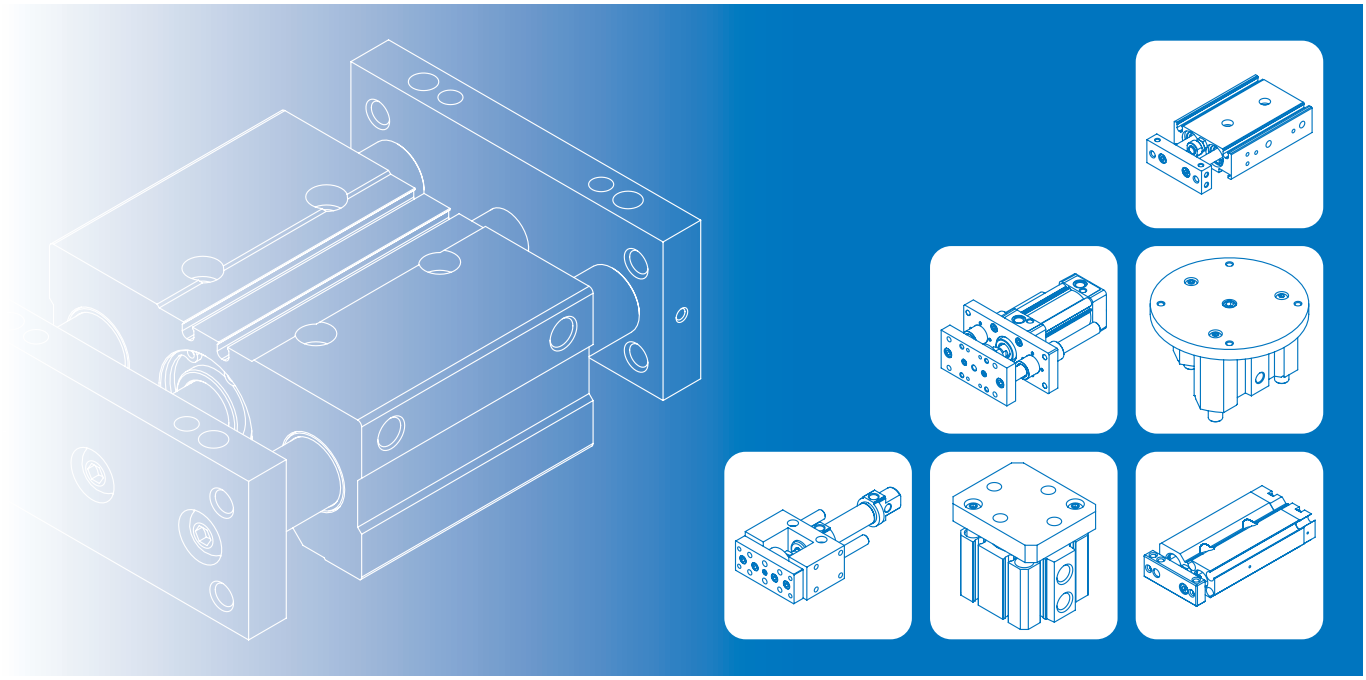
GUIDE CYLINDER



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
	MCGB	ø12~ø32	4-26
	MCGI	ø20~ø100	4-32
	MCGM	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

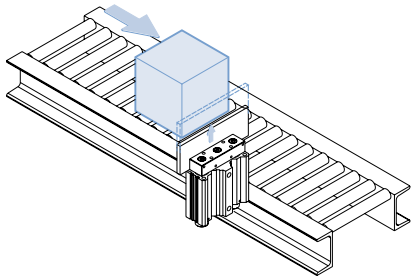
Our goal is to achieve 3-day lead time, if there is stock of component set. For more information, please go to our MINDMAN website (www.mindman.com.tw) and click on the “Component Set Inventory” button.



Several uses

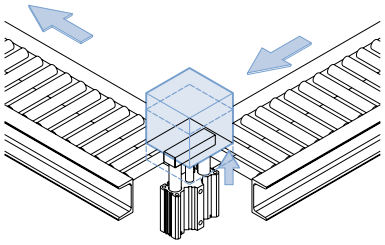
- **S**-Stopper cylinder Takes very high lateral loadings as such can stop very wide and heavy objects.
- **L**-Lift cylinder Large bearing area enables heavy off-set loads to be applied.
- **P**-Pusher cylinder Long strokes available with extremely rigid guidance, precise movement of load is possible.

S Stopper cylinder



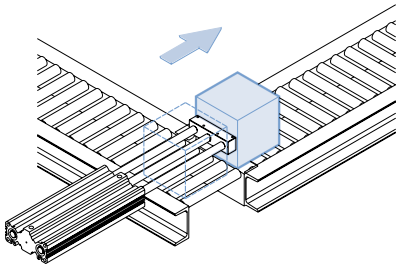
Tough type of stopping a large-load work carrier at a fixed point, and for the straggle of a number of work carriers, etc.

L Lift cylinder



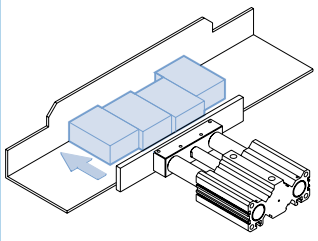
Special design which stands the large one-sided load. Lifts the work carrier at a fixed point not changing the posture.

P Pusher cylinder



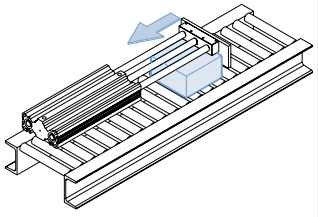
Long strokes available, the highly precise pushing work transfers and places a work carrier and changes the direction.

Multi-Purpose



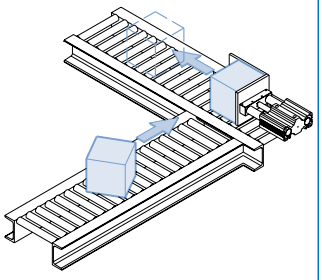
Arranges in line

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



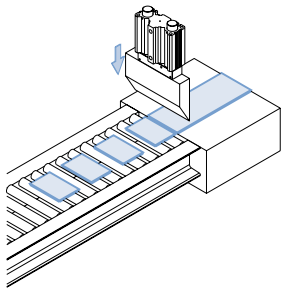
Draws in

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



Corrects misalignment

Repositions uneven loads.



Cuts sheets

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

MCGA series Stop / Lift type

TWIN-GUIDE CYLINDER

Push type

Applications

Technical data

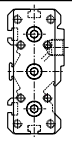
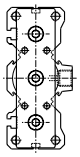
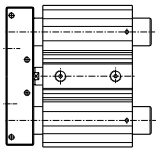
Caution for safety
(Read beforeinstalling)



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)	 Up 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 perssure 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			

Order example

MCGA — 03 — 20 — 50 — G

MODEL

PURPOSE / TYPE OF BEARING

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

TUBE I.D.

STROKE

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

* The type is not available as a stopper.

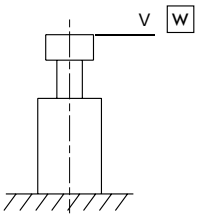
Table for standard stroke

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		■	■	■
	ø63			■	■
	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

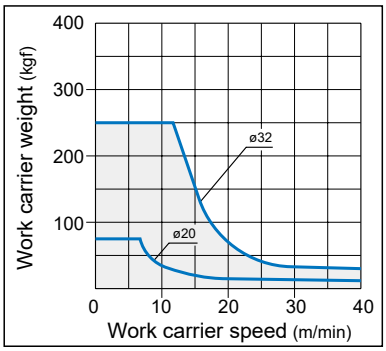


Caution

Linear bearing type is not available as a stopper.

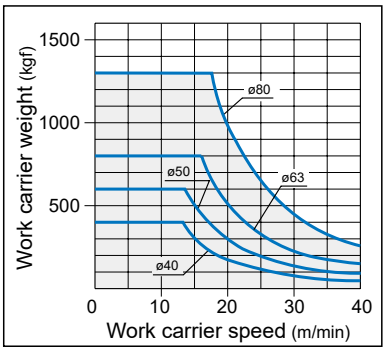
Stop capacity

MCGA-03...ø20,ø32-30st



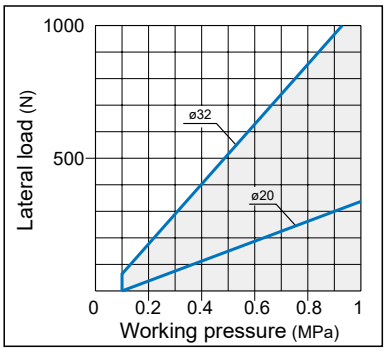
Stop capacity

MCGA-03...ø40,ø50,ø63,ø80-50st



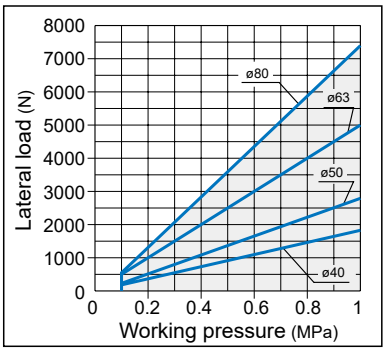
Normal lateral load

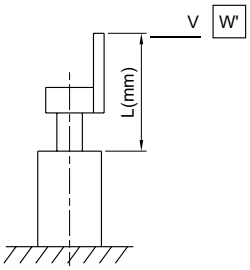
MCGA-03...ø20,ø32-30st



Normal lateral load

MCGA-03...ø40,ø50,ø63,ø80-50st





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

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

Coefficients for conversion

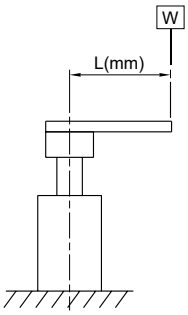
MCGA series	ø20	ø32	ø40	ø50	ø63	ø80
ℓ	48	55	80	85	90	98

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

Capacity graph

Capacity for the use as a lifter

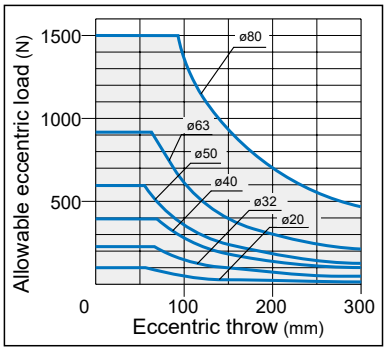
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5MPa)



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

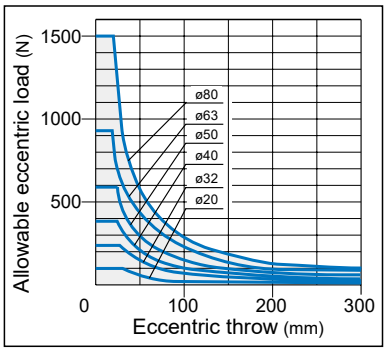
Linear bearing

MCGA-13...ø20,ø32-30~100st
MCGA-13...ø40,ø50,ø63,ø80-50~100st



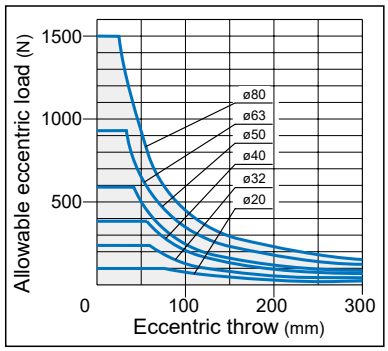
Slide bush

MCGA-53...ø20,ø32-30st
MCGA-53...ø40,ø50,ø63,ø80-50st



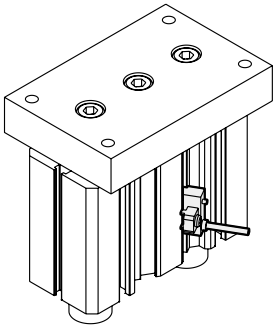
Slide bush

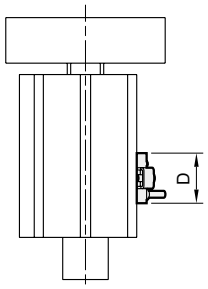
MCGA-53...ø20,ø32-50~100st
MCGA-53...ø40,ø50,ø63,ø80-75~100st

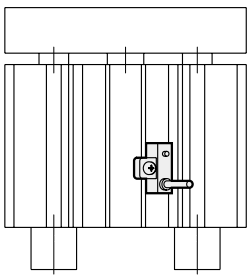


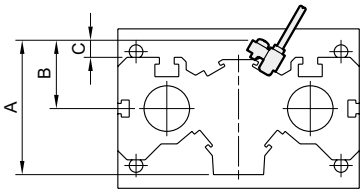
Installation of sensor switch (For Stop / Lift / Push type)

Sensor switch: RCB



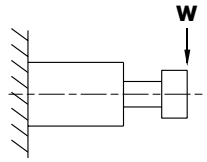






Code / Tube I.D.	A	B	C	D
20	39.5	24.5	7.5	22
32	59.5	30.5	8	22
40	64	31	5	22
50	71.5	33.5	2.5	22
63	88.5	40.5	1.5	22
80	103	43	0	22

Capacity table
Allowable lateral load

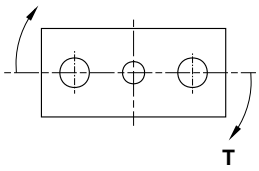


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

Unit: N

Tube I.D.	Bearing type	Stroke (mm)			
		30	50	75	100
ø20	Slide bush	58.84	88.26	73.55	58.84
	Linear bearing	78.45	63.74	49.03	39.23
ø32	Slide bush	117.7	147.1	117.7	98.07
	Linear bearing	156.9	127.5	98.07	78.45
ø40	Slide bush	–	147.1	166.7	137.3
	Linear bearing	–	225.6	186.3	156.9
ø50	Slide bush	–	147.1	176.5	147.1
	Linear bearing	–	245.2	196.1	166.7
ø63	Slide bush	–	215.7	274.6	215.7
	Linear bearing	–	–	323.6	284.4
ø80	Slide bush	–	245.2	294.2	245.2
	Linear bearing	–	–	588.4	539.4

Allowable rotating torque

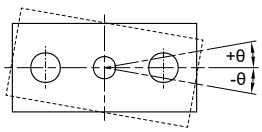


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

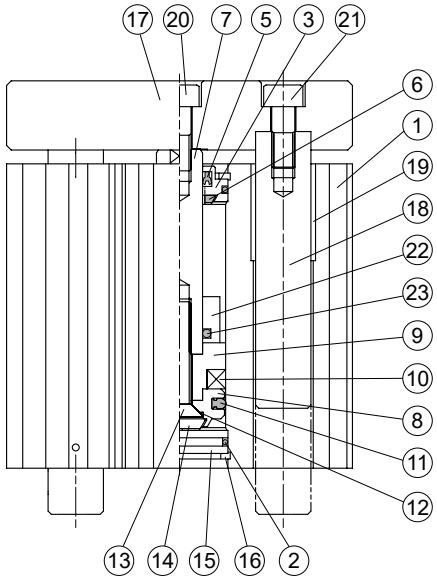
Tube I.D.	Bearing type	Stroke (mm)			
		30	50	75	100
ø20	Slide bush	0.686	0.981	0.785	0.686
	Linear bearing	0.883	0.686	0.539	0.441
ø32	Slide bush	2.059	2.55	2.059	1.765
	Linear bearing	4.609	2.157	1.765	1.471
ø40	Slide bush	–	3.628	3.727	3.236
	Linear bearing	–	4.609	3.825	3.236
ø50	Slide bush	–	4.315	5.099	4.511
	Linear bearing	–	6.865	5.786	4.903
ø63	Slide bush	–	6.276	8.041	6.276
	Linear bearing	–	–	9.512	8.336
ø80	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
ø20	Slide bush	±0.08°
	Linear bearing	±0.03°
ø32	Slide bush	±0.07°
	Linear bearing	±0.03°
ø40	Slide bush	±0.06°
	Linear bearing	±0.03°
ø50	Slide bush	±0.05°
	Linear bearing	±0.02°
ø63	Slide bush	±0.05°
	Linear bearing	±0.02°
ø80	Slide bush	±0.04°
	Linear bearing	±0.02°



Material

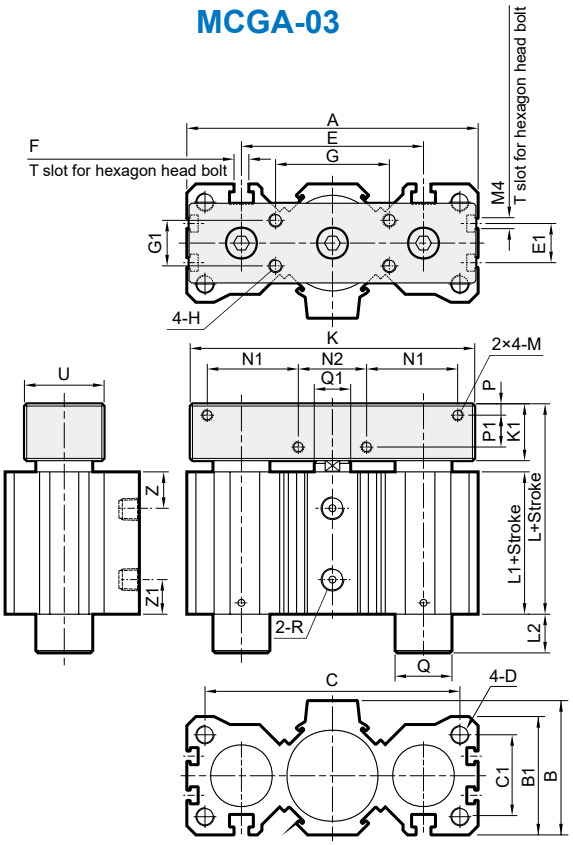
No.	Part name	Material	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Cover ring	NBR	2	●
3	Rod cover	Aluminum alloy	1	
4	Rod bush	Bearing alloy	1	
5	Rod packing	NBR	1	●
6	Rod cushion	NBR	1	●
7	Piston rod	Carbon steel	1	
8	Piston	Aluminum alloy	1	
9	Piston for magnet ring	Aluminum alloy	1	
10	Magnet ring	Magnet material	1	
11	Piston packing	NBR	1	●
12	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**

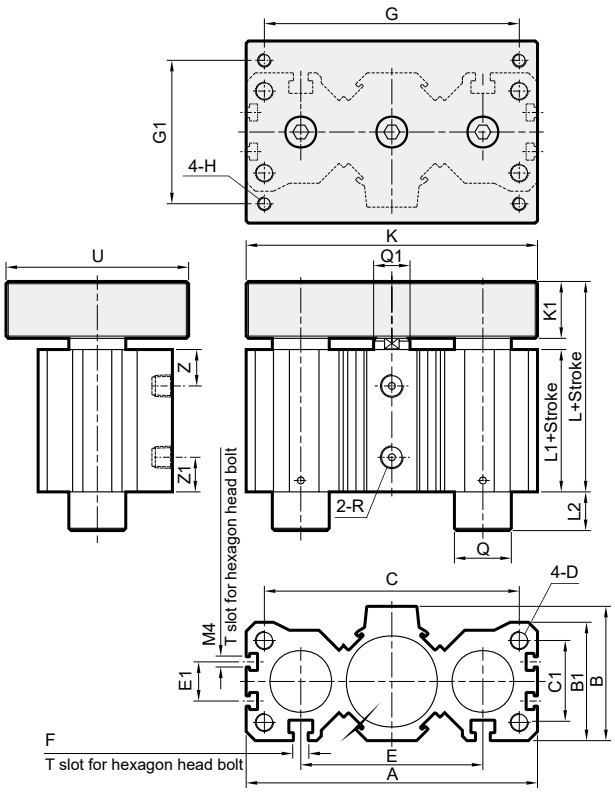
Stop type

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

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

L2 dimensions list

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	–	–	70	70
80	–	–	17.5	87.5

MCGA series Push type

TWIN-GUIDE CYLINDER

mindman

Stop / lift type

Applications

Technical data

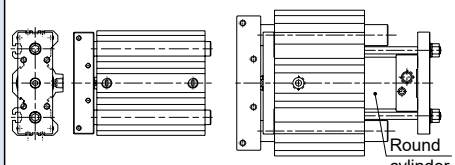
Caution for safety
(Read beforeinstalling)



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	 Round cylinder (for 23/63 type ø80 stroke over 100mm)					
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 perssure 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					
	RCA + (PH-2 band) for ø80 round cylinder, stroke > 100mm					

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

Order example

MCGA — 23 — 20 — 50 — G

MODEL

PURPOSE / TYPE OF BEARING

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

TUBE I.D.

STROKE

PORT THREAD

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

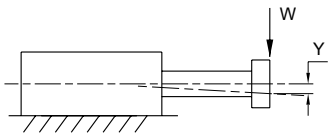
Table for standard stroke

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

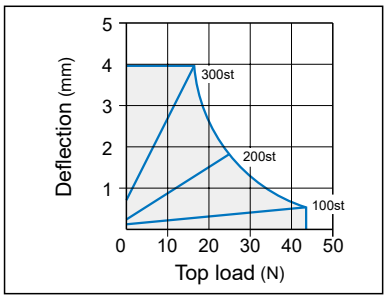
Capacity for the use as a pusher



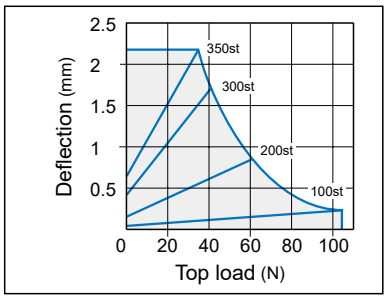
MCGA-23 / MCGA-63, deflection and allowable top load.

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

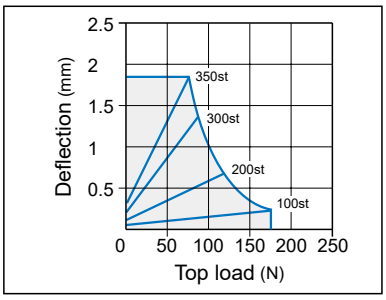
MCGA-23...ø20



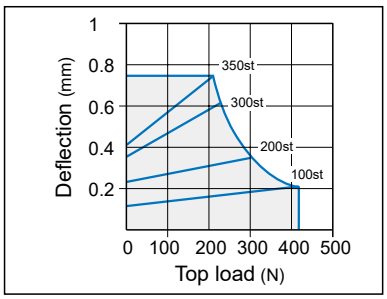
MCGA-23...ø32



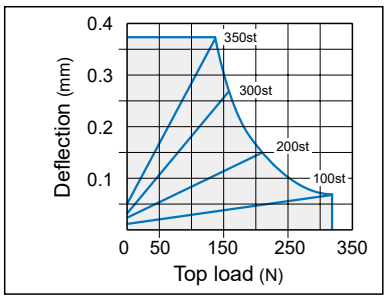
MCGA-23...ø40



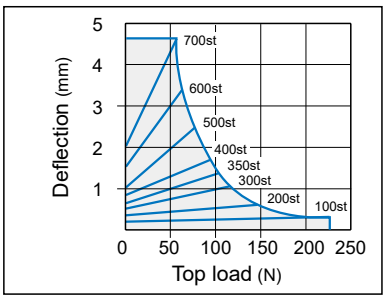
MCGA-23...ø50



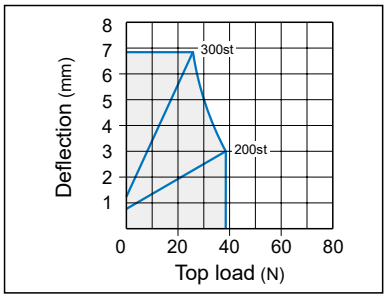
MCGA-23...ø63



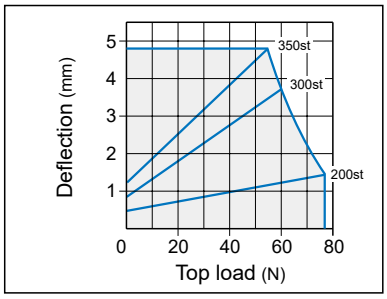
MCGA-23...ø80



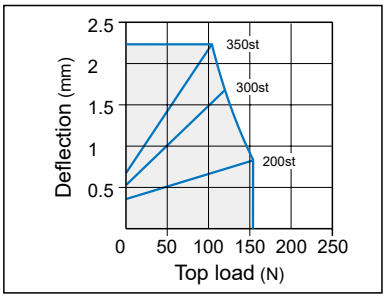
MCGA-63...ø20



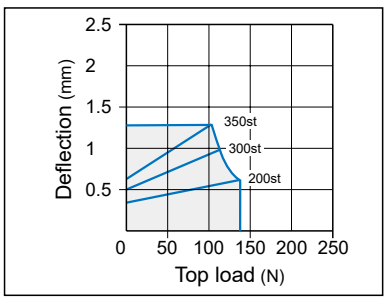
MCGA-63...ø32



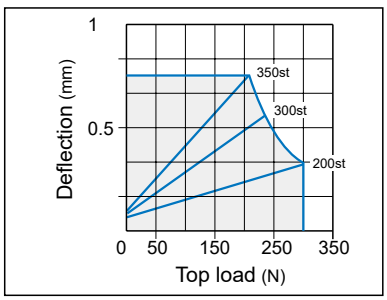
MCGA-63...ø40



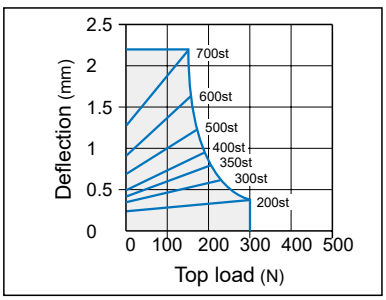
MCGA-63...ø50



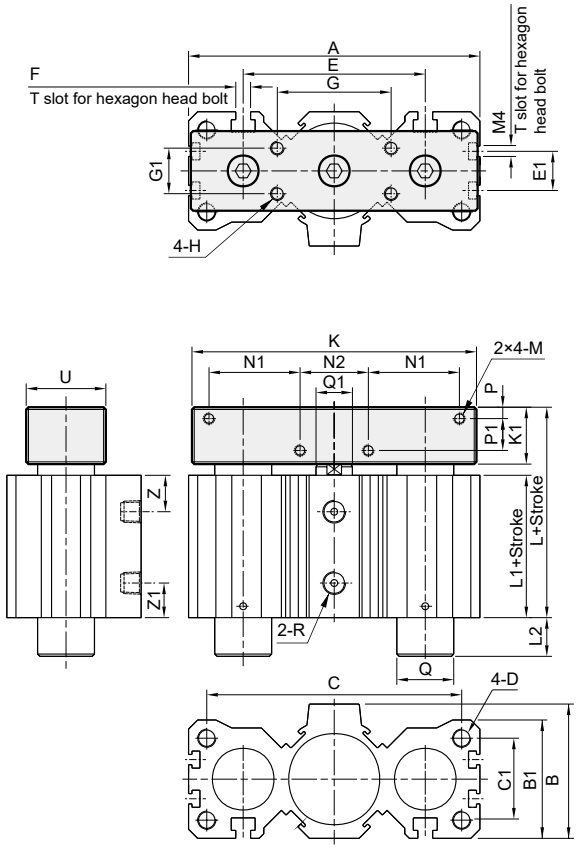
MCGA-63...ø63



MCGA-63...ø80

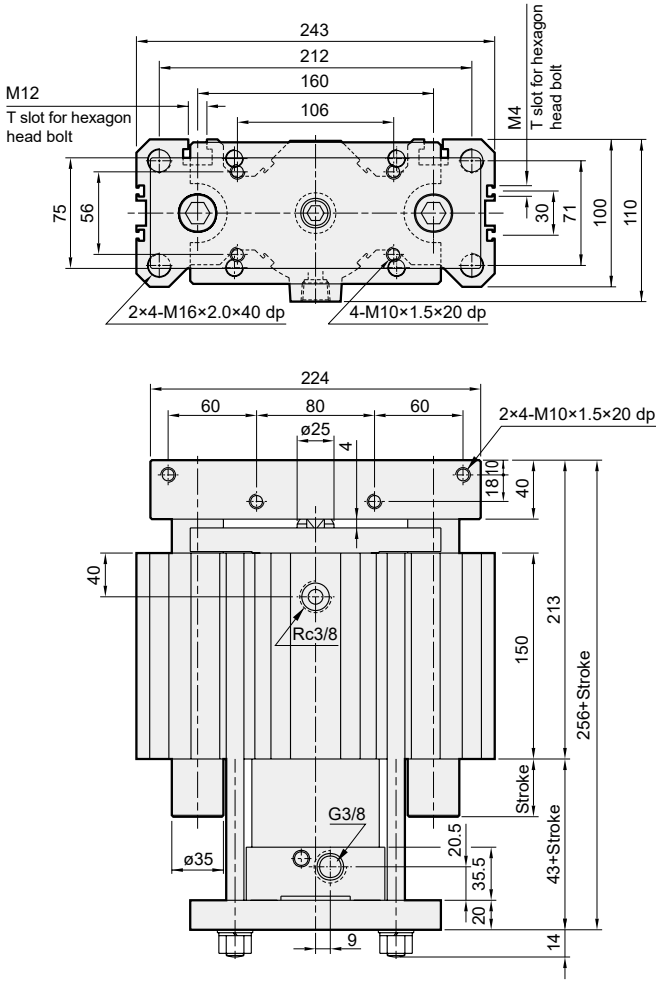


MCGA-23 / MCGA-63



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
20	75	34	32	63	20	M5×0.8×15 dp	45	–	M4	32	16	M5×0.8×10 dp	75	15	54	36	18
32	106	51.5	45	90	30	M8×1.25×20 dp	63	–	M6	40	18	M6×1.0×12 dp	100	20	66.5	41.5	29.5
40	128	59	52	112	36	M8×1.25×20 dp	80	–	M6	50	20	M6×1.0×12 dp	125	25	81	51	30
50	150	69	62	132	45	M10×1.5×25 dp	100	20	M8	63	25	M8×1.25×16 dp	140	30	87	52	39
63	180	87	78	156	53	M12×1.75×30 dp	118	25	M10	80	40	M10×1.5×20 dp	175	35	100	60	68
80	243	110	100	212	71	M16×2.0×40 dp	160	30	M12	106	56	M10×1.5×20 dp	224	40	110.5	62.5	*

Code / Tube I.D.	M	N1	N2	P	P1	Q	Q1	R	U	Z	Z1
20	M4×0.7×8 dp	22.5	20	4	6	ø8	ø10	Rc1/8	25	11	10
32	M5×0.8×10 dp	32	25	5	9	ø13(ø12)	ø16	Rc1/4 [1/8]	30	12	12
40	M5×0.8×10 dp	40	30	5	14	ø16	ø16	Rc1/4 [1/8]	35	16	16.5
50	M6×1.0×12 dp	37.5	50	6	16	ø20	ø20	Rc3/8 [1/4]	40	16	17.5
63	M8×1.25×16 dp	47.5	60	9	16	ø25	ø20	Rc3/8	60	17.5	21
80	M10×1.5×20 dp	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.

