

MRT*-80 series

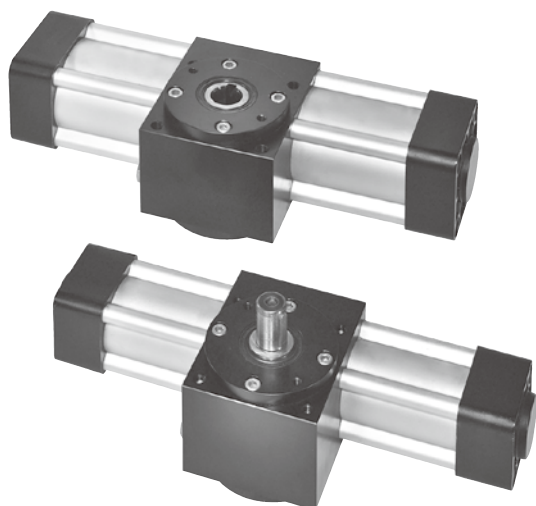
ROTARY ACTUATOR



Use new components
after old stock run out



Mindman



MRTH

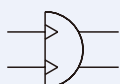
Male pivot gear
(standard type)

MRTH-D

Male pivot gear
(double end rod type)

MRTF

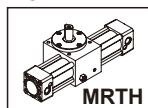
Female pivot gear



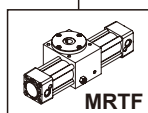
Order example

MRTH — 80 — 90 — D

MODEL



MRTH



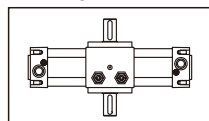
MRTF

TUBE I.D.

ROTATION

90: 90°
180: 180°

END ROD TYPE



D: Double rod type

* Only for MRTH.

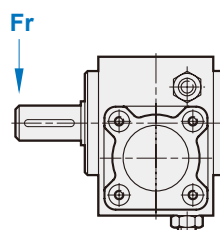
Features

- The body is manufactured in anodized aluminium alloy, and has been designed looking at the harmonious aesthetic development.
- Pinion and rack produced from carbon steel reduces backlash within the mechanism.
- Rotation adjustment screw.
- Magnetic as standard.

Specification

Model	MRTF, MRTH, MRTH-D
Tube I.D. (mm)	80
Standard rotation	90±5°, 180±5°
Rotating shaft dia. (mm)	28
Initial position of slot (mm)	See dimensional feature
Medium	Filtered air with or without lubrication
Operating pressure range	0.13~0.7 MPa
Ambient temperature	-5~+60°C (No freezing)
Max. allowable axial thrust (kg)	20
Cushion angle	80°
Max. allowable kinetic energy	90° 1.34J 180° 3.03J
Max. allowable radial trust (Fr)	896.7 N
Sensor switch	LN03A

Max. allowable radial trust

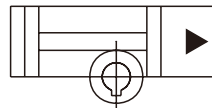


Cylinder weight

Unit: kg

Tube I.D.	MRTH		MRTH-D		MRTF		LN03A
	90°	180°	90°	180°	90°	180°	
80	10.25	10.80	10.49	11.00	9.69	10.24	Sensor switch 0.086

Compressed air consumption for a complete cycle



Unit: L/cycle

Model	Rotation	Operating pressure (MPa)									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
MRTH40 MRTF40	90°	0.1571	0.2352	0.3133	0.3915	0.4696	0.5477	0.6259	0.7040	0.7821	0.8603
	180°	0.3141	0.4704	0.6267	0.7829	0.9392	1.0955	1.2517	1.4080	1.5643	1.7205
MRTH63 MRTF63	90°	0.4383	0.6564	0.8744	1.0925	1.3105	1.5286	1.7466	1.9647	2.1828	2.4008
	180°	0.8766	1.3127	1.7488	2.1850	2.6211	3.0572	3.4933	3.9294	4.3655	4.8016
MRTH80 MRTF80	90°	0.8480	1.2698	1.6917	2.1135	2.5354	2.9572	3.3791	3.8009	4.2228	4.6447
	180°	1.6959	2.5396	3.3834	4.2271	5.0708	5.9145	6.7582	7.6019	8.4456	9.2893

