



Features

- Multi-ports as standard enabling both direction mounting.
- Non-rotating accuracy $\pm 0.1^\circ$
- 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
Port size	M3 \times 0.5	
Medium	Air	
Max. operating pressure	0.7 MPa	
Min. operating pressure	0.15 MPa	
Proof pressure	1 MPa	
Ambient temperature	$-5 \sim +60^\circ\text{C}$ (No freezing)	
Lubrication	Not required	
Available speed range	50~400 mm/sec	
Sensor switch (※1)	RDGV	

※1. RDGV specification, please refer to page 8-17.

※2. This product is not applicable for stopper purpose.

Order example

MCGS - 6 - 10

MODEL

TUBE I.D.

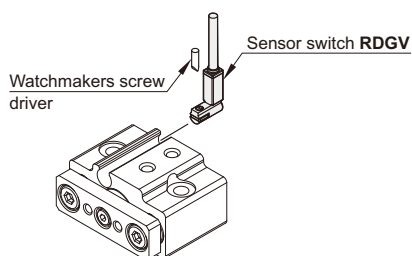
STROKE

Cylinder weight

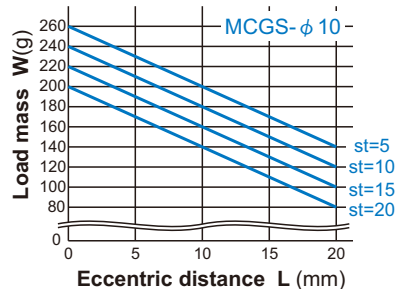
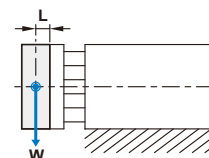
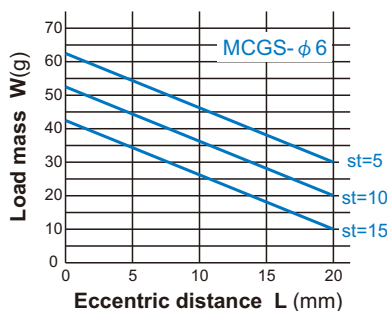
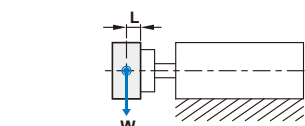
Unit: g

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

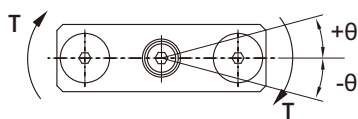
Installation of sensor switch



Allowable lateral load



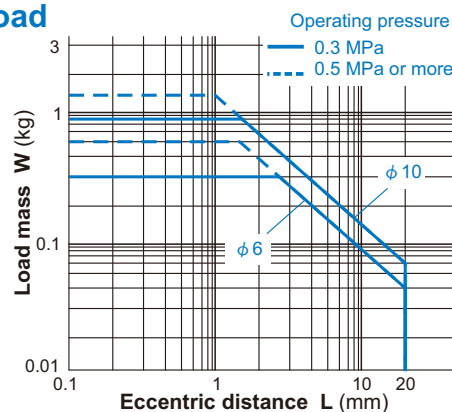
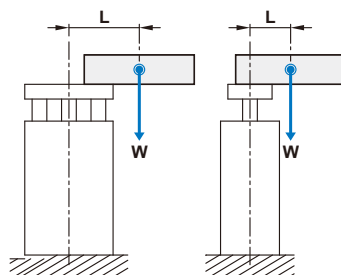
Allowable rotational torque & Non-rotating accuracy



