

Series CG1

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)							
	20	25	32	40	50	63	80	100
Axial foot ⁽¹⁾	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100
Flange	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100
Trunnion pin	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	—	—
Clevis ⁽²⁾	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063	CG-D080	CG-D100
Pivot bracket	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	CG-080-24A	CG-100-24A

Note 1) Order two foot brackets per cylinder.

Note 2) Clevis pin, snap ring and mounting bolt are shipped together with clevis style.

Note 3) Mounting bolts are shipped together for foot style and flange style.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
D-C7/C8	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050	BMA2-063	—	—
D-H7								
D-B5/B6	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06	BA-08	BA-10
D-G5/K5								

* Mounting screws set made of stainless steel

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

(A switch mounting band is not included, so please order it separately.)

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

BBA4: For D-C7/C8/H7

- D-G5BAL and D-H7BAL switches are set on the cylinder with the stainless steel screws above when shipped. When a switch only is shipped, BBA3 or BBA4 screws are attached.

Weight

Bore size (mm)		20	25	32	40	50	63	80	100
Basic weight	Basic style	0.10	0.17	0.26	0.41	0.77	1.07	2.04	3.17
	Axial foot style	0.21	0.30	0.42	0.63	1.25	1.79	3.00	4.92
	Flange style	0.18	0.27	0.40	0.61	1.11	1.57	2.75	4.52
	Trunnion style	0.11	0.19	0.29	0.46	0.91	1.21	—	—
	Clevis style	0.15	0.25	0.41	0.64	1.17	1.75	2.75	4.45
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
Additional weight with air cushion		0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03
Additional weight for long stroke		0.01	0.01	0.02	0.03	0.06	0.10	0.19	0.26

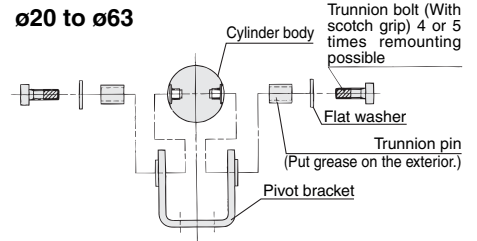
Calculation: (Example) CG1LA20-100
(Foot style, ø20, 100 st)

- Basic weight.....0.21 (Foot, ø20)
 - Additional weight.....0.05/50 stroke
 - Cylinder stroke.....100 stroke
 - Additional weight by air cushion.....0.01 kg
- 0.21 + 0.05 x 100/50 + 0.01 = 0.32 kg

Mounting Procedure

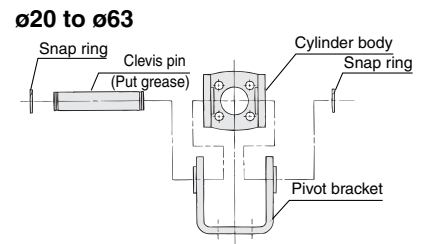
Mounting procedure for trunnion

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

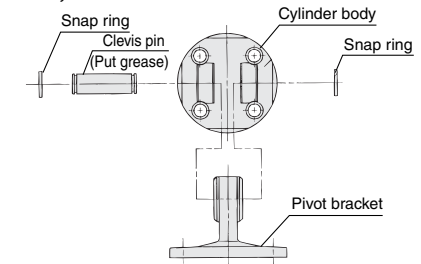


Mounting procedure for clevis

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



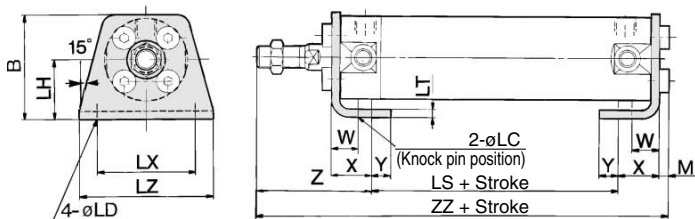
ø80, ø100



Air Cylinder: Standard Type Double Acting, Single Rod **Series CG1**

With Mounting Bracket

Axial foot style: CG1LN



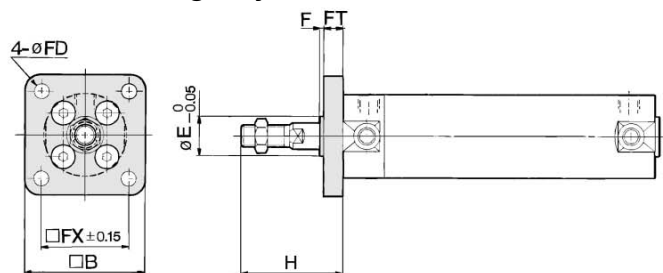
Axial Foot Style

Bore size (mm)	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	Z		ZZ	
													Without rod boot	With rod boot	Without rod boot	With rod boot
20	34	4	6	20	45(53)	3	32	44	3	10	15	7	47	67 + l	110(118)	130(138) + l
25	38.5	4	6	22	45(53)	3	36	49	3.5	10	15	7	52	74 + l	115.5(123.5)	137.5(145.5) + l
32	45	4	7	25	45(53)	3	44	58	3.5	10	16	8	53	75 + l	117.5(125.5)	139.5(147.5) + l
40	54.5	4	7	30	51(60)	3	54	71	4	10	16.5	8.5	63.5	83.5 + l	135(144)	155(164) + l
50	70.5	5	10	40	55(67)	4.5	66	86	5	17.5	22	11	75.5	95.5 + l	157.5(169.5)	177.5(189.5) + l
63	82.5	5	12	45	55(67)	4.5	82	106	5	17.5	22	13	75.5	95.5 + l	157.5(169.5)	177.5(189.5) + l
80	101	6	11	55	60(74)	4.5	100	125	5	20	28.5	14	95	104 + l	188.5(202.5)	197.5(211.5) + l
100	121	6	14	65	60(74)	6	120	150	7	20	30	16	95	104 + l	192(206)	201(215) + l

Note) (): Denotes the dimensions for long stroke.

* Other dimensions are the same as basic style.

Rod side frange style: CG1FN



Flange Style

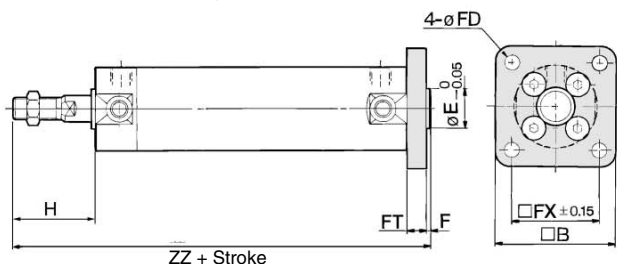
Bore size (mm)	Stroke range		B	E	F	FX	FD	FT	H	Head side flange ZZ	
	Rod side	Head side								Without rod boot	With rod boot
20	Up to 350	Up to 200	40	12	2	28	5.5	6	35	112	132 + l
25	Up to 400	Up to 300	44	14	2	32	5.5	7	40	118	140 + l
32	Up to 450	Up to 300	53	18	2	38	6.6	7	40	120	142 + l
40	Up to 800	Up to 500	61	25	2	46	6.6	8	50	138(147)	158(167) + l
50	Up to 1200	Up to 600	76	30	2	58	9	9	58	159(171)	179(191) + l
63	Up to 1200	Up to 600	92	32	2	70	11	9	58	159(171)	179(191) + l
80	Up to 1400	Up to 750	104	40	3	82	11	11	71	193(207)	202(216) + l
100	Up to 1500	Up to 750	128	50	3	100	14	14	71	196(210)	202(219) + l

Note) (): Denotes the dimensions for long stroke.

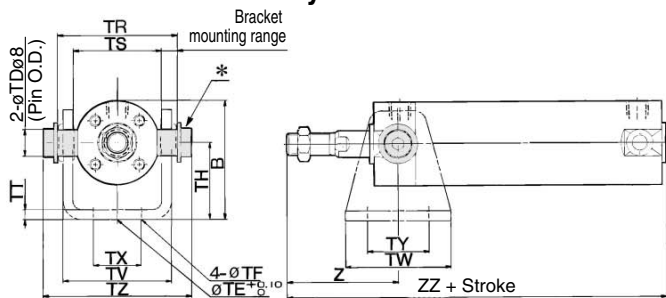
End boss is machined on the flange for øE.

* Other dimensions are the same as basic style.

Head side frange style: CG1GN



Rod side trunnion style: CG1UN



Trunnion Style

Bore size (mm)	Stroke range		B	TDe8	TE	TF	TH	TR	TS	TT	TV
	Rod side	Head side									
20	Up to 200	Up to 200	38	8 ^{-0.025} _{-0.047}	10	5.5	25	39	28	3.2	(35.8)
25	Up to 300	Up to 300	45.5	10 ^{-0.025} _{-0.047}	10	5.5	30	43	33	3.2	(39.8)
32	Up to 300	Up to 300	54	12 ^{-0.032} _{-0.059}	10	6.6	35	54.5	40	4.5	(49.4)
40	Up to 500	Up to 500	63.5	14 ^{-0.032} _{-0.059}	10	6.6	40	65.5	49	4.5	(58.4)
50	Up to 600	Up to 600	79	16 ^{-0.032} _{-0.059}	20	9	50	80	60	6	(72.4)
63	Up to 600	Up to 600	96	18 ^{-0.032} _{-0.059}	20	11	60	98	74	8	(90.4)

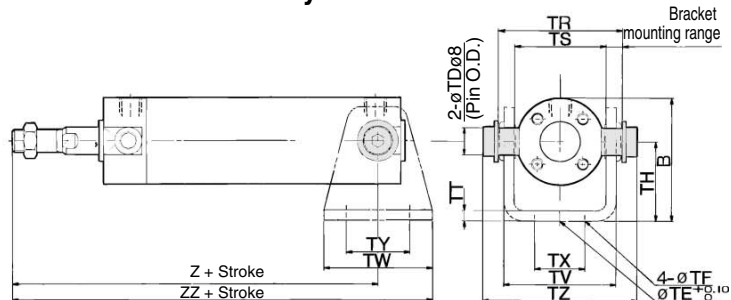
Bore size (mm)	TW	TX	TY	TZ	Rod side Z		Head side Z		ZZ	
					Without rod boot	With rod boot	Without rod boot	With rod boot	Without rod boot	With rod boot
20	42	16	28	47.6	46	66 + l	93	113 + l	114	134 + l
25	42	20	28	53	51	73 + l	98	120 + l	119	141 + l
32	48	22	28	67.7	51	73 + l	101	123 + l	125	147 + l
40	56	30	30	78.7	62	82 + l	118(125)	138(145) + l	146(153)	166(173) + l
50	64	36	36	98.6	71	91 + l	136(147)	156(167) + l	168(179)	188(199) + l
63	74	46	46	119.2	71	91 + l	136(147)	156(167) + l	173(184)	193(204) + l

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

Note) (): Denotes the dimensions for long stroke. Refer to page 6-5-12 for pivot bracket.