Handling

⚠ Caution

❶ **Please control the cylinder within the allowable speed range**:

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

❷ **Please note the speed control during vertical installation**:

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

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

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

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

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

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

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

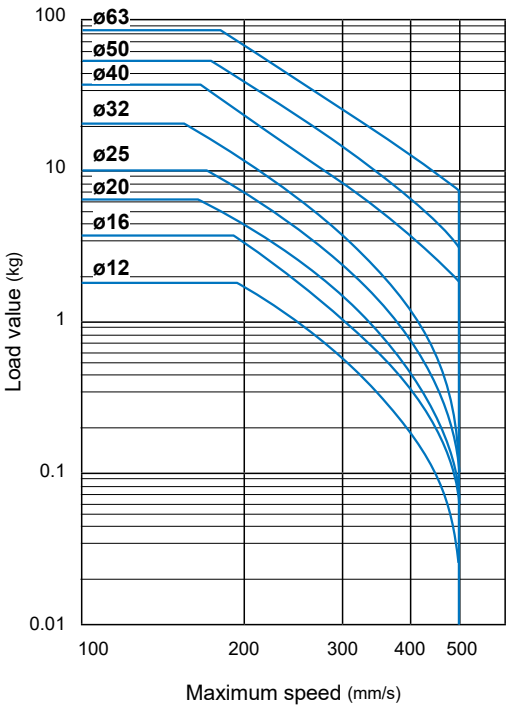


Table 1

ø12~ø63

Applications

Technical data

Caution for safety
(Read beforeinstalling)



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	M3×0.5	
Medium	Air	
Max. operating perssure	0.7 MPa	
Min. operating perssure	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	RDCV, RQCV, RDGV	

* This product is not applicable for stopper purpose.

Order example

MCGS — 6 — 10

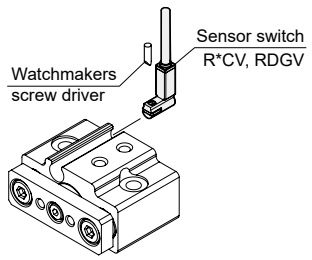
MODEL | TUBE I.D. | STROKE

Weight

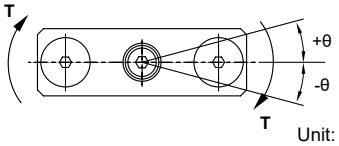
Unit: g

Tube I.D.	Stroke (mm)			
	5	10	15	20
ø6	29	34	39	—
ø10	41	49	57	65

Installation of sensor switch



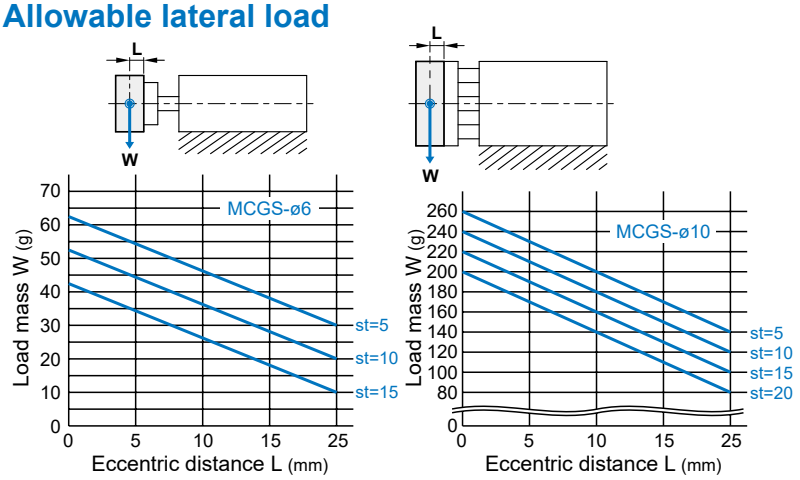
Allowable rotational torque & Non-rotating accuracy



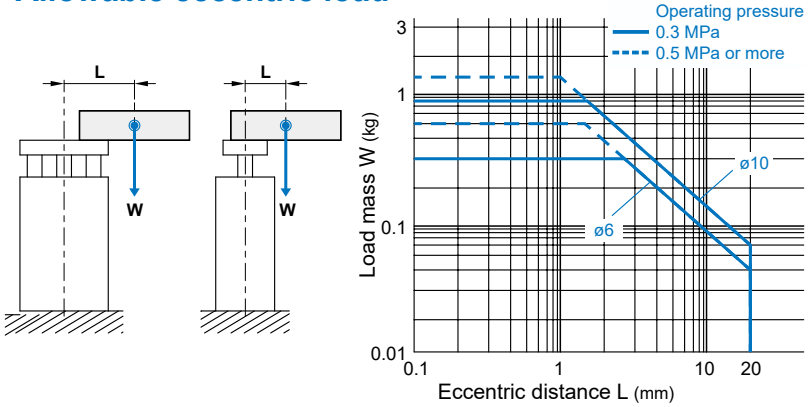
Unit: N.m

Tube I.D.	Stroke (mm)				Non-rotating accuracy θ
	5	10	15	20	
ø6	0.9	0.7	0.6	—	±0.15°
ø10	4.7	3.9	3.3	2.8	

Allowable lateral load

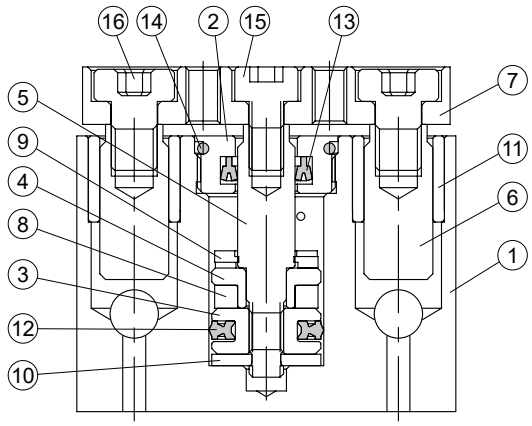


Allowable eccentric load



Standard Cylinder
Compact Cylinder
Mini Cylinder
Guide Cylinder
Table
Rotary Actuator
Clamp Cylinder
Rodless Cylinder
Stopper Cylinder

Inside structure & Parts list



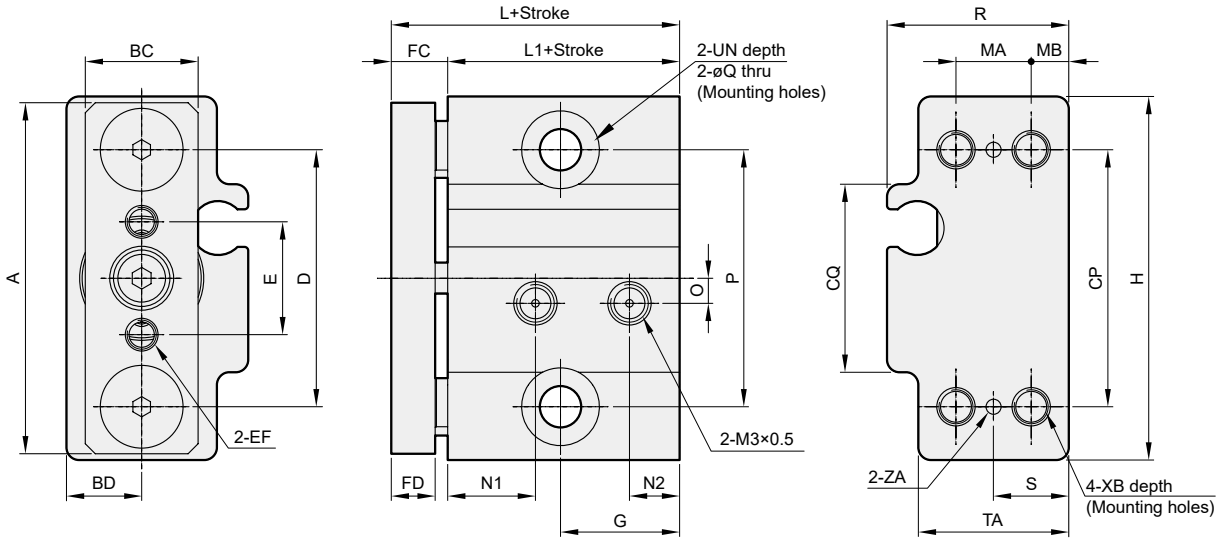
Material

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
ø6	**PS-MCGS-6**
ø10	**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

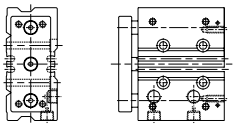
Code / Tube I.D.	O	P	Q	R	S	TA	UN	XB	ZA
6	2	20.5	3.3	14.5	6	12	ø6.2×0.5	M3×0.5×5	ø1.2
10	3	23	4.3	17	7.5	15	ø8×0.5	M4×0.7×5	ø2



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 perssure 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		

* For precautions .

Order example

MCGS — 03 — 20 — 50 — 20 — G

- MODEL
- TUBE I.D.
- STROKE
- ADJUST STROKE (for 07, 27 type)
- PORT THREAD
  Blank: M5×0.8 (for ø12, ø16)
  Blank: Rc thread
  G: G thread
  NPT: NPT thread (for ø20~ø63)

PURPOSE / TYPE OF BEARING

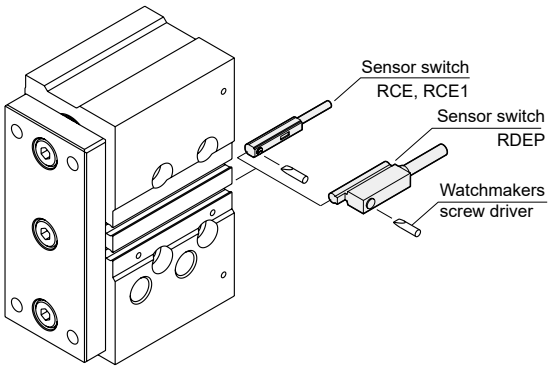
Code	Purpose / Type of bearing
03	Stop / Slide bush
07	Stop / Slide bush / Stroke adjustable
23	Push / Linear bearing (Could attach a table for the use as a lifter)
27	Push / Linear bearing / Stroke adjustable (Could attach a table for the use as a lifter)

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)	ø12	■	■		■	■	■	■	■	■	■	■	■	■			
	ø16	■	■		■	■	■	■	■	■	■	■	■	■			
	ø20		■		■	■	■	■	■	■	■	■	■	■	■	■	■
	ø25		■		■	■	■	■	■	■	■	■	■	■	■	■	■
	ø32*			■			■	■	■	■	■	■	■	■	■	■	■
	ø40			■			■	■	■	■	■	■	■	■	■	■	■
	ø50			■			■	■	■	■	■	■	■	■	■	■	■
	ø63			■			■	■	■	■	■						
MCGS-23 MCGS-27 (Linear bearing)	ø12	■	■		■	■	■	■	■	■	■	■	■	■			
	ø16	■	■		■	■	■	■	■	■	■	■	■	■			
	ø20		■		■	■	■	■	■	■	■	■	■	■	■	■	■
	ø25		■		■	■	■	■	■	■	■	■	■	■	■	■	■
	ø32*			■			■	■	■	■	■	■	■	■	■	■	■
	ø40			■			■	■	■	■	■	■	■	■	■	■	■
	ø50			■			■	■	■	■	■	■	■	■	■	■	■
	ø63			■			■	■	■	■	■						

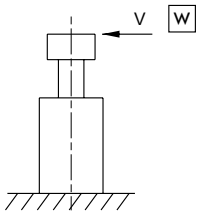
* Tube I.D. ø32: 25mm for the shortest standard stroke.
* Adjustable air cushion type, please contact us.

Installation of sensor switch



Capacity graph

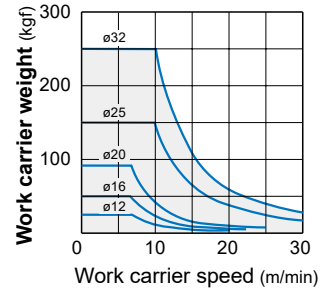
Capacity for the use as a stopper



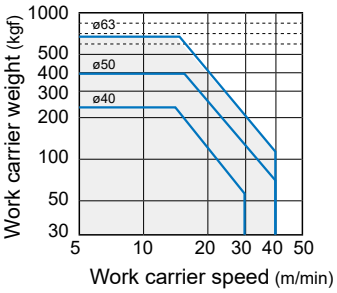
Linear bearing type is not available as a stopper.

Stop capacity

MCGS-03/07...30st ø12~ø32

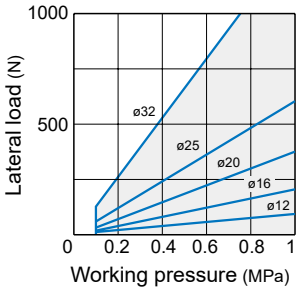


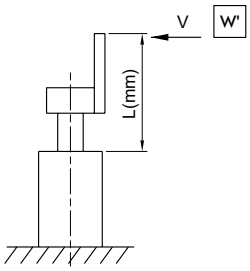
MCGS-03/07...25st ø40~ø63



Normal lateral load

MCGS-03/07...30st





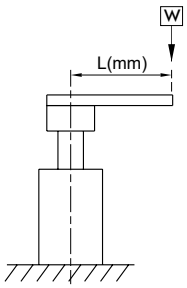
$$W = W' \times \frac{L}{\ell}$$

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.

Coefficients for conversion

Tube I.D.	ℓ
ø12	40
ø16	42
ø20	42
ø25	42
ø32	44
ø40	72
ø50	78
ø63	78



Capacity for the use as a lifter

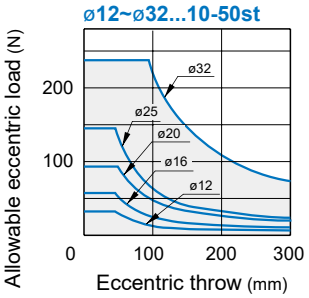
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5 MPa)

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

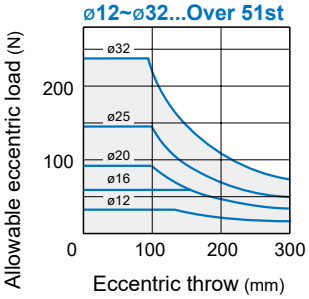
Slide bush

MCGS-03/07

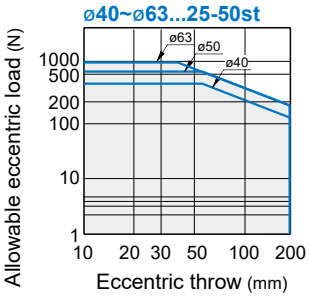
ø12~ø32...10-50st



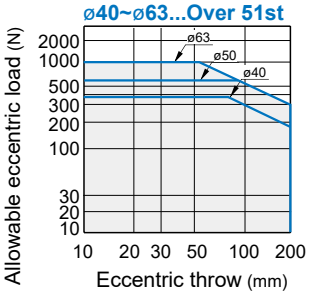
ø12~ø32...Over 51st



ø40~ø63...25-50st



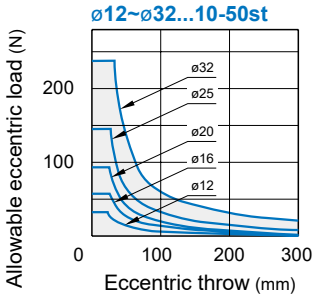
ø40~ø63...Over 51st



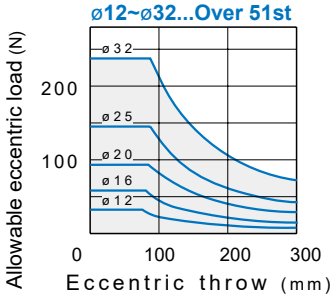
Linear bearing

MCGS-23/27

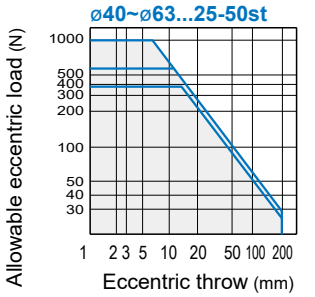
ø12~ø32...10-50st



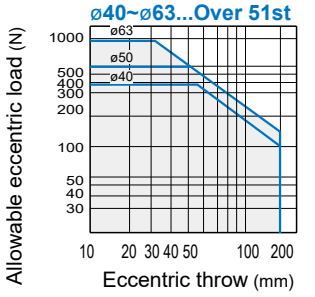
ø12~ø32...Over 51st



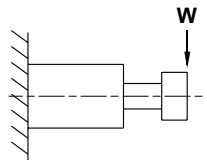
ø40~ø63...25-50st



ø40~ø63...Over 51st



Capacity table
Allowable lateral load

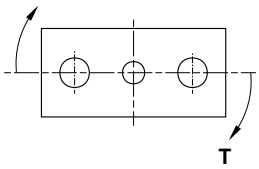


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

Unit: N

Tube I.D.	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	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

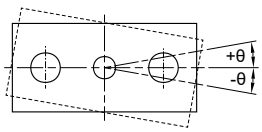


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

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	–	–	–	–	–	–

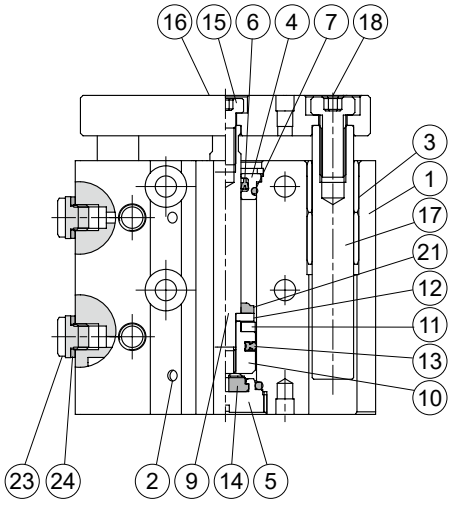
Anti-roll accuracy



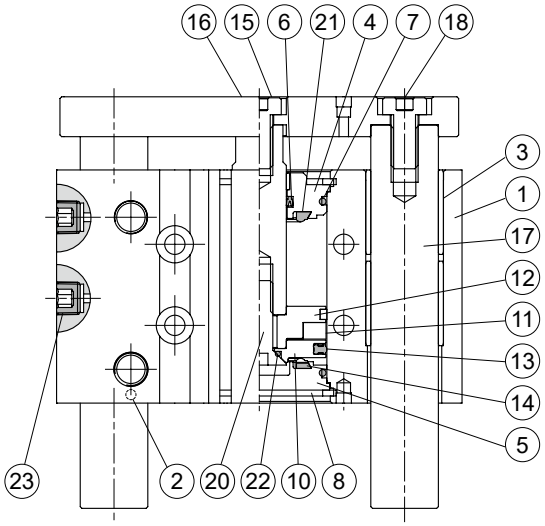
- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

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

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	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**

Weight

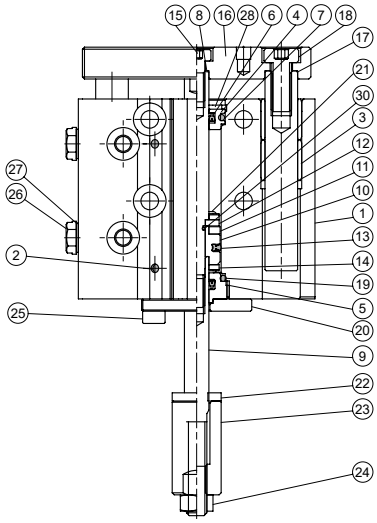
Unit: g

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

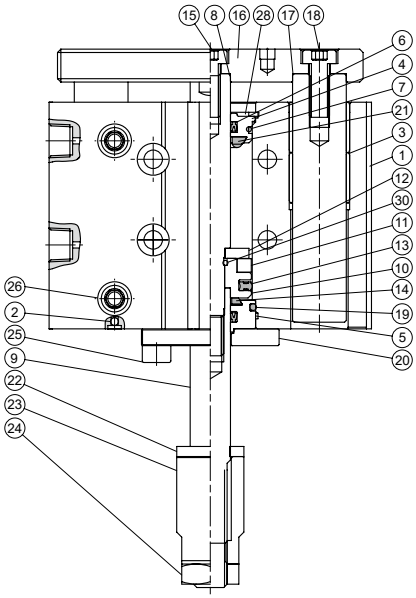
MCGS-07 Inside structure & Parts list

TWIN-GUIDE CYLINDER

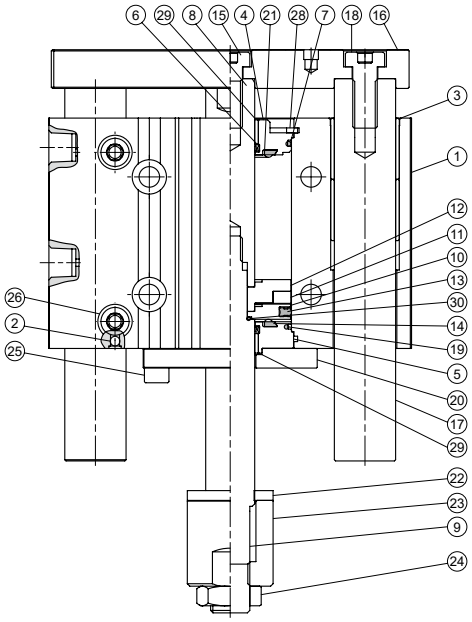
ø12~ø16



ø20~ø32



ø40~ø63



Material

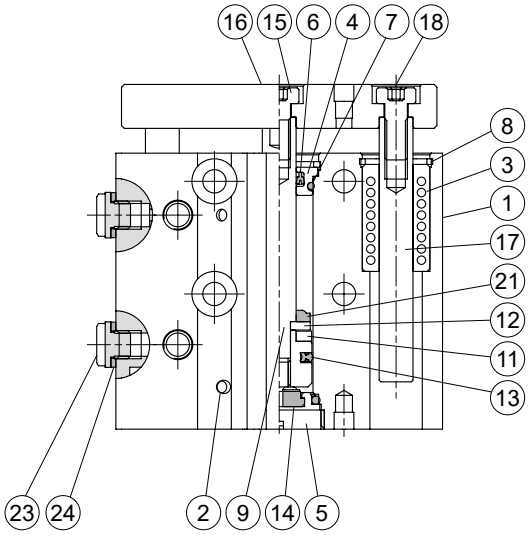
No.	Tube I.D. / Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1~3	
3	Slide bush	Bronze alloy						Bearing alloy		4	
4	Rod cover #1	Aluminum alloy								1	
5	Rod cover #2	Aluminum alloy								1	
6	Rod packing	NBR								2	●
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

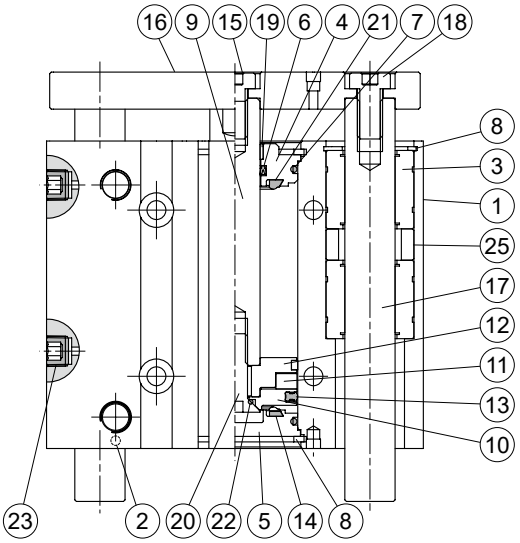
Tube I.D.	Repair kits
ø12	**PS-MCGS-2-12**
ø16	**PS-MCGS-2-16**
ø20	**PS-MCGS-2-20**
ø25	**PS-MCGS-2-25**
ø32	**PS-MCGS-2-32**
ø40	**PS-MCGS-2-40**
ø50	**PS-MCGS-2-50**
ø63	**PS-MCGS-2-63**

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

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**

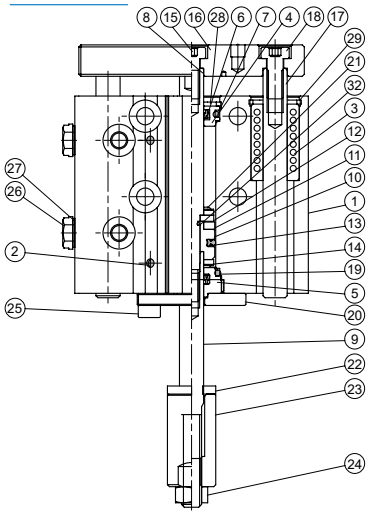
Weight

Unit: g

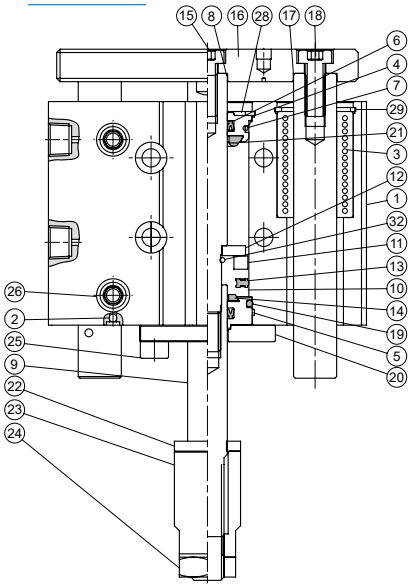
Model	Basic weight **MCGS-23**	Stroke 5mm **MCGS-23**
Tube I.D.		
ø12	211	18
ø16	260	30
ø20	470	45
ø25	740	60
ø32	1,170	85
ø40	1,300	98
ø50	2,360	150
ø63	3,010	168

