

# Air Cylinder

# Series CG1

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

## Variations

Series	Action	Rod	Cushion	Basic	Variation					Bore size (mm)	Page
					With One-touch fitting	With rod boot	Air-hydro	Clean series	Copper free		
<b>Standard/Series CG1</b> 	Double acting	Single rod	Rubber Air	●	●	●	●	●	20 to 100	1.7-2 1.7-14	
		Double rod	Rubber Air	●	●	●	●	●			
<b>Standard/Series CG1</b> 	Single acting	Single rod (Spring return) (Spring extend)	Rubber	●					20 to 40	1.7-20	
<b>Non-rotating rod Series CG1K</b> 	Double acting	Single rod	Rubber Air	●				●	20 to 63 40 to 63	1.7-26	
		Double rod	Rubber	●					20 to 63		1.7-30
<b>Direct mount Series CG1R</b> 	Double acting	Single rod	Rubber Air	●			●	●	20 to 63	1.7-35	
<b>Direct mount/Non-rotating rod Series CG1KR</b> 	Double acting	Single rod	Rubber	●					20 to 63	1.7-40	
<b>Low friction Series CG1□Q</b> 	Double acting	Single rod	No cushion (ø20 to ø63) Rubber (ø80, ø100)	●					20 to 100	1.7-43	

CG1

## Applicable auto switch

Auto switch model	Band mounting
<b>Reed switch</b>	D-C7/8, D-C73C/C80C D-B5/B6, D-B59W
<b>Solid state switch</b>	D-H7□, D-H7□W, D-H7□F D-H7BAL, D-H7C, D-G5/K5 D-G5□W/K59W, D-G59F, D-G5NTL

## Made to Order

Refer to p.5.4-1 for made to order products of series CG1

# Standard: Double Acting Single Rod

# Series CG1

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

## How to Order

**Standard**

CG1 L N 25 100

**With auto switch**

CDG1 L N 25 100 B53

**With auto switch (magnet)**

**Mounting**

B	Basic
L	Axial foot
F	Front flange
G	Rear flange
U*	Front trunnion
T*	Rear trunnion
D	Clevis

\* Not available for bore sizes ø80 and ø100.  
\*\* Mounting brackets are included, not mounted.

**Number of auto switches**

—	2
S	1
n	n

**Auto switch**

—	Without auto switch (Built-in magnet)
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\* Refer to the table below for selecting applicable auto switches.

**Rod boot (at one side)**

—	Without rod boot
J	Nylon tarpaulin
K	Heat resistant tarpaulin

\* Foot brackets and front flanges are fitted when rod boots are mounted.

**Bore size**

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

**Cylinder stroke (mm)**

Refer to p.1.7-3 for Standard Stroke Table.

**Cushion**

N	Rubber bumper
A	Air cushion

### Applicable Auto Switches/Refer to p.5.3-2 for further information on auto switch.

Style	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model		Lead wire (m)*				Applicable load							
					DC	AC	Applicable bore size		0.5 (-)	3 (L)	5 (Z)	None (N)								
							ø20 to ø63	ø20 to ø100												
Reed switch	—	Grommet	Yes	3 wire (NPN)	—	5V	—	C76	—	●	●	—	—	IC	—					
								—	B53	●	●	●	—	—		PLC				
				2 wire	24V	—	200V or less	—	B54	●	●	●	—	—	—	Relay PLC				
								—	B64	●	●	—	—	—						
		Connector	No	Yes	No	2 wire	24V	12V	100V	C73	—	●	●	●	—	IC	Relay PLC			
										5V, 12V	100V or less	C80	—	●	●			—	—	IC
										12V	—	C73C	—	●	●			●	●	—
Diagnostic indication (2 color)	Grommet	Yes	Yes	2 wire	24V	5V, 12V	24V or less	C80C	—	●	●	●	●	IC	Relay PLC					
								—	—	—	B59W	●	●	—		—	—			
								—	—	—	—	—	—	—		—	—			
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	H7A1	G59	●	●	○	—	IC	Relay PLC					
				3 wire (PNP)				H7A2	G5P	●	●	○	—	—						
		Connector	No	Yes	2 wire	24V	12V	—	H7B	K59	●	●	○	—		—				
									—	H7C	—	●	●	●		●	—	—		
		Diagnostic indication (2 color)	Grommet	Yes	Yes	2 wire	24V	5V, 12V	—	H7NW	G59W	●	●	○		—	IC			
	H7PW									G5PW	●	●	○	—		—				
	H7BW									K59W	●	●	○	—		—				
	Water resistant (2 color)	Grommet	No	Yes	2 wire	24V	12V	—	H7BA	G5BA	—	●	○	—		—				
									—	G5NT	—	●	○	—		—	IC			
	With timer	Grommet	No	Yes	3 wire (NPN)	24V	5V, 12V	—	H7NF	G59F	●	●	○	—		—				
—									—	—	—	—	—	—	—					
Diagnostic output (2 color)	Grommet	No	Yes	4 wire (NPN)	24V	—	—	H7LF	—	●	●	○	—	—						
								—	—	—	—	—	—	—	—					

\* Lead wire length 0.5m.....— 3m.....L e.g.) C73C 5m.....Z None.....N e.g.) C73CZ C73CN

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

# Standard: Double Acting Single Rod *Series CG1*

## Substantially shorter length:

- ø20 to ø40: -15 to -30mm  
(in comparison with CM2 Series)
- ø40 to ø63: -17 to -28mm  
(in comparison with CA1 Series)
- ø80 to ø100: -9 to -33mm  
(in comparison with CA1 Series)

**High speed operation: 1000mm/s**  
(ø80 and ø100 operate at 700mm/s)

**Provided with an air cushion as standard**

Two cushions are available:  
an air cushion or rubber bumper

**Weight reduction of 10 to 50%**  
(50mm stroke, in-house comparison)

**Highly accurate mounting brackets**

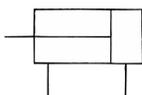
(Axial foot, front flange)



Standard stroke

## JIS symbol

Double acting



**Order Made** Made to Order

Refer to p.5.4-1 for made to order products of series CG1.

