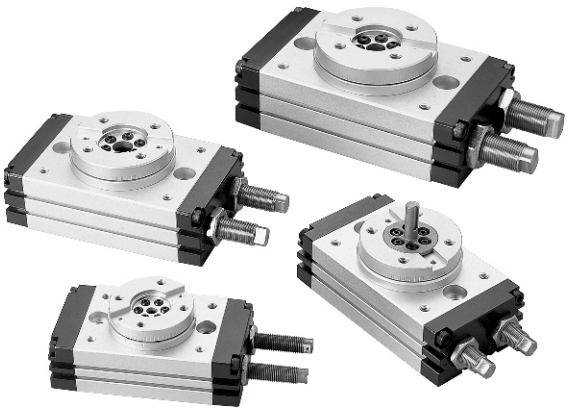
MCRB series

ROTARY ACTUATOR



Features:

- The swing motion with twin-piston and rack-pinion driving.
- Adjustable swing angle(0° ~190°), three Body mounting mode .
- Rail type mounting allows switch position to be adjusted very easily.

Specification:

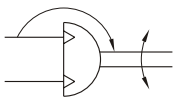
Model	MCRB			
Acting type	Double acting			
Tube I.D. (mm)	ϕ16	ϕ20	ϕ25	ϕ32
Port size Rc(PT)	PT 1/8			
Medium	Air			
Operating pressure range	1~9.9 kgf/cm^2			
Proof pressure	15 kgf/cm^2			
Ambient temperature	−5~+60℃ (No freezing)			
Lubrication	Not required			
Cushion	NBR spacer			
Stable rotation time regulation range	0.2~1.0 s/90°			
Sensor switch	RCD			
Weight (kg)	0.7	1.16	1.57	3.07

Order example:

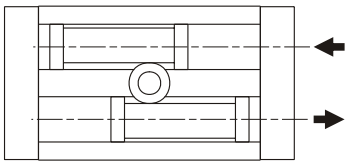
MCRB − 20R − FR − BSP

- MODEL
- TUBE I.D.
- ANGLE ADJUSTER
  Blank: adjuster bolts
  R: Shock absorber
- TYPE
  Blank: Standard type
  FR: Flange rod type
- PORT THREAD
  Blank: PT thread
  BSP: BSP thread
  NPT: NPT thread

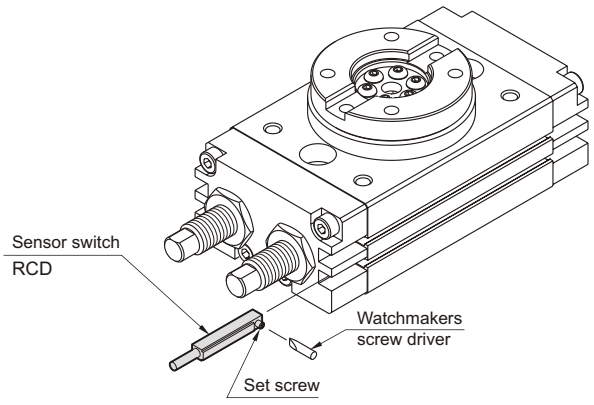
Symbol:



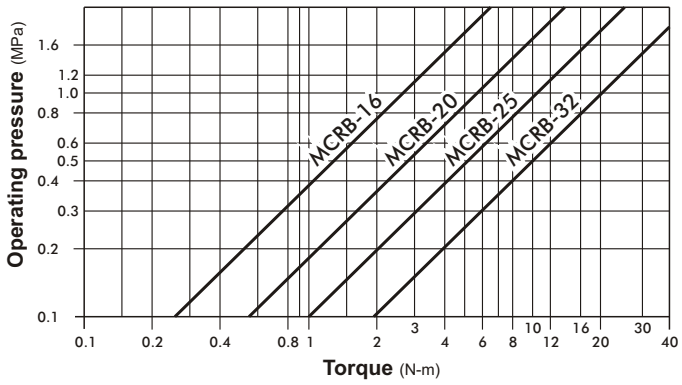
Action profile:



Installation of sensor switch:



