

Non-rotating Rod: Single Acting Spring Return/Extend *Series CM2K*

A cylinder in which the rod does not rotate because of its hexagonal shape.

Non-rotating accuracy
 $\phi 20, \phi 25 \rightarrow \pm 0.7^\circ$
 $\phi 32, \phi 40 \rightarrow \pm 0.5^\circ$

Can operate without lubrication.

The same installation dimensions as the standard cylinder.

Auto switches can also be mounted.

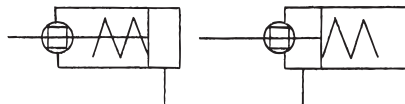
It can be installed with auto switches to simplify the detection of the stroke position of the cylinder.



JIS symbol

Single acting/
Spring return

Spring extend



Made to Order

Refer to p.5.4-1 for made to order specifications of series CM2K.



Precautions

Be sure to read before handling. Refer to p.0-39 to 0-43 for Safety Instructions and common precautions and refer to p.1.4-52 for those on CM2K series.

Specifications

Bore size (mm)	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Action	Single acting/Spring return, Spring extend			
Fluid	Air			
Cushion	Rubber bumper			
Proof pressure	1.5MPa			
Max. operating pressure	1.0MPa			
Min. operating pressure	Spring return	0.18MPa		
	Spring extend	0.23MPa		
Ambient and fluid temperature	Without auto switch: -10 to $+70^\circ\text{C}$ (No freezing) With auto switch: -10 to $+60^\circ\text{C}$ (No freezing)			
Lubrication	Non-lube			
Thread tolerance	JIS class 2			
Stroke tolerance	$+1.4$ 0			
Piston speed (mm/s)	50 to 500			
Rod non-rotating accuracy	$\pm 0.7^\circ$		$\pm 0.5^\circ$	
Allowable kinetic energy	0.27J	0.4J	0.65J	1.2J

CJ1

CJP

CJ2

CM2

C85

CG1

MB

C95

CA1

CS1

Standard Stroke

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

Note 1) Other intermediate strokes can be manufactured upon receipt of order. Contact SMC for longer strokes.

Minimum Strokes for Auto Switch Mounting

Refer to p.1.4-4 for minimum stroke table.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot*	CM-L020B	CM-L032B	CM-L040B	CM-L040B
Flange	CM-F020B	CM-F032B	CM-F040B	CM-F040B
Single clevis	CM-C020B	CM-C032B	CM-C040B	CM-C040B
Double clevis** (with pins)	CM-D020B	CM-D032B	CM-D040B	CM-D040B
Trunnion (with nuts)	CM-T020B	CM-T032B	CM-T040B	CM-T040B

* Two foot brackets and a mounting nut are attached.

** Clevis pins and snap rings (cotter pins for bore size 40) are attached.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040



Note) A set of following stainless steel mounting screws is attached. (A switch mounting band is not attached. Please order the band separately.)

BBA4: D-C7/C8/H7

· "D-H7BAL" switch is set on the cylinder with the screws above when shipped.

When a switch only is shipped, "BBA4" screws are attached

Series CM2K

Mounting and Accessories

Mounting	Accessories			Option		
	Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double knuckle joint ⁽³⁾	Pivot bracket
Basic	● (1 pc.)	●	—	●	●	—
Axial foot	● (2)	●	—	●	●	—
Front flange	● (1)	●	—	●	●	—
Rear flange	● (1)	●	—	●	●	—
Integrated clevis	— ⁽¹⁾	●	—	●	●	●
Single clevis	— ⁽¹⁾	●	—	●	●	—
Double clevis ⁽³⁾	— ⁽¹⁾	●	●	●	●	—
Front trunnion	● (1) ⁽²⁾	●	—	●	●	—
Rear trunnion	● (1) ⁽²⁾	●	—	●	●	—
Boss-cut basic	● (1)	●	—	●	●	—
Boss-cut flange	● (1)	●	—	●	●	—
Boss-cut trunnion	● (1)	●	—	●	●	—
Note					With pins	With pins

Note 1) Mounting nuts are not attached for the integrated clevis type, the single clevis type, and the double clevis type.

Note 2) Trunnion nuts are attached for the front trunnion styles and the rear trunnion styles.