* Other dimensions are the same as basic style.

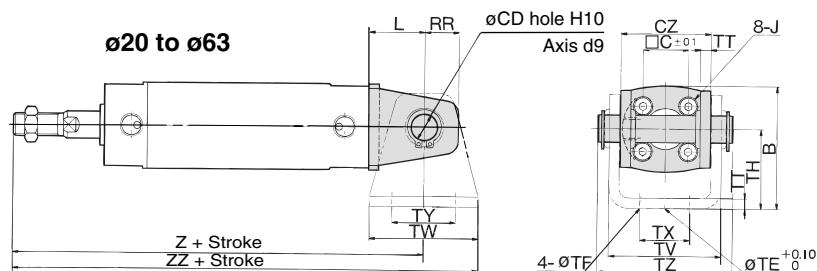
Head side trunnion style: CG1TN



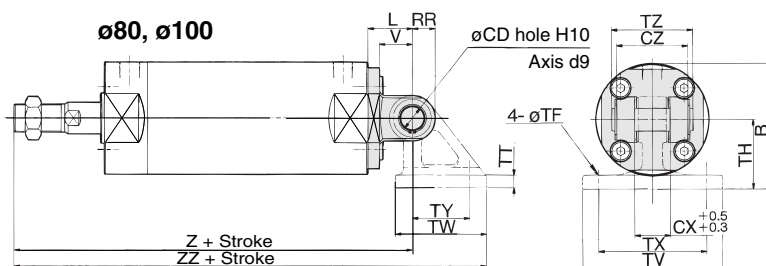
Series CG1

With Mounting Bracket

Clevis style: CG1DN



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



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

Clevis Style

Bore size (mm)	Stroke range (mm)	B	CD	CX	CZ	L	RR	V	TE	TF	TH	TT	TV	TW	TX	TY	TZ	Z	ZZ	With rod boot		Applicable pin part no.
																				Z	ZZ	
20	Up to 200	38	8	—	29	14	11	—	10	5.5	25	3.2	35.8	42	16	28	43.4	118	139	138 + l	159 + l	CD-G02
25	Up to 300	45.5	10	—	33	16	13	—	10	5.5	30	3.2	39.8	42	20	28	48	125	146	147 + l	168 + l	CD-G25
32	Up to 300	54	12	—	40	20	15	—	10	6.6	35	4.5	49.4	48	22	28	59.4	131	155	153 + l	177 + l	CD-G03
40	Up to 500	63.5	14	—	49	22	18	—	10	6.6	40	4.5	58.4	56	30	30	71.4	150 (159)	178 (187)	170 + l (179 + l)	198 + l (207 + l)	CD-G04
50	Up to 600	79	16	—	60	25	20	—	20	9	50	6	72.4	64	36	36	86	173 (185)	205 (217)	193 + l (205 + l)	225 + l (237 + l)	CD-G05
63	Up to 600	96	18	—	74	30	22	—	20	11	60	8	90.4	74	46	46	105.4	178 (190)	215 (227)	198 + l (210 + l)	235 + l (247 + l)	CD-G06
80	Up to 750	99.5	18	28	56	35	18	26	—	11	55	11	110	72	85	45	64	214 (228)	272.5 (286.5)	223 + l (237 + l)	281.5 + l (295.5 + l)	IY-G08
100	Up to 750	120	22	32	64	43	22	32	—	13.5	65	12	130	93	100	60	72	222 (236)	298.5 (312.5)	231 + l (245 + l)	307.5 + l (321.5 + l)	IY-G10

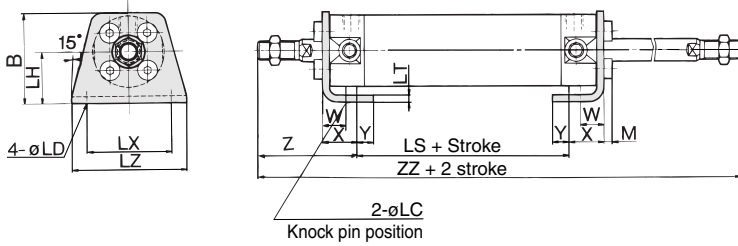
Note) (): Denotes the dimensions for long stroke.

* Refer to page 6-5-12 for pivot bracket.

* Other dimensions are the same as basic style.

With Mounting Bracket

Axial foot style: CG1WLN

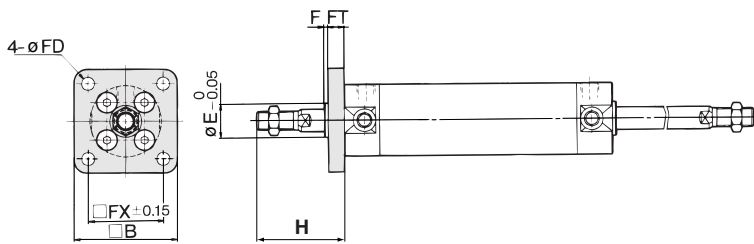


Foot Style

Bore size (mm)	Stroke range (mm)	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	Z
20	Up to 350	34	4	6	20	53	3	32	44	3	10	15	7	47
25	Up to 400	38.5	4	6	22	53	3	36	49	3.5	10	15	7	52
32	Up to 450	45	4	7	25	53	3	44	58	3.5	10	16	8	53
40	Up to 800	54.5	4	7	30	60	3	54	71	4	10	16.5	8.5	63.5
50	Up to 1200	70.5	5	10	40	67	4.5	66	86	5	17.5	22	11	75.5
63	Up to 1200	82.5	5	12	45	67	4.5	82	106	5	17.5	22	13	75.5
80	Up to 1400	101	6	11	55	74	4.5	100	125	5	20	28.5	14	95
100	Up to 1500	121	6	14	65	74	6	120	150	7	20	30	16	95

* Other dimensions are the same as basic style.

Rod side flange style: CG1WFN



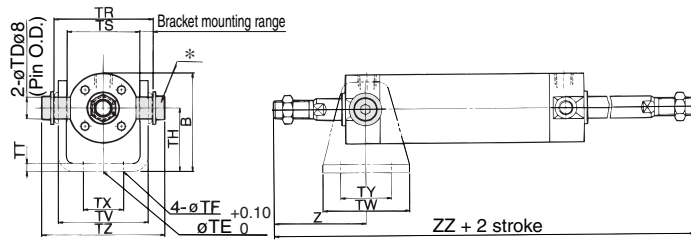
Rod Side Flange Style

Bore size (mm)	Stroke range (mm)	B	E	F	FX	FD	FT	H
20	Up to 350	40	12	2	28	5.5	6	35
25	Up to 400	44	14	2	32	5.5	7	40
32	Up to 450	53	18	2	38	6.6	7	40
40	Up to 800	61	25	2	46	6.6	8	50
50	Up to 1200	76	30	2	58	9	9	58
63	Up to 1200	92	32	2	70	11	9	58
80	Up to 1400	104	40	3	82	11	11	71
100	Up to 1500	128	50	3	100	14	14	71

* End boss is machined on the flange for øE.

* Other dimensions are the same as basic style.

Rod side trunnion style: CG1WUN



Rod Side Trunnion Style

Bore size (mm)	Stroke range (mm)	B	TDe8	TE	TF	TH	TR	TS
20	Up to 200	38	8 ^{-0.025/-0.047}	10	5.5	25	39	28
25	Up to 300	45.5	10 ^{-0.025/-0.047}	10	5.5	30	43	33
32	Up to 300	54	12 ^{-0.032/-0.059}	10	6.6	35	54.5	40
40	Up to 500	63.5	14 ^{-0.032/-0.059}	10	6.6	40	65.5	49
50	Up to 600	79	16 ^{-0.032/-0.059}	20	9	50	80	60
63	Up to 600	96	18 ^{-0.032/-0.059}	20	11	60	98	74

Bore size (mm)	TT	TV	TW	TX	TY	TZ	Z	
							Without rod boot	With rod boot
20	3.2	(35.8)	42	16	28	47.6	46	66 + ℓ
25	3.2	(39.8)	42	20	28	53	51	73 + ℓ
32	4.5	(49.4)	48	22	28	67.7	51	73 + ℓ
40	4.5	(58.4)	56	30	30	78.7	62	82 + ℓ
50	6	(72.4)	64	36	36	98.6	71	91 + ℓ
63	8	(90.4)	74	46	46	119.2	71	91 + ℓ

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

* Other dimensions are the same as basic style.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)							
	20	25	32	40	50	63	80	100
Axial foot *	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100
Flange	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100
Trunnion pin	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	—	—
Pivot bracket	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	—	—

* Order two foot brackets per cylinder.

** Mounting bolts are shipped together for foot style and flange style.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
D-C7/C8	BMA2	BMA2	BMA2	BMA2	BMA2	BMA2	—	—
D-H7	-020	-025	-032	-040	-050	-063	—	—
D-B5/B6	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06	BA-08	BA-10
D-G5/K5								



* Mounting screws set made of stainless steel

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

(A switch mounting band is not included, so please order it separately.)

