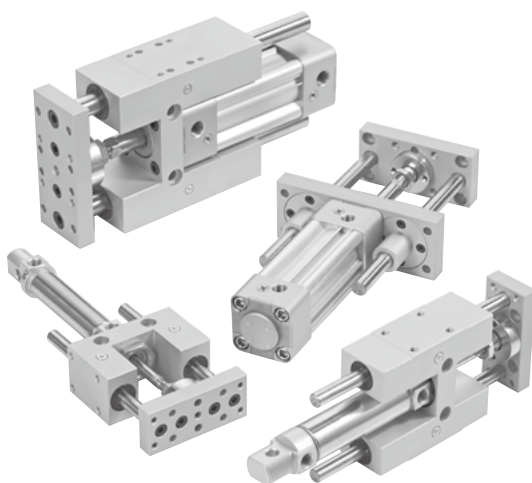
Special spec



Technical data



Caution for safety
(Read before installing)

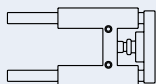


MGTK Light duty type

MGTX Light duty flange type

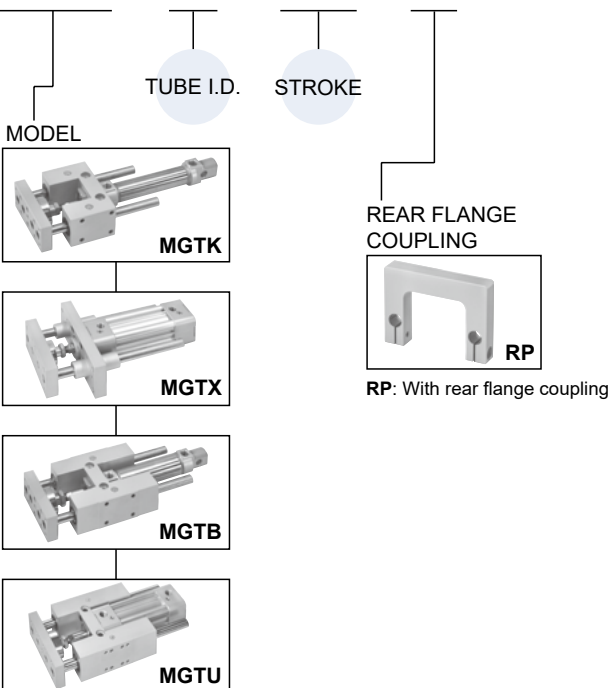
MGTB Heavy duty (bush) type

MGTU Heavy duty (linear bearing) type



Order example

MGTB — 40 — 100 — RP



Features

- The guide cylinder is a combination of ISO 6432 / ISO 15552 cylinders with guide accessories. It has excellent resistance to rotation, torque and lateral load.
- Four self-lubricating bushes or linear bearings enable high loading and precise movement.
- Simplified structure, save a lot of time when designing mechanism/application, generating new drawing and installing.
- The MGT* have longer stroke and a larger bore size than the MCG* cylinder.
- $\varnothing 32 \sim \varnothing 63$ With four grooves on the tube, reed sensors can be easily inserted into any position.
- Adjustable cushion as standard.
- Magnetic as standard.

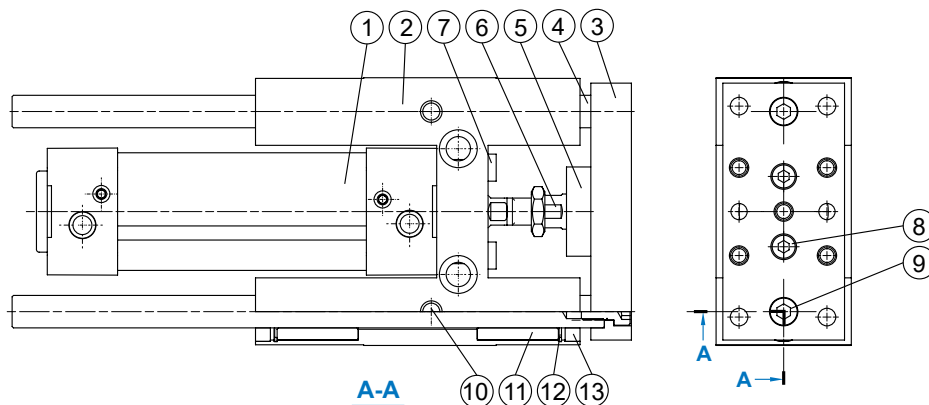
Specification

Model	MGTB, MGTU					
	MGTK		MGTX			
Tube I.D. (mm)	20	25	32	40	50	63
Port size	G1/8		G1/8	G1/4	G3/8	
The range of stroke (mm)	Stroke by request					
Medium	Air					
Operating pressure range	0.2~0.7 MPa					
Ambient temperature	-5~+60°C (No freezing)					
Lubrication	Cylinder					
	Guide (*1)					
Available speed range	50~750			50~500 mm/sec		
Sensor switch holder	RDC, RQC	RDT, RQT				
	RDT, RQT	RCI				
	RCM	-				
Sensor switch holder	R*C	BKC-1 (*2)		-		
	R*T	BKT-1		-		
	RCM	BM20	BM25	-		

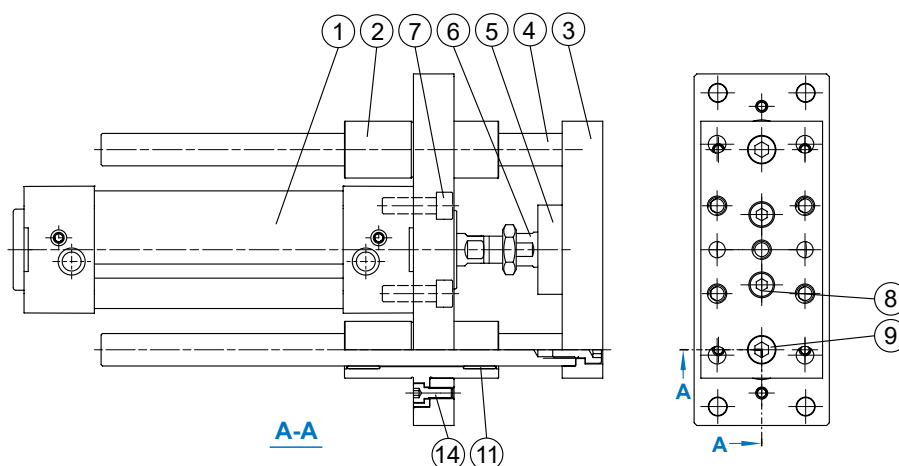
*1. Periodically refill with the lubricating grease is required to enhance the lubricative grade and lifetime.
Inject an appropriate amount of lubricating grease and the cylinder moves back and forth several times to confirm that the movement is smooth.

*2. Not for R*CV angle cable.

MGTB,MGTU,MGTK



MGTX

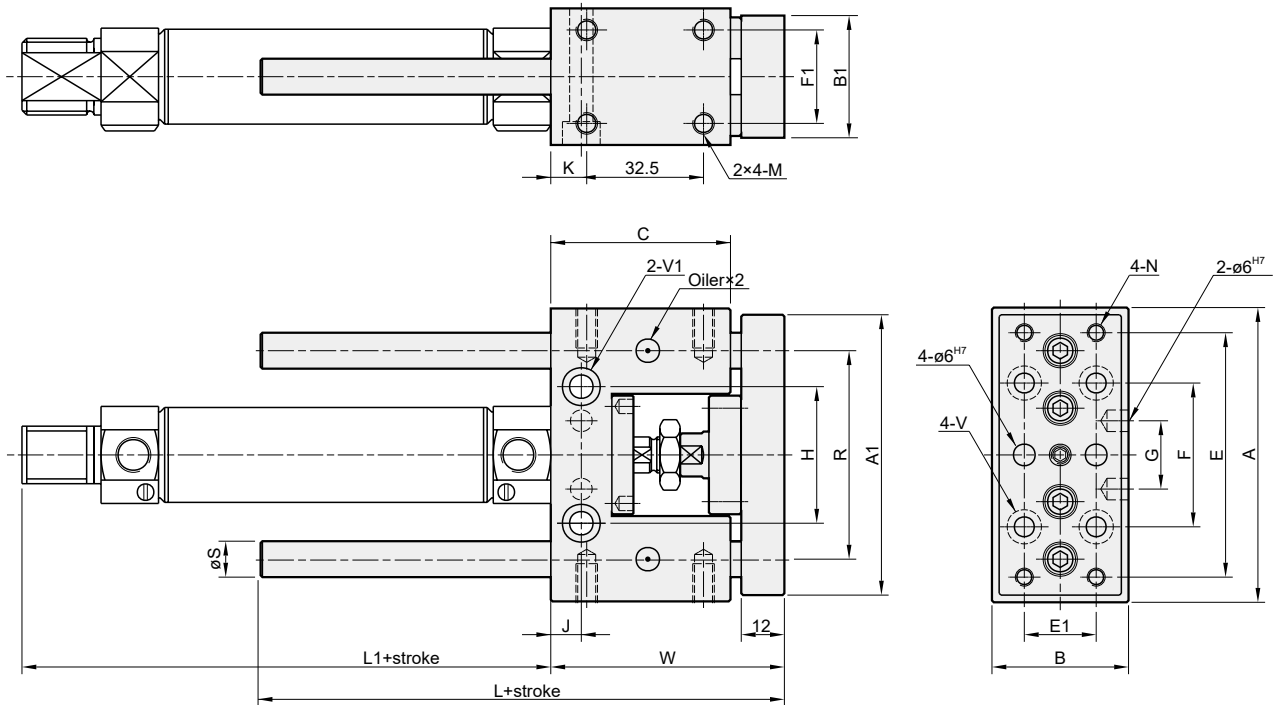


Material

No.	Part name	Material	Note
1	Cylinder	—	ø20, ø25: MCM1 series
			ø32~ø63: MCQ13 series
2	Guide holder	Aluminum alloy	
3	Plate	Aluminum alloy	
4	Guide rod	Medium carbon steel	for MGTB, MGTK, MGTX series
		Bearing steel	for MGTU series
5	Piston rod holder	Carbon steel	
6	Floating connector	Carbon steel	
7	Bolt	SCM	
8	Bolt	SCM	
9	Bolt	SCM	
10	Oiler	Copper	
11	Rod bush	Copper	for MGTB, MGTK, MGTX series
	Linear bearing	—	for MGTU series
12	Snap ring	Spring steel	
13	Wiper seal	NBR	
14	Bolt	SCM	

MGTK (Oilless bush guide)

$\varnothing 20, \varnothing 25$

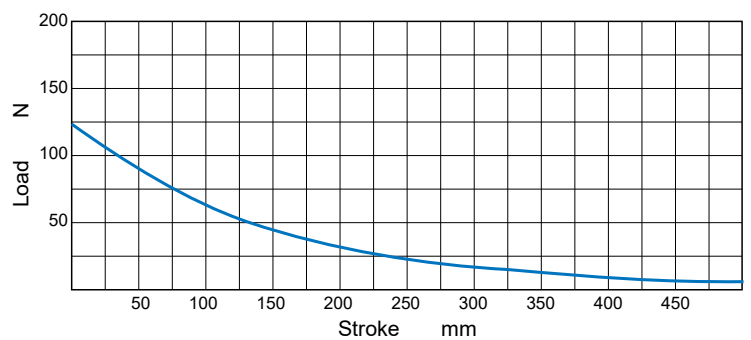
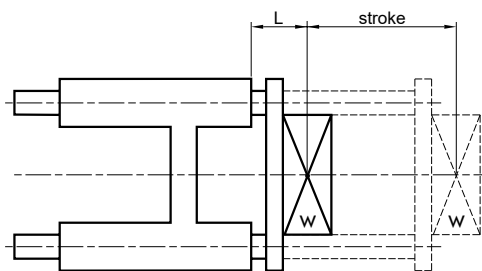


Code Tube I.D.	A	A1	B	B1	C	E	E1	F	F1	G	H	J	K	L	L1	M	N	R	S	V	V1	W
20	82	78	38	34	50	68	20	40	26	19	38	8.5	5	85	88	M6,(D)11	M5×0.8 thru	58	10	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65
25	82	78	38	34	50	68	20	40	26	19	38	8.5	5	85	89	M6,(D)11	M5×0.8 thru	58	10	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65

Maximum allowable torque moment

Max. allowable load

MGTK $\varnothing 20, \varnothing 25$

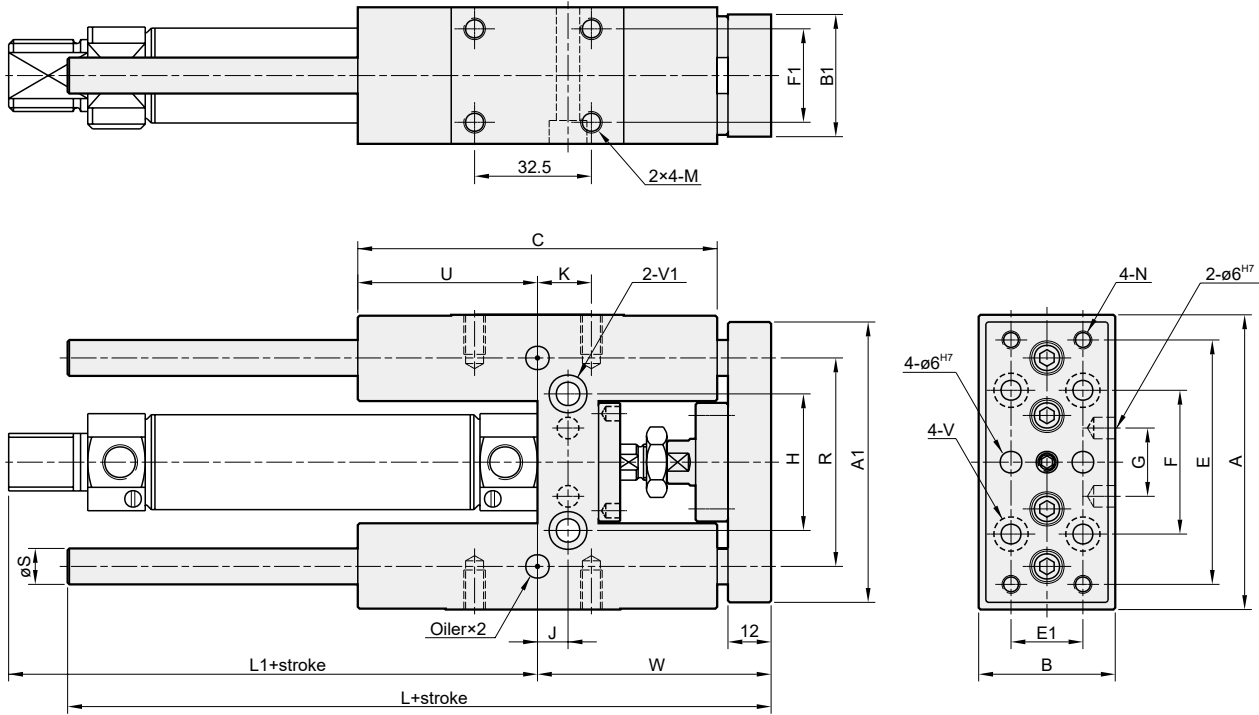


TWIN-GUIDE CYLINDER

(Brass bush guide)

MGTU (Linear bearing guide)

