MCGB series

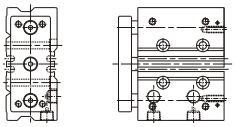
TWIN-GUIDE CYLINDER

Mindman

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, 40	50, 63
Port size	M5×0.8	PT 1/8	PT 1/4
Medium	Air		
Operating pressure range	1~9.9 kgf/cm^2		
Proof pressure	15 kgf/cm^2		
Ambient temperature	−5~+60℃ (No freezing)		
Cushion	With rubber cushion pad		
Lubrication	Not required		
Sensor switch	RCE, RCE1		

Order example:

MCGB − 03 − 12 − 50 − BSP

- MCGB: MODEL
- 03: PURPOSE / TYPE OF BEARING
- 12: TUBE I.D.
- 50: STROKE
- BSP: PORT THREAD

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

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

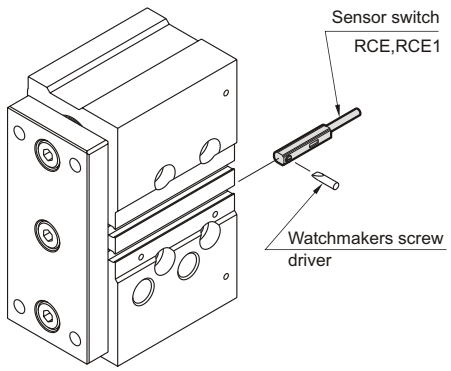
PORT THREAD
Blank: PT thread
BSP: BSP thread
NPT: NPT thread

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 bearing	ϕ12	—	—		—	—	—	—	—				
		ϕ16	—	—		—	—	—	—	—				
		ϕ20		—		—	—	—	—	—	—	—	—	—
		ϕ25		—		—	—	—	—	—	—	—	—	—
		ϕ32*			—	—	—	—	—	—	—	—	—	—
		ϕ40			—			—	—	—				
		ϕ50			—			—	—	—				
		ϕ63			—			—	—	—				
MCGB -23	Linear bush bearing	ϕ12	—	—		—	—	—	—	—				
		ϕ16	—	—		—	—	—	—	—				
		ϕ20		—		—	—	—	—	—	—	—	—	—
		ϕ25		—		—	—	—	—	—	—	—	—	—
		ϕ32			—	—	—	—	—	—	—	—	—	—
		ϕ40			—			—	—	—				
		ϕ50			—			—	—	—				
		ϕ63			—			—	—	—				

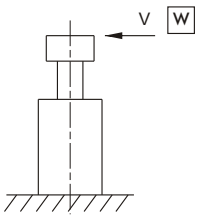
※1.MCGB-03 ~Tube I.D. ϕ32: 25mm for the shortest standard stroke.
2.Please consult us if stroke out of specification.

Installation of sensor switch



Capacity graph

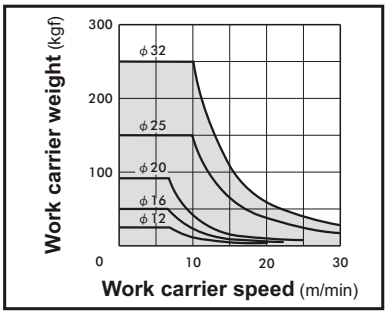
Capacity for the use as a stopper~



Linear bush bearing type is not available as a stopper.

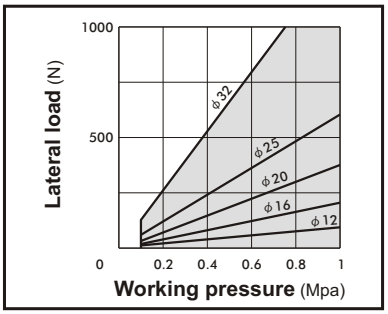
Stop capacity

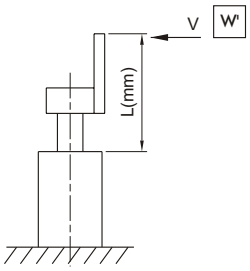
MCGB-03...30st



Normal lateral load

MCGB-03...30st





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

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

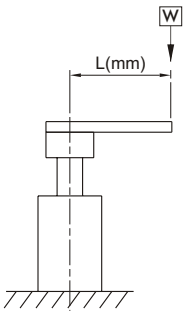
Coefficients for conversion

MCGB series	ϕ12	ϕ16	ϕ20	ϕ25	ϕ32
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~