Torque diagram



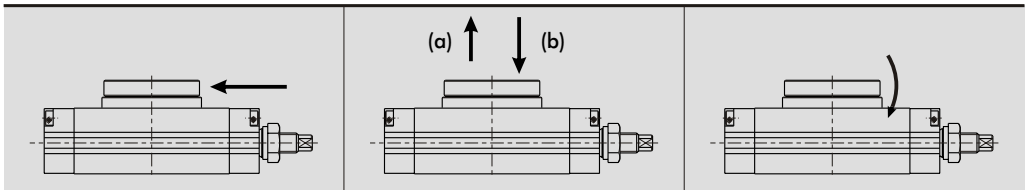
Theoretic force

unit: N・m (kgf・m)

Type		MCRB			
Bore		16	20	25	32
Operating pressure (Mpa)	0.1	0.24(0.02)	0.50(0.05)	0.98(0.1)	1.94(0.2)
	0.2	0.48(0.05)	1.01(0.1)	1.96(0.2)	3.86(0.39)
	0.3	0.72(0.07)	1.51(0.15)	2.95(0.3)	5.80(0.59)
	0.4	0.96(0.1)	2.01(0.2)	3.93(0.4)	7.72(0.79)
	0.5	1.21(0.12)	2.51(0.25)	4.91(0.5)	9.86(1.0)
	0.6	1.45(0.15)	3.02(0.3)	5.89(0.6)	11.58(1.18)
	0.7	1.69(0.17)	3.52(0.35)	6.87(0.7)	13.52(1.38)

Allowable Load

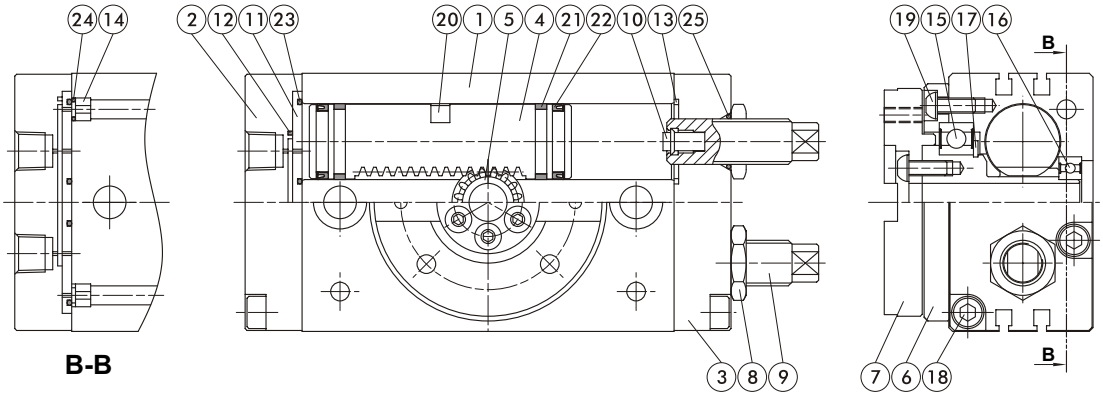
Set the load and moment to be applied to the table within the allowable values shown in the table below.
(Values outsize of limitations will cause excessive play, deteriorate accuracy, and shorten service life.)



Bore	Allowable radial load (N)	Allowable thrust load (N)		Allowable moment (Nm)
		(a)	(b)	
16	78	74	78	2.4
20	147	137	137	4.0
25	196	197	363	5.3
32	314	296	451	9.7