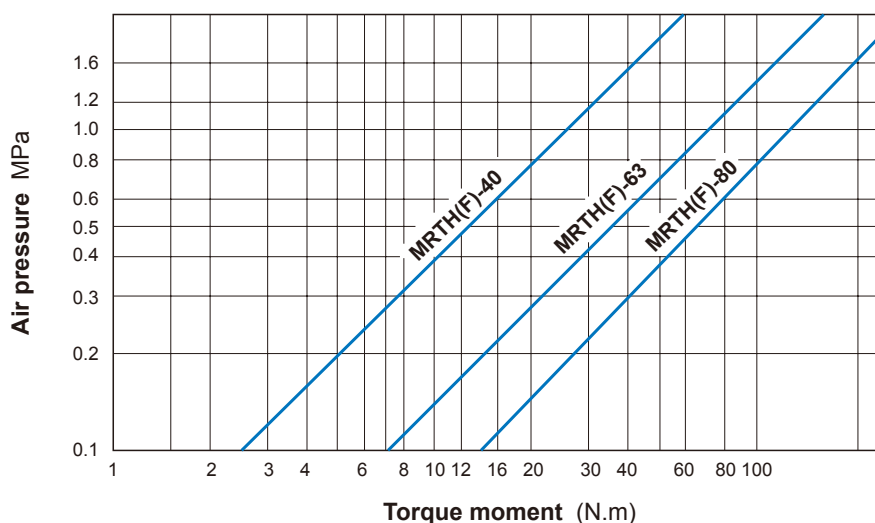
Model	MRTH, MRTF		
Tube I.D.(mm)	40	63	80
Constant K	0.3491	0.3927	0.4712

The method of calculation (Compressed air consumption)

$$Q = 2 \times K \times A \times n \times Dg \times \frac{P+0.101}{0.101} \times 10^{-6}$$

Q:	Compressed air consumption (L/cycle)
A:	Piston area (mm ²)
Dg:	Rotation
P:	Air pressure (MPa)
K:	Constant
n:	Cycle of operation (cycle/min)

