

Smooth Cylinder

CG1Y Series

RoHS

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

How to Order

CG1Y B 25 - 100 Z - - -

With auto switch

CDG1Y B 25 - 100 Z - - - M9BW - - -

With auto switch
(Built-in magnet)

Mounting

B	Basic
Z*	Basic (without trunnion mounting female thread)
L	Axial foot
F	Rod flange
G	Head flange
U*	Rod trunnion
T*	Head trunnion
D	Clevis

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

Bore size

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

Port thread type

Nil	Rc	ø20 to ø100
TN	NPT	ø20 to ø100
TF	M5 x 0.8	ø20, ø25
	G	ø32 to ø100

Rod end thread

Nil	Male rod end
F	Female rod end

Pivot bracket

Nil	None
N	Pivot bracket is shipped together with the product.

- * Only for D U T mounting types
- * Pivot bracket is shipped together with the product, but not assembled.

Rod end bracket

Nil	None
V	Single knuckle joint
W	Double knuckle joint

- * No bracket is provided for the female rod end type.
- * Rod end bracket is shipped together with the product, but not assembled.
- * A knuckle joint pin is not provided with the single knuckle joint.

Made to Order
Refer to page 173 for details.

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.

Cylinder stroke (mm)

Refer to "Standard Strokes" on page 173.

* Refer to "Ordering Example of Cylinder Assembly" on page 173.

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) CDG1YB32-150Z

Applicable Auto Switches/Refer to pages 941 to 1067 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model Applicable bore size			Lead wire length (m)					Pre-wired connector	Applicable load																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	G59	●	●	●	●	○	○	IC circuit	Relay, PLC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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		Connector		2-wire	12 V		M9BV	M9B	G5P	●	●	●	●	○	○			○																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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		Grommet		3-wire (NPN)	24 V		5 V, 12 V	M9NVW	M9NW	G59W	●	●	●	●	○			○	○	IC circuit																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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	Water resistant (2-color indicator)	Grommet		3-wire (NPN)	5 V, 12 V		M9NAV ^{*1}	M9NA ^{*1}	—	○	○	○	○	○	○	○		IC circuit																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee the 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.

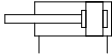
* Since there are other applicable auto switches than listed, refer to page 182 for details.

* For details about auto switches with pre-wired connector, refer to pages 1014 and 1015.

* The D-A9C□M9C□□ auto switches are shipped together, (but not assembled). (However, only the auto switch mounting brackets are assembled before shipment.)


Symbol

Rubber bumper


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

Symbol	Specifications
-XA□	Change of rod end shape
-XC6	Made of stainless steel

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
20	CG1Y20Z-PS	Piston seal 1 pc.
25	CG1Y25Z-PS	Rod seal 1 pc.
32	CG1Y32Z-PS	Tube gasket 1 pc.
40	CG1Y40Z-PS	Grease pack (10 g) 1 pc.

When maintenance requires only grease, use the following part numbers to order.

Grease pack part number: GR-L-005 (5 g)
GR-L-010 (10 g)
GR-L-150 (150 g)

Specifications

Bore size (mm)		20	25	32	40	50	63	80	100
Action		Double acting, Single rod							
Type		Non-lube							
Fluid		Air							
Proof pressure		1.05 MPa							
Maximum operating pressure		0.7 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		5 to 500 mm/s							
Stroke length tolerance		Up to 1000 ^{+1.4} ₀ mm, Up to 1500 ^{+1.8} ₀ mm							
Cushion		Rubber bumper							
Mounting		Basic, Basic (without trunnion mounting female thread), Axial foot, Rod flange, Head flange, Rod trunnion, Head trunnion, Clevis (used for changing the port location by 90°)							
Allowable leakage rate		0.5 L/min (ANR) or less							
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

* Cylinder sizes ø80 and ø100 do not have rod trunnion and head trunnion types.

Foot, flange and clevis types of cylinder sizes from ø20 to ø63 do not have trunnion mounting female thread.

Operate the cylinder within the allowable kinetic energy.

Minimum Operating Pressure

Bore size (mm)		20	25	32	40	50	63	80	100
Minimum operating pressure		0.02					0.01		

Unit: MPa

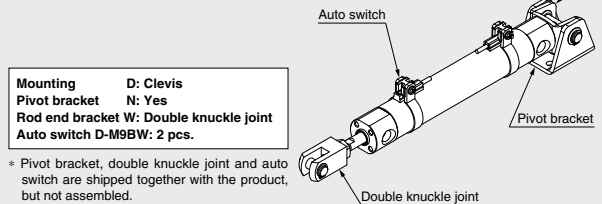
Standard Strokes

Bore size (mm)	Standard stroke (mm) Note 1)	Max. manufacturable stroke (mm)
20	25, 50, 75, 100, 125, 150, 200	Up to 1500
25, 32, 40, 50, 63, 80, 100	25, 50, 75, 100, 125, 150, 200, 250, 300	Up to 1500

Note 1) Intermediate strokes not listed above are also available.

