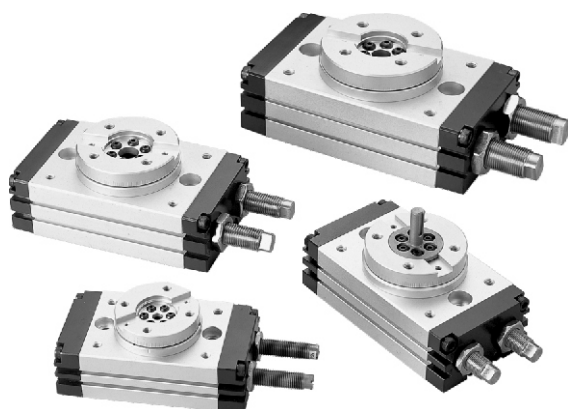


# MCRB series

## ROTARY ACTUATOR



### Order example:

**MCRB — 20R — FR — BSP**

MODEL

TUBE I.D.

ANGLE ADJUSTER

Blank: adjuster bolts

R: Shock absorber

RD: adjustable shock absorber

※ RD type is applicable to bore 25, 32.

TYPE

Blank: Standard type

FR: Flange rod type

PORT THREAD

Blank: PT thread

BSP: BSP thread

NPT: NPT thread

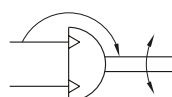
### Features:

- Twin rack and pinion fitted as standard.
- Can be adjusted between 0 and 190 degrees.
- Simple mounting of sensors.
- Magnetic as standard.

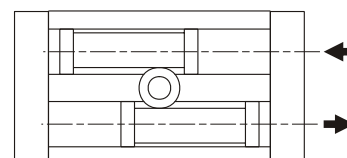
### Specification:

Model	MCRB			
Acting type	Double acting			
Bore size (mm)	φ 16	φ 20	φ 25	φ 32
Port size	PT 1/8			
Medium	Air			
Operating pressure range	1~9.9 kgf/cm <sup>2</sup>			
Proof pressure	15 kgf/cm <sup>2</sup>			
Ambient temperature	-5~+60°C (No freezing)			
Lubrication	Not required			
Cushion	NBR spacer			
Allowable kinetic energy	Cushion pad	0.007J	0.040J	0.081J
	Cushion	0.039J	0.116J	0.294J
Stable rotation time regulation range	0.2~1.0 s/90°			
Sensor switch	RCD			
Weight (kg)	0.7	1.16	1.57	3.07

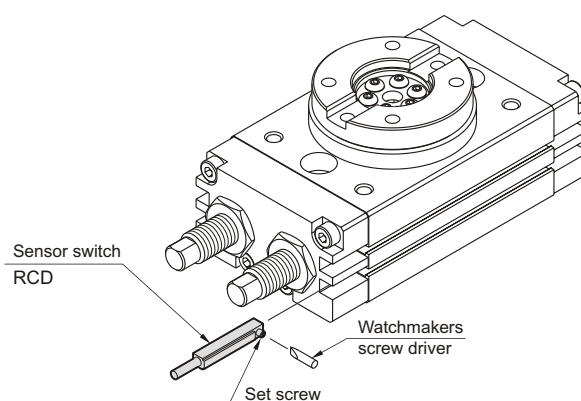
### Symbol:



