

Rotary Clamp Cylinder: Standard

Series MK

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63

How to Order

MK A 20 - 10 R F - M9BW -

Rotary clamp cylinder
Standard

Mounting bracket

Number of auto switches

Nil	2 pcs.
S	1 pc.

Symbol	Mounting	Applicable bore size (mm)
B	Through-hole/Both ends tapped common (Standard)	ø12, ø16
A	Both ends tapped	ø20 to ø63
B	Through-hole	
G	Head end flange	

* Head end flange is equipped with a boss mounting. Be sure to specify body option "F".

* Mounting bracket is included, (but not assembled).

Bore size

12	12 mm	32	32 mm
16	16 mm	40	40 mm
20	20 mm	50	50 mm
25	25 mm	63	63 mm

Port thread type

Nil	M thread	ø12 to ø25
	Rc	
TN	NPT	ø32 to ø63
TF	G	

Clamp stroke

Symbol	Clamp stroke	Applicable bore size
10	10 mm	ø12 to ø40
20	20 mm	ø12 to ø63
50	50 mm	ø50 to ø63

Auto switch type

Nil	Without auto switch (Built-in magnet)
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* For applicable auto switch models, refer to the below table.

Body option

Nil	Standard (Female thread)
M	Rod end width across flats*
F	With boss on head end*
N	With arm

Made to Order

(Refer to page 2 and 40.)

* Regarding body option manufacturable range, refer to the below table.

Body Option Manufacturable Range

Bore size	Nil	M	F	N	MF	FN
ø12, ø16	●	—	—	●	—	—
ø20 to ø63	●	●	●	●	●	●

* Arms are assembled at the time of shipment.

Rotary direction

(Unclamp → Clamp)

R	Clockwise
L	Counterclockwise

Applicable Auto Switches

Refer to page 29 through to 39 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load			
					DC	AC	Perpendicular ø12, ø16 ø20 to ø63	In-line ø12, ø16 ø20 to ø63	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)		IC circuit	Relay, PLC		
																	5 V, 12 V	5 V, 12 V
Solid state switch	—	Grommet	No	3-wire (NPN)	24 V	—	—	M9NV	M9N	●	—	●	○	—	○	IC circuit	Relay, PLC	
				3-wire (PNP)				M9PV	M9P	●	—	●	○	—	○			
		2-wire	M9BV	M9B				●	—	●	○	—	○					
		—	J79C	—				●	—	●	●	—	—					
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	—	—	M9NWV	M9NW	●	●	●	○	—	○	IC circuit	Relay, PLC	
				3-wire (PNP)				M9PWV	M9PW	●	●	●	○	—	○			
				2-wire				M9BWW	M9BW	●	●	●	○	—	○			
				3-wire (NPN)				M9NAV	M9NA	○	○	○	○	—	○			
				3-wire (PNP)				M9PAV	M9PA	○	○	●	○	—	○			
				2-wire				M9BAV	M9BA	○	○	●	○	—	○			
Diagnostic output (2-color indication)	Grommet	No	4-wire	24 V	—	—	—	F79F	●	—	●	○	—	○	IC circuit	Relay, PLC		
			2-wire (No polarity)				—	—	P4DW	—	—	●	●	—			○	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	—	—	A96V	A96	●	—	●	—	—	—	IC circuit	Relay, PLC	
				—				A72	—	A72H	●	—	●	—	—			—
				12 V				100 V	A93V	A93	●	—	●	—	—			—
		Connector	No	5 V, 12 V				100 V or less	A90V	A90	●	—	●	—	—	—		IC circuit
				12 V				—	A73C	—	●	—	●	●	—	—		
				5 V, 12 V				24 V or less	A80C	—	●	—	●	●	—	—		
Diagnostic indication (2-color indication)	Grommet	Yes	—	24 V	—	—	—	A79W	—	●	—	●	—	—	IC circuit	Relay, PLC		

* Lead wire length symbols: 0.5 m Nil
1 m M
3 m L
5 m Z
None N

(Example) M9NW
(Example) M9NWM
(Example) M9NWL
(Example) M9NWWZ
(Example) J79CN

* Solid state switches marked with "○" are produced upon receipt of order.

* For D-P4DW, ø40 to ø63 are available.

* Only D-P4DW type is assembled at the time of shipment.

* Since there are other applicable auto switches than listed, refer to page 18 for details.

* For details about auto switches with pre-wired connector, refer to page "Best Pneumatics 2004" catalog.

* When mounting models D-M9□(V), M9□W(V), M9□A(V), and A9□(V) with between ø32 and ø50 on sides other than the port side, please order a switch mounting bracket separately as per the instructions on page 17, and refer to cases CDQP2B32 to 100 in Information (04-E514) "Cylinder with Compact Auto Switch."

