

Air Cylinder: Non-rotating Rod Type Double Acting, Single Rod

Series **CG1K**

ø20, ø25, ø32, ø40, ø50, ø63

How to Order

Without auto switch CG1K **L** **N** **25** **100**

With auto switch CDG1K **L** **N** **25** **100** **H7BW**

Built-in magnet •

Double acting, non-rotating rod type •

Mounting style •

B	Basic style
L	Axial foot style
F	Rod side flange style
G	Head side flange style
U	Rod side trunnion style
T	Head side trunnion style
D	Clevis style

(Note) Mounting brackets are shipped together, (but not assembled).

Cushion •

N	Non-lube/Rubber bumper
A	Non-lube/Air cushion (ø40 to ø63 only)

Bore size •

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

Auto switch •

Nil	Without auto switch (Built-in magnet)
S	1 pc.
n	"n" pcs.

* For the applicable auto switch model, refer to the table below.

Cylinder stroke (mm)
Refer to "Standard Stroke" on page 6-5-31.

Applicable Auto Switch/Refer to page 6-16-1 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-wire connector	Applicable load		
					DC	AC		0.5 (Nil)	3 (L)	5 (Z)	None (N)		IC circuit	Relay, PLC	
					Applicable bore size (mm) 20 to 63										
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	C76	●	●	—	—	—	—	—
				2-wire	24 V	100 V, 200 V	B54	●	●	●	—	—	—	—	Relay, PLC
	100 V	C73	●			●	●	—	—	—					
	Diagnostic indication (2-color indication)	Grommet	Yes	—	—	C73C	●	●	●	●	—	—	—	—	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	H7A1	●	●	○	—	○	—	IC circuit
				3-wire (PNP)				H7A2	●	●	○	—	○	—	—
	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	12 V	H7B	●	●	○	—	○	—	—	—	
				3-wire (NPN)	5 V, 12 V	H7C	●	●	●	●	—	—	—		
	Water resistant (2-color indication)	Grommet	Yes	3-wire (PNP)	5 V, 12 V	H7NW	●	●	○	—	○	—	—	IC circuit	
				2-wire	12 V	H7PW	●	●	○	—	○	—	—		
	With diagnostic output (2-color indication)	Grommet	Yes	2-wire	12 V	H7BW	●	●	○	—	○	—	—	—	
				4-wire (NPN)	5 V, 12 V	H7BA	—	●	○	—	○	—	—	—	
					H7NF	●	●	○	—	○	—	—	IC circuit		

* Lead wire length symbols: 0.5 m Nil (Example) C73C
 3 m L (Example) C73CL
 5 m Z (Example) C73CZ
 None N (Example) C73CN

* Solid state switches marked with "○" are produced upon receipt of order.

- Since there are other applicable auto switches than listed, refer to page 6-5-31 for details.
- For details about auto switches with pre-wire connector, refer to page 6-16-60.

Air Cylinder: Non-rotating Rod Type Double Acting, Single Rod Series CG1K

Non-rotating accuracy

$\phi 20, \phi 25 \dots \pm 1^\circ$
 $\phi 32 \dots \pm 0.8^\circ$
 $\phi 40 \text{ to } \phi 63 \dots \pm 0.5^\circ$

High speed operation/Long service life

Piston speed is between 50 and 500 mm/s and long service life is expected.

Can operate without lubrication.

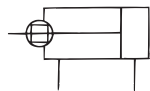
The same installation dimensions as the standard cylinder.

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



Made to Order Specifications
(For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-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 type cylinder
-XC13	Auto switch rail mounting style
-XC20	Head cover axial port

Specifications

Bore size (mm)	20	25	32	40	50	63
Action	Double acting, Single rod					
Type	Non-lube					
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)					
Piston speed	50 to 500 mm/s					
Thread tolerance	JIS Class 2					
Stroke length tolerance	Up to $600^{+1.4}_0$ mm					
Cushion	Rubber bumper, Air cushion ($\phi 40$ to $\phi 63$ only)					
Rod non-rotating accuracy	$\pm 1^\circ$	$\pm 0.8^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$
Mounting	Basic style, Axial foot style, Rod side flange style, Head side flange style, Rod side trunnion style, Head side trunnion style, Clevis style (Used for changing the port location by 90° .)					

Accessory

Mounting		Basic style	Axial foot style	Rod side flange style	Head side flange style	Rod side trunnion style	Head side trunnion style	Clevis style
Standard equipment	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	—	●
Option	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint* (With pin)	●	●	●	●	●	●	●
	Pivot bracket	—	—	—	—	●	●	●

* Pin and snap ring are shipped together with double knuckle joint.