$\varnothing 20, \varnothing 25$

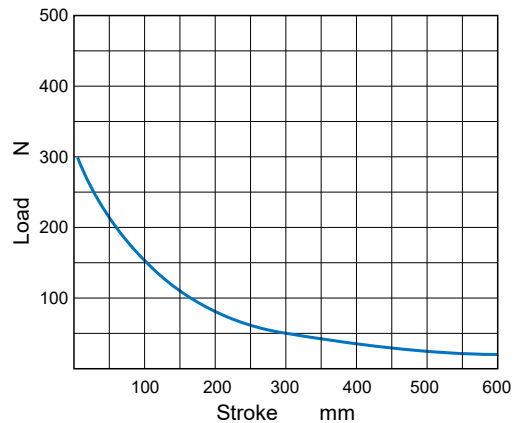
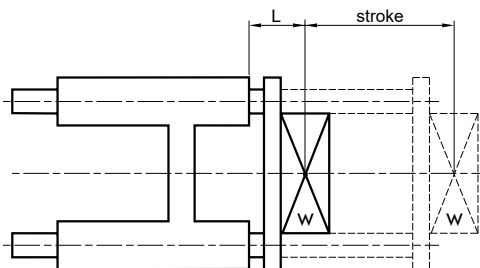


Code Tube I.D.	A	A1	B	B1	C	E	E1	F	F1	G	H	J	K	L	L1	M	N	R	S	U	V	V1	W
20	82	78	38	34	100	68	20	40	26	19	38	8.5	15	135	88	M6,(D)11	M5×0.8 thru	58	10	50	$\varnothing 5.5, \varnothing 9.5(D)5.4$	$\varnothing 6.5, \varnothing 10.5(D)6.5$	65
25	82	78	38	34	100	68	20	40	26	19	38	8.5	15	135	89	M6,(D)11	M5×0.8 thru	58	10	50	$\varnothing 5.5, \varnothing 9.5(D)5.4$	$\varnothing 6.5, \varnothing 10.5(D)6.5$	65

Maximum allowable torque moment

Max. allowable load

MGTB / MGTU $\varnothing 20, \varnothing 25$

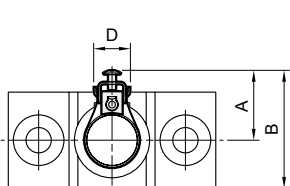


TWIN-GUIDE CYLINDER

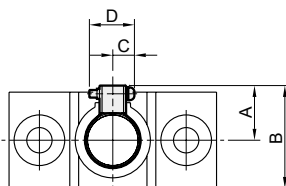
Installation of sensor switch $\varnothing 20, \varnothing 25$

MGTB

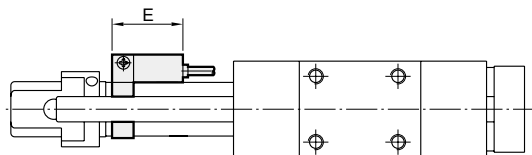
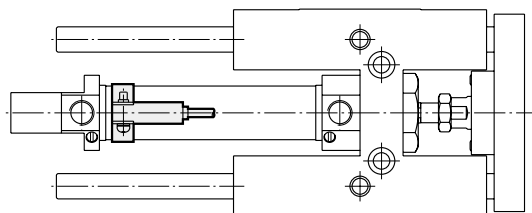
MGTU



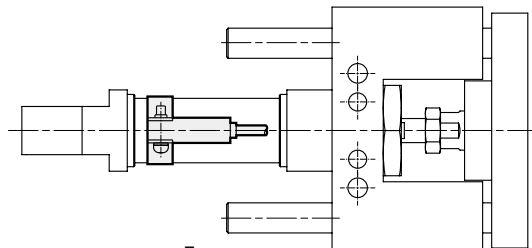
Sensor switch: R*C, R*T
Band: BKC-1, BKT-1



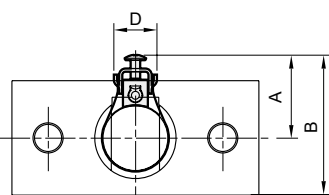
Sensor switch: RCM
Band: BM**



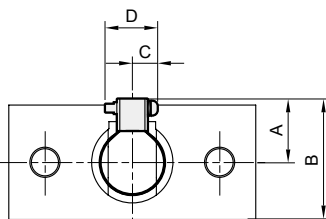
Code	A			B			C	D			E		
Band	BKC-1	BKT-1	BM*	BKC-1	BKT-1	BM*	BM*	BKC-1	BKT-1	BM*	BKC-1	BKT-1	BM*
Tube I.D.													
20	27	28.5	22	46	47.5	41	10	13.5	13.5	16	27	30	28
25	29.5	31	25	48.5	50	44	10	13.5	13.5	16	27	30	28



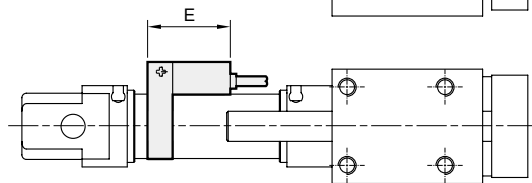
MGTK



Sensor switch: R*C, R*T
Band: BKC-1, BKT-1



Sensor switch: RCM
Band: BM**

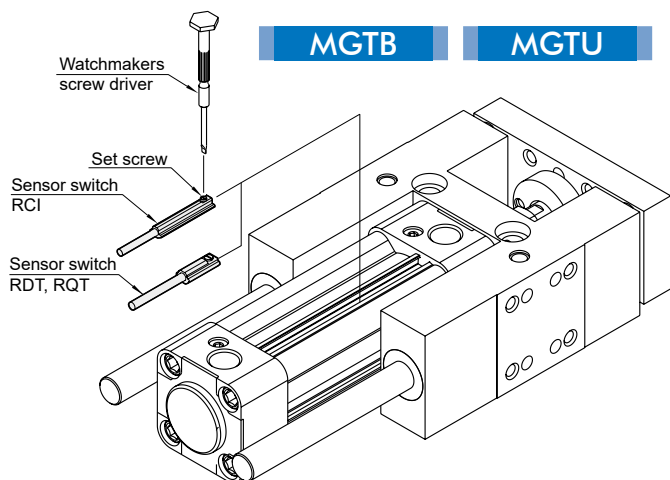


Installation of sensor switch $\varnothing 32 \sim \varnothing 63$

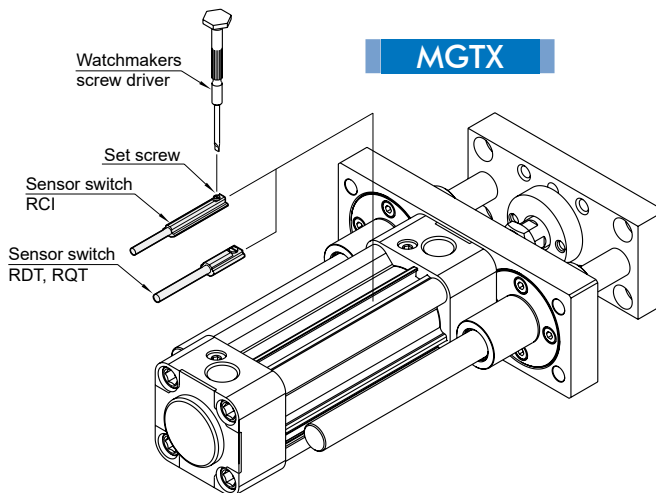
Sensor switch: RDT, RQT, RCI

MGTB

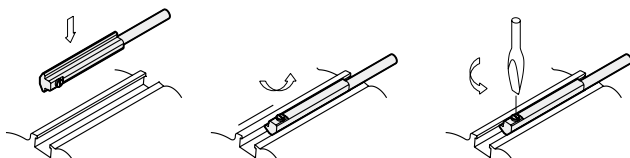
MGTU



MGTX



Mounting

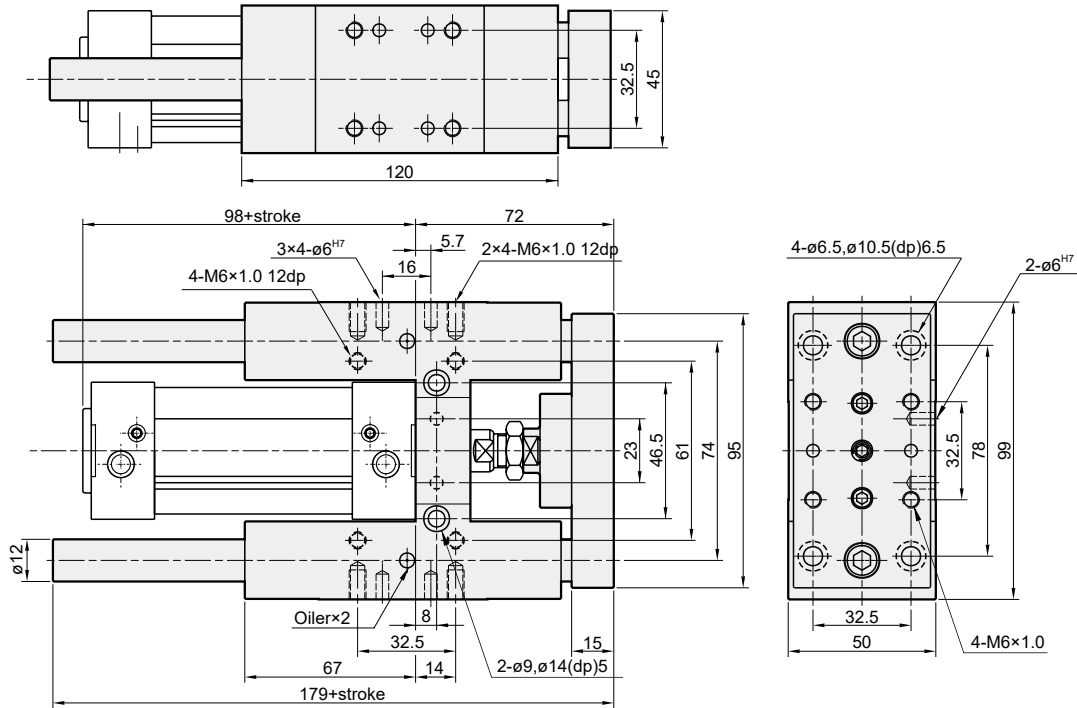


MGTB (Brass bush guide)

$\varnothing 32$

MGTU (Linear bearing guide)

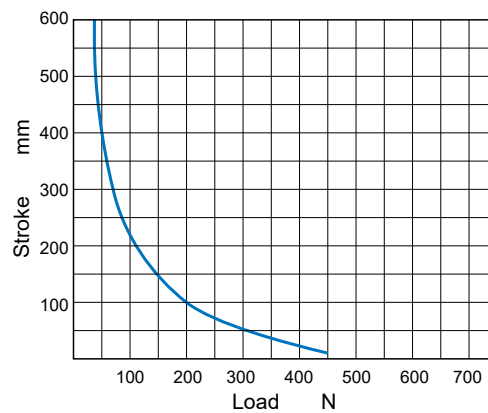
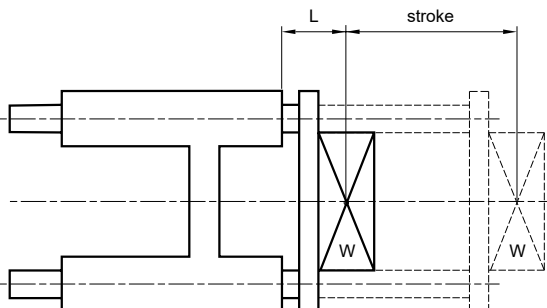
$\varnothing 32$



Maximum allowable torque moment

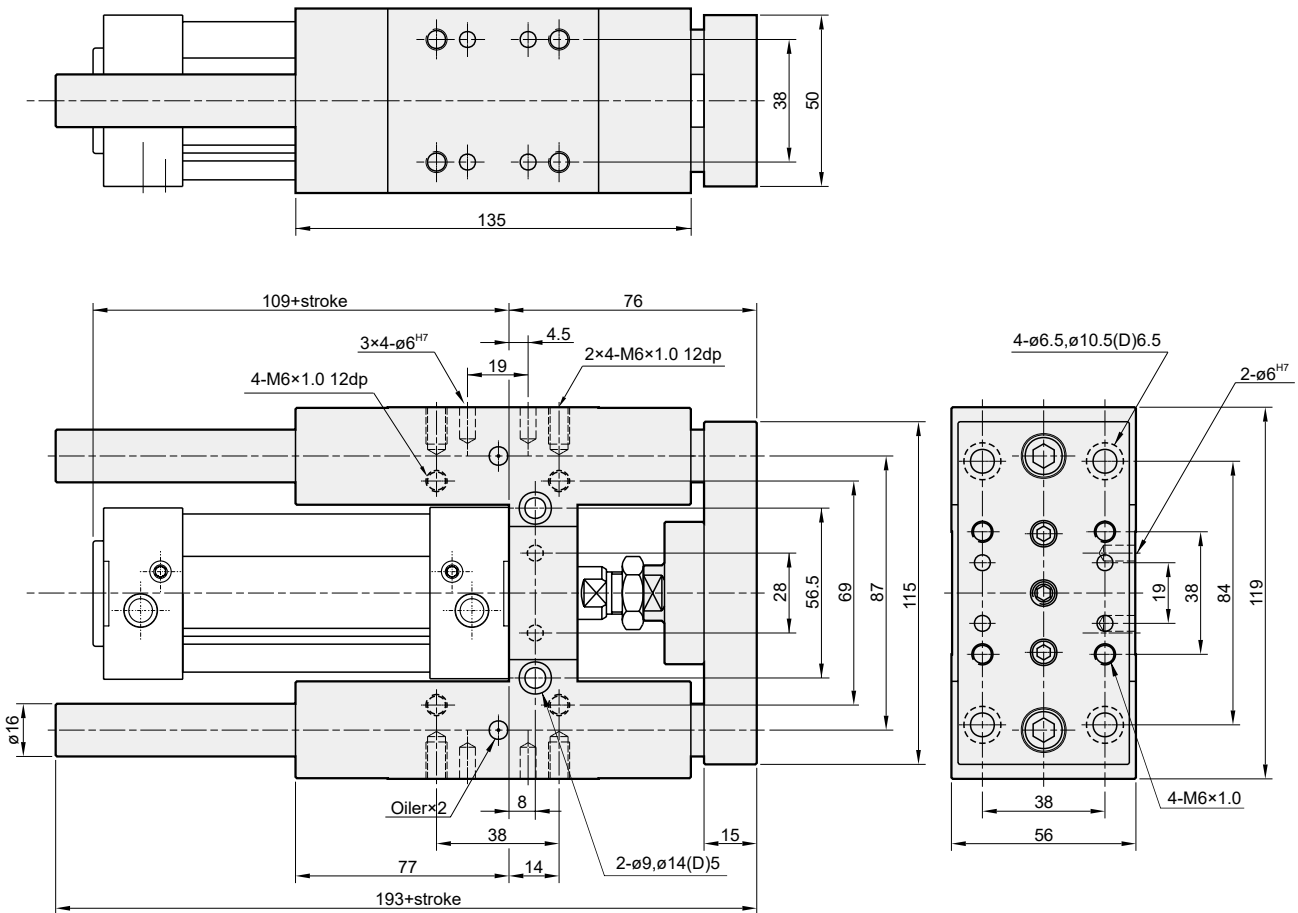
Max. allowable load

MGTB / MGTU $\varnothing 32$



MGTB (Brass bush guide)
(Linear bearing guide)