Unit: N·m

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

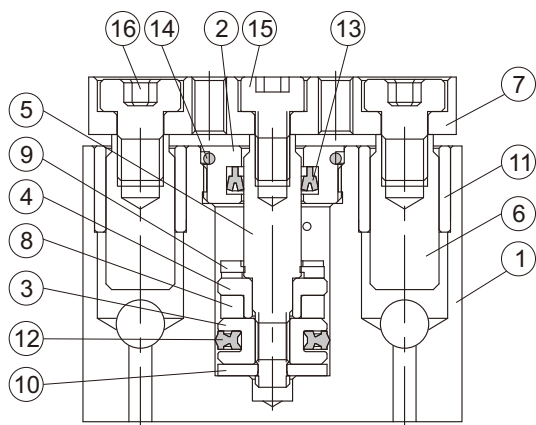
Allowable eccentric load



TWIN-GUIDE CYLINDER

Mindman

Inside structure & Parts list



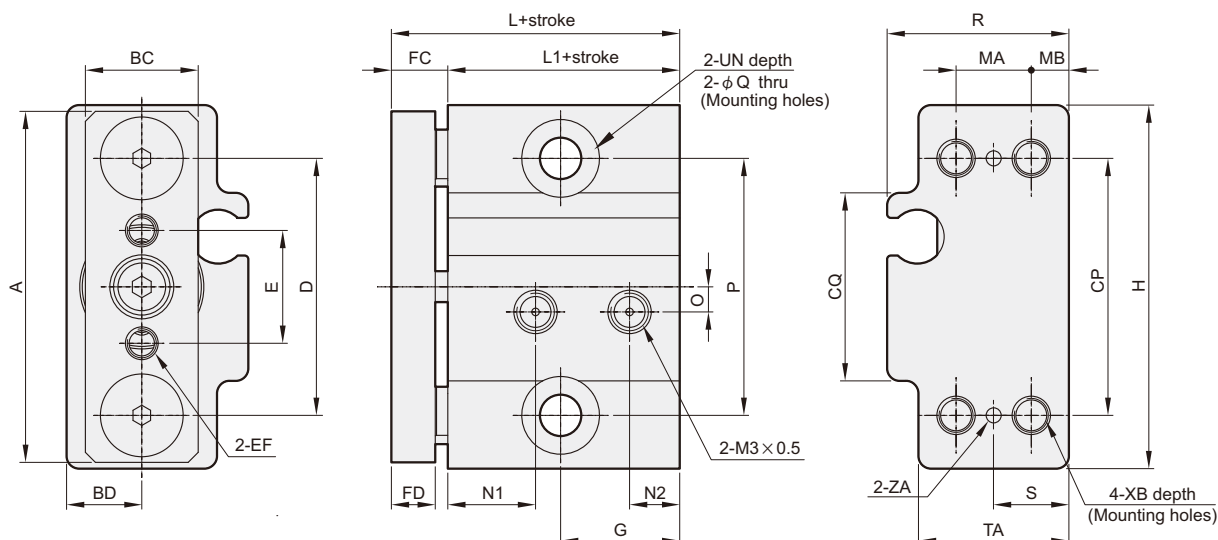
Material

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
$\phi 6$	PS-MCGS-6
$\phi 10$	PS-MCGS-10

Dimensions



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

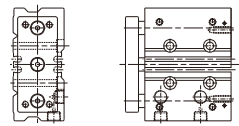
Code Tube I.D.	O	P	Q	R	S	TA	UN	XB	ZA
6	2	20.5	3.3	14.5	6	12	$\phi 6.2 \times 0.5$	M3×0.5×5	$\phi 1.2$
10	3	23	4.3	17	7.5	15	$\phi 8 \times 0.5$	M4×0.7×5	$\phi 2$



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	MCGS-*3		
Model			
Acting type	Double acting		
Tube I.D.(mm)	12, 16	20, 25, 32, 40	50, 63
Port size	M5×0.8	Rc1/8	Rc1/4
Medium	Air		
Operating pressure range	0.1~1 MPa		
Test pressure	1.5 MPa		
Ambient temperature	-5~+60°C (No freezing)		
Cushion	With rubber cushion pad		
Available speed range	50~500mm/sec		
Lubrication	Not required		
Sensor switch (※)	RCE, RCE1, RDEP		

Order example

MCGS – 03 – 12 – 50 – □

MODEL TUBE I.D. STROKE PORT THREAD

PURPOSE / TYPE OF BEARING

Code	Purpose / Type of bearing
03	Stop / Slide bearing
23*	Push / Linear bush bearing

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

※ Could attach a table for the use as a lifter.

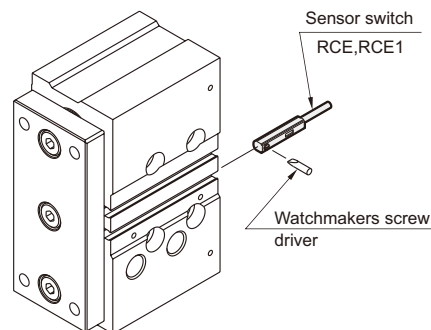
※ RCE, RCE1, RDEP specification, please refer to page 8-10, 15.

