

# Smooth Cylinder

# Series CG1Y

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

## How to Order

**CG1Y** **L** **25** **100**

**With auto switch** **CDG1Y** **L** **25** **100** **M9BW** **C**

**With auto switch**  
(Built-in magnet)

**Mounting style**

<b>B</b>	Basic style
<b>L</b>	Axial foot style
<b>F</b>	Rod side flange style
<b>G</b>	Head side flange style
<b>U*</b>	Rod side trunnion style
<b>T*</b>	Head side trunnion style
<b>D</b>	Clevis style

\* Not available at ø80 and ø100.  
Note) Mounting brackets are not mounted and are supplied loose at the time of shipment.

**Bore size**

<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

**Port thread type**

<b>Nil</b>	Rc	ø20 to ø100
<b>TN</b>	NPT	ø20 to ø100
<b>TF</b>	M5 x 0.8	ø20, ø25
	G	ø32 to ø100

**Auto switch**

<b>Nil</b>	Without auto switch
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\* For the applicable auto switch model, refer to the table below.

**Cylinder stroke (mm)**  
Refer to "Standard Stroke" on page 1204.

**Made to Order**  
For details, refer to page 1204.

**Auto switch mounting bracket** <sup>Note)</sup>  
Note) This symbol is indicated when the D-A9□ or M9□ type auto switch is specified.  
This mounting bracket does not apply to other auto switches (D-C7□ and H7□, etc.) (Nil)

**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	n pcs.

**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) CDG1YB32-150

## Applicable Auto Switches

Refer to pages 1893 to 2007 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	ø80, ø100	Perpendicular								
Solid state auto switch		Grommet	No	3-wire (NPN)	5 V, 12 V		M9NV	M9N	G59	●	●	○	○	IC circuit			
				3-wire (PNP)			M9PV	M9P	G5P	●	●	○	○				
		Connector		2-wire	12 V	M9BV	M9B	K59	●	●	○	○					
							H7C		●	●	●	●					
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V		M9NWV	M9NW	G59W	●	●	○		○	IC circuit	
				3-wire (PNP)				M9PWW	M9PW	G5PW	●	●	○		○		
				2-wire	12 V	M9BWW	M9BW	K59W	●	●	○	○					
				3-wire (NPN)	5 V, 12 V	M9NAV***	M9NA***		○	○	○	○					
				3-wire (PNP)	M9PAV***	M9PA***		○	○	○	○						
				2-wire	12 V	M9BAV***	M9BA***		○	○	○	○					
Reed auto switch		Grommet	No	4-wire (NPN)	5 V, 12 V			H7NF	G59F	●	●	○	○	IC circuit			
				3-wire (NPN equivalent)			A96V	A96		●	●	○	○				
					A93V	A93		●	●	○	○						
					A90V	A90		●	●	○	○						
							B54	●	●	○	○						
		Connector		Yes	2-wire	24 V	12 V			B64		●	●		○	○	Relay, PLC
											C73C		●		●	○	
								C80C		●	●	○	○				
										●	●	○	○				
										B59W		●	●		○	○	

\*\*\* Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW \* ○: Manufactured upon receipt of order.

\* 1 m ..... M (Example) M9NWM  
 \* 3 m ..... L (Example) M9NLW  
 \* 5 m ..... Z (Example) M9NZW  
 \* None ..... N (Example) H7CN

\* In addition to the models in the above table, there are some other auto switches that are applicable. For more information, refer to page 1213.

\* Refer to pages 1960 and 1961 for details of auto switches with a pre-wired connector.

\* D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V) auto switches are shipped together (not assembled). (Only auto switch mounting brackets are assembled before shipped.)



REA

REB

REC

COY

COX

MQ

RHC

RZQ

D-□

-X□

# Series CG1Y



## Symbol

Rubber bumper



## Made to Order

(For details, refer to pages 2009 to 2152.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC6	Made of stainless steel
-XC20	Head cover axial port

## Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
20	CG1Y20-PS	Piston seal 1 pc.
25	CG1Y25-PS	Rod seal 1 pc.
32	CG1Y32-PS	Tube gasket 2 pcs.
40	CG1Y40-PS	Grease pack (10 g) 1 pc.

When only grease for maintenance is necessary, please order by the following part numbers.