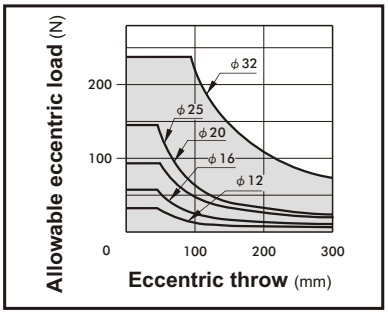
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5MPa)



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

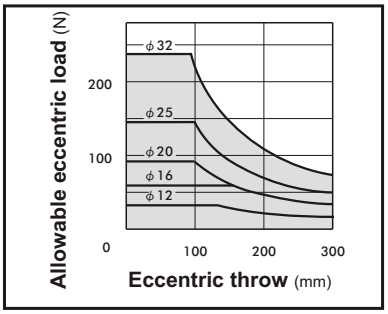
Slide bearing

MCGB-03...10-50st



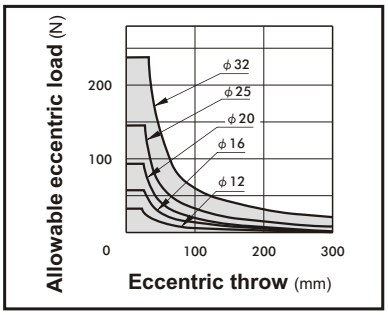
Slide bearing

MCGB-03...75-200st



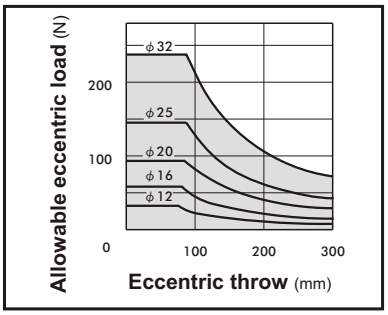
Linear bush bearing

MCGB-23...10-50st



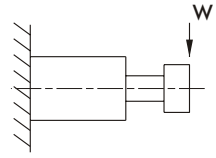
Linear bush bearing

MCGB-23...75-200st



Capacity table

Allowable lateral load :

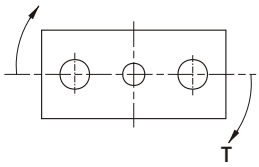


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

(N)

Tube I.D.	Bearing type	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
ϕ12	Slide bearing	31	24		19	16	13	37	31				
	Linear bush bearing	23	17		14	34	30	23	19				
ϕ16	Slide bearing	50	39		32	27	24	54	45				
	Linear bush bearing	36	29		24	59	52	40	33				
ϕ20	Slide bearing		51		44	39	35	54	46	74	66	59	54
	Linear bush bearing		43		36	98	87	69	57	46	40	36	32
ϕ25	Slide bearing		68		59	52	46	72	61	98	88	79	72
	Linear bush bearing		67		56	148	132	105	87	70	62	55	50
ϕ32	Slide bearing			165			129	106	90	138	123	111	101
	Linear bush bearing			104			74	165	138	114	100	90	81

Allowable rotating torque :

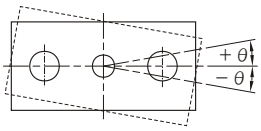


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

(N.m)

