

Air Cylinder: Standard Type Double Acting, Double Rod

CG1W Series

ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

RoHS

How to Order

CG1W L N 25 - 100 Z -

With auto switch **CDG1W L N 25 - 100 Z - M9BW -**

With auto switch •
(Built-in magnet)
Double acting, Double rod type •
Mounting •

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

* Not available for ø80 and ø100.
* Mounting bracket is shipped together with the product, but not assembled.
* The cylinder for F, L mounting types is Z: Basic (without trunnion mounting female thread).

Type •

N	Rubber bumper
A	Air cushion

Bore size •

20	20 mm	50	50 mm
25	25 mm	63	63 mm
32	32 mm	80	80 mm
40	40 mm	100	100 mm

Port thread type •

Rubber bumper		Air cushion	
Nil	Rc ø20 to ø100	M5x0.8 ø20, ø25	Rc ø32 to ø100
TN	NPT ø20 to ø100	NPT* ø32 to ø100	Rc ø32 to ø100
TF	M5x0.8 ø20, ø25	G* ø32 to ø100	
	G ø32 to ø100		

* Not available for ø20 and ø25.

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

Suffix for cylinder (Rod boot)

Nil	Without rod boot
One side J	Nylon tarpaulin
Both JJ	Heat resistant tarpaulin
sides KK	Nylon tarpaulin
	Heat resistant tarpaulin

Number of auto switches

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

Note) In the case of w/rod boot, and a foot bracket or rod flange as a bracket, those parts are to be assembled at the time of shipment.
* For female rod end, no rod boot is provided.

Rod end thread

Nil	Male rod end
F	Female rod end

Cylinder stroke (mm)
Refer to "Standard Strokes" on page 399.

Made to Order •
For details, refer to page 399.

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) CDG1WFA32-100Z

Applicable 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	ø80, ø100	Perpendicular								In-line	In-line
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	—	●	●	○	—	○	IC circuit	Relay, PLC		
				3-wire (PNP)			—	—	●	●	○	—	○					
				2-wire			—	—	●	●	○	—	○					
		Connector		3-wire (NPN)	24 V		5 V, 12 V	M9NWV	M9NW	—	●	●	○	—			○	IC circuit
				3-wire (PNP)				—	—	●	●	○	—	○				
				2-wire				—	—	●	●	○	—	○				
	Diagnostic indication (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	M9NAV ^{*1}	M9NA ^{*1}	—	○	○	○	○	○	IC circuit					
			3-wire (PNP)		M9PAV ^{*1}	M9PA ^{*1}	—	○	○	○	○	○						
			2-wire		M9BAV ^{*1}	M9BA ^{*1}	—	○	○	○	○	○						
		Water resistant (2-color indicator)	Grommet	4-wire (NPN)	5 V, 12 V	—	—	H7NF	—	●	●	○	○	IC circuit				
				3-wire (Equip. to NPN)		—	—	●	●	○	○	○						
				—		—	—	—	—	—	—	—	—		—			
Diagnostic output (2-color indicator)	Grommet		Yes	24 V	12 V	100 V	A96V	A96	—	●	●	○	—	IC circuit				
			No			100 V or less	A93V ^{*2}	A93	—	●	●	○	—					
			No			100 V, 200 V	A90V	A90	—	●	●	○	—					
	Connector	Yes	200 V or less			—	—	B54	—	●	●	○	—					
		No	—			—	—	B64	—	●	●	○	—					
		Yes	24 V or less			—	—	C73C	—	●	●	○	—					
Diagnostic indication (2-color indicator)	Grommet	Yes	—	—	—	—	C80C	—	●	●	○	—	IC circuit					
		No	—	—	—	—	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) 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.

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

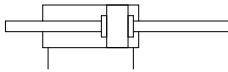
* For details about auto switches with pre-wired connector, refer to pages 1340 and 1341.