**Grease pack part no.:** 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
<b>Action</b>	Double acting, Single rod							
<b>Type</b>	Non-lube							
<b>Fluid</b>	Air							
<b>Proof pressure</b>	1.05 MPa							
<b>Maximum operating pressure</b>	0.7 MPa							
<b>Ambient and fluid temperature</b>	Without auto switch -10 to 70°C (with no freezing)							
	With auto switch -10 to 60°C (with no freezing)							
<b>Operating piston speed</b>	5 to 500 mm/s							
<b>Stroke length tolerance</b>	Up to 300 <sup>st</sup> ± 0.4 mm							
<b>Cushion</b>	Rubber bumper							
<b>Mounting</b>	Basic, Axial foot, Rod side flange, Head side flange, Rod side trunnion, Head side trunnion, Clevis (in case of 90° change in port location)							
<b>Allowable leakage rate</b>	0.5 L/min (ANR) or less							

\* Rod side trunnion and head side trunnion styles are not available at ø80 and ø100.

## Minimum Operating Pressure

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

Unit: MPa

## Standard Stroke

Bore size (mm)	Standard stroke (mm) <sup>Note 1)</sup>
20	25, 50, 75, 100, 125, 150, 200
25, 32, 40, 50, 63, 80, 100	25, 50, 75, 100, 125, 150, 200, 250, 300

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

Note 2) Please consult with SMC for strokes outside the above ranges.

Note 3) As the stroke increases, more sliding resistance may result due to the deflection of the piston rod and other factors. Take measures such as the installation of a guide.

## Mounting Bracket Part No.

Mounting bracket	Min. order	Bore size (mm)								Description
		20	25	32	40	50	63	80	100	
Foot	2 <small>(Min)</small>	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100	Foot x 2, Bracket mounting bolt x 8
Flange	1	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100	Flange x 1, Bracket mounting bolt x 4
Trunnion pin	1	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	—	—	Trunnion pin x 2, Trunnion pivot bracket x 2, Flat washer x 2
Clevis	1	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063	CG-D080	CG-D100	Clevis x 1, Bracket mounting bolt x 4, Clevis pin x 1, Retaining ring x 2
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	Pivot bracket x 1

Note) Order two foot brackets per cylinder.

## Weight

		Bore size (mm)								(mm)
		20	25	32	40	50	63	80	100	
Basic weight	Basic style	0.11	0.18	0.28	0.44	0.83	1.17	2.23	3.43	
	Axial foot style	0.22	0.31	0.44	0.66	1.31	1.89	3.19	5.18	
	Flange style	0.19	0.28	0.42	0.64	1.17	1.67	2.94	4.78	
	Trunnion style	0.12	0.20	0.31	0.49	0.97	1.31	—	—	
	Clevis style	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 each 50 mm of stroke		0.05	0.07	0.09	0.15	0.22	0.26	0.35	0.49	

Calculation: (Example) **CG1YL20-100**  
(Foot style, ø20, 100 st)

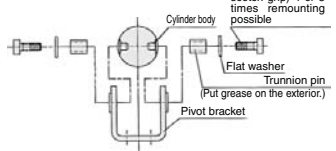
- Basic weight..... 0.22 (Foot, ø20)
- Additional weight..... 0.05/50 stroke
- Cylinder stroke..... 100 stroke
- $0.22 + 0.05 \times 100/50 = 0.32$  kg

## Mounting Procedure

### Mounting procedure for trunnion

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

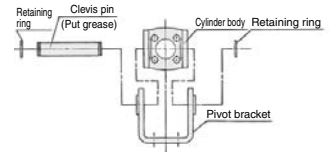
ø20 to ø63



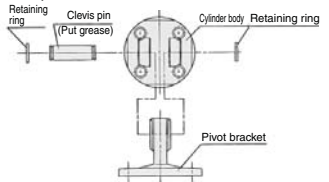
### Mounting procedure for clevis

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

ø20 to ø63



ø80, ø100



## ⚠ Precautions

Be sure to read before handling.

