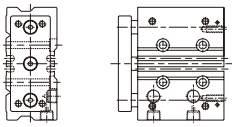
MCGB series

TWIN-GUIDE CYLINDER

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	

* RCE, RCE1, RDEP specification, please refer to page 8-10,14.

Order example

MCGB — 03 — 12 — 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

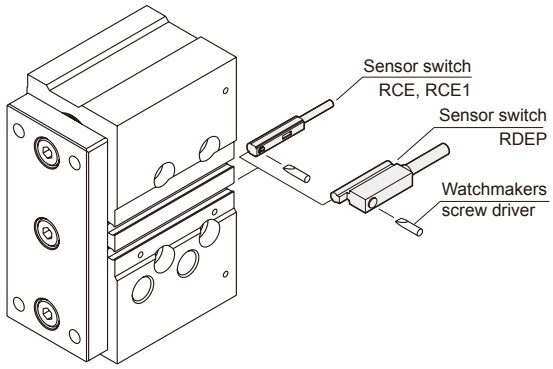


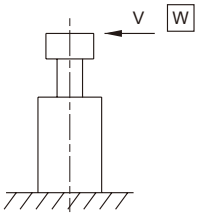
Table for standard stroke

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 consult us if stroke out of specification.

Capacity graph

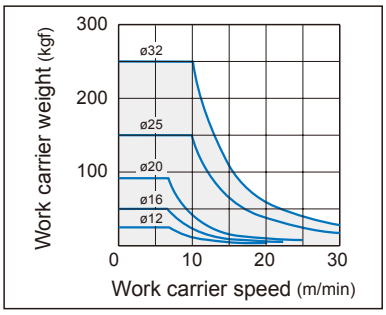
Capacity for the use as a stopper



Linear bearing type is not available as a stopper.

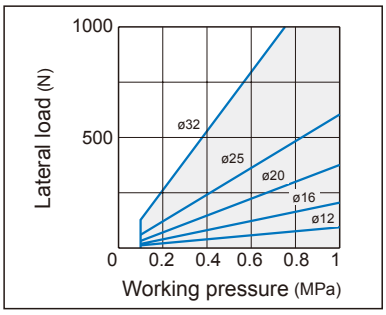
Stop capacity

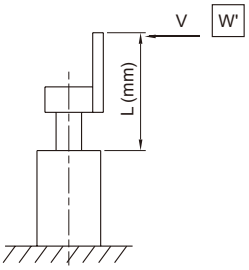
MCGB-03...30st



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.

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

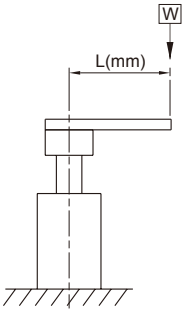
Coefficients for conversion

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

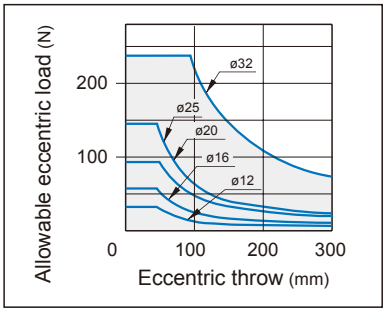
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5 MPa)



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

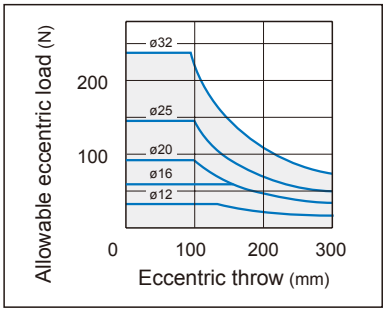
Slide bush

MCGB-03...10-50st



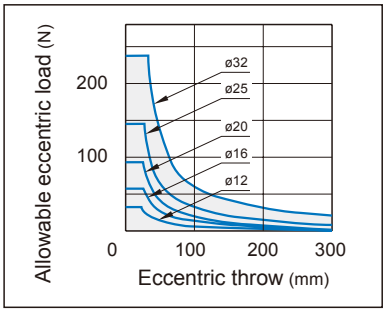
Slide bush

MCGB-03...75-200st



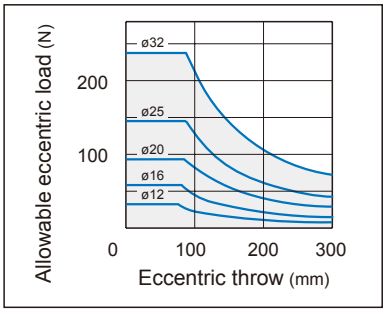
Linear bearing

MCGB-23...10-50st



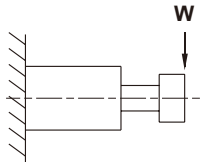
Linear bearing

MCGB-23...75-200st



Capacity table

Allowable lateral load

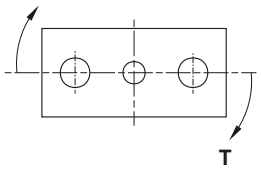


Shows the dynamic allowable value, when actuating the cylinder with lateral load **W** at the guide rods' top (vertical load against the guide rods).

