

Air Cylinder: Standard Type Double Acting, Double Rod Series **CG1W** ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Without auto switch
CG1W L N 25-100

With auto switch
CDG1W L N 25-100 H7BW

Built-in magnet

Double acting, double rod type

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
U*	Rod side trunnion style

* Not available for bore size ø80 and ø100.
Note) Mounting brackets are shipped together, (but not assembled).

Type

N	Non-lube/Rubber bumper
A	Non-lube/Air cushion

Auto switch

Nil	Without auto switch (Built-in magnet)
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* For the applicable auto switch model, refer to the table below.

Number of auto switches

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

Suffix for cylinder (Rod boot)

Nil	Without rod boot
One end	J Nylon tarpaulin
	K Heat resistant tarpaulin
Both ends	JJ Nylon tarpaulin
	KK Heat resistant tarpaulin

* In the case of w/ rod boot, and a foot bracket or rod side flange as a bracket, those parts are to be assembled at the time of shipment.

Cylinder stroke (mm)
Refer to "Standard Stroke" on page 6-5-17.

Bore size

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

Applicable Auto Switch/Refer to page 6-16-1 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-wire connector	Applicable load			
					DC	AC	Applicable bore size (mm)		0.5 (Nil)	3 (L)	5 (Z)	None (N)		IC circuit	Relay, PLC		
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	C76	—	●	●	—	—			—	—
				Connector	24 V	12 V	100 V, 200 V	B54	—	●	●	●	—	—	—	—	—
	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	—	—	100 V	C73	—	●	●	●	—	—	—	—	—
				Connector	—	—	—	C73C	—	●	●	●	●	—	—	—	—
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24V	5 V, 12 V	—	H7A1	G59	●	●	○	—	○	—	—	
				3-wire (PNP)				H7A2	G5P	●	●	○	—	○	—	—	
		Connector		2-wire				H7B	K59	●	●	○	—	○	—	—	
				—				H7C	—	●	●	●	●	—	—	—	
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24V	5 V, 12 V	—	H7NW	G59W	●	●	○	—	○	—	—	
				3-wire (PNP)				H7PW	G5PW	●	●	○	—	○	—	—	
				2-wire				H7BW	K59W	●	●	○	—	○	—	—	
				Connector				—	H7BA	G5BA	—	●	○	—	○	—	—
Water resistant (2-color indication)	Grommet	Yes	2-wire	24V	5 V, 12 V	—	H7NF	G59F	●	●	○	—	○	—	—		
With diagnostic output (2-color indication)			4-wire (NPN)				—	—	—	—	—	—	—	—			

* Lead wire length symbols: 0.5 m Nil (Example) C73C
 3 m L (Example) C73CL
 5 m Z (Example) C73CZ
 None N (Example) C73CN

* Solid state switches marked with "○" are produced upon receipt of order.

- Since there are other applicable auto switches than listed, refer to page 6-5-17 for details.
- For details about auto switches with pre-wire connector, refer to page 6-16-60.

Air Cylinder: Standard Type Double Acting, Double Rod Series **CG1W**



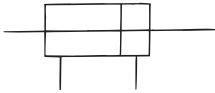
Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting, Double rod							
Type	Non-lube							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.8 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						50 to 700 mm/s	
Stroke length tolerance	Up to 1000 ^{+1.4} ₀ mm						Up to 1000 ^{+1.4} ₀ mm	
	Up to 1200 ^{+1.8} ₀ mm						Up to 1500 ^{+1.8} ₀ mm	
Thread tolerance	JIS Class 2							
Cushion	Rubber bumper, Air cushion							
Mounting *	Basic style, Axial foot style, Rod side flange style, Rod side trunnion style							



* Rod side trunnion style is not available for bore sizes ø80 and ø100.

JIS Symbol



Accessory

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

* Not available for bore size ø80 and ø100.

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

Standard Stroke

Bore size (mm)	Standard stroke (mm) ⁽¹⁾	Long stroke (mm)	Maximum manufacturable stroke
20	25, 50, 75, 100, 125, 150, 200	201 to 350	1500
25	25, 50, 75, 100, 125, 150, 200	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) Other intermediate strokes can be manufactured upon receipt of order. Spacers are not used for the intermediate strokes.

Note 2) Long stroke applies to the axial foot style and the rod side flange style. If other mounting brackets are used, or the length exceeds the long stroke limit, the stroke should be determined based on the stroke selection table in the technical data.

With Auto Switch

Double acting: Auto switch can be mounted for double rod. For detailed specifications, refer to pages 6-5-13 to 6-5-14.