Refer to front matter 39 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

### Operating Precautions

#### ⚠ Warning

- Operate within the specified cylinder speed.**  
Otherwise, cylinder and seal damage may occur.
- When operating a cylinder as a single side fixed (Basic/flange style), a bending moment generated at the stroke end due to vibration will be applied to the cylinder, which may damage it. In such cases, install a bracket to prevent vibration or lower the piston speed until the cylinder does not vibrate at the stroke end.**

#### ⚠ Caution

- Tighten clevis bracket mounting bolts with the proper tightening torque shown listed below.**  
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

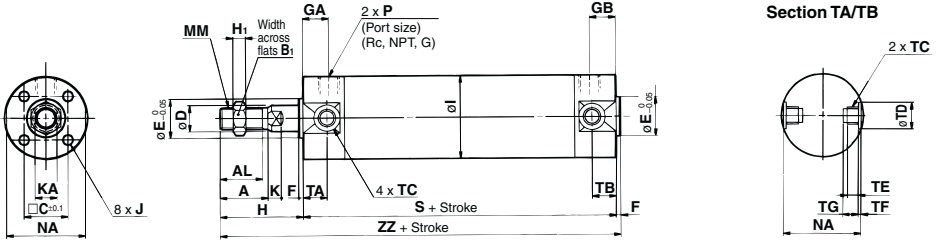
#### ⚠ Caution

- Do not replace the bushings.**  
The bushings are press-fit. To replace them, they must be replaced together with the cover assembly.
- 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.
- Those with a bore of ø50 or more 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 re-tightening, 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. Please contact SMC when disassembly is required.)

# Series CG1Y

Dimensions:  $\varnothing 20$  to  $\varnothing 100$

Basic style: CG1YB



## Section TA/TB

(mm)

Bore size (mm)	TC*	TDH9	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	14.5
63	M14 x 1.5	$18^{+0.08}_0$	11.5	3	14.5

\* Trunnion mounting taps for the width across flats NA are not attached to  $\varnothing 80$  and  $\varnothing 100$  types.

(mm)

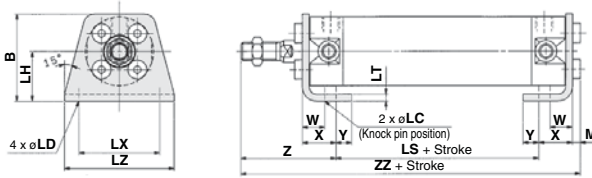
Bore size (mm)	Stroke range (mm)	A	AL	B1	C	D	E	F	H	H1	I	J	K	KA	MM	NA
20	Up to 200	18	15.5	13	14	8	12	2	35	5	26	M4 x 0.7 depth 7	5	6	M8 x 1.25	24
25	Up to 300	22	19.5	17	16.5	10	14	2	40	6	31	M5 x 0.8 depth 7.5	5.5	8	M10 x 1.25	29
32	Up to 300	22	19.5	17	20	12	18	2	40	6	38	M5 x 0.8 depth 8	5.5	10	M10 x 1.25	35.5
40	Up to 300	30	27	19	26	16	25	2	50	8	47	M6 x 1 depth 12	6	14	M14 x 1.5	44
50	Up to 300	35	32	27	32	20	30	2	58	11	58	M8 x 1.25 depth 16	7	18	M18 x 1.5	55
63	Up to 300	35	32	27	38	20	32	2	58	11	72	M10 x 1.5 depth 16	7	18	M18 x 1.5	69
80	Up to 300	40	37	32	50	25	40	3	71	13	89	M10 x 1.5 depth 22	10	22	M22 x 1.5	80
100	Up to 300	40	37	41	60	30	50	3	71	16	110	M12 x 1.75 depth 22	10	26	M26 x 1.5	100

(mm)

Bore size (mm)	Stroke range (mm)	S	TA	TB	ZZ	Rc, NPT port			G port		
						GA	GB	P	GA	GB	P
20	Up to 200	77	11	11	114	12	12	1/8	12	12	M5 x 0.8
25	Up to 300	77	11	11	119	12	12	1/8	12	12	M5 x 0.8
32	Up to 300	79	11	11	121	12	12	1/8	10	10	1/8
40	Up to 300	87	12	12	139	13	13	1/8	10	10	1/8
50	Up to 300	102	13	13	162	14	14	1/4	12	12	1/4
63	Up to 300	102	13	13	162	14	14	1/4	12	12	1/4
80	Up to 300	122	—	—	196	20	20	3/8	17	17	3/8
100	Up to 300	122	—	—	196	20	20	1/2	17	17	1/2