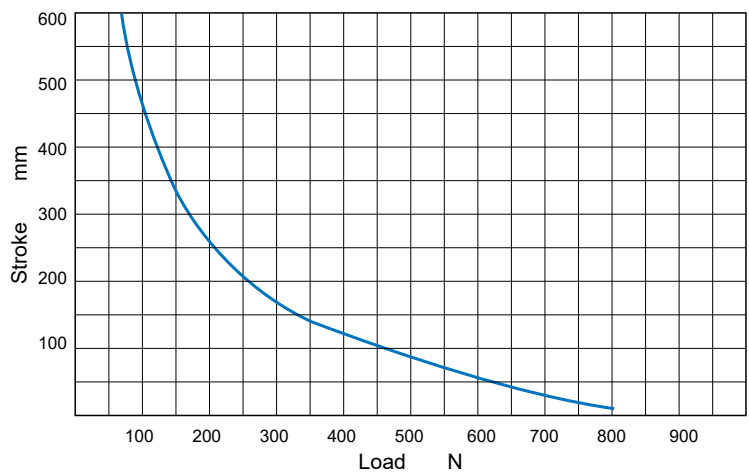
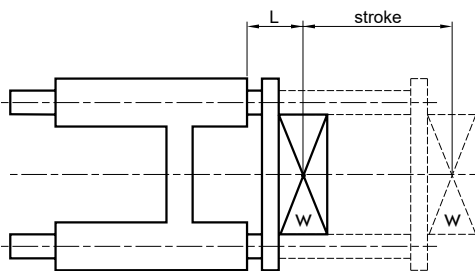
$\phi 40$



Maximum allowable torque moment

Max. allowable load

MGTB / MGTU $\phi 40$

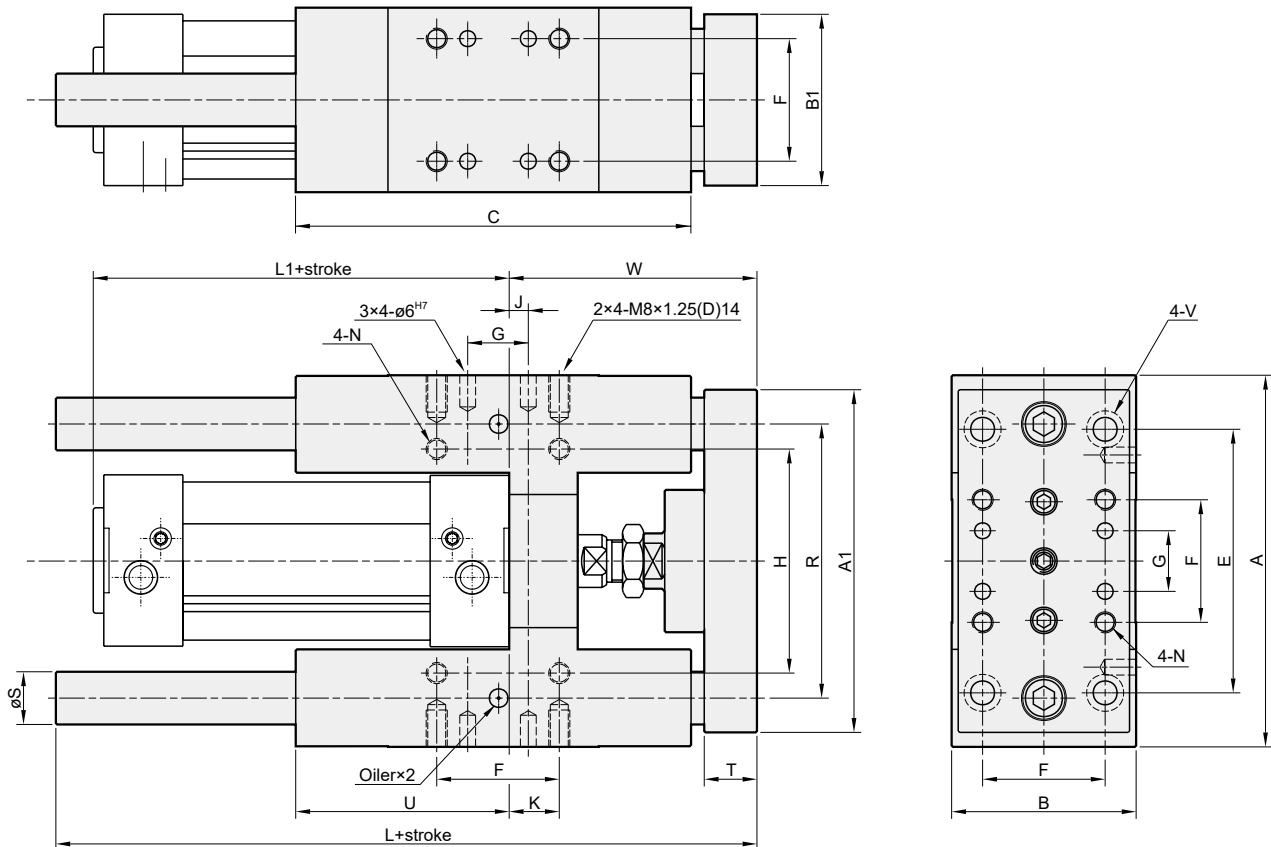


TWIN-GUIDE CYLINDER

MGTB (Brass bush guide)

MGTU (Linear bearing guide)

$\varnothing 50, \varnothing 63$

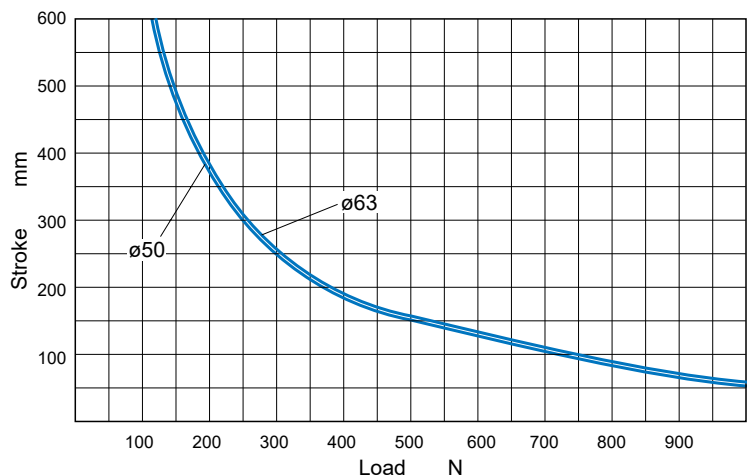
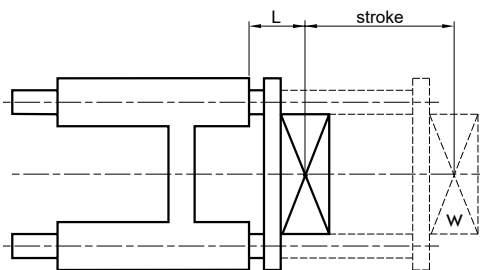


Code Tube I.D.	A	A1	B	B1	C	E	F	G	H	J	K	L	L1	N	R	S	T	U	V	W
50	141	135	70	65	150	100	46.5	23	85	7.5	19	216	110	M8x1.25 thru	104	20	20	81	$\varnothing 9, \varnothing 14(D)8.5$	94
63	156	150	80	75	165	105	56.5	28	100	5	19	230	125	M8x1.25 thru	119	20	20	96	$\varnothing 9, \varnothing 14(D)8.5$	94

Maximum allowable torque moment

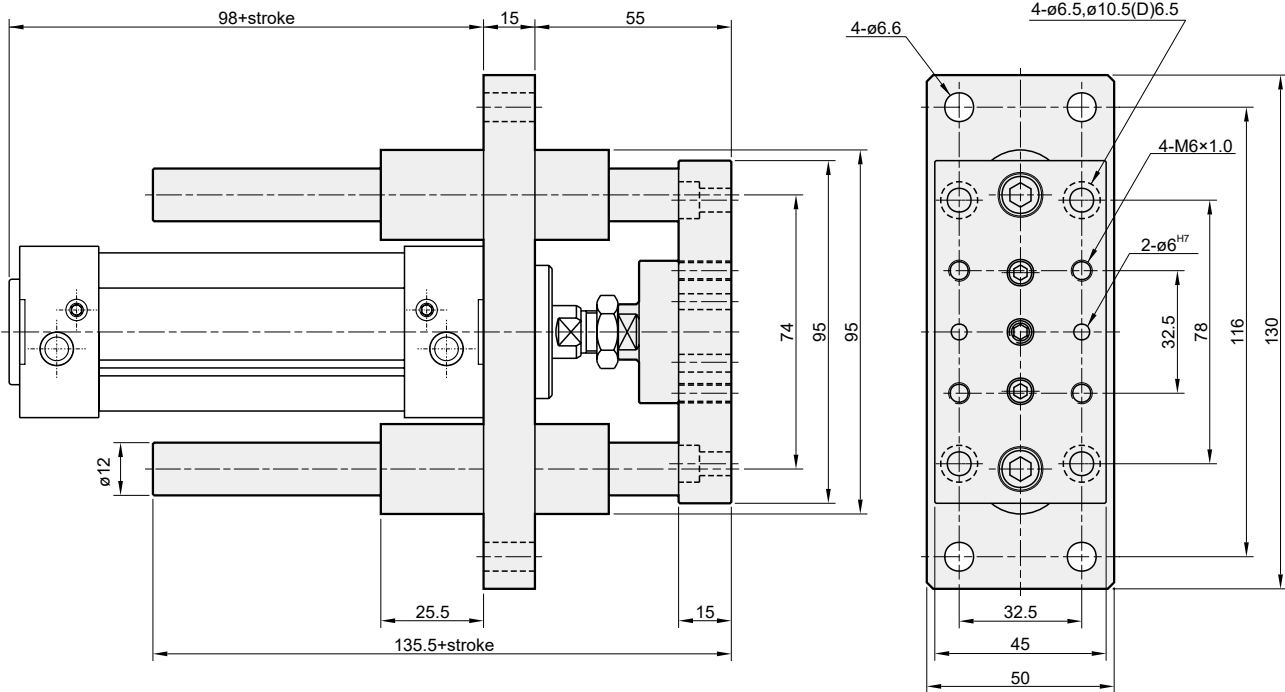
Max. allowable load

MGTB / MGTU $\varnothing 50, \varnothing 63$



MGTX (Flange type)

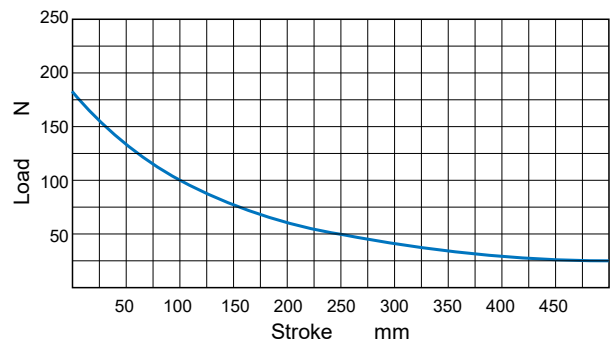
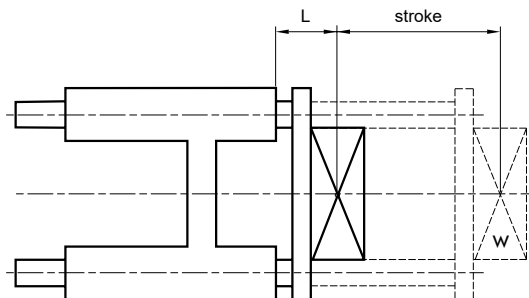
$\phi 32$



Maximum allowable torque moment

Max. allowable load

MGTX $\phi 32$

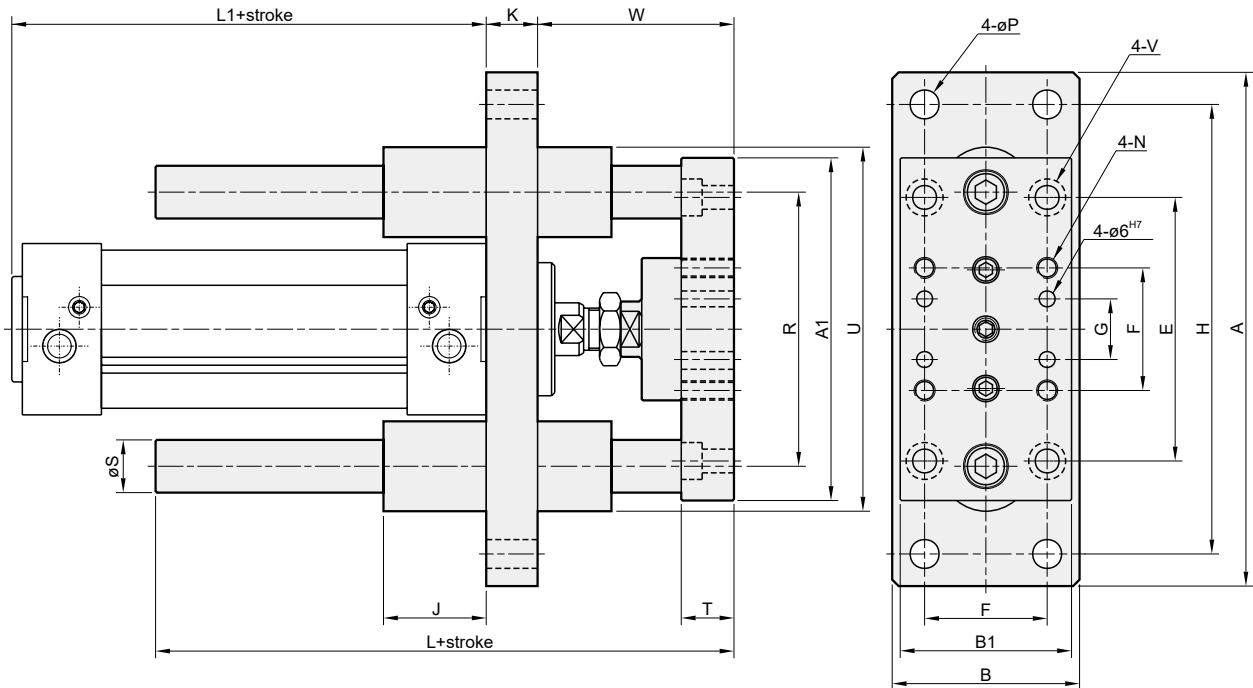


TWIN-GUIDE CYLINDER

mindman

MGTX (Flange type)

$\phi 40\sim\phi 63$

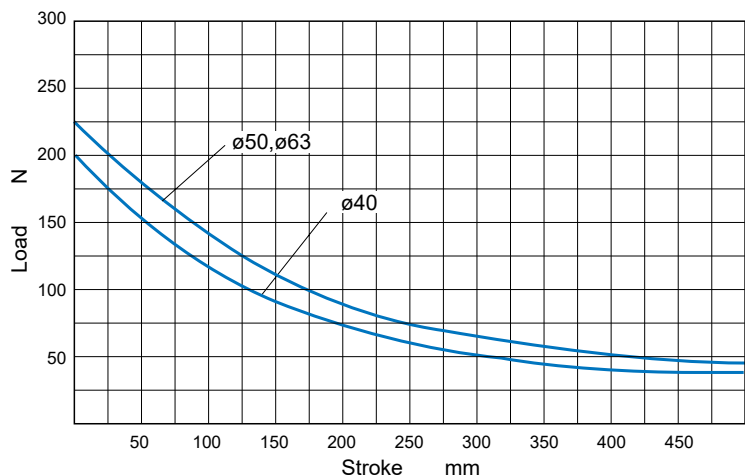
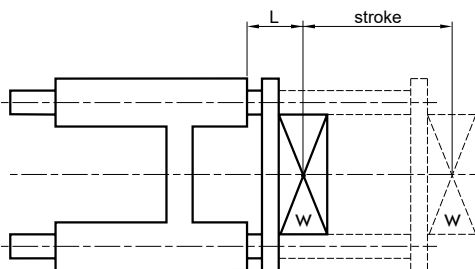