* Auto switches are included, (but not assembled).

Rotary Clamp Cylinder: Standard *Series MK*



Specifications

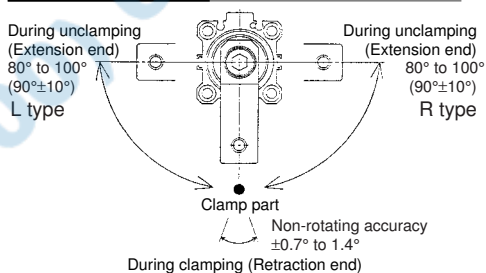
Bore size (mm)	12	16	20	25	32	40	50	63
Action	Double acting							
Rotation angle <small>Note 1)</small>	90° ±10°							
Rotary direction <small>Note 2)</small>	Clockwise, Counterclockwise							
Rotary stroke (mm)	7.5		9.5		15		19	
Clamp stroke (mm)	10, 20						20, 50	
Theoretical clamp force (N) <small>Note 3)</small>	40	75	100	185	300	525	825	1400
Fluid	Air							
Proof pressure	1.5 MPa							
Operating pressure range	0.1 to 1 MPa							
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)							
Lubrication	Non-lube							
Piping port size	M5 x 0.8		Rc1/8, NPT1/8, G1/8		Rc1/4, NPT1/4, G1/4			
Mounting	Through-hole/Both ends tapped common		Both ends tapped, Through-hole, Head end flange					
Cushion	Rubber bumper							
Stroke length tolerance	+0.6 -0.4							
Piston speed	50 to 200 mm/s							
Non-rotating accuracy (Clamp part) <small>Note 1)</small>	±1.4°		±1.2°		±0.9°		±0.7°	

Note 1) Refer to "Rotary Angle" figure.

Note 2) Direction of rotation viewed from the rod end when the piston rod is retracting.

Note 3) At 0.5 MPa.

Rotary Angle



Made to Order
(For details, refer to page 40.)

Symbol	Description
XB6	Head resistant cylinder (150°C)

Option/Arm

Bore size (mm)	Part no.	Accessories
12	MK-A012	Clamp bolt, Hexagon socket head cap screw, Hexagon nut, Spring washer
16	MK-A016	
20	MK-A020	
25		
32	MK-A032	
40		
50	MK-A050	
63		

Mounting Bracket/Flange

Bore size (mm)	Part no.	Accessories
20	MK-F020	Centering location ring, Set pin, Bolt for cylinder body
25	MK-F025	
32	MK-F032	
40	MK-F040	
50	MK-F050	
63	MK-F063	

Theoretical Output

Unit: N

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (cm ²)	Operating pressure (MPa)			
				0.3	0.5	0.7	1.0
12	6	R	0.8	24	40	56	80
		H	1.1	33	55	77	110
16	8	R	1.5	45	75	105	150
		H	2	60	100	140	200
20	12	R	2	60.8	100	139	200
		H	3	90.2	149	208	298
25	12	R	3.7	112	185	258	370
		H	4.9	149	245	341	490
32	16	R	6	182	300	418	600
		H	8	243	400	557	800
40	16	R	10.5	319	525	731	1050
		H	12.5	380	625	870	1250
50	20	R	16.5	502	825	1149	1648
		H	19.6	596	980	1365	1961
63	20	R	28	851	1400	1950	2801
		H	31.2	948	1560	2172	3121

Note) Theoretical output (N) = Pressure (MPa) x Piston area (cm²) x 100

Operating direction

R: Rod end (Clamp)

H: Head end (Unclamp)

Weight/Through-hole Mounting

Unit: g

Clamp stroke (mm)	Bore size (mm)							
	12	16	20	25	32	40	50	63
10	70	100	250	280	500	595	—	—
20	87	123	290	320	525	640	1100	1520
50	—	—	—	—	—	—	1350	1805

Additional Weight

Unit: g

Bore size (mm)	12	16	20	25	32	40	50	63
Both ends tapped	—	—	6	7	7	6	7	17
Rod end width across flats	—	—	10	10	21	21	46	46
With boss on head end	—	—	2	3	5	7	13	25
With arm	13	32	100	100	200	200	350	350
Head end flange(including mounting bolt)	—	—	133	153	166	198	345	531

Calculation: (Example) MKG20-10RFN

• Standard calculation: MKB20-10R

250 g

• Extra weight calculation: Both ends tapped

6 g

Head end flange

133 g

With boss on head end

2 g

With arm

100 g

491 g