Sine Cylinder

Series REC

ø20, ø25, ø32, ø40

How to Order

REC B 25 [ ] – 150 – M9BW [ ]

Sine cylinder

Rod type

Mounting style

B	Basic style	**C**	Single clevis style
L	Axial foot style	**D**	Double clevis style
F	Rod side flange style	**U**	Rod side trunnion style
G	Head side flange style	**T**	Head side trunnion style

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm

Port type

Nil	Rc
TN	NPT
TF	G

Cylinder stroke (mm)
Refer to page 1029 for standard strokes.

Auto switch

Nil	Without auto switch (Built-in magnet)

∗ Select an applicable auto switch part number from the table below.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Applicable Auto Switch/Refer to pages 1719 to 1827 for further information on auto switches.

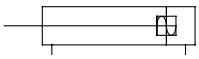
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model	Lead wire length (m) 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state switch	——	Grommet	Yes	3-wire (NPN)	24V	5V,12V	—	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9P**	●	●	●	○	—	○		
				2-wire		12V		**M9B**	●	●	●	○	—	○	—	
		Connector						**H7C**	●	—	●	●	●	—		
		Terminal conduit		3-wire (NPN)		5V,12V		**G39**	—	—	—	—	●	—	IC circuit	
				2-wire		12V		**K39**	—	—	—	—	●	—	—	
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5V,12V		**M9NW**	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**M9PW**	●	●	●	○	—	○		
				2-wire		12V		**M9BW**	●	●	●	○	—	○	—	
	Water resistant (2-color indication)							**H7BA**	—	—	●	○	—	○		
	With diagnostic output (2-color indication)			4-wire (NPN)		5V,12V		**H7NF**	●	●	●	○	—	○	IC circuit	
Reed switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5V	—	**A96**	●	—	●	—	—	—	IC circuit	—
			No	2-wire	24V	12V	100V	**A93**	●	—	●	—	—	—	—	Relay, PLC
			Yes				100V or less	**A90**	●	—	●	—	—	—	IC circuit	
			No				100V, 200V	**B54**	●	—	●	●	—	—	—	
							200V or less	**B64**	●	—	●	—	—	—		
		Connector	Yes				—	**C73C**	●	—	●	●	●	—		
			No				24V or less	**C80C**	●	—	●	●	●	—	IC circuit	
		Terminal conduit	Yes				—	**A33**	—	—	—	—	●	—	—	PLC
							100V,200V	**A34**	—	—	—	—	●	—		Relay, PLC
		DIN terminal						**A44**	—	—	—	—	●	—		
	Diagnostic indication (2-color indication)	Grommet				—	—	**B59W**	●	—	●	—	—	—		

∗ 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) H7CN

∗ Solid state auto switches marked with "○" are produced upon receipt of order.
∗ D-A9□V/M9□V/M9□WV/M9□A(V)L types cannot be mounted.
∗ Do not indicate suffix "N" for no lead wire on D-A3□/A44/G39/K39 models.

∗ Since there are other applicable auto switches than listed, refer to page 1040 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.
∗ D-A9□/M9□/M9□W auto switches are shipped together (not assembled). (Only auto switch mounting brackets are assembled before shipped.)

JIS Symbol



Standard Specifications

Bore size (mm)	20	25	32	40
Action	Double acting, Single rod			
Fluid	Air			
Proof pressure	1.5 MPa			
Maximum operating pressure	1.0 MPa			
Minimum operating pressure	0.2 MPa			
Ambient and fluid temperature	–10 to 60°C			
Piston speed	50 to 500 mm/s			
Cushion	Air cushion (End rubber bumper)			
Effective cushioning stroke (mm)	45	45	50	60
Lubrication	Not required (Non-lube)			
Stroke length tolerance	Up to 1000 st: $^{+1.4}_{0}$, 1001 to 1500 st: $^{+1.8}_{0}$			

Standard Stroke

Bore size (mm)	Minimum stroke (1) (Recommended)	Standard stroke (2) (mm)	Maximum manufacturable stroke (mm)
20	150	Up to 700	1500
25	150	Up to 700	
32	150	Up to 1000	
40	200	Up to 1000	

Note 1) The cylinder performance may not as expected when stroke is longer than recommended stroke even they are available.
Note 2) When exceeding the standard strokes, it will be out of warranty.

Mass

(kg)

Bore size (mm)		20	25	32	40
Basic mass	Basic style	0.32	0.47	0.74	1.25
	Axial foot style	0.47	0.63	0.90	1.52
	Flange style	0.38	0.56	0.83	1.37
	Single clevis style	0.36	0.51	0.78	1.34
	Double clevis style	0.37	0.53	0.79	1.38
	Trunnion style	0.36	0.54	0.81	1.35
Additional mass per each 50 mm of stroke		0.05	0.07	0.09	0.13
Mounting bracket	Pivot bracket for clevis (With pin)	0.07	0.07	0.14	0.14
	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (With pin)	0.07	0.07	0.07	0.20

∗ Calculation: (Example) ····· **RECL32-200**
Basic mass ····· 0.90 (Foot style ø32)
Additional mass ····· 0.09/50 st
Cylinder stroke ····· 200 (st)
0.90 + 0.09 x 200/50 = 1.26 kg

Mounting Bracket Part No.

Mounting bracket	Minimum order	Bore size (mm) 20	25	32	40	Description (when ordering a minimum number)
Axial foot ∗	2	CM-L020B	CM-L032B		CM-L040B	Foot 2 pcs., Mounting nut 1 pc.
Flange	1	CM-F020B	CM-F032B		CM-F040B	Flange 1 pc.
Single clevis∗∗	1	CM-C020B	CM-C032B		CM-C040B	Single clevis 1 pc., Liner 3 pcs.
Double clevis (With pin)∗∗∗	1	CM-D020B	CM-D032B		CM-D040B	Double clevis 1 pc., Liner 3 pcs., Clevis pin 1 pc., Retaining ring 2 pcs.
Trunnion (With nut)	1	CM-T020B	CM-T032B		CM-T040B	Trunnion 1 pc., Trunnion nut 1 pc.

∗ When ordering foot bracket, order 2 pieces per cylinder.
∗∗ 3 liners are included in the clevis bracket for adjusting an angle when mounting it.
∗∗∗ Clevis pin and retaining ring (cotter pin for ø40) are packaged together.