**With Mounting Bracket**

**Axial foot style: CG1YL**

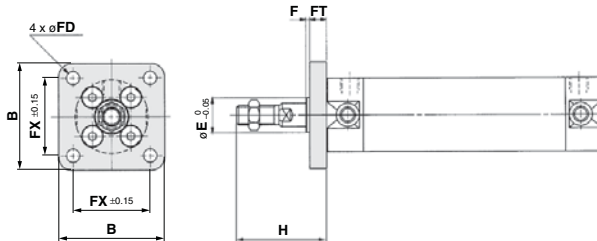


**Axial Foot Style**

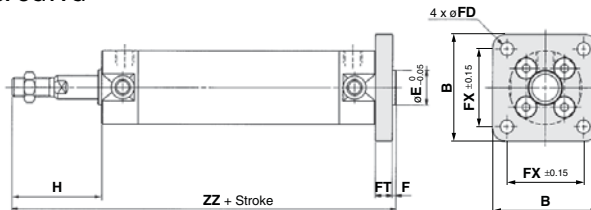
Bore size (mm)	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	Z	ZZ	(mm)
20	34	4	6	20	53	3	32	44	3	10	15	7	47	118	
25	38.5	4	6	22	53	3	36	49	3.5	10	15	7	52	123.5	
32	45	4	7	25	53	3	44	58	3.5	10	16	8	53	125.5	
40	54.5	4	7	30	60	3	54	71	4	10	16.5	8.5	63.5	144	
50	70.5	5	10	40	67	4.5	66	86	5	17.5	22	11	75.5	169.5	
63	82.5	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 style.

**Rod side flange style: CG1YF**



**Head side flange style: CG1YG**



**Flange Style**

Bore size (mm)	B	E	F	FX	FD	FT	H	Head side 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 style.

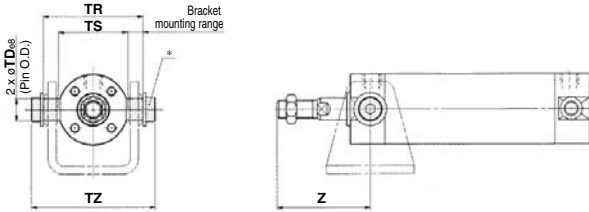
- REA
- REB
- REC
- RY
- RX
- MQ
- RHC
- RZQ

- D-
- X

# Series CG1Y

## With Mounting Bracket

### Rod side trunnion style: CG1YU

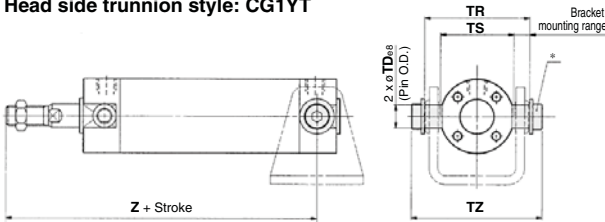


### Trunnion Style

(mm)

Bore size (mm)	TDe8	TR	TS
20	8 $\begin{smallmatrix} -0.025 \\ -0.043 \end{smallmatrix}$	39	28
25	10 $\begin{smallmatrix} -0.025 \\ -0.047 \end{smallmatrix}$	43	33
32	12 $\begin{smallmatrix} -0.025 \\ -0.055 \end{smallmatrix}$	54.5	40
40	14 $\begin{smallmatrix} -0.025 \\ -0.055 \end{smallmatrix}$	65.5	49
50	16 $\begin{smallmatrix} -0.025 \\ -0.055 \end{smallmatrix}$	80	60
63	18 $\begin{smallmatrix} -0.025 \\ -0.055 \end{smallmatrix}$	9	74

### Head side trunnion style: CG1YT



Bore size (mm)	TZ	Rod side	
		Z	Head side
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

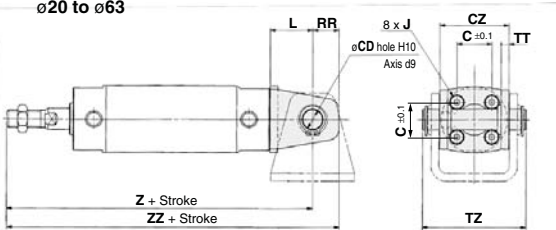
\* Consists of trunnion pin, flat washer and hexagon socket head cap bolt.

(Note) Refer to page 1209 for pivot bracket.

\* Other dimensions are the same as basic style.