Code Tube I.D.	A	A1	B	B1	E	F	G	H	J	K	L	L1	N	P	R	S	T	U	V	W
40	160	115	55	50	84	38	19	140	32	15	148	109	M6×1.0 thru	$\phi 9$	87	16	15	115	$\phi 6.5, \phi 10.5(D)6.5$	61
50	180	135	70	65	100	46.5	23	160	36	20	170	110	M8×1.25 thru	$\phi 9$	104	20	20	136	$\phi 9, \phi 14(D)8.5$	74
63	195	150	80	75	105	56.5	28	175	36	20	170	125	M8×1.25 thru	$\phi 9$	119	20	20	151	$\phi 9, \phi 14(D)8.5$	74

Maximum allowable torque moment

Max. allowable load

MGTX $\phi 40\sim\phi 63$



MGT* Rear flange coupling $\varnothing 20, \varnothing 25$

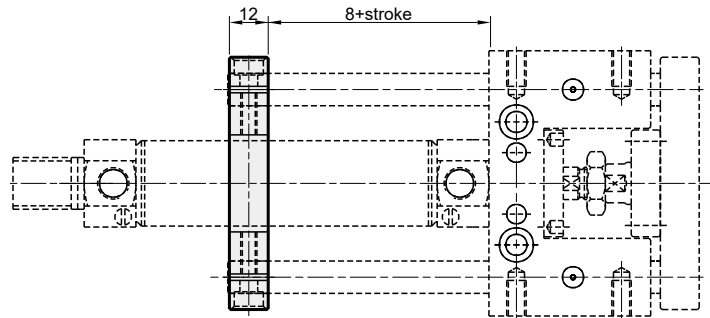
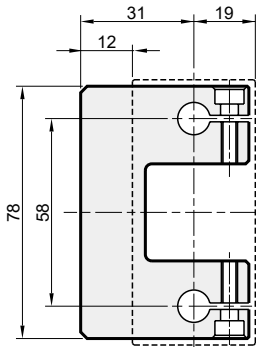


TWIN-GUIDE CYLINDER

mindman

MGTK

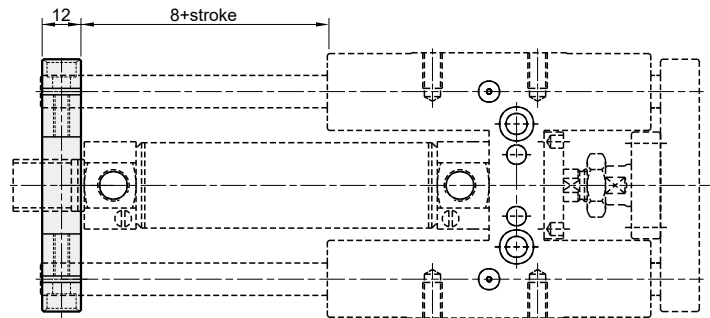
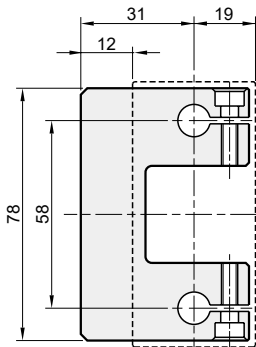
$\varnothing 20, \varnothing 25$



MGTB

MGTU

$\varnothing 20, \varnothing 25$



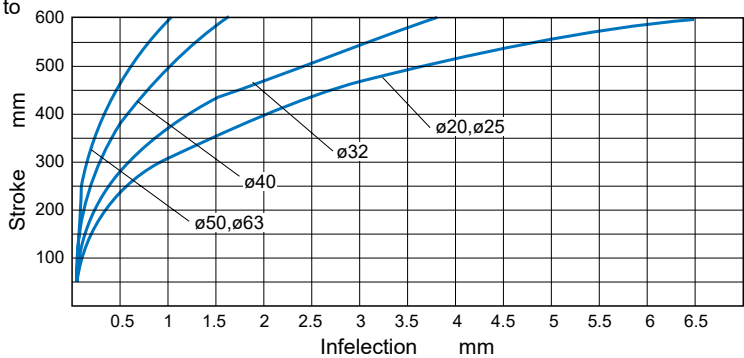
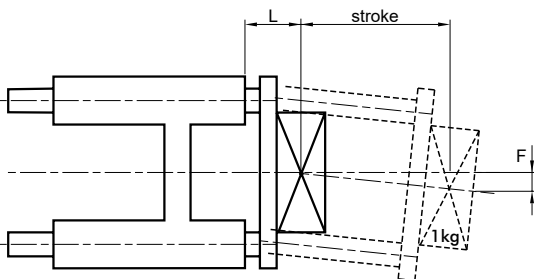
Building material: aluminum alloy
2 Clamps screws are included in the supply

Maximum allowable torque moment

Max. allowable load

MGTB / MGTU

Inflexion of guide stems is due to their weight summed to the load of 1Kg. related to the stroke.

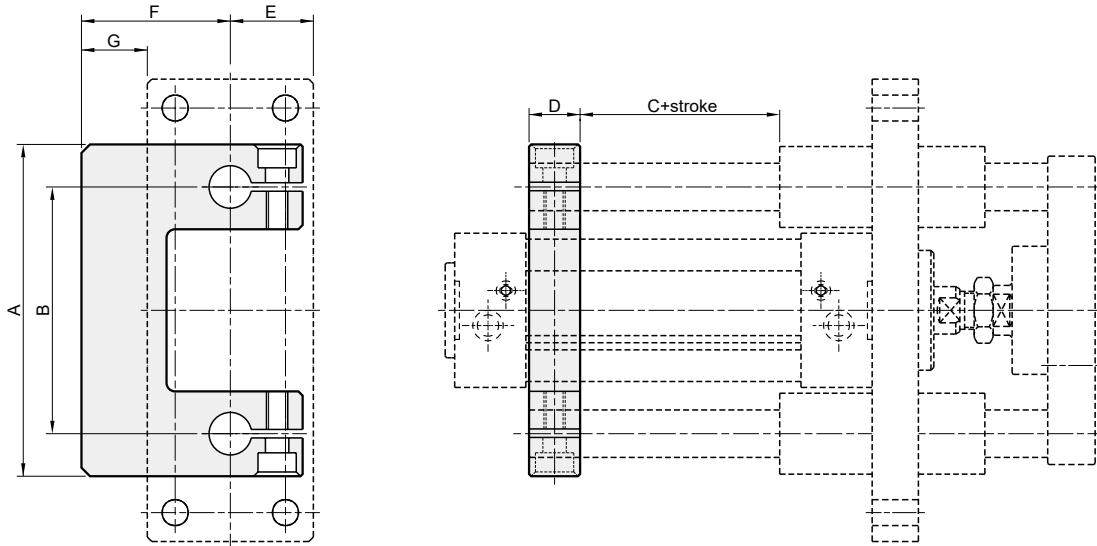


Weight

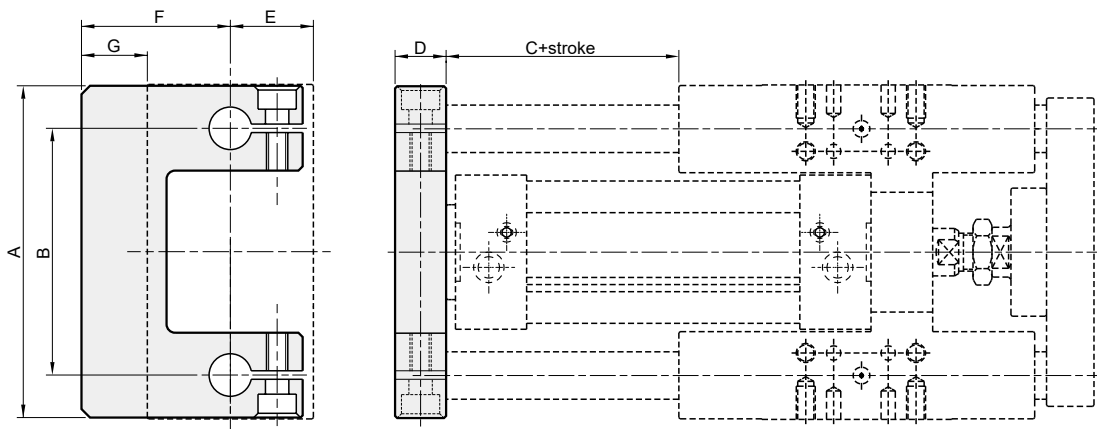
Unit: kg

Tube I.D.	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm
	MGTK (Oilless bush guide)		MGTB (Brass bush guide)		MGTU (Linear bushing guide)	
20	0.690	0.050	1.090	0.050	0.967	0.050
25	0.716	0.058	1.137	0.058	1.015	0.058

MGTX $\varnothing 32\sim\varnothing 63$



MGTB MG TU $\varnothing 32\sim\varnothing 63$



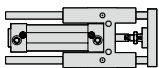
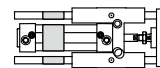
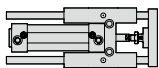
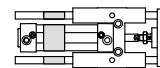
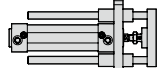
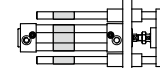
Building material: aluminum alloy
2 Clamps screws are included in the supply

Code Tube I.D.	A	B	C	D	E	F	G
32	95	74	25	15	25	47	22
40	115	87	20	20	28	52.5	24.5
50	135	104	20	20	35	67.5	32.5
63	150	119	20	20	40	78	38

* MGTX $\varnothing 40$: E=27.5, G=25

Weight

Unit: kg

Tube I.D.	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm
						
	MGTB (Brass bush guide)		MG TU (Linear bushing guide)		MGTX (Brass bush guide)	
32	2.060	0.100	1.918	0.100	1.274	0.100
40	3.423	0.159	3.113	0.159	2.082	0.159
50	5.584	0.240	5.162	0.240	3.440	0.240
63	6.816	0.250	6.390	0.250	4.221	0.250



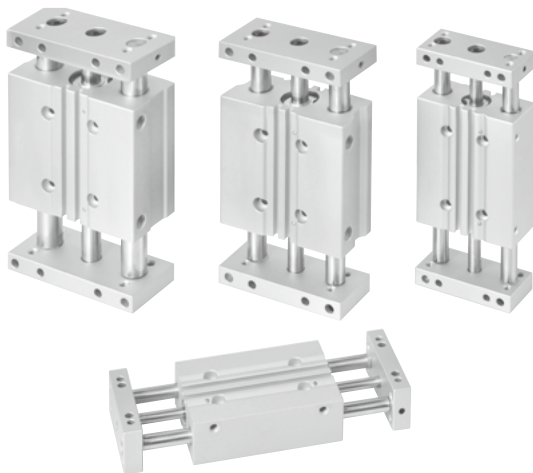
Applications



Rod end shape



Caution for safety
(Read before installing)



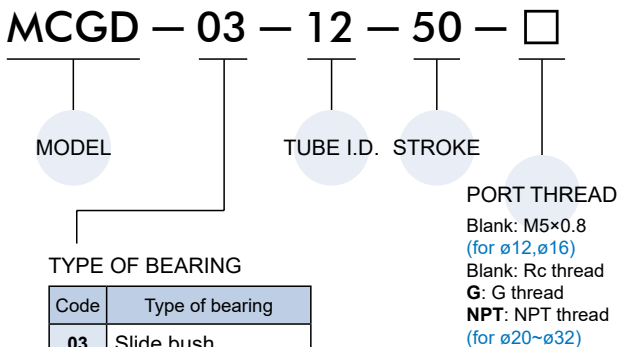
Features

- Can be used as plate slide type or body slide type.
- The air cylinder and guide share a compact design which enables the cylinder to work smoothly along its stroke.
- The cylinder is extremely rigid and strong.
- Flush fitting sensor available.
- Magnetic as standard.

Specification

Model	MCGD	
Model (Stop type view)		
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	

Order example



Installation of sensor switch

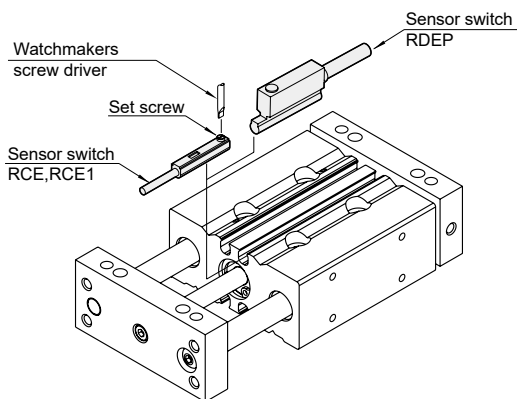


Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm)									
		30	50	75	100	125	150	175	200	250	300
MCGD-03 (Slide bush)	ø12										
	ø16										
	ø20										
	ø25										
	ø32										
MCGD-23 (Linear bearing)	ø12										
	ø16										
	ø20										
	ø25										
	ø32										

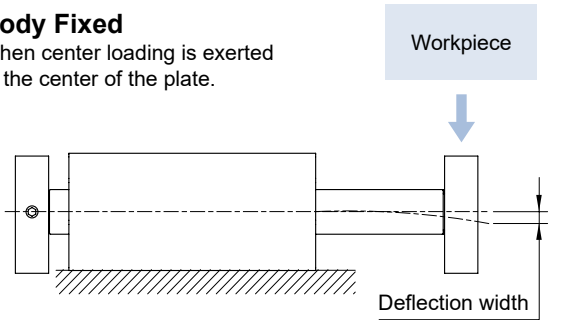
* Please contact us if the stroke is out of specification.

TWIN-GUIDE SLIDE CYLINDER

Deflection of guide rod by center loading (Reference)

Body Fixed

When center loading is exerted to the center of the plate.

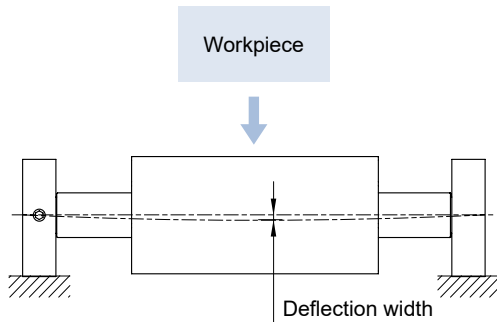


Unit: mm

Tube I.D.	Bearing type	Stroke Load (kgf)	Deflection width			
			50	100	150	200
$\phi 12$	Slide bush	0.5	0.09	0.22	—	—
	Linear bearing	0.3	0.08	0.3	—	—
$\phi 16$	Slide bush	0.5	0.03	0.1	0.25	—
	Linear bearing	0.5	0.09	0.22	0.5	—
$\phi 20$	Slide bush	0.8	0.03	0.09	0.18	—
	Linear bearing	0.5	0.03	0.1	0.25	—
$\phi 25$	Slide bush	1	0.03	0.09	0.16	—
	Linear bearing	0.8	0.03	0.09	0.18	—
$\phi 32$	Slide bush	2.9	0.02	0.05	0.1	0.15
	Linear bearing	1	0.03	0.09	0.16	0.25

Plate Fixed

When center loading is exerted to the center of the Body.