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

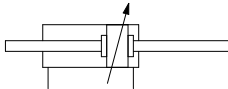


Symbol

Rubber bumper



Air cushion



Made to Order
[Click here for details](#)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (−10 to 150°C)*1
-XB7	Cold resistant cylinder (−40 to 70°C)*2
-XC6	Made of stainless steel
-XC13	Auto switch rail mounting
-XC22	Fluororubber seal*1
-XC37	Larger throttle diameter of connection port
-XC85	Grease for food processing equipment

*1 Cylinders with rubber bumper have no bumper.

*2 Only compatible with cylinders with rubber bumper, but has no bumper.

Rod Boot Material

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

* Maximum ambient temperature for the rod boot itself.

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	80	100
Action			Double acting, Double rod							
Lubricant			Not required (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°C to 70°C With auto switch : −10°C to 60°C (No freezing)							
Piston speed			50 to 1000 mm/s						50 to 700 mm/s	
Stroke length tolerance			Up to 1000 st ^{+1.4} _{−0} mm, Up to 1500 st ^{+1.8} _{−0} mm							
Cushion			Rubber bumper, Air cushion							
Mounting*			Basic, Basic (without trunnion mounting female thread), Axial foot, Flange, Trunnion							
Allowable kinetic energy (J)	Rubber bumper	Male rod end	0.28	0.41	0.66	1.20	2.00	3.40	5.90	9.90
		Female rod end	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54
	Air cushion	Male rod end	0.35	0.56	0.91	1.80	3.40	4.90	11.80	16.70
		Female rod end	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54

* Rod trunnion type is not available for ø80 and ø100.

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.

Accessories/Refer to page 395 for part numbers and dimensions.

	Mounting	Basic	Axial foot	Rod flange	Rod trunnion
Standard	Rod end nut	●	●	●	●
	Single knuckle joint	●	●	●	●
	Double knuckle joint*2 (with pin)	●	●	●	●
	Pivot bracket*1	—	—	—	●*1
	Rod boot	●	●	●	●

*1 Not available for ø80 and ø100.

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

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

Standard Strokes

Bore size (mm)	Standard stroke (mm) ^{Note1)}	Manufacturable stroke (mm)
20	25, 50, 75, 100, 125, 150, 200	1 to 1500
25	25, 50, 75, 100, 125, 150, 200, 250, 300	1 to 1500
32		
40		
50, 63		
80		
100		

Note 1) Intermediate strokes not listed above are produced upon receipt of order. 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.

CG1W Series

Weights

(kg)									
Bore size (mm)		20	25	32	40	50	63	80	100
Basic weight	Basic	0.13	0.22	0.33	0.55	1.02	1.37	2.64	4.09
	Axial foot	0.24	0.35	0.49	0.77	1.50	2.09	3.60	5.84
	Flange	0.21	0.32	0.47	0.75	1.36	1.87	3.35	5.44
	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	0.39	0.57
Double knuckle joint (with pin)		0.05	0.09	0.09	0.13	0.26	0.26	0.64	1.31
Additional weight per 50 mm of stroke		0.07	0.10	0.13	0.23	0.34	0.38	0.54	0.77
Additional weight with air cushion		0	0.01	0.04	0	0.01	0.04	0	0.04
Weight reduction for female rod end		-0.02	-0.04	-0.04	-0.10	-0.20	-0.20	-0.38	-0.54

Calculation (Example) **CG1WLN32-100Z**
(Foot, ø32, 100 stroke)

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

0.49 x 0.13 x 100/50 = **0.75 kg**

Mounting Brackets/Part No.

Mounting bracket	Order q'ty.	Bore size (mm)								Contents
		20	25	32	40	50	63	80	100	
Axial foot	2 (Note)	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100	2 feet, 8 mounting bolts
Flange	1	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100	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 feet per cylinder.

Air-hydro

CDG1W

Mounting type

H

Bore size

-

Stroke

Rod end thread

Z -

Auto switch

• Air-hydro

Nil	Without magnet
D	Built-in magnet

Low pressure hydraulic cylinder of 1.0 MPa or less
When using together with the CC series air-hydro unit, constant and low speed actuation and intermediate stopping similar to hydraulic units are possible with the use of valves and other pneumatic equipment.