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
03	Slide bearing	$\phi 12$																
		$\phi 16$																
		$\phi 20$																
		$\phi 25$																
		$\phi 32^*$																
		$\phi 40$																
23	Linear bush bearing	$\phi 12$																
		$\phi 16$																
		$\phi 20$																
		$\phi 25$																
		$\phi 32^*$																
		$\phi 40$																

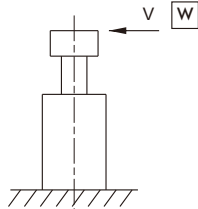
※ Tube I.D. $\phi 32$: 25mm for the shortest standard stroke.

Installation of sensor switch



Capacity graph

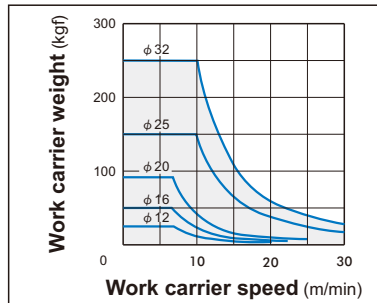
Capacity for the use as a stopper~



Linear bush bearing type is not available as a stopper.

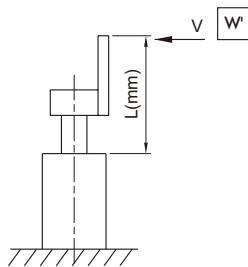
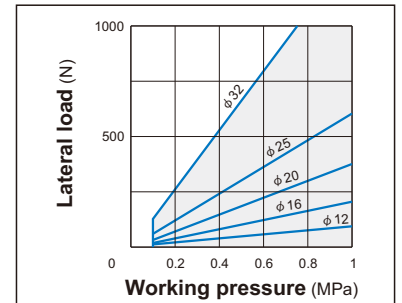
Stop capacity

MCGS-03...30st



Normal lateral load

MCGS-03...30st



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

Coefficients for conversion

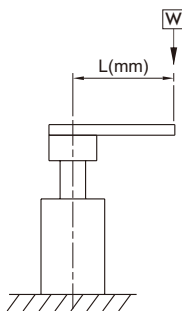
$$W = W' \times \frac{L}{\ell}$$

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

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

Capacity for the use as a lifter~

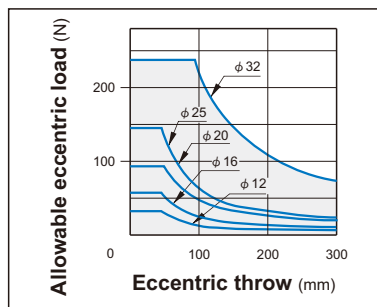
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5MPa)