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

BBA4: For D-C7/C8/H7

• D-G5BAL and D-H7BAL switches are set on the cylinder with the stainless steel screws above when shipped.

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

Air Cylinder: Standard Type

Single Acting, Single Rod, Spring Return/Extend **Series CG1**

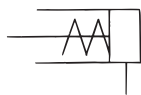


Specifications

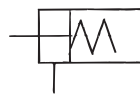
Action	Single acting, Spring return	Single acting, Spring extend
Bore size (mm)	20, 25, 32, 40	
Type	Non-lube	
Fluid	Air	
Proof pressure	1.5 MPa	
Maximum operating pressure	1.0 MPa	
Minimum operating pressure	0.18 MPa	0.23 MPa
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)	
Piston speed	50 to 1000 mm/s	
Stroke length tolerance	Up to 200 ^{st+1.4} _o mm	
Thread tolerance	JIS Class 2	
Cushion	Rubber bumper	
Mounting	Basic style, Axial foot style, Rod side flange style, Head side flange style, Rod side trunnion style, Head side trunnion style, Clevis style (Used for changing the port location by 90°.)	

JIS Symbol

Spring return



Spring extend



Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XC6	Piston rod and rod end nut made of stainless steel
-XC18	NPT finish piping port
-XC20	Head cover axial port

Accessory

Mounting		Basic style	Axial foot style	Rod side flange style	Head side flange style	Rod side trunnion style	Head side trunnion style	Clevis style
Standard equipment	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	—	●
Option	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint* (With pin)	●	●	●	●	●	●	●
	Pivot bracket	—	—	—	—	●	●	●

* Pin and snap ring are shipped together with double knuckle joint.

Standard Stroke

Bore size (mm)	Standard stroke (mm) ^{Note)}
20	25, 50, 75, 100, 125
25, 32, 40	25, 50, 75, 100, 125, 150, 200

Note) Intermediate strokes other than the above are produced upon receipt of order. Spacers are not used for intermediate strokes.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)			
	20	25	32	40
Axial foot *	CG-L020	CG-L025	CG-L032	CG-L040
Flange	CG-F020	CG-F025	CG-F032	CG-F040
Trunnion pin	CG-T020	CG-T025	CG-T032	CG-T040
Clevis *	CG-D020	CG-D025	CG-D032	CG-D040
Pivot bracket	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A

* Order two foot brackets per cylinder.

** Mounting bolt is shipped together with foot style and flange style, and clevis pin, snap ring and mounting bolt with clevis style.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8	BMA2-020	BMA2-025	BMA2-032	BMA2-040
D-H7				
D-B5/B6	BA-01	BA-02	BA-32	BA-04
D-G5				



* Mounting screws set made of stainless steel

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

(A switch mounting band is not included, so please order it separately.)

BBA3: For D-B5/B6/G5

BBA4: For D-C7/C8/H7

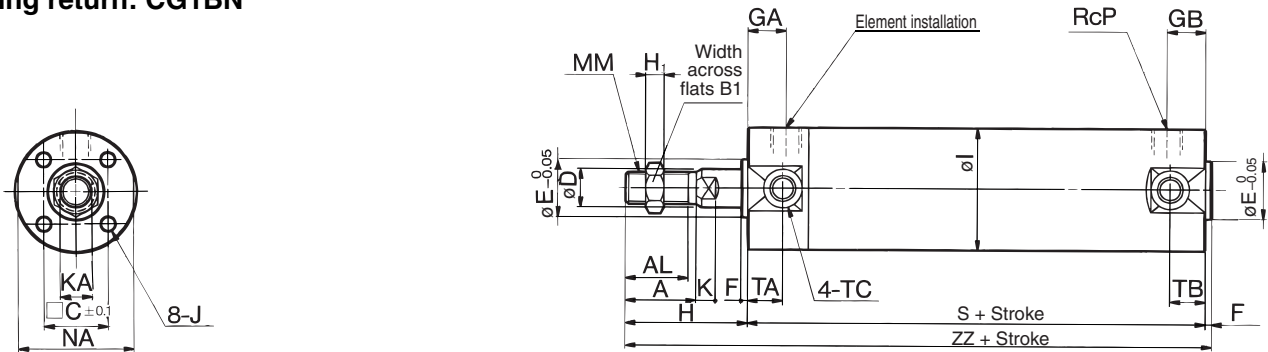
• D-G5BAL and D-H7BAL switches are set on the cylinder with the stainless steel screws above when shipped.

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

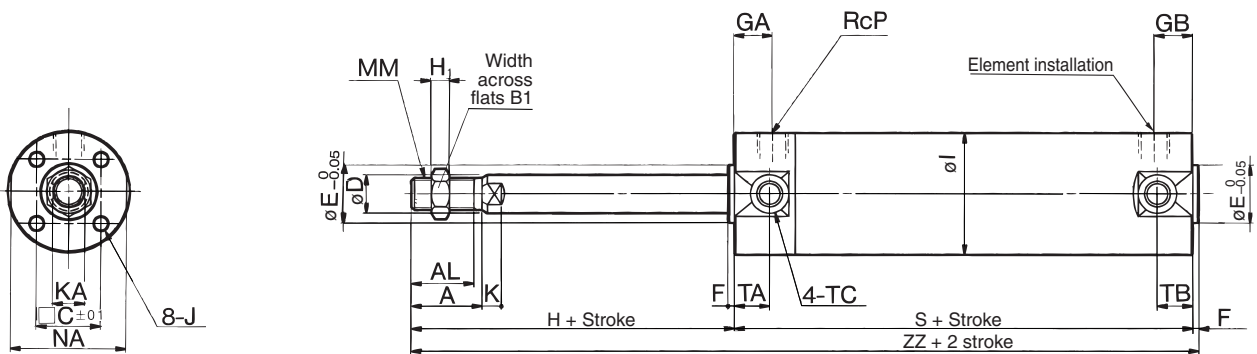
Series CG1

Basic Style

Spring return: CG1BN



Spring extend: CG1BN



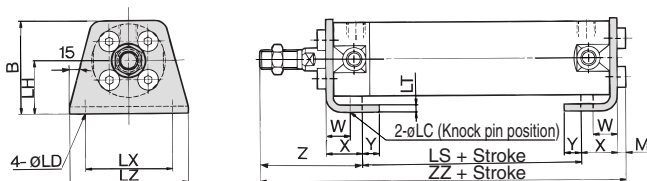
Bore size (mm)	Stroke range (mm)	A	AL	B1	C	D	E	F	GA	GB	H	H1	I	J	K	KA	MM	NA	P
20	Up to 125	18	15.5	13	14	8	12	2	12	10	35	5	26	M4 x 0.7 depth 7	5	6	M8 x 1.25	24	1/8
25	Up to 200	22	19.5	17	16.5	10	14	2	12	10	40	6	31	M5 x 0.8 depth 7.5	5.5	8	M10 x 1.25	29	1/8
32	Up to 200	22	19.5	17	20	12	18	2	12	10	40	6	38	M5 x 0.8 depth 8	5.5	10	M10 x 1.25	35.5	1/8
40	Up to 200	30	27	19	26	16	25	2	13	10	50	8	47	M6 x 1 depth 12	6	14	M14 x 1.5	44	1/8

Bore size (mm)	TA	TB	TC	1 to 50 st		51 to 100 st		101 to 125 st		126 to 200 st	
				S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	11	11	M5 x 0.8	94	131	119	156	144	181	—	—
25	11	11	M6 x 0.75	94	136	119	161	144	186	169	211
32	11	10	M8 x 1.0	96	138	121	163	146	188	171	213
40	12	10	M10 x 1.25	103	155	128	180	153	205	178	230

With Mounting Bracket

Note) The drawing below shows the single acting/spring return style. The rod is in retracted state for spring extend type.

Axial foot style: CG1LN



Axial Foot Style

Bore size (mm)	Stroke range (mm)	B	M	LC	LD	LH	LT	LX	LZ	W	X	Y	Z
20	Up to 125	34	3	4	6	20	3	32	44	10	15	7	47
25	Up to 200	38.5	3.5	4	6	22	3	36	49	10	15	7	52
32	Up to 200	45	3.5	4	7	25	3	44	58	10	16	8	53
40	Up to 200	54.5	4	4	7	30	3	54	71	10	16.5	8.5	63.5

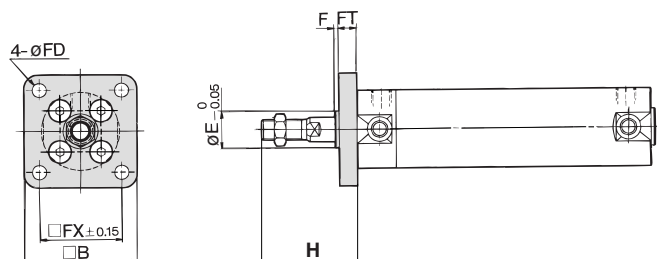
Bore size (mm)	1 to 50 st	51 to 100 st	101 to 125 st	126 to 200 st	1 to 50 st		51 to 100 st		101 to 125 st		126 to 200 st	
					LS	ZZ	LS	ZZ	LS	ZZ	LS	ZZ
20	70	135	95	160	120	185	—	—	—	—	—	—
25	70	140.5	95	165.5	120	190.5	145	215.5	—	—	—	—
32	70	142.5	95	167.5	120	192.5	145	217.5	—	—	—	—
40	76	160	101	185	126	210	151	235	—	—	—	—

* Other dimensions are the same as basic style.