Dimensions: Same as the standard type

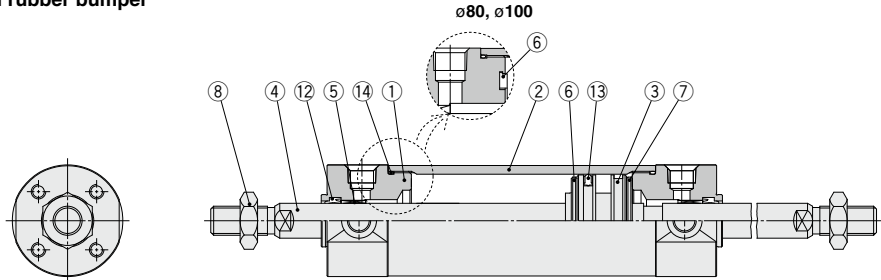
Specifications

Bore size (mm)	20, 25, 32, 40, 50, 63
Action	Double acting, Single rod
Fluid	Turbine oil
Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Minimum operating pressure	0.18 MPa
Piston speed	15 to 300 mm/s
Cushion	Rubber bumper (Standard equipment)
Ambient and fluid temperatures	5 to 60°C
Mounting	Basic, Axial foot, Flange, Trunnion

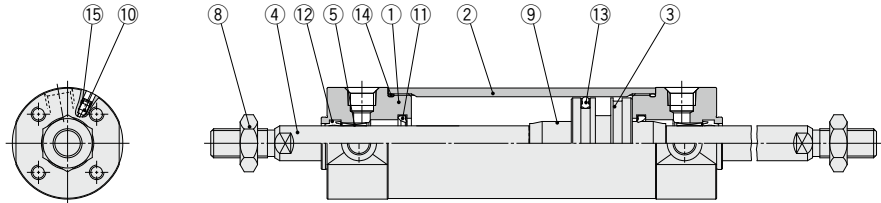
* Auto switch can be mounted.

Construction

With rubber bumper



With air cushion



Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Anodized
2	Cylinder tube	Aluminum alloy	Hard anodized
3	Piston	Aluminum alloy	
4	Piston rod	Stainless steel	For ø20 or ø25 with built-in magnet
5	Bushing	Bearing alloy	
6	Bumper	Resin	ø32 or larger is common.
7	Bumper	Resin	
8	Rod end nut	Carbon steel	Zinc chromated
9	Cushion ring	Aluminum alloy	
10	Cushion valve	ø40 or smaller ø50 or larger	Carbon steel* Steel wire Electroless nickel plating Zinc chromated
11	Cushion seal	Urethane	
12	Rod seal	NBR	
13	Piston seal	NBR	
14	Tube gasket	NBR	
15	Valve seal	NBR	

Note) For cylinders with auto switches, the magnet is installed in the piston.

* The material for ø20, ø25 cylinders with auto switches is made of stainless steel.

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
20	CG1WN20Z-PS	Set of the nos. 12, 13, 14
25	CG1WN25Z-PS	
32	CG1WN32Z-PS	
40	CG1WN40Z-PS	

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

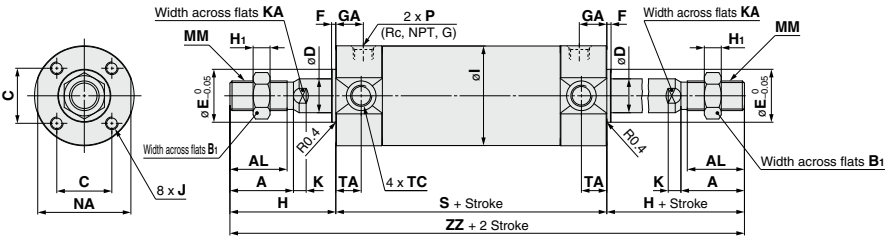
Note) Refer to the Specific Product Precautions on page 448 for Disassembly/Replacement. Order with the kit number according to the bore size.

