



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		
Standard/Series CG1 	Double acting	Single rod	Rubber	●	●	●	●	●	●	20 to 100	1.7-2
			Air	●	●	●	●	●	●		
		Double rod	Rubber	●	●	●	●	●	●	20 to 100	1.7-14
			Air	●	●	●	●	●	●		
Standard/Series CG1 	Single acting	Single rod (Spring return/ Spring extend)	Rubber	●						20 to 40	1.7-20
Non-rotating rod Series CG1K 	Double acting	Single rod	Rubber	●					●	20 to 63	1.7-26
			Air	●						40 to 63	
		Double rod	Rubber	●						20 to 63	1.7-30
			Air	●							
Direct mount Series CG1R 	Double acting	Single rod	Rubber	●				●	●	20 to 63	1.7-35
Direct mount/Non-rotating rod Series CG1KR 	Double acting	Single rod	Rubber	●						20 to 63	1.7-40
			Air	●					●		
Low friction Series CG1□Q 	Double acting	Single rod	No cushion (ø20 to ø63) Rubber (ø80, ø100)	●						20 to 100	1.7-43

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

CA1

CS1

Applicable auto switch

Auto switch model	Band mounting
Reed switch	D-C7/8, D-C73C/C80C D-B5/B6, D-B59W
Solid state switch	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

- «Чистая» (т.е. предельно простая, гладкая) форма
- Компактность, разборная конструкция
- Многообразие вариантов монтажа: на лапах, на фланце (переднем или заднем), на цапфе (передней или задней), на заднем шарнире
- Высокая максимальная скорость поршня – 1000 мм/с
- Возможность установки датчиков положения
- Исполнения с упругим и пневматическим демпфером
- Исполнение одностороннего действия для Ø20, 25, 32 и 40 мм
- Исполнение с защитой штока от загрязнений (гофр. чехол)
- Исполнения с двусторонним штоком, с непроворотным штоком



Технические характеристики

Диаметр поршня (мм)	20	25	32	40	50	63	80	100
Среда	Очищенный сжатый воздух без маслораспыления							
Испытательное давление (МПа)	1.5							
Максимальное рабочее давление (МПа)	1.0							
Минимальное рабочее давление (МПа)	0.05							
Температура окружающей среды (°C)	-10 ~ +70 (без датчиков положения)							
	-10 ~ +60 (с датчиками положения)							
Скорость поршня (мм/с)	50 ~ 1000						50 ~ 700	
Демпфирование	Упругий демпфер / Пневматический демпфер							

Обзор программы поставки

Серия	Исполнение	Шток	Демпфер	Стандарт. исполн.	Варианты					Диаметр (мм)
					С быстро-разъем. соедин.	С защитой штока	Пневмо-гидравлический	Чистая серия	Без меди	
Стандарт CG1	Двусторон. действия	Односторонний	Упругий	●	●	●	●	●	●	20 ~ 100
			Пневматич.	●		●			●	
		Двусторонний	Упругий	●		●	●		●	
			Пневматич.	●		●			●	
Стандарт CG1	Односторон. действия	Односторон. (пружин. возврат/подача)	Упругий	●						20 ~ 40
CG1K	Двусторон. действия	Односторонний	Упругий	●					●	20 ~ 63
			Пневматич.	●						40 ~ 63
		Двусторонний	Упругий	●						20 ~ 63
CG1R	Двусторон. действия	Односторонний	Упругий	●				●	●	20 ~ 63
			Пневматич.	●					●	
CG1KR	Двусторон. действия	Односторонний	Упругий	●						20 ~ 63
CG1□Q	Двусторон. действия	Односторонний	Нет демпф.	●						20 ~ 63
			Упругий	●						20 ~ 100

Принадлежности

Крепление		Основное	Лапы	Передний фланец	Задний фланец	Передняя цапфа	Задняя цапфа	Проушина
Стандарт	Гайка штока	●	●	●	●	●	●	●
	Штифт проушины	—	—	—	—	—	—	●
Опция	Одиночная вилка штока	●	●	●	●	●	●	●
	Двойная вилка штока** (со штифтами)	●	●	●	●	●	●	●
	Опора	—	—	—	—	●*	●*	●
	Защитный гофр	●	●	●	●	●	●	●

* Кроме цилиндров Ø80 и Ø100

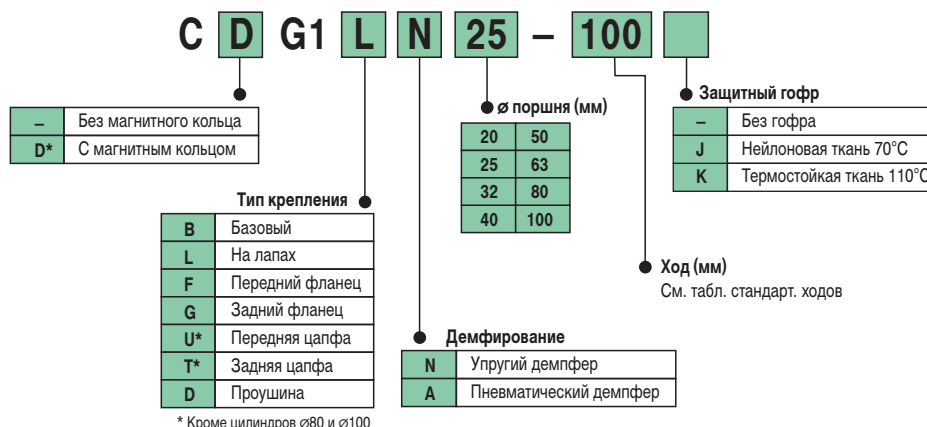
** Включая неуставленные штифты и стопорные кольца

Длины хода

Диаметр (мм)	Стандартный ход ¹⁾ (мм)	Длинный ход ²⁾ (мм)	Максимальный ход (мм)
20	25, 50, 75, 100, 125, 150, 200	от 201 до 350	1500
25	25, 50, 75, 100, 125, 150, 200, 250, 300	от 301 до 400	
32		от 301 до 450	
40		от 301 до 800	
50/63		от 301 до 1200	
80		от 301 до 1400	
100		от 301 до 1500	

- 1) Пневмоцилиндры с нестандартной длиной хода изготавливаются по запросу.
2) Для исполнений с длинным ходом применяется монтаж на лапах или на переднем фланце

Номер для заказа



Номер для заказа принадлежностей

Крепежные элементы	Диаметр (мм)							
	20	25	32	40	50	63	80	100
Лапы*	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100
Фланец	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100
Втулка цапфы	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	—	—
Проушина**	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063	CG-D080	CG-D100
Опора	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	CG-080-24A	CG-100-24A

* Комплект состоит из двух лап

** Включая штифты, стопорные кольца и крепежные болты

Комплекты лап и фланцев включают крепежные болты

Вес пневмоцилиндра и крепежных элементов (кг)

Диаметр (мм)		20	25	32	40	50	63	80	100
Основной Вес	Основной	0.10	0.17	0.26	0.41	0.77	1.07	2.04	3.17
	На лапах	0.21	0.30	0.42	0.63	1.25	1.79	3.00	4.92
	На фланце	0.18	0.27	0.40	0.61	1.11	1.57	2.75	4.52
	На цапфе	0.11	0.19	0.29	0.46	0.91	1.21	—	—
	С проушиной	0.15	0.25	0.41	0.64	1.17	1.75	2.75	4.45
Опора		0.08	0.09	0.17	0.25	0.44	0.80	0.98	1.75
Шарнирное соединение		0.05	0.09	0.09	0.10	0.22	0.22	0.39	0.57
Двойное шарнирное соединение (со штифтами)		0.05	0.09	0.09	0.13	0.26	0.26	0.64	1.31
Доп. вес на каждые 50 мм хода		0.05	0.07	0.09	0.15	0.22	0.26	0.35	0.49
Доп. вес на пневматический демпфер		0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03
Доп. вес на длинный ход		0.01	0.01	0.02	0.03	0.06	0.10	0.19	0.26

Пример расчета:

CG1LA20-100

(Ø20, ход 100, на лапах)

Основной вес: 0.21 (на лапах, Ø20)

