

Air Cylinder: Standard Type Double Acting, Single Rod Series *CM2* ø20, ø25, ø32, ø40

How to Order

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
G	Head side flange style
C	Single clevis style
D	Double clevis style
U	Rod side trunnion style
T	Head side trunnion style
E	Clevis integrated style
BZ	Boss-cut basic style
FZ	Boss-cut rod side flange style
UZ	Boss-cut rod side trunnion style

Bore size

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

Cylinder stroke (mm)
(Refer to "Standard Stroke" on page 129.)

Cushion

Nil	Rubber bumper
A	Air cushion

* Air-hydro cylinder: Rubber bumper only

Made to Order
(Refer to page 129 for details.)

With auto switch

With auto switch (Built-in magnet)

Type

Nil	Pneumatic
H	Air-hydro

Port thread type

Nil	Rc
TN	NPT
TF	G
F	Built-in one-touch fitting

* Air-hydro type: Rc only

Rod boot

Nil	None
J	Nylon tarpaulin
K	Heat resistant tarpaulin

Number of auto switches

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

Auto switch

Nil	Without auto switch
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* For the applicable auto switch model, refer to the table below.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) CDM2F32-100

Ordering Example: CM2 [] [] L 40 [] - 150 A [] - []

Ordering Example with auto switch: CDM2 [] [] L 40 [] - 150 A [] - M9BW [] - []

Applicable Auto Switch/Refer to pages 1263 to 1371 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		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)							
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24V	5V, 12V	—	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC			
		3-wire (PNP)		12V		M9P		●	●	●	○	—	○						
		2-wire				M9B		●	●	●	○	—	○						
		H7C				●		●	●	●	—	—							
	Diagnostic indication (2-color indication)	Grommet			3-wire (NPN)	5V, 12V	G39A **	—	—	—	—	●	—	IC circuit					
				2-wire	12V	K39A **	—	—	—	—	●	—	—						
				3-wire (NPN)	5V,12V	M9NW	●	●	●	○	—	○	IC circuit						
				3-wire (PNP)	12V	M9PW	●	●	●	○	—	○	—						
				2-wire		M9BW	●	●	●	○	—	○							
				Water resistant (2-color indication)		Grommet	4-wire (NPN)	5V, 12V	H7BA	—	—	●		○	—		○		
									H7NF	●	—	●		○	—		○	IC circuit	
				With diagnostic output (2-color indication)															
Reed switch	—	Grommet	Yes No Yes No Yes No Yes	3-wire (NPN equivalent)	—	5V	—	A96	●	—	●	—	—	—	IC circuit	—			
				2-wire	24V	12V	100V	A93	●	—	●	—	—	—	—	IC circuit	Relay, PLC		
							100V or less	A90	●	—	●	—	—	—	—				
							100V, 200V	B54 **	●	—	●	●	—	—					
		200V or less					B64 **	●	—	●	—	—	—						
		Connector					—	C73C	●	—	●	●	●	—		IC circuit			
							24V or less	C80C	●	—	●	●	●	—					
							Terminal conduit	—	A33A **	—	—	—	—	●	—			—	PLC
								100V, 200V	A34A **	—	—	—	—	●	—				
		DIN terminal		Grommet	Yes	2-wire	24V	12V	100V, 200V	A44A **	—	—	—	—	●	—	—	Relay, PLC	
										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 and D-M9□A(V)L cannot be mounted.
* Do not indicate suffix "N" for no lead wire on D-A3□A/A44A/G39A/K39A models.
* D-A3□A/A44A/G39A/K39A/B54/B64 cannot be mounted on bore sizes ø20 and ø25 cylinder with air cushion.

* Since there are other applicable auto switches than listed above, refer to page 218 for details.

* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.

* D-A9□/M9□/M9□W auto switches are shipped together (not assembled). (However, auto switch mounting brackets are assembled when being shipped.)

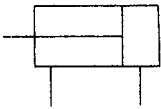
Air Cylinder: Standard Type Double Acting, Single Rod *Series CM2*



Clevis integrated

JIS Symbol

Double acting,
Single rod



With air cushion



Made to Order Specifications

(For details, refer to pages 1373 to 1498.)