* 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)

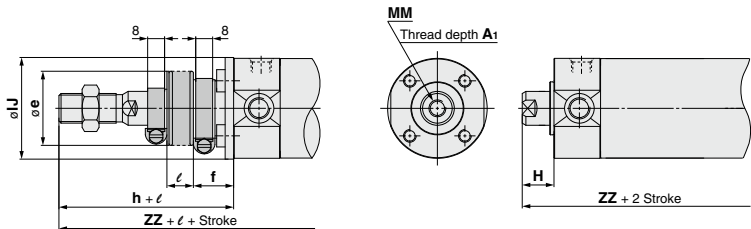
CG1W Series

Basic with Rubber Bumper: CG1WBN

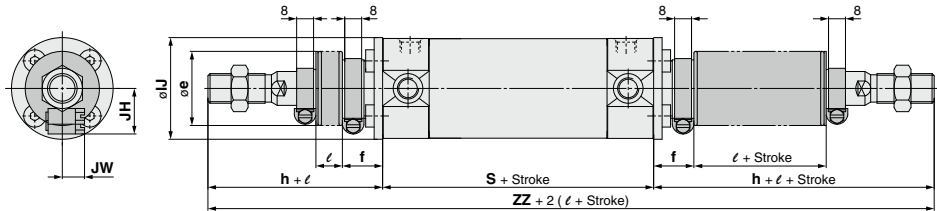


<With rod boot on one side>

Female rod end



<With rod boot on both sides>

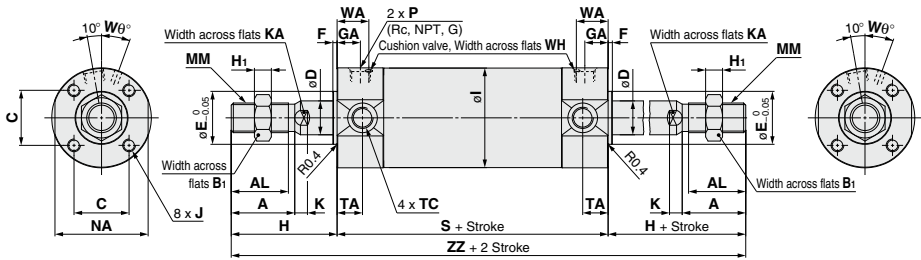


																						(mm)	
Bore size	Stroke range		Rc, NPT port		G port		A	AL	B ₁	C	D	E	F	H ₁	I	J	K	KA	MM	NA	S		
	Standard	Long stroke	GA	P	GA	P																	
20	Up to 200	201 to 1500	12	1/8	12	M5x0.8	18	15.5	13	14	8	12	2	5	26	M4 x 0.7 depth 7	5	6	M8 x 1.25	24	77		
25	Up to 300	301 to 1500	12	1/8	12.5	M5x0.8	22	19.5	17	16.5	10	14	2	6	31	M5 x 0.8 depth 7.5	5.5	8	M10 x 1.25	29	77		
32	Up to 300	301 to 1500	12	1/8	10.5	1/8	22	19.5	17	20	12	18	2	6	38	M5 x 0.8 depth 8	5.5	10	M10 x 1.25	35.5	79		
40	Up to 300	301 to 1500	13	1/8	13	1/8	30	27	19	26	16	25	2	8	47	M6 x 1 depth 12	6	14	M14 x 1.5	44	87		
50	Up to 300	301 to 1500	14	1/4	14	1/4	35	32	27	32	20	30	2	11	58	M8 x 1.25 depth 16	7	18	M18 x 1.5	55	102		
63	Up to 300	301 to 1500	14	1/4	14	1/4	35	32	27	38	20	32	2	11	72	M10 x 1.5 depth 16	7	18	M18 x 1.5	69	102		
80	Up to 300	301 to 1500	20	3/8	17.5	3/8	40	37	32	50	25	40	3	13	89	M10 x 1.5 depth 22	10	22	M22 x 1.5	86	122		
100	Up to 300	301 to 1500	20	1/2	17.5	1/2	40	37	41	60	30	50	3	16	110	M12 x 1.75 depth 22	10	26	M26 x 1.5	106	122		