Note 2) Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages of the Best Pneumatics No. 2-1. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

Ordering Example of Cylinder Assembly

Cylinder model: **CDG1YD20-100Z-NW-M9BW**

REA
REB
REC
Smooth
Low Speed
MQ
RHC
RZQ

Mounting Brackets/Part No.

Mounting bracket	Order qty	Bore size (mm)								Contents
		20	25	32	40	50	63	80	100	
Foot	2 ^{Note)}	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100	2 foots, 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
Clevis	1	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063	CG-D080	CG-D100	1 clevis, 4 mounting bolts, 1 clevis pin, 2 retaining rings
Pivot bracket	1	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	CG-080-24A	CG-100-24A	1 pivot bracket

Note) Order two foots per cylinder.

Accessory

- * For details about the single knuckle joint, double knuckle joint, knuckle pin, clevis pin, and rod end nut, refer to page 178.
- * Stainless steel mounting brackets and accessories are also available. Refer to page 178-1 for details.

Weights

		(mm)								
Bore size (mm)		20	25	32	40	50	63	80	100	
Basic weight	Basic	0.11	0.18	0.28	0.44	0.83	1.17	2.23	3.43	
	Axial foot	0.22	0.31	0.44	0.66	1.31	1.89	3.19	5.18	
	Flange	0.19	0.28	0.42	0.64	1.17	1.67	2.94	4.78	
	Trunnion	0.12	0.20	0.31	0.49	0.97	1.31	—	—	
	Clevis	0.16	0.26	0.43	0.67	1.23	1.85	2.94	4.71	
Pivot bracket		0.08	0.09	0.17	0.25	0.44	0.80	0.98	1.75	
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		0.05	0.07	0.09	0.15	0.22	0.26	0.35	0.49	
Weight reduction for female rod end		-0.01	-0.02	-0.02	-0.05	-0.10	-0.10	-0.18	-0.27	

Calculation (Example) CG1YL20-100Z (Foot, ø20, 100 st)

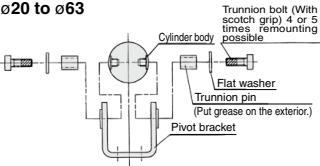
- Basic weight 0.22 (Foot, ø20)
 - Additional weight 0.05/50 stroke
 - Air cylinder stroke 100 stroke
- 0.22 + 0.05 x 100/50 = **0.32 kg**

Mounting Procedure

Mounting procedure for trunnion

Follow the procedures below when mounting a pivot bracket on the trunnion.

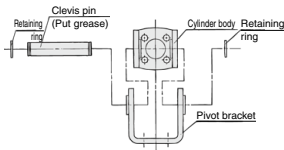
ø20 to ø63



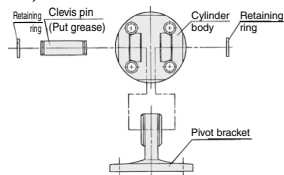
Mounting procedure for clevis

Follow the procedures below when mounting a pivot bracket on the clevis.

ø20 to ø63



ø80, ø100



⚠ Precautions

Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Operating Precautions

⚠ Warning

1. Operate within the specified cylinder speed.
Otherwise, cylinder and seal damage may occur.
2. When the cylinder is used as mounted with a single side fixed or free (basic, flange types), a bending moment will be applied to the cylinder due to the vibration generated at the stroke end, and the cylinder may be damaged. In such a case, mount a bracket to reduce the vibration of the cylinder or use the cylinder at a piston speed low enough to prevent the cylinder from vibrating at the stroke end.

⚠ Caution

1. Tighten clevis bracket mounting bolts with the following proper tightening torque.
ø20: 1.5 N·m, ø25 to 32: 2.9 N·m, ø40: 4.9 N·m,
ø50: 11.8 N·m, ø63 to 80: 24.5 N·m, ø100: 42.2 N·m

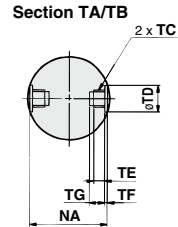
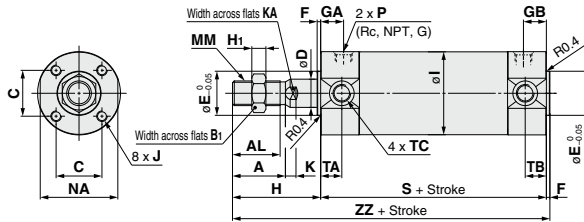
Disassembly/Replacement

⚠ Caution

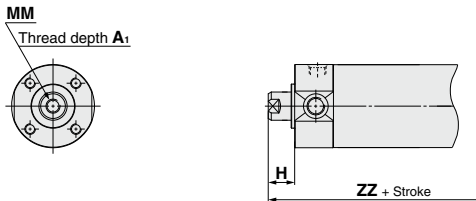
1. Do not replace the bushings.
The bushings are press-fit. To replace them, they must be replaced together with the cover assembly.
2. To replace a seal, apply grease to the new seal before installing it.
If the cylinder is put into operation without applying grease to the seal, it could cause the seal to wear significantly, leading to premature air leakage.
3. Cylinders with ø50 or larger bore sizes cannot be disassembled.
When disassembling cylinders with bore sizes of ø20 through ø40, grip the double flat part of either the head cover or the rod cover with a vise and loosen the other side with a wrench or a monkey wrench etc., and then remove the cover. When retightening, tighten approximately 2 degrees more than the original position. (Cylinders with ø50 or larger bore sizes are tightened with a large tightening torque and cannot be disassembled. If disassembly is required, please contact SMC.)

