Rotary Clamp Cylinder: Standard

Series MK

See MK-Z

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

How to Order

MK A 20 ☐ – 10 R F – M9BW ☐ – ☐

Rotary clamp cylinder
Standard

Mounting bracket

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	ø32 to ø63
TN	NPT	
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

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch type

Nil	Without auto switch (Built-in magnet)

∗ 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

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

Made to Order
(Refer to page 2 and 40.)

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 DC	Load voltage AC	Auto switch model: Perpendicular ø12, ø16	Perpendicular ø20 to ø63	In-line ø12, ø16	In-line ø20 to ø63	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state switch	——	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	—	M9N	●	—	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			—	M9PV	—	M9P	●	—	●	○	—	○		
				2-wire		12 V	—	M9BV	—	M9B	●	—	●	○	—	○	—	
		Connector					—	J79C	—		●	—	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V	—	M9NWV	—	M9NW	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			—	M9PWV	—	M9PW	●	●	●	○	—	○		
				2-wire		12 V	—	M9BWV	—	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indication)			3-wire (NPN)		5 V, 12 V	—	M9NAV	—	M9NA	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			—	M9PAV	—	M9PA	○	○	●	○	—	○		
				2-wire		12 V	—	M9BAV	—	M9BA	○	○	●	○	—	○	—	
	Diagnostic output (2-color indication)			4-wire		5 V, 12 V	—		—	F79F	●	—	●	○	—	○	IC circuit	
	Magnetic field resistant (2-color indication)			2-wire (No polarity)		—	—		—	P4DW	—	—	●	●	—	○	—	
Reed switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5V	—	A96V	—	A96	●	—	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	A72	—	A72H	●	—	●	—	—	—	—	Relay, PLC
			No		24 V	12 V	100 V	A93V		A93	●	—	●	—	—	—		
						5 V, 12 V	100 V or less	A90V		A90	●	—	●	—	—	—	IC circuit	
		Connector	Yes			12 V	—	—	A73C	—	●	—	●	●	●	—	—	
			No			5 V, 12 V	24 V or less	—	A80C	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indication)	Grommet	Yes			—	—	—	A79W	—	●	—	●	—	—	—	—	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (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.

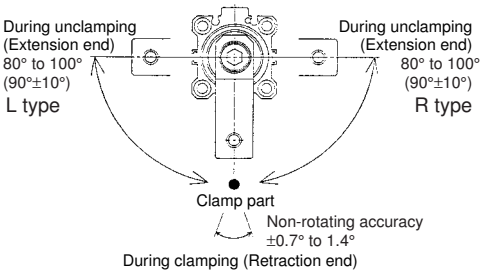
∗ Since there are other applicable auto switches than listed, refer to page 18 for details.
∗ For details about auto switches with pre-wired connector, refer to page "Best Pneumatics 2004" catalog.
∗ When mounting models D-M9□(V), M9□W(V), M9□A(V), and A9□(V) with between ø32 and ø50 on sides other than 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).

Specifications

Bore size (mm)	12	16	20	25	32	40	50	63
Action	Double acting							
Rotation angle Note 1)	90° ±10°							
Rotary direction Note 2)	Clockwise, Counterclockwise							
Rotary stroke (mm)	7.5		9.5		15		19	
Clamp stroke (mm)	10, 20						20, 50	
Theoretical clamp force (N) Note 3)	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) Note 1)	±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)

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 (cm^2) x 100

Operating direction
R: Rod end (Clamp)
H: Head end (Unclamp)

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**	

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