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

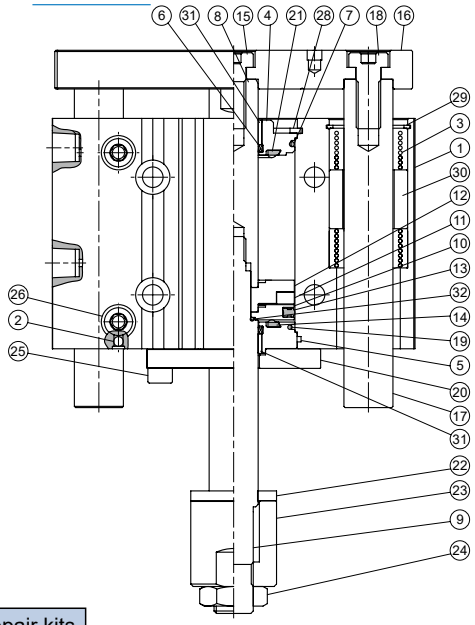
ø12~ø16



ø20~ø32



ø40~ø63



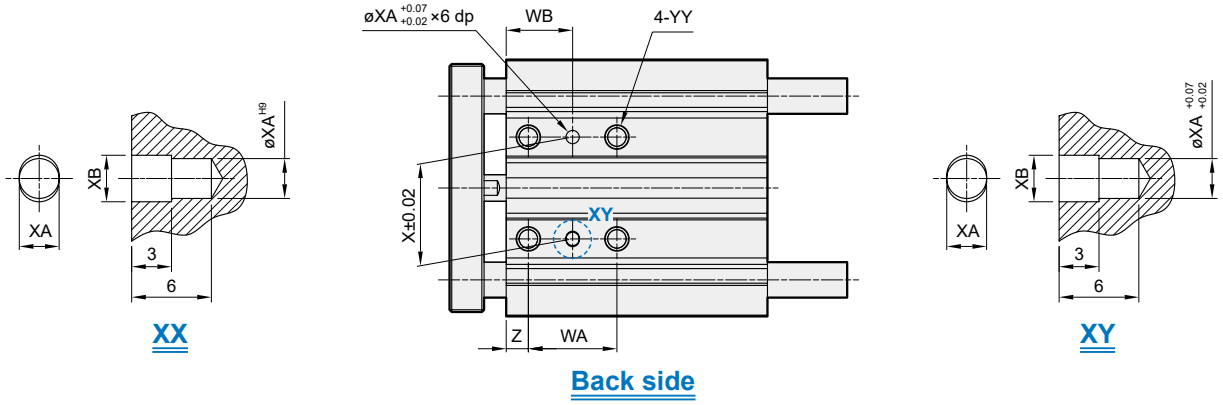
Material

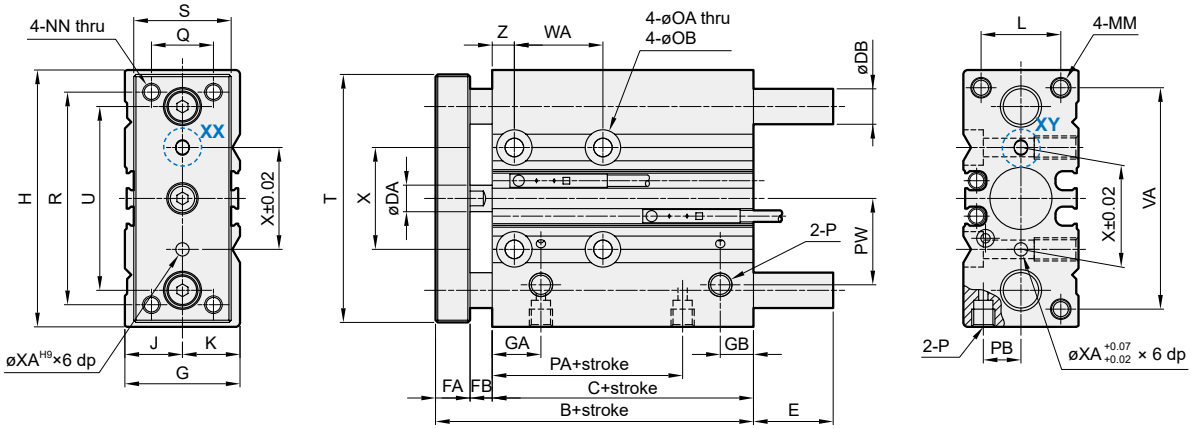
No.	Tube I.D. / Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1~3	
3	Linear bearing	—								2 or 4	
4	Rod cover #1	Aluminum alloy								1	
5	Rod cover #2	Aluminum alloy								1	
6	Rod packing	NBR								2	●
7	Cover ring #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)





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	201st~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

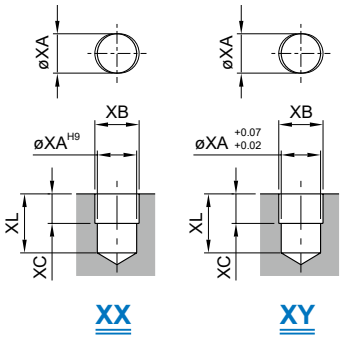
*1. When stroke length is equal to 19mm or less, GB=7.5 mm
*2. When stroke length is equal to 19mm or less, GB=9 mm

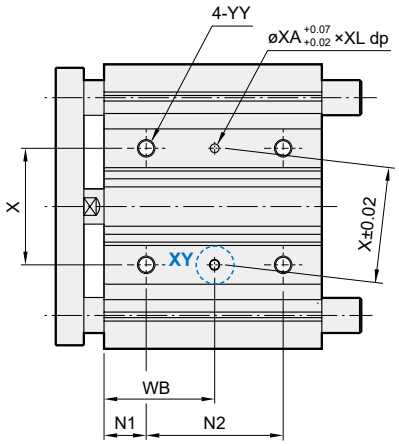
MCGS-03

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

MCGS-23

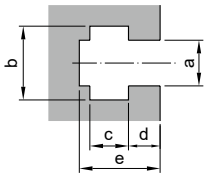
Code / Tube I.D.	E			
	10~30st	31~100st	101st~	
12	1	13	43	
16	3	19	49	
	20~30st	31~100st	101~200st	201st~
20	10	27	51	69
25	16	32	51	68.5
32	21.5	38.5	58.5	80.5





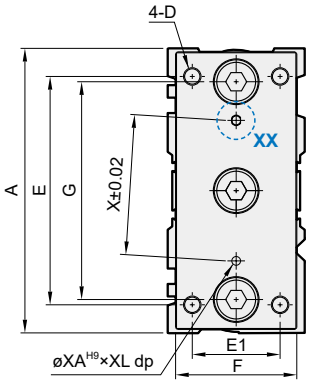
Back side

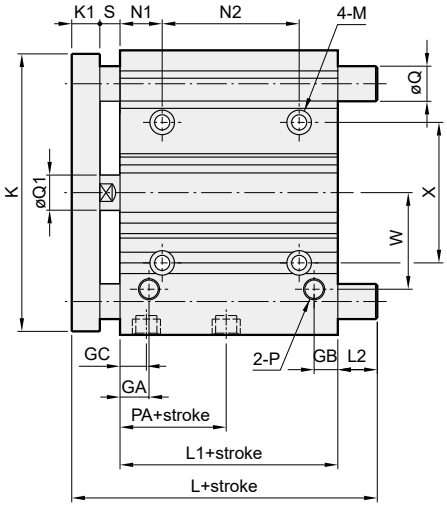
T slot for hexagon head bolt

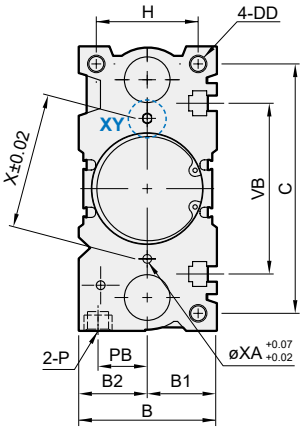


T slot for hexagon head bolt

Code / Tube I.D.	a	b	c	d	e
40	6.5	10.5	5.5	4	11
50	8.5	13.5	7.5	4.5	13.5
63	11	17.8	10	7	18.5







MCGS-03 / MCGS-23

Code / Tube I.D.	A	B	B1	B2	C	D	DD	E	E1	F	G	GA	GB	GC	H	K	K1	L1	M	N1	P
40	120	54	27	27	106	M8×1.25	M8×1.25×20 dp	104	30	44	86	14	10	14	40	118	12	44	ø6.8thru, ø11×7.5dp	22	Rc1/8
50	148	64	32	32	130	M10×1.5	M10×1.5×22 dp	130	40	60	110	14	11	12	46	146	16	44	ø8.6thru, ø14×9dp	24	Rc1/4
63	162	78	39	39	142	M10×1.5	M10×1.5×22 dp	130	50	70	124	16.5	13.5	16.5	58	158	16	49	ø8.6thru, ø14×9dp	24	Rc1/4

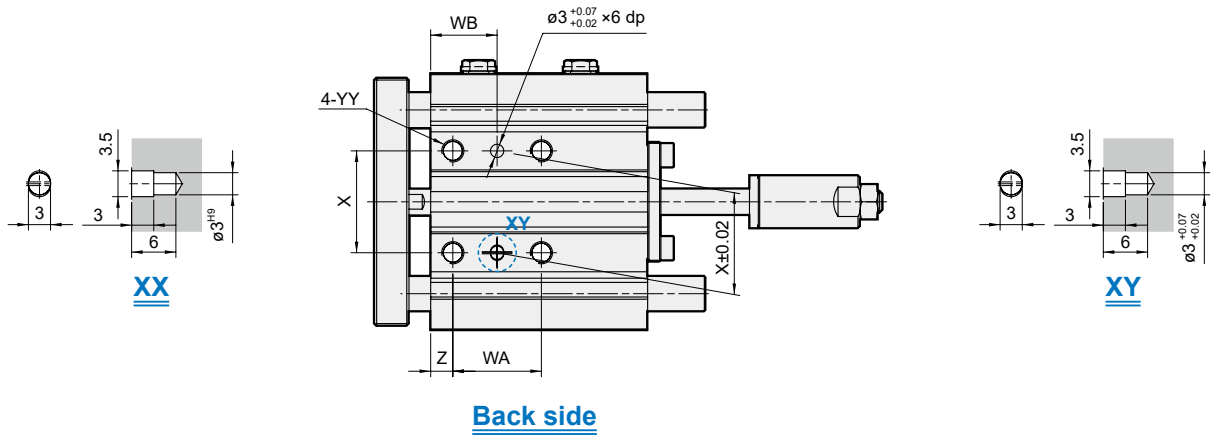
Code / Tube I.D.	PA	PB	Q1	S	VB	W	X	XA	XB	XC	XL	YY	N2					WB				
													25st	50,75,100st	101st~200st	201~300st	301~400st	25st	50,75,100st	101st~200st	201~300st	301~400st
40	13	18	16	10	72	38	50	ø4	4.5	3	6	M8×1.25×16 dp	24	48	124	200	300	34	46	84	122	172
50	9	21.5	20	12	92	47	66	ø5	6	4	8	M10×1.5×20 dp	24	48	124	200	300	36	48	86	124	174
63	14	28	20	12	110	55	80	ø5	6	4	8	M10×1.5×20 dp	28	52	128	–	–	38	50	88	–	–

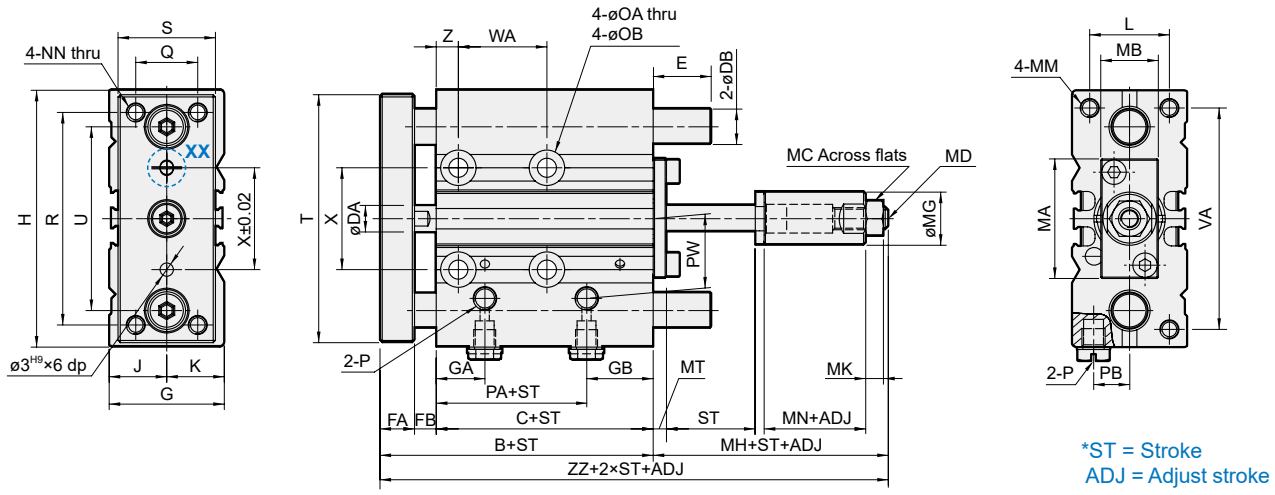
MCGS-03

Code / Tube I.D.	L		L2			Q
	25,50st	51st~	25,50st	51~200st	201~400st	
40	97	102	31	36	63.5	ø20
50	106.5	118	34.5	46	78.5	ø25
63	106.5	118	29.5	41	–	ø25

MCGS-23

Code / Tube I.D.	L			L2				Q
	25,50st	75,100st	101st~	25,50st	75,100st	101~200st	201~400st	
40	81	98	118	15	32	52	72.5	ø16
50	93	114	134	21	42	62	87.5	ø20
63	93	114	134	16	37	57	–	ø20





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

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	
	~39st	40~100st	125~200st	201st~300st		~39st	40~100st	125~200st	201st~300st	
16	24	44	110	200		17	27	60	105	
	~39st	40~100st	125~200st	201st~300st	301st~	~39st	40~100st	125~200st	201st~300st	301st~
20	24	44	120	200	300	29	39	77	117	167

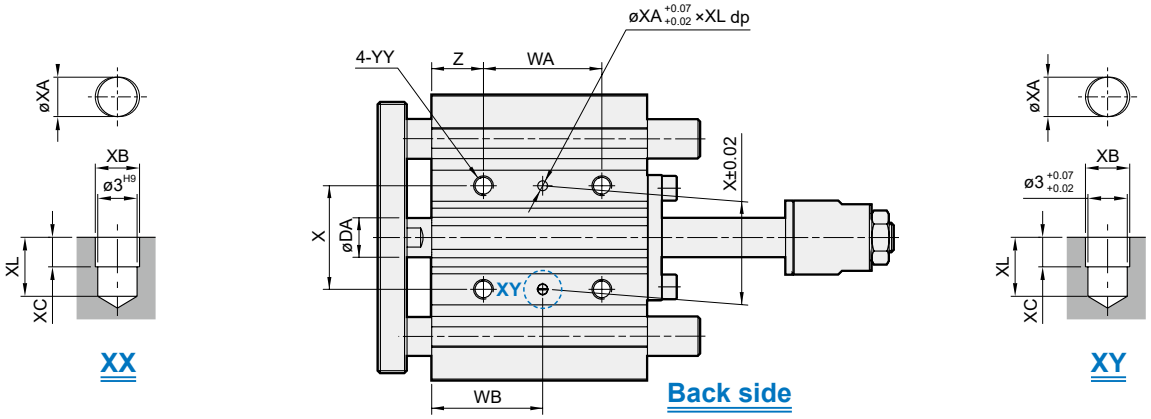
MCGS-07

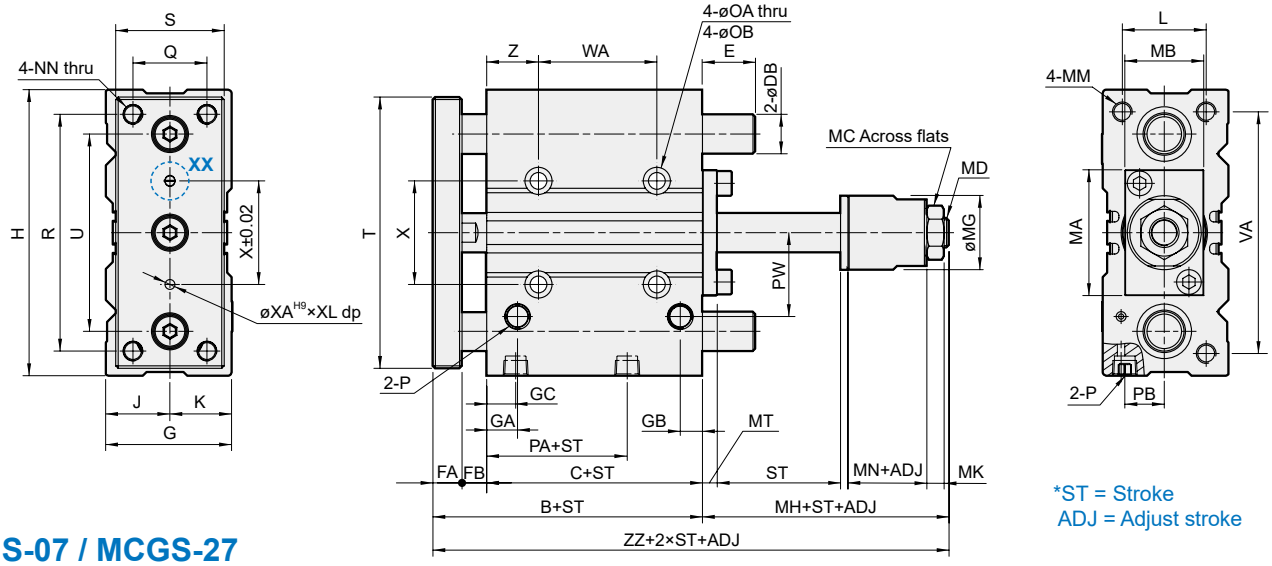
Code / Tube I.D.	E		
	~50st	51~100st	101st~
12	0	18.5	43
	10~50st	51~100st	101st~
16	0	18.5	49
	~50st	51~200st	201st~
20	0	31.5	69

MCGS-27

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





*ST = Stroke
ADJ = Adjust stroke

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	301st~	~49st	50~69st	70~100st	125~200st	201st~300st	301st~
	24	48	48	124	200	300	34	46	46	84	122	172
50	~49st	50~69st	70~100st	125~200st	201st~300st	301st~	~49st	50~69st	70~100st	125~200st	201st~300st	301st~
	24	48	48	124	200	300	36	48	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
32	20~50st	51~100st	101~200st	201st~
	21.5	38.5	58.5	80.5
40	~69st	70~100st	101~200st	201st~
	15	32	52	72.5
50	21	42	62	87.5
63	~69st	70~100st	101st~	
	16	37	57	

MCGB series

TWIN-GUIDE CYLINDER

Applications

Technical data

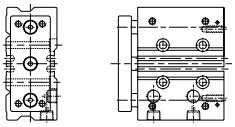
Caution for safety
(Read beforeinstalling)



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 perssure 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

MCGB — 03 — 20 — 50 — G

MODEL | PURPOSE / TYPE OF BEARING | TUBE I.D. | STROKE | PORT THREAD

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)

Installation of sensor switch

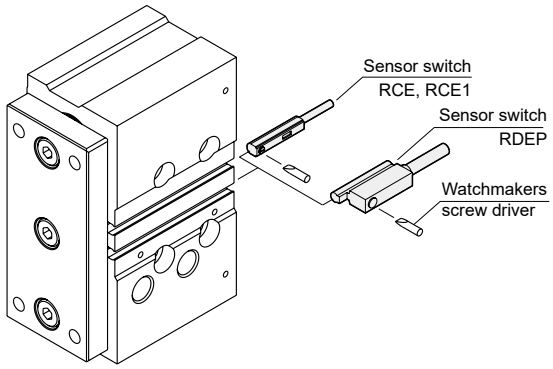


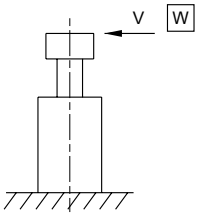
Table for standard stroke

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

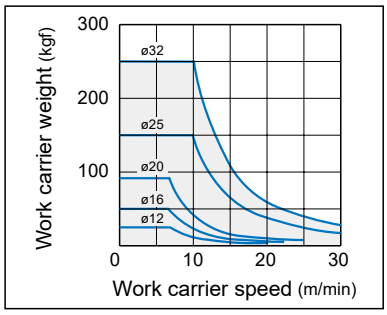
Capacity for the use as a stopper



Linear bearing type is not available as a stopper.

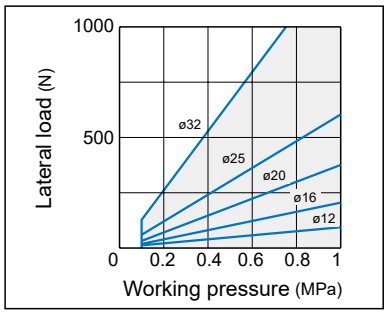
Stop capacity

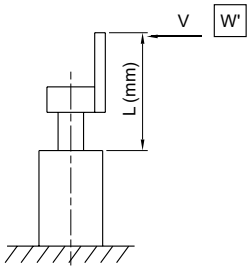
MCGB-03...30st



Stop capacity

MCGB-03...30st





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

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

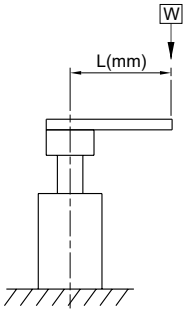
Coefficients for conversion

MCGB series	ø12	ø16	ø20	ø25	ø32
ℓ	40	42	42	42	44

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

Capacity for the use as a lifter

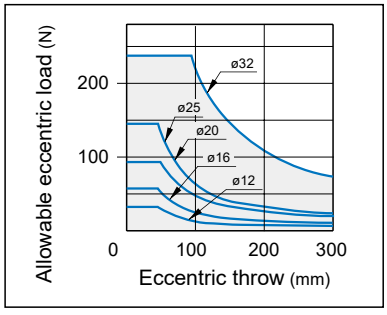
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5 MPa)



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

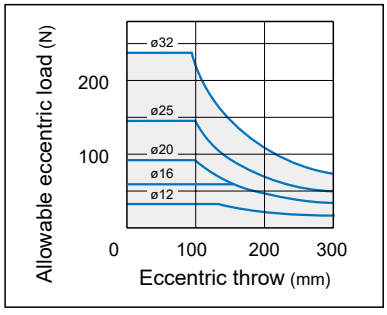
Slide bush

MCGB-03...10-50st



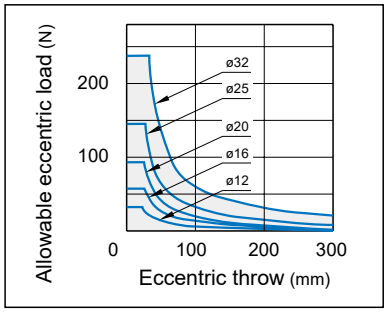
Slide bush

MCGB-03...75-200st



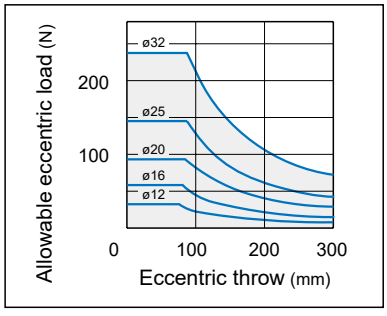
Linear bearing

MCGB-23...10-50st



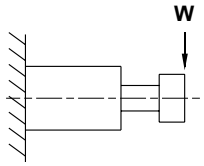
Linear bearing

MCGB-23...75-200st



Capacity table

Allowable lateral load

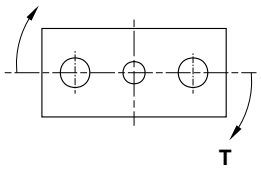


Shows the dynamic allowable value, when actuating the cylinder with lateral load **W** at the guide rods' top (vertical load against the guide rods).

Unit: N

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

Allowable rotating torque

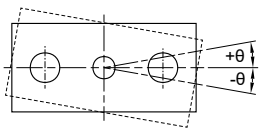


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

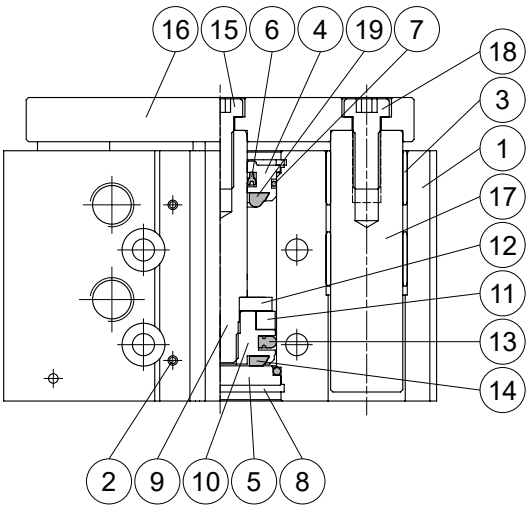
Tube I.D.	Bearing type	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
ø12	Slide bush	0.64	0.48	–	0.39	0.32	0.28	0.75	0.63	–	–	–	–
	Linear bearing	0.47	0.35	–	0.29	0.71	0.62	0.40	0.38	–	–	–	–
ø16	Slide bush	1.14	0.90	–	0.74	0.63	0.55	1.23	1.04	–	–	–	–
	Linear bearing	0.84	0.66	–	0.54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

Anti-roll accuracy



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

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



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

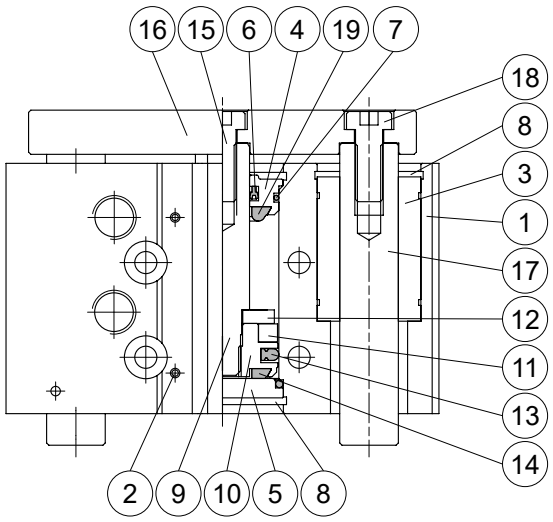
Order example of Repair kits

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**

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

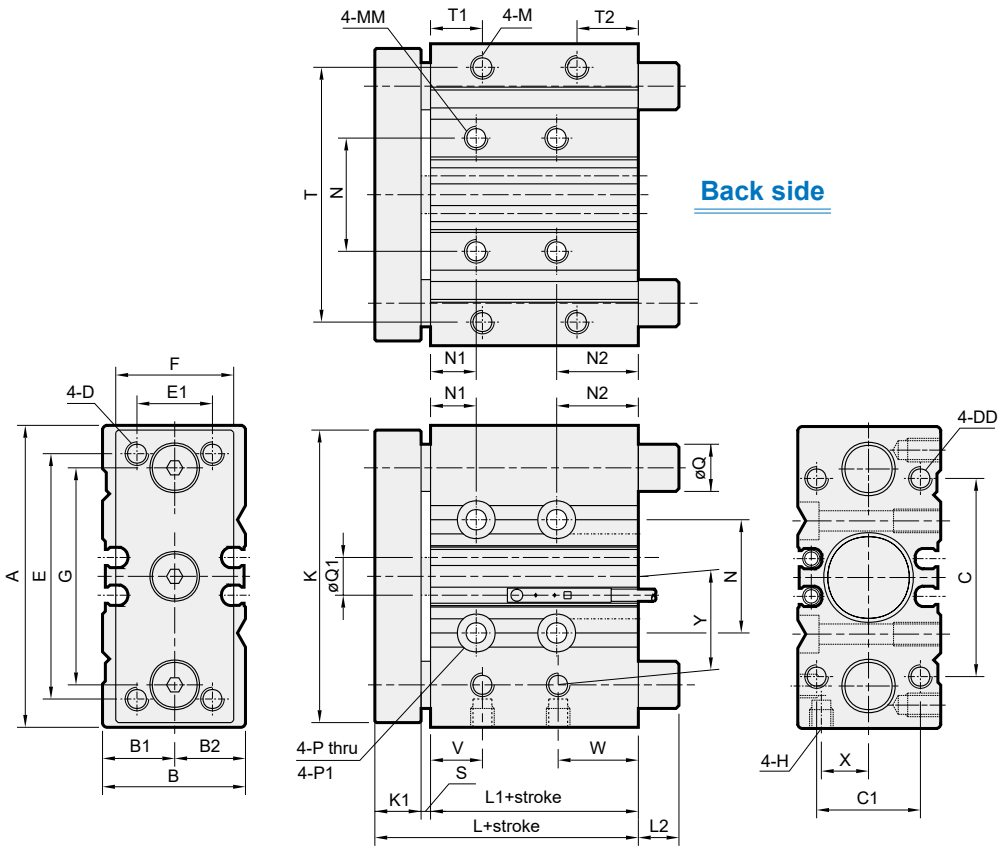
Order example of Repair kits

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**

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	ø4.3	ø8×4.5 dp	8	6	6	2	50	12	12	11	15	8.5	19.5
16	24	5	22	ø4.3	ø8×4.5 dp	10	8	8	4	54	11	13	11	17	10	23
20	28	19	16	ø5.3	ø9.5×5.5 dp	12	10	10	2	64	11	14	12	23	11.5	24.5
25	34	22	12.5	ø5.3	ø9.5×5.5 dp	16	13	12	2	76	12	13.5	11	23.5	13.5	24
32	42	22	14.5	ø6.6	ø11×6.5 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	20	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

MCGI series

COMPACT **TWIN-GUIDE CYLINDER**

Special spec

Applications

Technical data

Caution for safety
(Read beforeinstalling)



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 perssure 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.

