

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

# CG1KW Series

ø20, ø25, ø32, ø40, ø50, ø63

RoHS

## How to Order

**CG1KW L N 25 - 100 Z**

**With auto switch CDG1KW L N 25 - 100 Z - M9BW**

With auto switch (Built-in magnet)

Non-rotating rod type

Double acting, Double rod type

Mounting

B	Basic
Z*	Basic (without trunnion mounting female thread)
L	Axial foot
F	Flange
U	Trunnion

Type

N	Rubber bumper
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Bore size

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

Cylinder stroke (mm)

Refer to "Standard Strokes" on page 419.

Number of auto switches

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

Auto switch

Nil	Without auto switch
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\* For applicable auto switches, 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) CDG1KWFN32-100Z

## Applicable Auto Switches

Refer to pages 1271 to 1365 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	Applicable bore size		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)									
							ø20 to ø63	Perpendicular								In-line						
Solid state auto switch	—	Grommet	—	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	Relay, PLC							
				3-wire (PNP)			M9PV	M9P	●	●	●	○	—	○								
		Connector		2-wire	M9BV	M9B	●	●	●	○	—	○	—									
				—	—	H7C	—	—	—	—	—	—	—									
	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NVV	M9NW	●	●	●	○	—	○		IC circuit						
				3-wire (PNP)			M9PVV	M9PW	●	●	●	○	—	○		—						
	Water resistant (2-color indicator)	Grommet	—	3-wire (NPN)	5 V, 12 V	—	M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	○	○	—	○		IC circuit						
				3-wire (PNP)			M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	○	○	—	○		—						
	Diagnostic output (2-color indicator)	Grommet	—	2-wire	12 V	—	M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	○	○	—	○		—						
				4-wire (NPN)			—	H7NF	○	—	○	—	—	—		—	IC circuit					
Reed auto switch	—	Grommet	Yes	3-wire (Equiv. to NPN)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	Relay, PLC					
								Connector	24 V	12 V	100 V	A93V <sup>*2</sup>	A93	●	●	●		●	—	—	—	
											100 V or less	A90V	A90	●	—	●		—	—	—	—	IC circuit
											100 V, 200 V	—	B54	●	—	●		—	—	—	—	—
		Grommet		Yes	24 V	2-wire	12 V	—	200 V or less	—	B64	●	—	●	—	—		—	—			
									—	—	C73C	●	—	●	—	—		—	—			
									24 V or less	—	C80C	●	—	●	—	—		—	—	IC circuit		
									—	—	B59W	●	—	●	—	—		—	—	—		

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m..... Nil (Example) M9NV      5 m..... Z (Example) M9NVZ      \* Solid state auto switches marked with "○" are produced upon receipt of order.  
1 m..... M (Example) M9NVW      None..... N (Example) H7CN  
3 m..... L (Example) M9NVL

\* Since there are other applicable auto switches than listed above, refer to page 446 for details.

\* For details about auto switches with pre-wired connector, refer to pages 1340 and 1341.

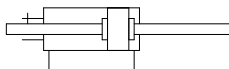
\* The D-A90□□/M9□□□ auto switches are shipped together, (but not assembled). (However, only the auto switch mounting brackets are assembled before shipment.)

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



## Symbol

Rubber bumper



Refer to pages 440 to 446 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range
- Cylinder mounting bracket, by stroke/ Auto switch mounting surfaces



## Precautions

**Refer to page 448 before handling.**

## Specifications

Bore size (mm)	20	25	32	40	50	63
<b>Action</b>	Double acting, Double rod					
<b>Lubricant</b>	Not required (Non-lube)					
<b>Fluid</b>	Air					
<b>Proof pressure</b>	1.5 MPa					
<b>Maximum operating pressure</b>	1.0 MPa					
<b>Minimum operating pressure</b>	0.08 MPa					
<b>Ambient and fluid temperature</b>	Without auto switch: -10°C to 70°C (No freezing) With auto switch : -10°C to 60°C					
<b>Piston speed</b>	50 to 500 mm/s					
<b>Stroke length tolerance</b>	Up to 1000 st <sup>+1.4</sup> mm, Up to 1500 st <sup>+1.8</sup> mm					
<b>Cushion</b>	Rubber bumper					
<b>Rod non-rotating accuracy <sup>Note)</sup></b>	±1°	±0.8°	±0.5°			
<b>Mounting</b>	Basic, Basic (without trunnion mounting female thread), Axial foot, Flange, Trunnion					

\* Foot and flange types of cylinder sizes from ø20 to ø63 do not have trunnion mounting female thread. Operate the cylinder within the allowable kinetic energy. Refer to page 399 for details. Note) The values are for standard strokes.

