

# Stainless Steel Cylinder

# Series CG5-S

∅20, ∅25, ∅32, ∅40, ∅50, ∅63, ∅80, ∅100

## How to Order

**Without Auto Switch** CG5 L N 25 TN S R 100 X165US

**With Auto Switch** CDG5 L N 25 TN S R 100 G5BAL X165US

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

**Mounting**

B	Basic type
L	Axial foot type
F	Front flange type
G	Rear flange type
E	Integral clevis type

**Type**

N	Non-lube, rubber bumper
A	Non-lube, air cushion

**Bore size**

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

The 20 to 63mm bore sizes are made in the US in both Metric and Inch rod threads. The 80 and 100mm are made in Japan in Metric rod only. The 80 and 100mm with inch rod thread will be made in the US on a future date. Please inquire with SMC when ordering.

**Thread option**

Nil	PT ports
TN	NPT ports

**Stainless steel cylinder**

**Inch rod thread**  
(Only available with "TN" port option. Currently only available on the 20 to 63mm bore sizes.)

**Number of auto switches**

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

**Auto switch type/Band mount type**

Nil	Without auto switch (built-in magnet)
G5BAL	D-G5BAL (water resistant)
G5BASAPC	D-G5BASAPC (water resistant) 3 pin M8 connector, 0.5M lead

Auto switches are available in the band mount type only.

**Cylinder stroke (mm)**  
Refer to the standard stroke table on page 8.

**Seal material**

R	NBR
V	FKM

## Mounting bracket part numbers

Mounting bracket	Bore size (mm)							
	20	25	32	40	50	63	80	100
<b>Axial foot</b> <small>Note 1)</small>	CG-L020SUS	CG-L025SUS	CG-L032SUS	CG-L040SUS	CG-L050SUS	CG-L063SUS	CG-L080SUS	CG-L100SUS
<b>Flange</b>	CG-F020SUS	CG-F025SUS	CG-F032SUS	CG-F040SUS	CG-F050SUS	CG-F063SUS	CG-F080SUS	CG-F100SUS
<b>Trunnion bracket</b> <small>Note 2)</small>	CG-E020SUS		CG-E032SUS		CG-E050SUS		CG-E080SUS	

Note 1) Order two foot brackets for each cylinder.

Note 2) Includes clevis pin and snap ring.

## Auto switch mounting bracket part numbers (band mount type)

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
<b>D-G5BA</b>	NBA-088S	NBA-106S	BGS1-032S	BAF-04S	BAF-05S	BAF-06S	BAF-08S	BAF-10S

\* Includes stainless steel mounting screws.

## Rod and Porting Combinations

Combination	Bore Size
Metric Rod / PT Ports	20 to 100mm
Metric Rod / NPT Ports (TN Option Only)	20 to 100mm
Inch Rod / NPT Ports (TN & X165US Option)	20 to 63mm

## Auto switch specifications

D-G5BA (With indicator light)/Band mount type	
<b>Auto switch model</b>	D-G5BA
<b>Wiring type</b>	2 wire
<b>Output type</b>	—
<b>Applicable load</b>	24VDC relay, PLC
<b>Power supply voltage</b>	—
<b>Current consumption</b>	—
<b>Load voltage</b>	24VDC (10 to 28VDC)
<b>Load current</b>	5 to 40mA
<b>Internal voltage drop</b>	4V or less
<b>Leakage current</b>	0.8mA or less at 24VDC
<b>Indicator light</b>	Actuated position ..... Red LED lights up Optimum operating position ... Green LED lights up

\* Use caution during operation as residue may collect on auto switches.

\* Refer to pages 15 through 17 for auto switch related items.

\* Auto switches with M8 and M12 connectors are available as standard product. See page 17 for other options besides lead wire.

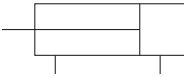
Grease pack for stainless steel cylinders/Part number: GR-R-010 (10g)

## Specifications



### JIS symbol

Double acting/Single rod



### Minimum stroke for mounting auto switches

Model	Number of auto switches	
	2 pcs.	1 pc.
D-G5BA	15mm	10mm

Refer to page 15 for details.

<b>Action</b>		Double acting single rod
<b>Fluid</b>		Air
<b>Proof pressure</b>		1.5MPa
<b>Maximum operating pressure</b>		1.0MPa
<b>Minimum operating pressure</b>		0.05MPa
<b>Ambient and fluid temperature</b>		Without auto switch: -10 to 70°C, With auto switch: -10 to 60°C
<b>Cushion</b>		Rubber bumper, Air cushion
<b>Piston speed</b>	ø20 to ø63	50 to 1000mm/s
	ø80, ø100	50 to 700mm/s
<b>Thread tolerance</b>		JIS class 2
<b>Stroke length tolerance</b>	ø20 to ø63	to 1000 $^{+1.4}_0$ mm, to 1200 $^{+1.5}_0$ mm
	ø80, ø100	to 1000 $^{+1.4}_0$ mm, to 1500 $^{+1.5}_0$ mm
<b>Mounting</b>		Basic type, Axial foot type, Front flange type, Rear flange type, Integral clevis type

## Standard Strokes

(mm)

Bore size	Standard stroke <sup>Note 1)</sup>	Long stroke
20	25, 50, 75, 100, 125, 150, 200	201 to 350
25	25, 50, 75, 100, 125, 150, 200, 250, 300	301 to 400
32		301 to 450
40		301 to 800
50, 63		301 to 1200
80		301 to 1400
100		301 to 1500

Note 1) All non-standard strokes are produced upon receipt of order. (Spacers are not used on intermediate strokes.)