Output torque table

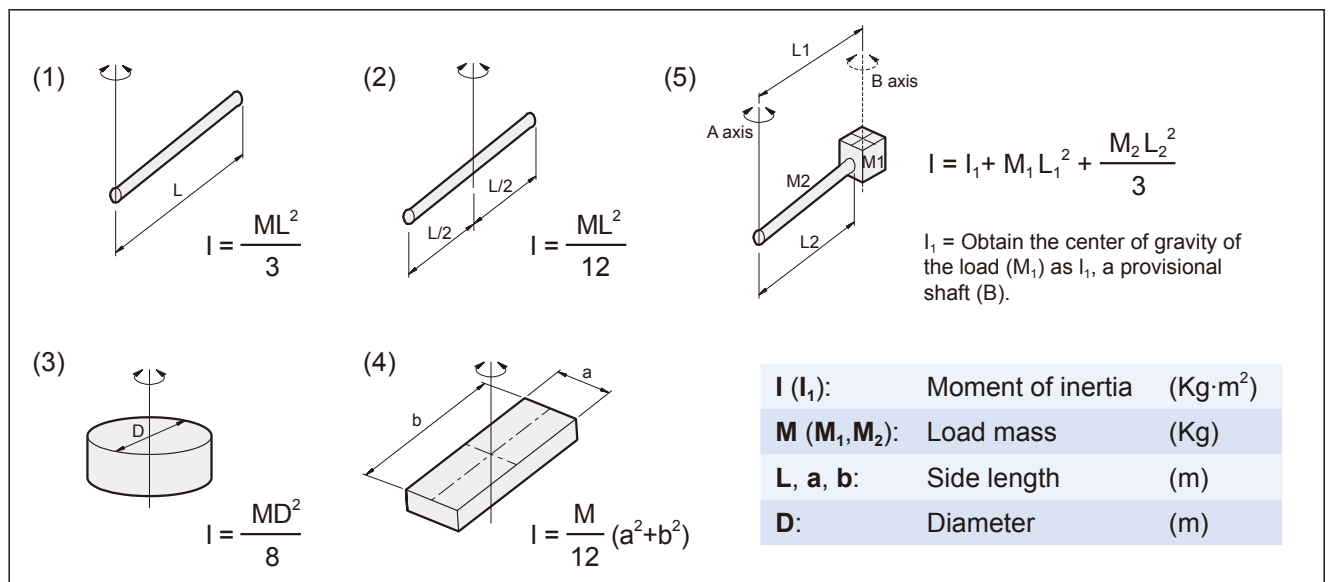


Kinetic energy of rotation motion

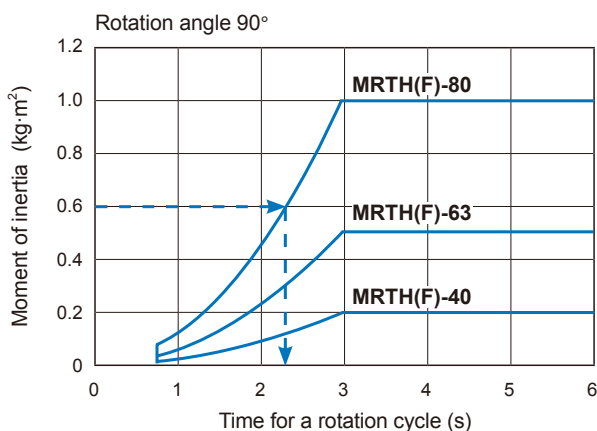
$$E = \frac{1}{2} \times I \omega^2$$

E:	Kinetic energy	(J)
I:	Moment of inertia	(Kg·m ²)
ω:	Angle speed	(rad/s)

Equation table moment of inertia

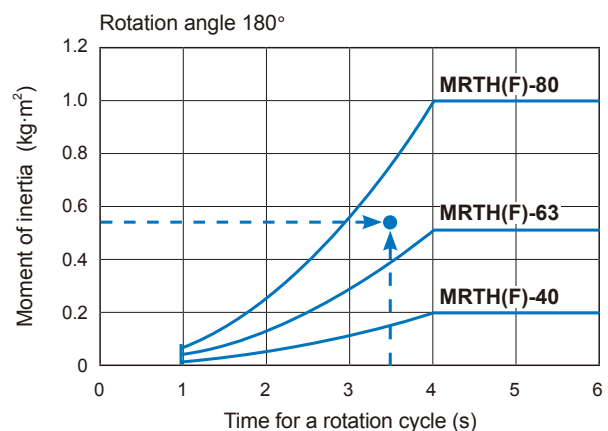


Moment of inertia



Example 1

When there are constraints for the moment of inertia of load, but not for rotation time. From "rotation angle = 90°", MRTH(F)-80, to operate at the load moment of inertia 0.6 kg·m². MRTH(F)-80 will be 2.3 seconds or higher.



Example 2

When there are constraints for the moment of inertia of load, but not for rotation time. From "rotation angle = 180°", to operate at the load moment of inertia 0.5 kg·m² and at the rotation time setting of 3.5 seconds: The model will be MRTH(F)-80.