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

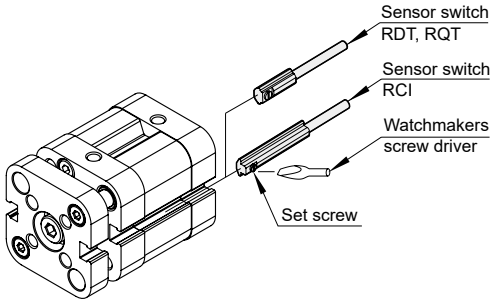
MODEL | PURPOSE / TYPE OF BEARING | TUBE I.D. | STROKE

Code	Purpose / Type of bearing
12	Lift / Slide bush

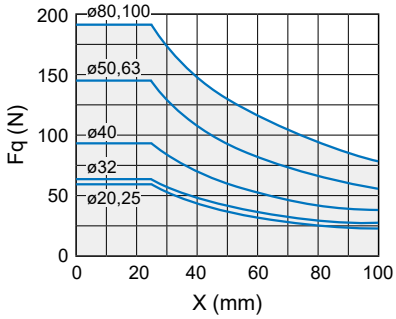
Order example of mounting accessories

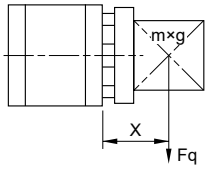
Code	FBC		
Mounting / Tube I.D.			
ø20	**FAC-J2-20**	ø50	**FAC-J2-50**
ø25	**FAC-J2-25**	ø63	**FAC-J2-63**
ø32	**FAC-J2-32**	ø80	**FAC-J2-80**
ø40	**FAC-J2-40**	ø100	**FAC-J2-100**

Installation of sensor switch

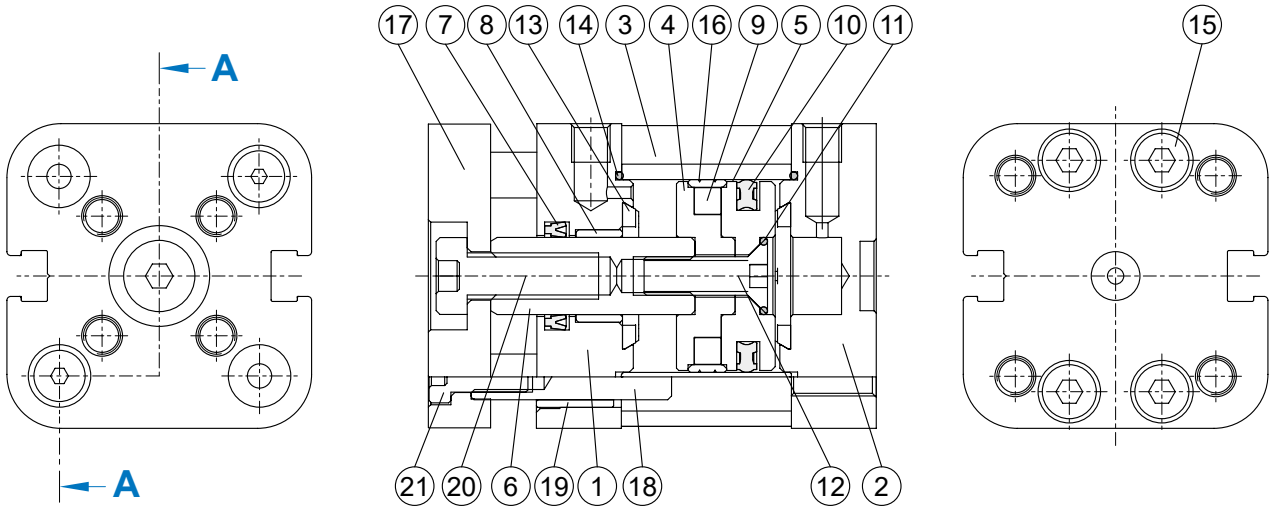


Maximum lateral force (Fq) and Extension length (X) Relationship





Cylinder is at retract state



A-A

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 ø20,ø25: Stainless steel; ø32~ø100: Medium carbon steel

Order example of component parts / repair kits

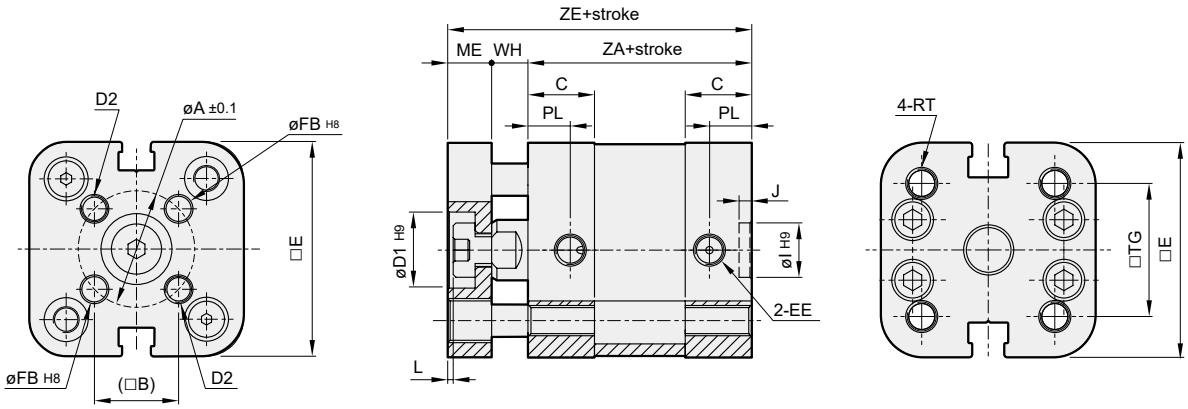
Tube I.D.	Component parts	Repair kits
ø20	**CP-MCGI-20**	**PS-MCJI-20**
ø25	**CP-MCGI-25**	**PS-MCJI-25**
ø32	**CP-MCGI-32**	**PS-MCJI-32**
ø40	**CP-MCGI-40**	**PS-MCJI-40**
ø50	**CP-MCGI-50**	**PS-MCJI-50**
ø63	**CP-MCGI-63**	**PS-MCJI-63**
ø80	**CP-MCGI-80**	**PS-MCJI-80**
ø100	**CP-MCGI-100**	**PS-MCJI-100**

*Use the same repair kits with **MCJI**.

Weight

Unit: g

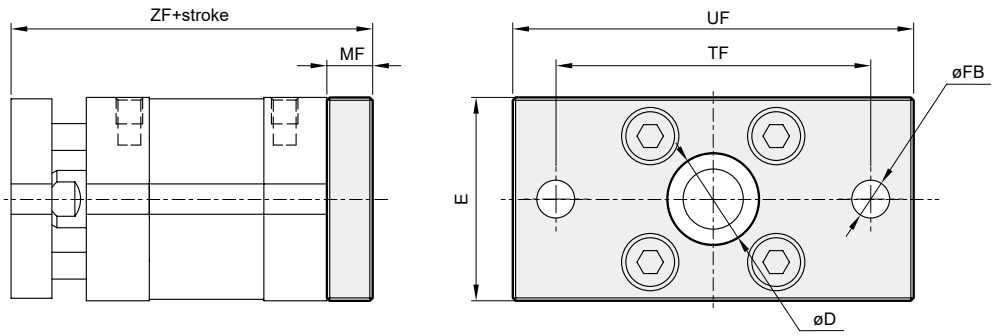
Model	Basic weight **MCGI-12**	Stroke 5mm **MCGI-12**
Tube I.D.		
ø20	146	18
ø25	172	22
ø32	280	28
ø40	378	40
ø50	614	58
ø63	871	60
ø80	1,564	94
ø100	2,595	100



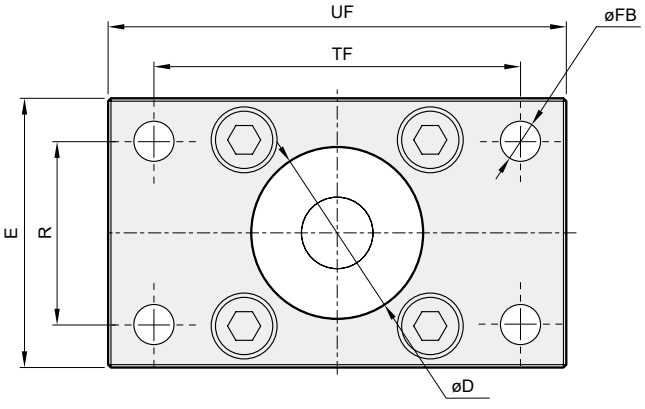
Code / Tube I.D.	A	B	C	D1	D2	E	EE	FB	I	J	L	ME	PL	RT	TG	WH	ZA	ZE
20	17	12	11	11	M4×0.7	35.5	M5×0.8	4	9	2.1	1	8	7	M5×0.8	22	6	37	51
25	22	15.6	11	14	M5×0.8	39.5	M5×0.8	5	9	2.1	1	8	7	M5×0.8	26	6	39	53
32	28	19.8	14	17	M5×0.8	47	G1/8	5	9	2.1	1.5	10	7.5	M6×1.0	32.5	7	44	61
40	33	23.3	14	17	M5×0.8	54.5	G1/8	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

ø20, ø25



ø32~ø100



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

MCGM series

COMPACT **TWIN-GUIDE CYLINDER**

Function

Technical data

Caution for safety
(Read before installing)



Features

- Higher loading capacity compared to unguided standard compact cylinders.
- Up to 6 flush fitting reed switches can be mounted.

Specification

Model		MCGM									
Acting type		Double acting									
Tube I.D. (mm)		12	16	20	25	32	40	50	63	80	100
Port size		M5×0.8				Rc1/8 *1		Rc1/4		Rc3/8	
Medium		Air									
Operating perssure range (MPa)		0.12~1		0.1~1							
Proof pressure		1.5 MPa									
Ambient temperature		-5°C~+60°C (No freezing)									
Cushion		With rubber cusion pad									
Available speed range		50~500 mm/sec						50~300 mm/sec			
Lubricator		Not required									
Sensor switch (*2)	RCE,RCE1	●	●	●	●	●	●	●	●	●	●
	RDEP	●	●	–	●	–	●	●	●	●	●

*1. ø32 without magnet with storke = 5mm, port size is M5×0.8.
*2. RCE, RCE1, RDEP specification.

Order example

MCGM — 12 — 12 — 50M — □

- MCGM: MODEL
- 12: PURPOSE / TYPE OF BEARING
- 12: TUBE I.D.
- 50: STROKE
- M: Magnet
- □: PORT THREAD

Code	Purpose / Type of bearing
12	Lift / Slide bush

PORT THREAD
Blank: M5×0.8
(for ø12~ø25)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø32~ø100)

Flat washer kits

WS — MCGM — 12

- WS: FLAT WASHER
- MCGM: MODEL
- 12: TUBE I.D.

Table for stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm) — Max. stroke											
		5	10	15	20	25	30	35	40	45	50	75	100
MCGM (Slide bush)	ø12												
	ø16												
	ø20												
	ø25												
	ø32												
	ø40												
	ø50												
	ø63												
	ø80												
	ø100												

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

Weight

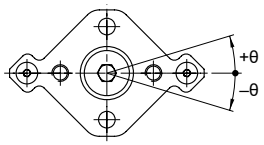
Unit: g

Model		Basic weight **MCGM-12**	Basic weight (magnet) **MCGM-12**	Stroke 5 mm **MCGM-12**
Tube I.D.	Stroke range (mm)			
ø12	5~30	36	45	9
ø16	5~30	46	55	10
ø20	5~50	81	108	15
ø25	5~50	116	164	18
ø32	5~50	166	227	24
	51~100	214	227	24
ø40	5~50	259	341	26
	51~100	324	341	26
ø50	10~50	454	548	39
	51~100	523	548	39
ø63	10~50	675	851	50
	51~100	823	851	50
ø80	10~50	1309	1517	77
	51~100	1477	1517	77
ø100	10~50	2295	2652	102
	51~100	2598	2652	102

Capacity table

Non-rotating accuracy

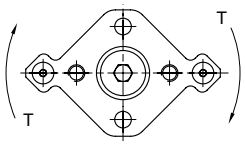
Non-rotating accuracy without load is same or less than the figures shown in below at the retracted cylinder plate.



Tube I.D.	Non-rotating accuracy
ø12,16	±0.2°
ø20~100	±0.1°

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

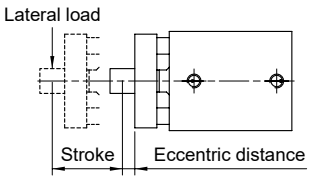
Tube I.D.	Stroke (mm)					
	5	10	15	20	25	30
ø12	0.11	0.10	0.08	0.07	0.07	0.06
ø16	0.15	0.12	0.11	0.10	0.09	0.08
ø20	0.37	0.32	0.28	0.25	0.23	0.21
ø25	0.40	0.35	0.31	0.28	0.25	0.23
ø32	0.66	0.59	0.53	0.49	0.45	0.42
ø40	1.06	0.96	0.88	0.81	0.75	0.70
ø50	–	1.70	1.56	1.45	1.35	1.26
ø63	–	3.90	3.62	3.37	3.15	2.96
ø80	–	7.44	6.98	6.56	6.20	5.87
ø100	–	11.85	11.19	10.61	10.08	9.60

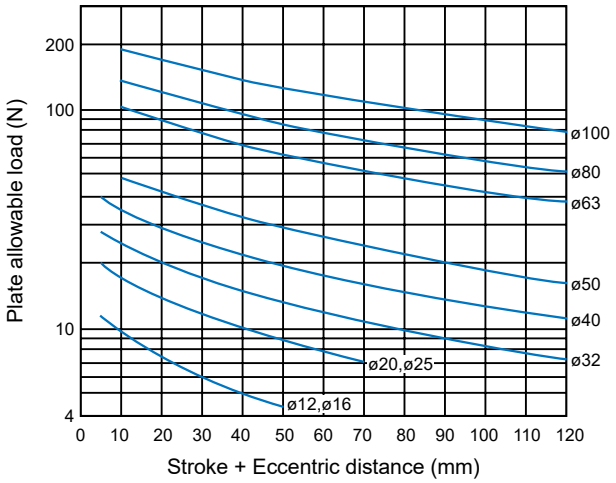
Tube I.D.	Stroke (mm)					
	35	40	45	50	75	100
ø20	0.19	0.18	0.17	0.16	–	–
ø25	0.21	0.20	0.18	0.17	–	–
ø32	0.39	0.36	0.34	0.32	0.25	0.20
ø40	0.65	0.61	0.58	0.55	0.43	0.36
ø50	1.19	1.12	1.06	1.01	0.80	0.67
ø63	2.80	2.65	2.51	2.39	1.92	1.61
ø80	5.57	5.31	5.07	4.84	3.98	3.37
ø100	9.17	8.77	8.41	8.07	6.73	5.77

Capacity graph

Allowable lateral load

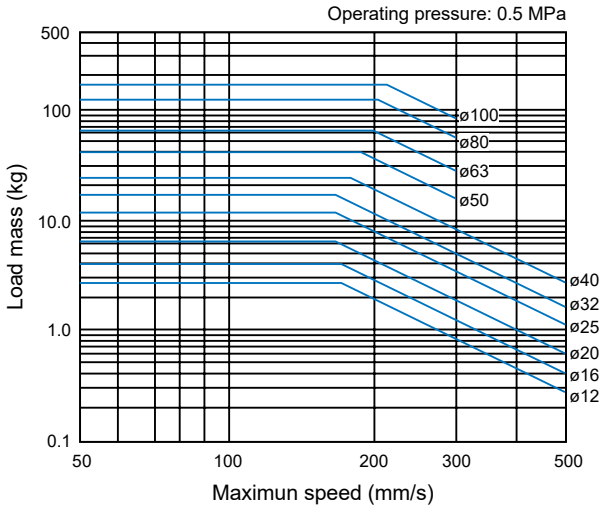
Make sure to operate within the allowable lateral load to the plate.
Operation outside of the limits may result in shorter product life and damage.



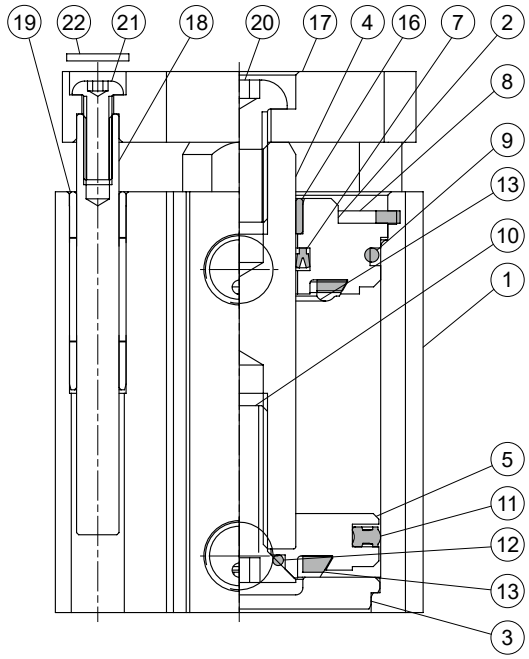


Allowable kinetic energy

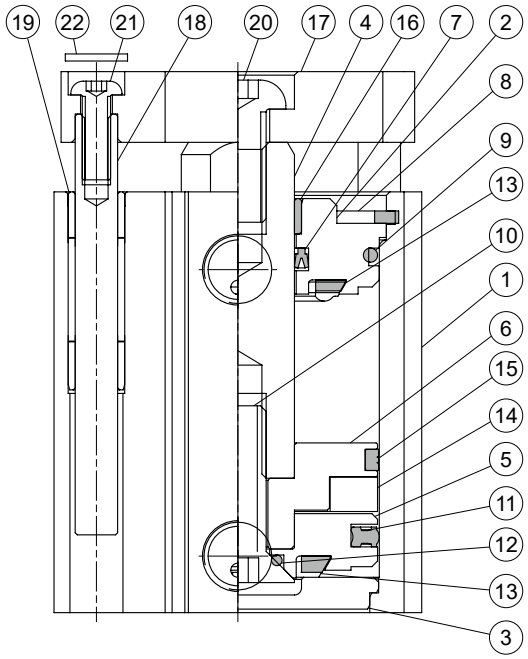
Make sure to operate within the allowable load mass and maximum speed.
Operation outside of the limits may cause excessive impact, which may result in the damage to the product.



Without magnet



With magnet



Material

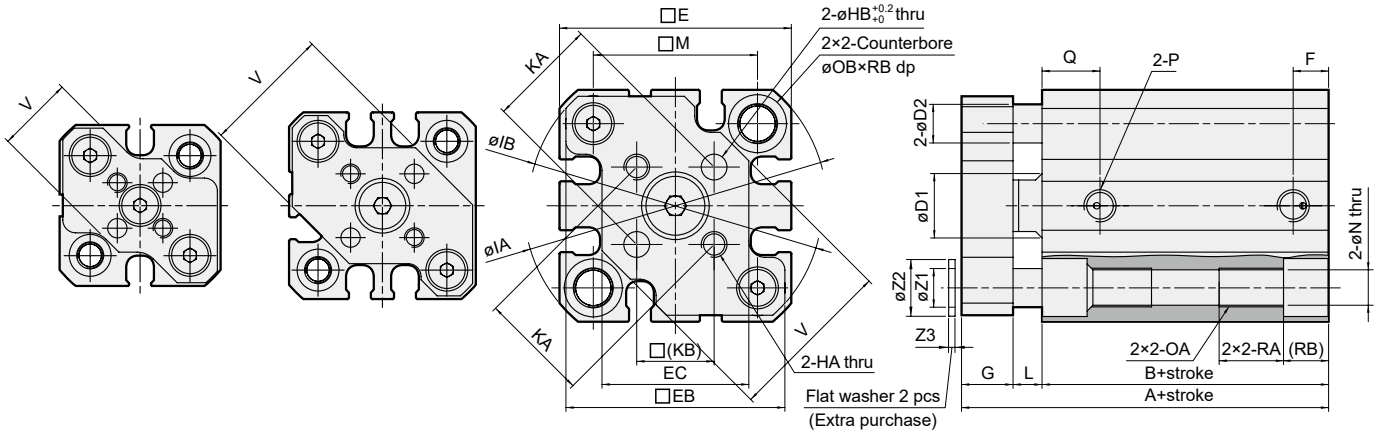
No.	Part name \ Tube I.D.	12	16	20	25	32	40	50	63	80	100	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy										1	
2	Rod cover	Aluminum alloy										1	
3	End cover	Aluminum alloy										1	
4	Piston rod (With magnet)	Stainless steel				Carbon steel						1	
	Piston rod (Without magnet)	*1	Carbon steel									1	
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

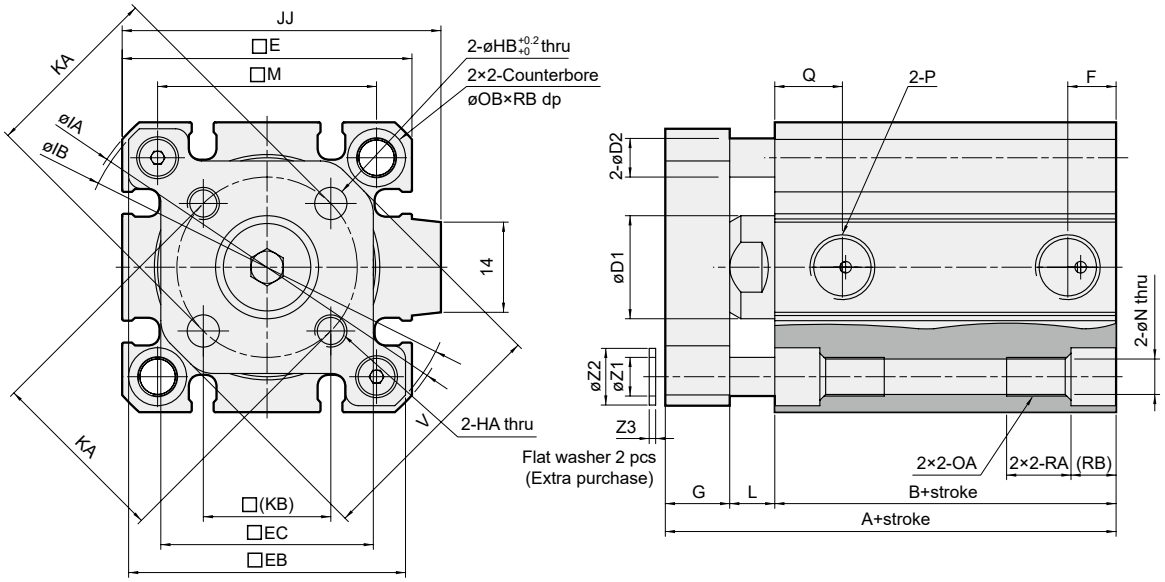
Order example of Repair kits

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**

ø12 ø16 ø20, ø25



ø32

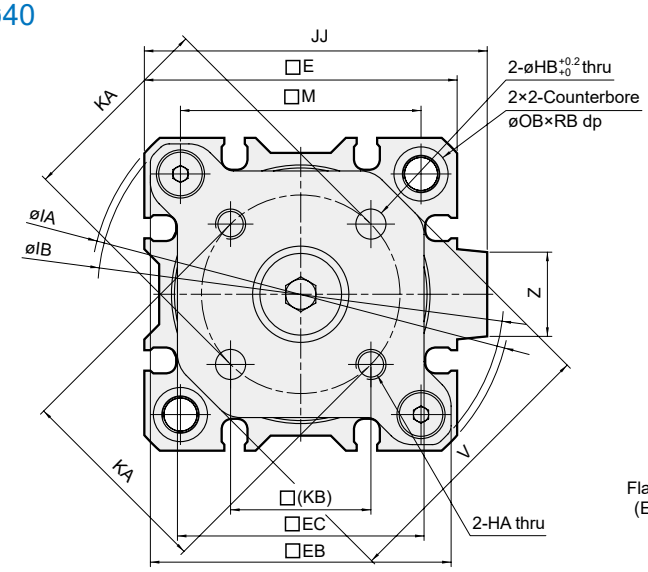


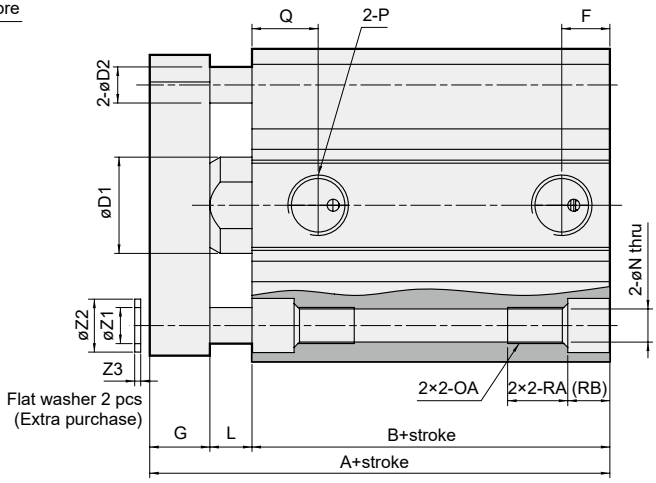
Code / Tube I.D.	Stroke range	Without magnet			Magnet			D1	D2	E	EB	EC	G	HA	HB	IA	IB	JJ	KA	KB	L	M	N	OA	OB
		A	B	F	A	B	F																		
12	5~30	26.5	17	5	31.5	22	5	6	5	25	24	–	6	M3×0.5	3	32	31.5	–	10±0.1	7.1	3.5	15.5	3.5	M4×0.7	6.5
16	5~30	26.5	17	5	31.5	22	5	8	5	29	28	–	6	M3×0.5	3	38	37	–	14±0.1	9.9	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