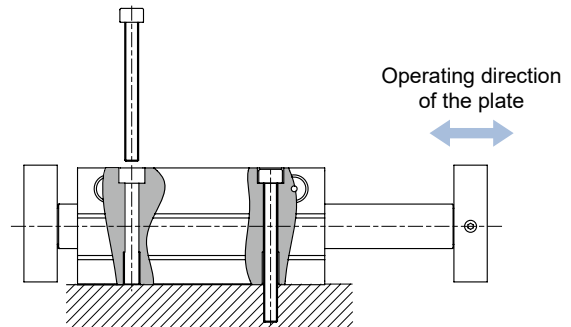
Unit: mm

Tube I.D.	Bearing type	Stroke Load (kgf)	Deflection width			
			50	100	150	200
$\phi 12$	Slide bush	3	0.06	0.08	—	—
	Linear bearing	1	0.05	0.07	—	—
$\phi 16$	Slide bush	4	0.06	0.08	0.15	—
	Linear bearing	3	0.06	0.08	—	—
$\phi 20$	Slide bush	5	0.05	0.06	0.12	—
	Linear bearing	4	0.06	0.08	0.15	—
$\phi 25$	Slide bush	6	0.04	0.05	0.07	—
	Linear bearing	5	0.05	0.06	0.12	—
$\phi 32$	Slide bush	9	0.02	0.03	0.06	0.07
	Linear bearing	6	0.04	0.05	0.07	0.08

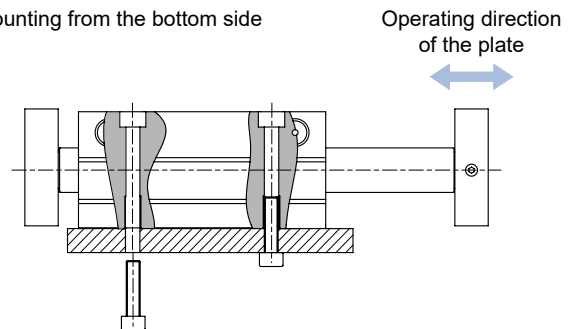
Plate mounting methods

A Fixing the Body
The plate moves.

Mounting from the upper side

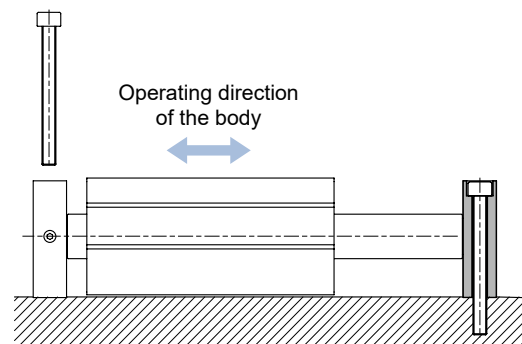


Mounting from the bottom side



B Fixing the Plate
The body moves.

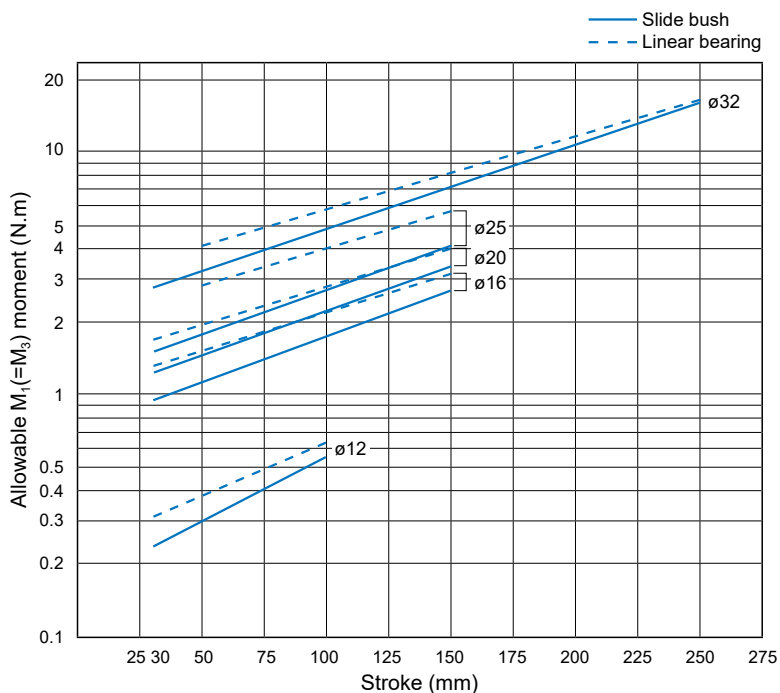
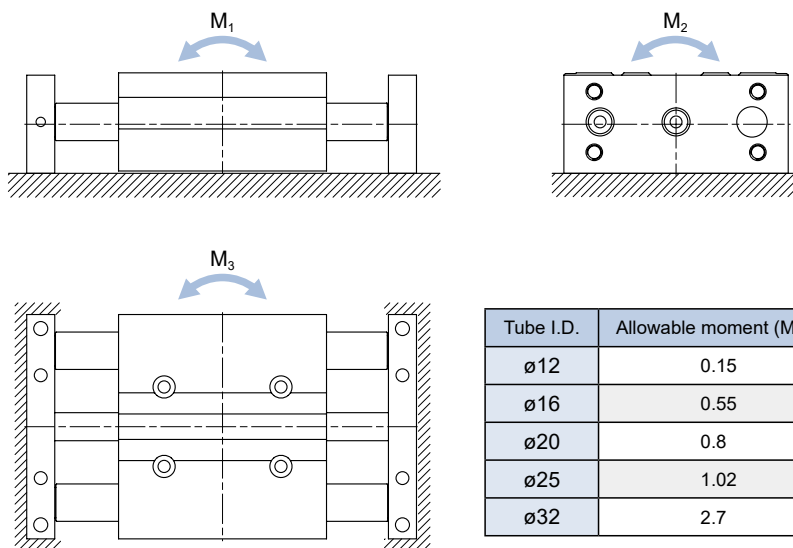
Mounting from the upper side



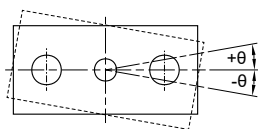
TWIN-GUIDE SLIDE CYLINDER

Maximum allowable moment

Please operate within the maximum allowable moment.



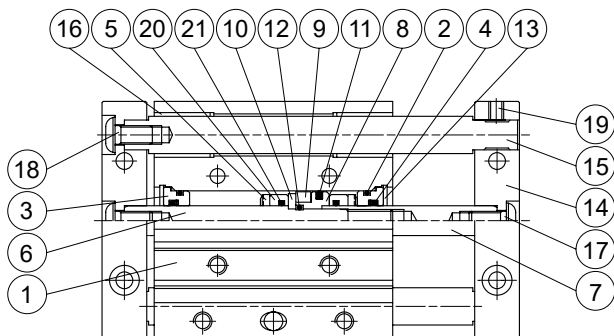
Anti-roll accuracy



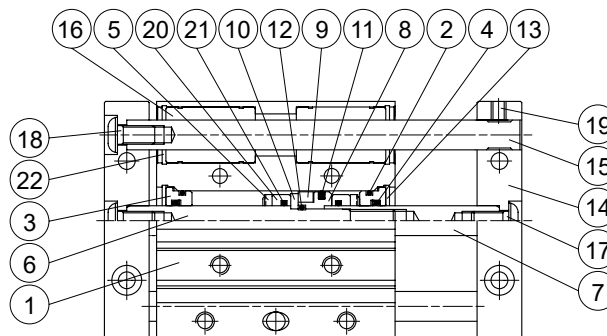
- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

Tube I.D.	Bearing type	Anti-roll accuracy
		θ
$\phi 12$	Slide bush	$\pm 0.09^\circ$
	Linear bearing	$\pm 0.06^\circ$
$\phi 16$	Slide bush	$\pm 0.08^\circ$
	Linear bearing	$\pm 0.06^\circ$
$\phi 20$	Slide bush	$\pm 0.08^\circ$
	Linear bearing	$\pm 0.03^\circ$
$\phi 25$	Slide bush	$\pm 0.07^\circ$
	Linear bearing	$\pm 0.05^\circ$
$\phi 32$	Slide bush	$\pm 0.07^\circ$
	Linear bearing	$\pm 0.03^\circ$

MCGD-03



MCGD-23



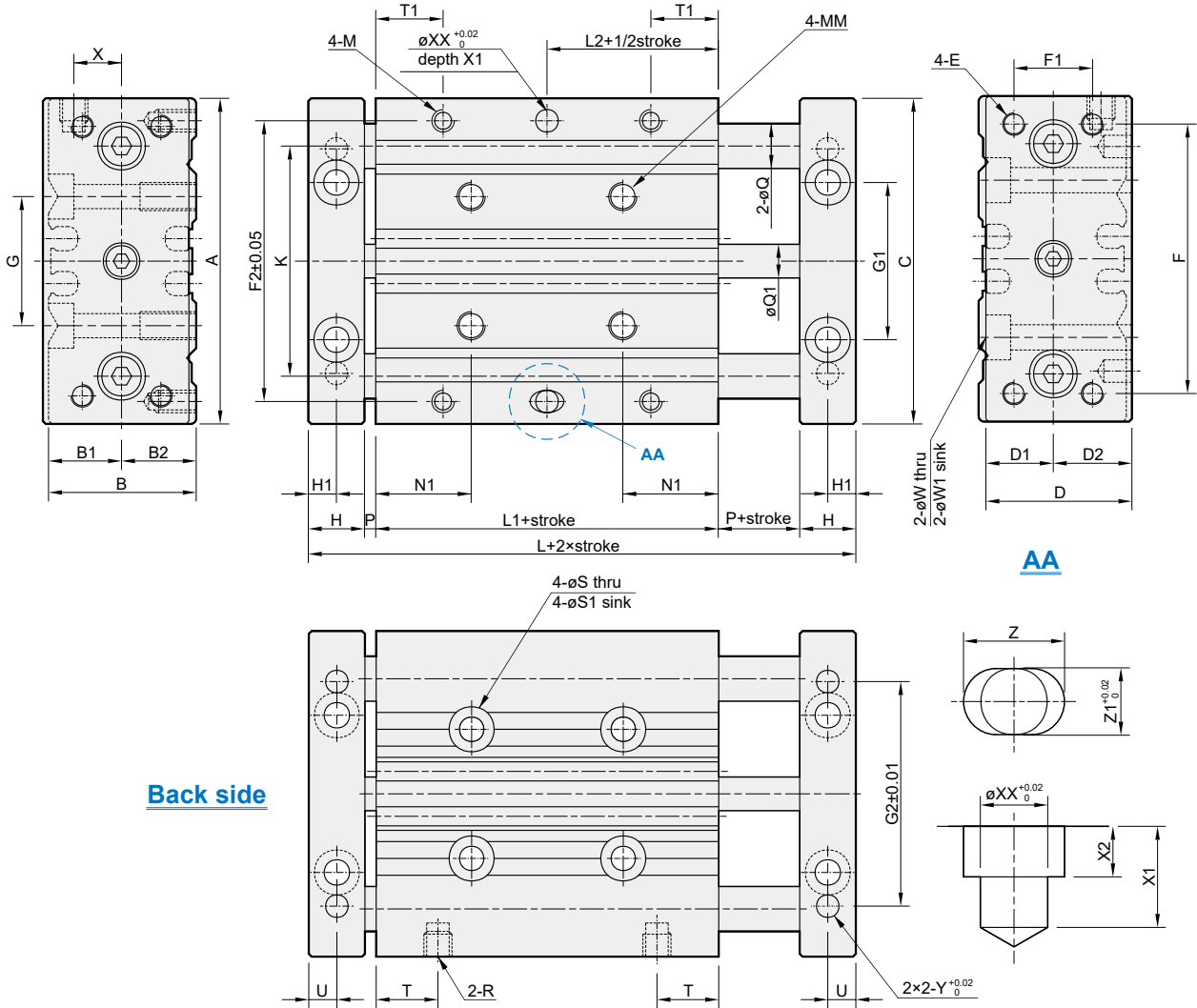
Material

No.	Part name	Material	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy		1	
2	Cover ring	NBR		2	●
3	Rod cover	Aluminum alloy		2	
4	Rod packing	NBR		2	●
5	Cushion	NBR		2	●
6	Piston rod #1	Carbon steel		1	
7	Piston rod #2	Carbon steel		1	
8	Piston	Aluminum alloy		1	
9	Magnet ring	Magnet material		1	
10	Magnet ring holder	Stainless steel		1	
11	Piston packing	NBR		1	●
12	Piston gasket	NBR		1	●
13	Snap ring	Spring steel		2	
14	Plate	Aluminum alloy		2	
15	Guide rod	Carbon steel	for 03 type	2	
		Special steel	for 23 type	2	
16	Slide bush	Bearing alloy	for 03 type	4	
	Linear bearing	—	for 23 type	4	
17	Bolt for piston rod	Carbon steel		2	
18	Bolt for guide rod	Carbon steel		4	
19	Set screw	Carbon steel		2	
20	Spacer	Aluminum alloy		2	
21	O-ring	NBR		2	
22	Snap ring	Spring steel	for 23 type	4	

Order example of repair kits

Tube I.D.	Repair kits
ø12	PS-MCGD-12
ø16	PS-MCGD-16
ø20	PS-MCGD-20
ø25	PS-MCGD-25
ø32	PS-MCGD-32

MCGD-03/23



Back side

Code Tube I.D.	A	B	B1	B2	C	D	D1	D2	E	F	F1	F2	G	G1	G2	H	H1	K	L	L1	L2	M	MM	N1	Q		Q1	P	R
																								MCGD-03	MCGD-23				
12	58	26	13	13	58	26	12	14	M4	48	14	50	23	28	40	10	5	41.5	55	31	15.5	M4×7dp	M5×10dp	17	ø8	ø6	ø6	2	M5
16	64	30	15	15	64	30	14	16	M5	52	16	54	24	32	50	12	6	46	62	34	17	M5×7dp	M5×10dp	17	ø10	ø8	ø8	2	M5
20	85	36	19	17	85	36	16	20	M5	60	18	64	28	37	70	12	6	55	66	38	19	M5×7dp	M6×12dp	20.5	ø12	ø10	ø10	2	Rc1/8
25	96	42	21	21	96	42	20	22	M6	70	26	76	34	44	84	12	6	65	67	39	19.5	M6×9dp	M6×12dp	19.5	ø16	ø13	ø12	2	Rc1/8
32	116	51	25	26	116	51	24	27	M8	96	30	100	42	56	76	14	7	80	68	36	18	M8×11dp	M8×16dp	20	ø20	ø16	ø16	2	Rc1/8

Code Tube I.D.	S	S1	T	T1	U	W	W1	X	XX	X1	X2	Y	Z	Z1
12	ø4.3	ø8×4.5dp	11	12	5	ø4.5	ø8×4.5dp	8.5	ø4	6	3	ø4×5dp	6	4
16	ø4.3	ø8×4.5dp	11	13	6	ø4.5	ø8×4.5dp	10	ø5	6	3	ø5×5dp	7	5
20	ø5.2	ø9.5×5.5dp	13.5	14	6	ø5.5	ø9.5×5.5dp	11.5	ø6	8	4	ø6×8dp	8	6
25	ø5.2	ø9.5×5.5dp	11	12	6	ø5.5	ø9.5×5.5dp	13.5	ø6	8	4	ø6×8dp	8	6
32	ø6.8	ø11.5×6.5dp	11	16.5	7	ø6.6	ø11×6.5dp	16	ø8	12	6	ø8×12dp	10	8

TRIPLE-GUIDE CYLINDER

mindman



Technical data



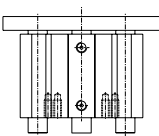
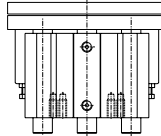



Caution for safety
(Read before installing)



Features

- Three guide rods equally spaced enable consistent movement even when uneven load is applied.
- Increases productivity on conveyor lines.
- When connected to a rotary actuator the unit can be used as an auto turn lifter.
- Magnetic as standard.

