

Rotary Clamp Cylinder: Heavy Duty Type

Series MK2

See MK-Z

ø20, ø25, ø32, ø40, ø50, ø63

How to Order

MK2 B 20 - **10 R F** - **M9BW**

Rotary clamp cylinder
Heavy duty type

Mounting bracket

B	Through-hole/Both ends tapped common (Standard)
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

20	20 mm	40	40 mm
25	25 mm	50	50 mm
32	32 mm	63	63 mm

Port thread type

Nil	M thread	ø20, ø25
	Rc	
TN	NPT	ø32 to ø63
TF	G	

Clamp stroke

Symbol	Clamp stroke	Applicable bore size
10	10 mm	ø20 to ø40
20	20 mm	ø20 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)
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* For applicable auto switch models, refer to the below table.

Body option

Nil	Standard (Female thread)
F	With boss on head end
N	With arm

* 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	In-line		0.5 (Nil)	1 (M)	3 (L)	5 (Z)			None (N)			
								ø20 to ø32	ø40 to ø63										
Solid state switch		Grommet	No	3-wire (NPN)	24 V	5 V, 12 V		M9NV	M9N	●	—	●	○	—	○	IC circuit			
				3-wire (PNP)				M9PV	M9P	●	—	●	○	—	○				
		Connector	2-wire	M9BV				M9B	●	—	●	○	—	○					
				J79C				—	●	—	●	●	●	—	—				
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9N WV	M9N W	●	●	●	○	—	○	IC circuit			
				3-wire (PNP)				M9P WV	M9P W	●	●	●	○	—	○				
				2-wire				M9B WV	M9B W	●	●	●	○	—	○				
				3-wire (NPN)				M9N AV	M9N A	○	○	●	○	—	○				
				3-wire (PNP)				M9P AV	M9P A	○	○	●	○	—	○				
				2-wire				M9B AV	M9B A	○	○	●	○	—	○				
Diagnostic output (2-color indication)	Grommet	Yes	4-wire	24 V	5 V, 12 V	—	F79F	—	●	—	●	○	—	○	IC circuit				
Magnetic field resistant (2-color indication)			2-wire (No polarity)				—	—	—	—	—	●	●	—		○			
Reed switch		Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit			
				Connector				2-wire	12 V	200 V	A72	A72H	●	—	●		—	—	—
									12 V	100 V	A93V	A93	●	—	●		—	—	—
		Grommet	No	5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	IC circuit					
				Yes	12 V	—	A73C	—	●	—	●	●	●		—	—			
		Connector	No	5 V, 12 V	24 V or less	A80C	—	●	—	●	●	●	—	—	IC circuit				
				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) M9NWX
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).

Rotary Clamp Cylinder: Heavy Duty Type *Series MK2*



Specifications

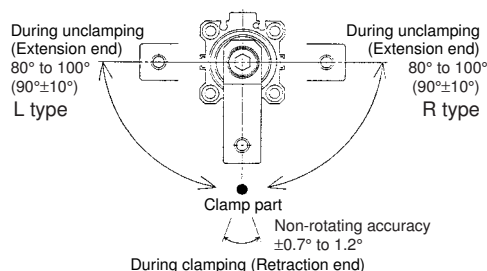
Bore size (mm)	20	25	32	40	50	63
Action	Double acting					
Rotation angle ^{Note 1)}	90° ±10°					
Rotary direction ^{Note 2)}	Clockwise, Counterclockwise					
Rotary stroke (mm)	9.5		15		19	
Clamp stroke (mm)	10, 20				20, 50	
Theoretical clamp force (N) ^{Note 3)}	100	185	300	525	825	1400
Fluid	Air					
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, 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)	±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



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
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)

Option/Arm

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

Weight/Through-hole Mounting

Unit: g

Clamp stroke (mm)	Bore size (mm)					
	20	25	32	40	50	63
10	260	295	353	635	—	—
20	300	335	555	680	1170	1620
50	—	—	—	—	1420	1890

Mounting Bracket/Flange

Bore size (mm)	Part no.	Accessories
20	MK2-F020	Centering location ring, Set pin, Bolt for cylinder body
25	MK2-F025	
32	MK2-F032	
40	MK2-F040	
50	MK2-F050	
63	MK2-F063	

Additional Weight

Unit: g

Bore size (mm)	20	25	32	40	50	63
With boss on head end	2	3	5	7	13	25
With arm	100	100	200	200	350	350
Head end flange (including mounting bolt)	133	153	166	198	345	531

Calculation: (Example) MK2G20-10RFN

- Standard calculation: MK2B20-10R 260 g
- Extra weight calculation: Head end flange 133 g
- With boss on head end 2 g
- With arm 100 g
- 495 g