Дополнительный вес: 0.05 на 50 мм хода

Ход цилиндра: 100 мм

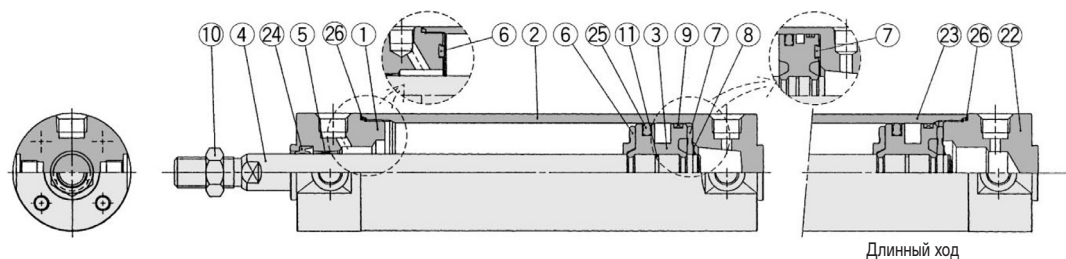
Доп. вес для исполнения с пневматическим демпфером: 0.01 кг

$$\text{Вес} = 0.21 + 0.05 \times \frac{100}{50} + 0.01 = 0.32 \text{ кг}$$

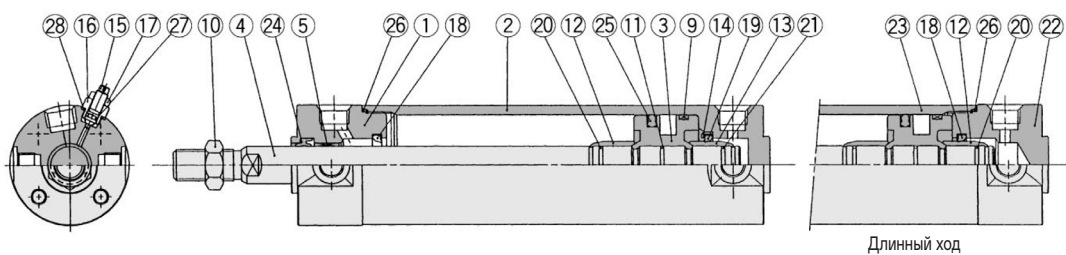
Пневмоцилиндр
Серия CG1

Конструкция

С упругим демпфером



С пневматическим демпфером



Спецификация

Поз.	Название	Материал	Примечание
1	Крышка	Алюминиевый сплав	Анодированный
2	Корпус	Алюминиевый сплав	Анодированный
3	Поршень	Алюминиевый сплав	Хромированный
4	Шток	Углеродистая сталь	Хромовое покрытие
5	Направляющее кольцо штока	Спеченный металлический порошок, пропитанный маслом	ø40 и более: литая свинцовая бронза
6	Упругий демпфер А	Полиуретан	
7	Упругий демпфер В	Полиуретан	ø40 и более – такой же, как демпфер А
8	Стопорное кольцо	Нержавеющая сталь	Кроме ø80 и 100
9	Направляющее кольцо поршня	Полимер	
10	Гайка	Сталь	Никелевое покрытие
11	Уплотнение поршня	NBR	
12	Втулка пневматич. демпфера А	Латунь	
13	Втулка пневматич. демпфера В	Латунь	ø32 и более – такая же, как втулка демпфера А
14	Опорная шайба уплотнения	Сталь	Никелевое покрытие (кроме исполнений с длинным ходом)
15	Клапан пневматич. демпфера	Сталь	Никелевое покрытие
16	Стопор	Сталь	Никелевое покрытие
17	Контргайка	Сталь	Никелевое покрытие
18	Манжета пневматич. демпфера А	Полиуретан	
19	Манжета пневматич. демпфера В	Полиуретан	ø32 и более – такая же, как манжета демпфера А
20	Уплотнение А	NBR	
21	Уплотнение В	NBR	ø32 и более – такое же, как уплотнение А
22	Крышка	Алюминиевый сплав	Анодированный
23	Гильза	Алюминиевый сплав	Анодированный

Примечание: при необходимости установки датчиков положения предусмотрено исполнение с магнитным кольцом на поршне.

С упругим демпфером

Поз.	Название	Материал
24	Уплотнение штока	NBR
25	Уплотнение поршня	NBR
26	Уплотнительное кольцо	NBR

С пневматическим демпфером

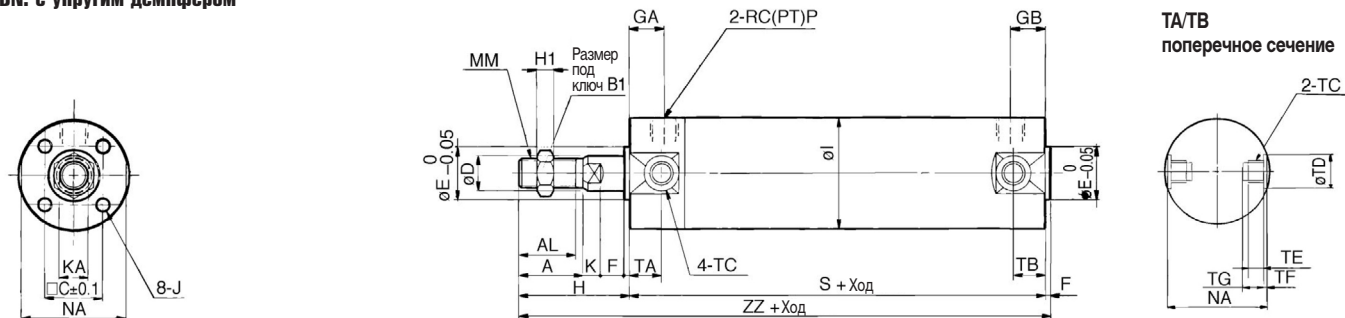
Поз.	Название	Материал
24	Уплотнение штока	NBR
25	Уплотнение поршня	NBR
26	Уплотнительное кольцо	NBR
27	Уплотнение клапана	NBR
28	Прокладка	NBR

Ремкомплект

ø (мм)	С пневматич. демпфером	С упругим демпфером
20	CG1A20-PS	CG1N20-PS
25	CG1A25-PS	CG1N25-PS
32	CG1A32-PS	CG1N32-PS
40	CG1A40-PS	CG1N40-PS
50	CG1A50-PS	CG1N50-PS
63	CG1A63-PS	CG1N63-PS
80	CG1A80-PS	CG1N80-PS
100	CG1A100-PS	CG1N100-PS

Размеры

CG1BN: с упругим демпфером

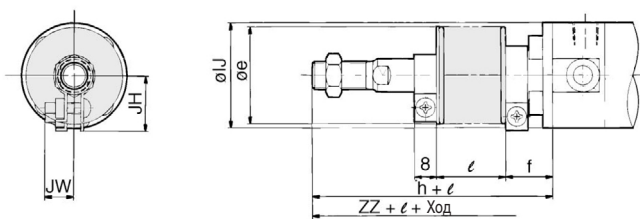


Ø (мм)	Станд. ход (мм)	Длин. ход (мм)	A	AL	B1	C	D	E	F	GA	GB	H	H1	I	J
20	До 200	201 ~ 350	18	15.5	13	14	8	12	2	12	10 (12)	35	5	26	M4 глуб. 7
25	До 300	301 ~ 400	22	19.5	17	16.5	10	14	2	12	10 (12)	40	6	31	M5 глуб. 7.5
32	До 300	301 ~ 450	22	19.5	17	20	12	18	2	12	10 (12)	40	6	38	M5 глуб. 8
40	До 300	301 ~ 800	30	27	19	26	16	25	2	13	10 (13)	50	8	47	M6 глуб. 12
50	До 300	301 ~ 1200	35	32	27	32	20	30	2	14	10 (14)	58	11	58	M8 глуб. 16
63	До 300	301 ~ 1200	35	32	27	38	20	32	2	14	10 (14)	58	11	72	M10 глуб. 16
80	До 300	301 ~ 1400	40	37	32	50	25	40	3	20	10 (20)	71	13	89	M10 глуб. 22
100	До 300	301 ~ 1500	40	37	41	60	30	50	3	20	10 (20)	71	16	110	M12 глуб. 22

Ø (мм)	K	KA	MM	NA	P	S	TA	TB	TC*	TD _{НВ}	TE	TF	TG	ZZ
20	5	6	M8	24	1/8	69 (77)	11	11	M5	8 ^{+0.08} ₀	4	0.5	5.5	106 (114)
25	5.5	8	M10x1.25	29	1/8	69 (77)	11	11	M6x0.75	10 ^{+0.08} ₀	5	1	6.5	111 (119)
32	5.5	10	M10x1.25	35.5	1/8	71 (79)	11	10 (11)	M8x1.0	12 ^{+0.08} ₀	5.5	1	7.5	113 (121)
40	6	14	M14x1.5	44	1/8	78 (87)	12	10 (12)	M10x1.25	14 ^{+0.08} ₀	6	1.25	8.5	130 (139)
50	7	18	M18x1.5	55	1/4	90 (102)	13	12 (13)	M12x1.25	16 ^{+0.08} ₀	7.5	2	10	150 (162)
63	7	18	M18x1.5	69	1/4	90 (102)	13	12 (13)	M14x1.5	18 ^{+0.08} ₀	11.5	3	14.5	150 (162)
80	10	22	M22x1.5	80	3/8	108 (122)	—	—	—	—	—	—	—	182 (196)
100	10	26	M26x1.5	100	1/2	108 (122)	—	—	—	—	—	—	—	182 (196)

Примечание: в скобках даны размеры для исполнения с длинным ходом

С защитным гофром



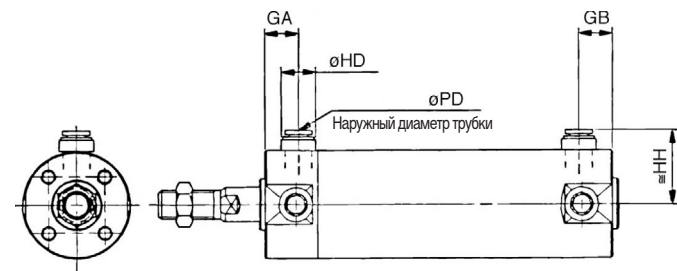
Ø (мм)	e	f	h	IJ	JH	JW	I	ZZ
20	30	16	55	27	(14.5)	(11.5)	0.25 хода	126 (134)
25	30	17	62	32	(17.5)	(11.5)		133 (141)
32	35	17	62	38	(19.5)	(11.5)		135 (143)
40	35	17	70	48	(22.5)	(13)		150 (159)
50	40	17	78	59	(25)	(13)		170 (182)
63	40	18	78	72	(25)	(13)		170 (182)
80	52	10	80	59	—	—		191 (205)
100	62	7	80	71	—	—		191 (205)

Примечание: минимальный ход для исполнения с защитным кожухом - 20 мм

Пневмоцилиндр
Серия CG1

Размеры

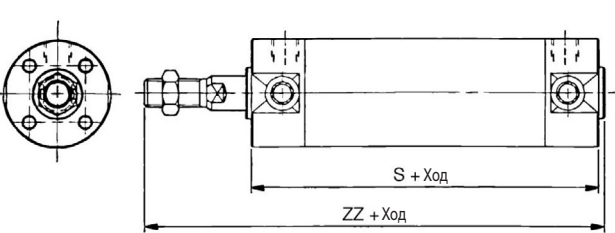
Встроенные быстроразъемные соединения



Остальные размеры - как в стандартном исполнении

Table with 6 columns: Ø (мм), GA, GB, HD, HH, PD. Rows for diameters 20, 25, 32, 40, 50, 63.