Specification

Model	MCG3	
Model (Stop type view)	 (Lift type)	 (Turntable type)
Acting type	Double acting	
Tube I.D.(mm)	63	80
Port size	Rc1/4	Rc3/8
Standard stroke	30, 50, 75, 100 mm	
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 	

Order example

MCG3 — 63 — 50 — D — G




MODEL

TUBE I.D.
63
80

STROKE
Stroke out of specification is also available.
(Only for circle table lift type)

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

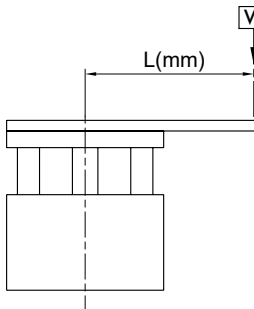
APPLICATION / TYPE OF BEARING

Code	Purpose / Type of bearing	Picture
D	Circle table lift / Slide bush	
B	Circle table lift / Linear bearing	
D90	Turntable / Angle 90° / Slide bush	
B90	Turntable / Angle 90° / Linear bearing	
D180	Turntable / Angle 180° / Slide bush	
B180	Turntable / Angle 180° / Linear bearing	
QD	Quad table lift / Slide bush	
QB	Quad table lift / Linear bearing	

TRIPLE-GUIDE CYLINDER

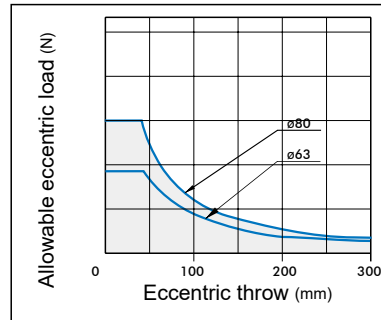
Allowable eccentric load

(at supply pressure 0.5MPa)

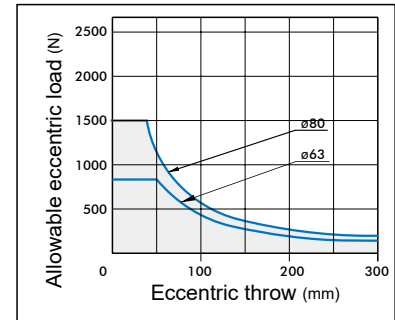


Shows the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.

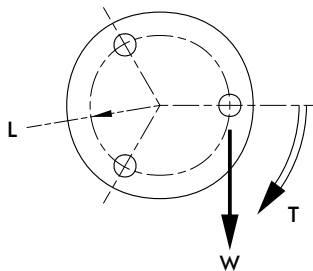
MCG3-D/D90/D180



MCG3-B/B90/B180



Allowable rotating torque

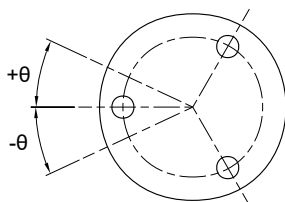


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

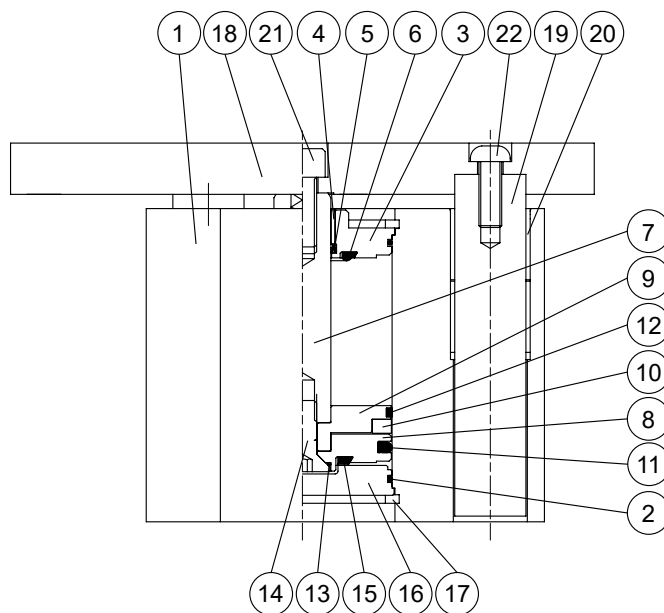
Tube I.D.	Bearing type	Stroke (mm)		
		30	50	100
$\phi 63$	Slide bush	13.2	12.7	7.6
	Linear bearing	13.5	12.7	8.8

Anti-roll accuracy



The values are the deflection angle against the piston rod.

Tube I.D.	Bearing type	Anti-roll accuracy
		θ
$\phi 63$	Slide bush	$\pm 0.07^\circ$
	Linear bearing	$\pm 0.03^\circ$



Material

No.	Part name	Material	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Cover ring	NBR	2	●
3	Rod cover	Aluminum alloy	1	
4	Rod bush	Bearing alloy	1	
5	Rod packing	NBR	1	●
6	Rod cushion	NBR	1	●
7	Piston rod	Carbon steel	1	
8	Piston	Aluminum alloy	1	
9	Piston for magnet ring	Aluminum alloy	1	
10	Magnet ring	Magnet material	1	
11	Piston packing	NBR	1	●
12	Wear ring	Resin	1	
13	Piston gasket	NBR	1	●
14	Bolt for piston	Carbon steel	1	
15	Head cushion	NBR	1	●
16	End cover	Aluminum alloy	1	
17	Snap ring	Spring steel	2	
18	Plate	Carbon steel	1	
19	Guide rod	Carbon steel	3	
20	Guide rod bush	Bearing alloy	6	
21	Bolt for piston rod	Carbon steel	1	
22	Bolt for guide rod	Carbon steel	3	

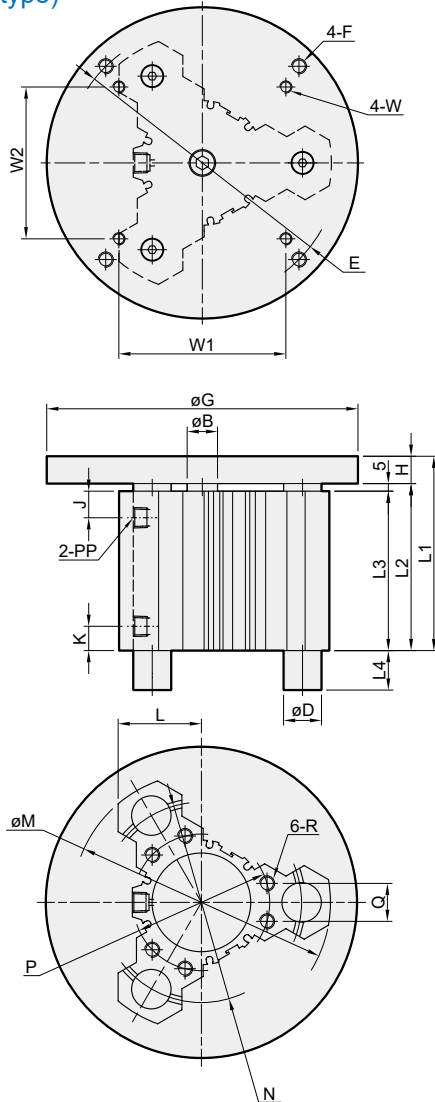
Order example of repair kits

Tube I.D.	Repair kits
ø63	PS-MCG3-63
ø80	PS-MCG3-80

TRIPLE-GUIDE CYLINDER

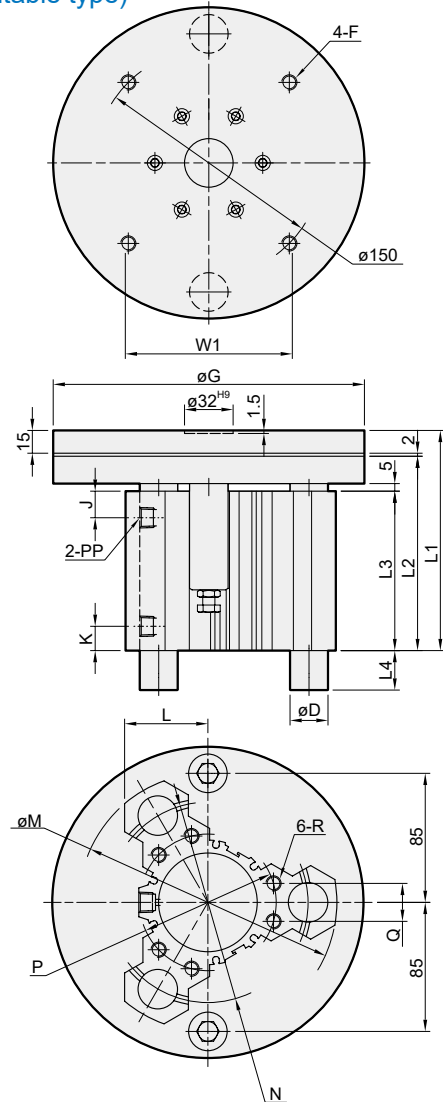
MCG3-D/B

(Lift type)



MCG3-D90/B90/D180/B180 for ø63

(Turntable type)



MCG3-D/B

Code Tube I.D.	B	E	F	G	H	J	K	L	M	N	P	PP	Q	R	W	W1	W2
63	20	P.C.D180	M10×1.5	205	18	17.5	16	54.8	170	P.C.D132	P.C.D90	Rc1/4	25	M10×1.5×23depth	M8×1.25	110	100
80	25	P.C.D190	M10×1.5	220	18	22	22	61.2	190	P.C.D150	P.C.D106	Rc3/8	32	M10×1.5×23depth	—	—	—

Tube I.D.	L1				L2				L3			
	Stroke (mm)											
	30	50	75	100	30	50	75	100	30	50	75	100
63	108	128	153	178	90	110	135	160	85	105	130	155
80	118	138	163	188	100	120	145	170	95	115	140	165

Tube I.D.	L4		øD	
	MCG3-D	MCG3-B	MCG3-D	MCG3-B
63	0	26	ø25	ø16
80	0	25	ø28	ø20

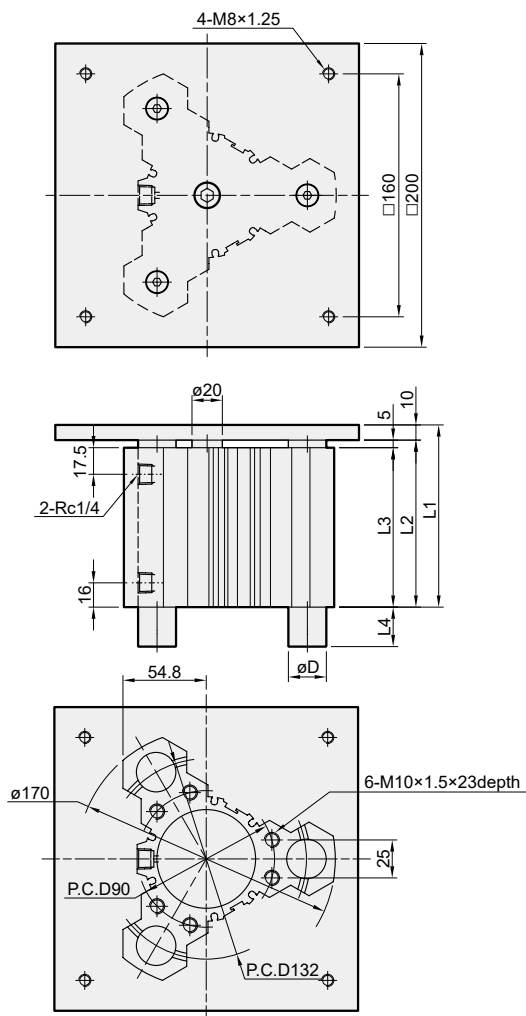
MCG3-D90/B90/D180/B180

Tube I.D.	L1			L2			L3		
	Stroke (mm)								
	30	50	100	30	50	100	30	50	100
63	125	145	195	108	128	178	85	105	155

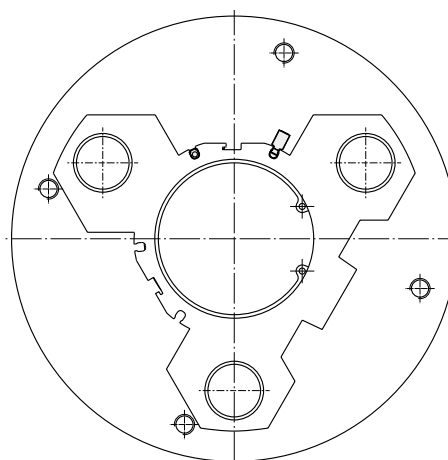
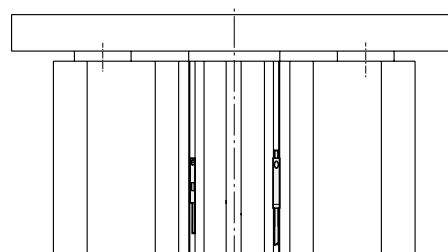
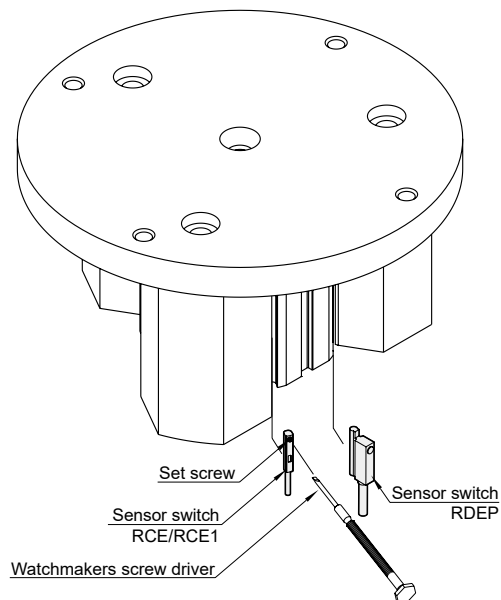
Tube I.D.	L4			øD	
	D90 / D180	B90 / B180	D90 / D180	B90 / B180	
63	0	26	ø25	ø16	



MCG3-QD/QB
(Lift type)



Installation of sensor switch



MCG3-QD/QB

Tube I.D.	Stroke (mm)	L1	L2	L3
63	30	100	90	85
	50	120	110	105
	75	145	135	130
	100	170	160	155

Tube I.D.	L4		øD	
	MCG3-QD	MCG3-QB	MCG3-QD	MCG3-QB
63	0	26	ø25	ø16

MCDA series

DUAL-ROD CYLINDER



Technical data



Caution for safety
(Read before installing)



Features

- Compact in width and length with precision guidance.
- High lateral loads can be applied on both side and linear bearing unit.
- Magnetic as standard.

