

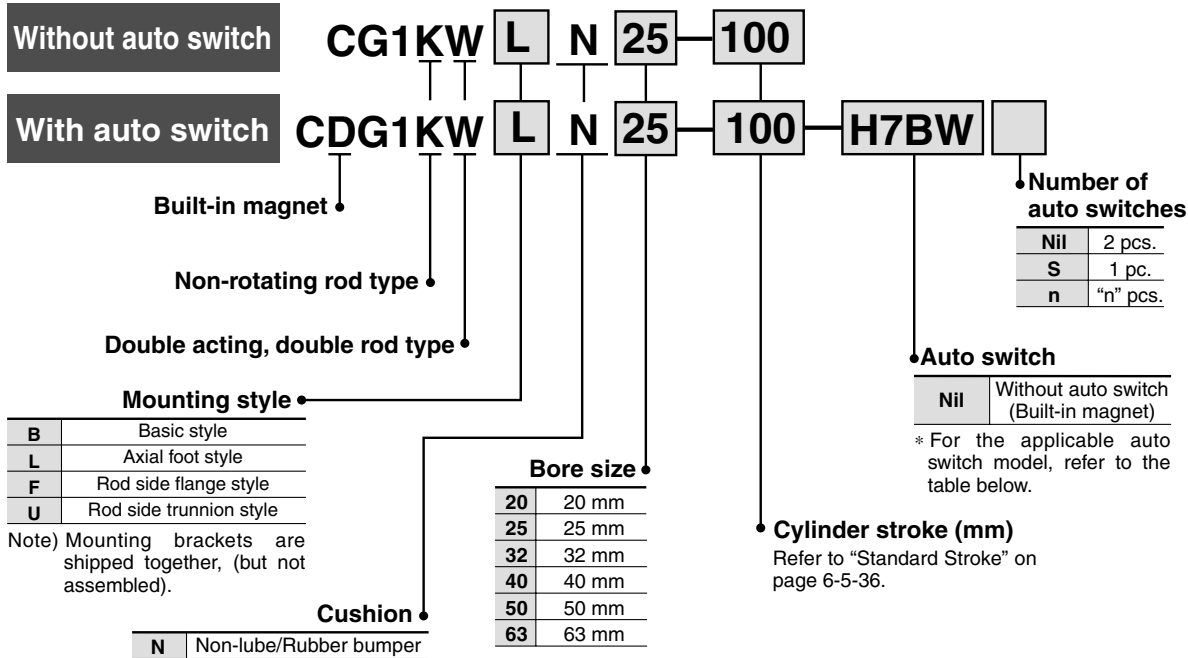


Air Cylinder: Non-rotating Rod Type Double Acting, Double Rod

Series **CG1KW**

ø20, ø25, ø32, ø40, ø50, ø63

How to Order



CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

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Data

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	2-wire	—	—	C73C	●	●	●	●	—	—	—	—
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	H7A1	●	●	○	—	○	—	—
				3-wire (PNP)				H7A2	●	●	○	—	○	—	
		2-wire		H7B				●	●	○	—	○	—		
		2-wire		H7C				●	●	●	●	—	—		
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	H7NW	●	●	○	—	○	—	—
	3-wire (PNP)			H7PW				●	●	○	—	○	—		
	2-wire			H7BW				●	●	○	—	○	—		
	2-wire			H7BA				—	●	○	—	○	—		
Water resistant (2-color indication)	Grommet	Yes	4-wire (NPN)	24 V	5 V, 12 V	—	H7NF	●	●	○	—	○	—	—	
With diagnostic output (2-color indication)			—				—	—	—	—	—	—			

* 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 6-5-39 for details.
- For details about auto switches with pre-wire connector, refer to page 6-16-60.

Series CG1KW

Non-rotating accuracy

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

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.

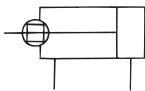
The same installation dimensions as the standard cylinder.

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



Specifications

Bore size (mm)	20	25	32	40	50	63
Action	Double acting, Double rod					
Type	Non-lube					
Fluid	Air					
Proof pressure	1.5 MPa					
Maximum operating pressure	1.0 MPa					
Minimum operating pressure	0.08 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 ^{st+1.4} ₀ mm					
Cushion	Rubber bumper					
Rod non-rotating accuracy	$\pm 1^\circ$	$\pm 0.8^\circ$	$\pm 0.5^\circ$			
Mounting	Basic style, Axial foot style, Rod side flange style, Rod side trunnion style					

Accessory

Mounting		Basic style	Axial foot style	Rod side flange style	Rod side trunnion style
Standard equipment	Rod end nut	●	●	●	●
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 long stroke limit are not guaranteed.