Dimensions: ø20 to ø100

Basic: CG1YB



Female rod end



Section TA/TB

Bore size (mm)	*TC	TD	TE	TF	TG
20	M5 x 0.8	8 ^{+0.08} ₀	4	0.5	5.5
25	M6 x 0.75	10 ^{+0.08} ₀	5	1	6.5
32	M8 x 1.0	12 ^{+0.08} ₀	5.5	1	7.5
40	M10 x 1.25	14 ^{+0.08} ₀	6	1.25	8.5
50	M12 x 1.25	16 ^{+0.08} ₀	7.5	2	10
63	M14 x 1.5	18 ^{+0.08} ₀	11.5	3	14.5

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

Bore size (mm)	Stroke range (mm)	A	AL	B ₁	C	D	E	F	H	H _i	I	J	K	KA	MM	NA
20	Up to 1500	18	15.5	13	14	8	12	2	35	5	26	M4 x 0.7 depth 7	5	6	M8 x 1.25	24
25		22	19.5	17	16.5	10	14	2	40	6	31	M5 x 0.8 depth 7.5	5.5	8	M10 x 1.25	29
32		22	19.5	17	20	12	18	2	40	6	38	M5 x 0.8 depth 8	5.5	10	M10 x 1.25	35.5
40		30	27	19	26	16	25	2	50	8	47	M6 x 1 depth 12	6	14	M14 x 1.5	44
50		35	32	27	32	20	30	2	58	11	58	M8 x 1.25 depth 16	7	18	M18 x 1.5	55
63		35	32	27	38	20	32	2	58	11	72	M10 x 1.5 depth 16	7	18	M18 x 1.5	69
80		40	37	32	50	25	40	3	71	13	89	M10 x 1.5 depth 22	10	22	M22 x 1.5	86
100		40	37	41	60	30	50	3	71	16	110	M12 x 1.75 depth 22	10	26	M26 x 1.5	106

Bore size (mm)	Stroke range (mm)	S	TA	TB	ZZ	Rc, NPT port			G port		
						GA	GB	P	GA	GB	P
20	Up to 1500	77	11	11	114	12	12	1/8	12	12	M5 x 0.8
25		77	11	11	119	12	12	1/8	12.5	12.5	M5 x 0.8
32		79	11	11	121	12	12	1/8	10.5	10.5	1/8
40		87	12	12	139	13	13	1/8	13	10	1/8
50		102	13	13	162	14	14	1/4	14	14	1/4
63		102	13	13	162	14	14	1/4	14	14	1/4
80		122	—	—	196	20	20	3/8	17.5	17.5	3/8
100		122	—	—	196	20	20	1/2	17.5	17.5	1/2

Female Rod End

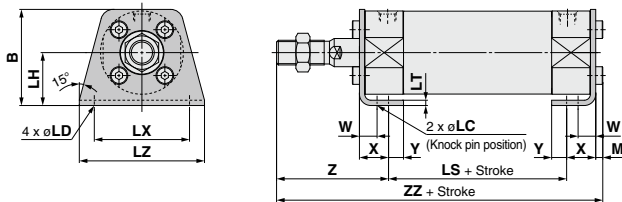
Bore size	A ₁	H	MM	ZZ
20	8	13	M4 x 0.7	92
25	8	14	M5 x 0.8	93
32	12	14	M6 x 1	95
40	13	15	M8 x 1.25	104
50	18	16	M10 x 1.5	120
63	18	16	M10 x 1.5	120
80	21	19	M14 x 1.5	144
100	25	22	M16 x 1.5	147

* When female thread is used, use a washer etc. to prevent the contact part at the rod end from being deformed depending on the material of the workpiece.

CG1Y Series

Mounting Bracket

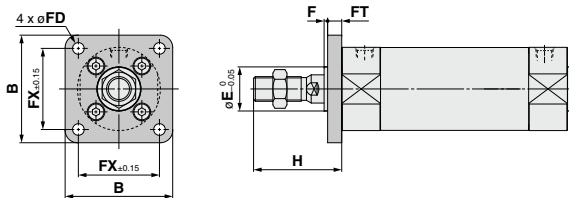
Axial foot: CG1YL



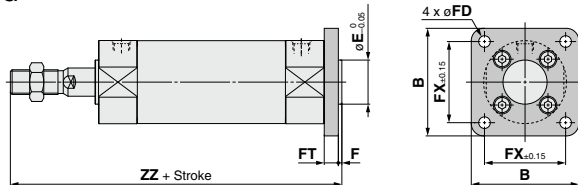
Axial Foot														(mm)
Bore size (mm)	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	Z	ZZ
20	34	4	6	20	53	3	32	44	3	10	15	7	47	118
25	38.5	4	6	22	53	3	36	49	3.5	10	15	7	52	123.5
32	45	4	7	25	53	3	44	58	3.5	10	16	8	53	125.5
40	54.5	4	7	30	60	3	54	71	4	10	16.5	8.5	63.5	144
50	70.5	5	10	40	67	4.5	66	86	5	17.5	22	11	75.5	169.5
63	82.5	5	12	45	67	4.5	82	106	5	17.5	22	13	75.5	169.5
80	101	6	11	55	74	4.5	100	125	5	20	28.5	14	95	202.5
100	121	6	14	65	74	6	120	150	7	20	30	16	95	206