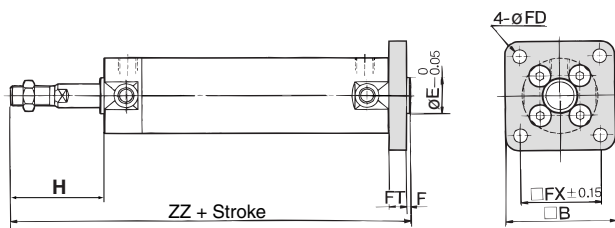
Air Cylinder: Standard Type Single Acting, Single Rod, Spring Return/Extend **Series CG1**

With Mounting Bracket

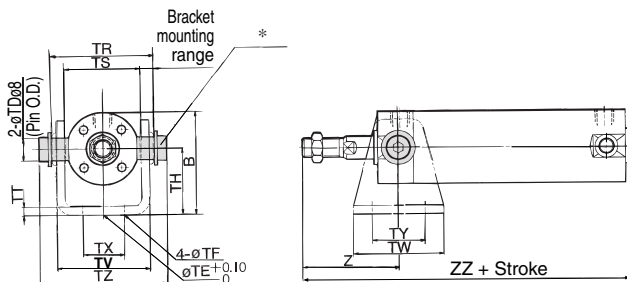
Rod side flange style: CG1FN



Head side flange style: CG1GN

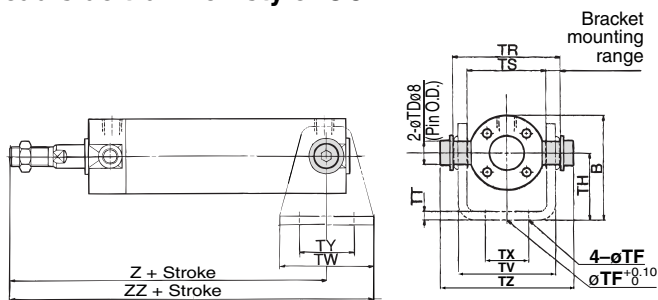


Rod side trunnion style: CG1UN

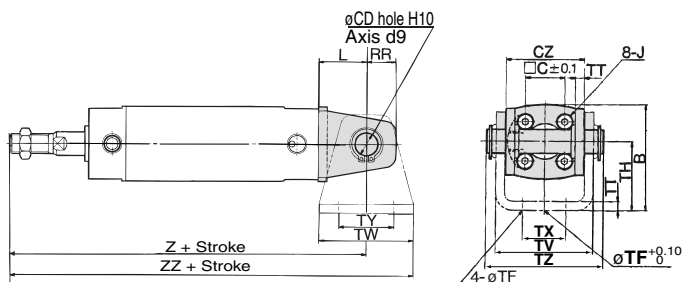


* Clevis pin and snap ring are shipped together.

Head side trunnion style: CG1TN



Clevis style: CG1DN



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

Bore size (mm)	Stroke range (mm)	B	E	F	FX	FD	FT	H
20	Up to 125	40	12	2	28	5.5	6	35
25	Up to 200	44	14	2	32	5.5	7	40
32	Up to 200	53	18	2	38	6.6	7	40
40	Up to 200	61	25	2	46	6.6	8	50

* End boss is machined on the flange for øE.

* Other dimensions are the same as basic style.

Rod Side Flange Style

Bore size (mm)	ZZ			
	1 to 50 st	51 to 100 st	101 to 125 st	126 to 200 st
20	131	156	181	—
25	136	161	186	211
32	138	163	188	213
40	155	180	205	230

Head Side Flange Style

Bore size (mm)	ZZ			
	1 to 50 st	51 to 100 st	101 to 125 st	126 to 200 st
20	137	162	187	—
25	143	168	193	218
32	145	170	195	220
40	163	188	213	238

Bore size (mm)	Stroke range (mm)	B	TDe8	TE	TF	TH	TR	TS	TT	TV	TW	TX	TY	TZ
20	Up to 125	38	8 ^{-0.025} _{-0.047}	10	5.5	25	39	28	3.2	(35.8)	42	16	28	47.6
25	Up to 200	45.5	10 ^{-0.025} _{-0.047}	10	5.5	30	43	33	3.2	(39.8)	42	20	28	53
32	Up to 200	54	12 ^{-0.032} _{-0.059}	10	6.6	35	54.5	40	4.5	(49.4)	48	22	28	67.7
40	Up to 200	63.5	14 ^{-0.032} _{-0.059}	10	6.6	40	65.5	49	4.5	(58.4)	56	30	30	78.7

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

* Other dimensions are the same as basic style.

Rod Side Trunnion Style

Bore size (mm)	Z	ZZ			
		1 to 50 st	51 to 100 st	101 to 125 st	126 to 200 st
20	46	131	156	181	—
25	51	136	161	186	211
32	51	138	163	188	213
40	62	155	180	205	230

Head Side Trunnion Style

Bore size (mm)	1 to 50 st		51 to 100 st		101 to 125 st		126 to 200 st	
	Z	ZZ	Z	ZZ	Z	ZZ	Z	ZZ
20	118	139	143	164	168	189	—	—
25	123	144	148	169	173	194	198	219
32	126	150	151	175	176	200	201	225
40	143	171	168	196	193	221	218	246

Clevis Style

Bore size (mm)	Stroke range (mm)	B	CD	CZ	L	RR	TE	TF	H	TT	TV
20	Up to 125	38	8	29	14	11	10	5.5	25	3.2	(35.8)
25	Up to 200	45.5	10	33	16	13	10	5.5	30	3.2	(39.8)
32	Up to 200	54	12	40	20	15	10	6.6	35	4.5	(49.4)
40	Up to 200	63.5	14	49	22	18	10	6.6	40	4.5	(58.4)

Bore size (mm)	TW	TX	TY	TZ	1 to 50 st		51 to 100 st		101 to 125 st		126 to 200 st	
					Z	ZZ	Z	ZZ	Z	ZZ	Z	ZZ
20	42	16	28	43.4	143	164	168	189	193	214	—	—
25	42	20	28	48	150	171	175	196	200	221	225	246
32	48	22	28	59.4	156	180	181	205	206	230	231	255
40	56	30	30	71.4	175	200	200	228	225	253	250	278

* For dimensions of pivot bracket, refer to page 6-5-12.

* Other dimensions are the same as basic style.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data

Series CG1K

Weight

(kg)

Bore size (mm)		20	25	32	40	50	63
Basic weight	Basic style	0.10	0.17	0.26	0.41	0.77	1.07
	Axial foot style	0.21	0.30	0.42	0.63	1.25	1.79
	Flange style	0.18	0.27	0.40	0.61	1.11	1.57
	Trunnion style	0.11	0.19	0.29	0.46	0.91	1.21
	Clevis style	0.15	0.25	0.41	0.64	1.17	1.75
Pivot bracket		0.08	0.09	0.17	0.25	0.44	0.80
Single knuckle joint		0.05	0.09	0.09	0.10	0.22	0.22
Double knuckle joint (With pin)		0.05	0.09	0.09	0.13	0.26	0.26
Additional weight per each 50 mm of stroke		0.05	0.07	0.09	0.15	0.22	0.26
Additional weight with air cushion		—	—	—	0.02	0.03	0.03
Additional weight for long stroke		—	—	—	0.03	0.06	0.10

Calculation: (Example) CG1KLN20-100
 (Foot style, ø20, 100st)

- Basic weight.....0.21 (Foot, ø20)
- Additional weight.....0.05/50st
- Cylinder stroke.....100st

$0.21 + 0.05 \times 100/50 = 0.31 \text{ kg}$

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)					
	20	25	32	40	50	63
Axial foot *	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063
Flange	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063
Trunnion pin	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063
Clevis **	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063
Pivot bracket	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A



* Order two foot brackets per cylinder.

** Mounting bolt is shipped together with foot style and flange style, and clevis pin, snap ring and mounting bolt for clevis style.

Copper-free

20-CG1K Mounting style N Bore size Stroke

Copper-free

The type which prevents copper based ions from generating by changing the copper based materials into electroless nickel plated treatment or non-copper materials in order to eliminate the effects by copper based ions or fluororesins over the color cathode ray tube.

Specifications

Bore size (mm)	20, 25, 32, 40, 50, 63
Action	Double acting
Fluid	Air
Maximum operating pressure	1.0 MPa
Minimum operating pressure	0.05 MPa
Piston speed	50 to 500 mm/s
Mounting	Basic style, Axial foot style, Rod side flange style, Head side flange style, Rod side trunnion style, Head side trunnion style, Clevis style (Used for changing the port location by 90°.)

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)					
	20	25	32	40	50	63
D-C7/C8	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050	BMA2-063
D-H7						
D-B5/B6	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06
D-G5						

* Mounting screws set made of stainless steel

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

(A switch mounting band is not included, so please order it separately.)

BBA3: For D-B5/B6/G5

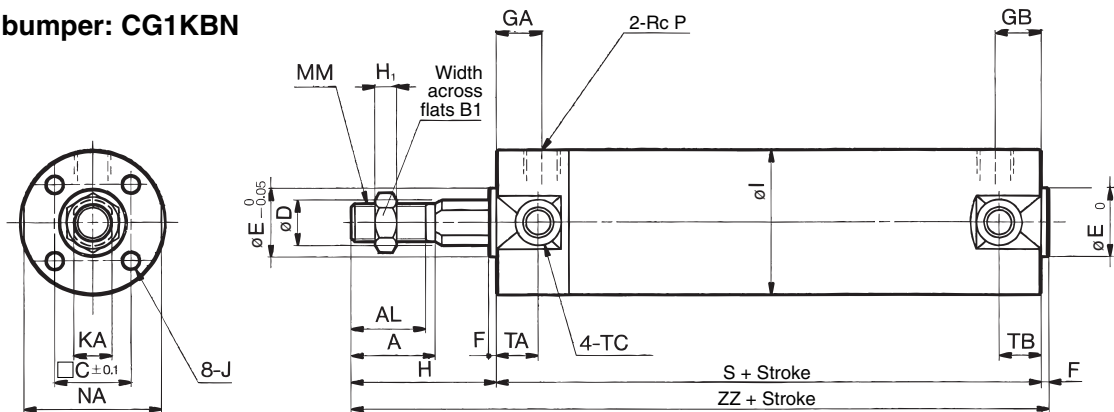
BBA4: For D-C7/C8/H7

- D-G5BAL and D-H7BAL switches are set on the cylinder with the stainless steel screws above when shipped. When a switch only is shipped, BBA3 or BBA4 screws are attached.