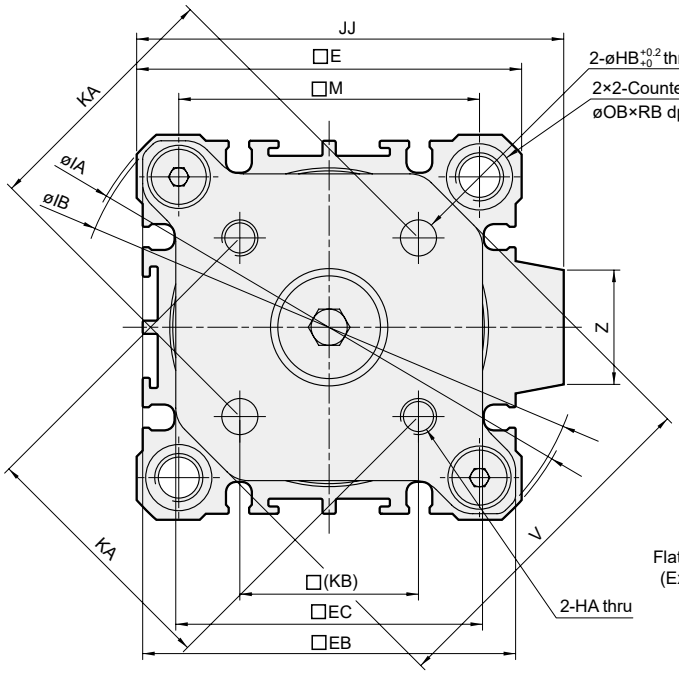
*1. Without magnet with stroke=5mm, P=M5×0.8, Q=11.5, F=5.5

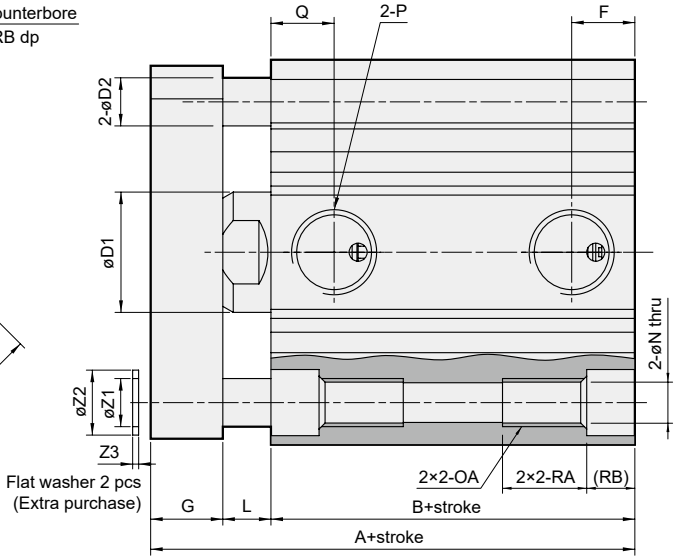
ø40





ø50~ø100





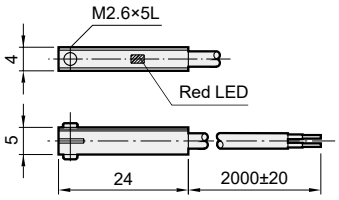
Code / Tube I.D.	Stroke range	Without magnet		Magnet		F	L	Q
		A	B	A	B			
40	5~50	46.5	29.5	56.5	39.5	8	7	11
	51~100	56.5	39.5					
50	10~50	50.5	30.5	60.5	40.5	10.5	8	10.5
	51~100	60.5	40.5					
63	10~50	56	36	66	46	10.5	8	15
	51~100	66	46					
80	10~50	67.5	43.5	77.5	53.5	12.5	10	16
	51~100	77.5	53.5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

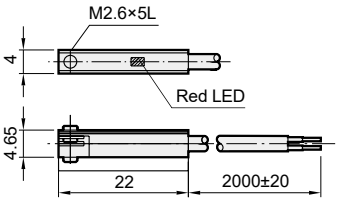
Code / Tube I.D.	M	N	OA	OB	P	RA	RB	V	Z	Z1	Z2	Z3
40	40	5.5	M6×1.0	9	Rc1/8	10	7	46	14	6.2	8.8	1
50	50	6.6	M8×1.25	11	Rc1/4	14	8	58	19	8.2	10.8	1
63	60	9	M10×1.5	14	Rc1/4	18	10.5	69	19	10.2	13.8	1
80	77	11	M12×1.75	17.5	Rc3/8	22	13.5	89	26	12.2	17.3	2
100	94	11	M12×1.75	17.5	Rc3/8	22	13.5	113	26	12.2	17.3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

Dimensions

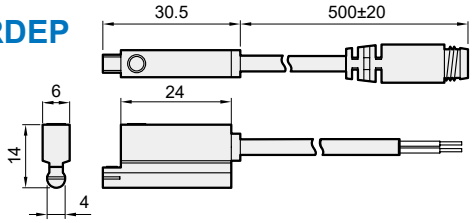
RCE



RCE1 RNE

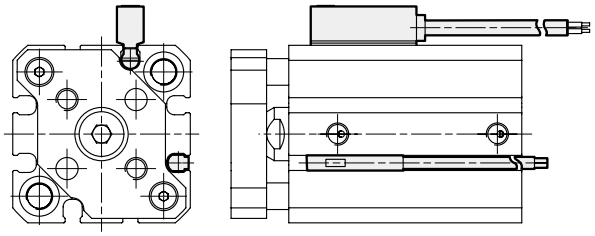


RDEP

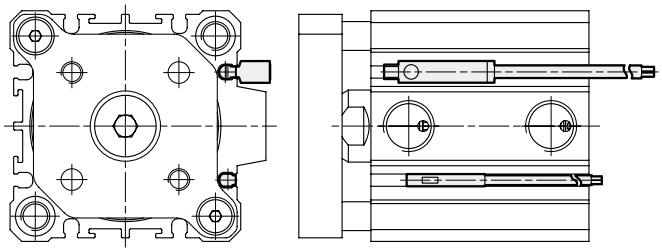


Installation of sensor switch

ø12~ø40



ø50~ø100



Order example

RCE1 — □

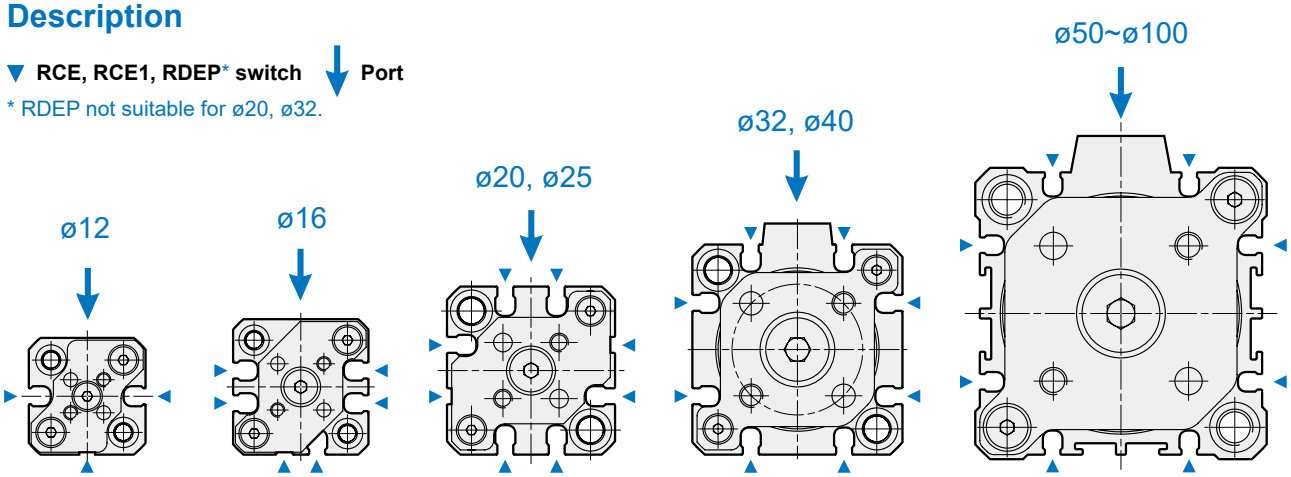
MODEL
RCE / RCE1 (**C**: Reed switch)
RNE (**N**: Solid state switch)
RDEP (Solid state switch)

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 ø20, ø32.



MGT* series

TWIN-GUIDE CYLINDER

Special spec

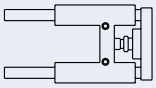
Technical data

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

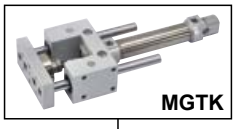
MGTB — 40 — 100 — RP

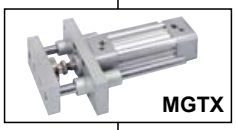
MODEL

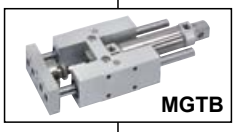
TUBE I.D.

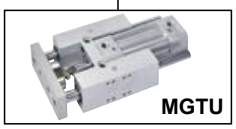
STROKE

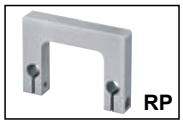
REAR FLANGE COUPLING











RP: With rear flange coupling

Features

- The guide rod 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.
- ø32~ø63 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
Medium		Air					
Operating pressure range		0.2~0.7 MPa					
Ambient temperature		-5~+60°C (No freezing)					
Lubrication	Cylinder	Not required					
	Guide (*1)	Lubricating grease					
Available speed range		50~750		50~500 mm/sec			
Sensor switch		RDC, RQC RDT, RQT RCM		RDT, RQT RCI			
Sensor switch holder	R*C	BKC-1 (*2)		–			
	R*T	BKT-1		–			
	RCM	BM20	BM25	–			

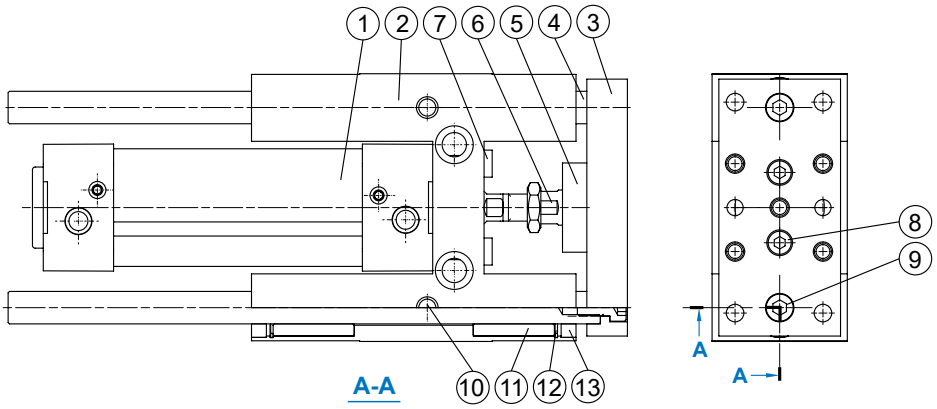
*1. Periodically refill with the lubricating grease is required to enhance the lubricative grade and lifetime.
Inject an appropriate amount of lubricating grease and the cylinder moves back and forth several times to confirm that the movement is smooth.
*2. Not for R*CV angle cable.

Table for standard stroke

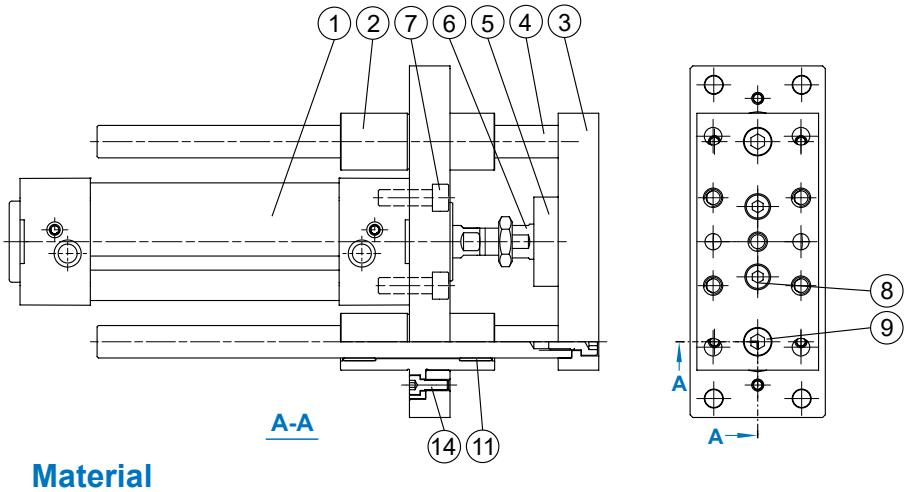
Tube I.D.	Stroke (mm)	Max. stroke (mm)
ø20,25	10, 25, 50, 75, 100, 125, 150, 200, 300, 400, 500	1000
ø32,40	50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	1800
ø50,63		2000

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

MGTB,MGTU,MGTK



MGTX

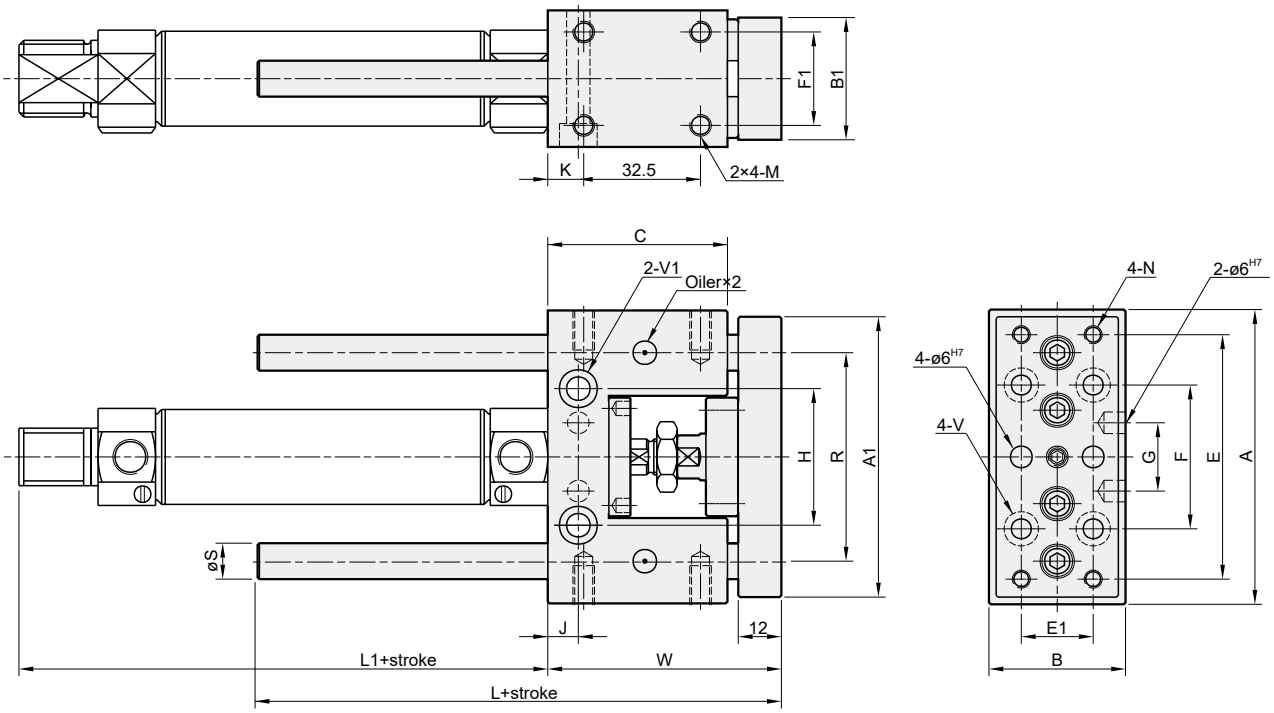


Material

No.	Part name	Material	Note
1	Cylinder	—	ø20, ø25: MCMI series
			ø32~ø63: MCQI3 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)

ø20, ø25

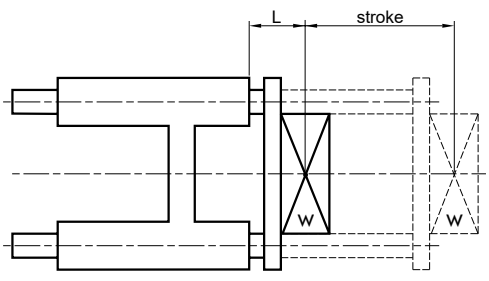


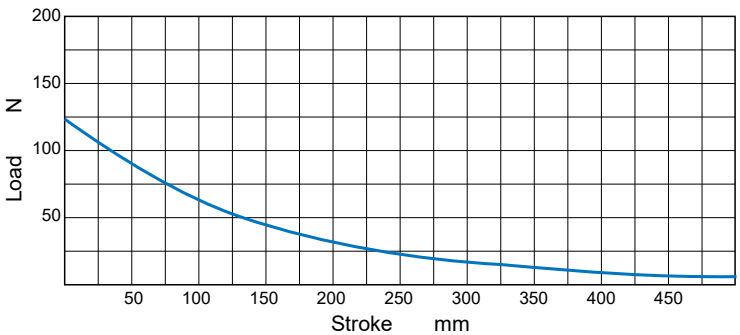
Code / Tube I.D	A	A1	B	B1	C	E	E1	F	F1	G	H	J	K	L	L1	M	N	R	S	V	V1	W
20	82	78	38	34	50	68	20	40	26	19	38	8.5	5	85	88	M6,(D)11	M5×0.8 thru	58	10	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65
25	82	78	38	34	50	68	20	40	26	19	38	8.5	5	85	89	M6,(D)11	M5×0.8 thru	58	10	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65

Maximum allowable torque moment

Max. allowable load

MGTK ø20, ø25



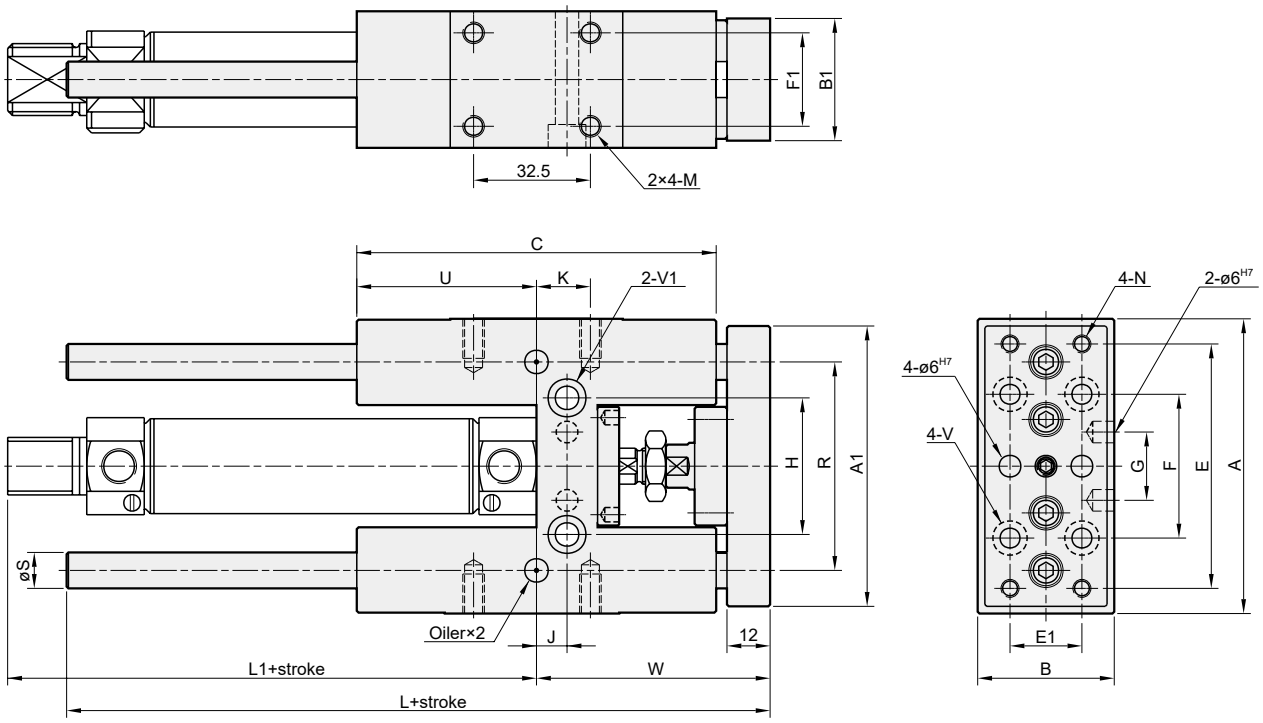


MGTB / MGTU ø20, ø25

MGTB (Brass bush guide)

MGTU (Linear bearing guide)

ø20, ø25

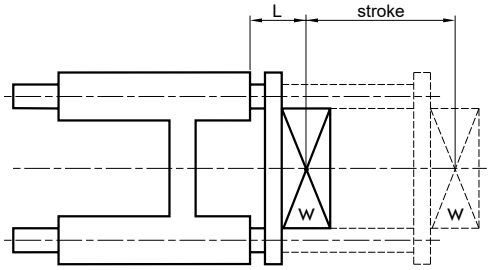


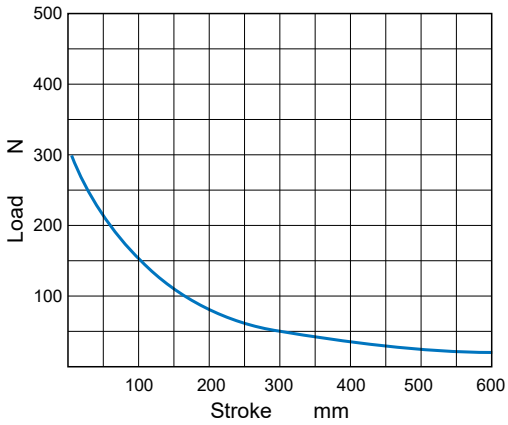
Code / Tube I.D.	A	A1	B	B1	C	E	E1	F	F1	G	H	J	K	L	L1	M	N	R	S	U	V	V1	W
20	82	78	38	34	100	68	20	40	26	19	38	8.5	15	135	88	M6,(D)11	M5×0.8 thru	58	10	50	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65
25	82	78	38	34	100	68	20	40	26	19	38	8.5	15	135	89	M6,(D)11	M5×0.8 thru	58	10	50	ø5.5,ø9.5(D)5.4	ø6.5,ø10.5(D)6.5	65

Maximum allowable torque moment

Max. allowable load

MGTB / MGTU ø20, ø25

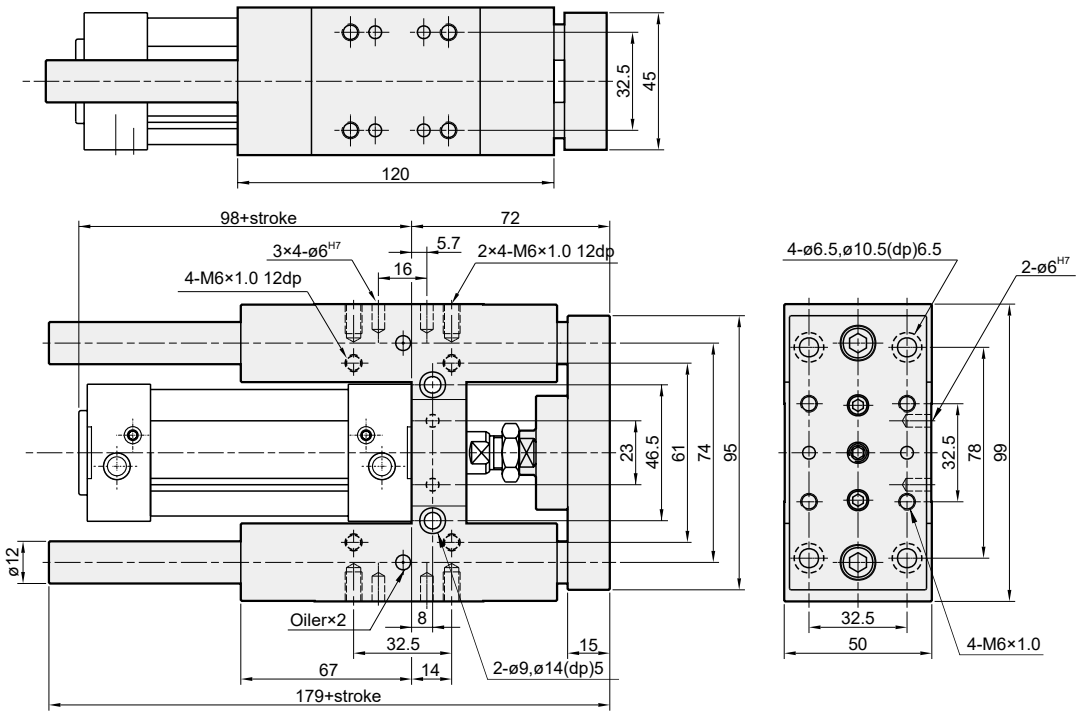




MGTB / MGTU ø32

MGTB (Brass bush guide) ø32

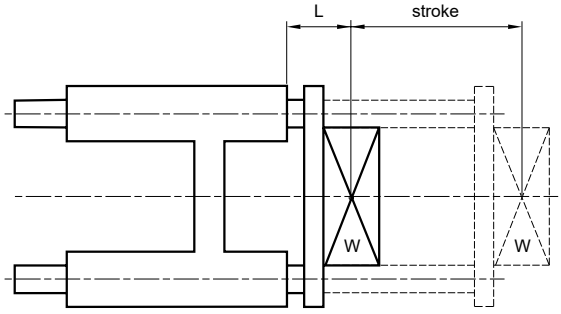
MGTU (Linear bearing guide) ø32

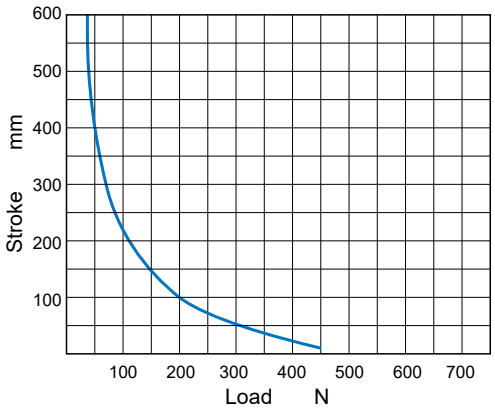


Maximum allowable torque moment

Max. allowable load

MGTB / MGTU ø32



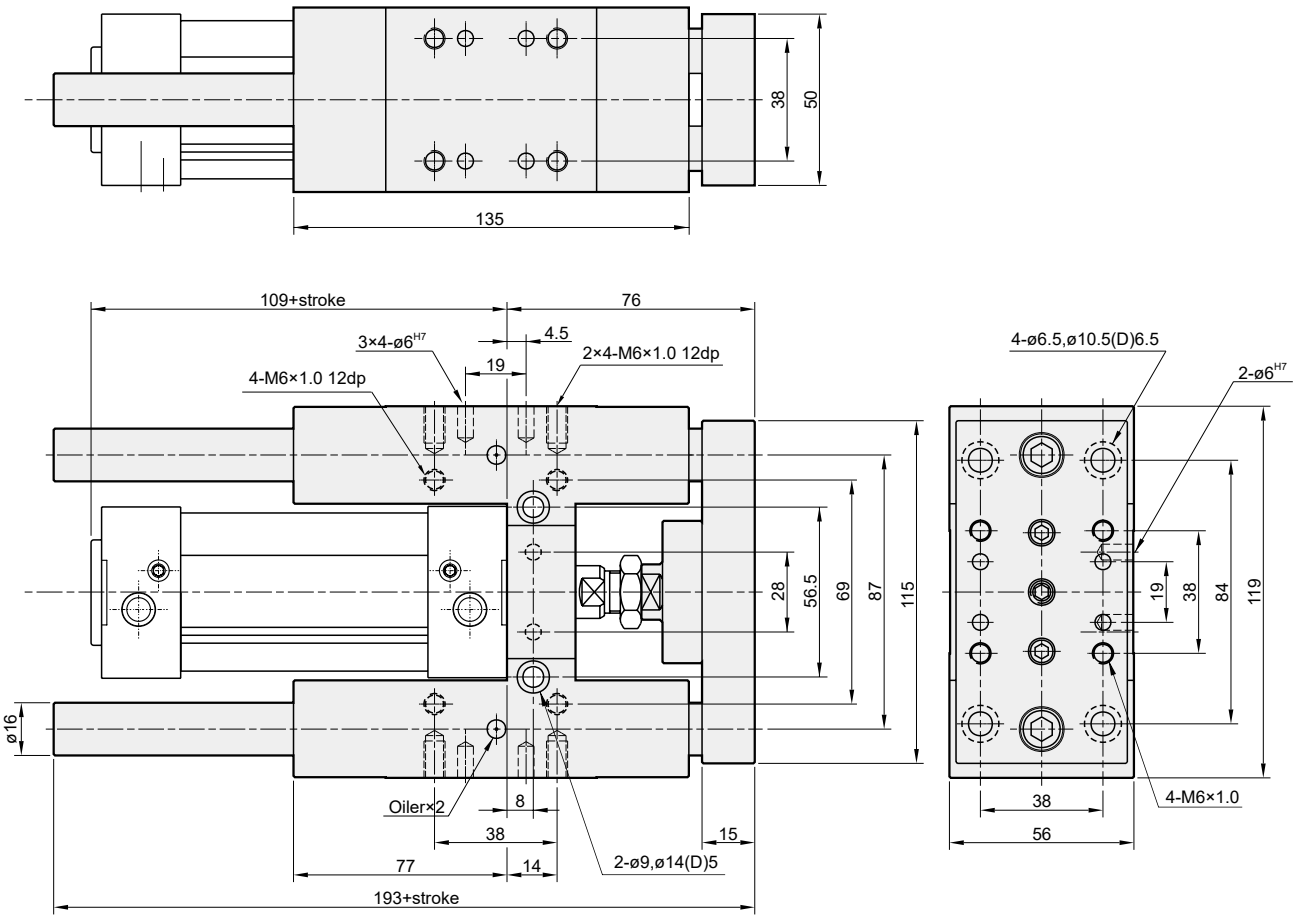


MGTB / MGTU ø40

MGTB (Brass bush guide)