Specification

Model	MCDA					
Acting type	Double acting					
Tube I.D.(mm)	6	12	16	20	25	32
Port size	M5×0.8			Rc1/8		
Medium	Air					
Operating pressure range (MPa)	Max.	0.7				
	Min.	0.15	0.1	0.05		
Proof pressure	1 MPa					
Ambient temperature	-5~+60°C (No freezing)					
Cushion	With rubber cushion pad (both side)					
Available speed range	50~300	50~500 mm/sec				
Lubrication	Not required (If lubrication is used, apply turbine oil NO1 ISO VG32)					
Sensor switch	RCE , RCE1 , RDEP					

Order example

MCDA — 03 — 12 — 50 —

MODEL TUBE I.D. STROKE

TYPE OF BEARING

03	Slide bush
23	Linear bearing

PORT THREAD
Blank: M5×0.8 (for ø6~ø20)
Blank: Rc thread
G: G thread
NPT: NPT thread (for ø25, ø32)

Table for standard stroke

Tube I.D.	Stroke (mm)
ø6	10,20,30,40,50
ø12	10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150
ø16	10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150
ø20	10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150,175,200
ø25	
ø32	

- Please contact us if the stroke is out of specification.
- It is possible to adjust length of basic stroke by 0~5mm.

Cylinder weight

Unit: g

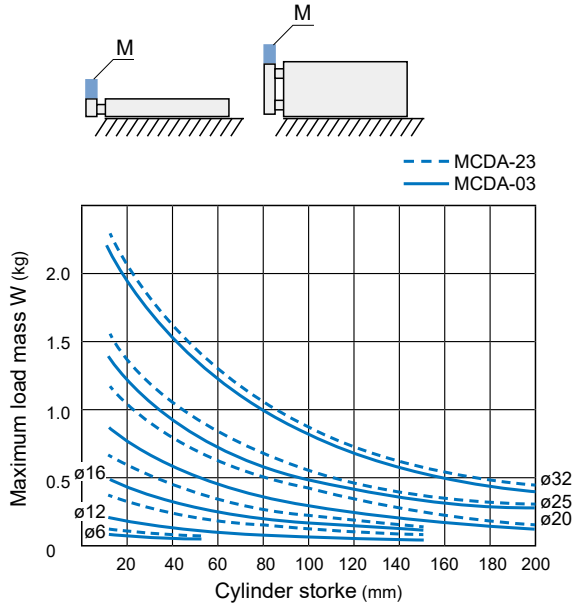
Model	Basic weight MCDA	Stroke 5mm MCDA
Tube I.D.		
ø6	85.8	7.5
ø12	150	8
ø16	222	13
ø20	376	18
ø25	557	27
ø32	1105	42

DUAL-ROD CYLINDER

mindman

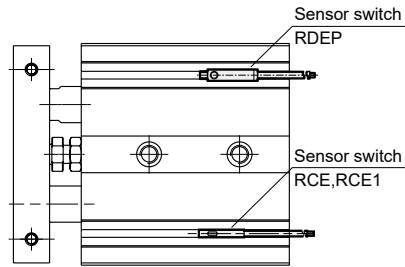
Maximum load mass

When the cylinder mounted as shown in the diagrams below, the maximum load mass W should not exceed the values illustrated in the graph.



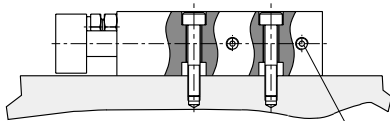
Installation of sensor switch

Sensor switch: RCE, RCE1, RDEP

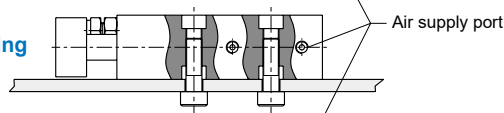


Mounting methods

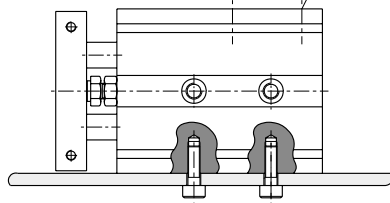
Top mounting



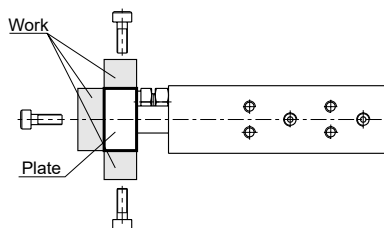
Bottom mounting



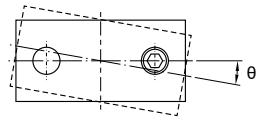
Side mounting



Work can be mounted on three faces of the rod square plate.



Anti-roll accuracy



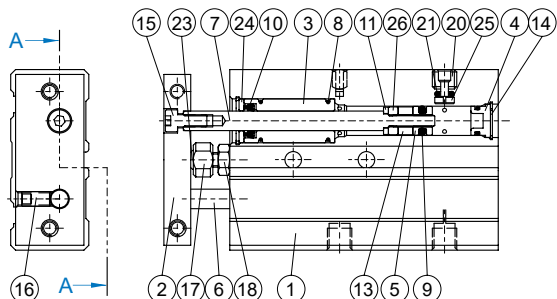
Code	θ				
	$\varnothing 6$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 25, \varnothing 32$
MCDA-03	$\pm 0.3^\circ$	$\pm 0.45^\circ$	$\pm 0.35^\circ$	$\pm 0.3^\circ$	$\pm 0.25^\circ$
MCDA-23	$\pm 0.25^\circ$		$\pm 0.2^\circ$		$\pm 0.15^\circ$

MCDA-03 Inside structure & Parts list

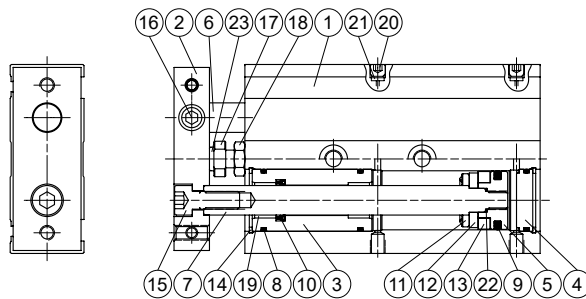
DUAL-ROD CYLINDER



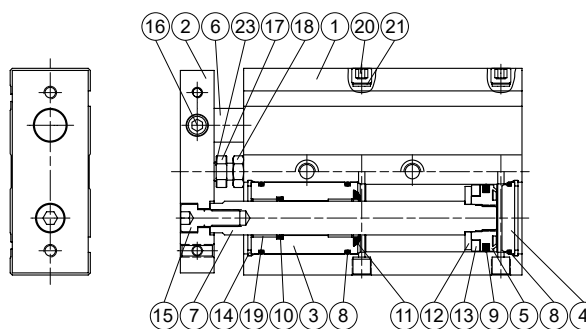
ø6



ø12~ø20



ø25, ø32



Material

No.	Tube I.D. Part name	6	12	16	20	25	32	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy							1	
2	Plate	Aluminum alloy							1	
3	Rod cover	Aluminum alloy							2	
4	End cover	Aluminum alloy							2	
5	Piston	Aluminum alloy							2	
6	Piston rod #1	Stainless steel				(*)			1	
7	Piston rod #2	Stainless steel				(*)			1	
8	Cover ring	NBR							6	●
9	Piston packing	NBR							2	●
10	Rod packing	NBR							2	●
11	Rod cushion	NBR							2	●
12	Magnet holder	Stainless steel							2	
13	Magnet ring	Magnet material							2	
14	Snap ring	Spring steel							4	
15	Screw	Stainless steel							1	
16	Set screw	Stainless steel							1	
17	Cushion screw	Stainless steel							1	
18	Nut	Carbon steel							1	
19	Rod bush	Bearing alloy							4	
20	Plug (set screw)	Carbon steel							2	
21	Plug ring	NBR							2	●
22	O-ring	NBR					only ø20		2	●
23	Bumper	PU							1	
24	Rod cover washer	Stainless steel					only ø6		2	
25	Plug gasket	Stainless steel					only ø6		1	
26	Spaced ring	Aluminium					only ø6		2	

* Carbon steel

Order example of repair kits

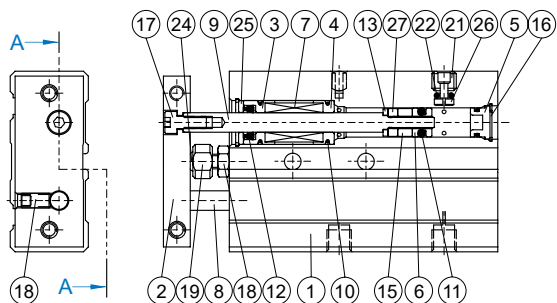
Tube I.D.	Repair kits
ø6	PS-MCDA-6
ø12	PS-MCDA-12
ø16	PS-MCDA-16
ø20	PS-MCDA-20
ø25	PS-MCDA-25
ø32	PS-MCDA-32

MCDA-23 Inside structure & Parts list

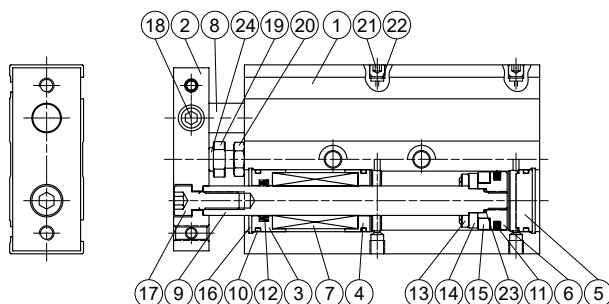
DUAL-ROD CYLINDER



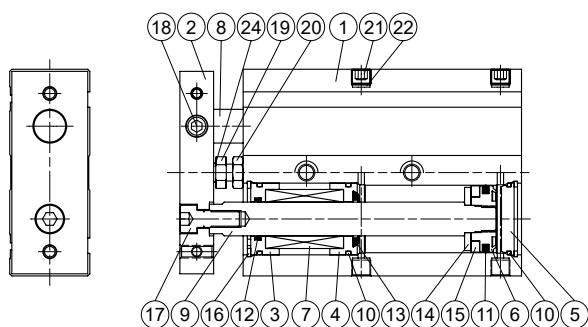
ø6



ø12~ø20



ø25, ø32

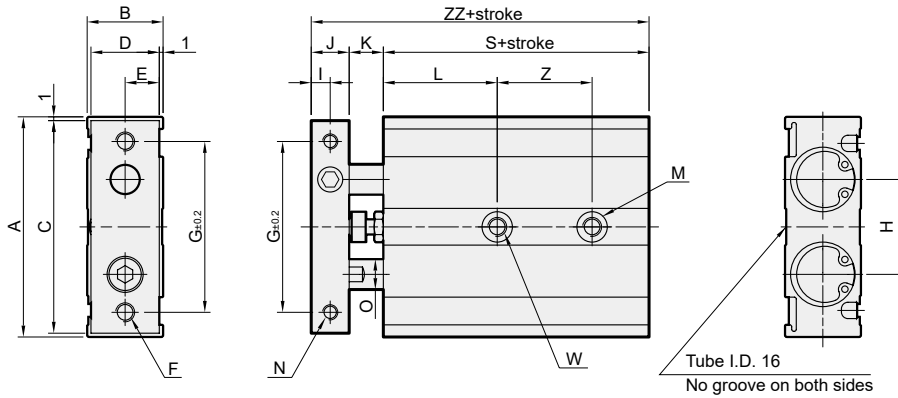


Material

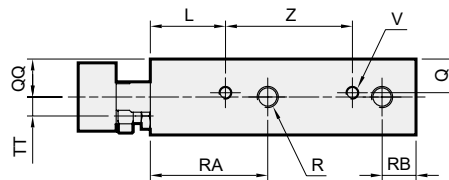
No.	Tube I.D. Part name	6	12	16	20	25	32	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy							1	
2	Plate	Aluminum alloy							1	
3	Rod cover #1	Aluminum alloy							2	
4	Rod cover #2	Aluminum alloy							2	
5	End cover	Aluminum alloy							2	
6	Piston	Aluminum alloy							2	
7	Slide bush	-							2	
8	Piston rod #1	Special steel							1	
9	Piston rod #2	Special steel							1	
10	Cover ring	NBR							6	●
11	Piston packing	NBR							2	●
12	Rod packing	NBR							2	●
13	Rod cushion	NBR							2	●
14	Magnet holder	Stainless steel							2	
15	Magnet ring	Magnet material							2	
16	Snap ring	Spring steel							4	
17	Screw	Stainless steel							1	
18	Set screw	Stainless steel							1	
19	Cushion screw	Stainless steel							1	
20	Nut	Carbon steel							1	
21	Plug(set screw)	Carbon steel							2	
22	Plug ring	NBR							2	●
23	O-ring	NBR						only ø20	2	●
24	Bumper	PU							1	
25	Rod cover washer	Stainless steel						only ø6	2	
26	Plug gasket	Stainless steel						only ø6	1	
27	Spaced ring	Aluminum						only ø6	2	

Order example of repair kits

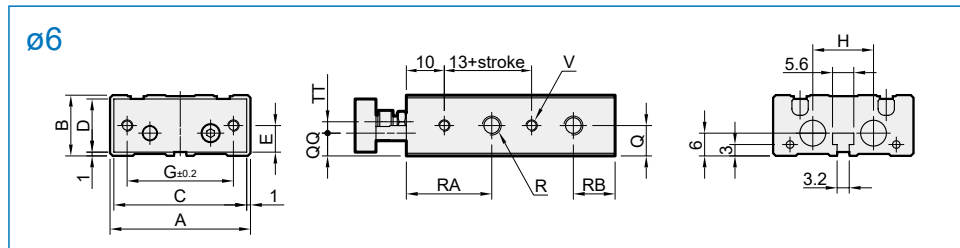
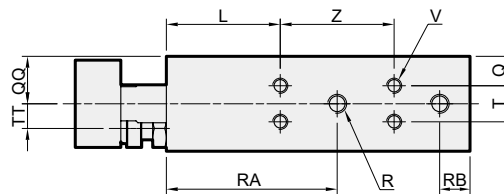
Tube I.D.	Repair kits
ø6	PS-MCDA-6
ø12	PS-MCDA-12
ø16	PS-MCDA-16
ø20	PS-MCDA-20
ø25	PS-MCDA-25
ø32	PS-MCDA-32



$\phi 12, \phi 16$



$\phi 20 \sim \phi 32$



MCDA-03 / 23

Code Tube I.D.	A	B	C	D	E	F (Thru)	G	H	I	J	K	L	M (Both side)	N (Both side)	O	Q	QQ	R (Both side)	RA	RB	S	T
6	37	16	35	14	7	2-M3×0.5	28	16	2.75	5.5	8	13	2- $\phi 6.5 \times 3.3dp$ *1	2-M3×0.5 thru	4	8	6	4-M5×0.8	22.5	11	45	-
12	46	18	44	16	8	2-M4×0.7	35	19	4	8	9	20	4- $\phi 6.5 \times 3.3dp$	4-M3×0.5×5dp	6	9	10	4-M5×0.8	30	8	55	-
16	58	20	56	18	9	2-M5×0.8	45	25	5	10	9	30	4- $\phi 8 \times 4.4dp$	4-M4×0.7×6dp	8	10	10	4-M5×0.8	38.5	8	60	-
20	64	25	62	23	11.5	2-M5×0.8	50	28	6	12	12	30	4- $\phi 9.5 \times 5.3dp$	4-M4×0.7×6dp	10	7.75	12.5	4-M5×0.8	45	8	70	9.5
25	80	30	78	28	14	2-M6×1.0	60	35	6	12	12	30	4- $\phi 11 \times 6.3dp$	4-M5×0.8×8dp	12	8.5	15	4-Rc1/8	46	9	72	13
32	98	38	96	36	18	2-M6×1.0	75	44	8	16	14	30	4- $\phi 11 \times 6.3dp$	4-M5×0.8×8dp	16	9	19	4-Rc1/8	56	10	82	20