Standard Stroke

Bore size (mm)	Standard stroke (mm) ⁽¹⁾	Long stroke (mm)
20	25, 50, 75, 100, 125, 150, 200	—
25	25, 50, 75, 100, 125, 150, 200, 250, 300	—
32		—
40		301 to 500
50, 63		301 to 600



Note 1) Intermediate strokes other than the above are produced upon receipt of order. Spacers are not used for intermediate strokes.

Note 2) The maximum limit is 1500 stroke, but the products that exceed the standard or the long stroke limit are not guaranteed.

With Auto Switch

Double acting: Auto switch can be mounted for non-rotating rod.

Mounting position is the same as double acting, single rod type. Refer to page 6-5-13.

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted. For detailed specifications, refer to page 6-16-1.

Type	Model	Electrical entry	Features	Applicable bore size (mm)
Reed switch	D-C80	Grommet	Without indicator light	20 to 63
	D-C80C	Connector	—	
	D-B53	Grommet	Without indicator light	
	D-B64		Without indicator light	

* Timer equipped type, solid state auto switch (D-G5NTL) is also available.

* Wide range detection type, solid state auto switch (D-G5NBL) is also available.

* With pre-wire connector is available for D-G5NTL and D-G5NBL.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data

Series CG1K

Weight

(kg)

Bore size (mm)		20	25	32	40	50	63
Basic weight	Basic style	0.10	0.17	0.26	0.41	0.77	1.07
	Axial foot style	0.21	0.30	0.42	0.63	1.25	1.79
	Flange style	0.18	0.27	0.40	0.61	1.11	1.57
	Trunnion style	0.11	0.19	0.29	0.46	0.91	1.21
	Clevis style	0.15	0.25	0.41	0.64	1.17	1.75
Pivot bracket		0.08	0.09	0.17	0.25	0.44	0.80
Single knuckle joint		0.05	0.09	0.09	0.10	0.22	0.22
Double knuckle joint (With pin)		0.05	0.09	0.09	0.13	0.26	0.26
Additional weight per each 50 mm of stroke		0.05	0.07	0.09	0.15	0.22	0.26
Additional weight with air cushion		—	—	—	0.02	0.03	0.03
Additional weight for long stroke		—	—	—	0.03	0.06	0.10

Calculation: (Example) CG1KLN20-100
 (Foot style, ø20, 100st)

- Basic weight.....0.21 (Foot, ø20)
- Additional weight.....0.05/50st
- Cylinder stroke.....100st

$$0.21 + 0.05 \times 100/50 = 0.31 \text{ kg}$$

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)					
	20	25	32	40	50	63
Axial foot *	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063
Flange	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063
Trunnion pin	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063
Clevis **	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063
Pivot bracket	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A



* Order two foot brackets per cylinder.

** Mounting bolt is shipped together with foot style and flange style, and clevis pin, snap ring and mounting bolt for clevis style.

Copper-free

20-CG1K Mounting style N Bore size Stroke

Copper-free

The type which prevents copper based ions from generating by changing the copper based materials into electroless nickel plated treatment or non-copper materials in order to eliminate the effects by copper based ions or fluororesins over the color cathode ray tube.

Specifications

Bore size (mm)	20, 25, 32, 40, 50, 63
Action	Double acting
Fluid	Air
Maximum operating pressure	1.0 MPa
Minimum operating pressure	0.05 MPa
Piston speed	50 to 500 mm/s
Mounting	Basic style, Axial foot style, Rod side flange style, Head side flange style, Rod side trunnion style, Head side trunnion style, Clevis style (Used for changing the port location by 90°.)

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)					
	20	25	32	40	50	63
D-C7/C8	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050	BMA2-063
D-H7						
D-B5/B6	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06
D-G5						

* Mounting screws set made of stainless steel

The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA3: For D-B5/B6/G5

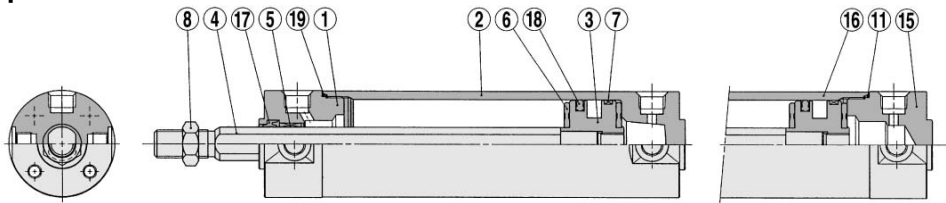
BBA4: For D-C7/C8/H7

• D-G5BAL and D-H7BAL switches are set on the cylinder with the stainless steel screws above when shipped. When a switch only is shipped, BBA3 or BBA4 screws are attached.