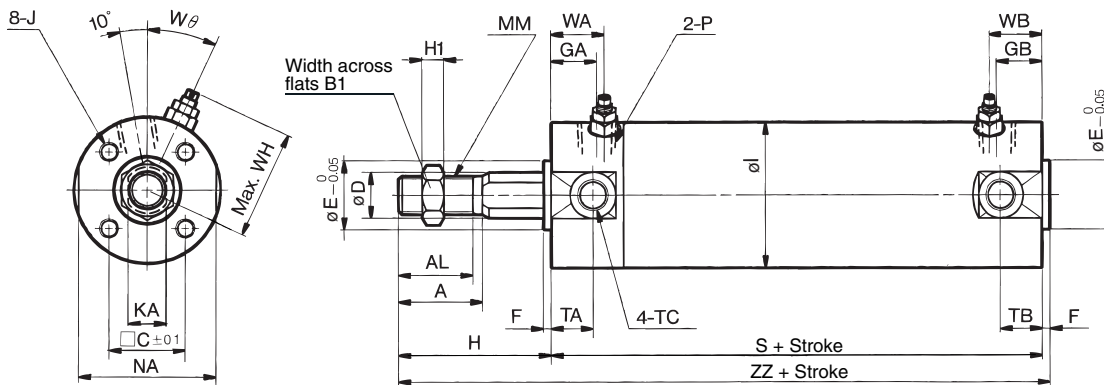
Series CG1K

Basic Style

With rubber bumper: CG1KBN
 $\phi 20$ to $\phi 63$



With air cushion: CG1KBA
 $\phi 40$ to $\phi 63$



Bore size (mm)	Stroke range (mm)	A	AL	B1	C	D	E	F	GA	GB	H	H1	I	J	KA	MM	NA	P	S	TA	TB	TC	ZZ
20	Up to 200	18	15.5	13	14	9.2	12	2	12	10	35	5	26	M4 x 0.7 depth 7	8	M8 x 1.25	24	1/8	69	11	11	M5 x 0.8	106
25	Up to 300	22	19.5	17	16.5	11	14	2	12	10	40	6	31	M5 x 0.8 depth 7.5	10	M10 x 1.25	29	1/8	69	11	11	M6 x 0.75	111
32	Up to 300	22	19.5	17	20	12	18	2	12	10	40	6	38	M5 x 0.8 depth 8	10	M10 x 1.25	35.5	1/8	71	11	10	M8 x 1.0	113
40	Up to 300(500)	30	27	19	26	16	25	2	13	10(13)	50	8	47	M6 x 1 depth 12	14	M14 x 1.5	44	1/8	78(87)	12	10(12)	M10 x 1.25	130(139)
50	Up to 300(600)	35	32	27	32	20	30	2	14	12(14)	58	11	58	M8 x 1.25 depth 16	18	M18 x 1.5	55	1/4	90(102)	13	12(13)	M12 x 1.25	150(162)
63	Up to 300(600)	35	32	27	38	20	32	2	14	12(14)	58	11	72	M10 x 1.5 depth 16	18	M18 x 1.5	69	1/4	90(102)	13	12(13)	M14 x 1.5	150(162)

Note 1) Dimensions for each mounting bracket are the same as those for CG1 standard or long stroke model. Refer to pages 6-5-9 and 6-5-10. Also, as for the one with auto switch, it is the same as standard products of Series CDG1.

Note 2) (): Long stroke

With Air Cushion

Bore size (mm)	P	WA	WB	WH	Wθ
40	Rc 1/8	16	15(16)	33	20°
50	Rc 1/4	18	17(18)	40.5	20°
63	Rc 1/4	18	17(18)	47.5	20°

Note) (): Denotes the dimensions for long stroke.

⚠ Precautions

Be sure to read before handling. For Safety Instructions and Actuator Precautions, refer to pages 6-20-3 to 6-20-6.

Caution on Handling/Disassembly

⚠ Caution

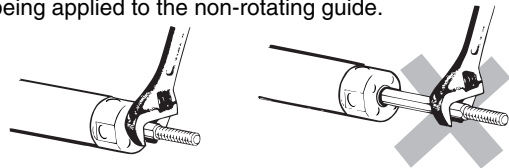
1. Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod.

- If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy.

Allowable rotational torque (N·m or less)	$\phi 20$	$\phi 25, \phi 32$	$\phi 40, \phi 50, \phi 63$
		0.2	0.25

- To screw a bracket or a nut onto the piston rod, make sure to retract the piston rod entirely, and place a wrench over the flat portion of the rod that protrudes.

Tighten it by giving consideration to prevent the tightening torque from being applied to the non-rotating guide.



2. When replacing rod seals, please contact SMC.

Air leakage may be happened, depending on the position in which a rod seal is fitted. Thus, please contact SMC when replacing them.

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

Weight

Bore size (mm)		20	25	32	40	50	63
Basic weight	Basic style	0.13	0.22	0.33	0.55	1.02	1.37
	Axial foot style	0.24	0.35	0.49	0.77	1.50	2.09
	Flange style	0.21	0.32	0.47	0.75	1.36	1.87
	Trunnion style	0.14	0.24	0.36	0.60	1.16	1.51
Pivot bracket		0.08	0.09	0.17	0.25	0.44	0.80
Single knuckle joint		0.05	0.09	0.09	0.10	0.22	0.22
Double knuckle joint (With pin)		0.05	0.09	0.09	0.13	0.26	0.26
Additional weight per each 50 mm of stroke		0.07	0.10	0.13	0.23	0.34	0.38

Calculation: (Example) CG1KWLN32-100 (Foot style, ø32, 100 st)
 • Basic weight.....0.49 (Foot, ø32) • Cylinder stroke.....100 st
 • Additional weight.....0.13/50 st 0.49 + 0.13 x 100/50 = 0.75 kg

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)					
	20	25	32	40	50	63
Axial foot *	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063
Flange	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063
Trunnion pin	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063
Pivot bracket	CG-020 -24A	CG-025 -24A	CG-032 -24A	CG-040 -24A	CG-050 -24A	CG-063 -24A

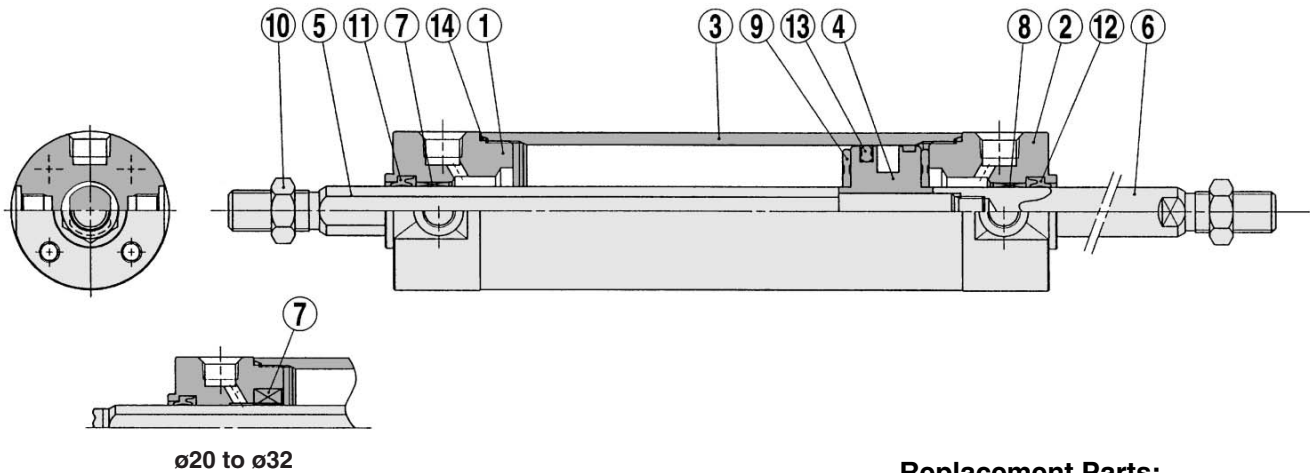
* Order two foot brackets per a cylinder.
 ** Mounting bolts are shipped together for foot style and flange style.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)					
	20	25	32	40	50	63
D-C7/C8	BMA2	BMA2	BMA2	BMA2	BMA2	BMA2
D-H7	-020	-025	-032	-040	-050	-063
D-B5/B6	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06
D-G5/K5						

* Mounting screws set made of stainless steel
 The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
 (Please order the mounting band separately, since it is not included.)
 BBA3: For D-B5/B6/G5/K5
 BBA4: For D-C7/C8/H7
 • D-G5BAL and D-H7BAL switches are set on the cylinder with the stainless steel screws above when shipped.
 When only a switch is shipped independently, BBA3 or BBA4 screws are attached.

Construction



Component Parts

No.	Description	Material	Description
①	Rod cover A	Aluminum alloy	Clear hard anodized
②	Rod cover B	Aluminum alloy	Clear hard anodized
③	Cylinder tube	Aluminum alloy	Hard anodized
④	Piston	Aluminum alloy	Chromated
⑤	Piston rod A	Carbon steel *	Hard chrome plated
⑥	Piston rod B	Carbon steel **	Hard chrome plated
⑦	Non-rotating guide	Oil-impregnated sintered alloy	
⑧	Bushing	Oil-impregnated sintered alloy	ø40 or larger: Lead-bronze casted *
⑨	Bumper	Urethane	
⑩	Rod end nut	Rolled steel	
⑪	Rod seal A	NBR	
⑫	Rod seal B	NBR	
⑬	Piston seal	NBR	
⑭	Tube gasket	NBR	

* The material is stainless steel for ø20 to ø32.
 ** The material is stainless steel on auto switch equipped style ø20 and ø25.
 *** A magnet is equipped on the piston of the cylinder with auto switch.