Tube I.D.	Bearing type	Stroke (mm)											
		10	20	25	30	40	50	75	100	125	150	175	200
ϕ12	Slide bearing	0.64	0.48		0.39	0.32	0.28	0.75	0.63				
	Linear bush bearing	0.47	0.35		0.29	0.71	0.62	0.4	0.38				
ϕ16	Slide bearing	1.14	0.9		0.74	0.63	0.55	1.23	1.04				
	Linear bush bearing	0.84	0.66		0.54	1.35	1.19	0.93	1.76				
ϕ20	Slide bearing		1.14		1.21	1.07	0.95	1.49	1.25	2.03	1.81	1.63	1.48
	Linear bush bearing		1.19		0.99	2.69	2.4	1.89	1.56	1.26	1.1	0.98	0.88
ϕ25	Slide bearing		2.19		1.88	1.65	1.47	2.31	1.94	3.15	2.8	2.52	2.3
	Linear bush bearing		2.14		1.79	4.74	4.22	3.36	2.78	2.25	1.98	1.76	1.59
ϕ32	Slide bearing			6.61			5.16	4.23	3.59	5.52	4.93	4.45	4.06
	Linear bush bearing			4.17			2.95	6.6	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
ϕ12	Slide bearing	±0.09°
	Linear bush bearing	±0.06°
ϕ16	Slide bearing	±0.08°
	Linear bush bearing	±0.06°
ϕ20	Slide bearing	±0.08°
	Linear bush bearing	±0.03°
ϕ25	Slide bearing	±0.07°
	Linear bush bearing	±0.05°
ϕ32	Slide bearing	±0.07°
	Linear bush bearing	±0.03°

MCGB-03 Inside structure & Parts list

TWIN-GUIDE CYLINDER

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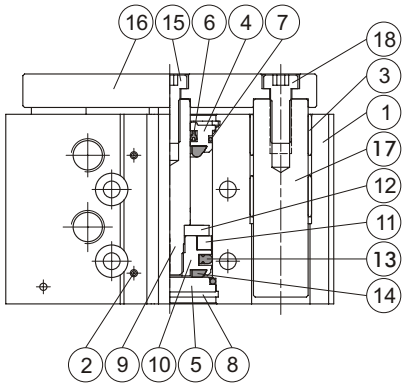
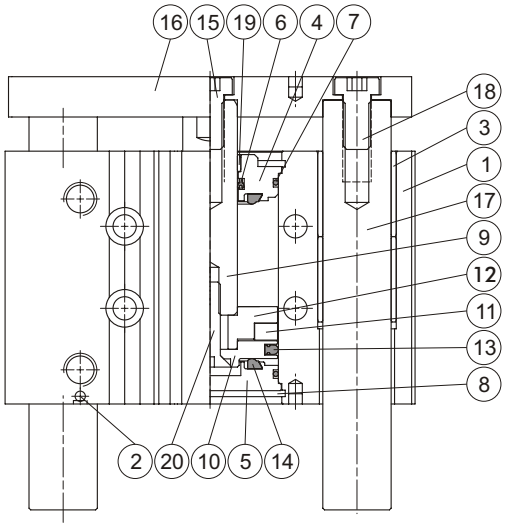
ϕ 12~ϕ 32



ϕ 40~ϕ 63



Material :

No.	Part name \ Tube I.D.	12	16	20	25	32	40	50	63
1	Body	Aluminum alloy							
2	Ball	Stainless steel							
3	Slide bearing	Brass							
4	Rod cover	Aluminum alloy							
5	Head cover	※ 1	Carbon steel				Aluminum alloy		
6	Rod packing	NBR							
7	Cover ring	NBR							
8	Snap ring	Spring steel							
9	Piston rod	Stainless steel			Medium carbon steel				
10	Piston	Aluminum alloy							
11	Magnet ring	Magnet material							
12	Magnet holder	Stainless steel					Aluminum alloy		
13	Piston packing	NBR							
14	Head cushion	NBR							
15	Bolt	SCM							
16	Plate	Carbon steel							
17	Guide rod	Medium carbon steel							
18	Screw	SCM							
19	Rod bush	—					Brass		
20	Piston bolt	—					SCM		

※ 1 : Aluminum alloy

Cylinder weight :

(unit : g)

Model	Basic weight **MCGB-03**	Stroke 5 mm **MCGB-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