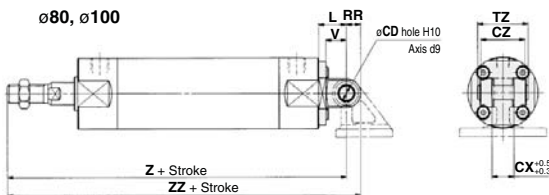
### Clevis style: CG1YD

ø20 to ø63



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

ø80, ø100



### Clevis Style

(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-G25
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 1209 for pivot bracket.

\* Other dimensions are the same as basic style.

\* Clevis pin and retaining ring are attached for the clevis style.

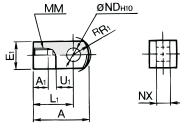
# Series CG1Y

# Accessory Bracket Dimensions

## Single Knuckle Joint

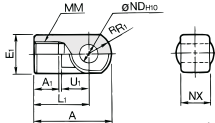
### I-G02/G03

Material: Rolled steel



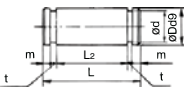
### I-G04/G05/G08/G10

Material: Cast iron



Part no.	Applicable bore (mm)	A	A <sub>1</sub>	E <sub>1</sub>	L <sub>1</sub>	MM	R <sub>1</sub>	U <sub>1</sub>	ND <sub>H10</sub>	NX
I-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8 <sup>-0.058</sup> <sub>0</sub>	8 <sup>-0.2</sup> <sub>0</sub>
I-G03	25, 32	41	10.5	□20	30	M10 x 1.25	12.8	14	10 <sup>-0.058</sup> <sub>0</sub>	10 <sup>-0.2</sup> <sub>0</sub>
I-G04	40	42	14	□22	30	M14 x 1.5	12	14	10 <sup>-0.058</sup> <sub>0</sub>	18 <sup>-0.3</sup> <sub>0</sub>
I-G05	50, 63	56	18	□28	40	M18 x 1.5	16	20	14 <sup>-0.070</sup> <sub>0</sub>	22 <sup>-0.3</sup> <sub>0</sub>
I-G08	80	71	21	□38	50	M22 x 1.5	21	27	18 <sup>-0.070</sup> <sub>0</sub>	28 <sup>-0.3</sup> <sub>0</sub>
I-G10	100	79	21	□44	55	M26 x 1.5	24	31	22 <sup>-0.084</sup> <sub>0</sub>	32 <sup>-0.3</sup> <sub>0</sub>

## Knuckle Pin

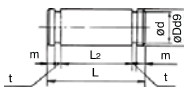


Material: Carbon steel (mm)

Part no.	Applicable bore (mm)	Dd <sub>9</sub>	L	d	L <sub>2</sub>	m	t	Applicable retaining ring
IY-G02	20	8 <sup>-0.040</sup> <sub>-0.070</sub>	21	7.6	16.2	1.5	0.9	Type C 8 for axis
IY-G03	25, 32	10 <sup>-0.040</sup> <sub>-0.070</sub>	25.6	9.6	20.2	1.55	1.15	Type C 10 for axis
IY-G04	40	10 <sup>-0.040</sup> <sub>-0.070</sub>	41.6	9.6	36.2	1.55	1.15	Type C 10 for axis
IY-G05	50, 63	14 <sup>-0.050</sup> <sub>-0.080</sub>	50.6	13.4	44.2	2.05	1.15	Type C 14 for axis
IY-G08	80	18 <sup>-0.050</sup> <sub>-0.080</sub>	64	17	56.2	2.55	1.35	Type C 18 for axis
IY-G10	100	22 <sup>-0.065</sup> <sub>-0.117</sub>	72	21	64.2	2.55	1.35	Type C 22 for axis

\* Retaining rings are shipped together.

## Clevis Pin



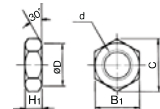
Material: Carbon steel (mm)

Part no.	Applicable bore (mm)	Dd <sub>9</sub>	L	d	L <sub>2</sub>	m	t	Applicable retaining ring
CD-G02	20	8 <sup>-0.040</sup> <sub>-0.070</sub>	43.4	7.6	38.6	1.5	0.9	Type C 8 for axis
CD-G25	25	10 <sup>-0.040</sup> <sub>-0.070</sub>	48	9.6	42.6	1.55	1.15	Type C 10 for axis
CD-G03	32	12 <sup>-0.040</sup> <sub>-0.070</sub>	59.4	11.5	54	1.55	1.15	Type C 12 for axis
CD-G04	40	14 <sup>-0.050</sup> <sub>-0.080</sub>	71.4	13.4	65	2.05	1.15	Type C 14 for axis
CD-G05	50	16 <sup>-0.050</sup> <sub>-0.080</sub>	86	15.2	79.6	2.05	1.15	Type C 16 for axis
CD-G06	63	18 <sup>-0.050</sup> <sub>-0.080</sub>	105.4	17	97.8	2.45	1.35	Type C 18 for axis

\* Retaining rings are shipped together.