* Other dimensions are the same as basic type.
* For female rod end, since the wrench flap (K and KA portions) will be inside of the bracket when the piston rod is retracted at the stroke end, extend the piston rod to tighten the nut using a tool, and mount a workpiece on the rod end.
* Refer to the basic type for the female rod end.

Rod flange: CG1YF



Head flange: CG1YG

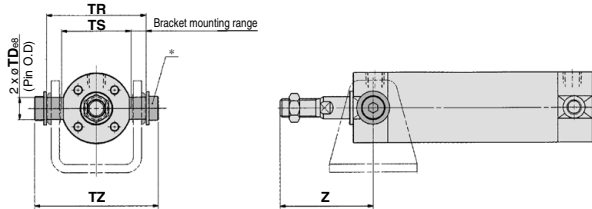


Flange								(mm)
Bore size (mm)	B	E	F	FX	FD	FT	H	Head flange ZZ
20	40	12	2	28	5.5	6	35	120
25	44	14	2	32	5.5	7	40	126
32	53	18	2	38	6.6	7	40	128
40	61	25	2	46	6.6	8	50	147
50	76	30	2	58	9	9	58	171
63	92	32	2	70	11	9	58	171
80	104	40	3	82	11	11	71	207
100	128	50	3	100	14	14	71	210

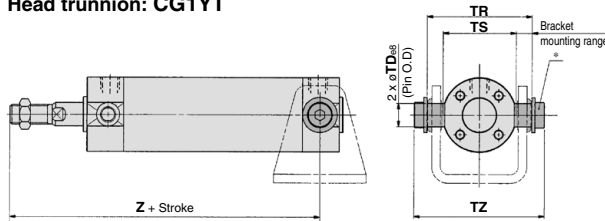
Note) End boss is machined on the flange for øE.
* Other dimensions are the same as basic type.
* Refer to the basic type for the female rod end.

Mounting Bracket

Rod trunnion: CG1YT

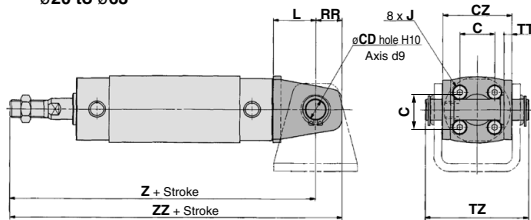


Head trunnion: CG1YT



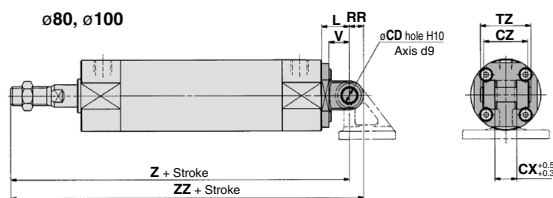
Clevis: CG1YD

ø20 to ø63



(The above shows the case port location is changed by 90°.)

ø80, ø100



* A clevis pin and retaining rings are shipped together for the clevis type.

Trunnion

(mm)

Bore size (mm)	TDe8	TR	TS
20	8 ^{+0.025} _{-0.047}	39	28
25	10 ^{+0.025} _{-0.047}	43	33
32	12 ^{+0.032} _{-0.059}	54.5	40
40	14 ^{+0.032} _{-0.059}	65.5	49
50	16 ^{+0.032} _{-0.059}	80	60
63	18 ^{+0.032} _{-0.059}	98	74

Bore size (mm)	TZ	Rod side	
		Z	Z
20	47.6	46	101
25	53	51	106
32	67.7	51	108
40	78.7	62	125
50	98.6	71	147
63	119.2	71	147

* Constructed of a trunnion pin, flat washer and hexagon socket head cap bolt.

Note) Refer to page 178 for pivot bracket.

* Other dimensions are the same as basic type.

* Refer to the basic type for the female rod end.

Clevis

(mm)

Bore size (mm)	CD	CX	CZ	L	RR	V
20	8	—	29	14	11	—
25	10	—	33	16	13	—
32	12	—	40	20	15	—
40	14	—	49	22	18	—
50	16	—	60	25	20	—
63	18	—	74	30	22	—
80	18	28	56	35	18	26
100	22	32	64	43	22	32

Bore size (mm)	TZ	Z	ZZ	Applicable pin part no.
20	43.4	126	137	CD-G02
25	48	133	146	CD-G02
32	59.4	139	154	CD-G03
40	71.4	159	177	CD-G04
50	86	185	205	CD-G05
63	105.4	190	212	CD-G06
80	64	228	246	IY-G08
100	72	236	258	IY-G10

Note) * Refer to page 178 for pivot bracket.

* Other dimensions are the same as basic type.