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

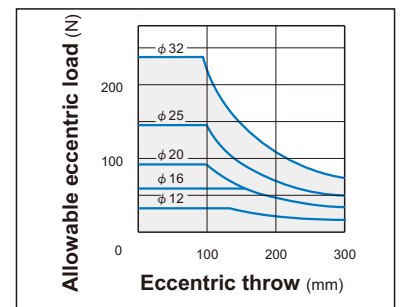
Slide bearing

MCGS-03...10-50st



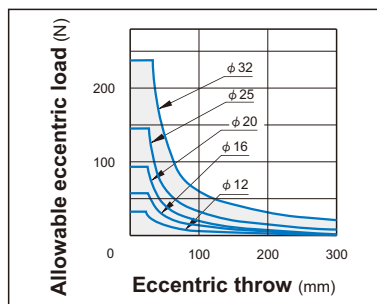
Slide bearing

MCGS-03...Over 51st



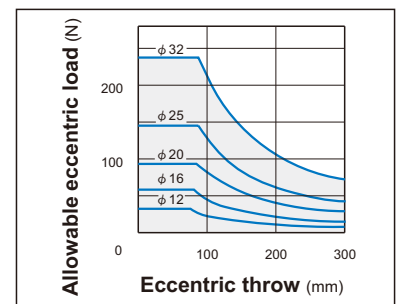
Linear bush bearing

MCGS-23...10-50st



Linear bush bearing

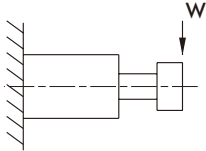
MCGS-23...Over 51st



Capacity table

Unit: N

Allowable lateral load

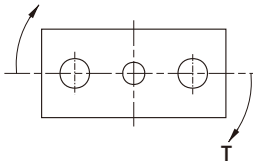


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

Tube I.D.	Bearing type	Stroke (mm)																
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400	
$\phi 12$	Slide bearing	31	24	/	19	16	13	37	31	15	13	12	10	9	/	/	/	
	Linear bush bearing	23	17	/	14	34	30	23	19	12	11	9	8	6	/	/	/	
$\phi 16$	Slide bearing	50	39	/	32	27	24	54	45	27	24	21	19	16	/	/	/	
	Linear bush bearing	36	29	/	24	59	52	40	33	20	17	15	13	10	/	/	/	
$\phi 20$	Slide bearing	/	51	/	44	39	35	54	46	74	66	59	54	28	24	21	19	
	Linear bush bearing	/	43	/	36	98	87	69	57	46	40	36	32	32	27	23	20	
$\phi 25$	Slide bearing	/	68	/	59	52	46	72	61	98	88	79	72	53	46	41	37	
	Linear bush bearing	/	67	/	56	148	132	105	87	70	62	55	50	42	36	30	27	
$\phi 32$	Slide bearing	/	/	165	/	/	/	129	106	90	138	123	111	101	88	77	68	61
	Linear bush bearing	/	/	104	/	/	/	74	165	138	114	100	90	81	66	56	48	42

Allowable rotating torque

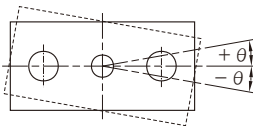
Unit: N.m



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

Tube I.D.	Bearing type	Stroke (mm)																
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400	
$\phi 12$	Slide bearing	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 bush bearing	0.47	0.35	/	0.29	0.71	0.62	0.4	0.38	0.13	0.11	0.09	0.08	0.07	/	/	/	
$\phi 16$	Slide bearing	1.14	0.9	/	0.74	0.63	0.55	1.23	1.04	0.31	0.27	0.24	0.22	0.18	/	/	/	
	Linear bush 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	/	/	/	
$\phi 20$	Slide bearing	/	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 bush bearing	/	1.19	/	0.99	2.69	2.4	1.89	1.56	1.26	1.1	0.98	0.88	0.43	0.36	0.31	0.27	
$\phi 25$	Slide bearing	/	2.19	/	1.88	1.65	1.47	2.31	1.94	3.15	2.8	2.52	2.3	0.85	0.74	0.66	0.59	
	Linear bush 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	
$\phi 32$	Slide bearing	/	/	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 bush bearing	/	/	4.17	/	/	/	2.95	6.6	5.52	4.56	4.02	3.59	3.24	1.29	1.09	0.94	0.82

Anti-roll accuracy



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

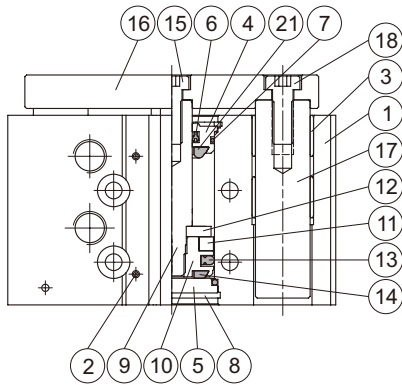
Tube I.D.	Bearing type	Anti-roll accuracy
		θ
$\phi 12$	Slide bearing	$\pm 0.09^\circ$
	Linear bush bearing	$\pm 0.06^\circ$
$\phi 16$	Slide bearing	$\pm 0.08^\circ$
	Linear bush bearing	$\pm 0.06^\circ$
$\phi 20$	Slide bearing	$\pm 0.08^\circ$
	Linear bush bearing	$\pm 0.03^\circ$
$\phi 25$	Slide bearing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