## Accessories

Refer to page 395 for part numbers and dimensions.

Mounting		Basic	Axial foot	Flange	Trunnion
Standard	Rod end nut	●	●	●	●
	Single knuckle joint	●	●	●	●
Option	Double knuckle joint (with pin) <sup>*1</sup>	●	●	●	●
	Pivot bracket	—	—	—	●

\*1 A double knuckle joint pin and retaining rings are shipped together.

\*2 Stainless steel mounting brackets and accessories are also available. Refer to page 396 for details.

## Weights

Bore size (mm)		20	25	32	40	50	63
Basic weight	Basic	0.13	0.22	0.33	0.55	1.02	1.37
	Axial foot	0.24	0.35	0.49	0.77	1.50	2.09
	Flange	0.21	0.32	0.47	0.75	1.36	1.87
	Trunnion	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 50 mm of stroke		0.07	0.10	0.13	0.23	0.34	0.38
Weight reduction for female rod end		-0.02	-0.04	-0.04	-0.10	-0.20	-0.20

Calculation (Example) **CG1KWLN32-100Z**

- Basic weight.....0.49 (Foot, ø32)
- Additional weight.....0.13/50 stroke
- Air cylinder stroke.....100 stroke

$0.49 + 0.13 \times 100/50 = 0.75 \text{ kg}$

## Standard Strokes

Bore size	Standard stroke <sup>Note 1)</sup>	Manufacturable stroke
<b>20</b>	25, 50, 75, 100, 125, 150, 200	1 to 1500
<b>25</b>	25, 50, 75, 100, 125, 150, 200, 250, 300	1 to 1500
<b>32</b>		
<b>40</b>		
<b>50, 63</b>		

Note 1) Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Note 2) Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on pages 8 to 19. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

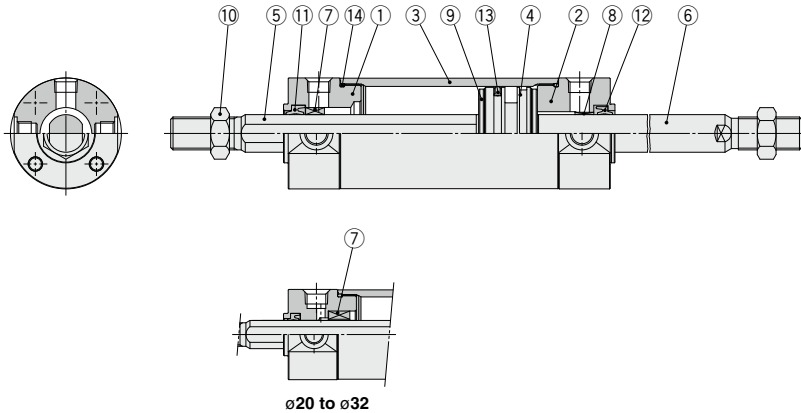
## Mounting Brackets/Part No.

Mounting bracket	Order q'ty	Bore size (mm)						Contents
		20	25	32	40	50	63	
Axial foot	2 <sup>Note)</sup>	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	2 foos, 8 mounting bolts
Flange	1	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	1 flange, 4 mounting bolts
Trunnion pin	1	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	2 trunnion pins, 2 trunnion bolts, 2 flat washers
Pivot bracket	1	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	1 pivot bracket

Note) Order two foos per cylinder.