Bore size	TA	TC**	Without rod boot		With rod boot on one side*										With rod boot* on both sides		Female Rod End				(mm)	
			H	ZZ	e	f	h	IJ	JH (Reference)	JW (Reference)	ℓ	ZZ	ZZ	1/4 stroke	ZZ	ZZ	Bore size	A ₁	H	MM	ZZ	
20	11	M5 x 0.8	35	147	30	18	55	27	15.5	10.5		167	187				20	8	13	M4 x 0.7	103	
25	11	M6 x 0.75	40	157	30	19	62	32	16.5	10.5		179	201				25	8	14	M5 x 0.8	105	
32	11	M8 x 1.0	40	159	35	19	62	38	18.5	10.5		181	203				32	12	14	M6 x 1	107	
40	12	M10 x 1.25	50	187	35	19	70	48	21.5	10.5		207	227				40	13	15	M8 x 1.25	117	
50	13	M12 x 1.25	58	218	40	19	78	59	24	10.5		238	258				50	18	16	M10 x 1.5	134	
63	13	M14 x 1.5	58	218	40	20	78	72	24	10.5		238	258				63	18	16	M10 x 1.5	134	
80	—	—	71	264	52	10	80	59	—	—		273	282				80	21	19	M14 x 1.5	160	
100	—	—	71	264	62	7	80	71	—	—		273	282				100	25	22	M16 x 1.5	166	

* The minimum stroke with rod boot is 20 mm.
** Cylinder sizes $\phi 80$ and $\phi 100$ do not have trunnion mounting female thread on the width across flats NA.

Basic with Air Cushion: CG1WBA



★ For the one with rod boot, refer to w/rubber bumper. (mm)

Bore size	Stroke range		Rc, NPT port		A	AL	B ₁	C	D	E	F	H	H ₁	I	J	K	KA
	Standard	Long stroke	GA	P													
20	Up to 200	201 to 1500	12	M5x0.8	18	15.5	13	14	8	12	2	35	5	26	M4 x 0.7 depth 7	5	6
25	Up to 300	301 to 1500	12.5	M5x0.8	22	19.5	17	16.5	10	14	2	40	6	31	M5 x 0.8 depth 7.5	5.5	8
32	Up to 300	301 to 1500	12	1/8	22	19.5	17	20	12	18	2	40	6	38	M5 x 0.8 depth 8	5.5	10
40	Up to 300	301 to 1500	13	1/8	30	27	19	26	16	25	2	50	8	47	M6 x 1 depth 12	6	14
50	Up to 300	301 to 1500	14	1/4	35	32	27	32	20	30	2	58	11	58	M8 x 1.25 depth 16	7	18
63	Up to 300	301 to 1500	14	1/4	35	32	27	38	20	32	2	58	11	72	M10 x 1.5 depth 16	7	18
80	Up to 300	301 to 1500	20	3/8	40	37	32	50	25	40	3	71	13	89	M10 x 1.5 depth 22	10	22
100	Up to 300	301 to 1500	20	1/2	40	37	41	60	30	50	3	71	16	110	M12 x 1.75 depth 22	10	26

Bore size	MM	NA	S	TA	TC**	ZZ	WA	Wθ	WH
20	M8 x 1.25	24	77	11	M5 x 0.8	147	16	25°	1.5
25	M10 x 1.25	29	77	11	M6 x 0.75	157	16	25°	1.5
32	M10 x 1.25	35.5	79	11	M8 x 1.0	159	16	25°	1.5
40	M14 x 1.5	44	87	12	M10 x 1.25	187	17	20°	1.5
50	M18 x 1.5	55	102	13	M12 x 1.25	218	18	20°	3
63	M18 x 1.5	69	102	13	M14 x 1.5	218	18	20°	3
80	M22 x 1.5	86	122	—	—	264	24	20°	4
100	M26 x 1.5	106	122	—	—	264	24	20°	4

* Refer to w/rubber bumper for the female rod end.