## Accessories

Mounting		Basic type	Axial foot type	Front flange type	Rear flange type	Integral clevis type
Standard	Rod end nut	●	●	●	●	●
Optional	Single knuckle joint	●	●	●	●	●
	Double knuckle joint (with pin & snap ring)	●	●	●	●	●
	Trunnion bracket (with pin & snap ring)	—	—	—	—	●

## Weights

(kg)

Bore size		20	25	32	40	50	63	80	100
Standard weight	Basic type	0.32	0.42	0.61	0.97	1.78	2.73	5.20	8.13
	Axial foot type	0.40	0.53	0.72	1.13	2.12	3.19	5.91	9.50
	Flange type	0.43	0.53	0.71	1.12	2.04	3.25	5.86	9.29
	Integral clevis type	0.37	0.48	0.72	1.12	2.17	3.26	6.48	9.94
Trunnion bracket		0.08	0.08	0.18	0.18	0.46	0.46	1.65	1.65
Single knuckle joint		0.04	0.07	0.07	0.11	0.22	0.22	0.53	0.78
Double knuckle joint (with pin)		0.05	0.09	0.09	0.18	0.33	0.33	0.73	1.07
Additional weight per 50mm of stroke		0.06	0.08	0.14	0.18	0.27	0.33	0.50	0.73
Additional weight with air cushion		0.02	0.02	0.03	0.02	0.06	0.07	0.14	0.16

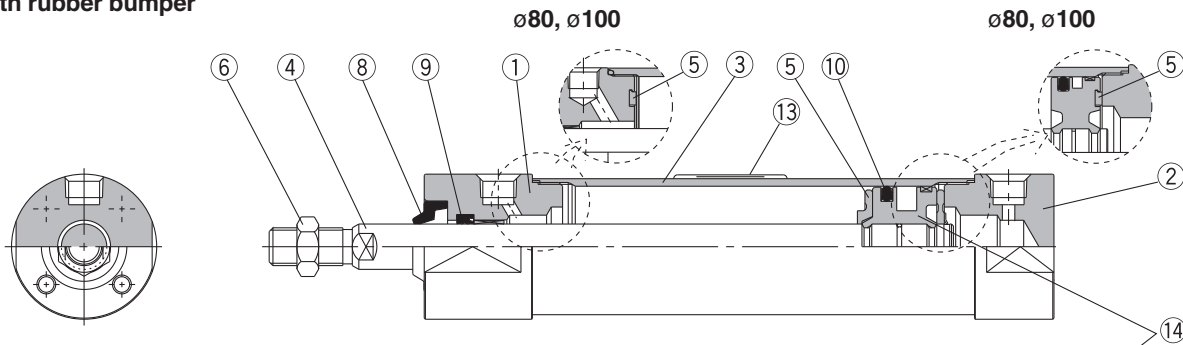
Calculation (Example) CG5LA 20SR-100  
(Foot type ø20, 100mm stroke)

- Basic weight ..... 0.40kg (Foot type ø20)
  - Additional stroke weight ..... 0.06kg/50mm stroke
  - Air cylinder stroke ..... 100mm
  - Additional air cushion weight ..... 0.02kg
- 0.40 + 0.06 x 100/50 + 0.02 = 0.54kg

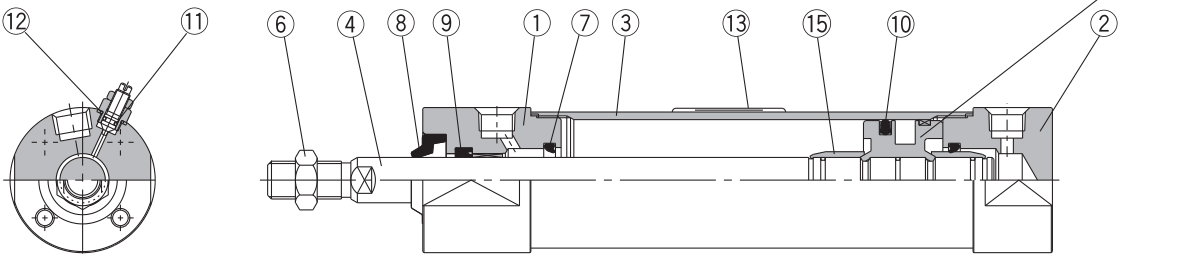
# Series CG5-S

## Construction

With rubber bumper



With air cushion



### Parts list Note1)

No.	Description	Material
1	Rod cover	SUS304
2	Head cover	SUS304
3	Cylinder tube	SUS304
4	Piston rod	SUS304
5	Bumper	Urethane
6	Rod end nut	SUS304
7	Cushion seal	Urethane

Note1) Magnets are installed on pistons of cylinders equipped with auto switches.

No.	Description	Material	
		CG5□□□SR	CG5□□□SV
8	Water resistant scraper	NBR	FKM
9	Rod seal		
10	Piston seal		
11	Valve seal		
12	Valve retainer gasket	PET	
14	Piston	Aluminum alloy	
15	Cushion ring	Brass	

### Replacement parts: Water resistant scraper (Part No.8) Note)

Bore size	NBR Wiper (R option)	FKM Wiper (V option)
20	SDB-8	SDB-8F
25	SDB-10	SDB10F
32	SDB-12	SDB12F
40	SDB-16	SDB-16F
50	SDB-20	SDB-20F
63	SDB-20	SDB-20F
80	SDB-25	SDB-25F
100	SDB-30	SDB-30F

Note) The scraper is held into the Rod cover with a light press fit. The scraper can be carefully pried out, and replaced with a press fit using a manual arbor press.

### Replacement parts: Seal kits Note)

Bore size	Rubber bumper		Air cushion	
	CG5□N□SR	CG5□N□SV	CG5□A□SR	CG5□A□SV
20	CG5N20SR-PS	CG5N20SV-PS	CG5A20SR-PS	CG5A20SV-PS
25	CG5N25SR-PS	CG5N25SV-PS	CG5A25SR-PS	CG5A25SV-PS
32	CG5N32SR-PS	CG5N32SV-PS	CG5A32SR-PS	CG5A32SV-PS
40	CG5N40SR-PS	CG5N40SV-PS	CG5A40SR-PS	CG5A40SV-PS
50*	CG5N50SR-PS	CG5N50SV-PS	CG5A50SR-PS	CG5A50SV-PS
63*	CG5N63SR-PS	CG5N63SV-PS	CG5A63SR-PS	CG5A63SV-PS
80*	CG5N80SR-PS	CG5N80SV-PS	CG5A80SR-PS	CG5A80SV-PS
100*	CG5N100SR-PS	CG5N100SV-PS	CG5A100SR-PS	CG5A100SV-PS
Contents	Nos. 9 and 10 above		Nos. 9, 10, 11 and 12 above	

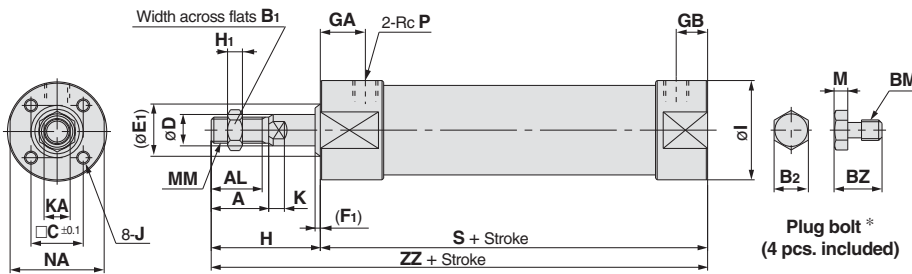
Note) A grease pack (GR-R-010, 10g) is included in seal kits.