# CG1KW Series

## Construction



### Component Parts

No.	Description	Material	Note
1	Rod cover A	Aluminum alloy	Anodized
2	Rod cover B	Aluminum alloy	Anodized
3	Cylinder tube	Aluminum alloy	Hard anodized
4	Piston	Aluminum alloy	
5	Piston rod A	Stainless steel	ø32 or smaller
		Carbon steel*	Hard chrome plating* ø40 or larger
6	Piston rod B	Stainless steel	For ø20 or ø25 with built-in magnet
		Carbon steel**	Hard chrome plating*
7	Non-rotating guide	Bearing alloy	
8	Bushing	Bearing alloy	
9	Bumper	Resin	
10	Rod end nut	Carbon steel	Zinc chromated
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 for ø20, ø25 cylinders with auto switches is made of stainless steel.

\*\*\* For cylinders with auto switches, the magnet is installed in the piston.

### Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
20	CG1KWN20Z-PS	Set of the nos. ⑪, ⑫, ⑬, ⑭
25	CG1KWN25Z-PS	
32	CG1KWN32Z-PS	
40	CG1KWN40Z-PS	

Note) As sizes ø50 and larger cannot be disassembled, the seal cannot be replaced.

Note) Refer to the Specific Product Precautions on page 448 for Disassembly/Replacement.

\* The seal kit includes a grease pack (10 g).  
Order with the following part number when only the grease pack is needed.

**Grease pack part number: GR-S-010 (10 g)**



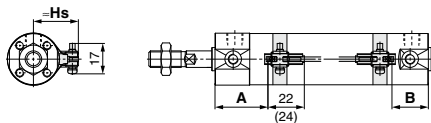
# CG1 Series Auto Switch Mounting

## Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

### Solid state auto switch

D-M9□/M9□W, D-M9□A

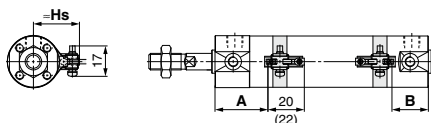
ø20 to ø63



( ): Dimension of the D-M9□A  
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-M9□V/M9□WV, D-M9□AV

ø20 to ø63

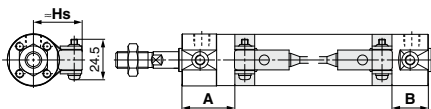


( ): Dimension of the D-M9□AV  
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-G5/K5/G5□W/G5BA

D-K59W, D-G59F, D-G5NT

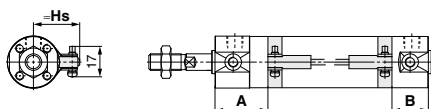
ø20 to ø100



D-H7□/H7□W

D-H7NF/H7BA/D-H7C

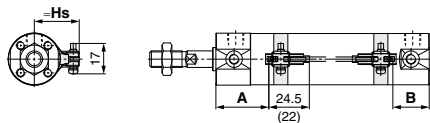
ø20 to ø63



### Reed auto switch

D-A9□

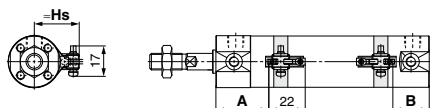
ø20 to ø63



( ): Dimension of the D-A96  
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-A9□V

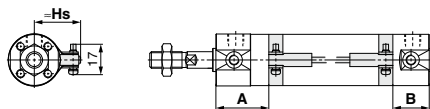
ø20 to ø63



A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

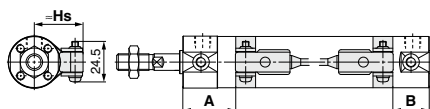
D-C7/C8, D-C73C/C80C

ø20 to ø63



D-B5/B6/B59W

ø20 to ø100



### Auto Switch Mounting Height

(mm)

Auto switch model	D-M9□(V)	D-H7□	D-C73C D-C80C	D-G5/K5	D-G5NT
	D-M9□W(V)	D-H7□W		D-G5□W	D-G59F
Bore size	D-M9□A(V)	D-H7NF	D-C73C D-C80C	D-K59W	D-H7C
	D-A9□(V)	D-H7BA		D-B5/B6	D-G5BA
	Hs	Hs		Hs	
20	26.5	27		27.5	
25	29	29.5		30	
32	32.5	33		33.5	
40	37	37.5		38	
50	42.5	43		43.5	
63	49.5	50		50.5	
80	—	—		59	
100	—	—		69.5	