Code Tube I.D.	TT	V (Both side)	W (Thru)	Z (Stroke)							ZZ
				10,15,20,25	30,35,40,45,50	60,70,75,80	90,100	110,120,125	150	175,200	
6	3	4-M3×0.5×4.5dp	2- $\phi 3.4$	10+1/2 stroke *2							58.5
12	3.5	4-M3×0.5×4.5dp	2-M4×0.7	30	40	50	60	70	80	-	72
16	5	4-M4×0.7×5dp	2-M5×0.8	25	35	45	55	65	75	-	79
20	6.5	8-M4×0.7×5.5dp	2-M6×1.0	30	40	60		80	100	94	
25	9	8-M5×0.8×7.5dp	2-M8×1.25	30	40	60		80	100	96	
32	11.5	8-M5×0.8×7.5dp	2-M8×1.25	40	50	70		90	110	112	

*1. $\phi 6$ - single side.
*2. $\phi 6$ - stroke (10, 20, 30, 40, 50)



Technical data



Caution for safety
(Read before installing)

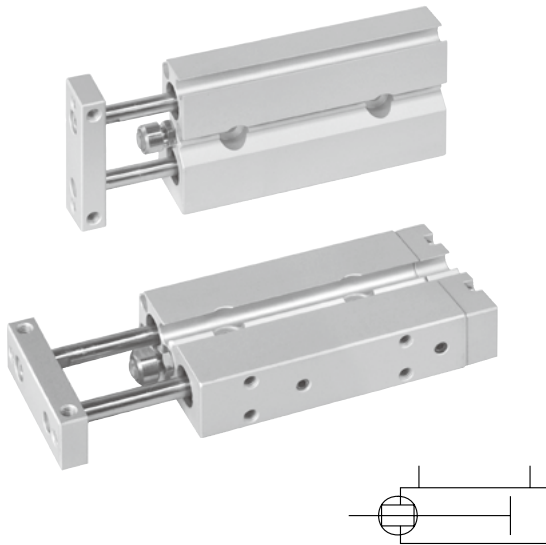


Table for standard stroke

Tube I.D.	Stroke (mm)	Max. stroke
ø6	10,20,30,40,50	50
ø10	10,20,30,40,50	50

- Please contact us if the stroke is out of specification.
- It is possible to adjust length of basic stroke by 0~5 mm.

Order example

MCDJ — 03 — 6 — 50 — □

MODEL

TYPE OF BEARING
03: Slide bush

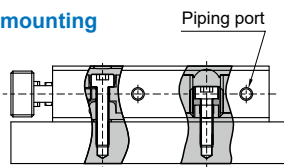
TUBE I.D.

STROKE

Blank: Standard piping
P: Axial piping

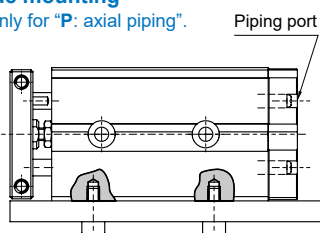
Mounting

Top mounting

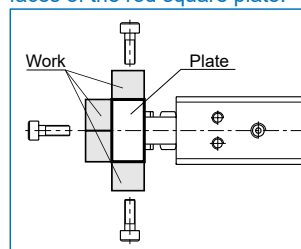


Side mounting

* Only for "P": axial piping".



Work can be mounted on three faces of the rod square plate.



Features

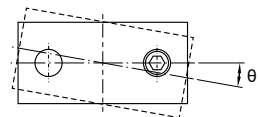
- Compact in width and length with precision guidance.
- High lateral loads can be applied on both slide and linear bearing unit.
- Magnetic as standard.

Specification

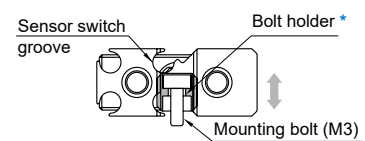
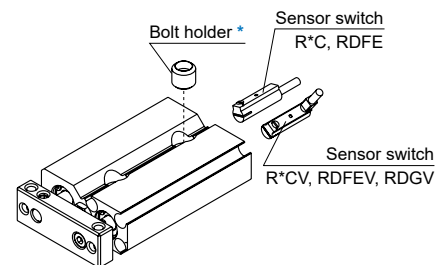
Model	MCDJ	
Acting type	Double acting	
Tube I.D.(mm)	6	10
Port size	M3×0.5	M5×0.8
Medium	Air	
Operating pressure range	Max.	0.7 MPa
	Min.	0.15 MPa 0.1 MPa
Proof pressure	1 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Cushion	With rubber cushion pad (both side)	
Available speed range	50~500 mm/sec	
Lubrication	Not required (If lubrication is used, apply turbine oil NO1 ISO VG32)	
Sensor switch	RDC(V), RQC(V) , RDFE(V) , RDGV	

Anti-roll accuracy

Code	θ	
Type	ø6	ø10
MCDJ-03	±0.35°	±0.3°



Installation of sensor switch



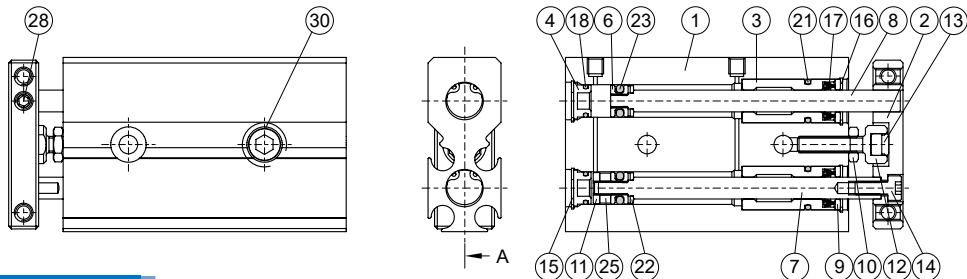
- * Since the bolt holder is adjustable, the mounting bolt does not interfere with the sensor switch no matter what direction it is mounted from.
- * Do not go beyond the body when adjusting the bolt holder.

MCDJ-03 Inside structure & Parts list

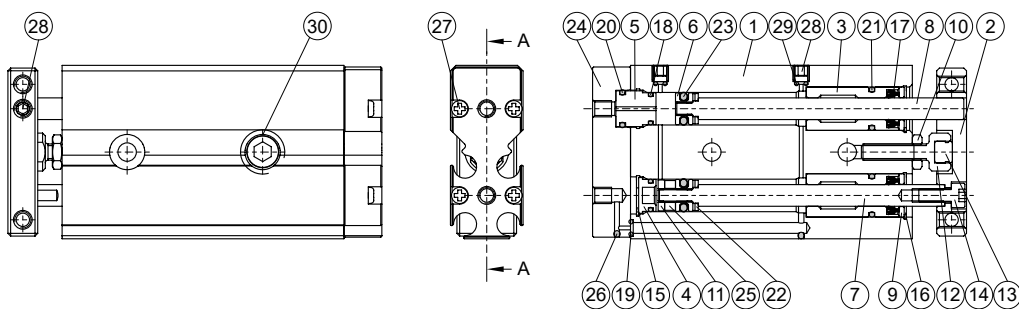
DUAL-ROD CYLINDER



Standrad piping



Axial piping



Material

No.	Tube I.D. Part name	6		10		Standard piping		Axial piping	
		Q'y	Repair kits (inclusion)	Q'y	Repair kits (inclusion)	Q'y	Repair kits (inclusion)	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1			1		1	
2	Plate	Aluminum alloy	1			1		1	
3	Rod cover	Aluminum alloy	2			2		2	
4	End cover	Aluminum alloy	2			2		1	
5	End cover (Axial)	Aluminum alloy	—			—		1	
6	Piston	Stainless steel	2			2		2	
7	Piston rod #1	Stainless steel	1			1		1	
8	Piston rod #2	Stainless steel	1			1		1	
9	Rod cover washer	SUS	—	2		2		2	
10	Nut	Carbon steel	1			1		1	
11	Piston	Aluminum alloy	1			1		1	
12	Cushion screw	Stainless steel	1			1		1	
13	Bumper	PU	1			1		1	
14	Screw	Stainless steel	1			1		1	
15	Snap ring	Spring steel	2			2		1	
16	Snap ring	Spring steel	2			2		2	
17	Rod packing	NBR	2	●		2	●	2	●
18	O-ring	NBR	2	●		2	●	2	●
19	O-ring	NBR	—			—		1	●
20	O-ring	NBR	—			—		1	●
21	O-ring	NBR	2	●		2	●	2	●
22	Rod cushion	NBR	2	●		2	●	2	●
23	Piston packing	NBR	2	●		2	●	2	●
24	Port cover	Aluminum alloy	—			—		1	
25	Magnet ring	Magnet material	1			1		1	
26	Steel ball	Stainless steel	—			—		2	
27	Screw	Iron	—			—		4	
28	Bolt	Stainless steel	1			1		3	
29	O-ring	NBR	—			—		2	●
30	Bolt holder	Stainless steel	1			1		1	

Order example of repair kits

Piping type	Tube I.D.	Repair kits
Standard	ø6	PS-MCDJ-6
	ø10	PS-MCDJ-10
Axial	ø6	PS-MCDJ-6-P
	ø10	PS-MCDJ-10-P
Lubricant (10g)		GR-A-010

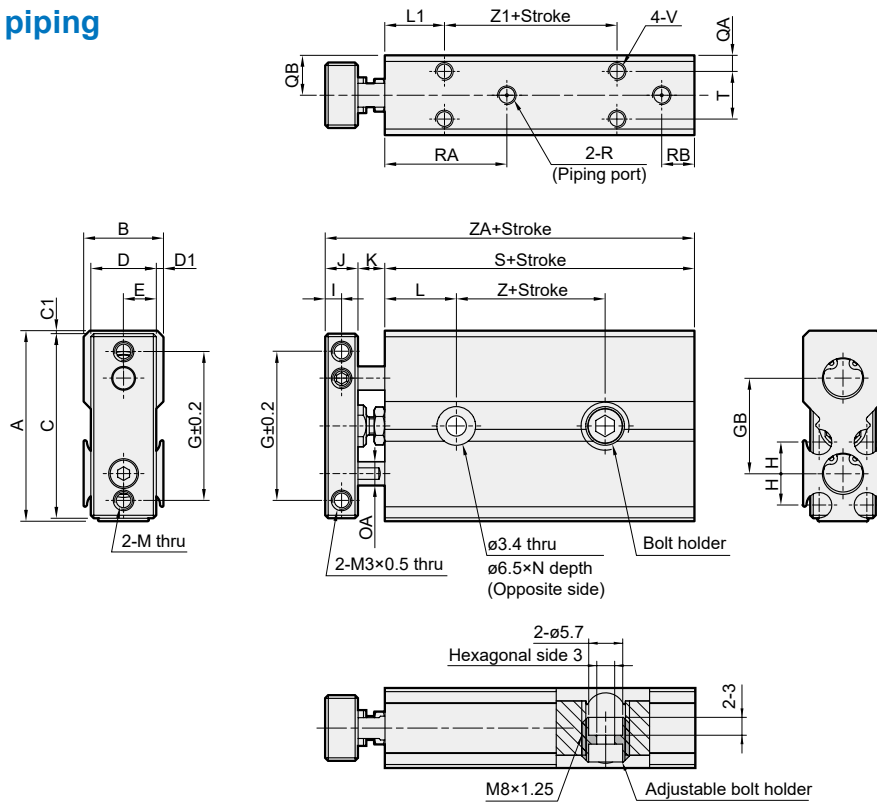
Cylinder weight

Unit: g

Piping type	Standard piping		Axial piping	
	ø6	ø10	ø6	ø10
10	45	97	51	109
20	54	111	61	124
30	64	125	71	137
40	74	139	80	152
50	84	154	90	166
75	—	188	—	201

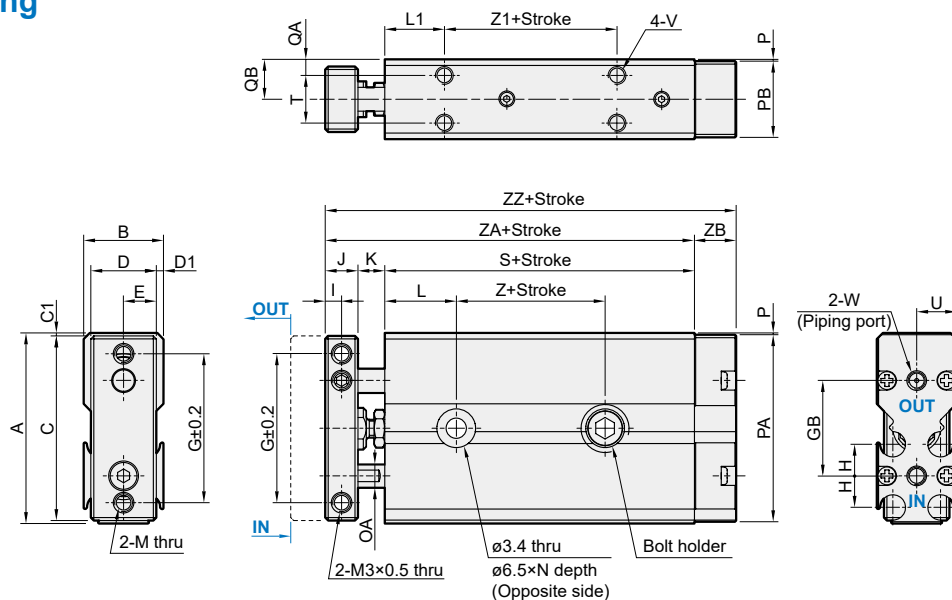
DUAL-ROD CYLINDER

Standrad piping



Axial piping

P



Code Tube I.D.	A	B	C	C1	D	D1	E	G	GB	H	I	J	K	L	L1	M	N	OA	P	PA	PB	QA	QB	R	RA	RB
6	32	13.4	31	0.5	11	1.2	5.5	25	16	5.3	2.75	5.5	4.5	12	10	M3×0.5	5	ø4	0.3	31.4	12.8	2.7	6.7	M3×0.5×3 dp	20.5	5.5
10	42	15	40	1	13	1	6.5	33	20	8	4	8	3.5	16	16	M4×0.7	5.5	ø6	0.3	41.4	14.4	3.5	7.5	M5×0.8×4 dp	28.5	8

Code Tube I.D.	S	T	U	V	W	Z	Z1	ZA	ZB	ZZ
6	32	8	6.7	M3×0.5×3.5 dp	M3×0.5×3 dp	5	9	42	7	49
10	44.5	8	7.5	M3×0.5×4.5 dp	M5×0.8×4 dp	8	12	56	8.5	64.5