Пневмогидравлический



Остальные размеры - как в исполнении с длинным ходом

Table with 3 columns: Ø (мм), S, ZZ. Rows for diameters 20, 25, 32, 40, 50, 63.

С двусторонним штоком

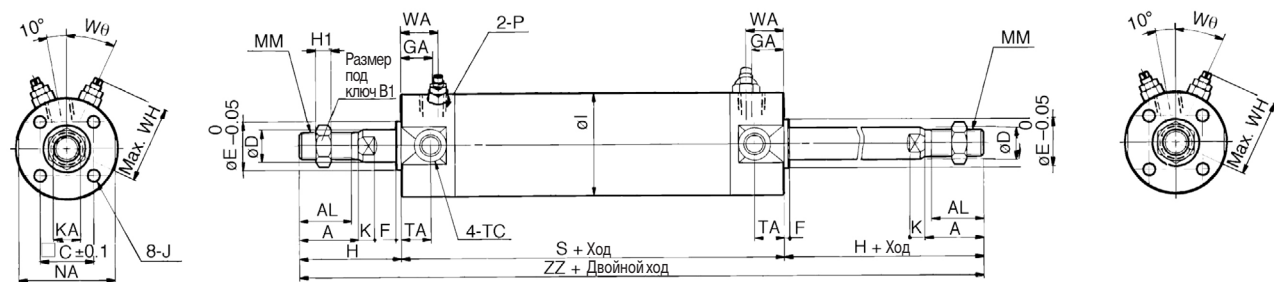
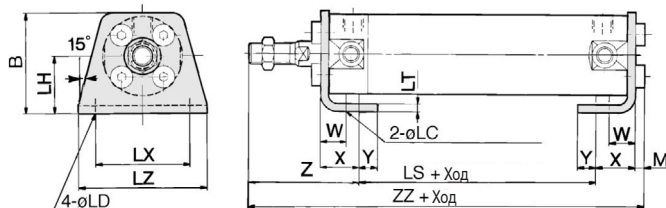


Table with 16 columns: Ø (мм), Станд. ход (мм), Длин. ход (мм), A, AL, B1, C, D, E, F, GA, H, H1, I, J, K. Rows for diameters 20, 25, 32, 40, 50, 63, 80, 100.

Table with 12 columns: Ø (мм), KA, MM, NA, P, S, TA, TC**, ZZ, WA, WH, Wq. Rows for diameters 20, 25, 32, 40, 50, 63, 80, 100.

Размеры с крепежными элементами

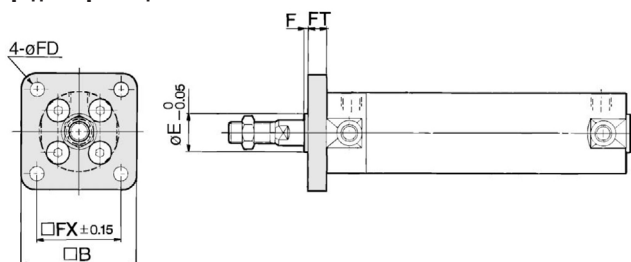
Лапы / C61LN



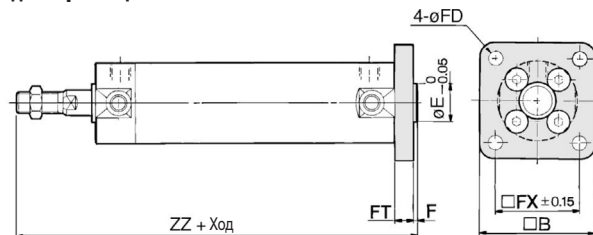
Ø (мм)	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	Z		ZZ	
													Без гофра	С гофром	Без гофра	С гофром
20	34	4	6	20	45 (53)	3	32	44	3	10	15	7	47	67 + l	110 (118)	130 (138) + l
25	38.5	4	6	22	45 (53)	3	36	49	3.5	10	15	7	52	74 + l	115.5 (123.5)	137.5 (145.5) + l
32	45	4	6.6	25	45 (53)	3	44	58	3.5	10	16	8	53	75 + l	117.5 (125.5)	139.5 (147.5) + l
40	54.5	4	6.6	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	9	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	11	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

Примечание: в скобках даны размеры для исполнения с длинным ходом

Передний фланец / C61FN



Задний фланец / C61UN



Ø (мм)	Диапазон хода		B	E	F	FX	FD	FT	Задний фланец ZZ	
	Передний	Задний							Без гофра	С гофром
20	до 350	до 200	40	12	2	28	5.5	6	112	132 + l
25	до 400	до 300	44	14	2	32	5.5	7	118	140 + l
32	до 450	до 300	53	18	2	38	6.6	7	120	142 + l
40	до 800	до 500	61	25	2	46	6.6	8	138 (147)	158 (167) + l
50	до 1200	до 600	76	30	2	58	9	9	159 (171)	179 (191) + l
63	до 1200	до 600	92	32	2	70	11	9	159 (171)	179 (191) + l
80	до 1400	до 750	104	40	3	82	11	11	193 (207)	202 (216) + l
100	до 1500	до 750	128	50	3	100	14	14	196 (210)	202 (219) + l

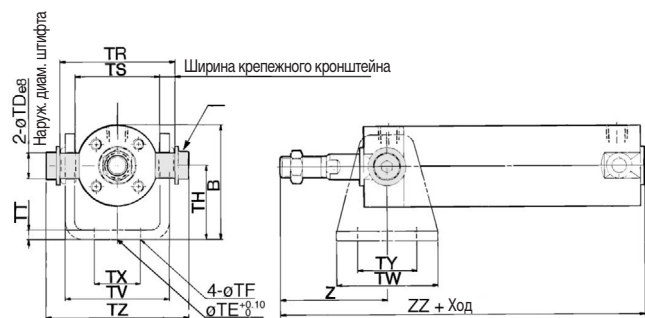
Примечания:

- В скобках даны размеры для исполнения с длинным ходом
- øE — диаметр выступа в центральной части фланца

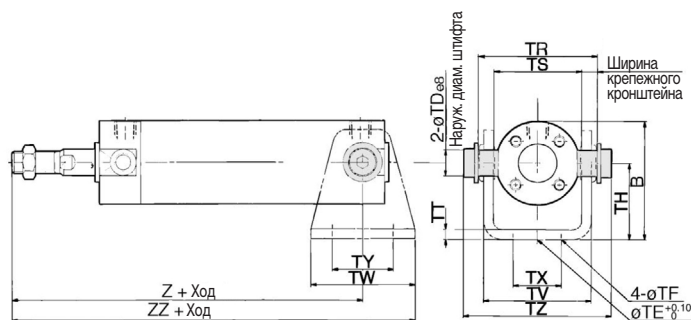
Пневмоцилиндр
Серия C61

Размеры с крепежными элементами

Передняя цапфа / C61UN



Задняя цапфа / C61TN



ø (мм)	Диапазон хода		B	TDøв	TE	TF	TH	TR	TS	TT	TV	TW	TX	TY	TZ
	Передний	Задний													
20	до 200	до 200	38	8 ^{0.025} _{0.047}	10	5.5	25	39	28	3.2	35.8	42	16	28	47.6
25	до 300	до 300	45.5	10 ^{0.025} _{0.047}	10	5.5	30	43	33	3.2	39.8	42	20	28	53
32	до 300	до 300	54	12 ^{0.032} _{0.059}	10	6.6	35	54.5	40	4.5	49.4	48	22	28	67.7
40	до 500	до 500	63.5	14 ^{0.032} _{0.059}	10	6.6	40	65.5	49	4.5	58.4	56	30	30	78.7
50	до 600	до 600	79	16 ^{0.032} _{0.059}	20	9	50	80	60	6	72.4	64	36	36	98.6
63	до 600	до 600	96	18 ^{0.032} _{0.059}	20	11	60	98	74	8	90.4	74	46	46	119.2

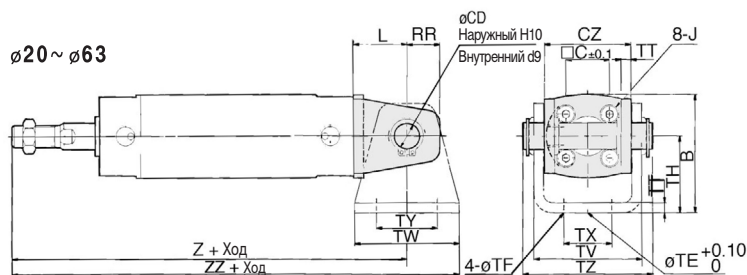
ø (мм)	Передний		Задний			
	Z		Z		ZZ	
	Без гофра	С гофром	Без гофра	С гофром	Без гофра	С гофром
20	46	66 + l	93	113 + l	114	134 + l
25	51	73 + l	98	120 + l	119	141 + l
32	51	73 + l	101	123 + l	125	147 + l
40	62	82 + l	118 (125)	138 (145) + l	146 (153)	166 (173) + l
50	71	91 + l	136 (147)	156 (167) + l	168 (179)	188 (199) + l
63	71	91 + l	136 (147)	156 (167) + l	173 (184)	193 (204) + l

* Состоит из штифтов, плоской шайбы и болта с внутренним шестигранником.