**Auto Switch Proper Mounting Position (Detection at Stroke End)**

**Except Single Acting, Direct Mount Type (CG1R, CG1KR) and With End Lock (CBG1)**

(mm)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-H7□W D-H7NF D-H7BA D-H7□ D-H7C		D-C7□ D-C80 D-C73C D-C80C		D-G5□/K59 D-G5□W/K59W D-G59F D-G5NT D-G5BA		D-B5□ D-B64		D-B59W	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
<b>20</b>	33	24 (32)	29	20 (28)	28.5	19.5 (27.5)	29.5	20.5 (28.5)	25	16 (24)	23.5	14.5 (22.5)	26.5	17.5 (25.5)
<b>25</b>	32.5	24.5 (32.5)	28.5	20.5 (28.5)	28	20 (28)	29	21 (29)	24.5	16.5 (24.5)	23	15 (23)	26	18 (26)
<b>32</b>	34	25 (33)	30	21 (29)	29.5	20.5 (28.5)	30.5	21.5 (29.5)	26	17 (25)	24.5	15.5 (23.5)	27.5	18.5 (26.5)
<b>40</b>	39	27 (36)	35	23 (32)	34.5	22.5 (31.5)	35.5	23.5 (32.5)	31	19 (28)	29.5	17.5 (26.5)	32.5	20.5 (29.5)
<b>50</b>	46	32 (44)	42	28 (40)	41.5	27.5 (39.5)	42.5	28.5 (40.5)	38	24 (36)	36.5	22.5 (34.5)	39.5	25.5 (37.5)
<b>63</b>	44.5	33.5 (45.5)	40.5	29.5 (41.5)	40	29 (41)	41	30 (42)	36.5	25.5 (37.5)	35	24 (36)	38	27 (39)
<b>80</b>	—	—	—	—	—	—	—	—	49.5	30.5 (44.5)	48	29 (43)	51	32 (46)
<b>100</b>	—	—	—	—	—	—	—	—	48.5	31.5 (45.5)	47	30 (44)	50	33 (47)

Note 1) The values in ( ) are for long stroke.

Note 2) Adjust the auto switch after confirming the operating condition in the actual setting.

**Single Acting, Spring Return Type (S)**

Auto switch model	Bore size	A dimensions				B
		Up to 50 st	51 to 100 st	101 to 125 st	126 to 200 st	
D-M9□(V) D-M9□W(V) D-M9□A(V)	20	58	83	108	—	24
	25	57.5	82.5	107.5	132.5	24.5
	32	59	84	109	134	25
	40	64	89	114	139	27
D-A9□(V)	20	54	79	104	—	20
	25	53.5	78.5	103.5	128.5	20.5
	32	55	80	105	130	21
	40	60	85	110	135	23
D-H7□W D-H7□W D-H7C D-H7BA D-H7NF	20	53.5	78.5	103.5	—	19.5
	25	53	78	103	128	20
	32	54.5	79.5	109.5	129.5	20.5
	40	59.5	84.5	109.5	134.5	22.5
D-C7□ D-C80 D-C73C D-C80C	20	54.5	79.5	104.5	—	20.5
	25	54	79	104	129	21
	32	55.5	80.5	105.5	130.5	21.5
	40	60.5	85.5	110.5	135.5	23.5
D-G5NT D-G59F	20	50	75	100	—	16
	25	49.5	74.5	99.5	124.5	16.5
	32	51	76	101	126	17
	40	56	81	106	131	19
D-B5□ D-B64	20	48.5	73.5	98.5	—	14.5
	25	48	73	98	123	15
	32	49.5	74.5	99.5	124.5	15.5
	40	54.5	79.5	104.5	129.5	17.5
D-B59W	20	51.5	76.5	101.5	—	17.5
	25	51	76	101	126	18
	32	52.5	77.5	102.5	127.5	18.5
	40	57.5	82.5	107.5	132.5	20.5

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

## Auto Switch Proper Mounting Position (Detection at Stroke End)

### Single Acting, Spring Extend Type (T)

(mm)