Note) Water Resistant Scraper is not included in the Seal Kit, and must be purchased separately.

\* Bore sizes 50mm and larger can be difficult to disassemble. Contact SMC when disassembly/repair is required on the larger sizes. See page 44 for more information regarding seal replacement. Note) A grease pack (GR-R-010, 10g) is included in seal kits.

## Dimensions

### Basic type (B)/C□G5BN□S $\bar{R}$ : With rubber bumper



### X165US inch rod option dimensional changes

Dim. Bore size	A	AL	B1	H	H1	MM	ZZ
20	14	12.7	11.0	25.4	4.0	1/4-28	108.4
25	14	12.7	12.6	28.4	4.8	5/16-24	111.4
32	21	19	17.3	41.4	6.4	7/16-20	126.4
40	19	16.6	17.3	41.4	6.4	7/16-20	134.4
50	22.4	19.8	18.8	52.6	7.9	1/2-20	161.6
63	22.4	19.8	18.8	52.6	7.9	1/2-20	161.6
80*	25.4	22.9	23.9	63.5	9.7	5/8-18	193.5
100*	31.8	29.3	27.8	69.9	10.7	3/4-16	200.9

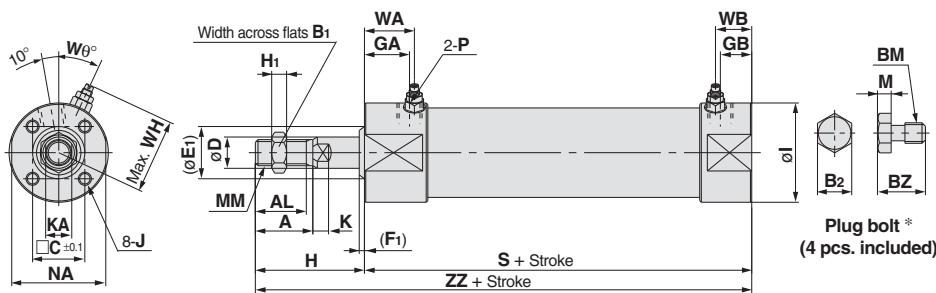
\* 80 and 100mm-X165US are a future release.

(mm)

Bore size (mm)	Stroke range	A	AL	B1	B2	BM	BZ	C	D	E1	F1	GA	GB	H	H1	I	J	K	KA	M	MM	NA	P	S	ZZ
20	to 350	18	15.5	13	7	M4 x 0.7	9	16.5	8	15	3	18	12	35	5	31	M4 x 0.7 depth 7	5	6	3	M8 x 1.25	29	1/8	83	118
25	to 400	22	19.5	17	8	M5 x 0.8	9.5	18.5	10	17	3	18	12	40	6	33	M5 x 0.8 depth 8	5.5	8	3.5	M10 x 1.25	29	1/8	83	123
32	to 450	22	19.5	17	8	M5 x 0.8	9.5	20	12	19	3	18	12	40	6	38	M5 x 0.8 depth 8	5.5	10	3.5	M10 x 1.25	35.5	1/8	85	125
40	to 800	30	27	19	10	M6 x 1.0	12	26	16	23	3	19	13	50	8	47	M6 x 1.0 depth 12	6	14	4	M14 x 1.5	44	1/8	93	143
50	to 1200	35	32	27	13	M8 x 1.25	15.5	32	20	28	3	21	14	58	11	58	M8 x 1.25 depth 16	7	18	5.5	M18 x 1.5	55	1/4	109	167
63	to 1200	35	32	27	17	M10 x 1.5	19	38	20	28	3	21	14	58	11	72	M10 x 1.5 depth 16	7	18	7	M18 x 1.5	69	1/4	109	167
80	to 1400	40	37	32	17	M10 x 1.5	19	50	25	33	3	28	20	71	13	89	M10 x 1.5 depth 22	10	22	7	M22 x 1.5	80	3/8	130	201
100	to 1500	40	37	41	19	M12 x 1.75	24	60	30	38	3	29	20	71	16	110	M12 x 1.75 depth 23	10	26	8	M26 x 1.5	100	1/2	131	202

\* Install plug bolts, which are included, in any unused mounting holes.

### Basic type (B)/C□G5BA□S $\bar{R}$ : With air cushion



### X165US inch rod option dimensional changes

Dim. Bore size	A	AL	B1	H	H1	MM	ZZ
20	14	12.7	11.0	25.4	4.0	1/4-28	108.4
25	14	12.7	12.6	28.4	4.8	5/16-24	111.4
32	21	19	17.3	41.4	6.4	7/16-20	126.4
40	19	16.6	17.3	41.4	6.4	7/16-20	134.4
50	22.4	19.8	18.8	52.6	7.9	1/2-20	161.6
63	22.4	19.8	18.8	52.6	7.9	1/2-20	161.6
80*	25.4	22.9	23.9	63.5	9.7	5/8-18	193.5
100*	31.8	29.3	27.8	69.9	10.7	3/4-16	200.9

\* 80 and 100mm-X165US are a future release.

(mm)

Bore size (mm)	Stroke range	A	AL	B1	B2	BM	BZ	C	D	E1	F1	GA	GB	H	H1	I	J	K	KA	M	MM	NA
20	to 350	18	15.5	13	7	M4 x 0.7	9	16.5	8	15	3	18	12	35	5	31	M4 x 0.7 depth 7	5	6	3	M8 x 1.25	29
25	to 400	22	19.5	17	8	M5 x 0.8	9.5	18.5	10	17	3	18	12	40	6	33	M5 x 0.8 depth 8	5.5	8	3.5	M10 x 1.25	29
32	to 450	22	19.5	17	8	M5 x 0.8	9.5	20	12	19	3	18	12	40	6	38	M5 x 0.8 depth 8	5.5	10	3.5	M10 x 1.25	35.5
40	to 800	30	27	19	10	M6 x 1.0	12	26	16	23	3	19	13	50	8	47	M6 x 1.0 depth 12	6	14	4	M14 x 1.5	44
50	to 1200	35	32	27	13	M8 x 1.25	15.5	32	20	28	3	21	14	58	11	58	M8 x 1.25 depth 16	7	18	5.5	M18 x 1.5	55
63	to 1200	35	32	27	17	M10 x 1.5	19	38	20	28	3	21	14	58	11	72	M10 x 1.5 depth 16	7	18	7	M18 x 1.5	69
80	to 1400	40	37	32	17	M10 x 1.5	19	50	25	33	3	28	20	71	13	89	M10 x 1.5 depth 22	10	22	7	M22 x 1.5	80
100	to 1500	40	37	41	19	M12 x 1.75	24	60	30	38	3	29	20	71	16	110	M12 x 1.75 depth 23	10	26	8	M26 x 1.5	100

\* Install plug bolts, which are included, in any unused mounting holes.