MRTH / MRTF Inside structure & Parts list ø80

ROTARY ACTUATOR

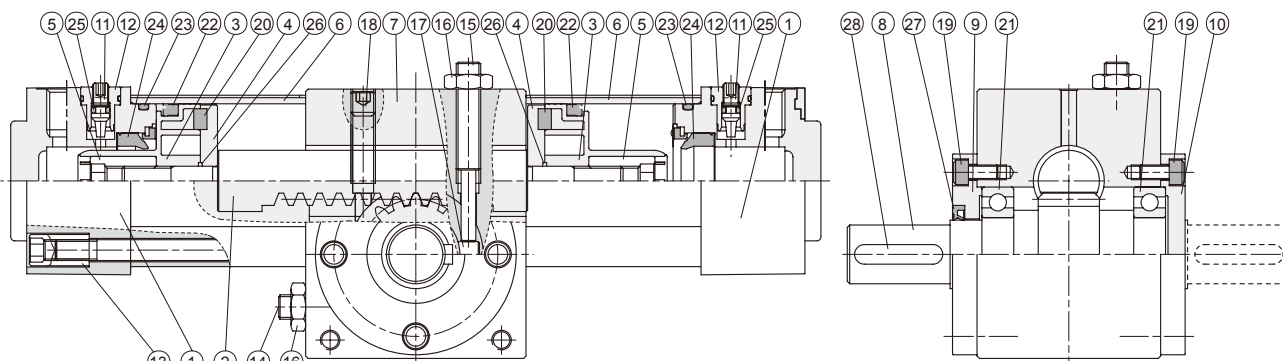


How to order the seal kit

MRT	SK	Tube I.D.	Seal kit	Tube I.D.	Seal kit
		80	MRTHSK80 - Including No.22,23,24,25,26,27	80	MRTFSK80 - Including No.22,23,24,26,27
	H				
	F				

MRTH

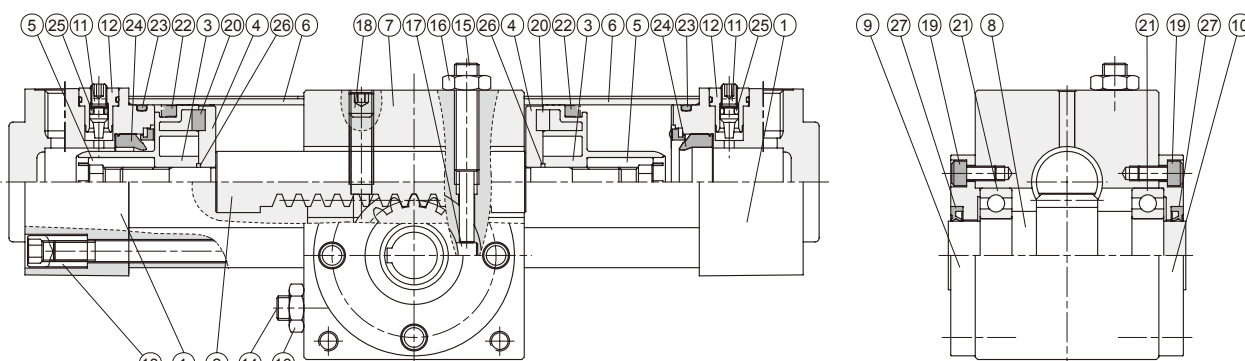
MRTH-D



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	End cap	2	11	Cushion needle	2	21	Ball bearing	2
2	Rack	1	12	Washer	2	22	Piston packing	2
3	Piston	2	13	Tie bolt	8	23	Cylinder gasket	2
4	Magnet holder	2	14	Adjusting screw	1	24	Cushion packing	2
5	Piston nut	2	15	Adjusting screw	1	25	O-ring	2
6	Cylinder tube	2	16	Lock nut	2	26	Piston gasket	2
7	Housing	1	17	Stopper pin	1	27	Rod packing	1
8	Pinion shaft	1	18	Set screw	1	28	Key (MRTH-D=2)	1
9	End cover	1	19	Hexagon socket head screw	8			
10	End cover	1	20	Magnet	2			

MRTF



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	End cap	2	10	End cover	1	19	Hexagon socket head screw	8
2	Rack	1	11	Cushion needle	2	20	Magnet	2
3	Piston	2	12	Cushion plug	2	21	Ball bearing	2
4	Magnet holder	2	13	Tie bolt	8	22	Piston packing	2
5	Piston nut	2	14	Adjusting screw	1	23	Cylinder gasket	2
6	Cylinder tube	2	15	Adjusting screw	1	24	Cushion packing	2
7	Housing	1	16	Lock nut	2	25	O-ring	2
8	Pinion shaft	1	17	Stopper pin	1	26	Piston gasket	2
9	End cover	1	18	Set screw	1	27	Rod packing	2