\* Clevis pin and knuckle pin are common for bore size ø80 and ø100.

## Rod End Nut



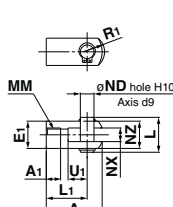
Material: Rolled steel (mm)

Part no.	Applicable bore (mm)	d	H <sub>1</sub>	B <sub>1</sub>	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

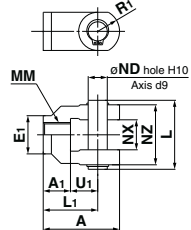
### Y-G02/G03

Material: Rolled steel



### Y-G04/G05/G08/G10

Material: Cast iron



Part no.	Applicable bore (mm)	A	A <sub>1</sub>	E <sub>1</sub>	L <sub>1</sub>	MM	R <sub>1</sub>	U <sub>1</sub>	ND	NX	NZ	L	Applicable pin part no.
Y-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8	8 <sup>+0.2</sup> <sub>0</sub>	16	21	IY-G02
Y-G03	25, 32	41	10.5	□20	30	M10 x 1.25	12.8	14	10	10 <sup>+0.2</sup> <sub>0</sub>	20	25.6	IY-G03
Y-G04	40	42	16	□22	30	M14 x 1.5	12	14	10	18 <sup>+0.3</sup> <sub>0</sub>	36	41.6	IY-G04
Y-G05	50, 63	56	20	□28	40	M18 x 1.5	16	20	14	22 <sup>+0.3</sup> <sub>0</sub>	44	50.6	IY-G05
Y-G08	80	71	23	□38	50	M22 x 1.5	21	27	18	28 <sup>+0.3</sup> <sub>0</sub>	56	64	IY-G08
Y-G10	100	79	24	□44	55	M26 x 1.5	24	31	22	32 <sup>+0.3</sup> <sub>0</sub>	64	72	IY-G10

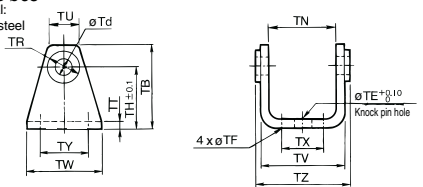
\* Knuckle pin and retaining ring are shipped together.

## Pivot Bracket (Order separately)

### ø20 to ø63

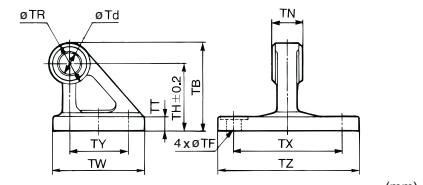
Material:

Rolled steel



### ø80, ø100

Material: Cast iron



Part no.	Applicable bore (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	28 <sup>+0.3</sup> <sub>0</sub>	36	11
CG-100-24A	100	90	22	—	13.5	65	32 <sup>+0.3</sup> <sub>0</sub>	50	12

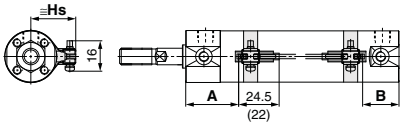
Part no.	Applicable bore (mm)	TU	TW	TX	TY	TZ	Applicable pin O.D.
CG-020-24A	20	(18.1)	(35.8)	42	16	28	38.3
CG-025-24A	25	(20.7)	(39.8)	42	20	28	42.1
CG-032-24A	32	(23.6)	(49.4)	48	22	28	53.8
CG-040-24A	40	(27.3)	(58.4)	56	30	30	64.6
CG-050-24A	50	(29.7)	(72.4)	64	36	36	79.2
CG-063-24A	63	(34.3)	(90.4)	74	46	46	97.2
CG-080-24A	80	—	—	72	85	45	110
CG-100-24A	100	—	—	93	100	60	130