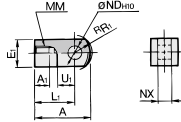
* Refer to the basic type for the female rod end.

Dimensions of Accessories

Single Knuckle Joint

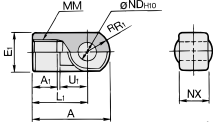
I-G02, G03

Material: Carbon steel



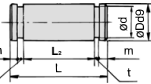
I-G04, G05, G08, G10

Material: Cast iron



Part no.	Applicable bore size (mm)	A	A ₁	E ₁	L ₁	MM	R ₁	U ₁	NDH ₁₀	NX
I-G02	20	34	8.5	16	25	M8 x 1.25	10.3	11.5	8 ^{+0.058} _{-0.2}	8 ^{+0.2} _{-0.2}
I-G03	25, 32	41	10.5	20	30	M10 x 1.25	12.8	14	10 ^{+0.058} _{-0.2}	10 ^{+0.2} _{-0.2}
I-G04	40	42	14	22	30	M14 x 1.5	12	14	10 ^{+0.058} _{-0.2}	18 ^{+0.2} _{-0.2}
I-G05	50, 63	56	18	28	40	M18 x 1.5	16	20	14 ^{+0.070} _{-0.2}	22 ^{+0.2} _{-0.2}
I-G08	80	71	21	38	50	M22 x 1.5	21	27	18 ^{+0.070} _{-0.2}	28 ^{+0.2} _{-0.2}
I-G10	100	79	21	44	55	M26 x 1.5	24	31	22 ^{+0.084} _{-0.2}	32 ^{+0.2} _{-0.2}

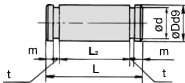
Knuckle Pin



Part no.	Applicable bore size (mm)	Dd9	L	d	L ₂	m	t	Included retaining ring
IY-G02	20	8 ^{+0.040} _{-0.076}	21	7.6	16.2	1.5	0.9	Type C8 for axis
IY-G03	25, 32	10 ^{+0.040} _{-0.076}	25.6	9.6	20.2	1.55	1.15	Type C10 for axis
IY-G04	40	10 ^{+0.040} _{-0.076}	41.6	9.6	36.2	1.55	1.15	Type C10 for axis
IY-G05	50, 63	14 ^{+0.050} _{-0.093}	50.6	13.4	44.2	2.05	1.15	Type C14 for axis
IY-G08	80	18 ^{+0.050} _{-0.093}	64	17	56.2	2.55	1.35	Type C16 for axis
IY-G10	100	22 ^{+0.050} _{-0.117}	72	21	64.2	2.55	1.35	Type C22 for axis

* Retaining rings are included.

Clevis Pin

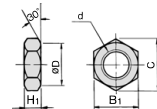


Part no.	Applicable bore size (mm)	Dd9	L	d	L ₂	m	t	Included retaining ring
CD-G02	20	8 ^{+0.040} _{-0.076}	43.4	7.6	38.6	1.5	0.9	Type C8 for axis
CD-G25	25	10 ^{+0.040} _{-0.076}	48	9.6	42.6	1.55	1.15	Type C10 for axis
CD-G03	32	12 ^{+0.050} _{-0.093}	59.4	11.5	54	1.55	1.15	Type C12 for axis
CD-G04	40	14 ^{+0.050} _{-0.093}	71.4	13.4	65	2.05	1.15	Type C14 for axis
CD-G05	50	16 ^{+0.050} _{-0.093}	86	15.2	79.6	2.05	1.15	Type C16 for axis
CD-G06	63	18 ^{+0.050} _{-0.093}	105.4	17	97.8	2.45	1.35	Type C18 for axis

* Retaining rings are included.

* A clevis pin and a knuckle pin are common for the bore size ø80 and ø100.

Rod End Nut

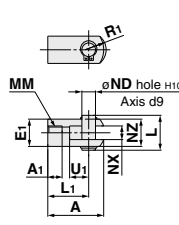


Part no.	Applicable bore size (mm)	d	H ₁	B ₁	C	D
NT-02	20	M8 x 1.25	5	13	(15)	12.5
NT-03	25, 32	M10 x 1.25	6	17	(19.6)	16.5
NT-G04	40	M14 x 1.5	8	19	(21.9)	18
NT-05	50, 63	M18 x 1.5	11	27	(31.2)	26
NT-08	80	M22 x 1.5	13	32	(37.0)	31
NT-10	100	M26 x 1.5	16	41	(47.3)	39