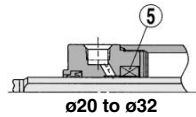
Air Cylinder: Non-rotating Rod Type Double Acting, Single Rod Series **CG1K**

Construction

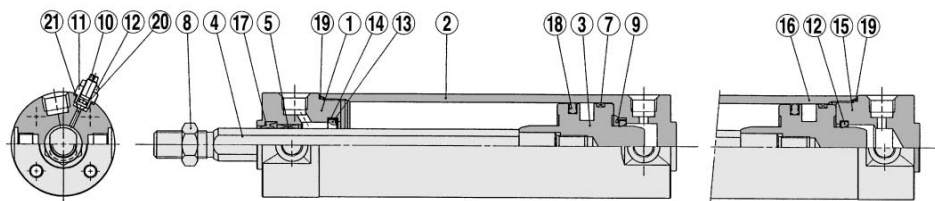
With rubber bumper



Long stroke



With air cushion



Long stroke

Replacement Parts: Seal Kit for Rubber Bumper

Bore size (mm)	Kit no.	Contents
20	CG1KN20-PS	Set of the nos. ⑰, ⑱, ⑲
25	CG1KN25-PS	
32	CG1KN32-PS	
40	CG1KN40-PS	
50	CG1KN50-PS	
63	CG1KN63-PS	

Replacement Parts: Seal Kit for Air Cushion

Bore size (mm)	Kit no.	Contents
40	CG1KA40-PS	Set of the nos. ⑰, ⑱, ⑲, ⑳ and ㉑
50	CG1KA50-PS	
63	CG1KA63-PS	

Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Clear hard anodized
②	Tube cover	Aluminum alloy	Clear hard anodized
③	Piston	Aluminum alloy	Chromated. Hard anodized (In case of air cushion)
④	Piston rod	Carbon steel *	Hard chrome plated
⑤	Non-rotating guide	Oil-impregnated sintered alloy	
⑥	Bumper	Urethane	
⑦	Wear ring	Resin	
⑧	Rod end nut	Rolled steel	Nickel plated
⑨	Seal retainer	Rolled steel	Nickel plated (Except long stroke)
⑩	Cushion valve	Rolled steel	Electroless nickel plated
⑪	Valve retainer	Rolled steel	Electroless nickel plated
⑫	Lock nut	Carbon steel	Nickel plated
⑬	Cushion seal	NBR	
⑭	Cushion seal holder	Aluminum alloy	
⑮	Head cover	Aluminum alloy	Clear hard anodized
⑯	Cylinder tube	Aluminum alloy	Hard anodized
⑰	Rod seal	NBR	
⑱	Piston seal	NBR	
⑲	Tube gasket	NBR	
⑳	Valve seal	NBR	
㉑	Valve retaining gasket	NBR	

Note) In the case of cylinders with auto switches, rubber magnets are installed in the piston.

* The material is stainless steel for ø20 to ø32.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

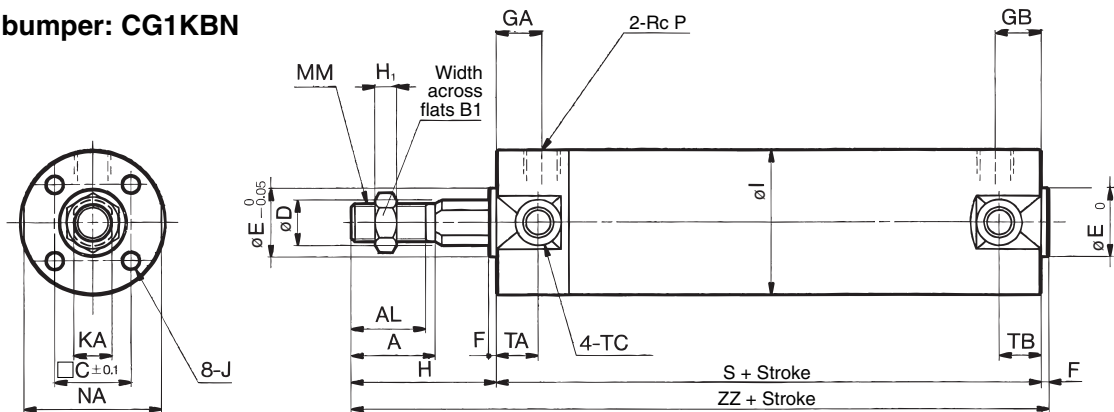
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Data