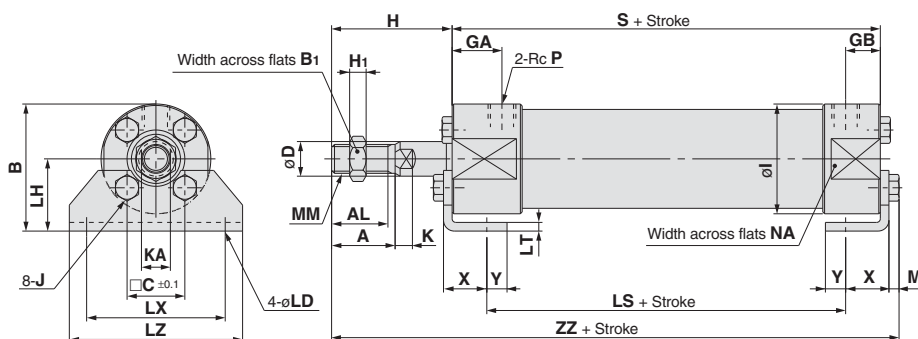
(mm)

Bore size (mm)	P	S	WA	WB	WH	Wθ	ZZ
20	M5 x 0.8	83	22	16	23	30°	118
25	M5 x 0.8	83	22	16	25	30°	123
32	1/8	85	22	16	28.5	25°	125
40	1/8	93	22	16	33	20°	143
50	1/4	109	25	18	40.5	20°	167
63	1/4	109	25	18	47.5	20°	167
80	3/8	130	30	22	60.5	20°	201
100	1/2	131	31	22	71	20°	202

# Series CG5-S

## Dimensions

### Axial foot type (L)/C□G5LN□S<sub>V</sub><sup>R</sup>



### X165US inch rod option dimensional changes

Dim. Bore size	A	AL	B1	H	H1	MM	ZZ
20	14	12.7	11.0	25.4	4.0	1/4-28	114.4
25	14	12.7	12.6	28.4	4.8	5/16-24	117.9
32	21	19	17.3	41.4	6.4	7/16-20	132.9
40	19	16.6	17.3	41.4	6.4	7/16-20	141.4
50	22.4	19.8	18.8	52.6	7.9	1/2-20	171.1
63	22.4	19.8	18.8	52.6	7.9	1/2-20	172.6
80*	25.4	22.9	23.9	63.5	9.7	5/8-18	204.5
100*	31.8	29.3	27.8	69.9	10.7	3/4-16	214.9

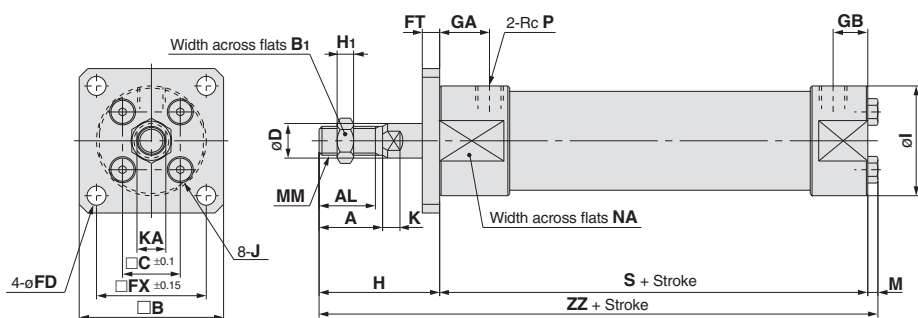
\* 80 and 100mm-X165US are a future release.

(mm)

Bore size (mm)	Stroke range	A	AL	B1	B	C	D	GA	GB	H	H1	I	J	K	KA	LD	LH	LS	LT	LX	LZ	M	MM	NA	P	S	X	Y	ZZ
20	to 350	18	15.5	13	37.5	16.5	8	18	12	35	5	31	M4 x 0.7	5	6	6	22	59	3	40	50	3	M8 x 1.25	29	1/8	83	15	7	124
25	to 400	22	19.5	17	41.5	18.5	10	18	12	40	6	33	M5 x 0.8	5.5	8	6	25	59	3	44	60	3.5	M10 x 1.25	29	1/8	83	15	7	129.5
32	to 450	22	19.5	17	44	20	12	18	12	40	6	38	M5 x 0.8	5.5	10	7.2	25	59	3	44	60	3.5	M10 x 1.25	35.5	1/8	85	16	6	131.5
40	to 800	30	27	19	53.5	26	16	19	13	50	8	47	M6 x 1.0	6	14	7.2	30	66	3	54	75	4	M14 x 1.5	44	1/8	93	16.5	6.5	150
50	to 1200	35	32	27	69	32	20	21	14	58	11	58	M8 x 1.25	7	18	10	40	74	4	66	90	5.5	M18 x 1.5	55	1/4	109	21.5	11.5	176.5
63	to 1200	35	32	27	81	38	20	21	14	58	11	72	M10 x 1.5	7	18	12	45	74	4	82	110	7	M18 x 1.5	69	1/4	109	21.5	11.5	178
80	to 1400	40	37	32	99.5	50	25	28	20	71	13	89	M10 x 1.5	10	22	12	55	82	4	100	130	7	M22 x 1.5	80	3/8	130	28	17	212
100	to 1500	40	37	41	125	60	30	29	20	71	16	110	M12 x 1.75	10	26	14	70	83	6	120	160	8	M26 x 1.5	100	1/2	131	30	15	216

\* Foot brackets and plug bolts are installed before shipment from factory.