MCGS-03 Inside structure & Parts list

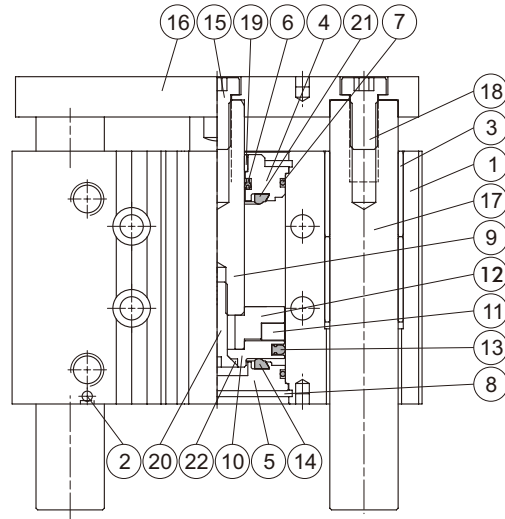
TWIN-GUIDE CYLINDER



ϕ 12~ ϕ 32



ϕ 40~ ϕ 63



Material

No.	Part name	Tube I.D.	12	16	20	25	32	40	50	63	Qty	Repair kits (inclusion)
1	Body		Aluminum alloy								1	
2	Ball		Stainless steel								1	
3	Slide bearing		Bronze alloy						Bearing alloy		4	
4	Rod cover		Aluminum alloy								1	
5	Head cover	※	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	●

※ Aluminum alloy

Order example of repair kits

Tube I.D.	Repair kits
ϕ 12	PS-MCGS-12
ϕ 16	PS-MCGS-16
ϕ 20	PS-MCGS-20
ϕ 25	PS-MCGS-25
ϕ 32	PS-MCGS-32
ϕ 40	PS-MCGS-40
ϕ 50	PS-MCGS-50
ϕ 63	PS-MCGS-63

Cylinder weight Unit: g

Model	Basic weight MCGS-03	Stroke 5 mm MCGS-03
Tube I.D.		
ϕ 12	191	21
ϕ 16	283	28
ϕ 20	450	45
ϕ 25	670	63
ϕ 32	1,210	90
ϕ 40	1,474	88
ϕ 50	2,540	140
ϕ 63	3,345	157

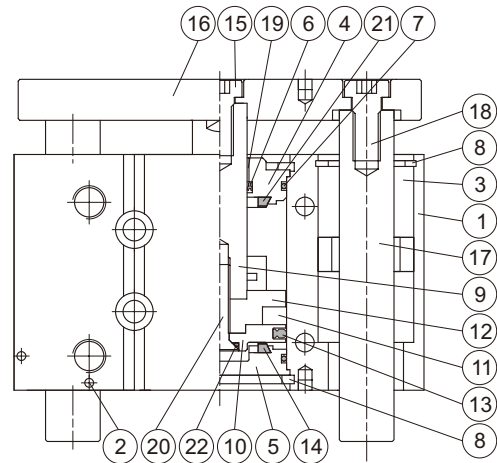
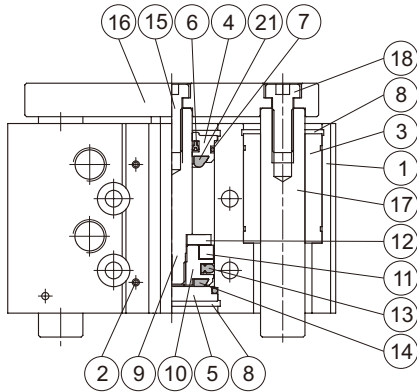
MCGS-23 Inside structure & Parts list

TWIN-GUIDE CYLINDER



$\phi 12 \sim \phi 32$

$\phi 40 \sim \phi 63$



Material

No.	Part name	Tube I.D.	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body		Aluminum alloy								1	
2	Ball		Stainless steel								1	
3	Linear bush bearing		—								2 or 4	
4	Rod cover		Aluminum alloy								1	
5	Head cover		※	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	●

※ Aluminum alloy

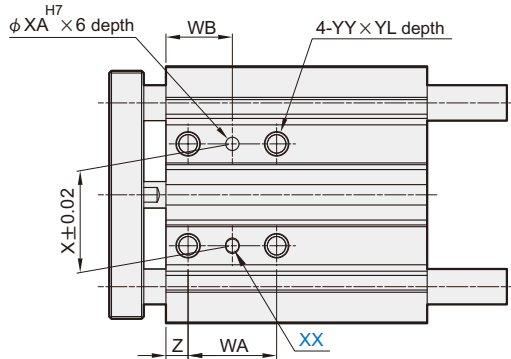
Order example of repair kits

Tube I.D.	Repair kits
$\phi 12$	PS-MCGS-12
$\phi 16$	PS-MCGS-16
$\phi 20$	PS-MCGS-20
$\phi 25$	PS-MCGS-25
$\phi 32$	PS-MCGS-32
$\phi 40$	PS-MCGS-40
$\phi 50$	PS-MCGS-50
$\phi 63$	PS-MCGS-63