MGTU (Linear bearing guide)

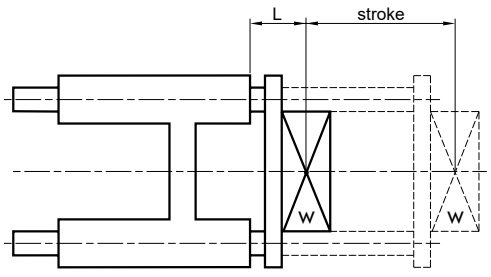
ø40

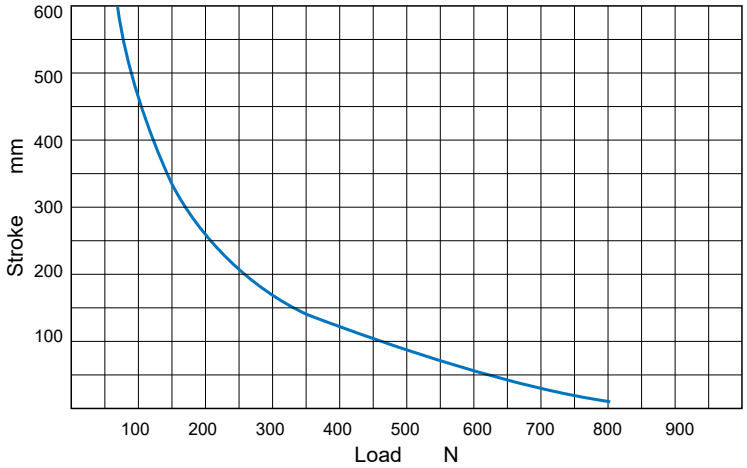


Maximum allowable torque moment

Max. allowable load

MGTB / MGTU ø40



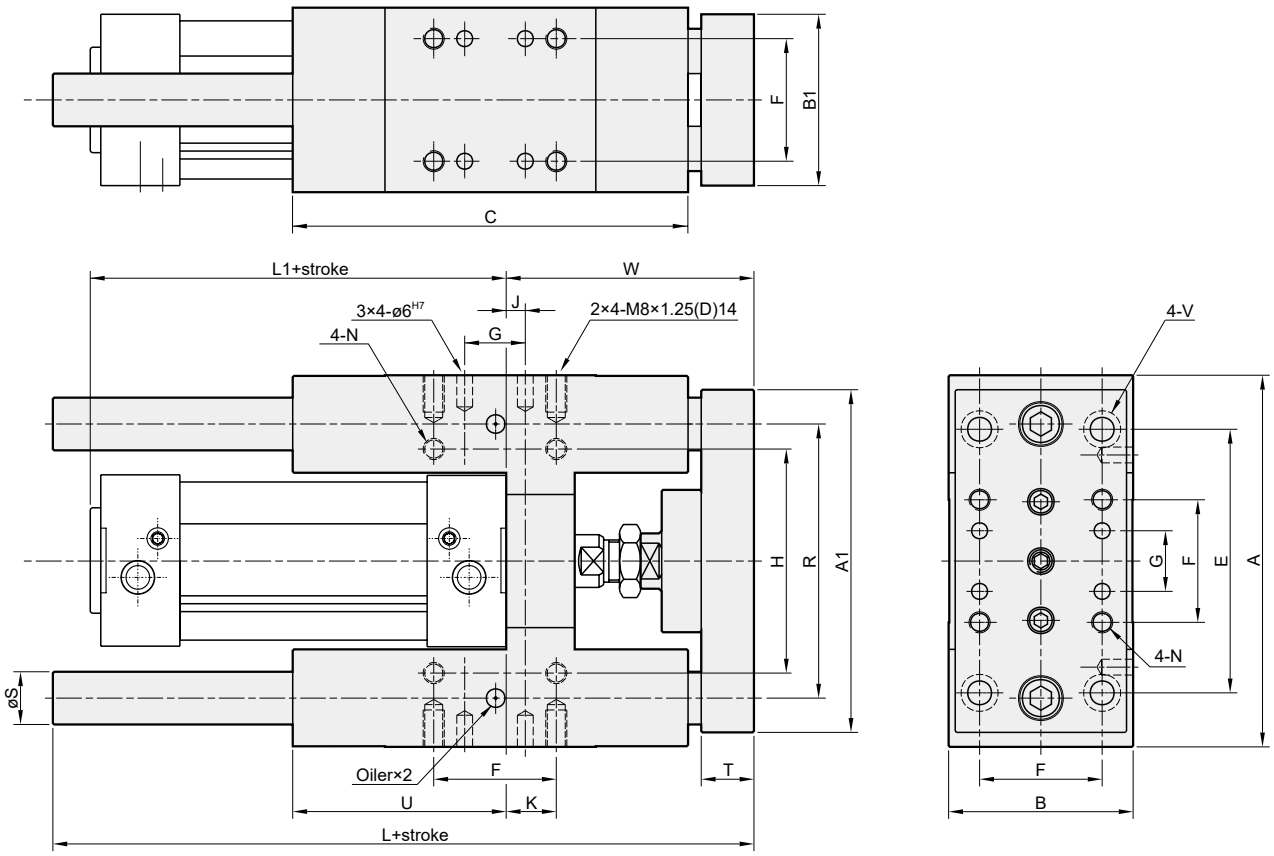


MGTB / MGTU ø50, ø63

MGTB (Brass bush guide)

MGTU (Linear bearing guide)

ø50, ø63

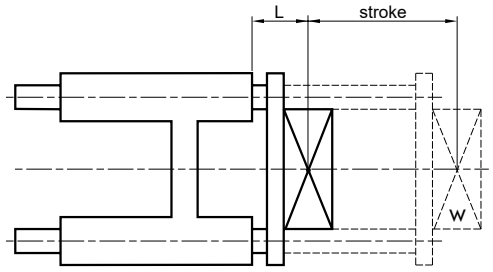


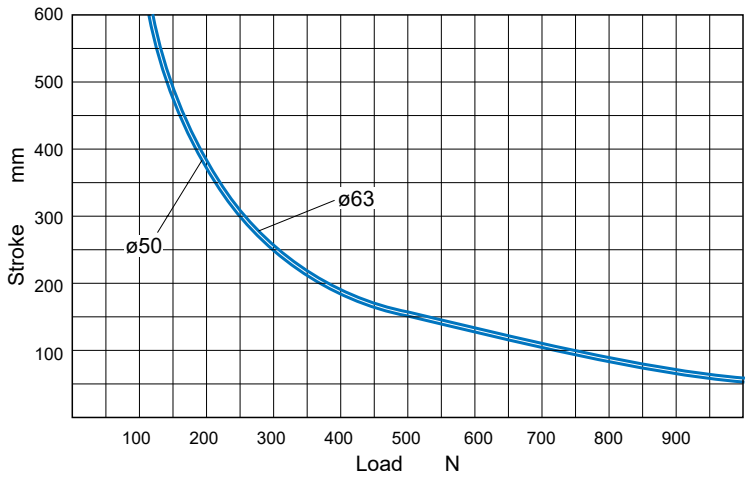
Code / Tube I.D.	A	A1	B	B1	C	E	F	G	H	J	K	L	L1	N	R	S	T	U	V	W
50	141	135	70	65	150	100	46.5	23	85	7.5	19	216	110	M8×1.25 thru	104	20	20	81	ø9, ø14(D)8.5	94
63	156	150	80	75	165	105	56.5	28	100	5	19	230	125	M8×1.25 thru	119	20	20	96	ø9, ø14(D)8.5	94

Maximum allowable torque moment

Max. allowable load

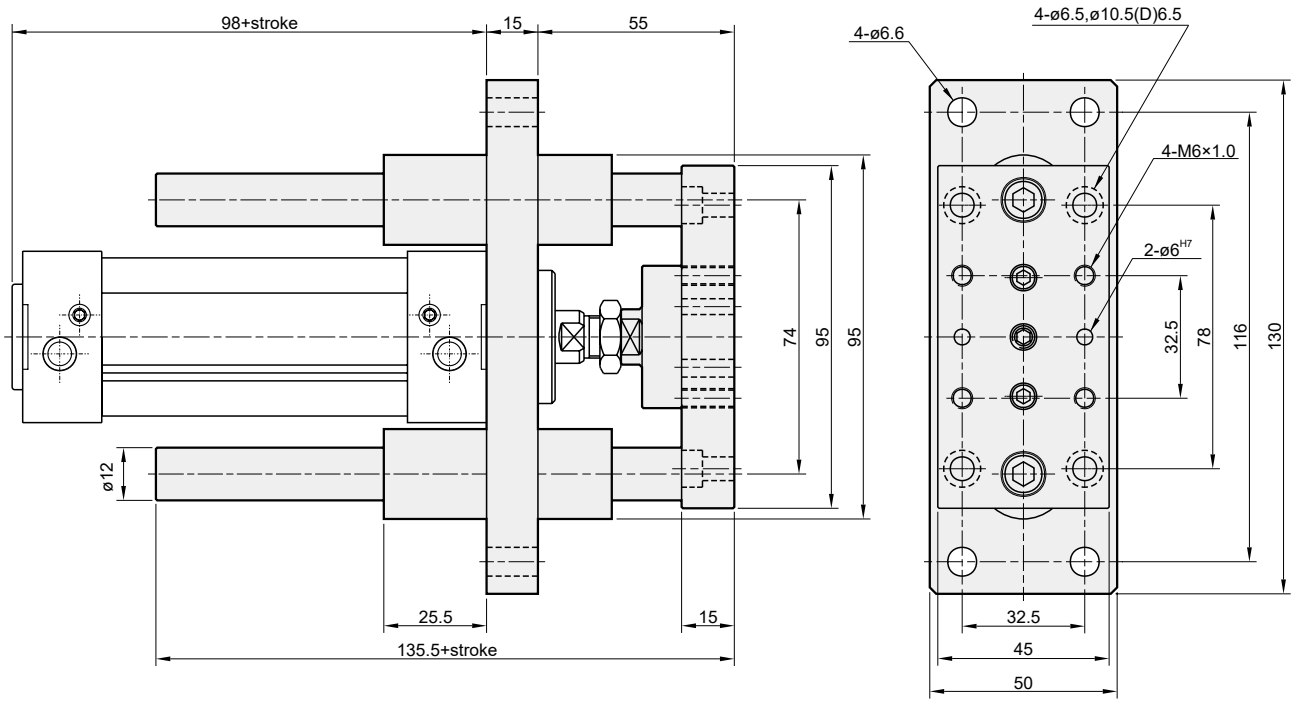
MGTB / MGTU ø50, ø63





MGTX ø32

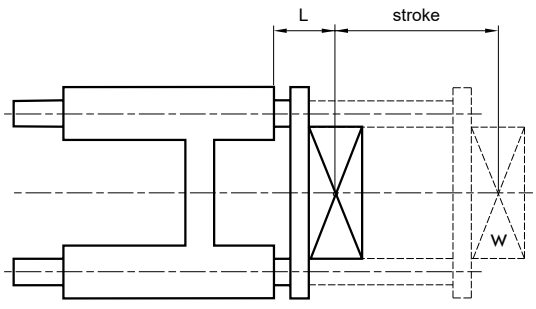
MGTX (Flange type)
ø32

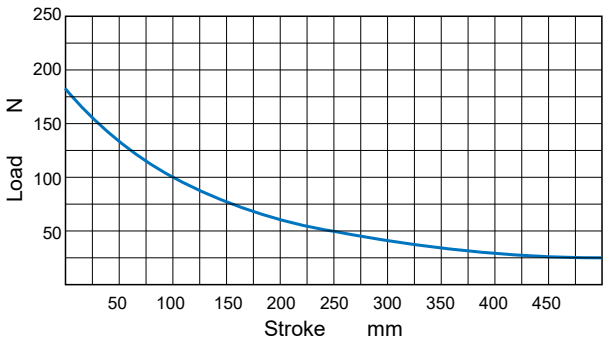


Maximum allowable torque moment

Max. allowable load

MGTX ø32

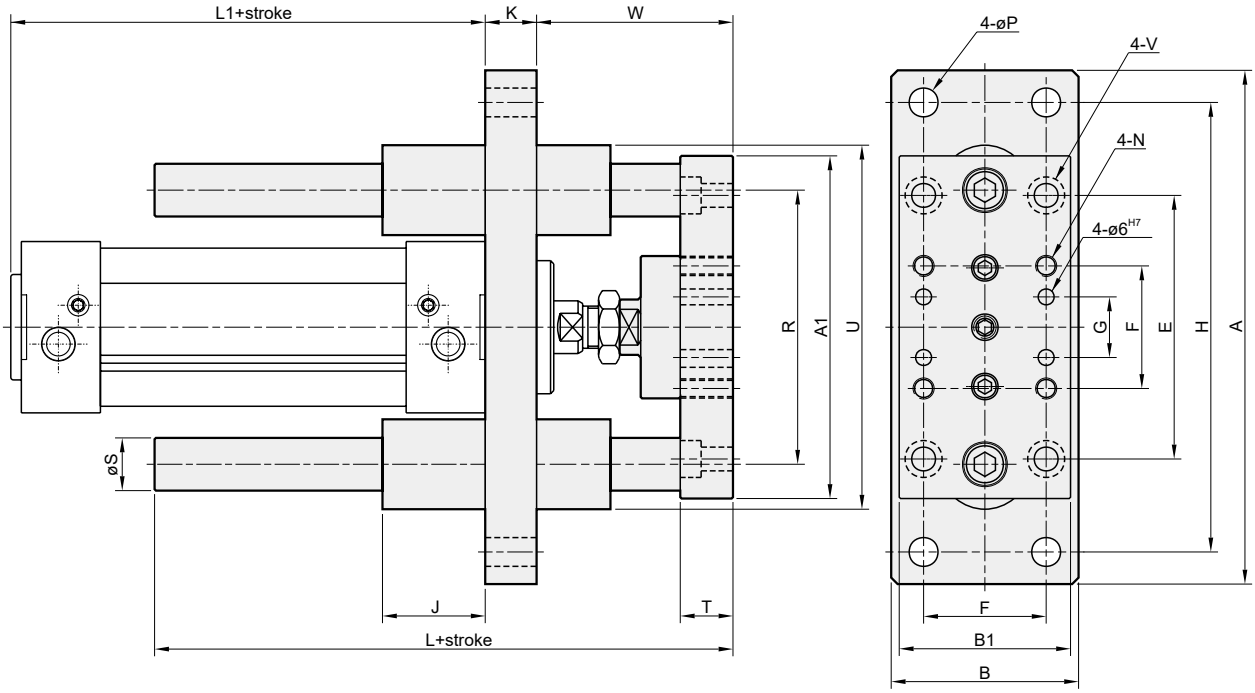




MGTX ø40~ø63

MGTX (Flange type)

ø40~ø63

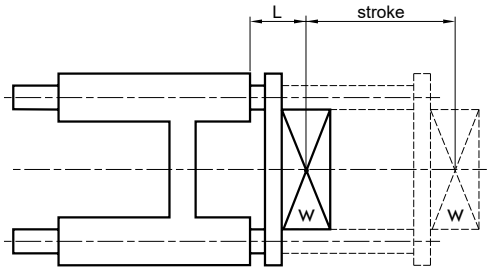


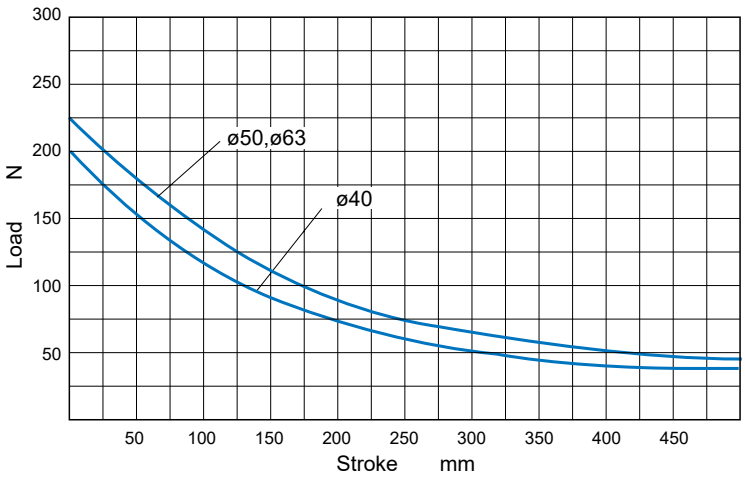
Code / Tube I.D.	A	A1	B	B1	E	F	G	H	J	K	L	L1	N	P	R	S	T	U	V	W
40	160	115	55	50	84	38	19	140	32	15	148	109	M6×1.0 thru	ø9	87	16	15	115	ø6.5, ø10.5(D)6.5	61
50	180	135	70	65	100	46.5	23	160	36	20	170	110	M8×1.25 thru	ø9	104	20	20	136	ø9, ø14(D)8.5	74
63	195	150	80	75	105	56.5	28	175	36	20	170	125	M8×1.25 thru	ø9	119	20	20	151	ø9, ø14(D)8.5	74

Maximum allowable torque moment

Max. allowable load

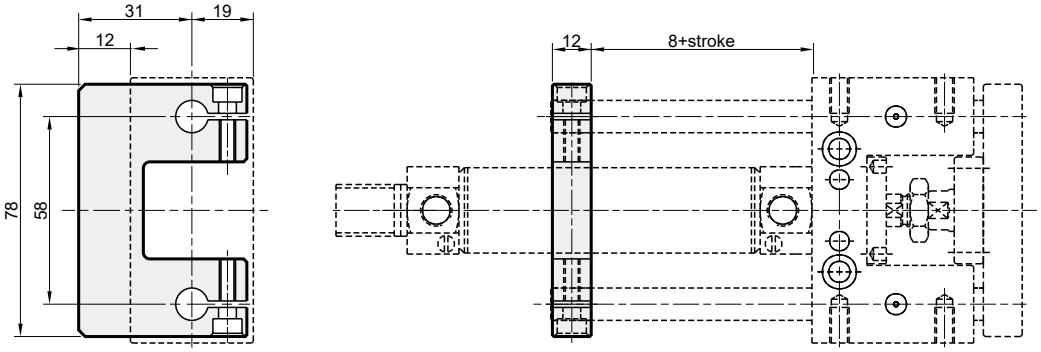
MGTX ø40~ø63





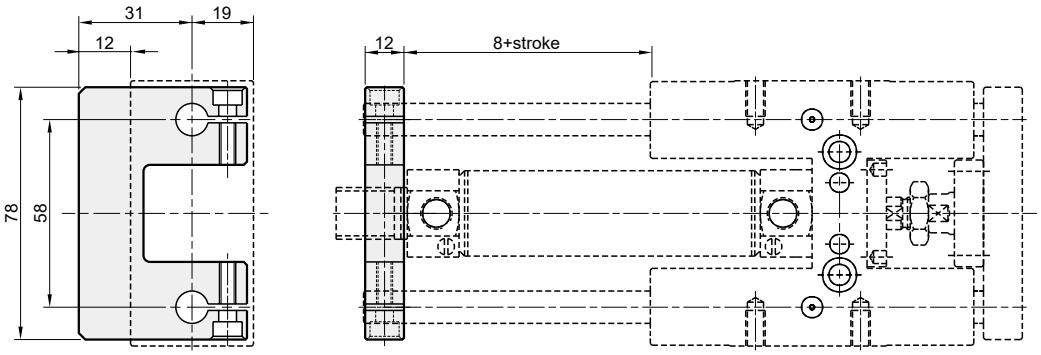
MGTK

ø20, ø25



MGTB
MGTU

ø20, ø25



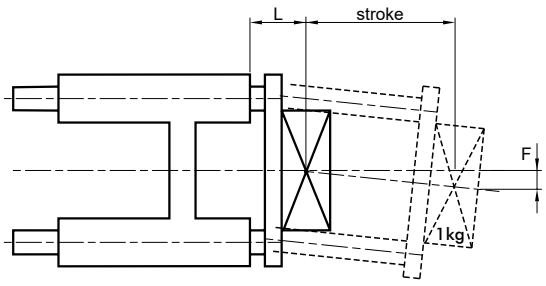
Building material: aluminum alloy
2 Clamps screws are included in the supply

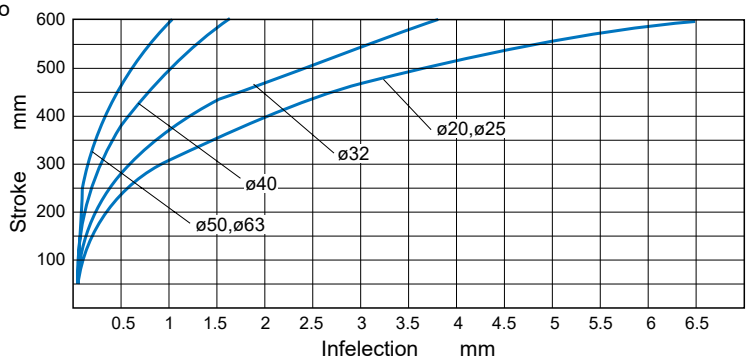
Maximum allowable torque moment

Max. allowable load

MGTB / MGTU

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



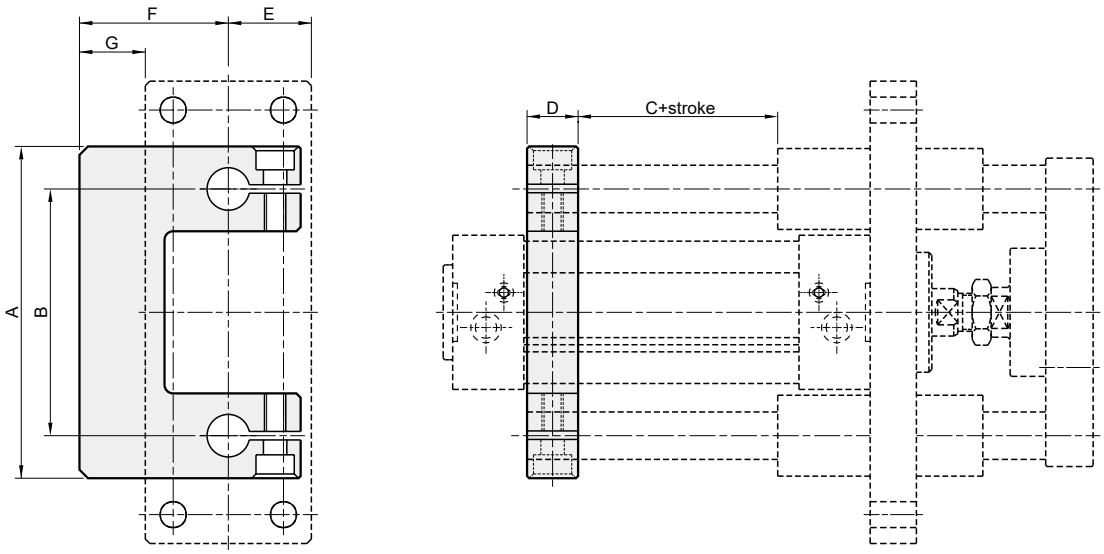


Weight

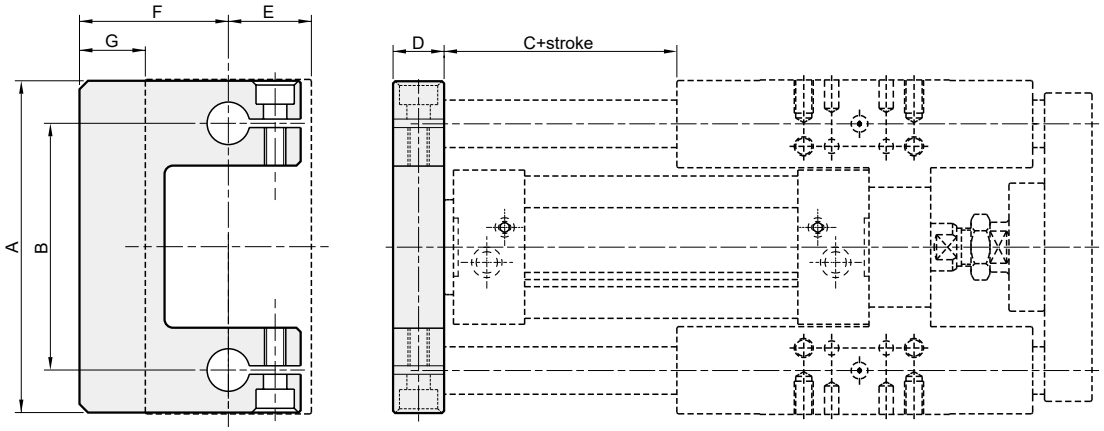
Unit: kg

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 ø32~ø63



MGTB MGTU ø32~ø63



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 ø40: E=27.5, G=25

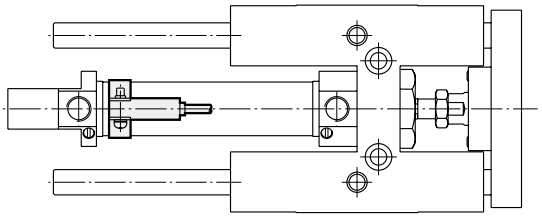
Weight

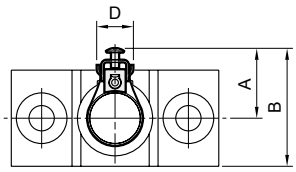
Unit: kg

Tube I.D.	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm	Basic weight	Stroke 25 mm
	MGTB (Brass bush guide)		**MGTU** (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