Double Knuckle Joint

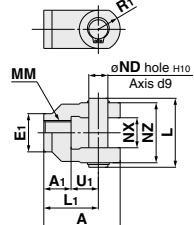
Y-G02, G03

Material: Carbon steel



Y-G04, G05, G08, G10

Material: Cast iron



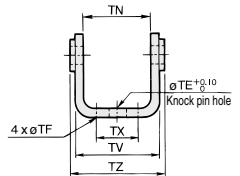
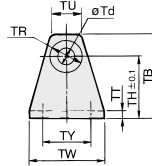
Part no.	Applicable bore size (mm)	A	A ₁	E ₁	L ₁	MM	R ₁	U ₁	ND	NX	NZ	L	Included pin part no.
Y-G02	20	34	8.5	16	25	M8 x 1.25	10.3	11.5	8	8 ^{+0.2} _{-0.2}	16	21	IY-G02
Y-G03	25, 32	41	10.5	20	30	M10 x 1.25	12.8	14	10	10 ^{+0.2} _{-0.2}	20	25.6	IY-G03
Y-G04	40	42	16	22	30	M14 x 1.5	12	14	10	18 ^{+0.2} _{-0.2}	36	41.6	IY-G04
Y-G05	50, 63	56	20	28	40	M18 x 1.5	16	20	14	22 ^{+0.2} _{-0.2}	44	50.6	IY-G05
Y-G08	80	71	23	38	50	M22 x 1.5	21	27	18	28 ^{+0.2} _{-0.2}	56	64	IY-G08
Y-G10	100	79	24	44	55	M26 x 1.5	24	31	22	32 ^{+0.2} _{-0.2}	64	72	IY-G10

* A knuckle pin and retaining rings are included.

Pivot Bracket (Order separately)

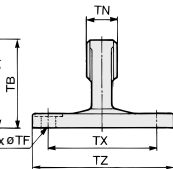
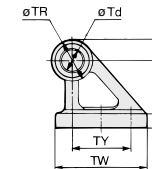
ø20 to ø63

Material: Carbon steel



ø80, ø100

Material: Cast iron



Part no.	Applicable bore size (mm)	TB	Td	TE	TF	TH	TN	TR	TT
CG-020-24A	20	36	8	10	5.5	25 (29.3)	13	3.2	
CG-025-24A	25	43	10	10	5.5	30 (33.1)	15	3.2	
CG-032-24A	32	50	12	10	6.6	35 (40.4)	17	4.5	
CG-040-24A	40	58	14	10	6.6	40 (49.2)	21	4.5	
CG-050-24A	50	70	16	20	9	50 (60.4)	24	6	
CG-063-24A	63	82	18	20	11	60 (74.6)	26	8	
CG-080-24A	80	73	18	—	11	55 (60.4)	36	11	
CG-100-24A	100	90	22	—	13.5	65 (74.6)	50	12	

Part no.	Applicable bore size (mm)	TU	TV	TW	TX	TY	TZ	Applicable pin O.D.
CG-020-24A	20	(18.1)	(35.8)	42	16	28	38.3	8d _h ^{+0.040} _{-0.076}
CG-025-24A	25	(20.7)	(39.8)	42	20	28	42.1	10d _h ^{+0.040} _{-0.076}
CG-032-24A	32	(23.6)	(49.4)	48	22	28	53.8	12d _h ^{+0.050} _{-0.093}
CG-040-24A	40	(27.3)	(58.4)	56	30	30	64.6	14d _h ^{+0.050} _{-0.093}
CG-050-24A	50	(29.7)	(72.4)	64	36	36	79.2	16d _h ^{+0.050} _{-0.093}
CG-063-24A	63	(34.3)	(90.4)	74	46	46	97.2	18d _h ^{+0.050} _{-0.093}
CG-080-24A	80	—	—	72	85	45	110	18d _h ^{+0.050} _{-0.093}
CG-100-24A	100	—	—	93	100	60	130	22d _h ^{+0.065} _{-0.117}

Mounting Brackets, Rod End Brackets, and Nut Material: Stainless Steel

Part No.

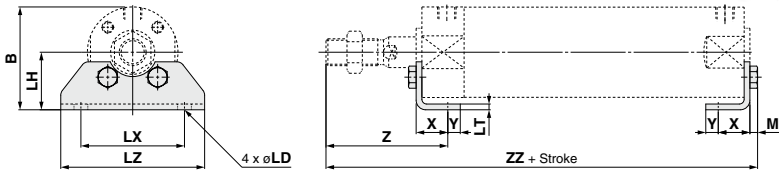
Bore size (mm)	Axial foot*1	Flange*1	Single knuckle joint	Double knuckle joint*2	Rod end nut
20	—	—	I-G02SUS	Y-G02SUS	NT-02SUS
25	—	—	I-G03SUS	Y-G03SUS	NT-03SUS
32	CG-L032SUS	CG-F032SUS	I-G04SUS	Y-G04SUS	NT-G04SUS
40	CG-L040SUS	CG-F040SUS	I-G05SUS	Y-G05SUS	NT-05SUS
50	CG-L050SUS	CG-F050SUS	I-G08SUS	Y-G08SUS	NT-08SUS
63	CG-L063SUS	CG-F063SUS	I-G10SUS	Y-G10SUS	NT-10SUS
80	CG-L080SUS	CG-F080SUS			
100	CG-L100SUS	CG-F100SUS			

*1 A knuckle pin and retaining rings are shipped together. Refer to the XC27 for details on stainless steel double clevis pins and double knuckle pins. The accessories need to be ordered separately from the cylinder.

Dimensions

The single knuckle joint, double knuckle joint, mounting nut, and rod end nut are the same as the standard type.

