



DOUBLE ACTING
- SINGLE END ROD TYPE

MRF



Features

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

Specification

Type	MRF
Bore	Φ 16、20、25、32
Power fluid	Filtered air with or without lubrication
The range of pressure	1 ~ 9.9 kgf/cm ²
Proof pressure	15 kgf/cm ²
The range of temperature	-5 ~ +60 °C (Don't freeze)
Acting accuracy	0 ~ +4°
Shake time adjustment range	0.2 ~ 1.0 sec/90°
Material of cylinder barrel	Aluminium extrusion, Anodised 20 microns

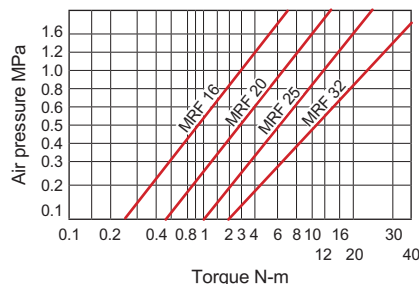
How to order

MRF	SD	20	-	90	-	R	-	A	1
Type	Holder	Bore		Rotary angle		Angle adjustment		Sensor switch	Quantity
		16 : Φ 16 20 : Φ 20 25 : Φ 25 32 : Φ 32		90 : 90° 180 : 180°		No code : Adjustment bolt R : Cushion		ZE101	1 : 1pc 2 : 2pcs

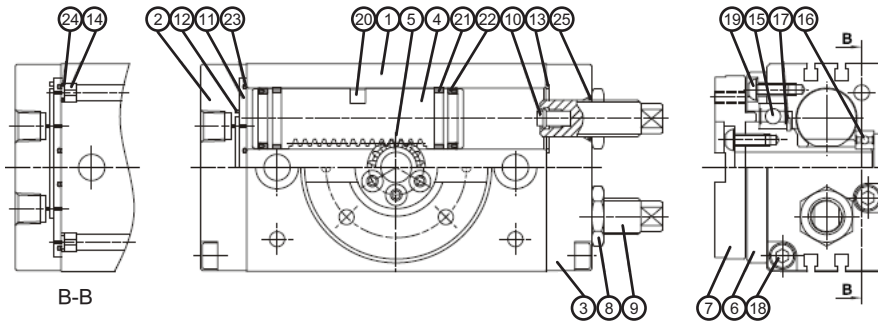
Load of the spigot shaft table

Load Direction		(a) ↑ ↓ (b)		Allowable moment (N.m)
		(a)	(b)	
Bore	Allowable radial load(N)	Allowable trust load		
Φ 16	78	74	78	2.4
Φ 20	147	137	137	4.0
Φ 25	196	197	363	5.0
Φ 32	314	296	451	9.7