Auto switch model	Bore size	A	B dimensions			
			Up to 50 st	51 to 100 st	101 to 125 st	126 to 200 st
D-M9□(V) D-M9□W(V) D-M9□A(V)	20	33	49	74	99	—
	25	32.5	49.5	74.5	99.5	124.5
	32	34	50	75	100	125
D-A9□(V)	40	39	52	77	102	127
	20	29	45	70	95	—
	25	28.5	45.5	70.5	95.5	120.5
	32	30	46	71	96	121
D-H7□ D-H7□W D-H7C D-H7BA D-H7NF	40	35	48	73	98	123
	20	28.5	44.5	69.5	94.5	—
	25	28	45	70	95	120
	32	29.5	45.5	70.5	95.5	120.5
D-C7□ D-C80 D-C73C D-C80C	40	34.5	47.5	72.5	97.5	122.5
	20	29.5	45.5	70.5	95.5	—
	25	29	46	71	96	121
	32	30.5	46.5	71.5	96.5	121.5
D-G5NT D-G59F	40	35.5	48.5	73.5	98.5	123.5
	20	25	41	66	91	—
	25	24.5	41.5	66.5	91.5	116.5
	32	26	42	67	92	117
D-B5□ D-B64	40	31	44	69	94	119
	20	23.5	39.5	64.5	89.5	—
	25	23	40	65	90	115
	32	24.5	40.5	65.5	90.5	115.5
D-B59W	40	29.5	42.5	67.5	92.5	117.5
	20	26.5	42.5	67.5	92.5	—
	25	26	43	68	93	118
	32	27.5	43.5	68.5	93.5	118.5
	40	32.5	45.5	70.5	95.5	120.5

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

### Direct Mount Type (CG1R, CG1KR)

(mm)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-H7□W D-H7NF D-H7BA D-H7□ D-H7C		D-C7□ D-C80 D-C73C D-C80C		D-G59F D-G5NT		D-B5□ D-B64		D-B59W	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bore size														
20	12	24	8	20	7.5	19.5	8.5	20.5	4	16	2.5	14.5	5.5	17.5
25	11.5	24.5	7.5	20.5	7	20	8	21	3.5	16.5	2	15	5	18
32	13	25	9	21	8.5	20.5	9.5	21.5	5	17	3.5	15.5	6.5	18.5
40	18	27	14	23	13.5	22.5	14.5	23.5	10	19	8.5	17.5	11.5	20.5
50	20	32	16	28	15.5	27.5	16.5	28.5	12	24	10.5	22.5	13.5	25.5
63	18.5	33.5	14.5	29.5	14	29	15	30	10.5	25.5	9	24	12	27

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

**Auto Switch Proper Mounting Position (Detection at Stroke End)**

**With End Lock (CBG1)**

(mm)