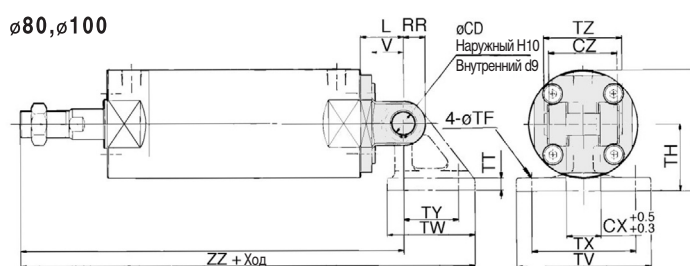
- Примечания:
1) В скобках даны размеры для исполнения с длинным ходом
2) øE – диаметр выступа в центральной части фланца

Размеры с крепежными элементами

Проушина / C61DN



(На рисунке положение портов показано повернутым на 90 градусов)



* Включая штифты проушины и стопорные кольца

ø (мм)	Диапазон хода (мм)	B	CD	CX	CZ	L	RR	V	TE	TF	TH	TT	TV	TW	TX	TY	TZ
20	до 200	38	8	—	29	14	11	—	10	5.5	25	3.2	35.8	42	16	28	43.4
25	до 300	45.5	10	—	33	16	13	—	10	5.5	30	3.2	39.8	42	20	28	48
32	до 300	54	12	—	40	20	15	—	10	6.6	35	4.5	49.4	48	22	28	59.4
40	до 500	63.5	14	—	49	22	18	—	10	6.6	40	4.5	58.4	56	30	30	71.4
50	до 600	79	16	—	60	25	20	—	20	9	50	6	72.4	64	36	36	86
63	до 600	96	18	—	74	30	22	—	20	11	60	8	90.4	74	46	46	105.4
80	до 750	99.5	18	28	56	35	18	26	—	11	55	11	110	72	85	45	64
100	до 750	120	22	32	64	43	22	32	—	13.5	65	12	130	93	100	60	72

ø (мм)	Z	ZZ	С гофром		Номер для заказа соответств. штифта
			Z	ZZ	
20	118	139	138 + l	159 + l	CD-G02
25	125	146	147 + l	168 + l	CD-G25
32	131	155	153 + l	177 + l	CD-G03
40	150 (159)	178 (187)	170 + l (179 + l)	198 + l (207 + l)	CD-G04
50	173 (185)	205 (217)	193 + l (205 + l)	225 + l (237 + l)	CD-G05
63	178 (190)	215 (227)	198 + l (210 + l)	235 + l (247 + l)	CD-G06
80	214 (228)	272.5 (286.5)	223 + l (237 + l)	281.5 + l (295.5 + l)	IY-G08
100	222 (236)	298.5 (312.5)	231 + l (245 + l)	307.5 + l (321.5 + l)	IY-G10

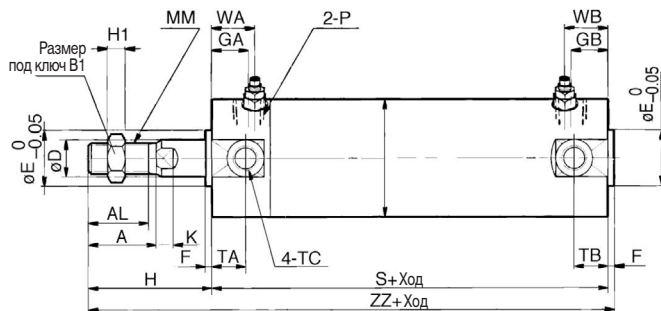
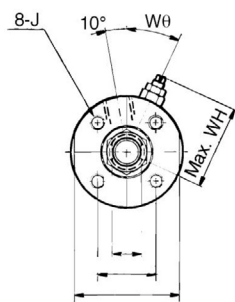
Примечания:

- В скобках даны размеры для исполнения с длинным ходом
- øE — диаметр выступа в центральной части фланца

Пневмоцилиндр Серия CG1

Размеры

С пневматическим демпфером / CG1BA



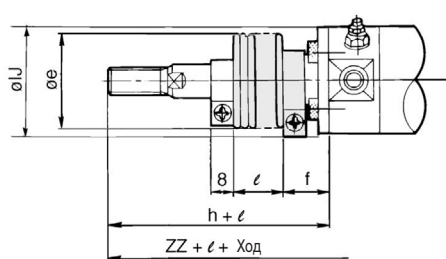
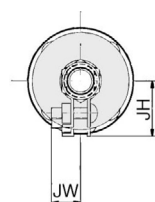
Ø (мм)	Станд. ход (мм)	Длин. ход (мм)	A	AL	B1	C	D	E	F	GA	GB	H	H1	I	J
20	до 200	201 ~ 350	18	15.5	13	14	8	12	2	12	10 (12)	35	5	26	M4 глуб. 7
25	до 300	301 ~ 400	22	19.5	17	16.5	10	14	2	12	10 (12)	40	6	31	M5 глуб. 7.5
32	до 300	301 ~ 450	22	19.5	17	20	12	18	2	12	10 (12)	40	6	38	M5 глуб. 8
40	до 300	301 ~ 800	30	27	19	26	16	25	2	13	10 (13)	50	8	47	M6 глуб. 12
50	до 300	301 ~ 1200	35	32	27	32	20	30	2	14	12 (14)	58	11	58	M8 глуб. 16
63	до 300	301 ~ 1200	35	32	27	38	20	32	2	14	12 (14)	58	11	72	M10 глуб. 16
80	до 300	301 ~ 1400	40	37	32	50	25	40	3	20	16 (20)	71	13	89	M10 глуб. 22
100	до 300	301 ~ 1500	40	37	41	60	30	50	3	20	16 (20)	71	16	110	M12 глуб. 22

Ø (мм)	K	KA	MM	NA	P	S	TA	TB	TC*	ZZ	WA	WB	WH	Wq
20	5	6	M8	24	M5	69 (77)	11	11	M5	106 (114)	16	15 (16)	23	30°
25	5.5	8	M10x1.25	29	M5	69 (77)	11	11	M6x0.75	111 (119)	16	15 (16)	25	30°
32	5.5	10	M10x1.25	35.5	Rc(PT)1/8	71 (79)	11	10 (11)	M8x1.0	113 (121)	16	15 (16)	28.5	25°
40	6	14	M14x1.5	44	Rc(PT)1/8	78 (87)	12	10 (12)	M10x1.25	130 (139)	16	15 (16)	33	20°
50	7	18	M18x1.5	55	Rc(PT)1/4	90 (102)	13	12 (13)	M12x1.25	150 (162)	18	17 (18)	40.5	20°
63	7	18	M18x1.5	69	Rc(PT)1/4	90 (102)	13	12 (13)	M14x1.5	150 (162)	18	17 (18)	47.5	20°
80	10	22	M22x1.5	80	Rc(PT)3/8	108 (122)	—	—	—	182 (196)	22	22	60.5	20°
100	10	26	M26x1.5	100	Rc(PT)1/2	108 (122)	—	—	—	182 (196)	22	22	71	20°

Примечания:

- 1) В скобках даны размеры для исполнения с длинным ходом
- 2) ØE – диаметр выступа в центральной части фланца

С защитным гофром



Ø (мм)	e	f	h	lJ	JH	JW	l	ZZ
20	30	16	55	27	(14.5)	(11.5)	0.25	126 (134)
25	30	17	62	32	(17.5)	(11.5)	хода	133 (141)
32	35	17	62	38	(19.5)	(11.5)		135 (143)
40	35	17	70	48	(22.5)	(13)		150 (159)
50	40	17	78	59	(25)	(13)		170 (182)
63	40	18	78	72	(25)	(13)		170 (182)
80	52	10	80	59	—	—		191 (205)
100	62	7	80	71	—	—		191 (205)

* минимальный ход для исполнения с защитным кожухом – 20 мм

Номера для заказа хомутов

Тип датчика	Диаметр (мм)							
	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								

Датчики положения

Датчики положения устанавливаются на хомутах.

Крепежные хомуты и датчики положения заказываются отдельно.