MCRB Inside structure & Parts list

ROTARY ACTUATOR

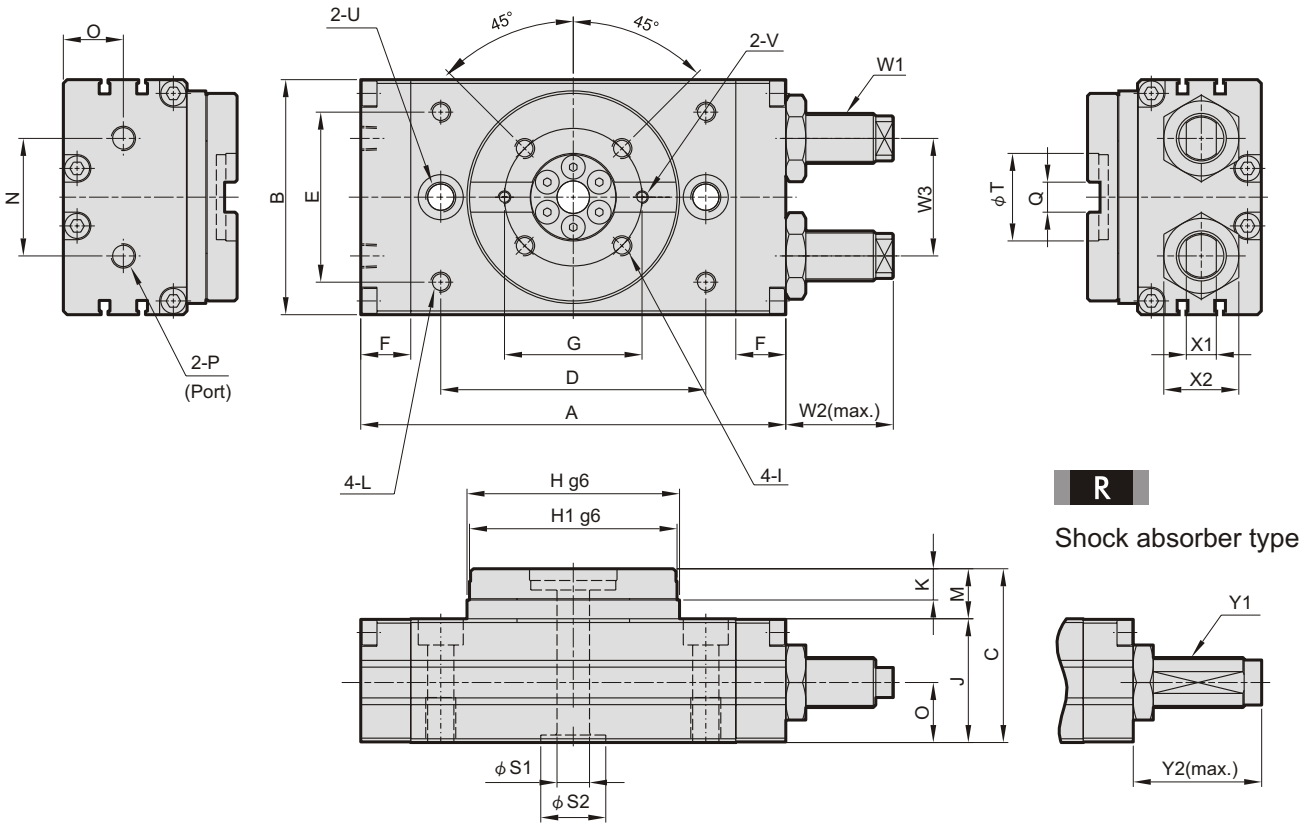


Material

No.	Part name	Material
1	Body	Aluminum alloy
2	Cover	Aluminum alloy
3	End cover	Aluminum alloy
4	Piston	Stainless steel
5	Pinion	Chromium molybdenum steel
6	Bearing retainer	Aluminum alloy
7	Table	Aluminum alloy
8	Seal nut	Stainless steel
9	Shock absorber	Stainless steel
10	Cushion pad	NBR
11	Plate	Aluminum alloy
12	Packing	NBR
13	Gasket	NBR
14	Fixed	Copper
15	Ball bearing	Bearing steel
16	Ball bearing	Bearing steel
17	Snap ring	Carbon tool steel
18	Screw	SCM
19	Screw	SCM
20	Magnet	Magnet material
21	Wearing	Teflon
22	Piston packing	NBR
23	O ring	NBR
24	O ring	NBR
25	O ring	NBR

MCRB Dimensions ϕ16~ϕ32

ROTARY ACTUATOR



R

Shock absorber type

Code / Tubr I.D.	A	B	C	D	E	F	G	H	H1	I	J	K	L	M	N	O	P
16	108	58	47	62	38	15	38	50	48	M5×7dp,P.C.D38	33	8	M5×8dp	14	26	15.5	PT 1/8
20	128	68	55	78	47	15	46	62.5	60	M6×7dp,P.C.D46	38	10	M6×8dp	17	27	18.5	PT 1/8
25	135.5	77	58.5	84	55	15.5	48	67	65	M6×9dp,P.C.D48	41.5	10	M6×8dp	17	37	20	PT 1/8
32	170	94	69.5	106	68	20	55	85	83	M8×10dp,P.C.D55	49.5	12.5	M8×8.5dp	20	47	24	PT 1/8