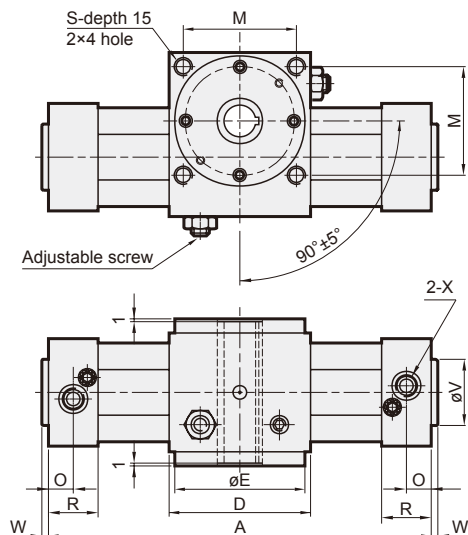
MRTF / MRTF Dimensions $\varnothing 80$

ROTARY ACTUATOR

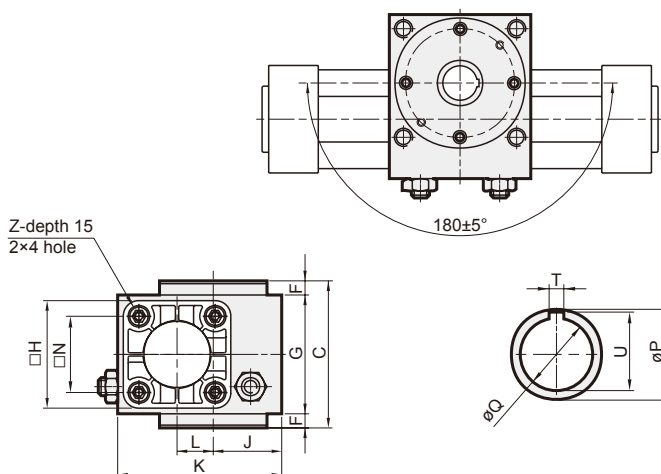


MRTF

Angle of rotation 90°



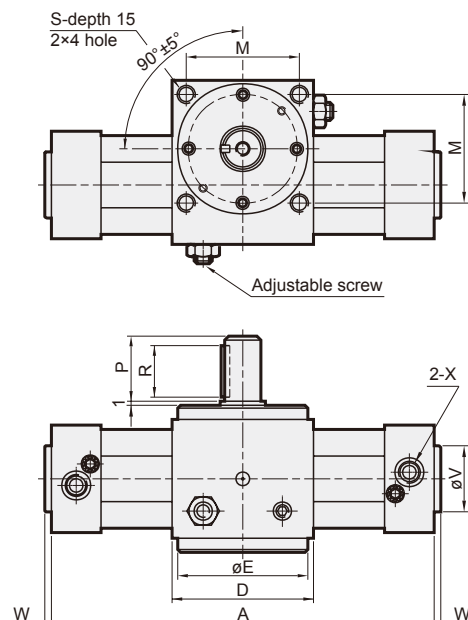
Angle of rotation 180°



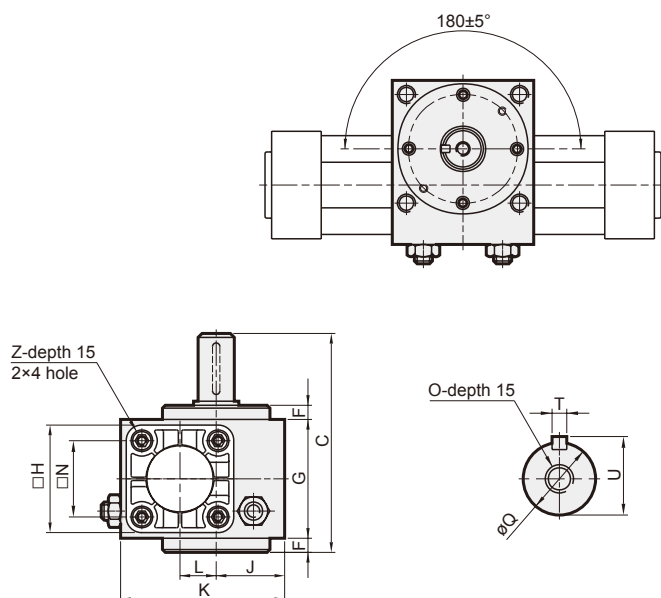
Model	A		C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Z
	90°	180°																						
MRTF-80	343	428	119	105	96	12	95	95	51.5	135	36	82	72	19	35	24H7 ^{+0.021} ₀	38	M10	6	27.5	45	6	G3/8	M10