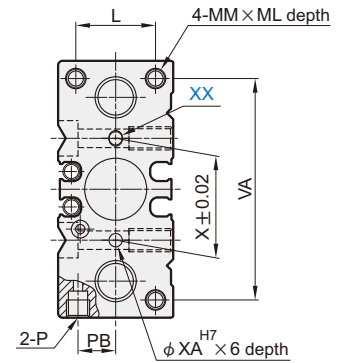
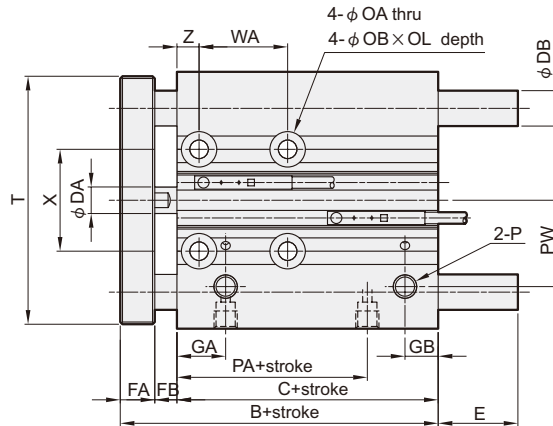
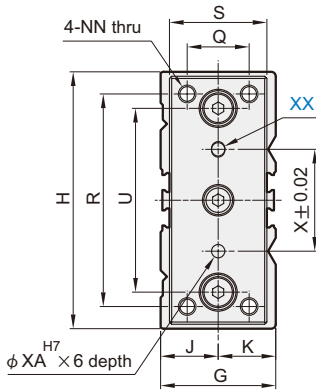
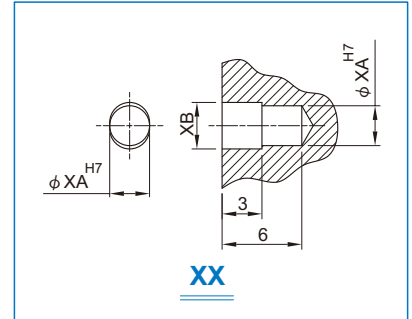
Cylinder weight

Unit: g

Model	Basic weight MCGS-23	Stroke 5 mm MCGS-23
Tube I.D.		
$\phi 12$	211	18
$\phi 16$	260	30
$\phi 20$	470	45
$\phi 25$	740	60
$\phi 32$	1,170	85
$\phi 40$	1,300	98
$\phi 50$	2,360	150
$\phi 63$	3,060	174



Back side



MCGS-03 / MCGS-23

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

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

MCGS-03

Code	E		
Tube I.D.	10-50st	51-100st	101st-
12	—	18.5	43
16	—	18.5	49

Code	E		
Tube I.D.	10-50st	51-200st	201st-
20	—	31.5	69
25	—	31.5	68.5
32	37.5	42.5	80.5

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

MCGS-23

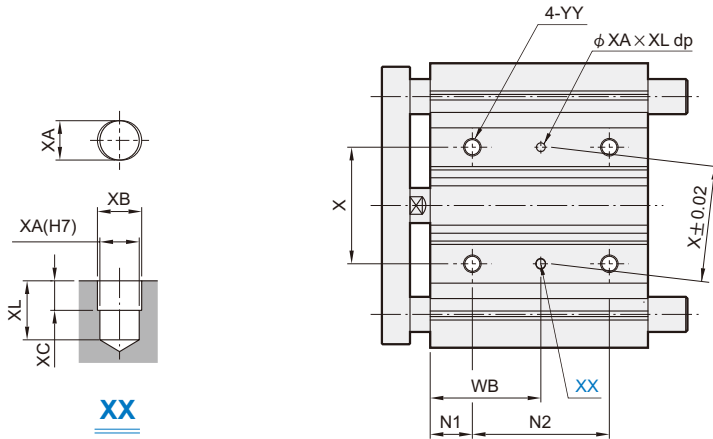
Code	E		
Tube I.D.	10-30st	31-100st	101st-
12	1	13	43
16	3	19	49