Replacement Parts: Seal Kit for Rubber Bumper

Bore size (mm)	Kit no.	Contents
20	CG1KWN20-PS	Set of the nos. ①, ⑫, ⑬, ⑭
25	CG1KWN25-PS	
32	CG1KWN32-PS	
40	CG1KWN40-PS	
50	CG1KWN50-PS	
63	CG1KWN63-PS	

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

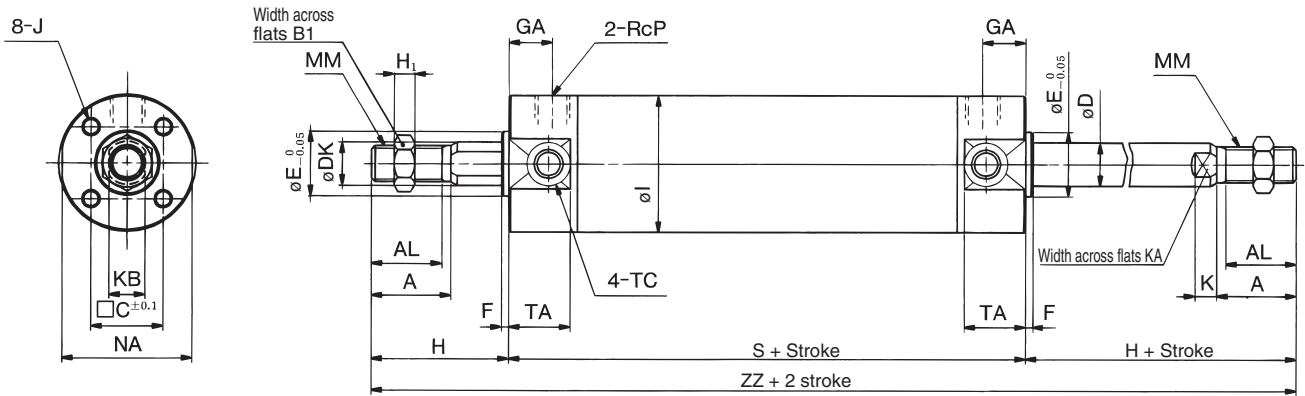
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20-

Data

Series CG1KW

Basic Style with Rubber Bumper: CG1KWBN



Bore size (mm)	Stroke range (mm)	A	AL	B ₁	C	D	DK	E	F	GA	H ₁	I	J	K	KA	KB	MM	NA	P	S
20	Up to 200	18	15.5	13	14	8	9.2	12	2	12	5	26	M4 x 0.7 depth 7	5	6	8	M8 x 1.25	24	1/8	77
25	Up to 300	22	19.5	17	16.5	10	11	14	2	12	6	31	M5 x 0.8 depth 7.5	5.5	8	10	M10 x 1.25	29	1/8	77
32	Up to 300	22	19.5	17	20	12	12	18	2	12	6	38	M5 x 0.8 depth 8	5.5	10	10	M10 x 1.25	35.5	1/8	79
40	Up to 500	30	27	19	26	16	16	25	2	13	8	47	M6 x 1 depth 12	6	14	14	M14 x 1.5	44	1/8	87
50	Up to 600	35	32	27	32	20	20	30	2	14	11	58	M8 x 1.25 depth 16	7	18	18	M18 x 1.5	55	1/4	102
63	Up to 600	35	32	27	38	20	20	32	2	14	11	72	M10 x 1.5 depth 16	7	18	18	M18 x 1.5	69	1/4	102

Bore size (mm)	TA	TC	H	ZZ
20	11	M5 x 0.8	35	147
25	11	M6 x 0.75	40	157
32	11	M8 x 1.0	40	159
40	12	M10 x 1.25	50	187
50	13	M12 x 1.25	58	218
63	13	M14 x 1.5	58	218

Note) Dimensions are the same as CG1W standard type. Refer to page 6-5-20.

• Old number is CG1□N□□-XC21 as made-to-order.

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Caution on Handling/Disassembly

⚠ Caution

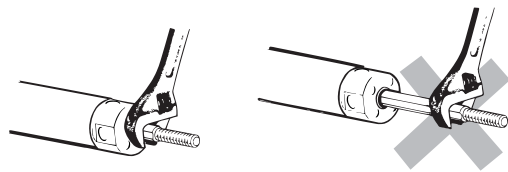
1. Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod.

- If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy. Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational torque (N·m or less)	ø20	ø25, ø32	ø40, ø50, ø63
	0.2	0.25	0.44

- To screw a bracket or a nut onto the piston rod, make sure to retract the piston rod entirely, and place a wrench over the flat portion of the rod that protrudes.

Tighten it by giving consideration to prevent the tightening torque from being applied to the non-rotating guide.

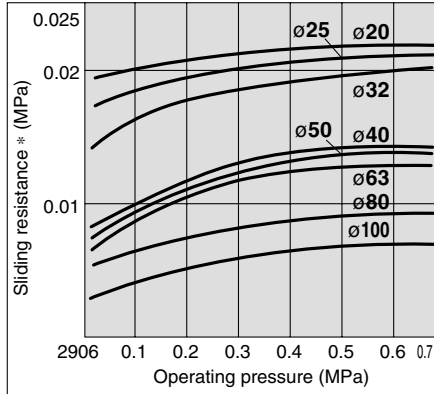


2. When replacing rod seals, please contact SMC.

Air leakage may be happened, depending on the position in which a rod seal is fitted. Thus, please contact SMC when replacing them.

Air Cylinder: Low Friction Type Double Acting, Single Rod Series CG1□Q

Sliding Resistance of the Low Friction Side



* Conversion into the cylinder operating pressure.

Selecting the Low Friction Direction

1. To use the air cylinder as a balancer, etc., pressurize it only from one of the ports as shown in the application example, and keep the other port open to the atmosphere.

To operate by applying pressure from the rod cover port:
Low friction direction B type (Application example (1))

To operate by applying pressure from the head cover port:
Low friction direction F type (Application example (2))

In either case, if the piston rod is moved by an external force, it will operate with low friction for both in the extending and retracting directions.

2. When it is necessary to operate it as an ordinary double acting cylinder at an even lower operating speeds, use a low speed cylinder (refer to "Made to Order" on page 6-17-19).

Operating Precautions

⚠ Warning

1. In the direction of low friction operation, speed control must be effected through the meter-in system.

With meter-out control, the exhaust pressure will increase and create a greater sliding resistance.

Weight

	Bore size (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) CG1LQ20-100B (Foot style, ø20, 100 st)

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

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)							
	20	25	32	40	50	63	80	100
Axial foot *	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100
Flange	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100
Trunnion	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	—	—
Clevis	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063	CG-D080	CG-D100
Pivot bracket **	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	CG-080-24A	CG-100-24A



- * Order two foot brackets per cylinder.
- ** Clevis pin, snap ring and mounting bolt are shipped for the clevis style.
- *** Mounting bolts are shipped together for foot style and flange style.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
D-C7/C8	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050	BMA2-063	—	—
D-H7								
D-B5/B6	BA-01	BA-02	BA-32	BA-04	BA-05	BA-06	BA-08	BA-10
D-G5/K5								



- * Mounting screws set made of stainless steel
- The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment. (Please order the mounting band separately, since it is not included.)
BBA3: For D-B5/B6/G5/K5
BBA4: For D-C7/C8/H7
- D-G5BAL and D-H7BAL switches are set on the cylinder with the stainless steel screws above when shipped. When a switch only is shipped, BBA3 or BBA4 screws are attached.
- * The material is stainless steel on auto switch equipped styles ø20 and ø25.

With Auto Switch

Auto switches can be mounted. Mounting position/height is the same as the double acting/single rod style. Refer to pages 6-5-13.

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted. For detailed specifications, refer to page 6-16-1.

Type	Model	Electrical entry	Features	Applicable bore size (mm)
Reed switch	D-C80	Grommet	Without indicator light	20 to 63
	D-C80C	Connector		
	D-B53	Grommet	—	20 to 100
	D-B64		Without indicator light	

- * Timer equipped type, solid state auto switch (D-G5NTL) is also available.
- * Wide range detection type, solid state auto switch (D-G5NBL) is also available.
- * With pre-wire connector is available for D-G5NTL and D-G5NBL.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

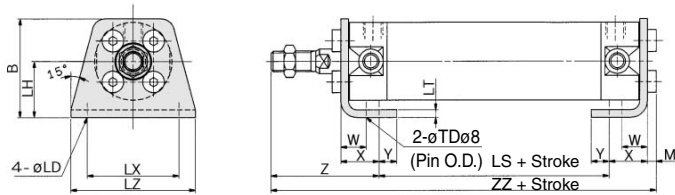
20-

Data

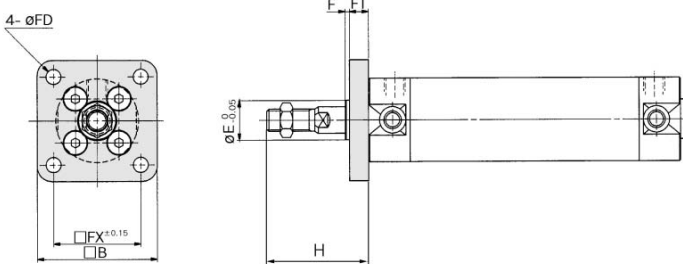
Air Cylinder: Low Friction Type Double Acting, Single Rod Series **CG1□Q**