MRTH

Angle of rotation 90°



Angle of rotation 180°

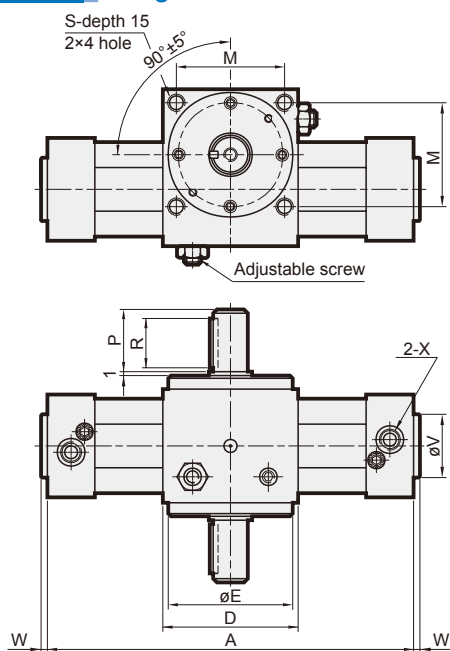


Model	A		C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Z
	90°	180°																						
MRTH-80	343	428	170	105	96	12	95	95	51.5	135	36	82	72	M8	50	28h6 ⁰ _{-0.013}	45	M10	8	31	45	6	G3/8	M10

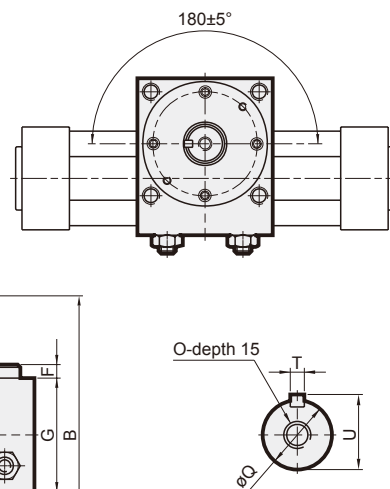
MRTH / MRTF Dimensions $\varnothing 80$

ROTARY ACTUATOR

MRTH-D Angle of rotation 90°



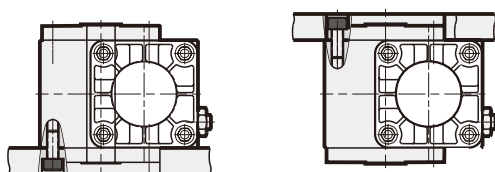
Angle of rotation 180°



Model	A		B	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Z
	90°	180°																						
MRTH-80-D	343	428	221	105	96	12	95	95	51.5	135	36	82	72	M8	50	28h6 ⁰ _{-0.013}	45	M10	8	31	45	5	G3/8	M10