### Front flange type (F)/C□G5FN□S<sub>V</sub><sup>R</sup>



### X165US inch rod option dimensional changes

Dim. Bore size	A	AL	B1	H	H1	MM	ZZ
20	14	12.7	11.0	25.4	4.0	1/4-28	111.4
25	14	12.7	12.6	28.4	4.8	5/16-24	114.9
32	21	19	17.3	41.4	6.4	7/16-20	129.9
40	19	16.6	17.3	41.4	6.4	7/16-20	138.4
50	22.4	19.8	18.8	52.6	7.9	1/2-20	167.1
63	22.4	19.8	18.8	52.6	7.9	1/2-20	168.6
80*	25.4	22.9	23.9	63.5	9.7	5/8-18	200.5
100*	31.8	29.3	27.8	69.9	10.7	3/4-16	208.9

\* 80 and 100mm-X165US are a future release.

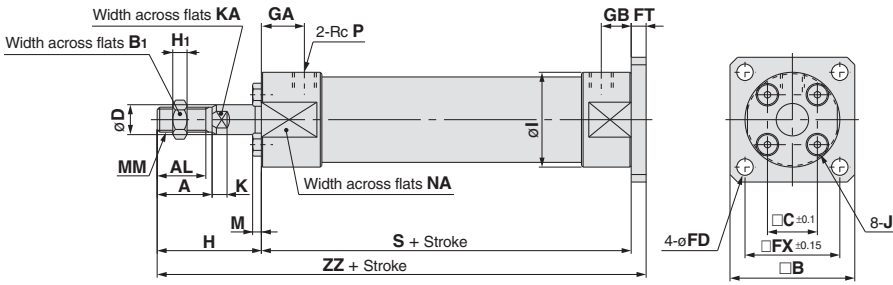
(mm)

Bore size (mm)	Stroke range	A	AL	B1	B	C	D	FX	FD	FT	GA	GB	H	H1	I	J	K	KA	M	MM	NA	P	S	ZZ
20	to 350	18	15.5	13	50	16.5	8	36	5.5	6	18	12	35	5	31	M4 x 0.7	5	6	3	M8 x 1.25	29	1/8	83	121
25	to 400	22	19.5	17	50	18.5	10	36	5.5	6	18	12	40	6	33	M5 x 0.8	5.5	8	3.5	M10 x 1.25	29	1/8	83	126.5
32	to 450	22	19.5	17	50	20	12	38	6.6	6	18	12	40	6	38	M5 x 0.8	5.5	10	3.5	M10 x 1.25	35.5	1/8	85	128.5
40	to 800	30	27	19	60	26	16	46	6.6	6	19	13	50	8	47	M6 x 1.0	6	14	4	M14 x 1.5	44	1/8	93	147
50	to 1200	35	32	27	75	32	20	58	9	9	21	14	58	11	58	M8 x 1.25	7	18	5.5	M18 x 1.5	55	1/4	109	172.5
63	to 1200	35	32	27	90	38	20	70	11	9	21	14	58	11	72	M10 x 1.5	7	18	7	M18 x 1.5	69	1/4	109	174
80	to 1400	40	37	32	100	50	25	82	11	9	28	20	71	13	89	M10 x 1.5	10	22	7	M22 x 1.5	80	3/8	130	208
100	to 1500	40	37	41	125	60	30	100	14	10	29	20	71	16	110	M12 x 1.75	10	26	8	M26 x 1.5	100	1/2	131	210

\* Foot brackets and plug bolts are installed before shipment from factory.

## Dimensions

### Rear flange type (G)/C□G5GN□S<sub>R</sub><sup>V</sup>



### X165US inch rod option dimensional changes

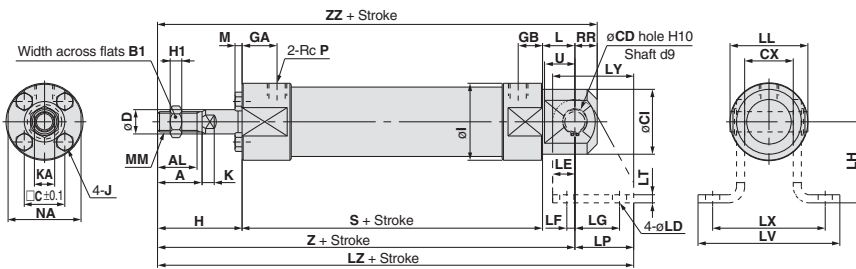
Dim. Bore size	A	AL	B1	H	H1	MM	ZZ
20	14	12.7	11.0	25.4	4.0	1/4-28	114.4
25	14	12.7	12.6	28.4	4.8	5/16-24	117.4
32	21	19	17.3	41.4	6.4	7/16-20	132.4
40	19	16.6	17.3	41.4	6.4	7/16-20	140.4
50	22.4	19.8	18.8	52.6	7.9	1/2-20	170.6
63	22.4	19.8	18.8	52.6	7.9	1/2-20	170.6
80*	25.4	22.9	23.9	63.5	9.7	5/8-18	202.5
100*	31.8	29.3	27.8	69.9	10.7	3/4-16	210.9

\* 80 and 100mm-X165US are a future release. (mm)

Bore size (mm)	Stroke range	A	AL	B1	B	C	D	FX	FD	FT	GA	GB	H	H1	I	J	K	KA	M	MM	NA	P	S	ZZ
20	to 200	18	15.5	13	50	16.5	8	36	5.5	6	18	12	35	5	31	M4 x 0.7	5	6	3	M8 x 1.25	29	1/8	83	124
25	to 300	22	19.5	17	50	18.5	10	36	5.5	6	18	12	40	6	33	M5 x 0.8	5.5	8	3.5	M10 x 1.25	29	1/8	83	129
32	to 300	22	19.5	17	50	20	12	38	6.6	6	18	12	40	6	38	M5 x 0.8	5.5	10	3.5	M10 x 1.25	35.5	1/8	85	131
40	to 500	30	27	19	60	26	16	46	6.6	6	19	13	50	8	47	M6 x 1.0	6	14	4	M14 x 1.5	44	1/8	93	149
50	to 600	35	32	27	75	32	20	58	9	9	21	14	58	11	58	M8 x 1.25	7	18	5.5	M18 x 1.5	55	1/4	109	176
63	to 600	35	32	27	90	38	20	70	11	9	21	14	58	11	72	M10 x 1.5	7	18	7	M18 x 1.5	69	1/4	109	176
80	to 750	40	37	32	100	50	25	82	11	9	28	20	71	13	89	M10 x 1.5	10	22	7	M22 x 1.5	80	3/8	130	210
100	to 750	40	37	41	125	60	30	100	14	10	29	20	71	16	110	M12 x 1.75	10	26	8	M26 x 1.5	100	1/2	131	212

\* Flange brackets and plug bolts are installed before shipment from factory.