MCGB-23 Inside structure & Parts list

TWIN-GUIDE CYLINDER

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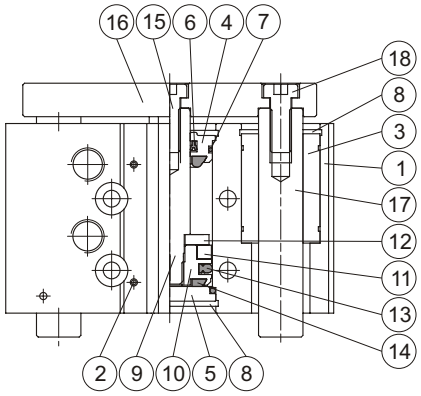
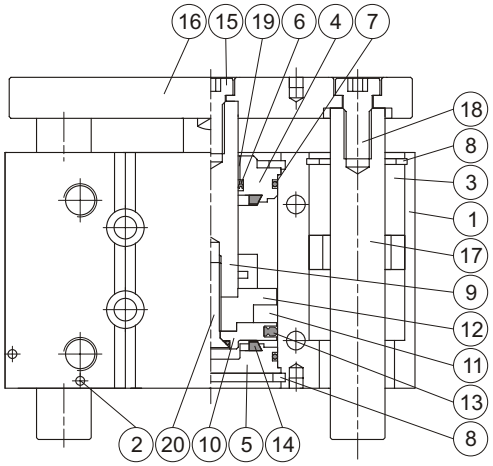
ϕ 12~ϕ 32



ϕ 40~ϕ 63



Material :

No.	Part name \ Tube I.D.	12	16	20	25	32	40	50	63
1	Body	Aluminum alloy							
2	Ball	Stainless steel							
3	Linear bush bearing	—							
4	Rod cover	Aluminum alloy							
5	Head cover	※ 1	Carbon steel				Aluminum alloy		
6	Rod packing	NBR							
7	Cover ring	NBR							
8	Snap ring	Spring steel							
9	Piston rod	Stainless steel			Medium carbon steel				
10	Piston	Aluminum alloy							
11	Magnet ring	Magnet material							
12	Magnet holder	Stainless steel					Aluminum alloy		
13	Piston packing	NBR							
14	Head cushion	NBR							
15	Bolt	SCM							
16	Plate	Carbon steel							
17	Guide rod	Bearing steel							
18	Screw	SCM							
19	Rod bush	—					Brass		
20	Piston bolt	—					SCM		