# Auto Switch Mounting 1

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

### Reed auto switch

D-A9□  
ø20 to ø63

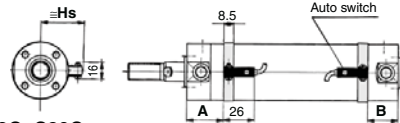


( ): Values for D-A96

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

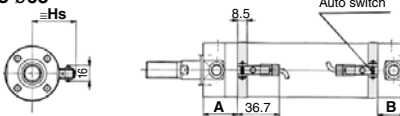
### D-C7, C8

ø20 to ø63



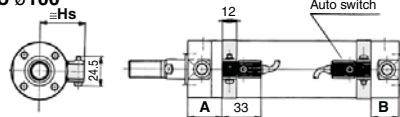
### D-C73C, C80C

ø20 to ø63



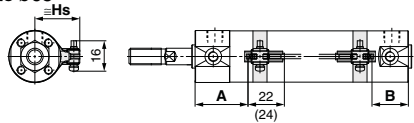
### D-B5, B6, B59W

ø20 to ø100



### Solid state auto switch

D-M9□  
D-M9□W  
ø20 to ø63



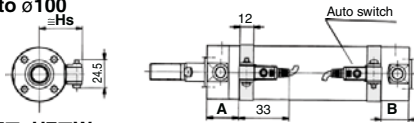
( ): Values for D-M9□A

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

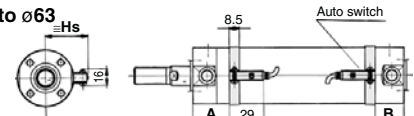
ø20 to ø100



### D-H7□, H7□W

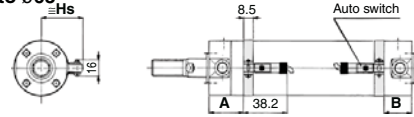
D-H7NF

ø20 to ø63



### D-H7C

ø20 to ø63



## Auto Switch Proper Mounting Position

## Auto Switch Mounting Height

Auto switch model	(mm)															
	D-A9□ (V)		D-M9□ (V) D-M9□W (V) D-M9□A (V)		D-C7/C8 D-C73C D-C80C		D-B5 D-B6		D-B59W		D-H7□ D-H7C D-H7□W D-H7NF		D-G5□W D-K59W D-G59F D-G5 D-K5 D-G5NT			
	A	B	A	B	A	B	A	B	A	B	A	B	A	B		
20	29	28	33	32	29.5	28.5	23.5	22.5	26.5	25.5	28.5	27.5	25	24		
25	29	28	33	32	29.5	28.5	23.5	22.5	26.5	25.5	28.5	27.5	25	24		
32	30	29	34	33	30.5	29.5	24.5	23.5	27.5	26.5	29.5	28.5	26	25		
40	35	32	39	36	35.5	32.5	29.5	26.5	32	29.5	34.5	31.5	31	28		
50	42	40	46	44	42.5	40.5	36.5	34.5	39.5	37.5	41.5	39.5	38	36		
63	42	40	46	44	42.5	40.5	36.5	34.5	39.5	37.5	41.5	39.5	38	36		
80	—	—	—	—	—	—	46.5	44.5	49.5	47.5	—	—	48	46		
100	—	—	—	—	—	—	46.5	44.5	49.5	47.5	—	—	48	46		

Auto switch model	(mm)				
	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-K59W D-B59W D-G5/K5 D-G59F D-G5NT D-H7C
	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 conditions in the actual setting.



**Minimum Auto Switch Mounting Stroke**

Auto switch model	No. of auto switch mounted (mm)				
	1 pc.	2 pcs.		n pcs.	
		Different surfaces	Same surface	Different surfaces	Same surface
D-M9□	5	15 <small>Note 1</small>	40 <small>Note 1</small>	$20 + 35 \frac{(n-2)}{2}$ <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	10	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-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-C73C D-C80C	10	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-B5□ D-B64 D-G5□ D-K59□	10	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	15	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 3) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.

Note 1) Auto switch mounting

Auto switch model	With 2 auto switches	
	Different surfaces	Same surface
	<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 mounting auto switches in the other mounting styles mentioned in note 1.