With Mounting Bracket

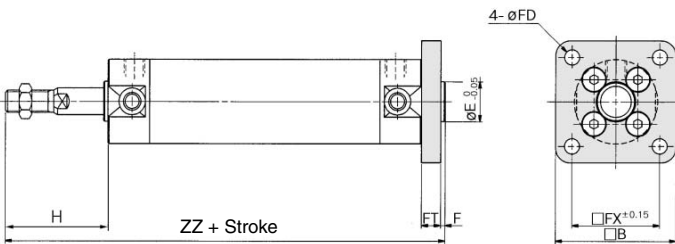
Axial foot style: CG1LQ



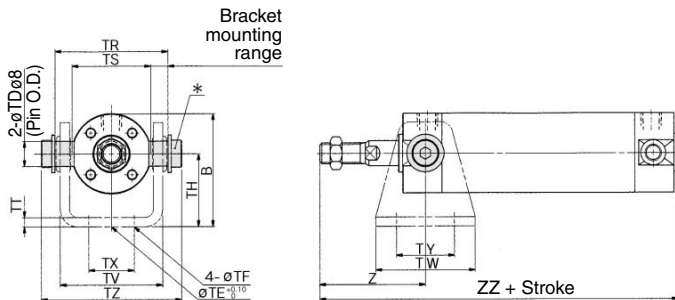
Rod side flange style: CG1FQ



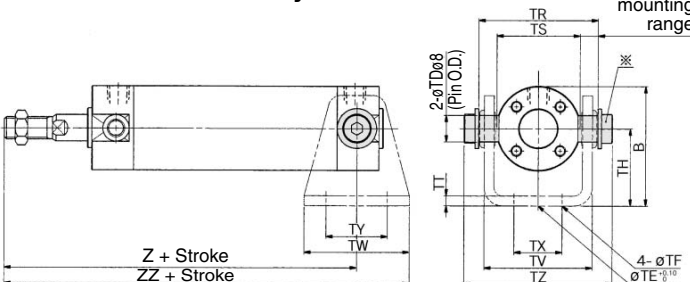
Head side flange style: CG1GQ



Rod side trunnion style: CG1UQ



Head side trunnion style: CG1TQ



Axial Foot Style

Bore (mm)	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	Z	
													Without rod boot	With rod boot
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	74	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.

Flange Style

Bore (mm)	Stroke range		B	E	F	FX	FD	FT	H	Head side flange ZZ	
	Rod side	Head side								Without rod boot	With rod boot
20	Up to 350	Up to 200	40	12	2	28	5.5	6	35		120
25	Up to 400	Up to 300	44	14	2	32	5.5	7	40		126
32	Up to 450	Up to 300	53	18	2	38	6.6	7	40		128
40	Up to 500	Up to 500	61	25	2	46	6.6	8	50		147
50	Up to 1000	Up to 600	76	30	2	58	9	9	58		171
63	Up to 1000	Up to 600	92	32	2	70	11	9	58		171
80	Up to 1000	Up to 750	104	40	3	82	11	11	71		207
100	Up to 1000	Up to 750	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.

Trunnion Style

Bore (mm)	Stroke range		B	TDe8	TE	TF	TH	TR	TS	TT	TV
	Rod side	Head side									
20	Up to 200	Up to 200	38	8 ^{-0.025} _{-0.047}	10	5.5	25	39	28	3.2	(35.8)
25	Up to 300	Up to 300	45.5	10 ^{-0.025} _{-0.047}	10	5.5	30	43	33	3.2	(39.8)
32	Up to 300	Up to 300	54	12 ^{-0.032} _{-0.059}	10	6.6	35	54.5	40	4.5	(49.4)
40	Up to 500	Up to 500	63.5	14 ^{-0.032} _{-0.059}	10	6.6	40	65.5	49	4.5	(68.4)
50	Up to 600	Up to 600	79	16 ^{-0.032} _{-0.059}	20	9	50	80	60	6	(72.4)
63	Up to 600	Up to 600	96	18 ^{-0.032} _{-0.059}	20	11	60	98	74	8	(90.4)

Bore (mm)	TW	TX	TY	TZ	Rod side		Head side	
					Z		ZZ	
					Without rod boot	With rod boot	Without rod boot	With rod boot
20	42	16	28	47.6	46	101	122	
25	42	20	28	53	51	106	127	
32	48	22	28	67.7	51	108	132	
40	56	30	30	78.7	62	125	153	
50	64	36	36	98.6	71	147	179	
63	74	46	46	119.2	71	147	184	

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

Note) For pivot bracket, refer to page 6-5-12.

* Other dimensions are the same as basic style.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

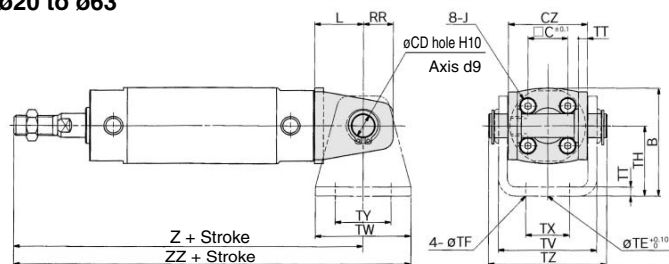
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Series CG1□Q

With Mounting Bracket

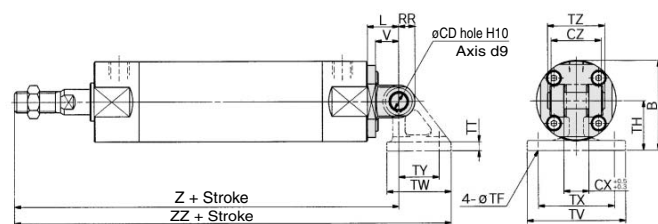
Clevis style: CG1DQ

ø20 to ø63



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

ø80, ø100



* Clevis pin and snap ring are shipped together with clevis type.

Clevis Style

Bore size (mm)	Stroke range (mm)	B	CD	CX	CZ	L	RR	V	TE	TF	TH
20	Up to 200	38	8	—	29	14	11	—	10	5.5	25
25	Up to 300	45.5	10	—	33	16	13	—	10	5.5	30
32	Up to 300	54	12	—	40	20	15	—	10	6.6	35
40	Up to 500	63.5	14	—	49	22	18	—	10	6.6	40
50	Up to 600	79	16	—	60	25	20	—	20	9	50
63	Up to 600	96	18	—	74	30	22	—	20	11	60
80	Up to 750	99.5	18	28	56	35	18	26	—	11	55
100	Up to 750	120	22	32	64	43	22	32	—	13.5	65

Bore size (mm)	TT	TV	TW	TX	TY	TZ	Z	ZZ	Applicable pin part no.
20	3.2	(35.8)	42	16	28	43.4	126	147	CD-G02
25	3.2	(39.8)	42	20	28	48	133	154	CD-G25
32	4.5	(49.4)	48	22	28	59.4	139	163	CD-G03
40	4.5	(58.4)	56	30	30	71.4	159	187	CD-G04
50	6	(72.4)	64	36	36	86	185	217	CD-G05
63	8	(90.4)	74	46	46	105.4	190	227	CD-G06
80	11	110	72	85	45	64	228	286.5	IY-G08
100	12	130	93	100	60	72	236	312.5	IY-G10

Note) * For pivot bracket, refer to page 6-5-12.

* Other dimensions are the same as basic style.

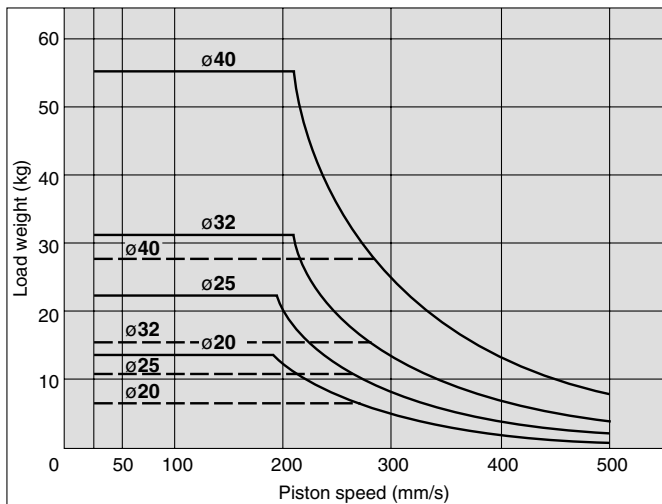
Fine Lock Cylinder Double Acting, Single Rod Series **CLG1**

⚠ Caution/Allowable Kinetic Energy when Locking

Bore size (mm)	20	25	32	40
Allowable kinetic energy (J)	0.26	0.42	0.67	1.19

- In terms of specific load conditions, the allowable kinetic energy indicated in the table above is equivalent to a 50% load ratio at 0.5 MPa, and a piston speed of 300 mm/sec. Therefore, if the operating conditions are below these values, calculations are unnecessary.
- Apply the following formula to obtain the kinetic energy of the load.

$$E_k = \frac{1}{2} m v^2$$
 Ek: Kinetic energy of load (J)
 m: Load weight (kg)
 v: Piston speed (m/s) (Average speed x 1.2 times)
- The piston speed will exceed the average speed immediately before locking. To determine the piston speed for the purpose of obtaining the kinetic energy of load, use 1.2 times the average speed as a guide.
- The relation between the speed and the load of the respective tube bores is indicated in the diagram below. Use the cylinder in the range below the line.
- During locking, the lock mechanism must sustain the thrust of the cylinder itself, in addition to absorbing the energy of the load. Therefore, even within a given allowable kinetic energy level, there is an upper limit to the size of the load that can be sustained. Thus, a horizontally mounted cylinder must be operated below the solid line, and a vertically mounted cylinder must be operated below the dotted line.

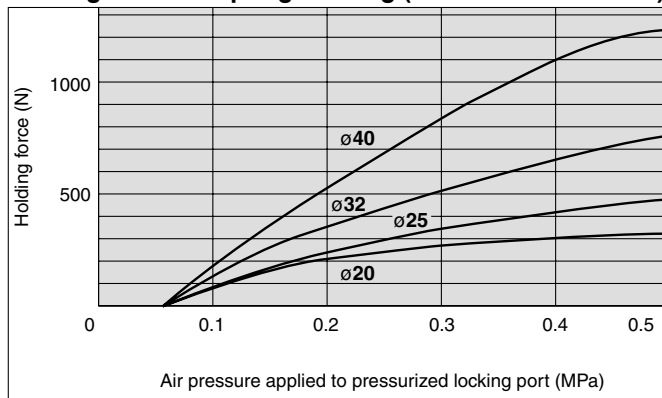


Holding Force of Spring Locking (Maximum static load)

Bore size (mm)	20	25	32	40
Holding force (N)	196	313	443	784

(Note) Holding force at piston rod extended side decreases approximately 15%.