Auto switch model	Lock position	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-H7□ D-H7C D-H7□W D-H7BA D-H7NF		D-G5□W D-K59W D-G59F D-G5 D-K5 D-G5NT D-G5BA		D-C7 D-C8 D-C73C D-C80C		D-B5 D-B6		D-B59W	
		A	B	A	B	A	B	A	B	A	B	A	B	A	B
20	Head end	33	36	29	32	28.5	31.5	25	28	29.5	32.5	23.5	26.5	26.5	29.5
	Rod end	44	24 (32)	40	20 (28)	39.5	19.5 (27.5)	36	16 (24)	40.5	20.5 (28.5)	34.5	14.5 (22.5)	37.5	17.5 (25.5)
	Double end	44	36	40	32	39.5	31.5	36	28	40.5	32.5	34.5	26.5	37.5	29.5
25	Head end	33	36	29	32	28.5	31.5	25	28	29.5	32.5	23.5	26.5	26.5	29.5
	Rod end	44	24 (32)	40	20 (28)	39.5	19.5 (27.5)	36	16 (24)	40.5	20.5 (28.5)	34.5	14.5 (22.5)	37.5	17.5 (25.5)
	Double end	44	36	40	32	39.5	31.5	36	28	40.5	32.5	34.5	26.5	37.5	29.5
32	Head end	34	35	30	31	29.5	30.5	26	27	30.5	31.5	24.5	25.5	27.5	28.5
	Rod end	44	25 (33)	40	21 (29)	39.5	20.5 (28.5)	36	17 (25)	40.5	21.5 (29.5)	34.5	15.5 (23.5)	37.5	18.5 (26.5)
	Double end	44	35	40	31	39.5	30.5	36	27	40.5	31.5	34.5	25.5	37.5	28.5
40	Head end	39	41	35	37	34.5	36.5	31	33	35.5	37.5	29.5	31.5	32	34.5
	Rod end	48	27 (36)	44	23 (32)	43.5	22.5 (31.5)	40	19 (28)	44.5	23.5 (32.5)	38.5	17.5 (26.5)	41	20.5 (29.5)
	Double end	48	41	44	37	43.5	36.5	40	33	44.5	37.5	38.5	31.5	41	34.5
50	Head end	46	49	42	45	41.5	44.5	38	41	42.5	45.5	36.5	39.5	39.5	42.5
	Rod end	58	32 (44)	54	28 (40)	53.5	27.5 (39.5)	50	24 (36)	54.5	28.5 (40.5)	48.5	22.5 (34.5)	51.5	25.5 (37.5)
	Double end	58	49	54	45	53.5	44.5	50	41	54.5	45.5	48.5	39.5	51.5	42.5
63	Head end	46	49	42	45	41.5	44.5	38	41	42.5	45.5	36.5	39.5	39.5	42.5
	Rod end	58	32 (44)	54	28 (40)	53.5	27.5 (39.5)	50	24 (36)	54.5	28.5 (40.5)	48.5	22.5 (34.5)	51.5	25.5 (37.5)
	Double end	58	49	54	45	53.5	44.5	50	41	54.5	45.5	48.5	39.5	51.5	42.5
80	Head end							48	54			46.5	52.5	49.5	55.5
	Rod end	—	—	—	—	—	—	64	32 (46)	—	—	62.5	30.5 (44.5)	65.5	33.5 (47.5)
	Double end							64	54			62.5	52.5	65.5	55.5
100	Head end							48	54			46.5	52.5	49.5	55.5
	Rod end	—	—	—	—	—	—	64	32 (46)	—	—	62.5	30.5 (44.5)	65.5	33.5 (47.5)
	Double end							64	54			62.5	52.5	65.5	55.5

Note 1) The values in ( ) are for long stroke.

Note 2) Adjust the auto switch after confirming the operating condition in the actual setting.

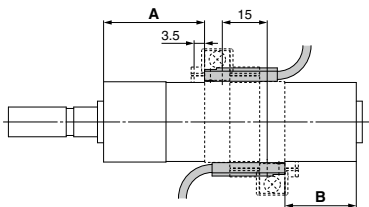
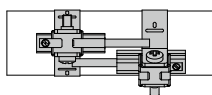


## Minimum Stroke for Auto Switch Mounting

Auto switch model	n: Number of auto switches (mm)					
	With 1 pc.	Number of auto switches			With n pcs.	
		Different surfaces	Same surface	Different surfaces	Same surface	Same surface
D-M9□	5	15 <small>Note 1</small>	40 <small>Note 1</small>	$20 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$55 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-M9□W	10	15 <small>Note 1</small>	40 <small>Note 1</small>	$20 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$55 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-M9□A	10	25	40 <small>Note 1</small>	$25 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$60 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-A9□	5	15	30 <small>Note 1</small>	$15 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$50 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-M9□V	5	20	35	$20 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$35 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-A9□V	5	15	25	$15 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$25 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-M9□WV D-M9□AV	10	20	35	$20 + 35 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$35 + 35 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-C7□ D-C80	5	15	50	$15 + 45 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$50 + 45 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-H7□ D-H7□W D-H7BA D-H7NF	10	15	60	$15 + 45 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$60 + 45 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-H7C D-C73C D-C80C	5	15	65	$15 + 50 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$65 + 50 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-G5□ D-K59□ D-B5□ D-B64	5	15	75	$15 + 50 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$75 + 55 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	
D-B59W	10	20	75	$20 + 50 \frac{(n-2)}{2}$ <small>(n = 2, 4, 6...)</small> <small>Note 3</small>	$75 + 55 (n-2)$ <small>(n = 2, 3, 4, 5...)</small>	