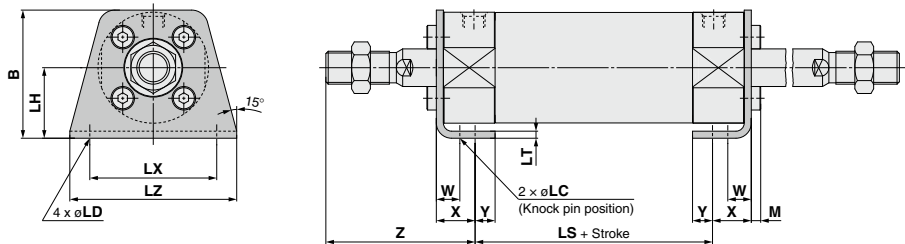
* For mounting brackets, refer to page 395.

** Cylinder sizes ø80 and ø100 do not have trunnion mounting female thread on the width across flats NA.

CG1W Series

With Mounting Bracket

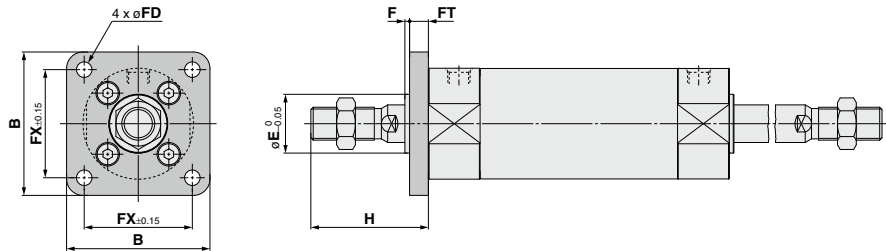
Axial foot: CG1WL□



(mm)														
Bore size	Stroke range	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	Z
20	Up to 1500	34	4	6	20	53	3	32	44	3	10	15	7	47
25	Up to 1500	38.5	4	6	22	53	3	36	49	3.5	10	15	7	52
32	Up to 1500	45	4	7	25	53	3	44	58	3.5	10	16	8	53
40	Up to 1500	54.5	4	7	30	60	3	54	71	4	10	16.5	8.5	63.5
50	Up to 1500	70.5	5	10	40	67	4.5	66	86	5	17.5	22	11	75.5
63	Up to 1500	82.5	5	12	45	67	4.5	82	106	5	17.5	22	13	75.5
80	Up to 1500	101	6	11	55	74	4.5	100	125	5	20	28.5	14	95
100	Up to 1500	121	6	14	65	74	6	120	150	7	20	30	16	95

* Other dimensions are the same as basic type.

Flange: CG1WF□



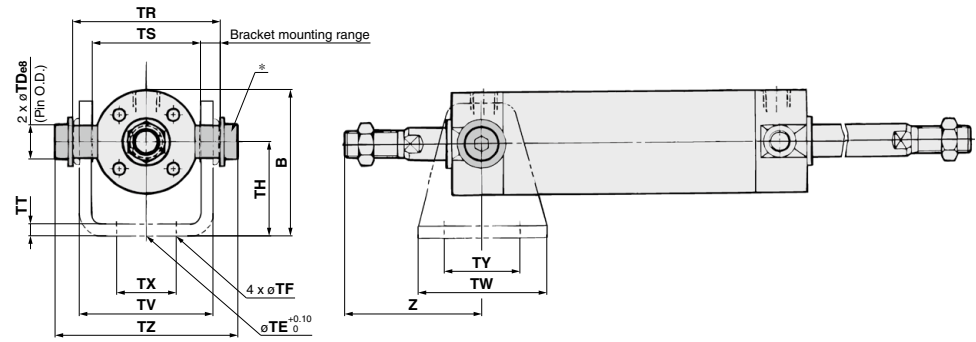
(mm)								
Bore size	Stroke range	B	E	F	FX	FD	FT	H
20	Up to 1500	40	12	2	28	5.5	6	35
25	Up to 1500	44	14	2	32	5.5	7	40
32	Up to 1500	53	18	2	38	6.6	7	40
40	Up to 1500	61	25	2	46	6.6	8	50
50	Up to 1500	76	30	2	58	9	9	58
63	Up to 1500	92	32	2	70	11	9	58
80	Up to 1500	104	40	3	82	11	11	71
100	Up to 1500	128	50	3	100	14	14	71

* End boss is machined on the flange for øE.