Holding Force of Spring Locking (Maximum static load)



⚠ Caution

Caution when Locking

The holding force is the lock's ability to hold a static load that does not involve vibrations or impacts, when it is locked without a load. Therefore, when normally using the cylinder near the upper limit of the holding force, be aware of the points described below.

- If the piston rod slips because the lock's holding force has been exceeded, the brake shoe could be damaged, resulting in a reduced holding force or shortened life.
- To use the lock for drop prevention purposes, the load to be attached to the cylinder must be within 35% of the cylinder's holding force.
- Do not use the cylinder in the locked state to sustain a load that involves impact.

Stopping Accuracy (Not including tolerance of control system.) (mm)

Locking method	Piston speed (mm/s)			
	50	100	300	500
Spring locking (Exhaust locking)	±0.4	±0.5	±1.0	±2.0
Pneumatic locking (Pressure locking) Spring and pneumatic locking	±0.2	±0.3	±0.5	±1.5

Condition/load: 25% of thrust force at 0.5 MPa Solenoid valve: Mounted to the lock port

⚠ Caution

Recommended Pneumatic Circuit/Caution on Handling

For detailed specifications of the fine lock cylinder, Series CLG1 mentioned above, refer to pages 9-2-4 to 9-2-7.

Regarding the installation position and the mounting height of the auto switch, refer to page of Series CDG1 air cylinder (Double acting, Single rod), since the dimensions are the same.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-B5□/B64 D-G5□/K5□	BA-01	BA-02	BA-32	BA-04
D-C7□/C80 D-H7□	BMA2-020	BMA2-025	BMA2-032	BMA2-040

* Mounting screws set made of stainless steel
 The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA3: For D-B5/B6/G5

BBA4: For D-C7/C8/H7

"D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.

When only a switch is shipped independently, "BBA4" screws are attached.

Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
Axial foot *	CLG-L020	CLG-L025	CLG-L032	CLG-L040
Flange	CLG-F020	CLG-F025	CLG-F032	CLG-F040
Trunnion pin	CG-T020	CG-T025	CG-T032	CG-T040
Clevis **	CG-D020	CG-D025	CG-D032	CG-D040
Rod side pivot bracket	CLG-020-24	CLG-025-24	CLG-032-24	CLG-040-24
Head side pivot bracket	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A

* When ordering foot bracket, order 2 pieces per cylinder.

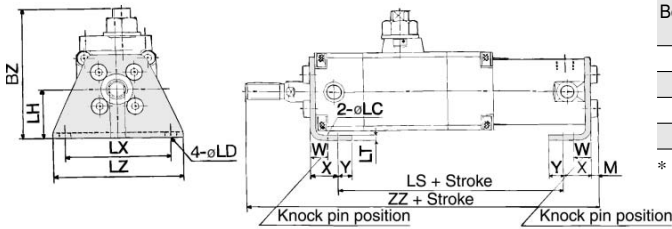
** Clevis pin and snap ring are shipped together with clevis style.

CL
 CL1
 MLGC
 CNG
 MNB
 CNA
 CNS
 CLS
 CLQ
 MLGP
 RLQ
 MLU
 ML1C
 D-
 -X
 20-
 Data

Fine Lock Cylinder Double Acting, Single Rod Series **CLG1**

With Mounting Bracket

Foot style: CLG1LN

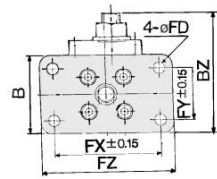


Foot Style

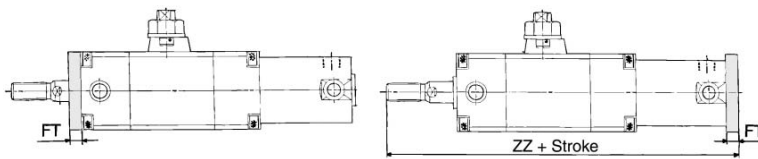
Bore size (mm)	BZ	M	W	X	Y	LC	LD	LH	LS	LT	LX	LZ	Without rod boot	With rod boot
	ZZ												Z	ZZ
20	63.5	3	10	15	7	4	6	25	117	3	50	62	182	202
25	74.5	3.5	10	15	7	4	6	28	127	3	57	70	197.5	219.5
32	74.5	3.5	10	16	8	4	6.6	28	128	3	60	74	200.5	222.5
40	83	4	10	16.5	8.5	4	6.6	33	142	3	68	84	226	246

* For long stroke, refer to page 9-2-32.

Rod side flange style: CLG1FN



Head side flange style: CLG1GN



Rod Side Flange Style

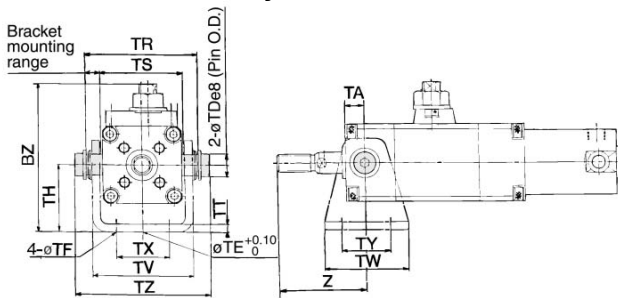
Bore size (mm)	B	BZ	FD	FT	FX	FY	FZ
20	38	57.5	5.5	6	52	25	65
25	45	69	5.5	7	60	30	75
32	45	69	6.6	7	60	30	75
40	52	76	6.6	8	66	36	82

* For long stroke, refer to page 9-2-32.

Head Side Flange Style

Bore size (mm)	Without rod boot	With rod boot
	ZZ	ZZ
20	182	202
25	198	220
32	201	223
40	227	247

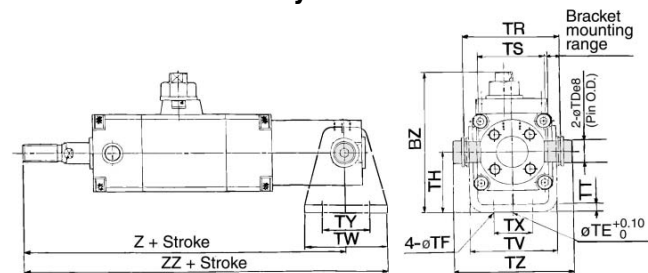
Rod side trunnion style: CLG1UN



Rod Side Trunnion Style

Bore size (mm)	BZ	TDe8	TE	TF	TH	TR	TS	TT	TV	TW	TX	TY	TZ	Without rod boot	With rod boot
	Z													Z	Z
20	69.5	8 ^{-0.025/-0.047}	10	5.5	31	51	40	3.2	47.8	42	26	28	59.6	46	66
25	83.5	10 ^{-0.025/-0.047}	10	5.5	37	58	47	3.2	54.8	42	28	28	68	51	73
32	85	12 ^{-0.032/-0.059}	10	6.6	38.5	62.5	47	4.5	57.4	48	28	28	75.7	51	73
40	92.5	14 ^{-0.032/-0.059}	10	6.6	42.5	72.5	54	4.5	65.4	56	36	30	85.7	62	82

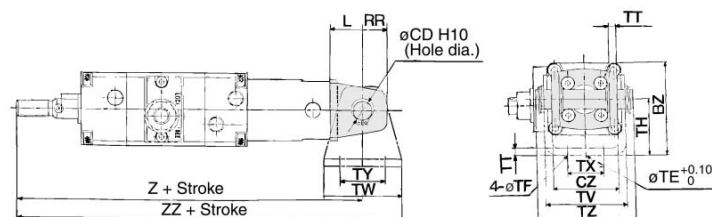
Head side trunnion style: CLG1TN



Head Side Trunnion Style

Bore size (mm)	BZ	TDe8	TE	TF	TH	TR	TS	TT	TV	TW	TX	TY	TZ	Without rod boot	With rod boot
	Z													ZZ	Z
20	63.5	8 ^{-0.025/-0.047}	10	5.5	25	39	28	3.2	35.8	42	16	28	47.6	165	186
25	76.5	10 ^{-0.025/-0.047}	10	5.5	30	43	33	3.2	39.8	42	20	28	53	180	201
32	81.5	12 ^{-0.032/-0.059}	10	6.6	35	54.5	40	4.5	49.4	48	22	28	67.7	184	208
40	90	14 ^{-0.032/-0.059}	10	6.6	40	65.5	49	4.5	58.4	56	30	30	78.7	209	237

Clevis style: CLG1DN



Clevis Style

Bore size (mm)	BZ	CDH10	CZ	L	RR	TE	TF	TH	TT	TV	TW	TX	TY	TZ
	20	44	8 ^{-0.058/0}	29	14	11	10	5.5	25	3.2	35.8	42	16	28
25	52.5	10 ^{-0.058/0}	33	16	13	10	5.5	30	3.2	39.8	42	20	28	48
32	57.5	12 ^{-0.070/0}	40	20	15	10	6.6	35	4.5	49.4	48	22	28	59.4
40	66	14 ^{-0.070/0}	49	22	18	10	6.6	40	4.5	58.4	56	30	30	71.4

* Clevis pin and snap ring are attached.

Bore size (mm)	Without rod boot	With rod boot
	Z	ZZ
20	190	211
25	207	228
32	214	238
40	241	269

- CL
- CL1
- MLGC
- CNG
- MNB
- CNA
- CNS
- CLS
- CLQ
- MLGP
- RLQ
- MLU
- ML1C
- D-
- X
- 20-
- Data