## Mounting Bracket

Refer to p.1.7-4 for part numbers for the mounting brackets.

## Auto Switch Mounting Band

Refer to p.1.7-4 for part numbers for the mounting bands.

## Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting/Single rod							
Lubrication	Non-lube							
Fluid	Air							
Proof pressure	1.5MPa							
Max. operating pressure	1.0MPa							
Min. operating pressure	0.05MPa							
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 1000mm/s						50 to 700mm/s	
Stroke tolerance	Up to 1000 <sup>+1.4</sup> <sub>0</sub> mm, Up to 1200 <sup>+1.8</sup> <sub>0</sub> mm						Up to 1000 <sup>+1.4</sup> <sub>0</sub> mm Up to 1500 <sup>+1.8</sup> <sub>0</sub> mm	
Thread tolerance	JIS class 2							
Cushion	Rubber bumper/Air cushion							
Mounting*	Basic, Axial foot, Front flange, Rear flange, Front trunnion, Rear trunnion, Clevis (Used for changing the port location by 90° degrees.)							



Front/Rear trunnion styles are not available for bore sizes ø80 and ø100.

## Accessories

Mounting		Basic	Axial foot	Front flange	Rear flange	Front trunnion	Rear trunnion	Clevis
Standard	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	—	●
Option	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint** (With pins)	●	●	●	●	●	●	●
	Pivot bracket	—	—	—	—	●*	●*	●
	Rod boot	●	●	●	●	●	●	●

\* Pivot bracket is not available for bore sizes ø80 and ø100.

\*\* Pins and snap rings for double knuckle joint are included, not mounted.

## Stroke

Bore size (mm)	Standard stroke (1) (mm)	Long stroke (2) (mm)	Max stroke (mm)
20	25, 50, 75, 100, 125, 150, 200	201 to 350	1500
25		301 to 400	
32		301 to 450	
40	25, 50, 75, 100, 125, 150, 200, 250, 300	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. Refer to p.1.7-8 to 1.7-10 for dimensions.

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

## Minimum Strokes for Auto Switch Mounting

Auto switch model	Number of switches	
	2	1
D-C7/C8 D-B5/B6 D-H7 D-G5/K5	15mm	10mm
D-B59W	20mm	15mm
D-H7LF	20mm	10mm

## Rod Boot Materials

Symbol	Material	Max. operating temp
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C*

\* Maximum ambient temperature for the rod boot only.

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

CA1

CS1

# Series CG1

## 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-Q20-24A	CG-Q25-24A	CG-Q32-24A	CG-Q40-24A	CG-Q50-24A	CG-Q63-24A	CG-Q80-24A	CG-Q100-24A

\* Order two foot brackets per a cylinder.

\*\* Clevis pins, snap rings and mounting bolts are attached for the clevis.

\*\*\* Mounting bolts are attached for the foot type and the flange type.

## 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								

\* A set of following stainless steel mounting screws is attached.  
(A switch mounting band is not attached. Please order the band separately.)

BBA3: D-B5/B6/G5 types

BBA4: D-C7/C8/H7 types

• "D-G5BAL" and "D-H7BAL" switches are set on the cylinder with the 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	0.10	0.17	0.26	0.41	0.77	1.07	2.04	3.17
	Axial foot	0.21	0.30	0.42	0.63	1.25	1.79	3.00	4.92
	Flange	0.18	0.27	0.40	0.61	1.11	1.57	2.75	4.52
	Trunnion	0.11	0.19	0.29	0.46	0.91	1.21	—	—
	Clevis	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 pins)		0.05	0.09	0.09	0.13	0.26	0.26	0.64	1.31
Additional weight by each 50 stroke		0.05	0.07	0.09	0.15	0.22	0.26	0.35	0.49
Additional weight by air cushion		0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03
Additional weight by long stroke		0.01	0.01	0.02	0.03	0.06	0.10	0.19	0.26

Calculation example: **CG1LA20-100**  
(Foot, ø20, 100 stroke)

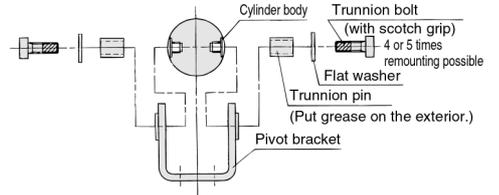
- Basic weight.....0.21 (Foot, ø20)
  - Additional weight.....0.05/50 stroke
  - Cylinder stroke.....100 stroke
  - Additional weight by air cushion...0.01kg
- $0.21+0.05 \times 100/50+0.01=0.32\text{kg}$

## Mounting Procedures

### Trunnion

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

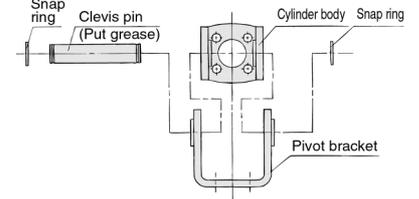
#### ø20 to ø63



### Clevis

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

#### ø20 to ø63



#### ø80, ø100