Symbol	Specifications
—XA□	Change of rod end shape
—XB6	Heat resistant cylinder (150°C)
—XB7	Cold resistant cylinder
—XB9	Low speed cylinder (10 to 50 mm/s)
—XB12	External stainless steel cylinder
—XB13	Low speed cylinder (5 to 50 mm/s)
—XC3	Special port location
—XC4	With heavy duty scraper
—XC5	Heat resistant cylinder (110°C)
—XC6	Piston rod and rod end nut made of stainless steel
—XC8	Adjustable stroke cylinder/Adjustable extension type
—XC9	Adjustable stroke cylinder/Adjustable retraction type
—XC10	Dual stroke cylinder/Double rod type
—XC11	Dual stroke cylinder/Single rod type
—XC12	Tandem cylinder
—XC13	Auto switch mounting rail style
—XC20	Head cover axial port
—XC22	Fluororubber seals
—XC25	No fixed orifice of connecting port
—XC27	Double clevis pin and double knuckle pin made of stainless steel
—XC29	Double knuckle joint with spring pin
—XC35	With coil scraper
—XC52	Mounting nut with set screw

Rod Boot Material

Symbol	Rod boot material	Maximum ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C *

* Maximum ambient temperature for the rod boot itself.

Refer to pages 214 to 218 for cylinders with auto switches.

- Minimum stroke for auto switch mounting
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range
- Switch mounting bracket: Part no.

Specifications

Bore size (mm)		20	25	32	40
Type		Pneumatic			
Action		Double acting, Single rod			
Fluid		Air			
Proof pressure		1.5 MPa			
Maximum operating pressure		1.0 MPa			
Minimum operating pressure		0.05 MPa			
Ambient and fluid temperature		Without auto switch: -10 to +70°C (No freezing) With auto switch: -10 to +60°C (No freezing)			
Lubrication		Not required (Non-lube)			
Stroke length tolerance		+1.4 0 mm			
Piston speed		Rubber bumper: 50 to 750 mm/s, Air cushion: 50 to 1000 mm/s			
Cushion		Rubber bumper, Air cushion			
Allowable kinetic energy	Rubber bumper	0.27 J	0.4 J	0.65 J	1.2 J
	Air cushion (Effective cushion length (mm))	0.54 J (11.0)	0.78 J (11.0)	1.27 J (11.0)	2.35 J (11.8)

Standard Stroke

Bore size (mm)	Standard stroke ⁽¹⁾ (mm)	Maximum stroke (mm)
20	25, 50, 75, 100, 125, 150 200, 250, 300	1000
25		1500
32		2000
40		2000



Note 1) Other intermediate strokes can be manufactured upon receipt of order. Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Note 2) When exceeding 300 strokes, the allowable maximum stroke length is determined by the stroke selection table (front matter 28).

Boss-cut style

Boss for the head side cover bracket is eliminated and the total length of cylinder is shortened.



Comparison of the Full Length Dimension (Versus standard type)

				(mm)
ø20	ø25	ø32	ø40	
▲13	▲13	▲13	▲16	

Mounting style

- Boss-cut basic style (BZ)
- Boss-cut flange style (FZ)
- Boss-cut trunnion style (UZ)

Mounting Bracket/Part No.

Mounting bracket	Min. order	Bore size (mm)				Description (for min. order)
		20	25	32	40	
Axial foot *	2	CM-L020B	CM-L032B	CM-L040B		2 foot, 1 mounting nut
Flange	1	CM-F020B	CM-F032B	CM-F040B		1 flange
Single clevis**	1	CM-C020B	CM-C032B	CM-C040B		1 single clevis, 3 liners
Double clevis*** (with pins)	1	CM-D020B	CM-D032B	CM-D040B		1 double clevis, 3 liners, 1 clevis pins, 2 retaining rings
Trunnion (with nuts)	1	CM-T020B	CM-T032B	CM-T040B		1 trunnion, 1 trunnion nut

* Order 2 foot brackets for each cylinder unit.

** 3 Liners are attached with a clevis bracket for adjusting the mounting angle.

*** Clevis pins and retaining rings (cotter pins for ø40) are attached.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

CS2

D-□

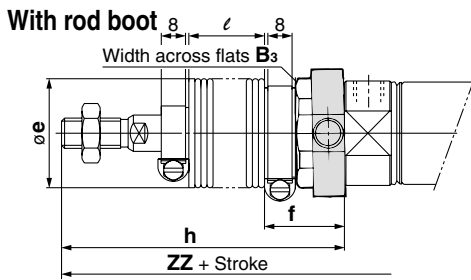
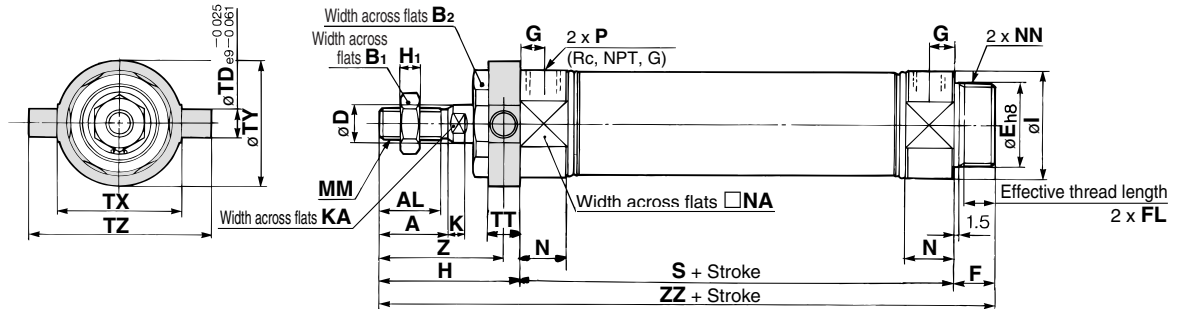
-X□