Note 1) Auto switch mounting

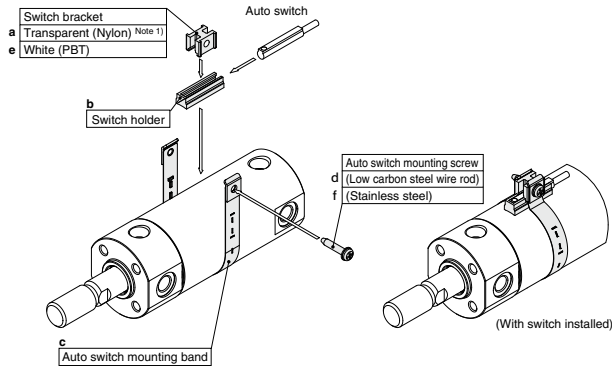
Note 3) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.

Auto switch model	With 2 auto switches	
	Different surfaces <small>Note 1</small>	Same surface <small>Note 1</small>
	 <p>Correct auto switch mounting position is 3.5 mm from the back face of the switch holder.</p>	 <p>The auto switch is mounted by slightly displacing it in a direction (cylinder tube circumferential exterior) so that the auto switch and lead wire do not interfere with each other.</p>
D-M9□ D-M9□W	Less than 20 stroke <small>Note 2</small>	Less than 55 stroke <small>Note 2</small>
D-M9□A	Less than 20 stroke <small>Note 2</small>	Less than 60 stroke <small>Note 2</small>
D-A9□	—	Less than 50 stroke <small>Note 2</small>

Note 2) Minimum stroke for auto switch mounting in types other than those mentioned in Note 1.

**Auto Switch Mounting Brackets/Part No.**

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
D-M9□(V) D-M9□W(V) D-A9□(V)	Note 1) BMA3-020 (A set of a, b, c, d)	Note 1) BMA3-025 (A set of a, b, c, d)	Note 1) BMA3-032 (A set of a, b, c, d)	Note 1) BMA3-040 (A set of a, b, c, d)	Note 1) BMA3-050 (A set of a, b, c, d)	Note 1) BMA3-063 (A set of a, b, c, d)	—	—
D-M9□A(V) <small>Note 2)</small>	BMA3-020S (A set of b, c, e, f)	BMA3-025S (A set of b, c, e, f)	BMA3-032S (A set of b, c, e, f)	BMA3-040S (A set of b, c, e, f)	BMA3-050S (A set of b, c, e, f)	BMA3-063S (A set of b, c, e, f)	—	—



\* Band (c) is mounted so that the projected part is on the internal side (contact side with the tube).

D-H7□ D-H7□W D-H7NF D-C7□/C80 D-C73C/C80C	BMA2-020A (A set of c and d)	BMA2-025A (A set of c and d)	BMA2-032A (A set of c and d)	BMA2-040A (A set of c and d)	BMA2-050A (A set of c and d)	BMA2-063A (A set of c and d)	—	—
D-H7BA	BMA2-020AS (A set of c and f)	BMA2-025AS (A set of c and f)	BMA2-032AS (A set of c and f)	BMA2-040AS (A set of c and f)	BMA2-050AS (A set of c and f)	BMA2-063AS (A set of c and f)	—	—
D-G5□/K59 D-G5□W/K59W D-G5BA/G59F D-G5NT D-B5□/B64 D-B59W	BA-01 (A set of c and d)	BA-02 (A set of c and d)	BA-32 (A set of c and d)	BA-04 (A set of c and d)	BA-05 (A set of c and d)	BA-06 (A set of c and d)	BA-08 (A set of c and d)	BA-10 (A set of c and d)

Note 1) Since the switch bracket (made from nylon) are affected in an environment where alcohol, chloroform, methylamines, hydrochloric acid or sulfuric acid is splashed over, so it cannot be used. Please contact SMC regarding other chemicals.

Note 2) When mounting a D-M9□A(V) type auto switch, if the switch bracket is mounted on the indicator light, it may damage the auto switch. Therefore, be sure to avoid mounting the switch bracket on the indicator light.