* Other dimensions are the same as basic type.

With Mounting Bracket

Trunnion: CG1WU□



(mm)

Bore size	Stroke range	B	TDe8	TE	TF	TH	TR	TS	TT	TV	TW	TX	TY	TZ	Z	
															Without rod boot	With rod boot
20	Up to 1500	38	8 ^{-0.025 -0.047}	10	5.5	25	39	28	3.2	(35.8)	42	16	28	47.6	46	66 + ℓ
25	Up to 1500	45.5	10 ^{-0.025 -0.047}	10	5.5	30	43	33	3.2	(39.8)	42	20	28	53	51	73 + ℓ
32	Up to 1500	54	12 ^{-0.032 -0.059}	10	6.6	35	54.5	40	4.5	(49.4)	48	22	28	67.7	51	73 + ℓ
40	Up to 1500	63.5	14 ^{-0.032 -0.059}	10	6.6	40	65.5	49	4.5	(58.4)	56	30	30	78.7	62	82 + ℓ
50	Up to 1500	79	16 ^{-0.032 -0.059}	20	9	50	80	60	6	(72.4)	64	36	36	98.6	71	91 + ℓ
63	Up to 1500	96	18 ^{-0.032 -0.059}	20	11	60	98	74	8	(90.4)	74	46	46	119.2	71	91 + ℓ

* Constructed of a pin, flat washer and hexagon socket head cap bolt.
* Other dimensions are the same as basic type.

CG1 Series

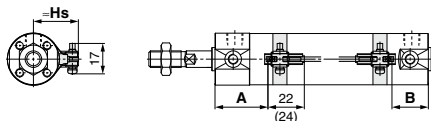
Auto Switch Mounting

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

Solid state auto switch

D-M9□/M9□W, D-M9□A

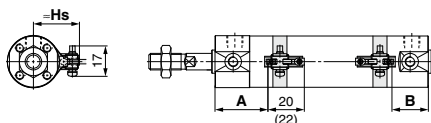
ø20 to ø63



(): 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

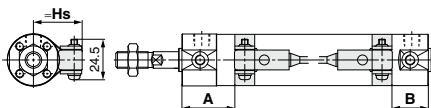


(): Dimension of the D-M9□AV
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-G5/K5/G5□W/G5BA

D-K59W, D-G59F, D-G5NT

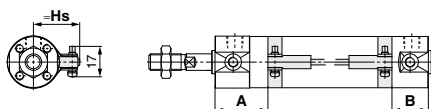
ø20 to ø100



D-H7□/H7□W

D-H7NF/H7BA/D-H7C

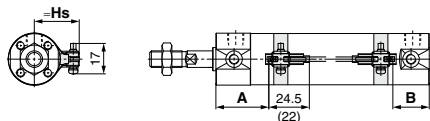
ø20 to ø63



Reed auto switch

D-A9□

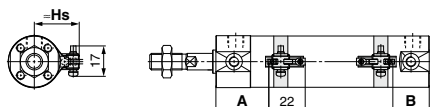
ø20 to ø63



(): 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

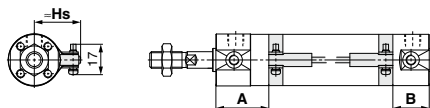
ø20 to ø63



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

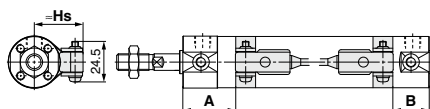
D-C7/C8, D-C73C/C80C

ø20 to ø63



D-B5/B6/B59W

ø20 to ø100



Auto Switch Mounting Height

(mm)