Mounting type

MRTF

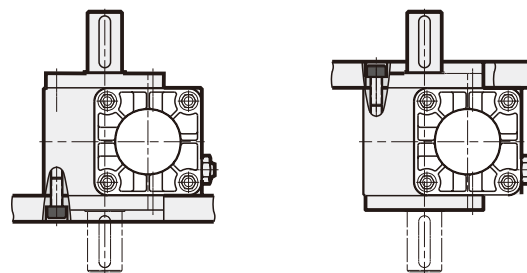


Bottom mounting

Top mounting

MRTH

MRTH-D

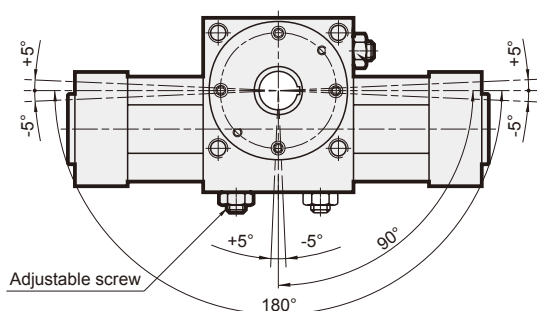


Bottom mounting

Top mounting

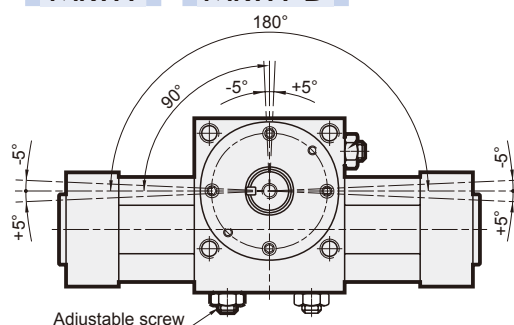
Rotating direction and adjustable angle

MRTF



MRTH

MRTH-D



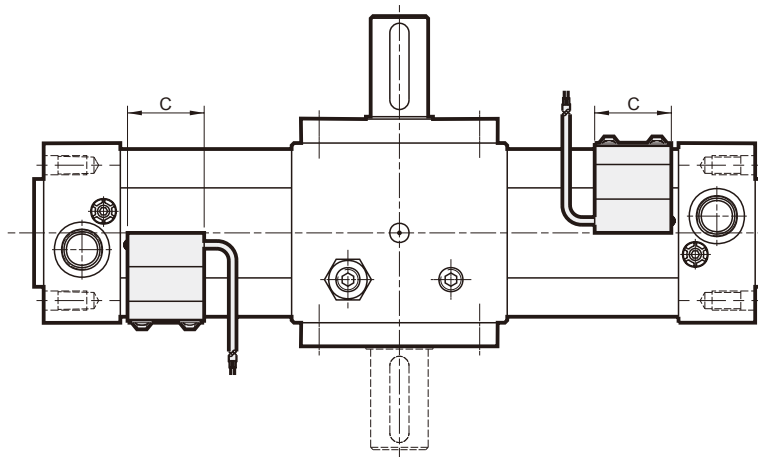
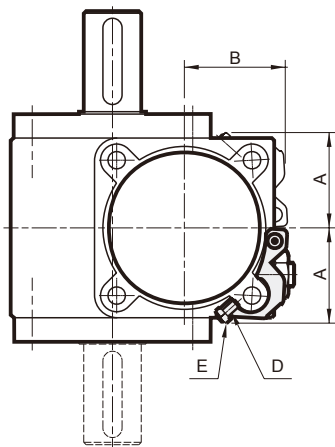
MRTH / MRTF Installation of sensor switches ø80



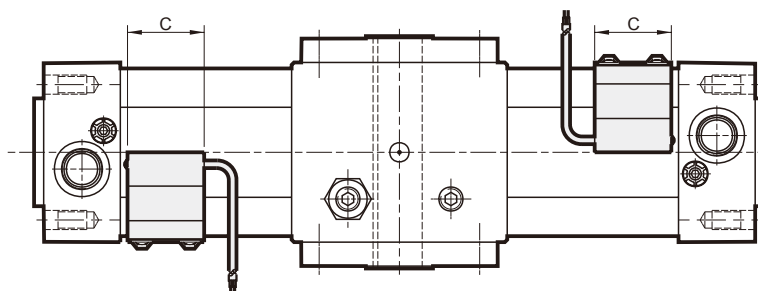
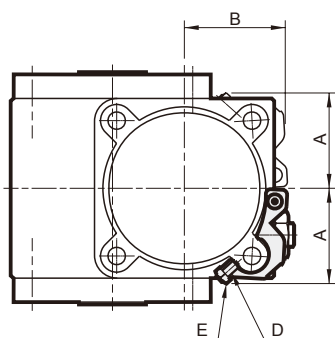
ROTARY ACTUATOR

Mindman

MRTH-D



MRTF



Tube I.D.	Sensor switch	A	B	C	D	E
80	LN03A	49.5	52	32	M4×12L	M4