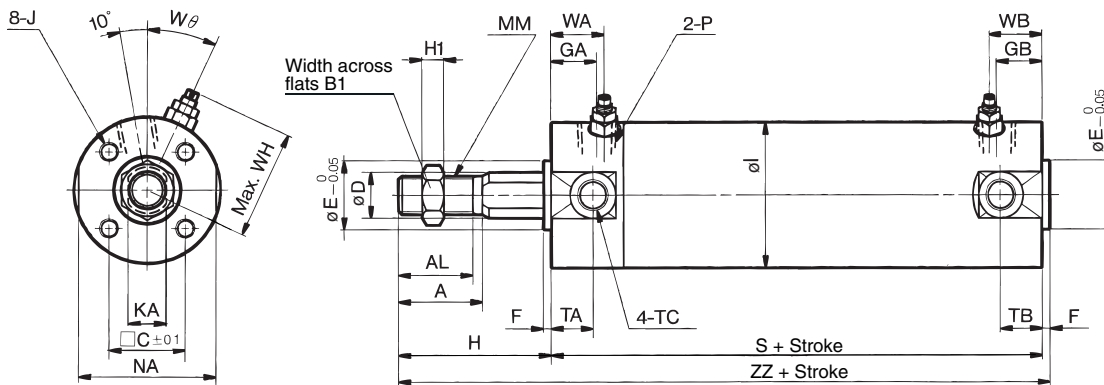
Series CG1K

Basic Style

With rubber bumper: CG1KBN
 ø20 to ø63



With air cushion: CG1KBA
 ø40 to ø63



Bore size (mm)	Stroke range (mm)	A	AL	B1	C	D	E	F	GA	GB	H	H1	I	J	KA	MM	NA	P	S	TA	TB	TC	ZZ
20	Up to 200	18	15.5	13	14	9.2	12	2	12	10	35	5	26	M4 x 0.7 depth 7	8	M8 x 1.25	24	1/8	69	11	11	M5 x 0.8	106
25	Up to 300	22	19.5	17	16.5	11	14	2	12	10	40	6	31	M5 x 0.8 depth 7.5	10	M10 x 1.25	29	1/8	69	11	11	M6 x 0.75	111
32	Up to 300	22	19.5	17	20	12	18	2	12	10	40	6	38	M5 x 0.8 depth 8	10	M10 x 1.25	35.5	1/8	71	11	10	M8 x 1.0	113
40	Up to 300(500)	30	27	19	26	16	25	2	13	10(13)	50	8	47	M6 x 1 depth 12	14	M14 x 1.5	44	1/8	78(87)	12	10(12)	M10 x 1.25	130(139)
50	Up to 300(600)	35	32	27	32	20	30	2	14	12(14)	58	11	58	M8 x 1.25 depth 16	18	M18 x 1.5	55	1/4	90(102)	13	12(13)	M12 x 1.25	150(162)
63	Up to 300(600)	35	32	27	38	20	32	2	14	12(14)	58	11	72	M10 x 1.5 depth 16	18	M18 x 1.5	69	1/4	90(102)	13	12(13)	M14 x 1.5	150(162)

Note 1) Dimensions for each mounting bracket are the same as those for CG1 standard or long stroke model. Refer to pages 6-5-9 and 6-5-10. Also, as for the one with auto switch, it is the same as standard products of Series CDG1.

Note 2) (): Long stroke

With Air Cushion

Bore size (mm)	P	WA	WB	WH	Wθ
40	Rc 1/8	16	15(16)	33	20°
50	Rc 1/4	18	17(18)	40.5	20°
63	Rc 1/4	18	17(18)	47.5	20°

Note) (): Denotes the dimensions for long stroke.

⚠ Precautions

Be sure to read before handling. For Safety Instructions and Actuator Precautions, refer to pages 6-20-3 to 6-20-6.

Caution on Handling/Disassembly

⚠ Caution

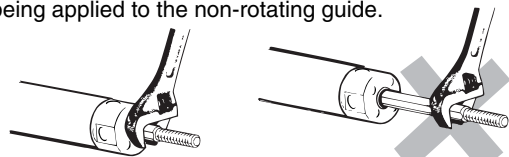
1. Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod.

- If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy.

Allowable rotational torque (N·m or less)	ø20	ø25, ø32	ø40, ø50, ø63
	0.2	0.25	0.44

- To screw a bracket or a nut onto the piston rod, make sure to retract the piston rod entirely, and place a wrench over the flat portion of the rod that protrudes.

Tighten it by giving consideration to prevent the tightening torque from being applied to the non-rotating guide.



2. When replacing rod seals, please contact SMC.

Air leakage may be happened, depending on the position in which a rod seal is fitted. Thus, please contact SMC when replacing them.