**Band Mounting Brackets Set Part No.**

Set part no.	Contents
<b>BJ4-1</b>	- Switch bracket (White/PBT) (e) - Switch holder (b)
<b>BJ5-1</b>	- Switch bracket (Transparent/Nylon) (a) - Switch holder (b)

**[Stainless Steel Mounting Screw]**

The following stainless steel mounting screw kit is available. Use it in accordance with the operating environment. (Since the auto switch mounting bracket is not included, order it separately.)

BBA3: D-B5/B6/G5/K5 types

Note) Refer to page 1369 for details on the BBA3.







When the D-G5BA type auto switch is shipped independently, the BBA3 is attached.

## Operating Range

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
D-M9□(V) D-M9□W(V) D-M9□A(V)	4.5	5.0	4.5	5.5	5.0	5.5	—	—
D-A9□	7	6	8	8	8	9	—	—
D-C7/C80 D-C73C/C80C	8	10	9	10	10	11	—	—
D-B5□/B64 D-B59W	8	10	9	10	10	11	11	11
D-H7□/H7□W D-H7NF/H7BA	4	4	4.5	5	6	6.5	—	—
D-H7C	7	8.5	9	10	9.5	10.5	—	—
D-G5□/G5□W/G59F D-G5BA/K59/K59W	4	4	4.5	5	6	6.5	6.5	7
D-G5NT	4	4	4.5	5	6	6.5	6.5	7

\* Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

## Cylinder Mounting Bracket, by Stroke/Auto Switch Mounting Surfaces

Auto switch model	Basic, Foot, Flange, Clevis			Trunnion		
	With 1 pc. (Rod cover side)	With 2 pcs. (Different surfaces)	With 2 pcs. (Same surface)	With 1 pc. (Rod cover side)	With 2 pcs. (Different surfaces)	With 2 pcs. (Same surface)
Auto switch mounting surface	Port surface 	Port surface 	Port surface 			
Auto switch type						
D-M9□(V) D-M9□W(V) D-M9□A(V) D-A9□	10 st or more	15 to 44 st	45 st or more	10 st or more	15 to 44 st	45 st or more
D-C7/C8	10 st or more	15 to 49 st	50 st or more	10 st or more	15 to 49 st	50 st or more
D-H7□/H7□W D-H7BA/H7NF	10 st or more	15 to 59 st	60 st or more	10 st or more	15 to 59 st	60 st or more
D-H7C/C73C/C80C	10 st or more	15 to 64 st	65 st or more	10 st or more	15 to 64 st	65 st or more
D-G5/K5/B5/B6 D-G5□W/K59W/G5BA D-G59F/G5NT	10 st or more	15 to 74 st	75 st or more	10 st or more	15 to 74 st	75 st or more
D-B59W	15 st or more	20 to 74 st	75 st or more	15 st or more	20 to 74 st	75 st or more

\* Trunnion type is not available for ø80 and ø100.

\* Adjust the auto switch mounting angle according to the customer's application.

**Other than the applicable auto switches listed in "How to Order", the following auto switches are mountable.**

Refer to pages 1271 to 1365 for the detailed specifications.

Type	Model	Electrical entry	Features	Applicable bore size	
Solid state	D-H7A1, H7A2, H7B	Grommet (In-line)	—	ø20 to ø63	
	D-H7NW, H7PW, H7BW		Diagnostic indication (2-color indicator)		
	D-H7BA		Water resistant (2-color indicator)		
	D-G5NT		With timer	ø20 to ø100	
Reed	D-C73, C76		—	Without indicator light	ø20 to ø63
	D-C80		—		
	D-B53		—	ø20 to ø100	

\* With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1340 and 1341.

\* Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)) are also available. For details, refer to page 1290.



## 1 PTFE Grease

Symbol

**-X446**

Applicable to environments incompatible with mineral oil  
PTFE grease (fluorine grease) is used as the lubricating grease.

### Applicable Series

Description	Model	Action	Note
Standard type	CG1	Double acting, Single rod	Except with air cushion

### How to Order

Standard model no.

- X446

PTFE grease ●

**Specifications: Same as standard type**

**Dimensions: Same as standard type**

\* When grease is necessary for maintenance, grease pack is available,  
please order it separately.  
GR-F-005 (Grease: 5 g)