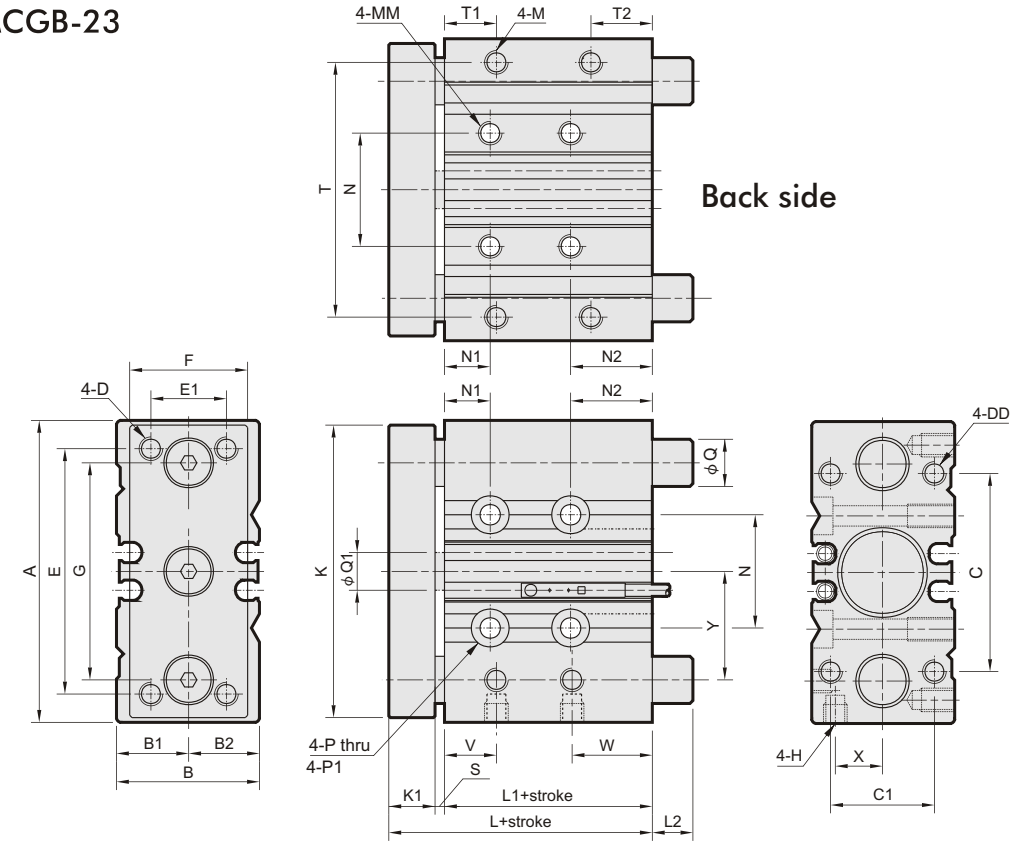
※ 1 : Aluminum alloy

Cylinder weight :

(unit : g)

Model	Basic weight **MCGB-23**	Stroke 5 mm **MCGB-23**
Tube I.D.		
ϕ 12	211	18
ϕ 16	260	30
ϕ 20	470	45
ϕ 25	740	60
ϕ 32	1,170	85
ϕ 40	—	—
ϕ 50	—	—
ϕ 63	—	—

MCGB-03/MCGB-23



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	N	N1	N2	P
12	58	26	13	13	40	18	M4×0.7	M4×0.7×9dp	48	14	22	41.5	M5×0.8	56	8	39	29		M4×0.7×7dp	M5×0.8×10dp	23	5	20	ϕ4.3
16	64	30	15	15	42	22	M5×0.8	M5×0.8×11dp	52	16	25	46	M5×0.8	62	10	43	31		M5×0.8×8dp	M5×0.8×10dp	24	5	22	ϕ4.3
20	85	36	17	19	52	26	M5×0.8	M5×0.8×13dp	60	18	30	55	PT 1/8	72	10	47	35	※	M5×0.8×7dp	M6×1.0×12dp	28	19	16	ϕ5.3
25	96	42	21	21	62	32	M6×1.0	M6×1.0×15dp	70	26	38	65	PT 1/8	86	10	47.5	35.5		M6×1.0×9dp	M6×1.0×12dp	34	22	12.5	ϕ5.3
32	116	51	26	25	80	38	M8×1.25	M8×1.25×18dp	96	30	48	80	PT 1/8	112	12	47.5	33.5		M8×1.25×11dp	M8×1.25×16dp	42	22	14.5	ϕ6.6

Code / Tube I.D.	P1	Q		Q1	S	T	T1	T2	V	W	X	Y
		MCGB-03	MCGB-23									
12	ϕ8×4.5dp	8	6	6	2	50	12	12	11	15	8.5	19.5
16	ϕ8×4.5dp	10	8	8	2	54	11	13	11	17	10	23
20	ϕ9.5×5.5dp	12	10	10	2	64	11	14	12	23	11.5	24.5
25	ϕ9.5×5.5dp	16	13	12	2	76	12	13.5	11	23.5	13.5	24
32	ϕ11×6.5dp	20	16	16	2	100	12	16.5	11.5	25	16	31