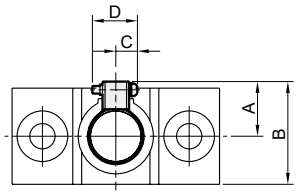
Installation of sensor switch ø20, ø25

MGTB
MGTU

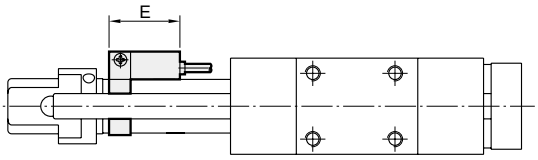




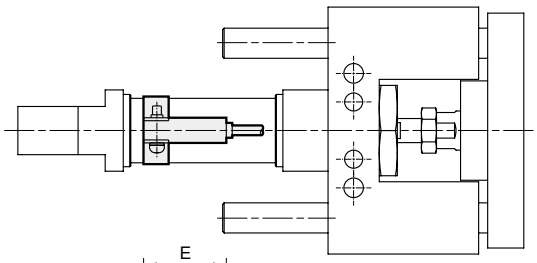
Sensor switch: R*C, R*T
Band: BKC-1, BKT-1



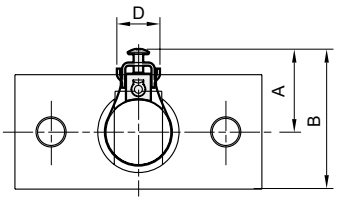
Sensor switch: RCM
Band: BM**



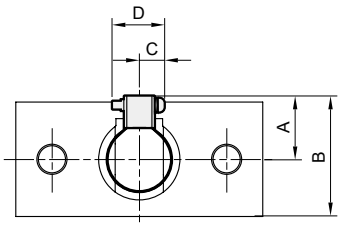
Code / Band / Tube I.D.	A			B			C	D			E		
	BKC-1	BKT-1	BM*	BKC-1	BKT-1	BM*	BM*	BKC-1	BKT-1	BM*	BKC-1	BKT-1	BM*
20	27	28.5	22	46	47.5	41	10	13.5	13.5	16	27	30	28
25	29.5	31	25	48.5	50	44	10	13.5	13.5	16	27	30	28



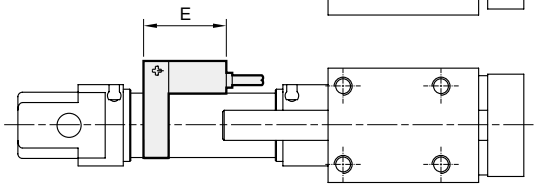
MGTK



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



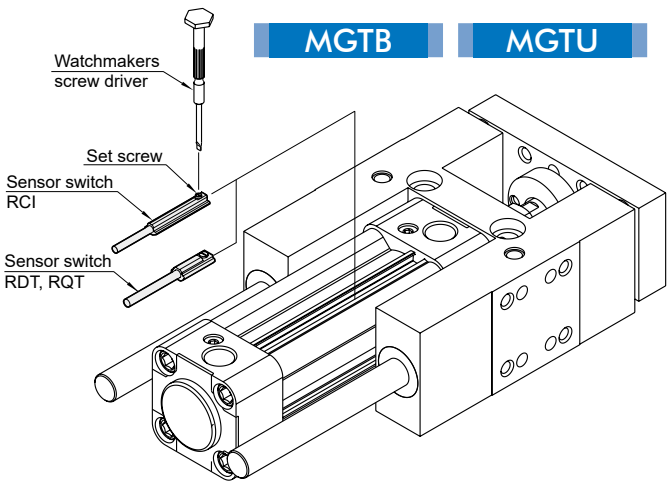
Sensor switch: RCM
Band: BM**



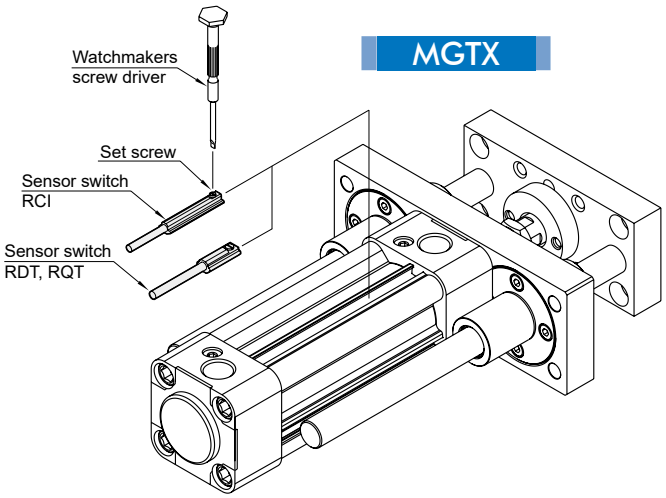
Installation of sensor switch ø32~ø63

Sensor switch: RDT, RQT, RCI

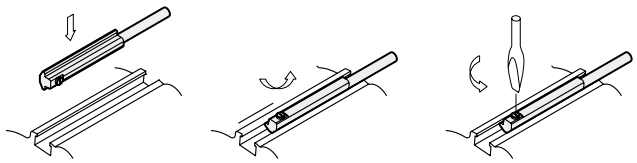
MGTB MGTU



MGTX



Mounting



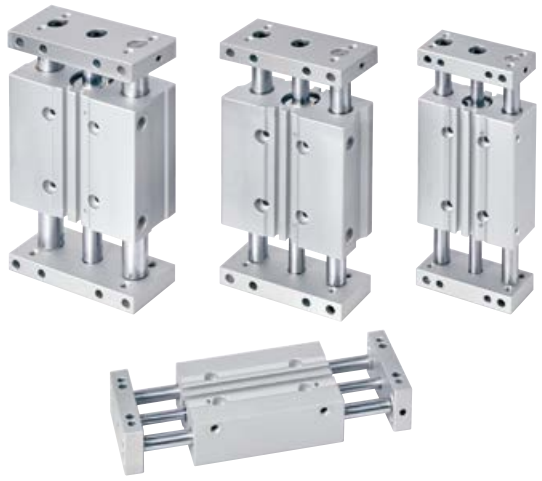
MCGD series

TWIN-GUIDE SLIDE CYLINDER

Applications

Rod end shape

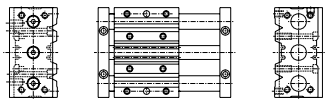
Caution for safety
(Read before installing)



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

MCGD — 03 — 12 — 50 — □

MODEL

TYPE OF BEARING

Code	Type of bearing
03	Slide bush
23	Linear bearing

TUBE I.D.

STROKE

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

Installation of sensor switch

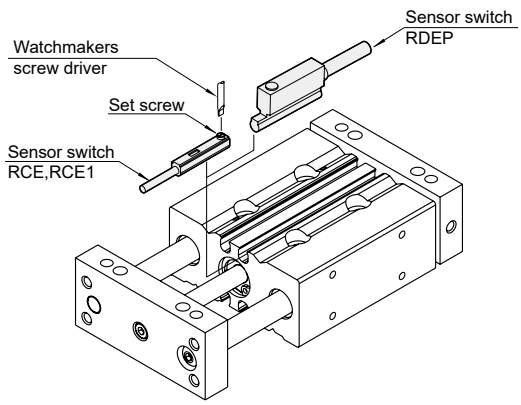


Table for standard stroke

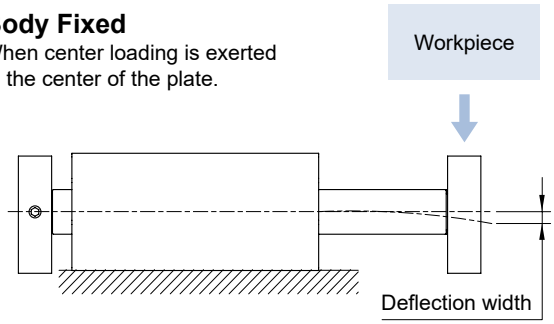
Series variety (Bearing type)	Tube I.D.	Stroke (mm)									
		30	50	75	100	125	150	175	200	250	300
MCGD-03 (Slide bush)	ø12	●	●	●	●						
	ø16	●	●	●	●	●	●				
	ø20	●	●	●	●	●	●				
	ø25	●	●	●	●	●	●				
	ø32	●	●	●	●	●	●	●	●	●	
MCGD-23 (Linear bearing)	ø12	●	●	●	●						
	ø16	●	●	●	●	●	●				
	ø20	●	●	●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

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

Deflection of guide rod by center loading (Reference)

Body Fixed

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

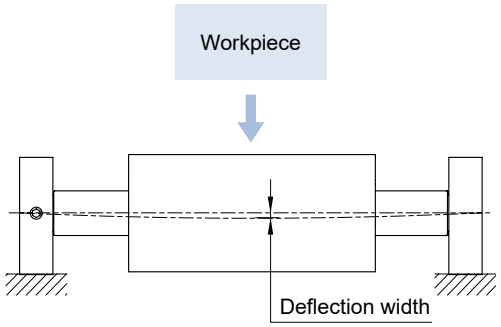


Unit: mm

Tube I.D.	Bearing type	Stroke / Load (kgf)	Deflection width 50	100	150	200
ø12	Slide bush	0.5	0.09	0.22	–	–
	Linear bearing	0.3	0.08	0.3	–	–
ø16	Slide bush	0.5	0.03	0.1	0.25	–
	Linear bearing	0.5	0.09	0.22	0.5	–
ø20	Slide bush	0.8	0.03	0.09	0.18	–
	Linear bearing	0.5	0.03	0.1	0.25	–
ø25	Slide bush	1	0.03	0.09	0.16	–
	Linear bearing	0.8	0.03	0.09	0.18	–
ø32	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

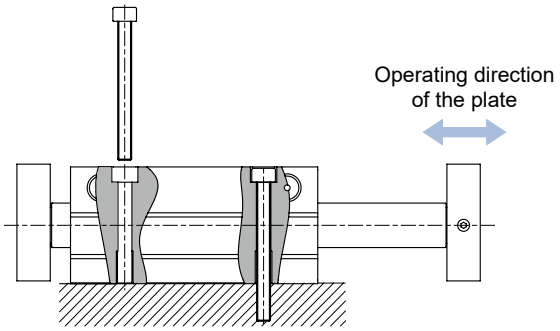
Tube I.D.	Bearing type	Stroke / Load (kgf)	Deflection width 50	100	150	200
ø12	Slide bush	3	0.06	0.08	–	–
	Linear bearing	1	0.05	0.07	–	–
ø16	Slide bush	4	0.06	0.08	0.15	–
	Linear bearing	3	0.06	0.08	–	–
ø20	Slide bush	5	0.05	0.06	0.12	–
	Linear bearing	4	0.06	0.08	0.15	–
ø25	Slide bush	6	0.04	0.05	0.07	–
	Linear bearing	5	0.05	0.06	0.12	–
ø32	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

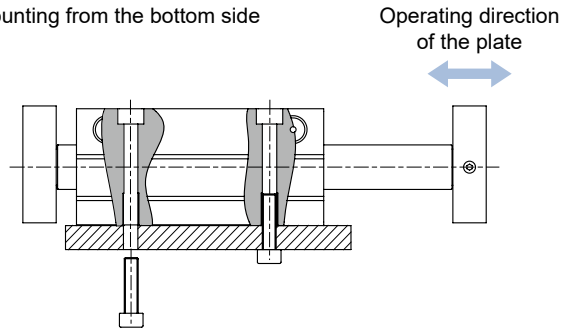
A Fixing the Body

The plate moves.

Mounting from the upper side



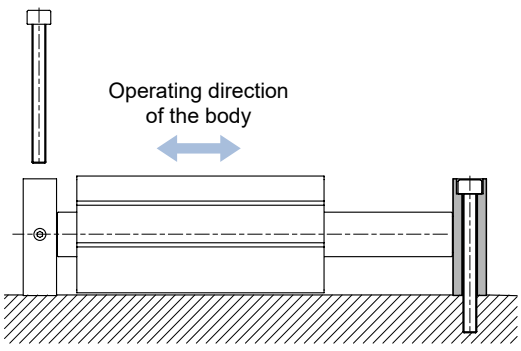
Mounting from the bottom side



B Fixing the Plate

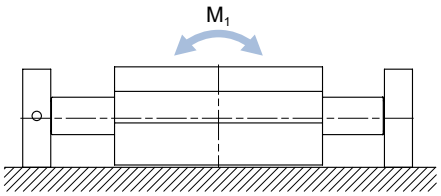
The body moves.

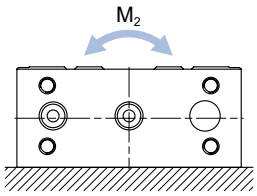
Mounting from the upper side

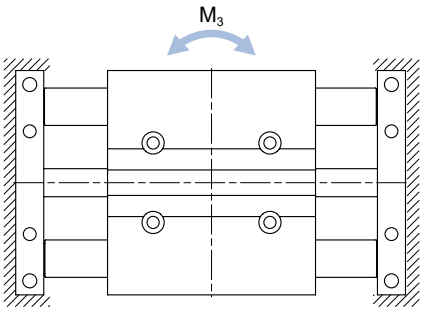


Maximum allowable moment

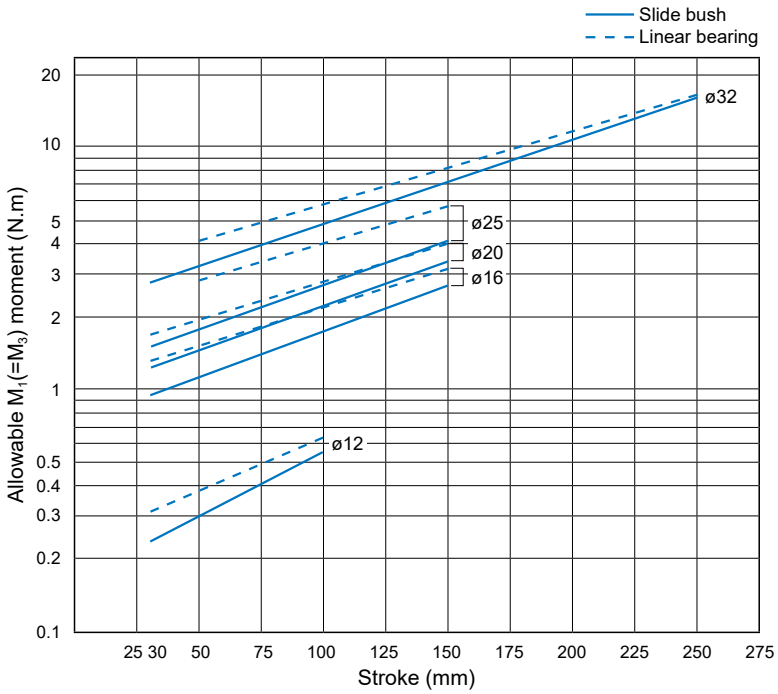
Please operate within the maximum allowable moment.



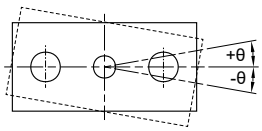




Tube I.D.	Allowable moment (M_2)
ø12	0.15
ø16	0.55
ø20	0.8
ø25	1.02
ø32	2.7



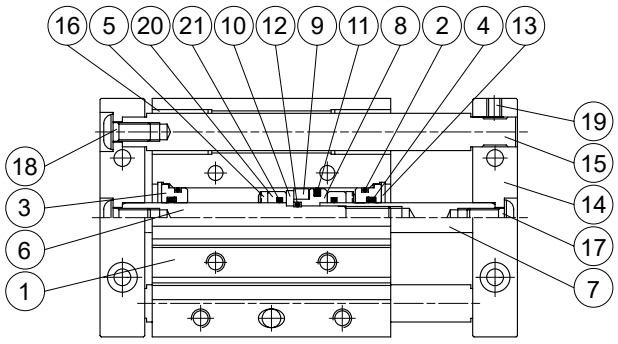
Anti-roll accuracy



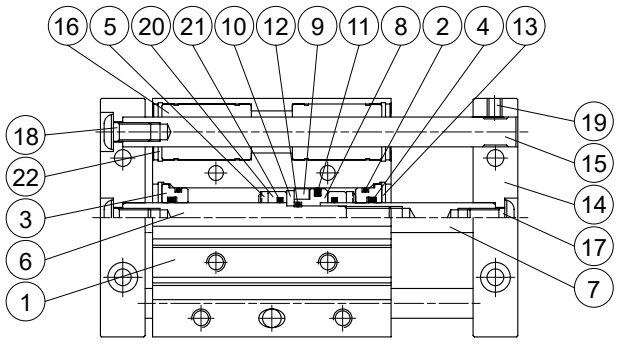
- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

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

MCGD-03



MCGD-23



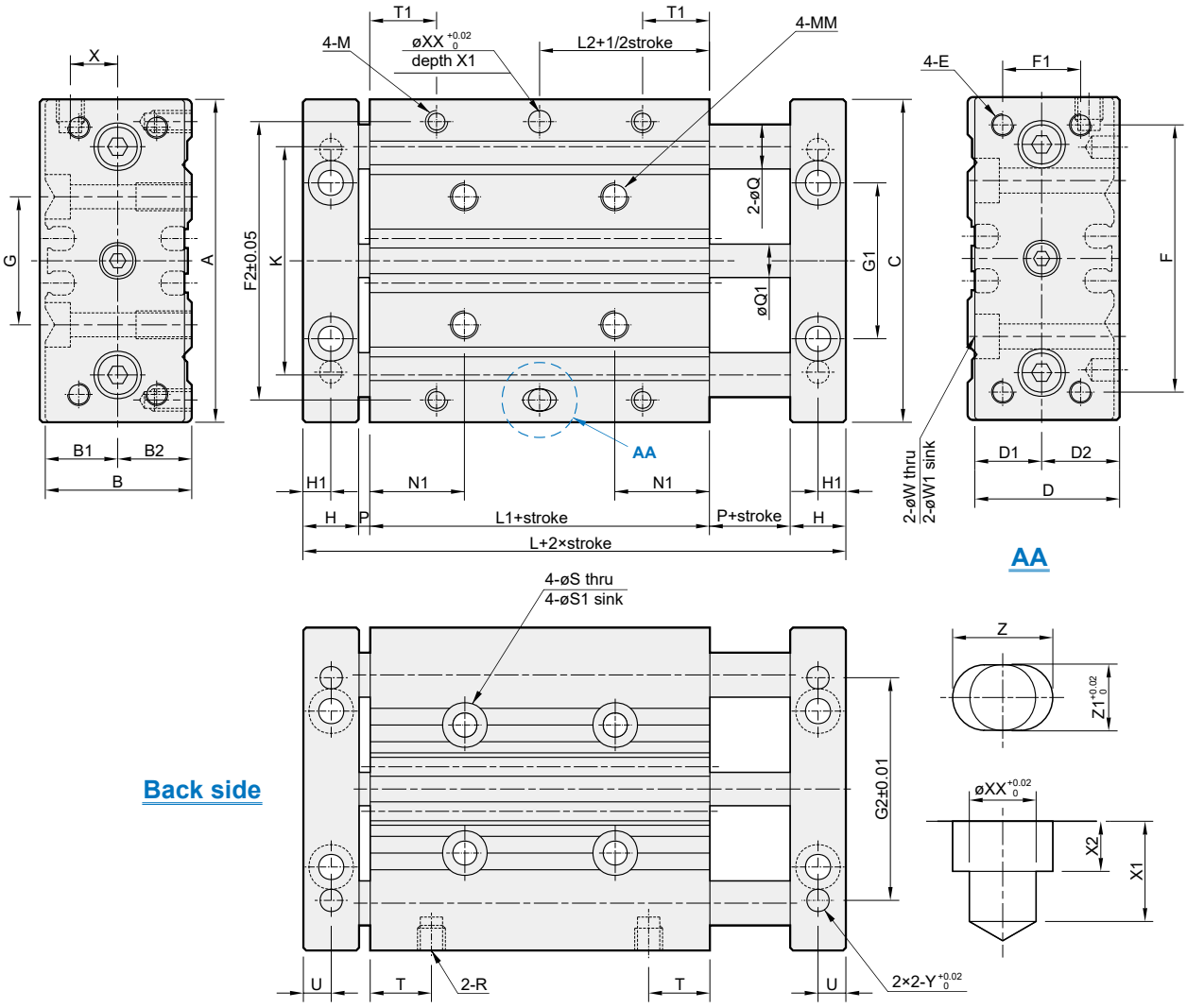
Material

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 beraing	—	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
																									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
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
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
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
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

Code / Tube I.D.	P	R	S	S1	T	T1	U	W	W1	X	XX	X1	X2	Y	Z	Z1
12	2	M5	ø4.3	ø8×4.5dp	11	12	5	ø4.5	ø8×4.5dp	8.5	ø4	6	3	ø4×5dp	6	4
16	2	M5	ø4.3	ø8×4.5dp	11	13	6	ø4.5	ø8×4.5dp	10	ø5	6	3	ø5×5dp	7	5
20	2	Rc1/8	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	2	Rc1/8	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	2	Rc1/8	ø6.8	ø11×6.5dp	11	16.5	7	ø6.6	ø11×6.5dp	16	ø8	12	6	ø8×12dp	10	8

MCG3 series Lift / Turntable

TRIPLE-GUIDE CYLINDER

Technical data

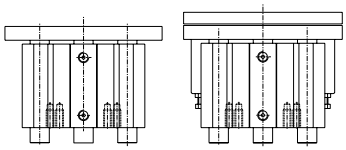
Caution for safety
(Read before installing)



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

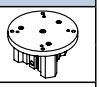
Model	MCG3	
Model (Stop type view)	 (Lift type) (Turntable type)	
Acting type	Double acting	
Tube I.D.(mm)	63	80
Port size	Rc1/4	Rc3/8
Standard stroke	30, 50, 75, 100 mm	
Medium	Air	
Operating pressure range	0.1~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Cushion	With rubber cushion pad	
Available speed range	50~500 mm/sec	
Lubrication	Not required	
Sensor switch	RCE, RCE1, RDEP	

Order example

MCG3 — 63 — 50 — D — G

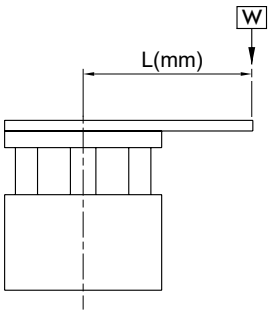
- MODEL
- TUBE I.D.
  63
  80
  (ø80 only for circle table lift type)
- STROKE
  Stroke out of specification is also available.
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

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	

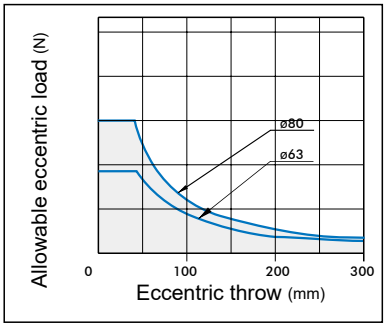
Allowable eccentric load

(at supply pressure 0.5MPa)

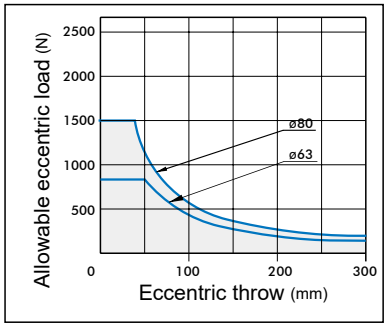


Shows the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.

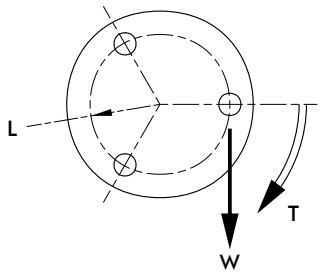
MCG3-D/D90/D180



MCG3-B/B90/B180



Allowable rotating torque

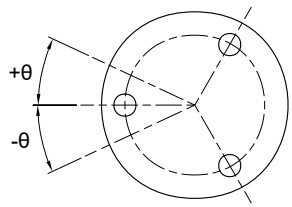


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

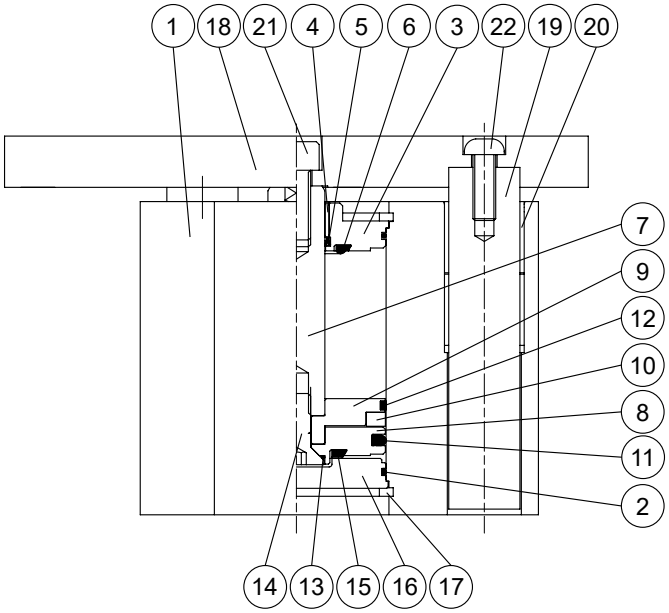
Tube I.D.	Bearing type	Stroke (mm)		
		30	50	100
ø63	Slide bush	13.2	12.7	7.6
	Linear bearing	13.5	12.7	8.8

Anti-roll accuracy



The values are the deflection angle against the piston rod.