Rod Boot Material

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

* Maximum ambient temperature for the rod boot itself.



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

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (150°C)
-XB7	Cold resistant cylinder
-XC6	Piston rod and rod end nut made of stainless steel
-XC13	Auto switch rail mounting style
-XC18	NPT finish piping port
-XC22	Fluoro rubber seals
-XC37	Large throttle diameter of connecting port

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 40
	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

Series CG1W

Weight

(kg)

Bore size (mm)		20	25	32	40	50	63	80	100
Basic weight	Basic style	0.13	0.22	0.33	0.55	1.02	1.37	2.64	4.09
	Axial foot style	0.24	0.35	0.49	0.77	1.50	2.09	3.60	5.84
	Flange style	0.21	0.32	0.47	0.75	1.36	1.87	3.35	5.44
	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	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		0.07	0.10	0.13	0.23	0.34	0.38	0.54	0.77
Additional weight with air cushion		0.01	0.01	0.02	0.02	0.03	0.03	0.09	0.10

Calculation: (Example) CG1WLN32-100 (Foot style, ø32, 100 st)

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

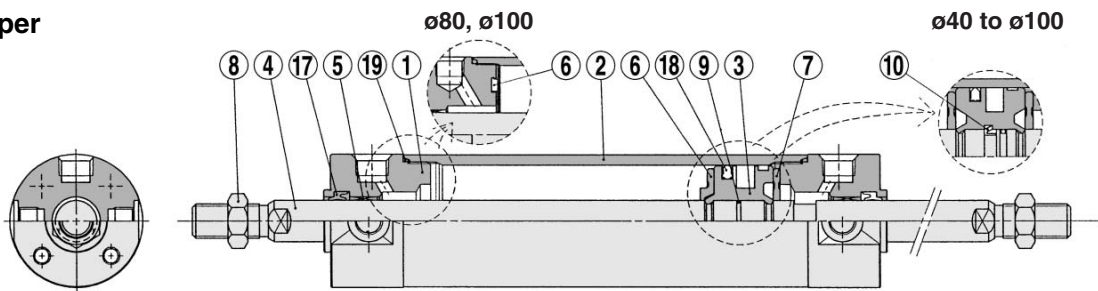
$$0.49 + 0.13 \times 100/50 = 0.75 \text{ kg}$$

⚠ Precautions

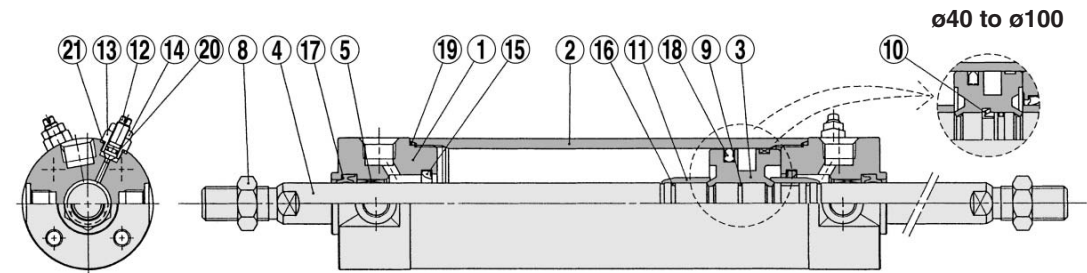
Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Construction

With rubber bumper



With air cushion



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Clear hard anodized
②	Cylinder tube	Aluminum alloy	Hard anodized
③	Piston	Aluminum alloy	Chromated
④	Piston rod	Carbon steel *	Hard chrome plated
⑤	Bushing	Oil-impregnated sintered alloy	ø40 and larger are lead-bronze casted
⑥	Bumper A	Urethane	
⑦	Bumper B	Urethane	ø40 or larger: The same as bumper A
⑧	Rod end nut	Rolled steel	Nickel plated
⑨	Piston gasket	NBR	
⑩	Piston holder	Urethane	ø40 or more *
⑪	Cushion ring	Brass	
⑫	Cushion valve	Rolled steel	Electroless nickel plated
⑬	Valve retainer	Rolled steel	Electroless nickel plated
⑭	Lock nut	Carbon steel	Nickel plated
⑮	Cushion seal	Urethane	
⑯	Cushion ring	NBR	
⑰	Cushion valve	NBR	
⑱	Piston seal	NBR	
⑲	Tube gasket	NBR	
⑳	Valve seal	NBR	
㉑	Valve retaining gasket	NBR	

Note) In the case of cylinders with auto switches, magnets are installed in the piston.