Code / Tubr I.D.	Q	S1	S2	T	U	V
16	$8^{+0.03}_{-0}$ (wide)×3.3dp	6	17 (H7)×2.5dp	24 (H7)×3dp	2-ϕ6.8 thru, ϕ11×6.5dp, M8×12dp(sink)	M3×4dp
20	$10^{+0.03}_{-0}$ (wide)×3.5dp	10	22 (H7)×2.5dp	32 (H7)×3dp	2-ϕ8.6 thru, ϕ14×8.5dp, M10×15dp(sink)	M4×6dp
25	$12^{+0.03}_{-0}$ (wide)×4dp	13	22 (H7)×3dp	32 (H7)×3.7dp	2-ϕ8.6 thru, ϕ14×8.5dp, M10×15dp(sink)	M4×5dp
32	$12^{+0.03}_{-0}$ (wide)×5dp	13	26 (H7)×3dp	35 (H7)×4.7dp	2-ϕ10.5 thru, ϕ18×10.5dp, M12×18dp(sink)	M5×5dp

Code / Tubr I.D.	W1	W2	W3	X1	X2	Y1	Y2
16	M10×1.0	27	26	7	17	MAC1007-SN	31
20	M12×1.0	23	32	8	19	MAC1210-SN	36
25	M14×1.5	36	37	8	22	MAC1412-SN(opposite sides 12)	50
32	M20×1.5	43	47	12	30	MAC2015-SN(opposite sides 18)	51

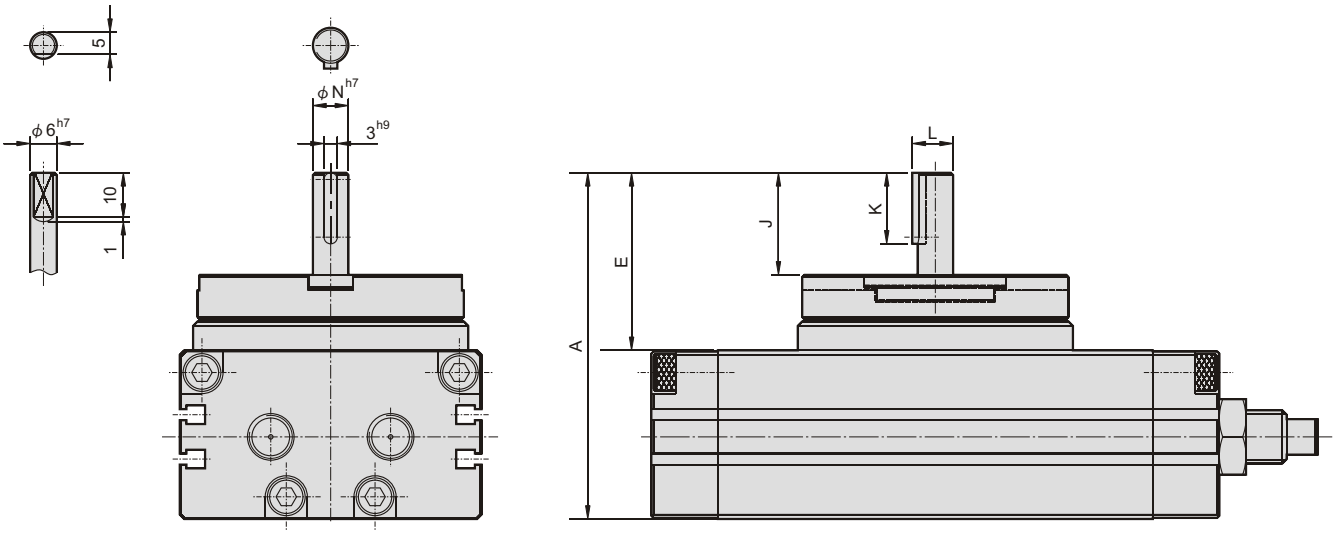
Order example:

MCRB – 20R – FR – BSP

- MCRB — MODEL
- 20 — TUBE I.D.
- R — ANGLE ADJUSTER
  Blank: adjuster bolts
  R: Shock absorber
- FR — TYPE
  Blank: Standard type
  FR: Flange rod type
- BSP — PORT THREAD
  Blank: PT thread
  BSP: BSP thread
  NPT: NPT thread

Flange rod type

ϕ16 ϕ20~ϕ32



Code / Tube I.D.	A	E	J	K	L	N
16	64.5	31.5	17.5	-	-	-
20	78	40	23	16	9.2	8
25	81.5	40	23	20	11.2	10
32	109.5	60	40	20	13.2	12

※ Other dimensions are the same as standard type.