REA

REB

REC

□Y

□X

MQ

RHC

RZQ

D-□

-X□

# Series CG1Y

## Auto Switch Mounting 2

### Operating Range

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
D-A9 (V)	7	6	8	8	8	9	—	—
D-M9 (V) D-M9W (V) D-M9A (V)	4.5	5	4.5	5.5	5	5.5	—	—
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/H7mW D-H7NF	13	13	14	14	14	17	16	18
D-H7C	4	4	4.5	5	6	6.5	—	—
D-G5/G5W/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
D-G5NB	35	40	40	45	45	45	45	50

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

### Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
D-M9 (V) D-M9W (V) D-A9 (V)	Note 1) BMA3-020	Note 1) BMA3-025	Note 1) BMA3-032	Note 1) BMA3-040	Note 1) BMA3-050	Note 1) BMA3-063	—	—
D-M9A (V)	Note 2) BMA3-020S	Note 2) BMA3-025S	Note 2) BMA3-032S	Note 2) BMA3-040S	Note 2) BMA3-050S	Note 2) BMA3-063S	—	—
D-C7/C80 D-C73C D-C80C D-H7 D-H7W D-H7NF	BMA2-020A	BMA2-025A	BMA2-032A	BMA2-040A	BMA2-050A	BMA2-063A	—	—
D-B5/B64 D-B59W D-G5/K59 D-G5W/K59W D-G59F D-G5NT D-G5NB	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06	BA-08	BA-10

Note 1) Set part number which includes the auto switch mounting band (BMA2-□□□A) and the holder kit (BJ5-1/Switch bracket: Transparent).

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

Note 2) Set part number which includes the auto switch mounting band (BMA2-□□□AS) and the holder kit (BJ4-1/Switch bracket: White).

Note 3) For the D-M9 A (V) type auto switch, do not install the switch bracket on the indicator light.

#### [Stainless Steel Mounting Screw Kit]

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

(Since auto switch brackets are not included, order them separately.)

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

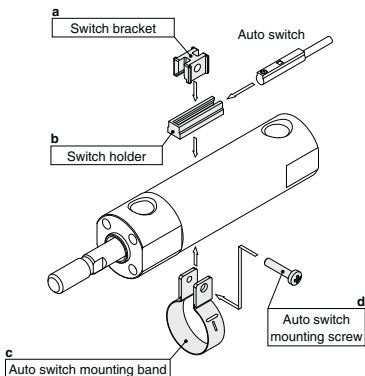
BBA4: For D-C7/C80/H7 types

Note 4) Refer to page 1989 for the details of BBA3 screws.

The above stainless steel screws are used when a cylinder is shipped with D-H7BA type and G5BA type auto switches.







When only a switch is shipped independently, BBA3 screws or BBA4 screws are attached respectively.

- BJ□-1: A set of a and b in the figure.  
BJ4-1 (Switch bracket: White)  
BJ5-1 (Switch bracket: Transparent)
- BM2-□□□A (S) : A set of c and d in the figure.  
Band (c) is mounted so that the projected part is on the internal side (contact side with the tube).



**Cylinder Bracket by Stroke/Auto Switch Mounting Surface**

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

No. of auto switches	Basic style, Foot style, Flange style, Clevis style			Trunnion style		
	1 (Rod cover side)	2 (Different surfaces)	2 (Same surface)	1 (Rod cover side)	2 (Different surfaces)	2 (Same surface)
Switch mounting surface	Port surface 	Port surface 	Port surface 			
Switch type						
D-M9□(V) D-M9□W(V) D-M9□A(V) D-A9□(V)	10 st or more	15 to 44st	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 49st	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 59st	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 64st	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 74st	75 st or more	10 st or more	15 to 74 st	75 st or more
D-B59W	15 st or more	20 to 74st	75 st or more	15 st or more	20 to 74 st	75 st or more

\* Trunnion style is not available for bore sizes ø80 and ø100.

**Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted.**

For detailed specifications, refer to pages 1893 to 2007.

Auto switch type	Model	Electrical entry (Direction)	Features	Applicable bore size
Solid state	D-H7A1, H7A2, H7B	Grommet (In-line)	—	ø20 to ø63
	D-H7NW, H7PW, H7BW		Diagnostic indication (2-color indication)	
	D-H7BA		Water resistant (2-color indication)	
	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 available for solid state auto switches. For details, refer to pages 1960 to 1961.

\* Normally closed (NC = b contact), solid state auto switches (D-F9G, F9H type) are also available. For details, refer to page 1911.

\* Wide range detection type, solid state auto switches (D-G5NB type) are also available. Refer to page 1953 for details.

REA

REB

REC

□Y

□X

MQ

RHC

RZQ

D-□

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