Note 3) Pins and snap rings (cotter pins for bore size 40) are attached for double clevis and the double knuckle joint.

Weight

Spring Return/(): Spring Extend

		(kg)			
Bore size (mm)		20	25	32	40
Basic weight	25stroke	0.20(0.19)	0.31(0.30)	0.43(0.41)	0.78(0.75)
	50stroke	0.23(0.21)	0.34(0.33)	0.48(0.45)	0.86(0.83)
	75stroke	0.29(0.25)	0.43(0.41)	0.61(0.56)	1.08(0.99)
	100stroke	0.31(0.27)	0.47(0.44)	0.66(0.60)	1.14(1.06)
	125stroke	0.37(0.32)	0.56(0.52)	0.81(0.72)	1.34(1.23)
	150stroke	0.39(0.34)	0.59(0.55)	0.85(0.76)	1.39(1.31)
	200stroke	—(—)	—(—)	1.04(0.92)	1.71(1.54)
	250stroke	—(—)	—(—)	—(—)	2.00(1.78)
Mounting bracket weight	Axial foot style	0.15(0.15)	0.16(0.16)	0.16(0.16)	0.27(0.27)
	Flange style	0.06(0.06)	0.09(0.09)	0.09(0.09)	0.12(0.12)
	Single clevis style	0.04(0.04)	0.04(0.04)	0.04(0.04)	0.09(0.09)
	Double clevis style	0.05(0.05)	0.06(0.06)	0.06(0.06)	0.13(0.13)
	Trunnion style	0.04(0.04)	0.07(0.07)	0.07(0.07)	0.10(0.10)
	Integrated clevis style	-0.02(-0.02)	-0.02(-0.02)	-0.01(-0.01)	-0.04(-0.04)
	Boss-cut basic style	-0.01(-0.01)	-0.02(-0.02)	-0.02(-0.02)	-0.03(-0.03)
	Boss-cut flange style	0.05(0.05)	0.07(0.07)	0.07(0.07)	0.09(0.09)
	Boss-cut trunnion style	0.03(0.03)	0.05(0.05)	0.05(0.05)	0.07(0.07)
Clevis bracket (with pins)	0.07(0.07)	0.07(0.07)	0.14(0.14)	0.14(0.14)	
Accessory	Single knuckle joint	0.06(0.06)	0.06(0.06)	0.06(0.06)	0.23(0.23)
	Double knuckle joint (with pins)	0.07(0.07)	0.07(0.07)	0.07(0.07)	0.20(0.20)

Calculation example:

CM2KL32-100S (ø32, Foot, 100 stroke)

0.66 (Basic weight) + 0.16 (Mounting bracket weight)=0.82kg

Boss-cut Style

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



Comparison of total cylinder length with standard style (mm)

ø20	ø25	ø32	ø40
▲13	▲13	▲13	▲16

Mounting

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

Auto Switch Mounting Position

The auto switch mounting position (at stroke end) is the same as standard style (single acting/spring return, extend). Refer to p.1.4-48 and 1.4-49.

Non-rotating Rod: Single Acting Spring Return/Extend *Series CM2K*

Copper Free

20-CM2K **Mounting** **Bore size** **Stroke** **Action**

• Copper free

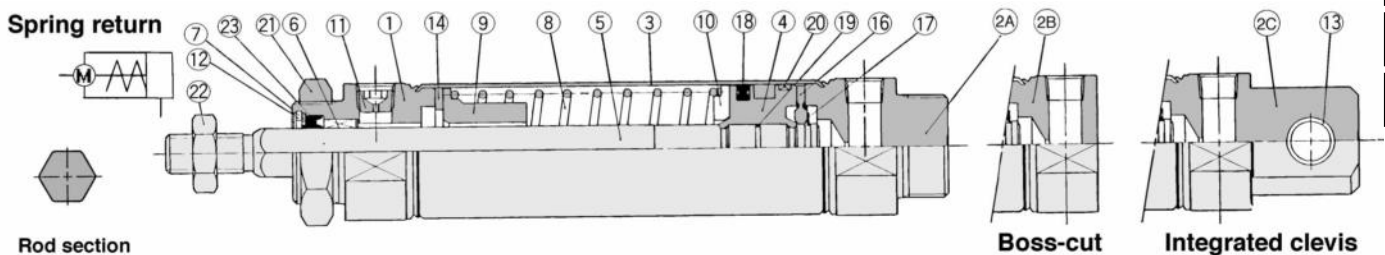
This cylinder eliminates any influences of copper ions or fluoro-resins on color CRTs. Copper materials have been nickel plated or replaced with non-copper materials to prevent the generation of copper ions.