Air Cylinder: Non-rotating Rod Type Double Acting, Double Rod Series **CG1KW**

Weight

Bore size (mm)		20	25	32	40	50	63
Basic weight	Basic style	0.13	0.22	0.33	0.55	1.02	1.37
	Axial foot style	0.24	0.35	0.49	0.77	1.50	2.09
	Flange style	0.21	0.32	0.47	0.75	1.36	1.87
	Trunnion style	0.14	0.24	0.36	0.60	1.16	1.51
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		0.07	0.10	0.13	0.23	0.34	0.38

Calculation: (Example) CG1KWLN32-100 (Foot style, ø32, 100 st)
 • Basic weight.....0.49 (Foot, ø32) • Cylinder stroke.....100 st
 • Additional weight.....0.13/50 st 0.49 + 0.13 x 100/50 = 0.75 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
Pivot bracket	CG-020 -24A	CG-025 -24A	CG-032 -24A	CG-040 -24A	CG-050 -24A	CG-063 -24A

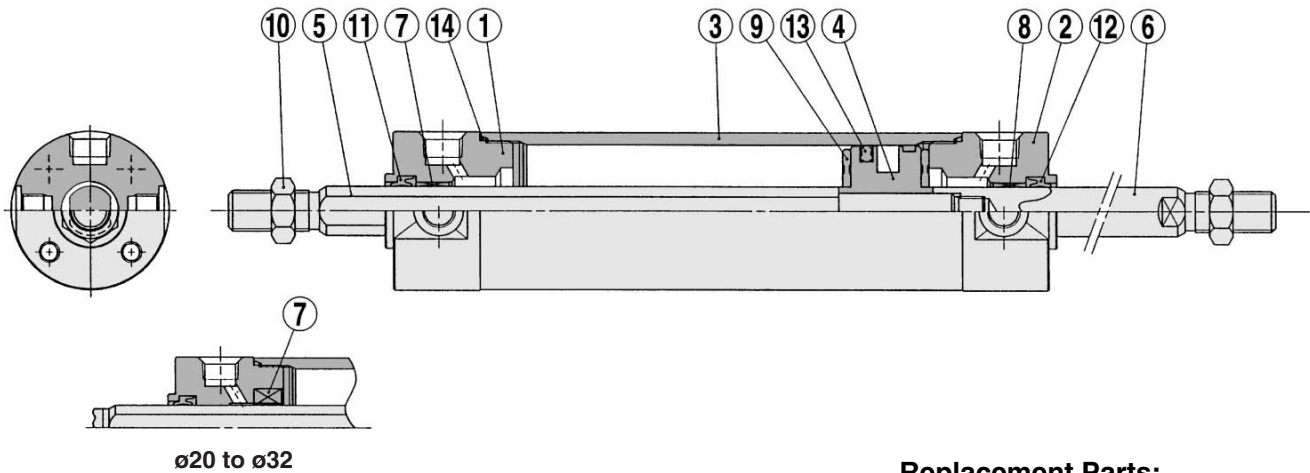
* Order two foot brackets per a cylinder.
 ** Mounting bolts are shipped together for foot style and flange style.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)					
	20	25	32	40	50	63
D-C7/C8	BMA2	BMA2	BMA2	BMA2	BMA2	BMA2
D-H7	-020	-025	-032	-040	-050	-063
D-B5/B6	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06
D-G5/K5						

* 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.
 (Please order the mounting band separately, since it is not included.)
 BBA3: For D-B5/B6/G5/K5
 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 only a switch is shipped independently, BBA3 or BBA4 screws are attached.

Construction



Component Parts

No.	Description	Material	Description
①	Rod cover A	Aluminum alloy	Clear hard anodized
②	Rod cover B	Aluminum alloy	Clear hard anodized
③	Cylinder tube	Aluminum alloy	Hard anodized
④	Piston	Aluminum alloy	Chromated
⑤	Piston rod A	Carbon steel *	Hard chrome plated
⑥	Piston rod B	Carbon steel **	Hard chrome plated
⑦	Non-rotating guide	Oil-impregnated sintered alloy	
⑧	Bushing	Oil-impregnated sintered alloy	ø40 or larger: Lead-bronze casted *
⑨	Bumper	Urethane	
⑩	Rod end nut	Rolled steel	
⑪	Rod seal A	NBR	
⑫	Rod seal B	NBR	
⑬	Piston seal	NBR	
⑭	Tube gasket	NBR	

* The material is stainless steel for ø20 to ø32.
 ** The material is stainless steel on auto switch equipped style ø20 and ø25.
 *** A magnet is equipped on the piston of the cylinder with auto switch.