### Integral clevis type (E)/C□G5EN□S<sub>R</sub><sup>V</sup>



### X165US inch rod option dimensional changes

Dim. Bore size	A	AL	B1	H	H1	MM	Z	ZZ	LZ
20	14	12.7	11.0	25.4	4.0	1/4-28	122.4	131.4	143.4
25	14	12.7	12.6	28.4	4.8	5/16-24	125.4	134.4	146.4
32	21	19	17.3	41.4	6.4	7/16-20	142.4	153.4	171.4
40	19	16.6	17.3	41.4	6.4	7/16-20	150.4	161.4	179.4
50	22.4	19.8	18.8	52.6	7.9	1/2-20	183.6	198.6	218.6
63	22.4	19.8	18.8	52.6	7.9	1/2-20	183.6	198.6	218.6
80*	25.4	22.9	23.9	63.5	9.7	5/8-18	225.6	248.6	282.6
100*	31.8	29.3	27.8	69.9	10.7	3/4-16	233.9	256.9	290.9

\* 80 and 100mm-X165US are a future release. (mm)

Bore size (mm)	Stroke range	A	AL	B1	C	CD (hole)	CI	CX	D	GA	GB	H	H1	I	J	K	KA	L	M	MM	NA	P
20	to 200	18	15.5	13	16.5	8 <sup>+0.058</sup> <sub>0</sub>	25	16 <sup>0</sup> <sub>-0.2</sub>	8	18	12	35	5	31	M4 x 0.7	5	6	14	3	M8 x 1.25	29	1/8
25	to 300	22	19.5	17	18.5	8 <sup>+0.058</sup> <sub>0</sub>	27	16 <sup>0</sup> <sub>-0.2</sub>	10	18	12	40	6	33	M5 x 0.8	5.5	8	14	3.5	M10 x 1.25	29	1/8
32	to 300	22	19.5	17	20	10 <sup>+0.058</sup> <sub>0</sub>	32	24 <sup>0</sup> <sub>-0.2</sub>	12	18	12	40	6	38	M5 x 0.8	5.5	10	16	3.5	M10 x 1.25	35.5	1/8
40	to 500	30	27	19	26	10 <sup>+0.058</sup> <sub>0</sub>	40	24 <sup>0</sup> <sub>-0.2</sub>	16	19	13	50	8	47	M6 x 1.0	6	14	16	4	M14 x 1.5	44	1/8
50	to 600	35	32	27	32	14 <sup>+0.070</sup> <sub>0</sub>	50	40 <sup>0</sup> <sub>-0.2</sub>	20	21	14	58	11	58	M8 x 1.25	7	18	22	5.5	M18 x 1.5	55	1/4
63	to 600	35	32	27	38	14 <sup>+0.070</sup> <sub>0</sub>	60	40 <sup>0</sup> <sub>-0.2</sub>	20	21	14	58	11	72	M10 x 1.5	7	18	22	7	M18 x 1.5	69	1/4
80	to 750	40	37	32	50	22 <sup>+0.084</sup> <sub>0</sub>	75	60 <sup>0</sup> <sub>-0.3</sub>	25	28	20	71	13	89	M10 x 1.5	10	22	33	7	M22 x 1.5	80	3/8
100	to 750	40	37	41	60	22 <sup>+0.084</sup> <sub>0</sub>	90	60 <sup>0</sup> <sub>-0.3</sub>	30	29	20	71	16	110	M12 x 1.75	10	26	33	8	M26 x 1.5	100	1/2

(mm)

Bore size (mm)	RR	S	U	Z	ZZ	Trunnion bracket	CD (shaft)	LD	LE	LF	LG	LH	LL	LP	LT	LV	LX	LY	LZ
20	9	83	13	132	141	CG-E020SUS	8 <sup>-0.040</sup> <sub>-0.076</sub>	7	9	2	14	30	27.6	21	3	56.5	42	30	153
25	9	83	13	137	146	CG-E020SUS	8 <sup>-0.040</sup> <sub>-0.076</sub>	7	9	2	14	30	27.6	21	3	56.5	42	30	158
32	11	85	15	141	152	CG-E032SUS	10 <sup>-0.040</sup> <sub>-0.076</sub>	7	11	4	22	40	38.4	29	4	70.5	56	40	170
40	11	93	15	159	170	CG-E032SUS	10 <sup>-0.040</sup> <sub>-0.076</sub>	7	11	4	22	40	38.4	29	4	70.5	56	40	188
50	15	109	21	189	204	CG-E050SUS	14 <sup>-0.050</sup> <sub>-0.093</sub>	12	15	5	25	50	59.6	35	6	106.5	84	50	224
63	15	109	21	189	204	CG-E050SUS	14 <sup>-0.050</sup> <sub>-0.093</sub>	12	15	5	25	50	59.6	35	6	106.5	84	50	224
80*	23	130	32	234	257	CG-E080SUS	22 <sup>-0.065</sup> <sub>-0.117</sub>	14	23	6	40	80	87.2	57	9	144.5	120	80	291
100*	23	131	32	235	258	CG-E080SUS	22 <sup>-0.065</sup> <sub>-0.117</sub>	14	23	6	40	80	87.2	57	9	144.5	120	80	292

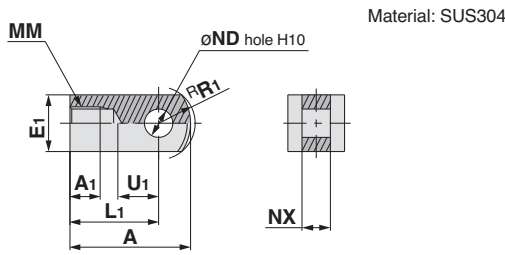
\* Plug bolts are installed before shipment from factory. \* Trunnion brackets (with clevis pin and snap ring) are optional. (Not included.)