* The material is stainless steel on auto switch equipped styles ø20 and ø25.

Replacement Parts/Seal kits are the same as standard type, double acting, single rod. Refer to page 6-5-7.

Air Cylinder: Standard Type Double Acting, Double Rod Series CG1W

Air-hydro

CG1W Mounting style H Bore size Stroke

↓
Air-hydro

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

Specifications

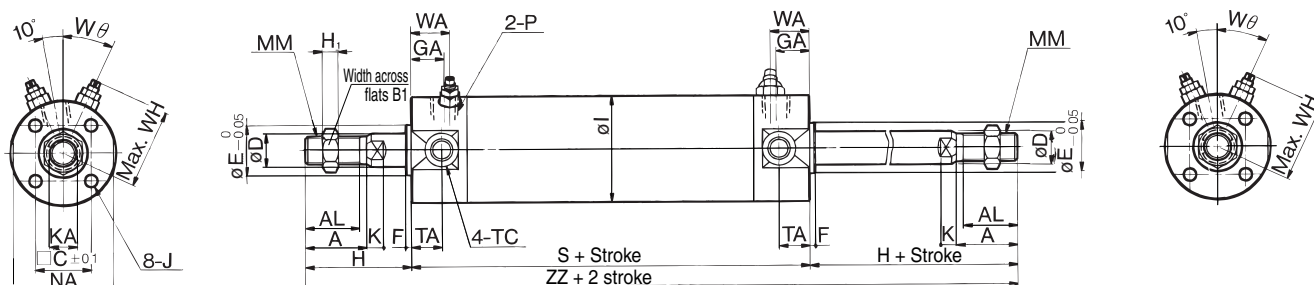
Type	Air-hydro
Bore size (mm)	20, 25, 32, 40, 50, 63
Action	Double acting
Fluid	Turbine oil
Proof pressure	1.5 MPa
Max. operating pressure	1.0 MPa
Min. operating pressure	0.18 MPa
Piston speed	15 to 300 mm/s
Cushion	None
Ambient and fluid temperature	5 to 60°C
Thread tolerance	JIS Class 2
Stroke length tolerance	Up to 1000 ^{st+1.4} ₀ mm, Up to 1200 ^{st+1.8} ₀ mm
Mounting	Basic style, Axial foot style Rod side flange style, Rod side trunnion style

* Auto switch can be mounted.

Bore size (mm)	20	25	32	40	50	63
S	77	77	79	87	102	102
ZZ	147	157	159	187	218	218

Other dimensions are the same as double rod standard type (page 6-5-20).

Basic Style with Air Cushion: CG1WBA



* For the one with rod boot, refer to w/ rubber bumper.

Bore size (mm)	Standard stroke range (mm)	Long stroke range (mm)	A	AL	B ₁	C	D	E	F	GA	H	H ₁	I	J	K	KA
20	Up to 200	201 to 350	18	15.5	13	14	8	12	2	12	35	5	26	M4 x 0.7 depth 7	5	6
25	Up to 300	301 to 400	22	19.5	17	16.5	10	14	2	12	40	6	31	M5 x 0.8 depth 7.5	5.5	8
32	Up to 300	301 to 450	22	19.5	17	20	12	18	2	12	40	6	38	M5 x 0.8 depth 8	5.5	10
40	Up to 300	301 to 800	30	27	19	26	16	25	2	13	50	8	47	M6 x 1 depth 12	6	14
50	Up to 300	301 to 1200	35	32	27	32	20	30	2	14	58	11	58	M8 x 1.25 depth 16	7	18
63	Up to 300	301 to 1200	35	32	27	38	20	32	2	14	58	11	72	M10 x 1.5 depth 16	7	18
80	Up to 300	301 to 1400	40	37	32	50	25	40	3	20	71	13	89	M10 x 1.5 depth 22	10	22
100	Up to 300	301 to 1500	40	37	41	60	30	50	3	20	71	16	110	M12 x 1.75 depth 22	10	26

Bore size (mm)	MM	NA	P	S	TA	TC**	ZZ	WA	WH	Wθ
20	M8 x 1.25	24	M5 x 0.8	77	11	M5 x 0.8	147	16	23	30°
25	M10 x 1.25	29	M5 x 0.8	77	11	M6 x 0.75	157	16	25	30°
32	M10 x 1.25	35.5	Rc 1/8	79	11	M8 x 1.0	159	16	28.5	25°
40	M14 x 1.5	44	Rc 1/8	87	12	M10 x 1.25	187	16	33	20°
50	M18 x 1.5	55	Rc 1/4	102	13	M12 x 1.25	218	18	40.5	20°
63	M18 x 1.5	69	Rc 1/4	102	13	M14 x 1.5	218	18	47.5	20°
80	M22 x 1.5	80	Rc 3/8	122	—	—	264	22	60.5	20°
100	M26 x 1.5	100	Rc 1/2	122	—	—	264	22	71	20°

* For mounting brackets, refer to page 6-5-21.