Axial foot

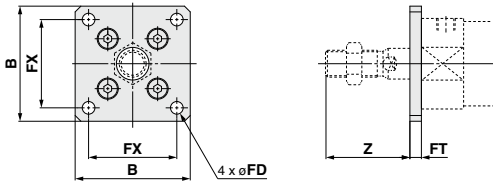


Bore size	B	LD	LH	LT	LX	LZ	M	X	Y	Z	ZZ
32	44	7.2	[25]	[3]	[44]	60	[3.5]	[16]	6	[53]	[117.5(125.5)]
40	53.5	7.2	[30]	[3]	[54]	75	[4]	[16.5]	6.5	[63.5]	[135(144)]
50	69	[10]	[40]	4	[66]	90	5.5	21.5	11.5	[75.5]	[157.5(169.5)]
63	81	[12]	[45]	4	[82]	110	7	21.5	11.5	[75.5]	159(171)
80	99.5	12	[55]	4	[100]	130	7	28	17	[95]	190(204)
100	125	[14]	[70]	[6]	[120]	160	8	[30]	15	[95]	193(207)

*1 []: Same as the standard type (): Denotes the dimensions for long strokes
*2 Supplied with 4 mounting screws.

Rod flange

The head flange has the same dimensions.



Bore size	B	FD	FT	FX	Z
32	50	[6.6]	6	[38]	34
40	60	[6.6]	6	[46]	44
50	75	[9]	[9]	[58]	[49]
63	90	[11]	[9]	[70]	[49]
80	100	[11]	9	[82]	62
100	125	[14]	10	[100]	61

*1 []: Same as the standard type
*2 Supplied with 4 mounting screws.

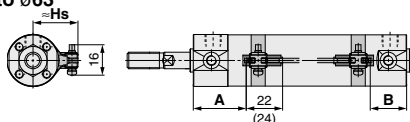
CG1Y Series

Auto Switch Mounting

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

Solid state auto switch

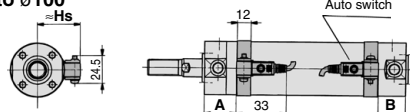
D-M9□
D-M9□W
ø20 to ø63



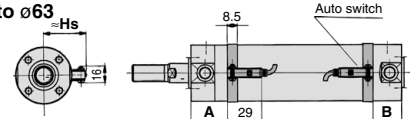
(): Dimension of the D-M9□A

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

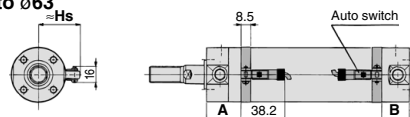
D-G5, K5, G5□W
D-K59W, D-G59F, D-G5NT
ø20 to ø100



D-H7□, H7□W
D-H7NF
ø20 to ø63

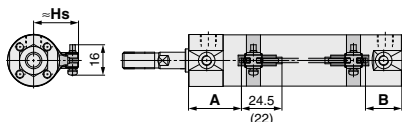


D-H7C
ø20 to ø63



Reed auto switch

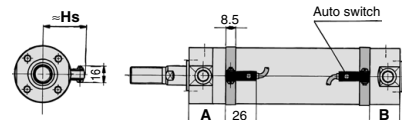
D-A9□
ø20 to ø63



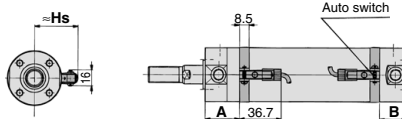
(): Dimension of the D-A96

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

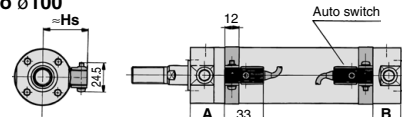
D-C7, C8
ø20 to ø63



D-C73C, C80C
ø20 to ø63



D-B5, B6, B59W
ø20 to ø100



Auto Switch Proper Mounting Position (Detection at stroke end) (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
20	33	32	29	28	28.5	27.5	29.5	28.5	25	24	23.5	22.5	26.5	23.5
25	32.5	32.5	28.5	28.5	28	28	29	29	24.5	24.5	23	23	26	26
32	34	33	30	29	29.5	28.5	30.5	29.5	26	25	24.5	23.5	27.5	26.5
40	39	36	35	32	34.5	31.5	35.5	32.5	31	28	29.5	26.5	32.5	29.5
50	46	44	42	40	41.5	39.5	42.5	40.5	38	36	36.5	34.5	39.5	37.5
63	44.5	45.5	40.5	41.5	40	41	41	42	36.5	37.5	35	36	38	39
80	—	—	—	—	—	—	—	—	49.5	44.5	48	43	51	46
100	—	—	—	—	—	—	—	—	48.5	45.5	47	44	50	47

Auto Switch Mounting Height (mm)

Auto switch model	D-M9□ (V) D-M9□W (V) D-M9□A (V) D-A9□ (V)		D-M9□ D-M9□W D-M9□A D-A9□ D-H7□ D-H7□W D-H7NF D-C7/C8		D-C73C D-C80C		D-B5/B6 D-B59W D-G5/K5 D-G5□W D-H7C	
	Hs	Hs	Hs	Hs	Hs	Hs	Hs	Hs
20	25.5	24.5	27	27.5				
25	28	27	29.5	30				
32	31.5	30.5	33	33.5				
40	36	35	37.5	38				
50	41.5	40.5	43	43.5				
63	48.5	47.5	50	50.5				
80	—	—	—	59				
100	—	—	—	69.5				