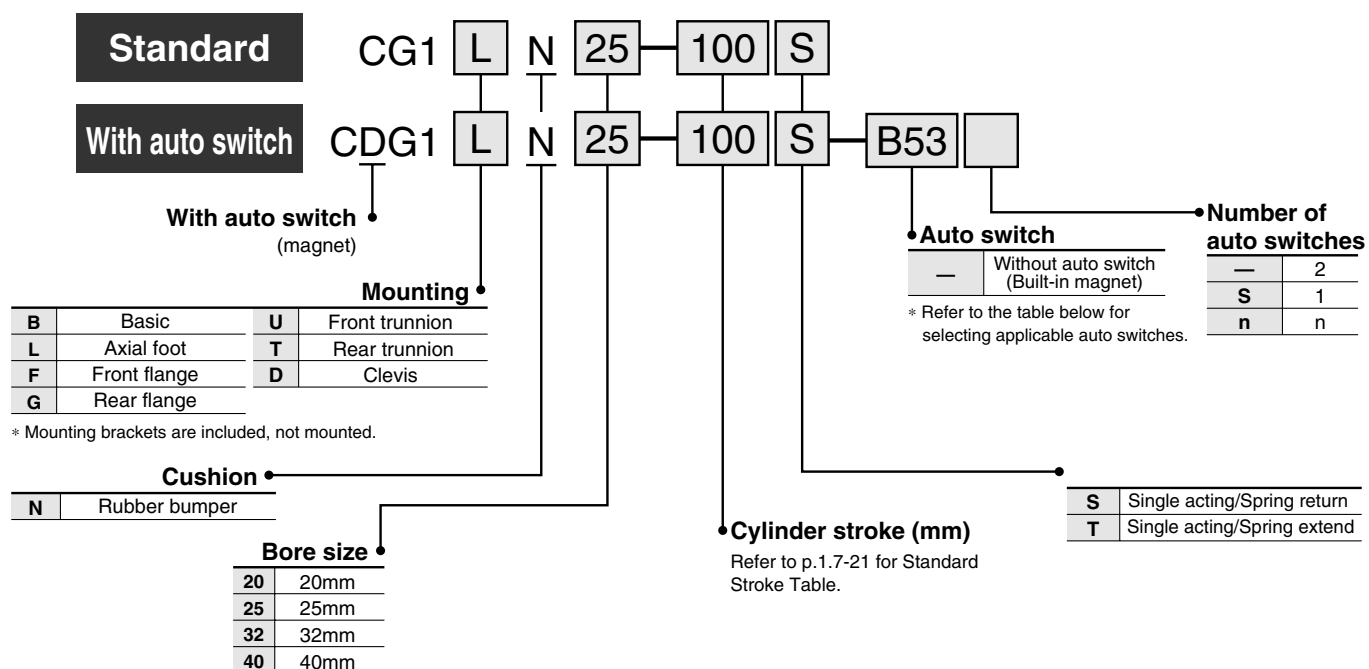
Более подробную информацию можно получить по запросу.

Standard: Single Acting Spring Return/Extend

Series CG1

ø20, ø25, ø32, ø40

How to Order



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			0.5 (—)	3 (L)	5 (Z)	None (N)					
Reed switch	—	Grommet	Yes	3 wire (NPN)	—	5V	—	C76	—	●	●	—	—	IC	—			
				2 wire	—	—	—	—	B53	●	●	●	—	—	PLC			
			24V		—	200V or less	—	B54	●	●	●	—	—	Relay PLC				
						12V 100V	C73	—	●	●	●	—						
		5V, 12V 100V or less				C80	—	●	●	—	—	IC						
		12V —				C73C	—	●	●	●	●	—						
		5V, 12V 24V or less			C80C	—	●	●	●	●	—	IC						
		—	—	—	B59W	●	●	—	—	—								
Diagnostic indication (2 colour)	Grommet	Yes																
Solid state switch	—	Grommet	Yes	2 wire	24V	12V	—	—	K59	●	●	○	—	—	Relay PLC			
				3 wire (NPN)		5V, 12V		H7A1	G59	●	●	○	—			IC		
				3 wire (PNP)				H7A2	G5P	●	●	○	—					
		Connector	2 wire	12V		H7B		—	●	●	○	—	—					
			Diagnostic indication (2 colour)	Grommet		Yes		3 wire (NPN)	5V, 12V	H7NW	G59W	●	●			○	—	IC
								3 wire (PNP)	H7PW	G5PW	●	●	○			—	—	
	2 wire	12V						H7BW	K59W	●	●	○	—					
	Water resistant (2 colour)	Grommet						Yes	2 wire	5V, 12V	H7BA	G5BA	—	●		○		—
									3 wire (NPN)		—	G5NT	—	●		○	—	
									4 wire (NPN)		—	H7NF	G59F	●		●	○	—
	With timer																	
	Diagnostic output (2 colour)																	
Latch with diagnostic output (2 colour)																		

* Lead wire length 0.5m..... 3m.....L e.g.) C73C 5m.....Z e.g.) C73CZ C73CL None.....N C73CN

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

Standard: Single Acting Spring Return/Extend **Series CG1**



Spring return



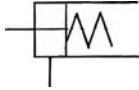
Spring extend

JIS symbol

Spring return



Spring extend



Made to Order

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

Specifications

Action	Single acting/Spring return	Single acting/Spring extend
Bore size (mm)	20, 25, 32, 40	
Lubrication	Non-lube	
Fluid	Air	
Proof pressure	1.5MPa	
Max. operating pressure	1.0MPa	
Min. operating pressure	0.18MPa	0.23MPa
Ambient and fluid temperature	Without auto switch: -10°C to +70°C (No freezing)	
	With auto switch: -10°C to +60°C (No freezing)	
Piston speed	50 to 1000mm/s	
Stroke tolerance	Up to 200 ^{+1.4} ₀ mm	
Thread tolerance	JIS class 2	
Cushion	Rubber bumper	
Mounting	Basic, Axial foot, Front flange, Rear flange, Front trunnion, Rear trunnion, Clevis (Used for changing the port location by 90° degrees.)	

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	—	—	—	—	●	●	●

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

Stroke

Bore size (mm)	Standard stroke (mm) ⁽¹⁾
20	25, 50, 75, 100, 125
25, 32, 40	25, 50, 75, 100, 125, 150, 200

Note 1) Other intermediate strokes can be manufactured upon receipt of order. Spacers are not used for the 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 a cylinder.

** Mounting bolts are attached for foot and flange styles, and clevis pins, snap rings and mounting bolts for the 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-K5				



Note) 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.



Precautions

Be sure to read before handling.
Refer to p.0-39 to 0-43 for Safety Instructions and common precautions.
Refer to p.1.7-6 for precautions for series CG1.

Series CG1

Weight

(kg)

Spring return

Bore size (mm)		20	25	32	40
Basic weight	25st	0.17	0.27	0.40	0.63
	50st	0.19	0.30	0.45	0.71
	75st	0.26	0.40	0.58	0.91
	100st	0.28	0.43	0.62	0.99
	125st	0.35	0.53	0.76	1.20
	150st	—	0.56	0.81	1.28
	200st	—	0.69	0.98	1.56
Mounting bracket weight	Axial foot	0.11	0.13	0.16	0.22
	Flange	0.08	0.10	0.14	0.20
	Trunnion	0.01	0.02	0.03	0.05
	Clevis	0.05	0.08	0.15	0.23
Accessory	Pivot bracket	0.08	0.09	0.17	0.25
	Single knuckle joint	0.05	0.09	0.09	0.10
	Double knuckle joint (with pins)	0.05	0.09	0.09	0.13

Calculation example: **CG1LN20-100S** (Foot, ø20, 100 stroke)

• Basic weight..... 0.28kg (ø20) • Mounting bracket weight.....0.11kg (Foot)
0.28+0.11=0.39kg

Spring extend

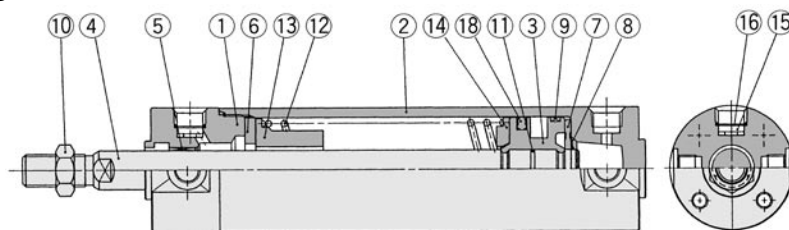
Bore size (mm)		20	25	32	40
Basic weight	25st	0.16	0.25	0.38	0.59
	50st	0.18	0.28	0.43	0.67
	75st	0.24	0.37	0.54	0.83
	100st	0.26	0.40	0.58	0.91
	125st	0.32	0.48	0.69	1.08
	150st	—	0.50	0.72	1.12
	200st	—	0.63	0.89	1.40
Mounting bracket weight	Axial foot	0.11	0.13	0.16	0.22
	Flange	0.08	0.10	0.14	0.20
	Trunnion	0.01	0.02	0.03	0.05
	Clevis	0.05	0.08	0.15	0.23
Accessory	Pivot bracket	0.08	0.09	0.17	0.25
	Single knuckle joint	0.05	0.09	0.09	0.10
	Double knuckle joint (with pins)	0.05	0.09	0.09	0.13

Calculation example: **CG1LN20-100T** (Foot, ø20, 100 stroke)

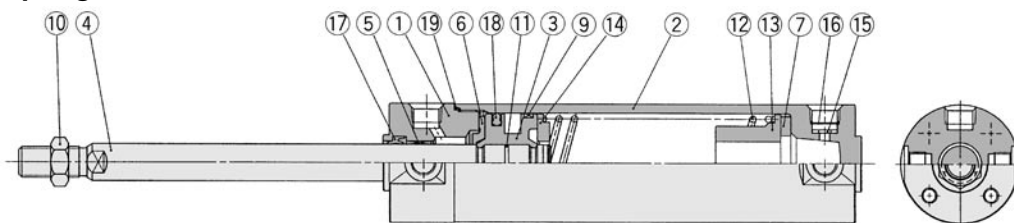
• Basic weight.....0.26kg (ø20) • Mounting bracket weight.....0.11kg (Foot)
0.26+0.11=0.39kg

Construction

Single acting/Spring return



Single acting/Spring



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	White hard anodized
②	Tube cover	Aluminum alloy	White hard anodized
③	Piston	Aluminum alloy	Chromated
④	Piston rod*	Carbon steel	Hard chrome plated
⑤	Bushing	Oil impregnated sintered alloy	ø40 or larger: Lead bronze cast
⑥	Bumper A	Urethane	
⑦	Bumper B	Urethane	
⑧	Snap ring	Stainless steel	
⑨	Wear ring	Resin	
⑩	Rod end nut	Rolled steel	Nickel plated
⑪	Piston gasket	NBR	
⑫	Return spring	Steel wire	Zinc chromated
⑬	Spring guide	Aluminum alloy	Chromated
⑭	Spring seat	Aluminum alloy	Chromated
⑮	Element	Sintered metal BC	
⑯	Snap ring	Steel wire	

Note) A rubber magnet is equipped on the piston of the cylinder with auto switch.