** Trunnion mounting taps with width across flats NA are not attached for bore sizes ø80 and ø100.

Copper-free

20-CG1W Mounting style Type 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, 80, 100	
Action	Double acting	
Fluid	Air	
Max. operating pressure	1.0 MPa	
Min. operating pressure	0.08 MPa	
Cushion	Type N	With rubber bumper
	Type A	With air cushion
Piston speed	ø20 to 63	50 to 1000 mm/s
	ø80, ø100	50 to 700 mm/s
Mounting *	Basic style, Axial foot style Rod side flange style, Rod side trunnion style	

* Rod side trunnion style is not available for bore size ø80 and ø100. Other dimensions are the same as double rod standard type (page 6-5-20).

* Auto switch capable

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

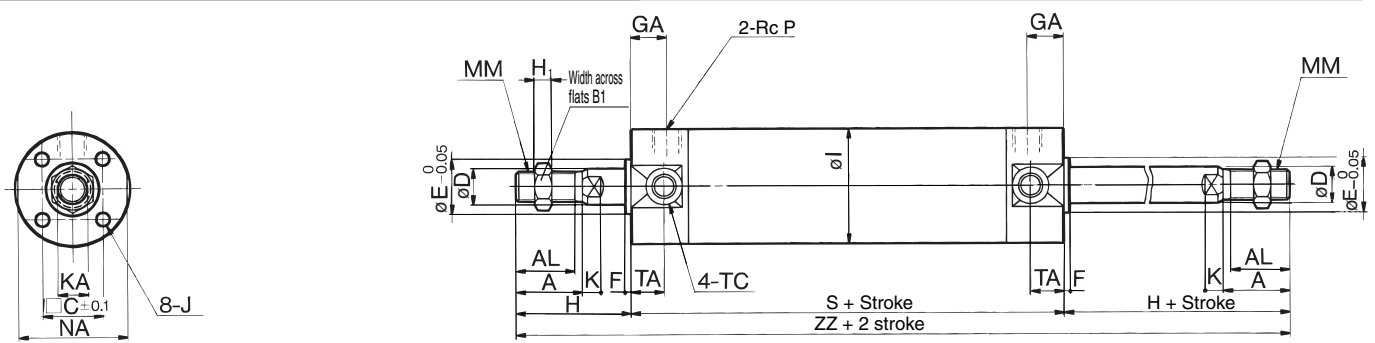
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20-