Individual
-X□

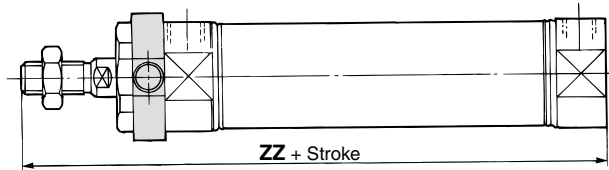
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Rod Side Trunnion Style (U)

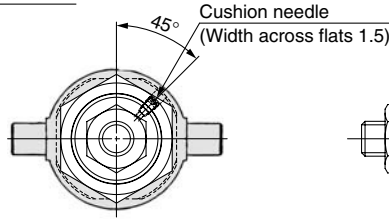
CM2U Bore size — Stroke



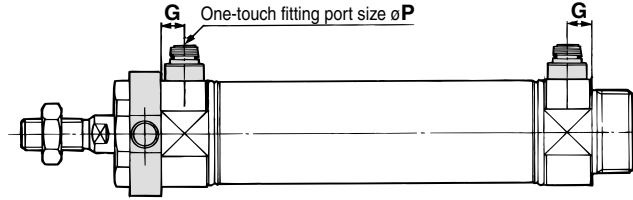
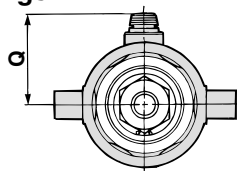
Boss-cut style



With air cushion



Built-in One-touch fittings



Bore size	A	AL	B ₁	B ₂	D	E	F	FL	G	H	H ₁	I	K	KA	MM	N	NA	NN	P
20	18	15.5	13	26	8	20 ^{+0.033} ₀	13	10.5	8	41	5	28	5	6	M8 x 1.25	15	24	M20 x 1.5	1/8
25	22	19.5	17	32	10	26 ^{+0.033} ₀	13	10.5	8	45	6	33.5	5.5	8	M10 x 1.25	15	30	M26 x 1.5	1/8
32	22	19.5	17	32	12	26 ^{+0.033} ₀	13	10.5	8	45	6	37.5	5.5	10	M10 x 1.25	15	34.5	M26 x 1.5	1/8
40	24	21	22	41	14	32 ^{+0.039} ₀	16	13.5	11	50	8	46.5	7	12	M14 x 1.5	21.5	42.5	M32 x 2	1/4

Bore size	S	TD	TT	TX	TY	TZ	Z	ZZ
20	62	8	10	32	32	52	36	116
25	62	9	10	40	40	60	40	120
32	64	9	10	40	40	60	40	122
40	88	10	11	53	53	77	44.5	154

With Rod Boot

Symbol Stroke	B ₃	e	f	h							
				1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	
Bore size	20	30	36	25	68	81	93	106	131	156	181
	25	32	36	25	72	85	97	110	135	160	185
	32	32	36	25	72	85	97	110	135	160	185
	40	41	46	26	77	90	102	115	140	165	190

With Rod Boot

Bore size	Symbol	ℓ								Z								ZZ								JH	JW
	Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500					
20		12.5	25	37.5	50	75	100	125	63	76	88	101	126	151	176	143	156	168	181	206	231	256	23.5	10.5			
25		12.5	25	37.5	50	75	100	125	67	80	92	105	130	155	180	147	160	172	185	210	235	260	23.5	10.5			
32		12.5	25	37.5	50	75	100	125	67	80	92	105	130	155	180	149	162	174	187	212	237	262	23.5	10.5			
40		12.5	25	37.5	50	75	100	125	71.5	84.5	96.5	109.5	134.5	159.5	184.5	181	194	206	219	244	269	294	27	10.5			

Boss-cut Style

Bore size	Without rod boot	With rod boot
20	103	130 143 155 168 193 218 243
25	107	134 147 159 172 197 222 247
32	109	136 149 161 174 199 224 249
40	138	165 178 190 203 228 253 278

With Air Cushion

Bore size	N ₁	WA
20	17.5	13
25	17.5	13
32	17.5	13
40	21.5	16

Built-in One-touch Fittings

Bore size	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

CS2

D-□

-X□

Individual

-X□

Technical data