Specifications

Action	Single acting/Spring return	Single acting/Spring extend
Bore size	ø20, ø25, ø32, ø40	
Max. operating pressure	1.0MPa	
Min. operating pressure	0.18MPa	0.23MPa
Cushion	Rubber bumper	
Piston speed	50 to 500mm/s	
Mounting	Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, Front trunnion, Rear trunnion, Integrated clevis, Boss-cut	

* Auto switches can be mounted.

Construction

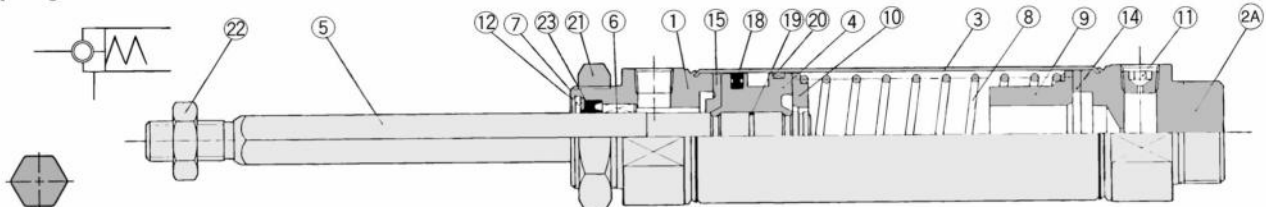


Rod section

Boss-cut

Integrated clevis

Spring extend



Rod section

Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	White anodized
②A	Head cover A	Aluminum alloy	White anodized (Standard style)
②B	Head cover B	Aluminum alloy	White anodized (Boss-cut style)
②C	Head cover C	Aluminum alloy	White anodized (Integrated clevis style)
③	Cylinder tube	Stainless steel	
④	Piston	Aluminum alloy	Chromated
⑤	Piston rod	Stainless steel	
⑥	Non-rotating guide	Oil impregnated sintered alloy	
⑦	Seal retainer	Rolled steel	Nickel plated
⑧	Return spring	Steel wire	Zinc chromated
⑨	Spring guide	Aluminum alloy	Chromated
⑩	Spring seat	Aluminum alloy	Chromated
⑪	Plug with fixed orifice	Alloy steel	Black zinc chromated

No.	Description	Material	Note
⑫	Snap ring	Carbon steel	Nickel plated
⑬	Bushing for clevis	Oil impregnated sintered alloy	
⑭	Bumper	Urethane	
⑮	Bumper A	Urethane	
⑯	Bumper B	Urethane	
⑰	Snap ring	Stainless steel	
⑱	Piston seal	NBR	
⑲	Piston gasket	NBR	
⑳	Wearing	Resin	Nickel plated
㉑	Mounting nut	Carbon steel	Nickel plated
㉒	Rod end nut	Carbon steel	

Replacement Parts

No.	Description	Material	Bore size(mm)/Part No.			
			20	25	32	40
㉓	Rod seal	NBR	PDR-8W	PDR-10W	PDR-12W	PDR-14W