Auto switch model	D-M9□(V) D-M9□W(V) D-M9□A(V) D-A9□(V)	D-H7□ D-H7□W D-H7NF D-H7BA D-C7/C8	D-C73C D-C80C	D-G5/K5 D-G5□W D-K59W D-B5/B6 D-B59W	D-G5NT D-G59F D-H7C D-G5BA
	Hs	Hs	Hs	Hs	Hs
Bore size					
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 Bore size	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
20	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)
25	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)
32	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)
40	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)
50	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)
63	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)
80	—	—	—	—	—	—	—	—	49.5	30.5 (44.5)	48	29 (43)	51	32 (46)
100	—	—	—	—	—	—	—	—	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□ 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	
	40	39	52	77	102	127	
D-A9□(V)	20	29	45	70	95	—	
	25	28.5	45.5	70.5	95.5	120.5	
	32	30	46	71	96	121	
	40	35	48	73	98	123	
D-H7□ D-H7□W D-H7C D-H7BA D-H7NF	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	
	40	34.5	47.5	72.5	97.5	122.5	
D-C7□ D-C80 D-C73C D-C80C	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	
	40	35.5	48.5	73.5	98.5	123.5	
D-G5NT D-G59F	20	25	41	66	91	—	
	25	24.5	41.5	66.5	91.5	116.5	
	32	26	42	67	92	117	
	40	31	44	69	94	119	
D-B5□ D-B64	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	
	40	29.5	42.5	67.5	92.5	117.5	
D-B59W	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.

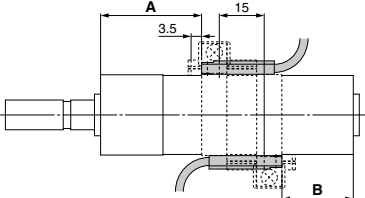
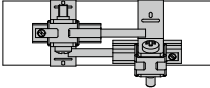
Note 2) Adjust the auto switch after confirming the operating condition in the actual setting.

Minimum Stroke for Auto Switch Mounting

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

Note 1) Auto switch mounting

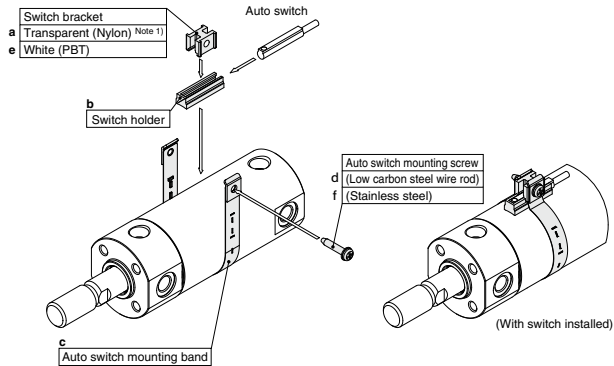
Note 3) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.

Auto switch model	With 2 auto switches	
	Different surfaces Note 1)	Same surface Note 1)
	 Correct auto switch mounting position is 3.5 mm from the back face of the switch holder.	 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.
D-M9□ D-M9□W	Less than 20 stroke Note 2)	Less than 55 stroke Note 2)
D-M9□A	Less than 20 stroke Note 2)	Less than 60 stroke Note 2)
D-A9□	—	Less than 50 stroke Note 2)

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	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) Note 2)	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)	—



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
BJ4-1	· Switch bracket (White/PBT) (e) · Switch holder (b)
BJ5-1	· 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	13	13	14	14	14	17	16	18
D-H7C	4	4	4.5	5	6	6.5	—	—
D-G5□/G5□W/G59F D-G5BA/K59/K59W	7	8.5	9	10	9.5	10.5	—	—
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		—	ø20 to ø63
	D-C80		Without indicator light	
	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

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)

How to Order

Standard model no.

- X446

PTFE grease ●