Replacement Parts: Seal Kit for Rubber Bumper

Bore size (mm)	Kit no.	Contents
20	CG1KWN20-PS	Set of the nos. ①, ⑫, ⑬, ⑭
25	CG1KWN25-PS	
32	CG1KWN32-PS	
40	CG1KWN40-PS	
50	CG1KWN50-PS	
63	CG1KWN63-PS	

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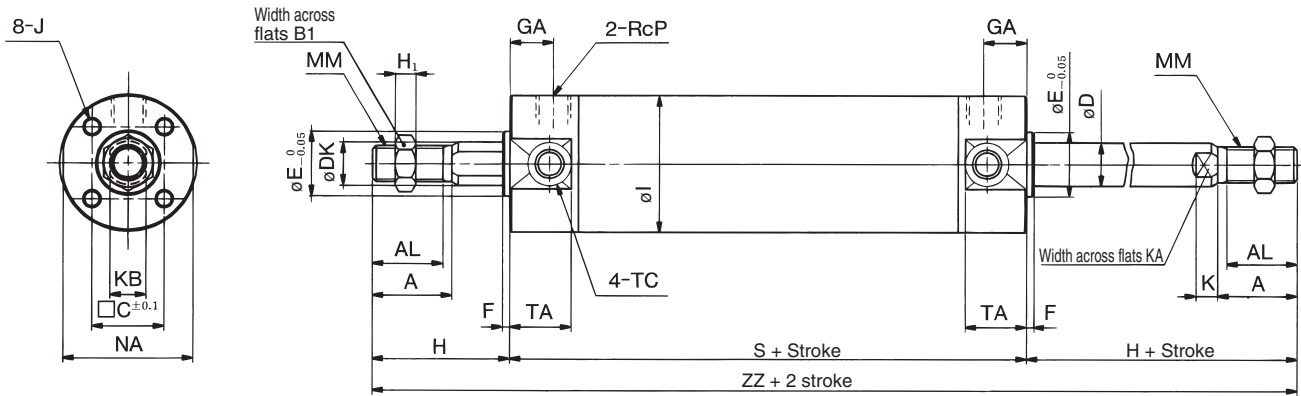
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20-

Data

Series CG1KW

Basic Style with Rubber Bumper: CG1KWBN



Bore size (mm)	Stroke range (mm)	A	AL	B ₁	C	D	DK	E	F	GA	H ₁	I	J	K	KA	KB	MM	NA	P	S
20	Up to 200	18	15.5	13	14	8	9.2	12	2	12	5	26	M4 x 0.7 depth 7	5	6	8	M8 x 1.25	24	1/8	77
25	Up to 300	22	19.5	17	16.5	10	11	14	2	12	6	31	M5 x 0.8 depth 7.5	5.5	8	10	M10 x 1.25	29	1/8	77
32	Up to 300	22	19.5	17	20	12	12	18	2	12	6	38	M5 x 0.8 depth 8	5.5	10	10	M10 x 1.25	35.5	1/8	79
40	Up to 500	30	27	19	26	16	16	25	2	13	8	47	M6 x 1 depth 12	6	14	14	M14 x 1.5	44	1/8	87
50	Up to 600	35	32	27	32	20	20	30	2	14	11	58	M8 x 1.25 depth 16	7	18	18	M18 x 1.5	55	1/4	102
63	Up to 600	35	32	27	38	20	20	32	2	14	11	72	M10 x 1.5 depth 16	7	18	18	M18 x 1.5	69	1/4	102

Bore size (mm)	TA	TC	H	ZZ
20	11	M5 x 0.8	35	147
25	11	M6 x 0.75	40	157
32	11	M8 x 1.0	40	159
40	12	M10 x 1.25	50	187
50	13	M12 x 1.25	58	218
63	13	M14 x 1.5	58	218

Note) Dimensions are the same as CG1W standard type. Refer to page 6-5-20.

• Old number is CG1□N□□-XC21 as made-to-order.

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Caution on Handling/Disassembly

⚠ Caution

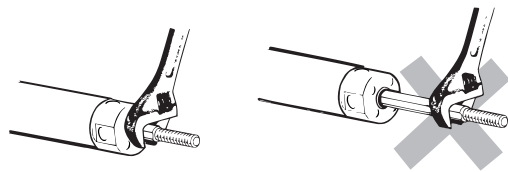
1. Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod.

- If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy. Refer to the table below for the approximate values of the allowable range of rotational torque.

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.