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

Replacement Parts: Single acting/Spring return

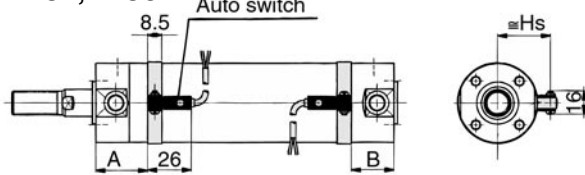
No.	Description	Material	Bore size (mm)/Part No.			
			20	25	32	40
⑱	Piston seal	NBR	PPD-20	PPD-25-19	PPD-32	PPD-40

Single acting/Spring extend (⑰ is the same as the spring return style.)

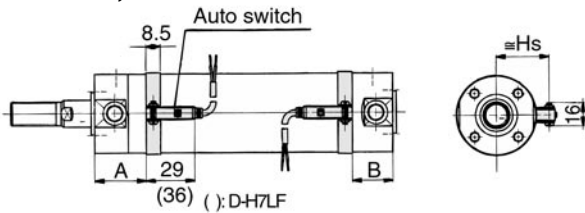
No.	Description	Material	Bore size (mm)/Part No.			
			20	25	32	40
⑰	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-16Z
⑲	Tube gasket	NBR	CM-020-16-123	CM-025-16-124	CM-032-16-126	CM-040-16-127

Auto Switch Mounting Position and Mounting Height

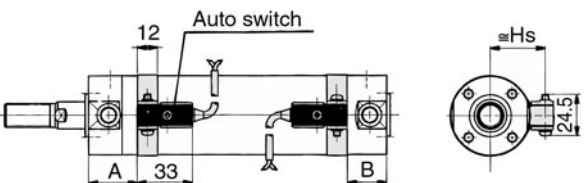
D-C7, D-C8



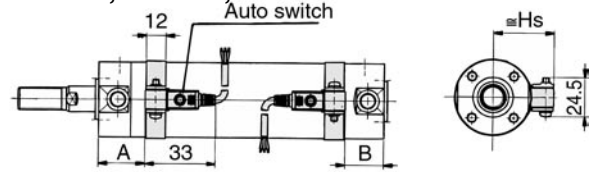
**D-H7, D-H7□W
D-H7□F, D-H7BAL**



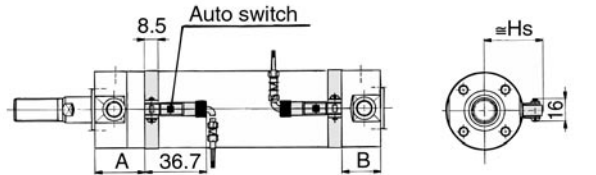
D-B5, D-B6, D-B59W



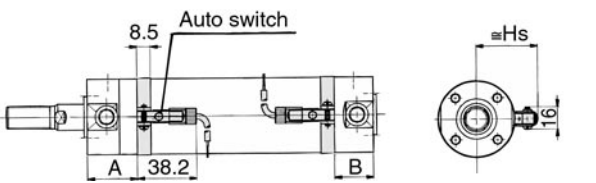
**D-G5, D-K5, D-G5□W, D-G5BAL
D-K59W, D-G59F, D-G5NTL**



D-C73C, D-C80C



D-H7C



Single acting/Spring return

Auto switch model	Bore size	A							B	Hs
		25	50	75	100	125	150	200	All strokes	
D-C7	20	55	55	80	80	105	—	—	20.5	24.5 (27)
D-C8	25	55	55	80	80	105	130	130	20.5	27 (29.5)
D-C73C	32	56	56	81	81	106	131	131	21.5	30.5 (33)
D-C80C	40	60.5	60.5	85.5	85.5	110.5	135.5	135.5	24	35 (37.5)
D-H7□	20	54	54	79	79	104	—	—	19.5	24.5 (27.5)
	25	54	54	79	79	104	129	129	19.5	27 (30)
D-H7C	32	55	55	80	80	105	130	130	20.5	30.5 (33.5)
	40	59.5	59.5	84.5	84.5	109.5	134.5	134.5	23	35 (38)
D-B5	20	49	49	74	74	99	—	—	15	27.5
D-B6	25	49	49	74	74	99	124	124	15	30
D-G50W	32	50	50	75	75	100	125	125	15.5	33.5
D-K59W	40	54.5	54.5	79.5	79.5	104.5	129.5	129.5	18	38
D-G59F										
D-G5BA										
D-G5	20	50.5	50.5	75.5	75.5	100.5	—	—	16	27.5
	25	50.5	50.5	75.5	75.5	100.5	125.5	125.5	16	30
	32	51.5	51.5	76.5	76.5	101.5	126.5	126.5	17	33.5
	40	56	56	81	81	106	131	131	19.5	38
D-K5	20	52	52	77	77	102	—	—	17.5	27.5
	25	52	52	77	77	102	127	127	17.5	30
	32	53	53	78	78	103	128	128	18.5	33.5
	40	57.5	57.5	82.5	82.5	107.5	132.5	132.5	21	38
D-B59W	20	52.5	52.5	77.5	77.5	102.5	—	—	18	24.5
	25	52.5	52.5	77.5	77.5	102.5	127.5	127.5	18	27
	32	53.5	53.5	78.5	78.5	103.5	128.5	128.5	19	30.5
	40	58	58	83	83	108	133	133	21.5	35

() : With connector

Single acting/Spring extend

Auto switch model	Bore size	A All strokes	B							Hs
			25	50	75	100	125	150	200	
D-C7	20	30	45.5	45.5	70.5	70.5	95.5	—	—	24.5 (27)
D-C8	25	30	45.5	45.5	70.5	70.5	95.5	120.5	120.5	27 (29.5)
D-C73C	32	31	46.5	46.5	71.5	71.5	96.5	121.5	121.5	30.5 (33)
D-C80C	40	35.5	49	49	74	74	99	124	124	35 (37.5)
D-H7□	20	29	44.5	44.5	69.5	69.5	94.5	—	—	24.5 (27.5)
	25	29	44.5	44.5	69.5	69.5	94.5	119.5	119.5	27 (30)
D-H7C	32	30	45.5	45.5	70.5	70.5	95.5	120.5	120.5	30.5 (33.5)
	40	34.5	48	48	73	73	98	123	123	35 (38)
D-B5	20	24	40	40	65	65	90	—	—	27.5
D-B6	25	24	40	40	65	65	90	115	115	30
D-G50W	32	25	40.5	40.5	65.5	65.5	90.5	115.5	115.5	33.5
D-K59W	40	29.5	43	43	68	68	93	118	118	38
D-G59F										
D-G5BA										
D-G5	20	25.5	41	41	66	66	91	—	—	27.5
	25	25.5	41	41	66	66	91	116	116	30
D-K5	32	26.5	42	42	67	67	92	117	117	33.5
D-G5NT	40	31	44.5	44.5	69.5	69.5	94.5	119.5	119.5	38
D-B59W	20	27	42.5	42.5	67.5	67.5	92.5	—	—	27.5
	25	27	42.5	42.5	67.5	67.5	92.5	117.5	117.5	30
	32	28	43.5	43.5	68.5	68.5	93.5	118.5	118.5	33.5
	40	32.5	46	46	71	71	96	121	121	38
D-H7□W	20	27.5	43	43	68	68	93	—	—	24.5
	25	27.5	43	43	68	68	93	118	118	27
D-H7□F	32	28.5	44	44	69	69	94	119	119	30.5
D-H7BA	40	33	46.5	46.5	71.5	71.5	96.5	121.5	121.5	35