# Series CG5-S

## Accessory Dimensions

### Single knuckle joint

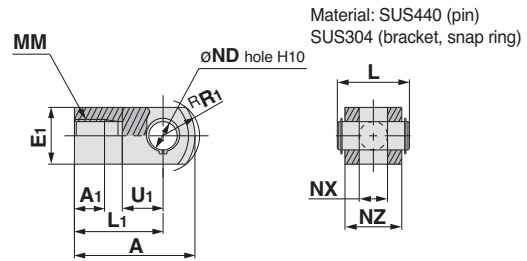


(mm)

Part no.	Applicable bore size (mm)	A	A <sub>1</sub>	E <sub>1</sub>	L <sub>1</sub>	MM	ND <sub>H10</sub>	NX	R <sub>1</sub>	U <sub>1</sub>
I-G02SUS	20	34	8.5	□16	25	M8 x 1.25	8 <sup>+0.058</sup> <sub>0</sub>	8 <sup>-0.2</sup> <sub>-0.4</sub>	10.3	11.5
I-G03SUS	25, 32	41	10.5	□20	30	M10 x 1.25	10 <sup>+0.058</sup> <sub>0</sub>	10 <sup>-0.2</sup> <sub>-0.4</sub>	12.8	14
I-G04SUS	40	42	14	□22	30	M14 x 1.5	10 <sup>+0.058</sup> <sub>0</sub>	18 <sup>-0.3</sup> <sub>-0.5</sub>	12	14
I-G05SUS	50, 63	56	18	□28	40	M18 x 1.5	14 <sup>+0.070</sup> <sub>0</sub>	22 <sup>-0.3</sup> <sub>-0.5</sub>	16	20
I-G08SUS	80	71	21	□38	50	M22 x 1.5	18 <sup>+0.070</sup> <sub>0</sub>	28 <sup>-0.3</sup> <sub>-0.5</sub>	21	27
I-G10SUS	100	79	21	□45	55	M26 x 1.5	22 <sup>+0.084</sup> <sub>0</sub>	32 <sup>-0.3</sup> <sub>-0.5</sub>	24	31

Not applicable for -X165US option

### Double knuckle joint

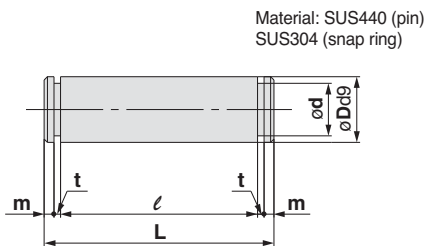


(mm)

Part no.	Applicable bore size (mm)	A	A <sub>1</sub>	E <sub>1</sub>	L	L <sub>1</sub>	MM	ND <sub>H10</sub>	NX	NZ	R <sub>1</sub>	U <sub>1</sub>	Applicable pin no.
Y-G02SUS	20	34	8.5	16	21	25	M8 x 1.25	8 <sup>+0.058</sup> <sub>0</sub>	8 <sup>+0.4</sup> <sub>+0.2</sub>	16	10.3	11.5	IY-G02SUS
Y-G03SUS	25, 32	41	10.5	20	25.6	30	M10 x 1.25	10 <sup>+0.058</sup> <sub>0</sub>	10 <sup>+0.4</sup> <sub>+0.2</sub>	20	12.8	14	IY-G03SUS
Y-G04SUS	40	42	16	22	41.6	30	M14 x 1.5	10 <sup>+0.058</sup> <sub>0</sub>	18 <sup>+0.5</sup> <sub>+0.3</sub>	36	12	14	IY-G04SUS
Y-G05SUS	50, 63	56	20	25	50.6	40	M18 x 1.5	14 <sup>+0.070</sup> <sub>0</sub>	22 <sup>+0.5</sup> <sub>+0.3</sub>	44	16	20	IY-G05SUS
Y-G08SUS	80	71	23	35	64	50	M22 x 1.5	18 <sup>+0.070</sup> <sub>0</sub>	28 <sup>+0.5</sup> <sub>+0.3</sub>	56	21	27	IY-G08SUS
Y-G10SUS	100	79	24	40	72	55	M26 x 1.5	22 <sup>+0.084</sup> <sub>0</sub>	32 <sup>+0.5</sup> <sub>+0.3</sub>	64	24	31	IY-G10SUS

Not applicable for -X165US option

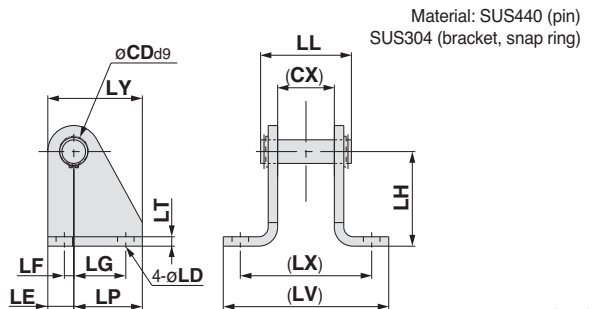
### Knuckle joint pin



(mm)

Part no.	Applicable bore size (mm)	Dd9	d	L	l	m	t	Snap ring
IY-G02SUS	20	8 <sup>-0.040</sup> <sub>-0.076</sub>	7.6	21	16.2	1.5	0.9	C type 8 for shaft
IY-G03SUS	25, 32	10 <sup>-0.040</sup> <sub>-0.076</sub>	9.6	25.6	20.2	1.55	1.15	C type 10 for shaft
IY-G04SUS	40	10 <sup>-0.040</sup> <sub>-0.076</sub>	9.6	41.6	36.2	1.55	1.15	C type 10 for shaft
IY-G05SUS	50, 63	14 <sup>-0.050</sup> <sub>-0.093</sub>	13.4	50.6	44.2	2.05	1.15	C type 14 for shaft
IY-G08SUS	80	18 <sup>-0.050</sup> <sub>-0.093</sub>	17	64	56.2	2.55	1.35	C type 18 for shaft
IY-G10SUS	100	22 <sup>-0.065</sup> <sub>-0.117</sub>	21	72	64.2	2.55	1.35	C type 22 for shaft

### Trunnion bracket



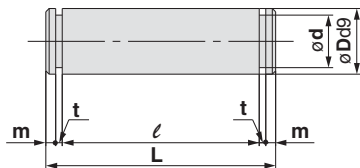
(mm)

Part no.	Applicable bore size (mm)	CD (snap ring)	CX	LD	LE	LF	LG	LH	LL	LP	LT	LV	LX	LY
CG-E020SUS	20, 25	8 <sup>-0.040</sup> <sub>-0.076</sub>	16	7	9	2	14	30	27.6	21	3	56.5	42	30
CG-E032SUS	32, 40	10 <sup>-0.040</sup> <sub>-0.076</sub>	24	7	11	4	22	40	38.4	29	4	70.5	56	40
CG-E050SUS	50, 63	14 <sup>-0.050</sup> <sub>-0.093</sub>	40	12	15	5	25	50	59.6	35	6	106.5	84	50
CG-E080SUS	80, 100	22 <sup>-0.065</sup> <sub>-0.117</sub>	60	14	23	6	40	80	87.2	57	9	144.5	120	80