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

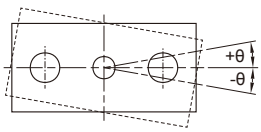


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

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

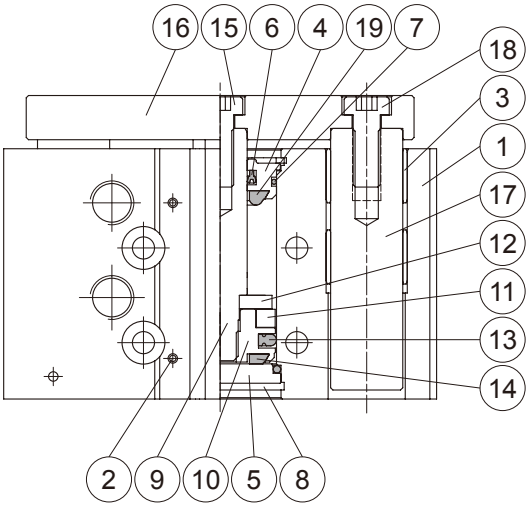


- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

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°

MCGB-03 Inside structure & Parts list

TWIN-GUIDE CYLINDER



Material

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

*Aluminum alloy

Order example of repair kits

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

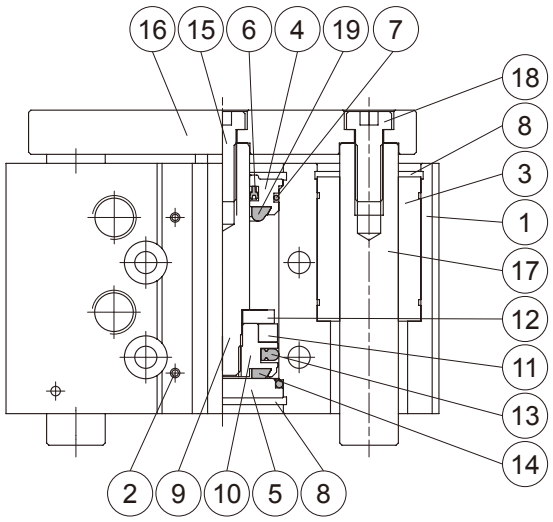
Cylinder weight

Unit: g

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

MCGB-23 Inside structure & Parts list

TWIN-GUIDE CYLINDER



Material

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

*Aluminum alloy

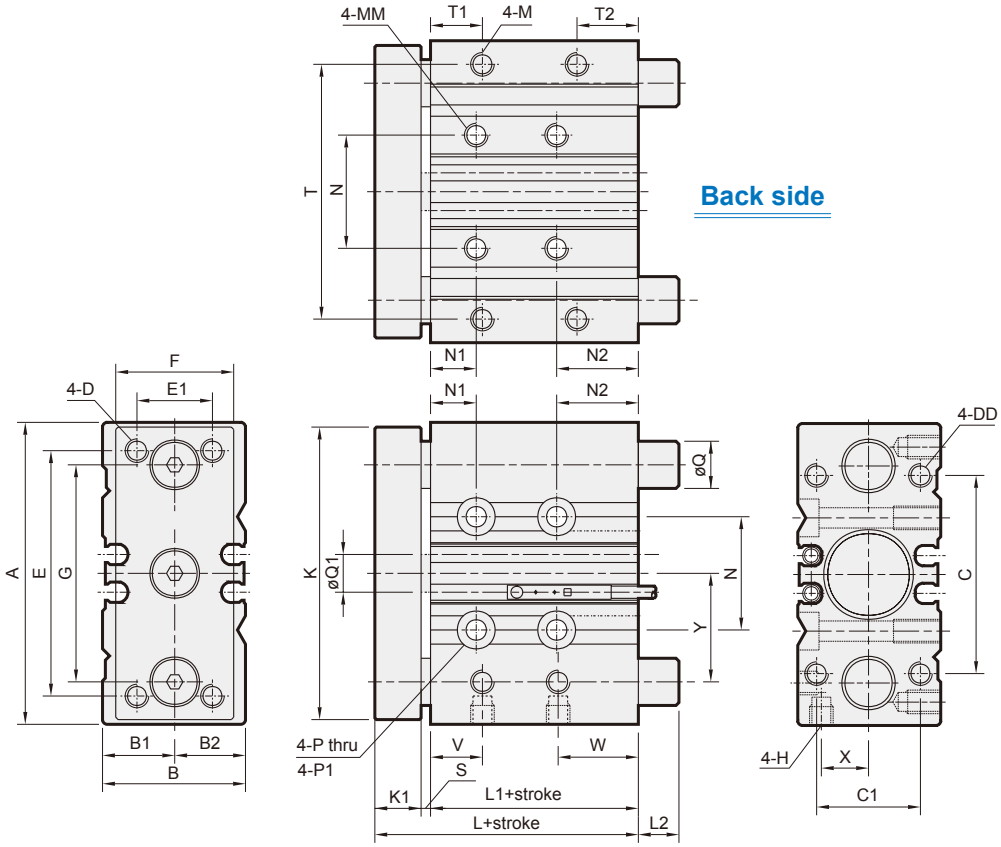
Order example of repair kits

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

Cylinder weight

Unit: g

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



MCGB-03 / MCGB-23

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

Code / Tube I.D.	N	N1	N2	P	P1	Q		Q1	S	T	T1	T2	V	W	X	Y
						MCGB-03	MCGB-23									
12	23	5	20	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