() : With connector

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

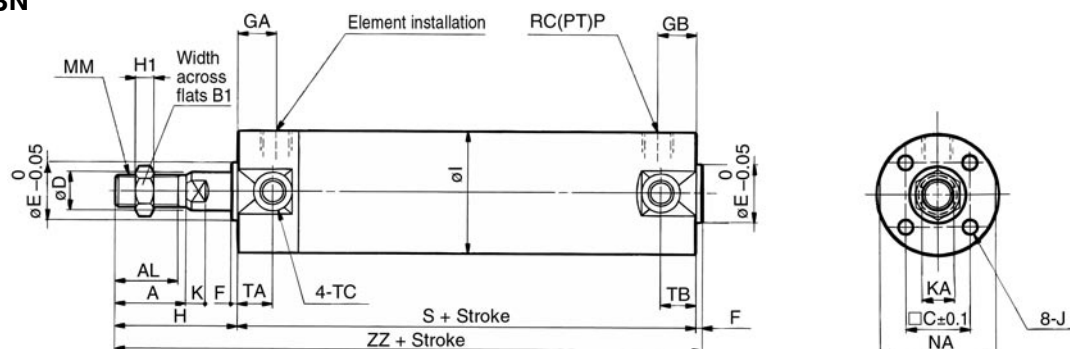
CA1

CS1

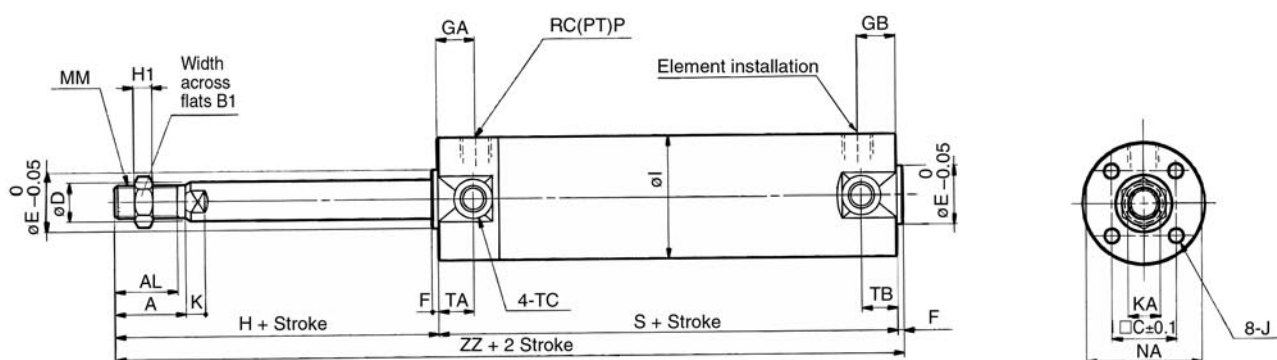
Series CG1

Basic

Spring return/CG1BN



Spring extend/CG1BN



(mm)																			
Bore (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 Depth 7	5	6	M8	24	1/8
25	Up to 200	22	19.5	17	16.5	10	14	2	12	10	40	6	31	M5 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 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 Depth 12	6	14	M14 X 1.5	44	1/8

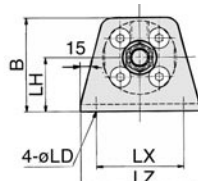
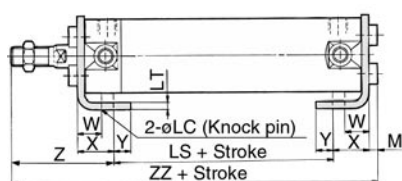
Bore (mm)	TA	TB	TC	1 to 50st		51 to 100st		101 to 125st		126 to 200st	
				S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	11	11	M5	94	131	119	156	144	181	—	—
25	11	11	M6 X 0.75	94	136	119	161	144	186	169	211
32	11	10	M8 X 1.0	96	138	121	163	146	188	171	213
40	12	10	M10 X 1.25	103	155	128	180	153	205	178	230

With Mounting Bracket



Note) The drawing below shows the single acting/spring return style.
The rod is retracted in case of the spring extend style

Axial foot/CG1LN



Axial foot

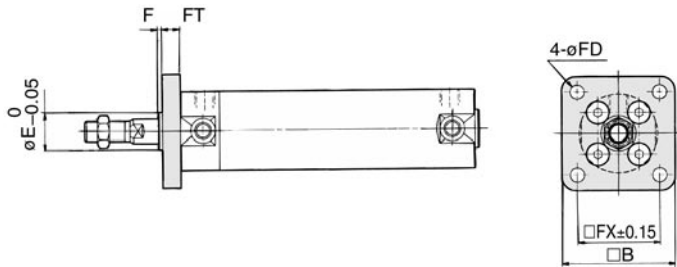
(mm)													
Bore (mm)	Stroke range (mm)	B	M	LC	LD	LH	LT	LX	LZ	W	X	Y	Z
20	Up to 125	34	3	4	6	20	3	32	44	10	15	7	47
25	Up to 200	38.5	3.5	4	6	22	3	36	49	10	15	7	52
32	Up to 200	45	3.5	4	6.6	25	3	44	58	10	16	8	53
40	Up to 200	54.5	4	4	6.6	30	3	54	71	10	16.5	8.5	63.5

Bore (mm)	1 to 50st		51 to 100st		101 to 125st		126 to 200st	
	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

Standard: Single Acting Spring Return/Extend **Series CG1**

With Mounting Bracket

Front flange/CG1FN



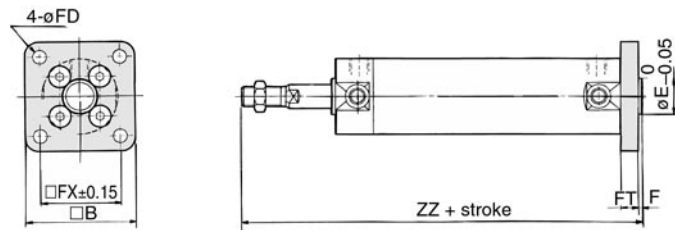
Bore size (mm)	Stroke range (mm)	B	E	F	FX	FD	FT
20	Up to 125	40	12	2	28	5.5	6
25	Up to 200	44	14	2	32	5.5	7
32	Up to 200	53	18	2	38	6.6	7
40	Up to 200	61	25	2	46	6.6	8

* End boss is machined on the flange for øE.

Front flange (mm)

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

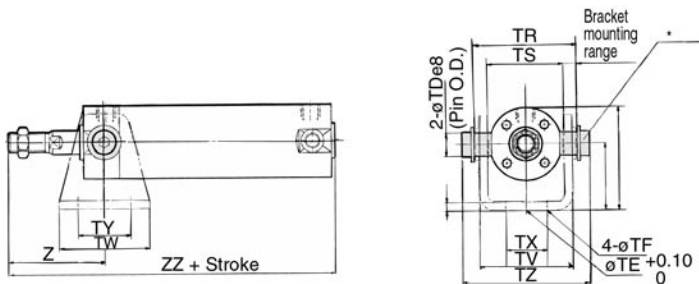
Rear flange/CG1GN



Rear flange (mm)

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

Front trunnion/CG1UN



* Clevis pins and snap rings are attached.

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 pins, flat washer and hexagon socket head cap bolt.

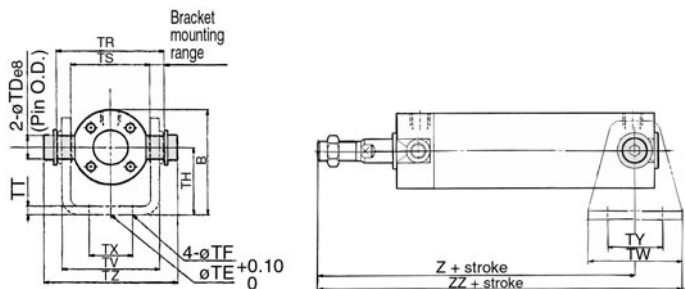
Front trunnion (mm)

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

Rear trunnion (mm)

Bore size (mm)	1 to 50st	51 to 100st	101 to 125st	126 to 200st
	Z	ZZ	Z	ZZ
20	118	139	143	168
25	123	144	148	169
32	126	150	151	175
40	143	171	168	196

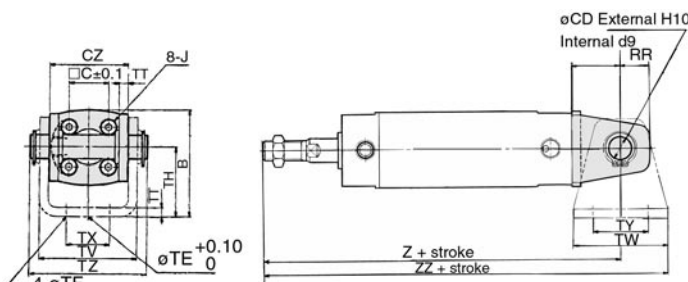
Rear trunnion/CG1TN



Clevis (mm)

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

Clevis/CG1DN



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

Bore size (mm)	TW	TX	TY	TZ	1 to 50st	51 to 100st	101 to 125st	126 to 200st
					Z	ZZ	Z	ZZ
20	42	16	28	43.4	143	164	168	189
25	42	20	28	48	150	171	175	196
32	48	22	28	59.4	156	180	181	205
40	56	30	30	71.4	175	200	200	228

* Refer to p. 1-7-11 for dimensions of the pivot bracket.

Non-rotating Rod: Double Acting

Series CG1K

ø20, ø25, ø32, ø40, ø50, ø63

How to Order

Standard CG1K **L** **N** **25** **100**

With auto switch CDG1K **L** **N** **25** **100** **B53**

With auto switch (magnet)

Double acting Non-rotating rod

Mounting

Stroke (mm)

Auto switch

Number of auto switches

Refer to p.1.7-27 for Standard Stroke Table.

Refer to the table below for selecting applicable auto switches.

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

* Mounting brackets are included, not mounted.

Cushion	Rubber bumper
N	Rubber bumper
A	Air cushion (ø40 to ø63 only)

Bore size	20mm
20	20mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm

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	0.5 (-)	3 (L)	5 (Z)	None (N)				
Reed switch		Grommet	Yes	3 wire (NPN)	5V	—	C76	—	●	●	—	—	IC	Relay PLC
							B53	●	●	●	—	—		
							B54	●	●	●	—	—		
							B64	●	●	—	—	—		
							C73	—	●	●	●	—		
							C80	—	●	●	—	—	IC	
							C73C	—	●	●	●	—	—	
							C80C	—	●	●	●	—	IC	
Solid state switch	Diagnostic indication (2 colour)	Grommet	Yes	3 wire (NPN)	5V, 12V	—	H7A1	G59	●	●	○	—	IC	Relay PLC
							H7A2	G5P	●	●	○	—	—	
							H7B	K59	●	●	○	—	—	
							H7C	—	●	●	●	—	—	
							H7NW	G59W	●	●	○	—	—	
							H7PW	G5PW	●	●	○	—	IC	
							H7BW	K59W	●	●	○	—	—	
							H7BA	G5BA	—	●	○	—	—	
							—	G5NT	—	●	○	—	—	
							H7NF	G59F	●	●	○	—	IC	
							H7LF	—	●	●	○	—	—	

*Lead wire length 0.5m..... — 3m.....L e.g.) C73C 5m.....Z C73CL None.....N e.g.) C73CZ C73CN

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

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 a cylinder.