Code	E			
Tube I.D.	20-30st	31-100st	101-200st	201st-
20	10	27	51	69
25	16	32	51	68.5

Code	WA					WB				
	25-49st	50-100st	125-200st	201-300st	301st-	25-49st	50-100st	125-200st	201-300st	301st-
32	24	48	124	200	300	33	45	83	121	171

Code	E			
Tube I.D.	25-50st	51-100st	101-200st	201st-
32	21.5	38.5	58.5	80.5

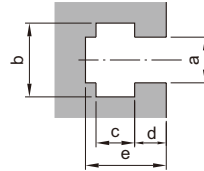
*1. When stroke length is equal to 19mm or less, GB=7.5 mm
 *2. When stroke length is equal to 19mm or less, GB=9 mm



XX

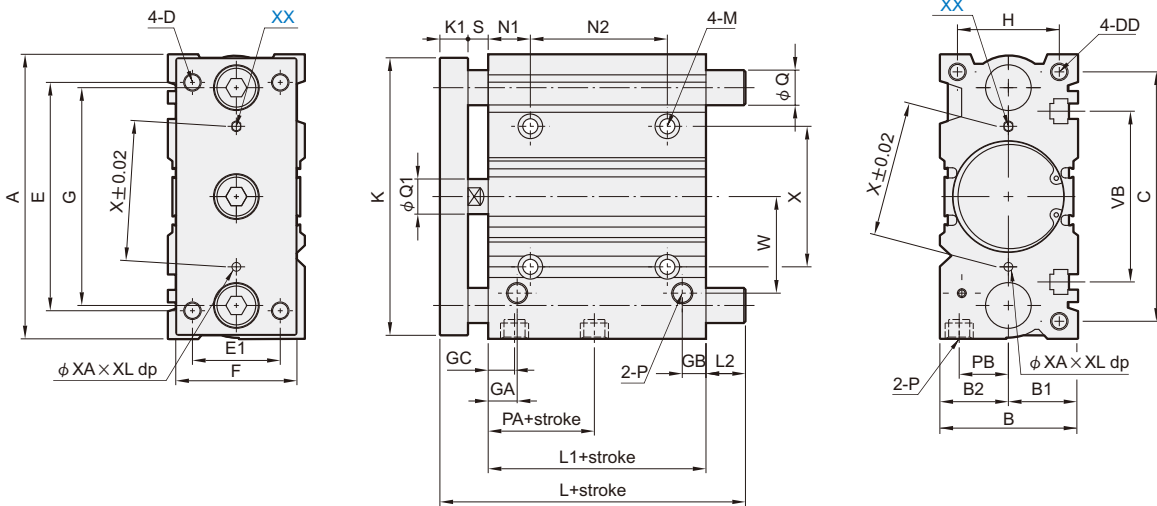
Back side

T slot for hexagon head bolt



T slot for hexagon head bolt

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
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	$\phi 6.6$ thru, $\phi 11 \times 7.5$ dp	22
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	$\phi 8.6$ thru, $\phi 14 \times 9$ dp	24
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	$\phi 8.6$ thru, $\phi 14 \times 9$ dp	24

Code Tube I.D.	P	PA	PB	Q1	S	VB	W	X	XA ^{H7}	XB	XC	XL	YY	N2			WB		
														25st	50,75,100st	101st~	25st	50,75,100st	101st~
40	Rc1/8	13	18	16	10	72	38	50	4	4.5	3	6	M8×1.25×16 dp	24	48	124	34	46	84
50	Rc1/4	9	21.5	20	12	92	47	66	5	6	4	8	M10×1.5×20 dp	24	48	124	36	48	86
63	Rc1/4	14	28	20	12	110	55	80	5	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	51st~	
40	97	102	31	36	$\phi 20$
50	106.5	118	34.5	46	$\phi 25$
63	106.5	118	29.5	41	$\phi 25$

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Code Tube I.D.	L			L2			Q
	25,50st	75,100st	101st~	25,50st	75,100st	101st~	
40	81	98	118	15	32	52	$\phi 16$
50	93	114	134	21	42	62	$\phi 20$
63	93	114	134	16	37	57	$\phi 20$