Output torque table



MRH Double acting type / Inside structure



Parts list

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

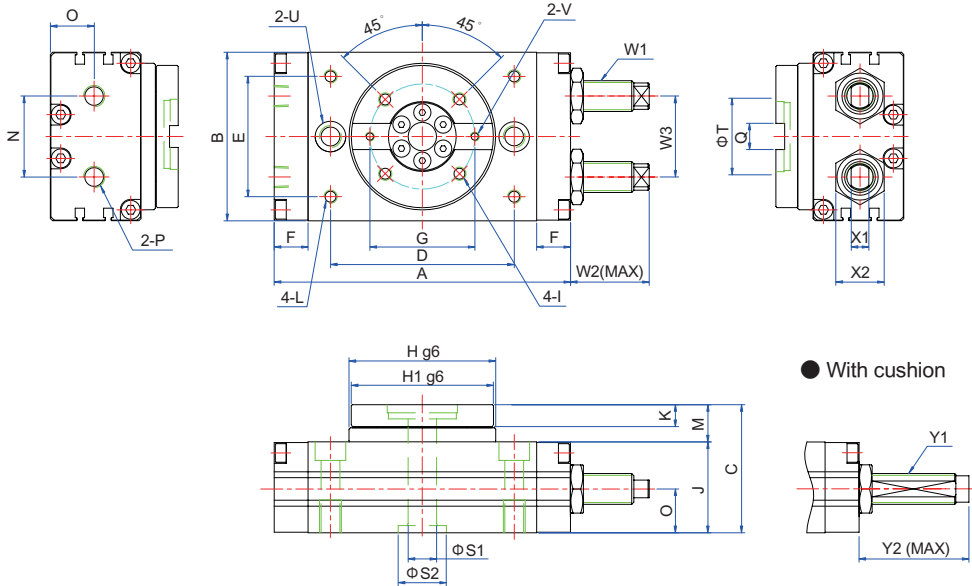
Theoretic force

Type		MRF			
Bore		Φ 16	Φ 20	Φ 25	Φ 32
Operating pressure (kgf/cm ²)	0.1	2.45 (0.20)	5.1 (0.51)	10.0 (1.02)	19.8 (2.04)
	0.2	4.90 (0.51)	10.3 (1.02)	20.0 (2.04)	39.4 (3.98)
	0.3	7.34 (0.71)	10.4 (1.53)	30.1 (3.06)	59.2 (6.02)
	0.4	9.79 (1.02)	20.5 (2.04)	40.1 (4.08)	78.7 (8.06)
	0.5	12.34 (1.22)	25.6 (2.55)	50.1 (5.10)	100.6 (10.2)
	0.6	14.79 (1.53)	30.8 (3.06)	60.1 (6.12)	118.1 (1.18)
	0.7	17.24 (1.73)	35.9 (3.57)	70.1 (7.14)	135.2 (1.38)

Cylinder weight

Bore	Φ 16	Φ 20	Φ 25	Φ 32
Weight	0.7	1.16	1.57	3.07

MRF Double acting type / Dimensional features



● With cushion

Dimensional table

Mark Bore	A	B	C	D	E	F	G	H	H1	I	J	K	L	M	N	O	P	Q	
Φ 16	108	58	47	62	38	15	38	50	48	M5x7 deep ,P.C.D38	33	8	M5X8 deep	14	26	15.5	PT 1/8	8 ^{+0.03} ₋₀ (Width)x3.3 deep	
Φ 20	128	68	55	78	47	15	46	62.5	60	M6x7 deep ,P.C.D46	38	10	M6X8 deep	17	27	18.5	PT 1/8	10 ^{+0.03} ₋₀ (Width)x3.5 deep	
Φ 25	135.5	77	58.5	84	55	15.5	48	67	65	M6x9 deep ,P.C.D48	41.5	10	M6X8 deep	17	37	20	PT 1/5	12 ^{+0.03} ₋₀ (Width)x4 deep	
Φ 32	170	94	69.5	106	68	20	55	85	83	M8x10 deep ,P.C.D55	49.5	12.5	M8X8.5 deep	20	47	24	PT 1/8	12 ^{+0.03} ₋₀ (Width)x5 deep	
Mark Bore	S1	S2	T	U								V	W1	W2	W3	X1	X2	Y1	Y2
Φ 16	6	17(H7)x2.5 deep	24(H7)x3 deep	2-Φ6.8 through, Φ 11x6.5 deep ,M8x12 deep(Bottom side)								M3x4 deep	M10x1.0	27	26	7	17	MAC1007-SN	31
Φ 20	10	22(H7)x2.5 deep	32(H7)x3 deep	2-Φ8.6 through, Φ 14x8.5 deep,M10x15 deep(Bottom side)								M4x6 deep	M12x1.0	23	32	8	19	MAC1210-SN	36
Φ 25	13	22(H7)x3 deep	32(H7)x3.7 deep	2-Φ8.6 through, Φ 14x8.5 deep,M10x15 deep(Bottom side)								M4x5 deep	M14x1.5	36	37	8	22	MAC1412-SM(Edge 12)	50
Φ 32	13	26(H7)x3 deep	32(H7)x3.7 deep	2-Φ 10.5 through, Φ 18x10.5 deep,M12x18 deep(Bottom side)								M5x5 deep	M20x1.5	43	47	12	30	MAC2015-SN(Edge 18)	51

FR Double acting type / Accessories

Mark Bore	A	E	J	K	L	N
Φ 16	64.5	31.5	17.5	—	—	—
Φ 20	78	40	23	16	9.2	8
Φ 25	81.5	40	23	20	11.2	10
Φ 32	109.5	60	40	20	13.2	12