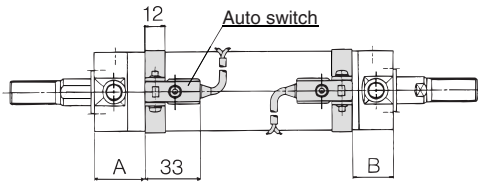
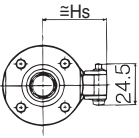
2. When replacing rod seals, please contact SMC.

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

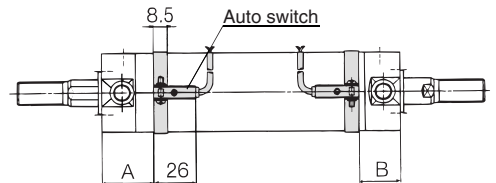
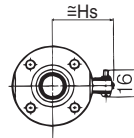
Air Cylinder: Non-rotating Rod Type Double Acting, Double Rod Series **CG1KW**

Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

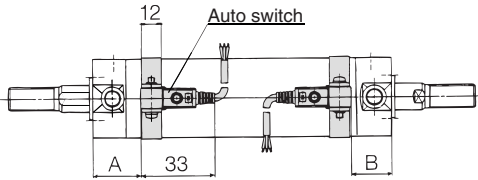
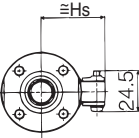
D-B5/B6



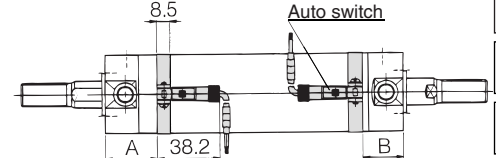
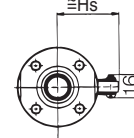
D-C7/C8



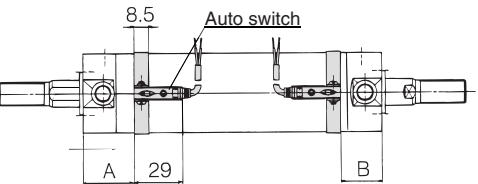
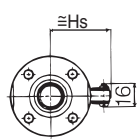
G5NTL



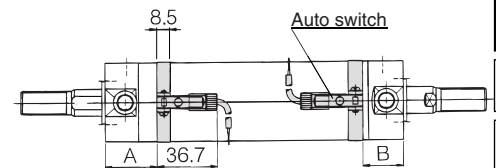
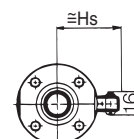
D-H7C



D-H7□/H7□W/H7NF/H7BAL



D-C73C



Bore size (mm)	D-C7, D-C8			D-C73C, D-C80C			D-B5, D-B6			D-B59W		
	A	B	Hs	A	B	Hs	A	B	Hs	A	B	Hs
20	30	28.5	24.5	30	28.5	27	24	22.5	27	27	25.5	27.5
25	30	28.5	27	30	28.5	29.5	24	22.5	30	27	25.5	30
32	31	29.5	30.5	31	29.5	33	25	23.5	33.5	28	26.5	33.5
40	35.5	32.5	35	35.5	32.5	37.5	29.5	26.5	38	32.5	29.5	38
50	43	40.5	40.5	43	40.5	43	37	34.5	43.5	40	37.5	43.5
63	43	40.5	47.5	43	40.5	50	37	34.5	50.5	40	37.5	50.5

Bore size (mm)	D-H7□ D-H7□W			D-H7C D-H7BAL			D-H7NF			D-H7C		
	A	B	Hs	A	B	Hs	A	B	Hs	A	B	Hs
20	29	27.5	24.5	27.5	26	24.5	29	27.5	27.5	29	27.5	27.5
25	29	27.5	27	27.5	26	27	29	27.5	30	29	27.5	30
32	30	28.5	30.5	28.5	27	30.5	30	28.5	33.5	30	28.5	33.5
40	34.5	31.5	35	33	30	35	34.5	31.5	38	34.5	31.5	38
50	42	39.5	40.5	40.5	38	40.5	42	39.5	43.5	42	39.5	43.5
63	42	39.5	47.5	40.5	38	47.5	42	39.5	50.5	42	39.5	50.5

Operating Range

Auto switch model	Bore size (mm)					
	20	25	32	40	50	63
D-C7□/C80/C73C/C80C D-B5□/B64	8	10	9	10	10	11
D-B59W	13	13	14	14	14	17
D-H7NF, D-H7□/H7□W/H7BAL	4	4	4.5	5	6	6.5
D-H7C	7	8.5	9	10	9.5	10.5
D-G5NTL	4	4	4.5	5	6	6.5
D-G5NBL	35	40	40	45	45	45

* Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion)
There may be the case it will vary substantially depending on an ambient environment.

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	—	
	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-wide connector is available for D-G5NTL and D-G5NBL.

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