L2 dimensions list

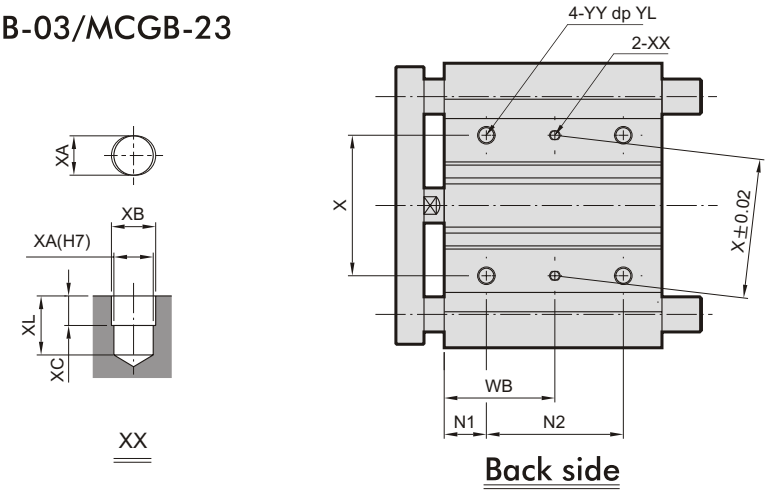
MCGB-03

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

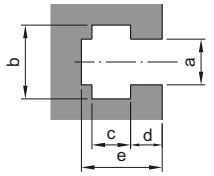
MCGB-23

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

MCGB-03/MCGB-23

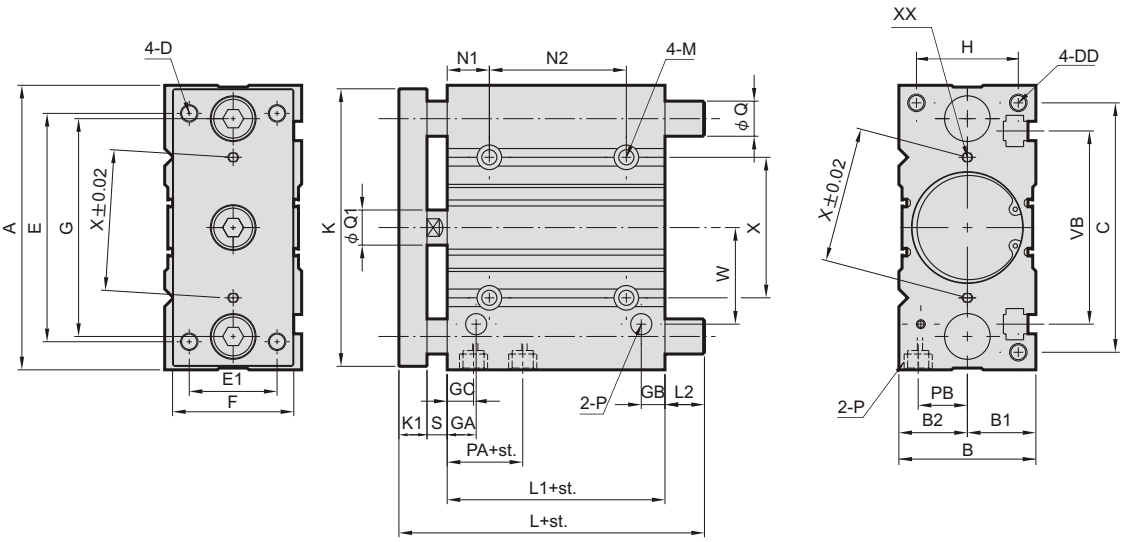


T slot for hexagon head bolt



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



MCGB-03/MCGB-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	ϕ6.6thru, ϕ11×7.5dp	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	ϕ8.6thru, ϕ14×9dp	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	ϕ8.6thru, ϕ14×9 dp	24

Code / Tube I.D.	P	PA	PB	Q1	S	VB	W	X	XA H7	XB	XC	XL	YY	YL	N2			WB		
															25st	50,75,100st	100st~	25st	50,75,100st	100st~
40	PT 1/8	13	18	16	10	72	38	50	4	4.5	3	6	M8×1.25	16	24	48	124	34	46	84
50	PT 1/4	9	21.5	20	12	92	47	66	5	6	4	8	M10×1.5	20	24	48	124	36	48	86
63	PT 1/4	14	28	20	12	110	55	80	5	6	4	8	M10×1.5	20	28	52	128	38	50	88

MCGB-03

Code / Tube I.D.	L		L2		Q
	25,50ST	50ST~	25,50ST	50ST~	
40	97	102	31	36	ϕ20
50	106.5	118	34.5	46	ϕ25
63	106.5	118	29.5	41	ϕ25

MCGB-23

Code / Tube I.D.	L			L2			Q
	25,50ST	75,100ST	100ST~	25,50ST	75,100ST	100ST~	
40	81	98	118	15	32	52	ϕ16
50	93	114	134	21	42	62	ϕ20
63	93	114	134	16	37	57	ϕ20