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

REA

REB

REC

Smooth

Low

Speed

MQ

RHC

RZQ

D-□

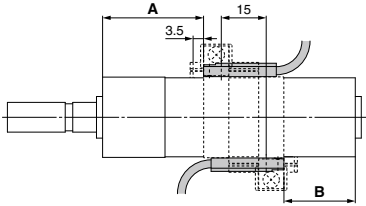
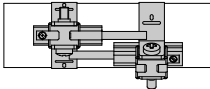
-X□

Minimum Stroke for Auto Switch Mounting

Auto switch model	(mm)				
	With 1 pc.	Number of auto switches			
		With 2 pcs.		With n pcs. (n: Number of auto switches)	
		Different surfaces	Same surface	Different surfaces	Same surface
D-M9□	5	15 <small>Note 1)</small>	40 <small>Note 1)</small>	$20 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$55 + 35 (n-2)$ (n = 2, 3, 4, 5...)
D-M9□W	10	15 <small>Note 1)</small>	40 <small>Note 1)</small>	$20 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$55 + 35 (n-2)$ (n = 2, 3, 4, 5...)
D-M9□A	10	25	40 <small>Note 1)</small>	$25 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$60 + 35 (n-2)$ (n = 2, 3, 4, 5...)
D-A9□	5	15	30 <small>Note 1)</small>	$15 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$50 + 35 (n-2)$ (n = 2, 3, 4, 5...)
D-M9□V	5	20	35	$20 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$35 + 35 (n-2)$ (n = 2, 3, 4, 5...)
D-A9□V	5	15	25	$15 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$25 + 35 (n-2)$ (n = 2, 3, 4, 5...)
D-M9□WV D-M9□AV	10	20	35	$20 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$35 + 35 (n-2)$ (n = 2, 3, 4, 5...)
D-C7□ D-C80	5	15	50	$15 + 45 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$50 + 45 (n-2)$ (n = 2, 3, 4, 5...)
D-H7□ D-H7□W D-H7NF	10	15	60	$15 + 45 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$60 + 45 (n-2)$ (n = 2, 3, 4, 5...)
D-C73C D-C80C	5	15	65	$15 + 50 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$65 + 50 (n-2)$ (n = 2, 3, 4, 5...)
D-B5□ D-B64 D-G5□ D-K59□	5	15	75	$15 + 50 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$75 + 55 (n-2)$ (n = 2, 3, 4, 5...)
D-B59W	10	20	75	$20 + 50 \frac{(n-2)}{2}$ (n = 2, 4, 6... <small>Note 3)</small>	$75 + 55 (n-2)$ (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	Same surface
	<div></div> <p>Correct auto switch mounting position is 3.5 mm from the back face of the switch holder.</p>	<div></div> <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.

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	4.5	5.5	5	5.5	—	—
D-A9□(V)	7	6	8	8	8	9	—	—
D-C7/C80 D-C73C/C80C	8	10	9	10	10	11	—	—
D-B5□/B64	8	10	9	10	10	11	11	11
D-B59W	13	13	14	14	14	17	16	18

* 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.

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)	BMA3-020 (A set of a, b, c, d)	BMA3-025 (A set of a, b, c, d)	BMA3-032 (A set of a, b, c, d)	BMA3-040 (A set of a, b, c, d)	BMA3-050 (A set of a, b, c, d)	BMA3-063 (A set of a, b, c, d)	—	—
D-M9□A(V) ^{Note 2)}	BMA3-020S (A set of b, c, d, e)	BMA3-025S (A set of b, c, d, e)	BMA3-032S (A set of b, c, d, e)	BMA3-040S (A set of b, c, d, e)	BMA3-050S (A set of b, c, d, e)	BMA3-063S (A set of b, c, d, e)	—	—

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

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

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) Avoid the indicator LED for mounting the switch bracket. As the indicator LED is projected from the switch unit, indicator LED may be damaged if the switch bracket is fixed on the indicator LED.

Band Mounting Brackets Set Part No.

Set part no.	Contents
BM2-□□□A(S) * S: Stainless steel screw	· Auto switch mounting band (c) · Auto switch mounting screw (d)
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 3) Refer to page 1047 for details on the BBA3. When the D-G5BA type auto switch is shipped independently, the BBA3 is attached.

REA

REB

REC

Smooth

Low Speed

MQ

RHC







RZQ

D-□

-X□

Cylinder Mounting Bracket, by Stroke/Auto Switch Mounting Surfaces

Auto switch mounting surface varies depending on mounting brackets and cylinder strokes. Refer to the table below. (mm)

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□(V)	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-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-C73C/C80C/H7C	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-B5/B6/G5/K5 D-G5□W/K59W 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.

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

Refer to pages 941 to 1067 for the detailed specifications.

Type	Model	Electrical entry	Features	Applicable bore size (mm)
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 1014 and 1015.

* Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)) are also available. For details, refer to page 1592-1.