### Action profile:



### Installation of sensor switch:

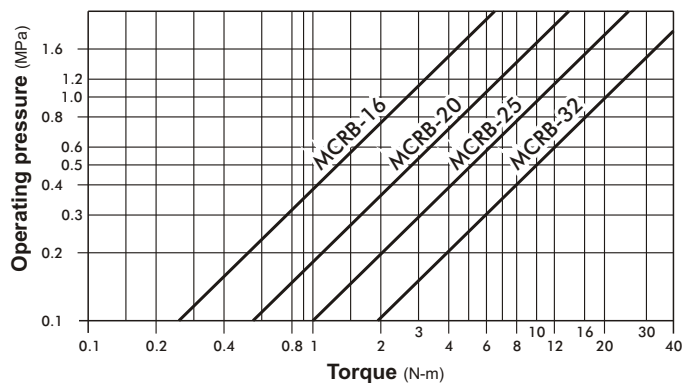


# MCRB Capacity $\phi 16 \sim \phi 32$

## ROTARY ACTUATOR



**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)

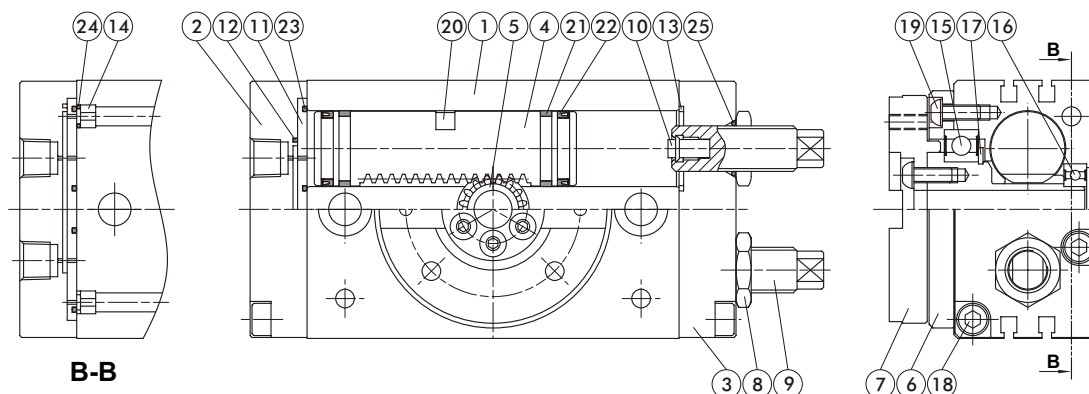
## Allowable Load

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

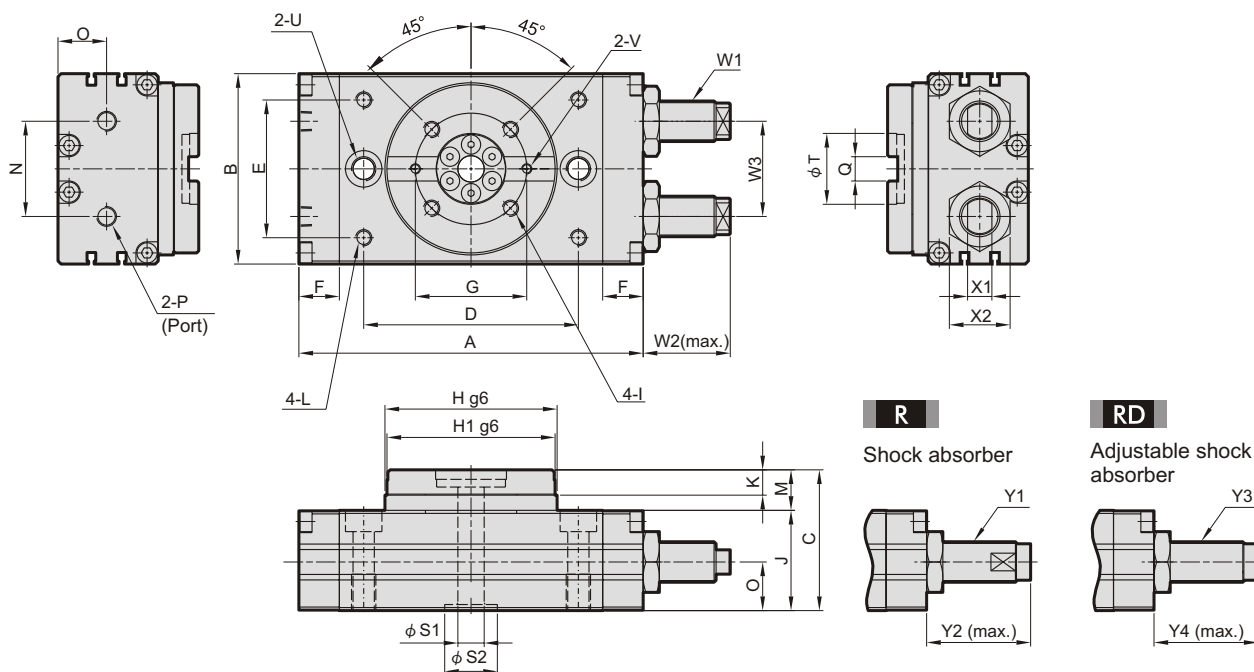


### Material

No.	Part name	Material
1	Body	Aluminum alloy
2	Cover	Aluminum alloy
3	End cover	Aluminum alloy
4	Piston	Stainless steel
5	Pinion	SCM
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	Spring 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 $\phi 16 \sim \phi 32$

## ROTARY ACTUATOR



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

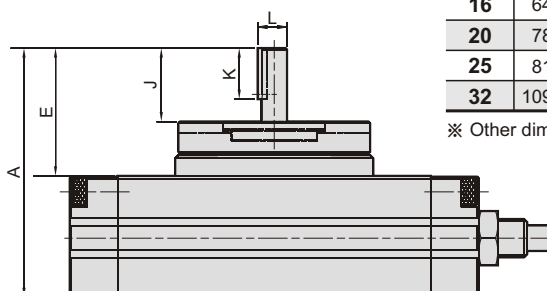
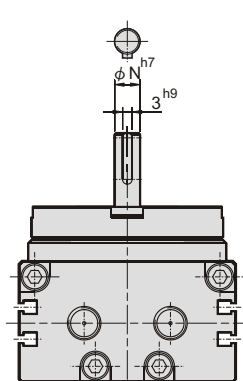
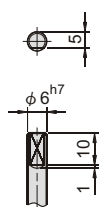
Code Tubr I.D.	Q	S1	S2	T	U	V	W1
16	8 $^{+0.03}_{-0}$ (wide)×3.3dp	6	17 (H7)×2.5dp	24 (H7)×3dp	2- $\phi$ 6.8 thru, $\phi$ 11×6.5dp, M8×12dp(sink)	M3×4dp	M10×1.0
20	10 $^{+0.03}_{-0}$ (wide)×3.5dp	10	22 (H7)×2.5dp	32 (H7)×3dp	2- $\phi$ 8.6 thru, $\phi$ 14×8.5dp, M10×15dp(sink)	M4×6dp	M12×1.0
25	12 $^{+0.03}_{-0}$ (wide)×4dp	13	22 (H7)×3dp	32 (H7)×3.7dp	2- $\phi$ 8.6 thru, $\phi$ 14×8.5dp, M10×15dp(sink)	M4×5dp	M14×1.5
32	12 $^{+0.03}_{-0}$ (wide)×5dp	13	26 (H7)×3dp	35 (H7)×4.7dp	2- $\phi$ 10.5 thru, $\phi$ 18×10.5dp, M12×18dp(sink)	M5×5dp	M20×1.5

Code Tubr I.D.	W2	W3	X1	X2	Y1	Y2	Y3	Y4
16	27	26	7	17	MAC1007-SN	31	—	—
20	23	32	8	19	MAC1210-SN	36	—	—
25	36	37	8	22	MAC1412-SN-01Q(opposite sides 12)	50	MAD1410-N	72
32	43	47	12	30	MAC2015-SN-01Q(opposite sides 18)	51	MAD2016-CN	96

### Flange rod type

$\phi 16$

$\phi 20 \sim \phi 32$



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.