CJ1

CJP

CJ2

CM2

C85

CG1

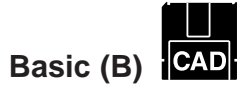
MB

C95

CA1

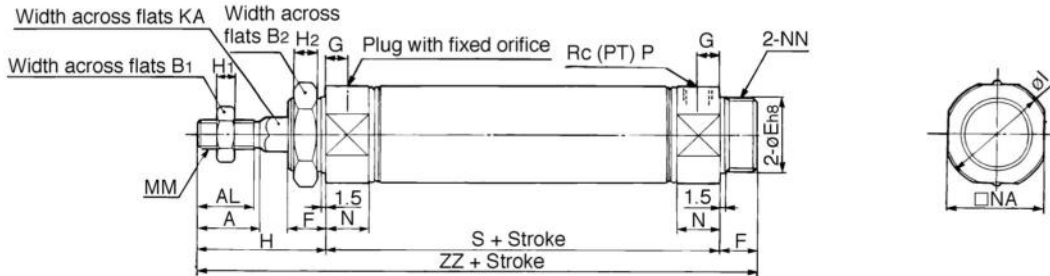
CS1

Series CM2K

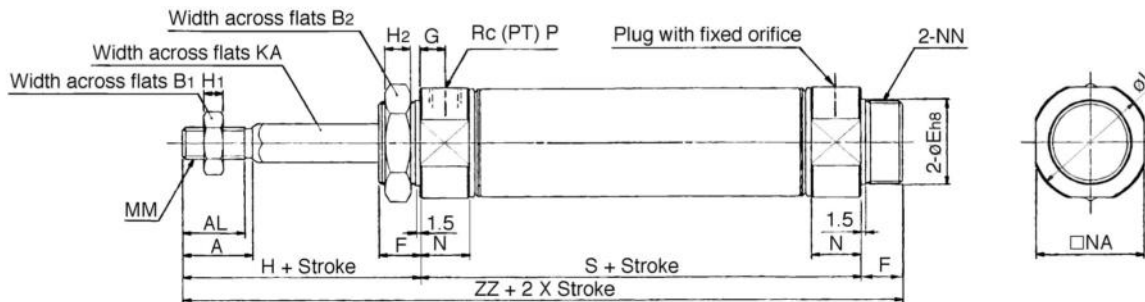


CM2KB Bore size — Stroke $\frac{S}{T}$

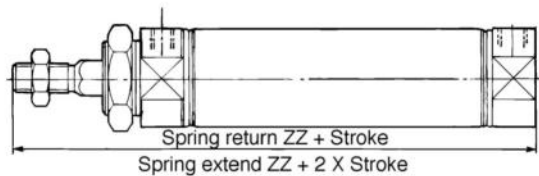
Spring return



Spring extend



Boss-cut



Bore	A	AL	B1	B2	E	F	G	H	H1	H2	I	KA	MM	N	NA	NN	P
20	18	15.5	13	26	20 ⁰ _{-0.033}	13	8	41	5	8	28	8.2	M8 X 1.25	15	24	M20 X 1.5	1/8
25	22	19.5	17	32	26 ⁰ _{-0.033}	13	8	45	6	8	33.5	10.2	M10 X 1.25	15	30	M26 X 1.5	1/8
32	22	19.5	17	32	26 ⁰ _{-0.033}	13	8	45	6	8	37.5	12.2	M10 X 1.25	15	34.5	M26 X 1.5	1/8
40	24	21	22	41	32 ⁰ _{-0.039}	16	11	50	8	10	46.5	14.2	M14 X 1.5	21.5	42.5	M32 X 2	1/4

Dimensions by stroke (mm)

Stroke Symbol	1 to 50		51 to 100		101 to 150		151 to 200		201 to 250	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	—	—	—	—
25	87	145	112	170	137	195	—	—	—	—
32	89	147	114	172	139	197	164	222	—	—
40	113	179	138	204	163	229	188	254	213	279

Boss-cut (mm)

Stroke Symbol	1 to 50		51 to 100		101 to 150		151 to 200		201 to 250	
	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	
20	128	153	178	—	—	—	—	—	—	
25	132	157	182	—	—	—	—	—	—	
32	134	159	184	209	—	—	—	—	—	
40	163	188	213	238	263	—	—	—	—	

Spring return Basic
 CM2KB20.....SCM220A, #11
 CM2KB25.....SCM225A, #11
 CM2KB32.....SCM232A, #11
 CM2KB40.....SCM240A, #11
 Spring extend Basic
 CM2KB20.....SCM220A, #12
 CM2KB25.....SCM225A, #12
 CM2KB32.....SCM232A, #12
 CM2KB40.....SCM240A, #12



The dimensions are the same as standard style (single acting/spring return, extend), except for the configuration of the piston rod. Refer to p.1.4-39 to 1.4-47. Specifications of the auto switch equipped style are the same as standard style (CDM2-□S/T).