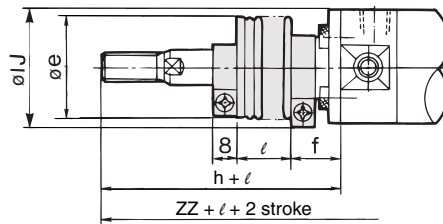
Data

Series CG1W

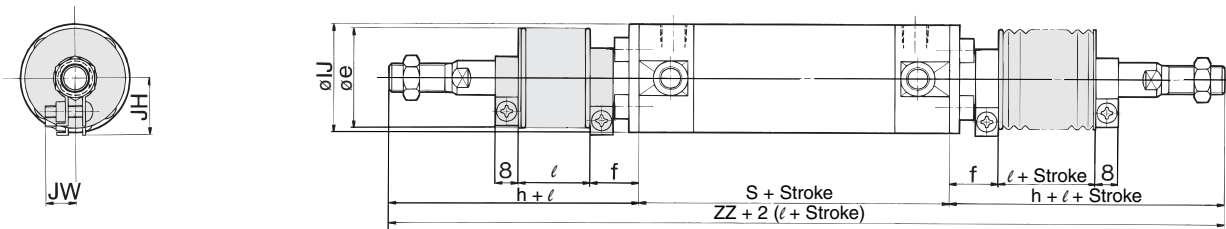
Basic Style with Rubber Bumper: CG1WBN



With rod boot at one end



With rod boot at both ends



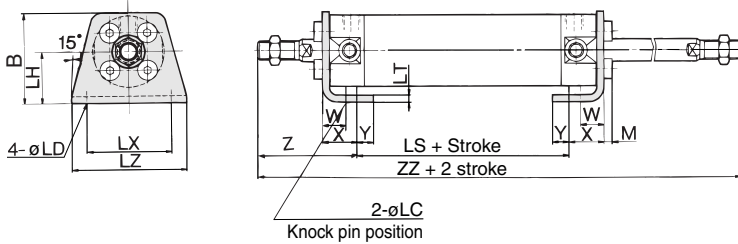
Bore size (mm)	Stroke range (mm)	A	AL	B ₁	C	D	E	F	GA	H ₁	I	J	K	KA	MM	NA	P	S
20	Up to 350	18	15.5	13	14	8	12	2	12	5	26	M4 x 0.7 depth 7	5	6	M8 x 1.25	24	1/8	77
25	Up to 400	22	19.5	17	16.5	10	14	2	12	6	31	M5 x 0.8 depth 7.5	5.5	8	M10 x 1.25	29	1/8	77
32	Up to 450	22	19.5	17	20	12	18	2	12	6	38	M5 x 0.8 depth 8	5.5	10	M10 x 1.25	35.5	1/8	79
40	Up to 800	30	27	19	26	16	25	2	13	8	47	M6 x 1 depth 12	6	14	M14 x 1.5	44	1/8	87
50	Up to 1200	35	32	27	32	20	30	2	14	11	58	M8 x 1.25 depth 16	7	18	M18 x 1.5	55	1/4	102
63	Up to 1200	35	32	27	38	20	32	2	14	11	72	M10 x 1.5 depth 16	7	18	M18 x 1.5	69	1/4	102
80	Up to 1400	40	37	32	50	25	40	3	20	13	89	M10 x 1.5 depth 22	10	22	M22 x 1.5	80	3/8	122
100	Up to 1500	40	37	41	60	30	50	3	20	16	110	M12 x 1.75 depth 22	10	26	M26 x 1.5	100	1/2	122

Bore size (mm)	TA	TC**	Without rod boot		With rod boot on one side*							With rod boot on both sides*		Air-hydro		
			H	ZZ	e	f	h	IJ	JH	JW	l	ZZ	ZZ	Bore size (mm)	S	ZZ
20	11	M5 x 0.8	35	147	30	16	55	27	(14.5)	(11.5)	0.25 stroke	167	187	20	77	147
25	11	M6 x 0.75	40	157	30	17	62	32	(17.5)	(11.5)		179	201	25	77	157
32	11	M8 x 1.0	40	159	35	17	62	38	(19.5)	(11.5)		181	203	32	79	159
40	12	M10 x 1.25	50	187	35	17	70	48	(22.5)	(13)		207	227	40	87	187
50	13	M12 x 1.25	58	218	40	17	78	59	(25)	(13)		238	258	50	102	218
63	13	M14 x 1.5	58	218	40	18	78	72	(25)	(13)		238	258	63	102	218
80	—	—	71	264	52	10	80	59	—	—		273	282			
100	—	—	71	264	62	7	80	71	—	—	273	282				

* The minimum stroke with rod boot is 20 mm.
 ** Trunnion mounting taps with width across flats NA are not attached for bore sizes ø80 and ø100.

With Mounting Bracket

Axial foot style: CG1WLN

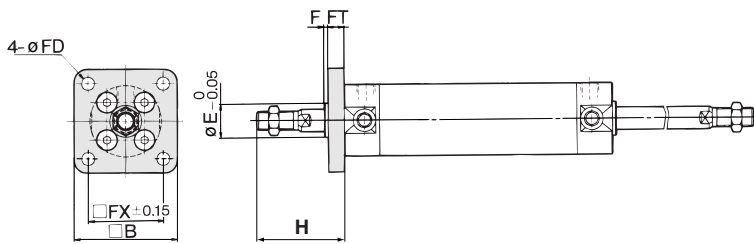


Foot Style

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



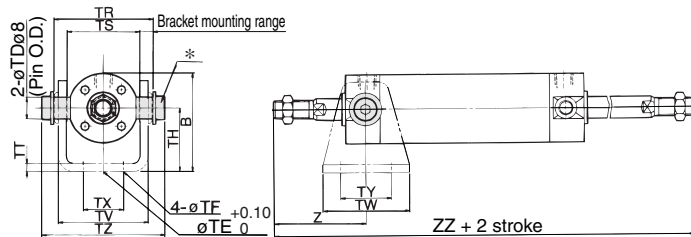
Rod Side Flange Style

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.