## Accessory Dimensions

### Clevis pin

Material: SUS440 (pin)  
SUS304 (snap ring)

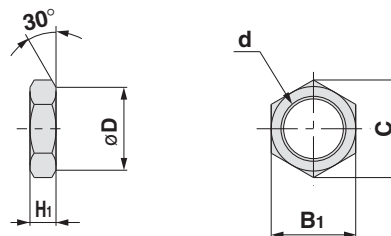


(mm)

Part no.	Applicable bore size (mm)	Dd9	d	L	l	m	t	Snap ring
CD-E02SUS	20, 25	ø8 <sup>-0.040</sup> / <sub>-0.076</sub>	7.6	27.6	22.8	1.5	0.9	C type 8 for shaft
CD-E03SUS	32, 40	ø10 <sup>-0.040</sup> / <sub>-0.076</sub>	9.6	38.4	33	1.55	1.15	C type 10 for shaft
CD-E05SUS	50, 63	ø14 <sup>-0.050</sup> / <sub>-0.093</sub>	13.4	59.6	53.2	2.05	1.15	C type 14 for shaft
CD-E08SUS	80, 100	ø22 <sup>-0.065</sup> / <sub>-0.117</sub>	21	87.2	79.4	2.55	1.35	C type 22 for shaft

### Rod end nut

Material: SUS304



(mm)

**Metric**

Part no.	Applicable bore size (mm)	B <sub>1</sub>	C	D	d	H <sub>1</sub>
NT-02SUS	20	13	(15)	12.5	M8 x 1.25	5
NT-03SUS	25, 32	17	(19.6)	16.5	M10 x 1.25	6
NT-G04SUS	40	19	(21.9)	18	M14 x 1.5	8
NT-05SUS	50, 63	27	(31.2)	26	M18 x 1.5	11
NT-08SUS	80	32	(37.0)	31	M22 x 1.5	13
NT-10SUS	100	41	(47.3)	39	M26 x 1.5	16

(mm)

**Inch (for X165US option cylinders)**

Part no.	Applicable bore size (mm)	B <sub>1</sub>	C	d	H <sub>1</sub>
JM-025-SUS	20	11.0	12.4	1/4 -28	4.0
JM-03-SUS	25	12.6	14.2	5/16 -24	4.8
JM-045-SUS	32, 40	17.3	19.6	7/16 -20	6.4
JM-05-SUS	50, 63	18.8	21.4	1/2 -20	7.9
JM-08-SUS	80	23.9	27.4	5/8 -18	9.7
JM-10-SUS	100	28.7	33	3/4 -16	10.7



# Series CJ5-S/CG5-S Auto Switch Specifications

## Auto Switch Common Specifications

Type	Solid State Switch
Operating time	1 ms or less
Impact resistance	1000m/s <sup>2</sup>
Insulation resistance	50MΩ or more at 500VDC (between lead wire and case)
Withstand voltage	1000VAC for 1 min. (between lead wire and case)
Ambient temperature	-10 to 60°C
Enclosure	IEC529 standard IP67, JISC0920 watertight construction

## Lead Wire Length

The standard lead wire length for water resistant 2 color indication solid state auto switches is 3 meters. (0.5m and 1.0m is available on switches with the wired connector.)

For solid state switches with flexible specification, enter "-61" after the lead wire length.

(Example) D-H7BA- 61

Flexible specification

## Lead Wire Color Changes

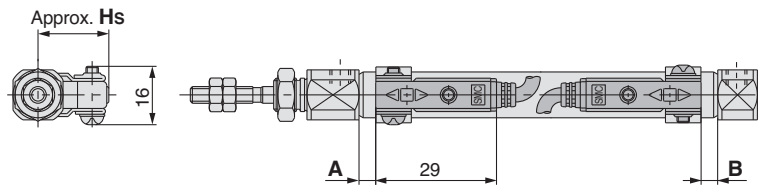
### 2 wire

	Old	New
Output (+)	Red	Brown
Output (-)	Black	Blue

Lead wire colors of SMC switches have been changed as shown below in order to meet NECA Standard 0402 for production beginning September, 1996 and thereafter. Special care should be taken regarding wire polarity during the time that the old colors still coexist with the new colors.

## Auto Switch Mounting Positions and Minimum Mountable Strokes

### D-H7BA



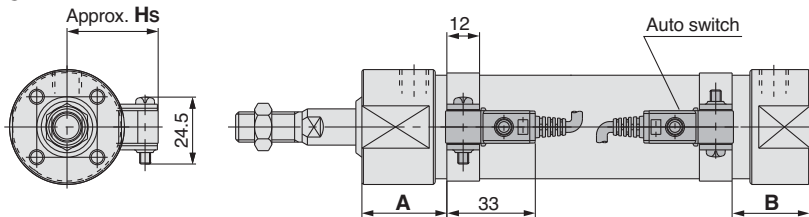
### Minimum strokes for auto switch mounting

Mounting bracket	Basic type, Foot type, Flange type, Clevis type		
Number of switches	1 pc. (Rod cover side)	2 pcs. (Different sides)	2 pcs. (Same side)
Mounting surface	Port surface	Port surface	Port surface
Switch type			
Minimum stroke (mm)	10	15	60

### Auto switch mounting positions

Applicable bore size (mm)	Auto switch model		
	D-H7BA		
	A	B	HS
10	0	0	17
16	0.5	0.5	20.5

### D-G5BA



### Minimum strokes for auto switch mounting

Mounting bracket	Basic type, Foot type, Flange type, Clevis type		
Number of switches	1 pc. (Rod cover side)	2 pcs. (Different sides)	2 pcs. (Same side)
Mounting surface	Port surface	Port surface	Port surface
Switch type			
Minimum stroke (mm)	10	15	75

### Auto switch mounting position

Applicable bore size (mm)	Auto switch model		
	D-G5BA		
	A	B	HS
20	31.5	24	26
25	31.5	24	28.5
32	32.5	25	33
40	37	28	36.5
50	45.5	36	42
63	45.5	36	48.5
80	56	46	57.5
100	57	46	68