Tube I.D.	Bearing type	Anti-roll accuracy
		θ
ø63	Slide bush	±0.07°
	Linear bearing	±0.03°



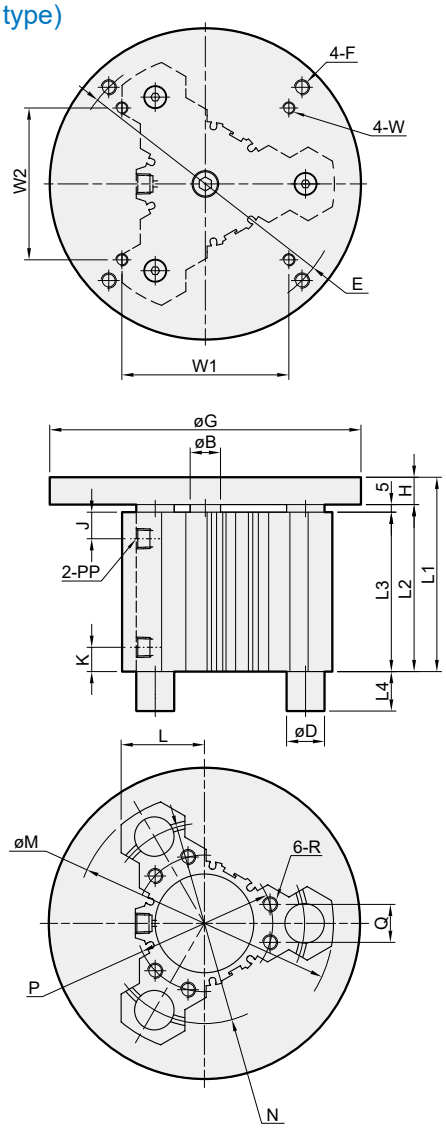
Material

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	

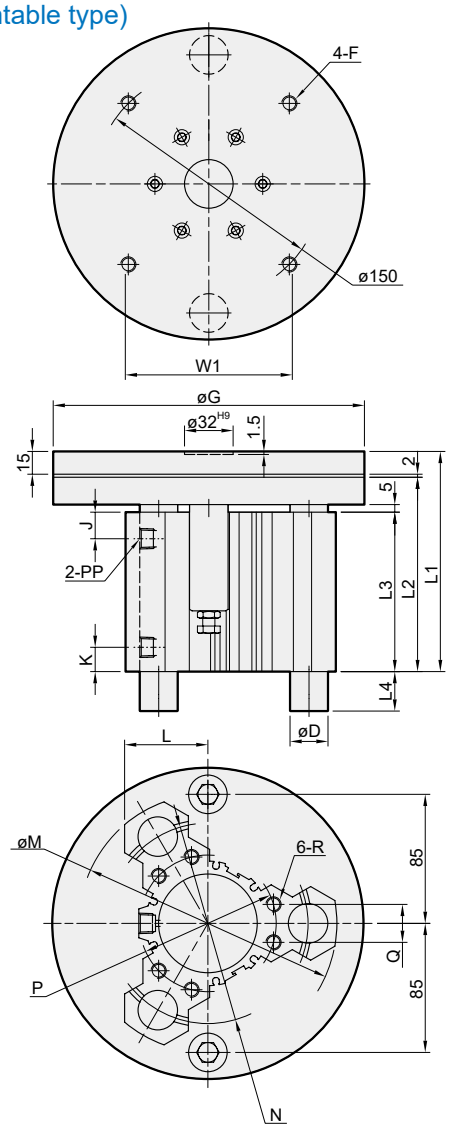
Order example of Repair kits

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

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

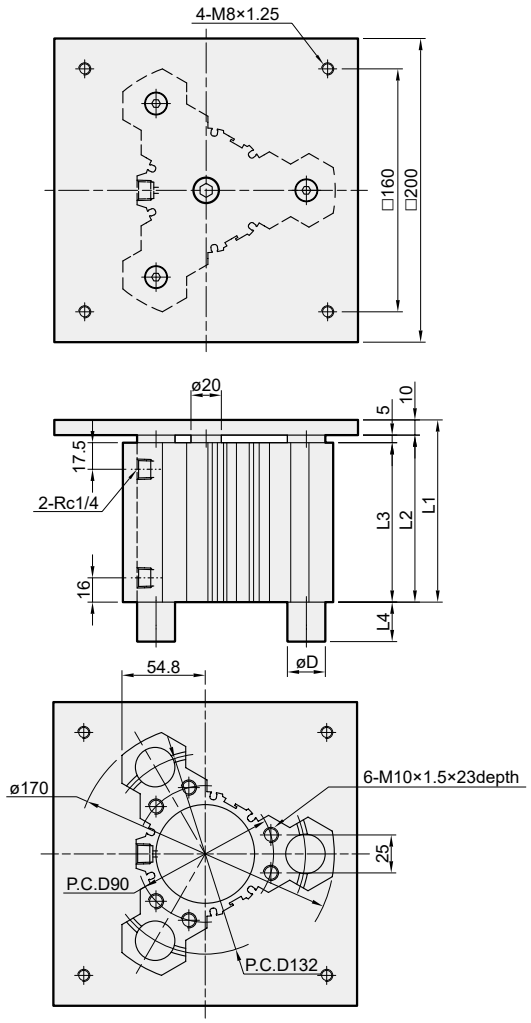
Tube I.D.	L4		øD	
	MCG3-D	MCG3-B	MCG3-D	MCG3-B
63	0	26	ø25	ø16
80	0	25	ø28	ø20

MCG3-D90/B90/D180/B180

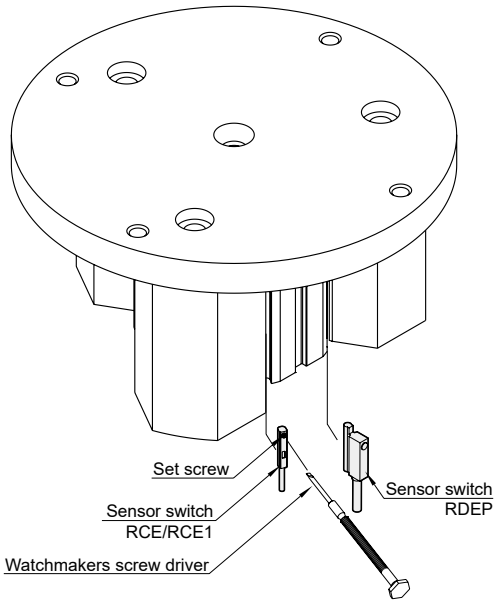
Tube I.D.	L1			L2			L3		
	Stroke (mm)								
	30	50	100	30	50	100	30	50	100
63	125	145	195	108	128	178	85	105	155

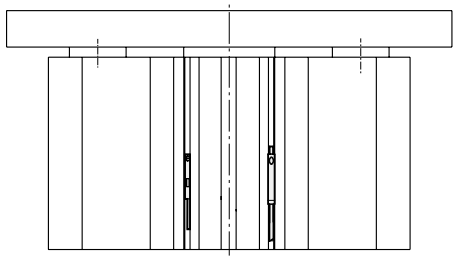
Tube I.D.	L4		øD	
	D90 / D180	B90 / B180	D90 / D180	B90 / B180
63	0	26	ø25	ø16

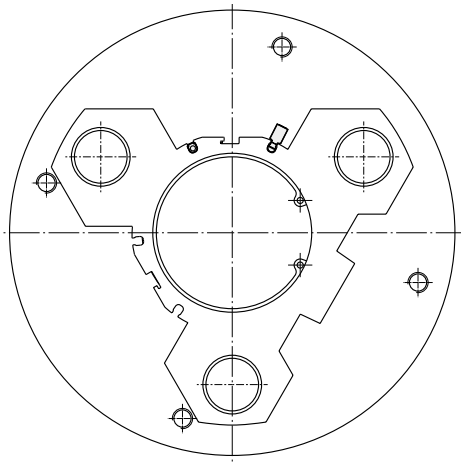
MCG3-QD/QB
(Lift type)



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

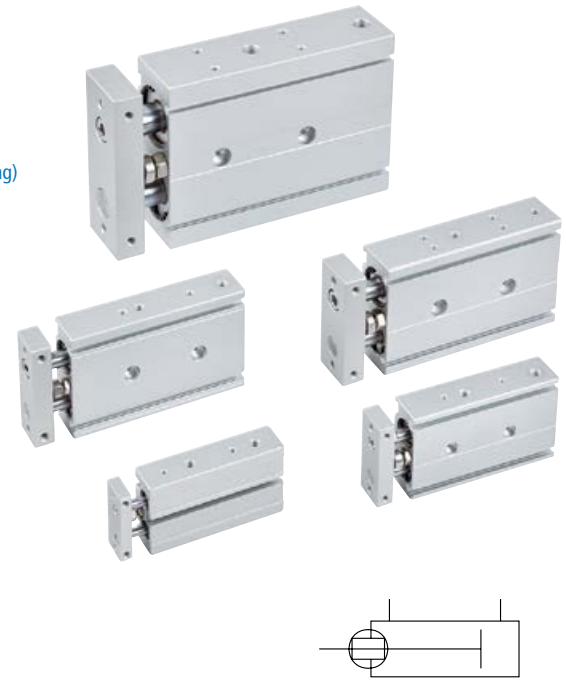
Tube I.D.	L4		øD	
	MCG3-QD	MCG3-QB	MCG3-QD	MCG3-QB
63	0	26	ø25	ø16

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 slide 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

TYPE OF BEARING

03	Slide bush
23	Linear bearing

TUBE I.D.

STROKE

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.

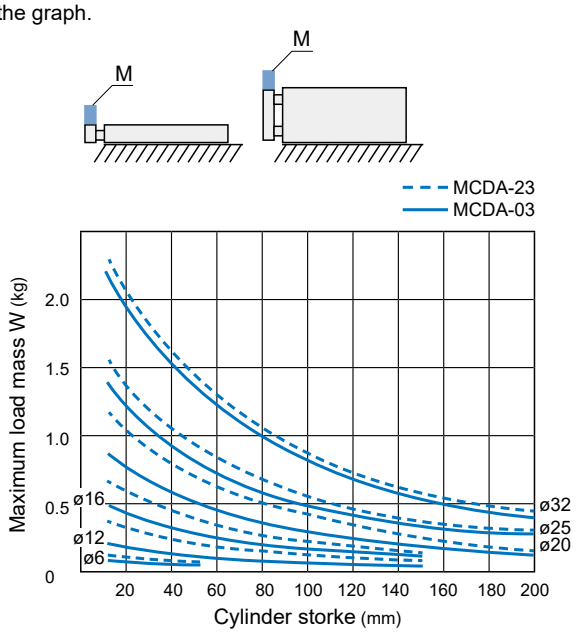
Weight

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

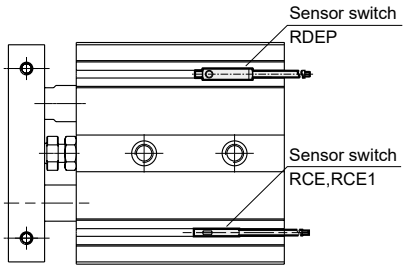
Maximum load mass

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

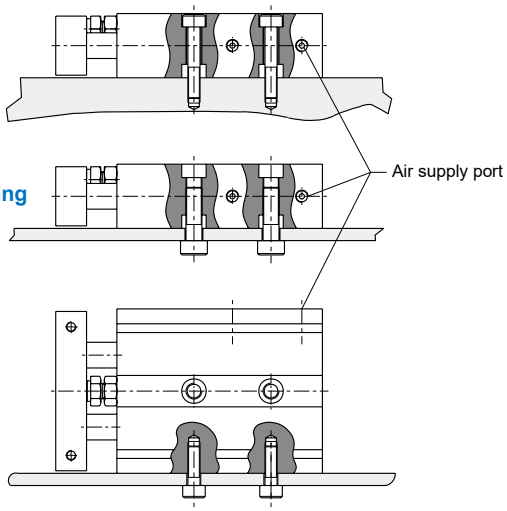


Installation of sensor switch

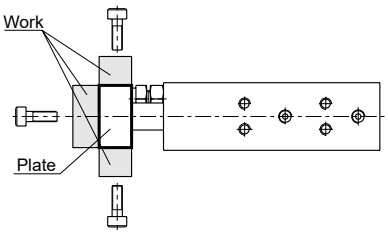
Sensor switch: RCE, RCE1, RDEP



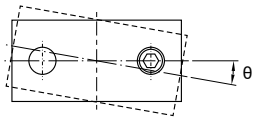
Mounting methods



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

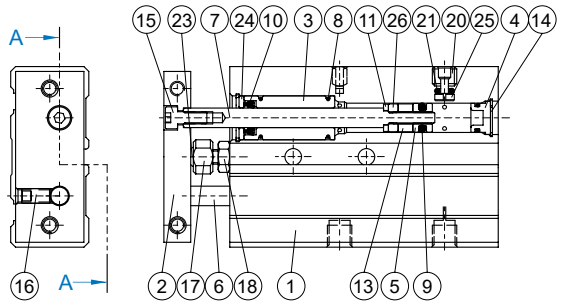


Anti-roll accuracy

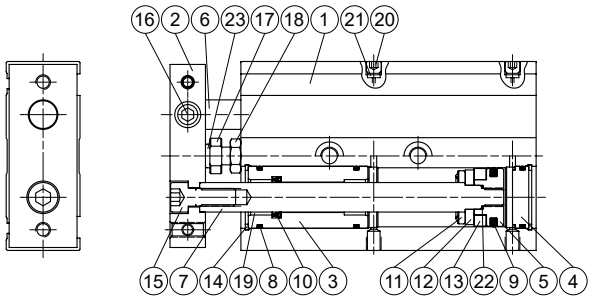


Code / Type	θ				
	ø6	ø12	ø16	ø20	ø25, ø32
MCDA-03	±0.3°	±0.45°	±0.35°	±0.3°	±0.25°
MCDA-23	±0.25°		±0.2°		±0.15°

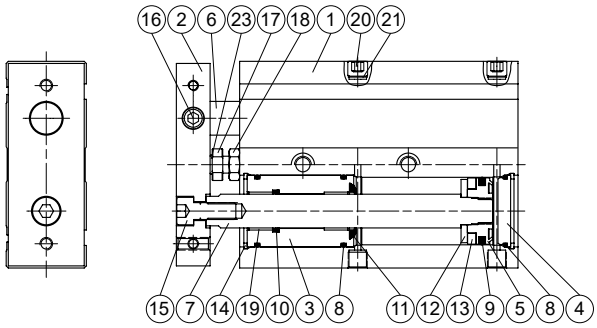
ø6



ø12~ø20



ø25, ø32



Material

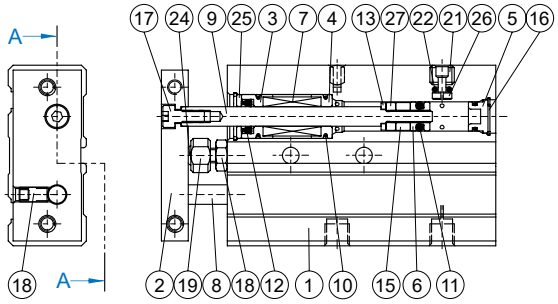
No.	Tube I.D. / Part name	6	12	16	20	25	32	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy							1	
2	Plate	Aluminum alloy							1	
3	Rod cover	Aluminum alloy							2	
4	End cover	Aluminum alloy							2	
5	Piston	Aluminum alloy							2	
6	Piston rod #1	Stainless steel				(*)			1	
7	Piston rod #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

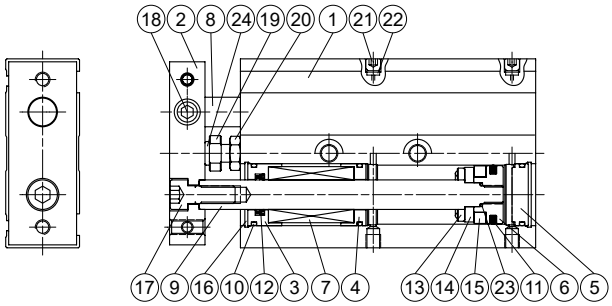
Order example of Repair kits

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**

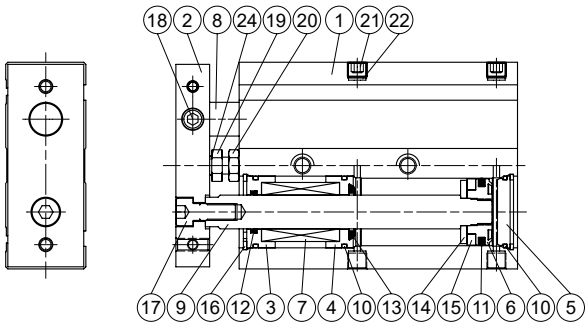
ø6



ø12~ø20



ø25, ø32

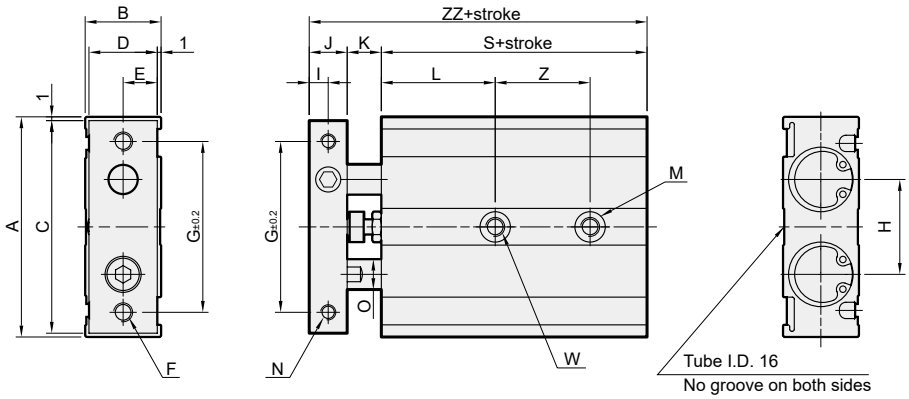


Material

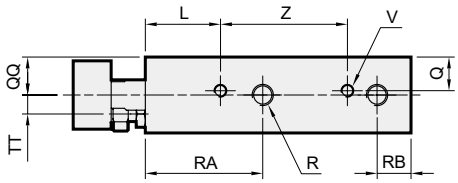
No.	Tube I.D. / Part name	6	12	16	20	25	32	Note	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy							1	
2	Plate	Aluminum alloy							1	
3	Rod cover #1	Aluminum alloy							2	
4	Rod cover #2	Aluminum alloy							2	
5	End cover	Aluminum alloy							2	
6	Piston	Aluminum alloy							2	
7	Slide bush	–							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

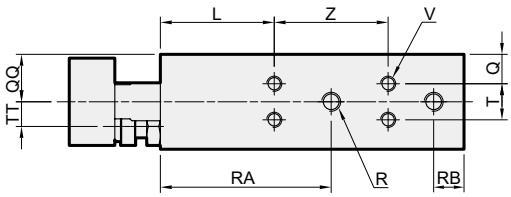
Tube I.D.	Repair kits
ø6	**PS-MCDA-6**
ø12	**PS-MCDA-12**
ø16	**PS-MCDA-16**
ø20	**PS-MCDA-20**
ø25	**PS-MCDA-25**
ø32	**PS-MCDA-32**



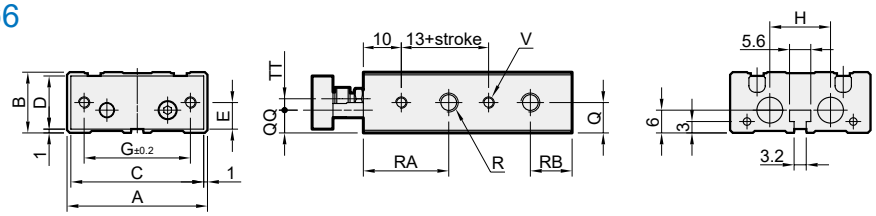
ø12, ø16



ø20~ø32



ø6



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-ø6.5×3.3dp *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-ø6.5×3.3dp	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-ø8×4.4dp	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-ø9.5×5.3dp	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-ø11×6.3dp	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-ø11×6.3dp	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-ø3.4	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

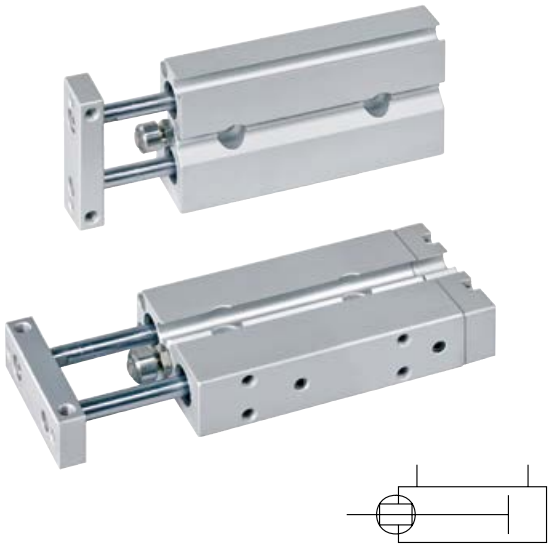
*1. ø6- single side.
*2. ø6- stroke (10, 20, 30, 40, 50)

MCDJ 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 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	

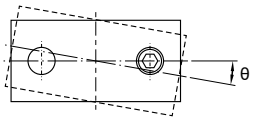
Table for standard stroke

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.

Anti-roll accuracy

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

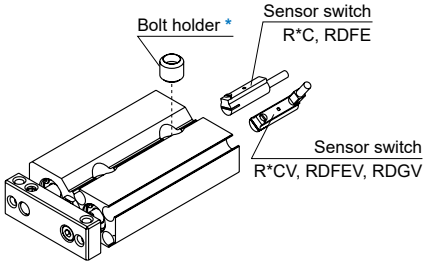


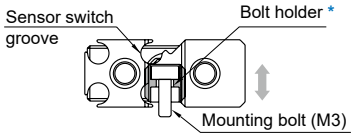
Order example

MCDJ — 03 — 6 — 50 — □

- MODEL
- TYPE OF BEARING: **03**: Slide bush
- TUBE I.D.
- STROKE
- Blank: Standard piping; **P**: Axial piping

Installation of sensor switch

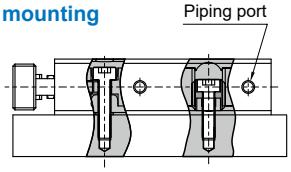




* Since the bolt holder is adjustable, the mounting bolt does not interfere with the sensor switch no matter what direction it is mounted from.
* Do not go beyond the body when adjusting the bolt holder.

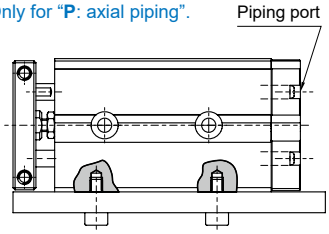
Mounting

Top mounting

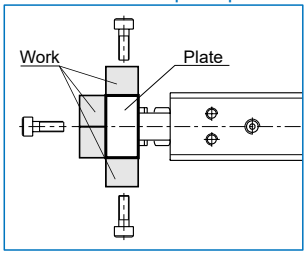


Side mounting

* Only for "**P**: axial piping".



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

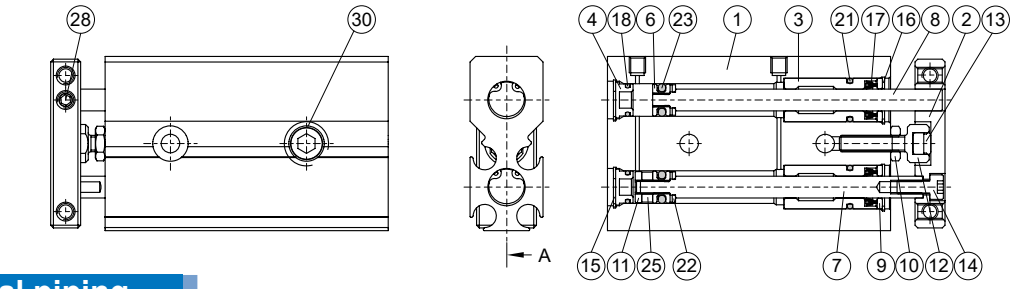


MCDJ-03 Inside structure & Parts list

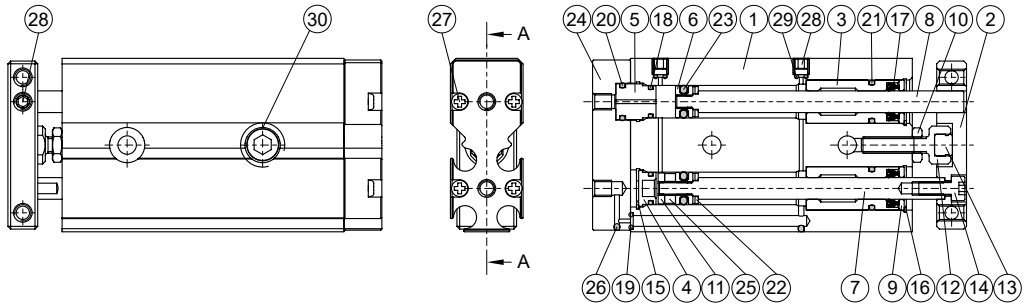
DUAL-ROD CYLINDER

mindman

Standrad piping



Axial piping



Material

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

Order example of Repair kits

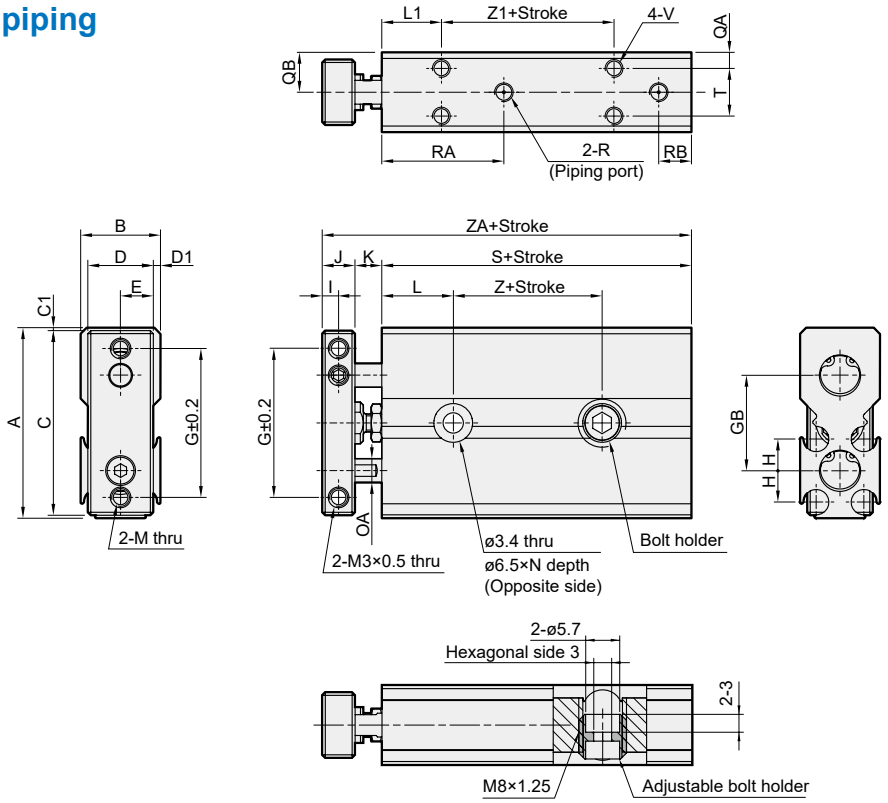
Piping type	Tube I.D.	Repair kits
Standard	ø6	**PS-MCDJ-6**
	ø10	**PS-MCDJ-10**
Axial	ø6	**PS-MCDJ-6-P**
	ø10	**PS-MCDJ-10-P**
Lubricant (10g)		**GR-A-010**

Weight

Unit: g

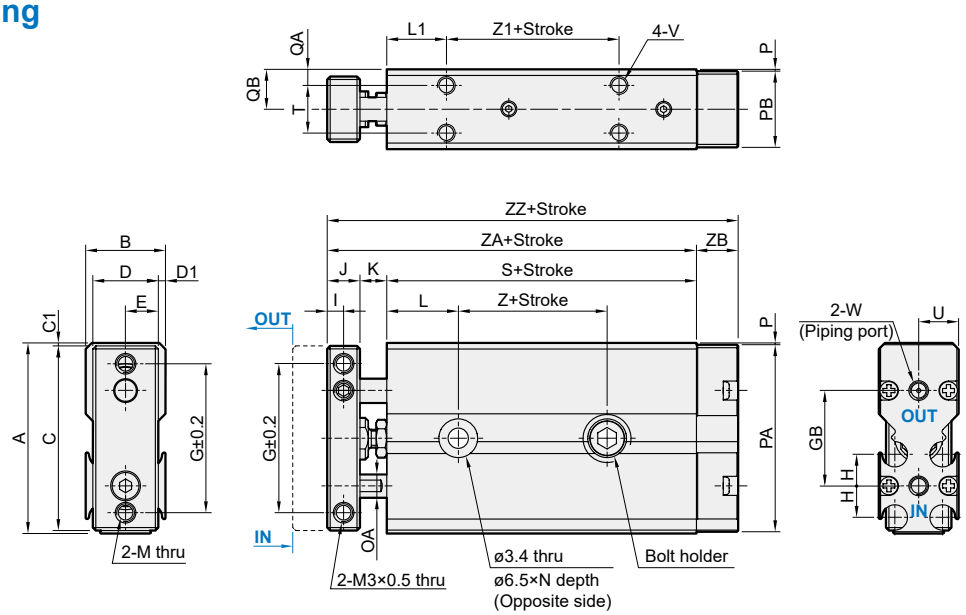
Piping type	Standard piping		Axial piping	
Tube I.D. / Stroke	ø6	ø10	ø6	ø10
10	45	97	51	109
20	54	111	61	124
30	64	125	71	137
40	74	139	80	152
50	84	154	90	166
75	—	188	—	201

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

MEMO

NOTE