** Mounting bolts are attached for foot and flange styles, and clevis pins, snap rings and mounting bolts for the clevis style.

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-K5						

Note) 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.

Non-rotating Rod: Double Acting *Series CG1K*

High non-rotating accuracy

$\phi 20, \phi 25$ ————— $\pm 1^\circ$
 $\phi 32$ ————— $\pm 0.8^\circ$
 $\phi 40$ to $\phi 63$ ————— $\pm 0.5^\circ$

High speed operation/Long life

Piston speed is between 50 and 500mm/s and long life is expected.

Can operate without lubrication.

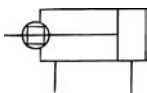
The same installation dimensions as the standard cylinder.

Auto switches can also be mounted.

It can be installed with auto switches to simplify the detection of the stroke position of the cylinder.



JIS symbol



Made to Order

Refer to p.5.4-1 for made to order products of series CG1K.

With auto switch

Auto switches can be mounted. Mounting position/height is the same as the double acting/single rod style. Refer to p.1.7-13.

Specifications

Bore size (mm)	20	25	32	40	50	63
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°C to $+70^\circ\text{C}$ (No freezing)					
	With auto switch: -10°C to $+60^\circ\text{C}$ (No freezing)					
Piston speed	50 to 500mm/s					
Thread tolerance	JIS class 2					
Stroke tolerance	Up to $600^{+1.4}_0$ mm					
Cushion	Rubber bumper, Air cushion ($\phi 40$ to $\phi 63$ only)					
Rod non-rotating accuracy	$\pm 1^\circ$	$\pm 0.8^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$
Mounting	Basic, Axial foot, Front flange, Rear flange, Front trunnion, Rear trunnion, Clevis (Used for changing the port location by 90° degrees.)					

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	—	—	—	—	●	●	●

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

Stroke

Bore size (mm)	Standard stroke ⁽¹⁾ (mm)	Long stroke (mm)
20	25, 50, 75, 100, 125, 150, 200	—
25	25, 50, 75, 100, 125, 150, 200, 250, 300	—
32		—
40		301 to 500
50/63		301 to 600



Note 1) Other intermediate strokes can be manufactured upon receipt of order. Spacers are not used for the intermediate strokes.

Note 2) The maximum limit is 1500 stroke, but the products that exceed the standard or the long stroke limit are not guaranteed.

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

CA1

CS1

Series CG1K

Weight

Bore size (mm)		(kg)					
Basic weight	Basic	0.10	0.17	0.26	0.41	0.77	1.07
	Axial foot	0.21	0.30	0.42	0.63	1.25	1.79
	Flange	0.18	0.27	0.40	0.61	1.11	1.57
	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
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 pins)		0.05	0.09	0.09	0.13	0.26	0.26
Additional weight by each 50 stroke		0.05	0.07	0.09	0.15	0.22	0.26
Additional weight by air cushion		—	—	—	0.02	0.03	0.03
Additional weight by long stroke		—	—	—	0.03	0.06	0.10

Calculation example:

CGIKLN20-100

(Foot, ø20, 100 stroke)

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

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

Copper Free

20-CG1K Mounting N Bore size Stroke

• Copper free

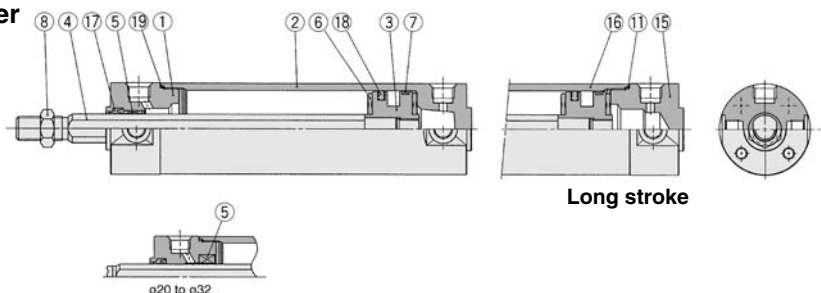
This cylinder eliminates any influences of copper ions or fluororesins on colour CRTs. Copper materials have been nickel plated or replaced with non-copper materials to prevent the generation of copper ions.

Specifications

Bore size (mm)	ø20, ø25, ø32, ø40, ø50, ø63
Action	Double acting
Fluid	Air
Max. operating pressure	1.0MPa
Min. operating pressure	0.05MPa
Piston speed	50 to 500mm/s
Mounting	Basic, Axial foot, Front flange, Rear flange, Front trunnion, Rear trunnion, Clevis (Used for changing the port location by 90° degrees.)

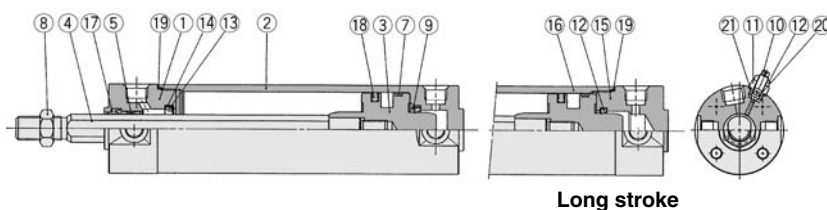
Construction

With rubber bumper



Long stroke

With air cushion



Long stroke

Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	White hard anodized
②	Tube cover	Aluminum alloy	White hard anodized
③	Piston	Aluminum alloy	Chromated, Hard anodized (in case of air cushion)
④	Piston rod*	Carbon steel	Hard chrome plated
⑤	Non-rotating guide	Oil impregnated sintered alloy	
⑥	Bumper	Urethane	
⑦	Wear ring	Resin	
⑧	Rod end nut	Rolled steel	Nickel plated

No.	Description	Material	Note
⑨	Seal retainer	Rolled steel	Nickel plated (Except for long stroke)
⑩	Cushion valve	Rolled steel	Electroless nickel plated
⑪	Valve retainer	Rolled steel	Electroless nickel plated
⑫	Lock nut	Carbon steel	Nickel plated
⑬	Cushion seal	NBR	
⑭	Cushion seal holder	Aluminum alloy	
⑮	Head cover	Aluminum alloy	White hard anodized
⑯	Cylinder tube	Aluminum alloy	Hard anodized

Replacement Parts/With rubber bumper

No.	Description	Material	Bore size (mm)/Part No.					
			ø20	ø25	ø32	ø40	ø50	ø63
⑰	Rod seal	NBR	SS-9 X 8k2Q	SS-11 X 10k2	SS-12	SS-16S	SS-20S	SS-20S
⑱	Piston seal	NBR	PPD-20	PPD-25-19	PPD-32	PPD-40	PPD-50	PPD-63
⑲	Tube gasket	NBR	CM-020-16-123	CM-025-16-124	CM-032-16-126	CM-040-16-127	CM-050-16-128	CM-063-16-129

With air cushion (Parts ⑰ to ⑲ are the same as rubber bumper style.)

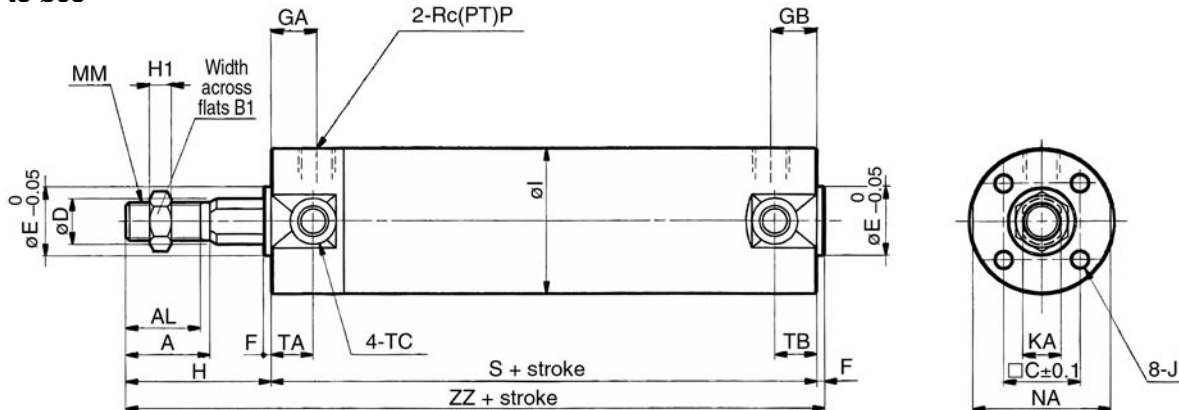
⑳	Valve seal	NBR	—	—	—	O ring ø4.5 X ø2.5 X ø1	O ring ø5.5 X ø3.5 X ø1
㉑	Valve retaining gasket	NBR	—	—	—	O ring ø6.4 X ø5.2 X ø0.6	O ring ø7.4 X ø5.8 X ø0.8

Note) A rubber magnet is equipped on the piston of the cylinder with auto switch.

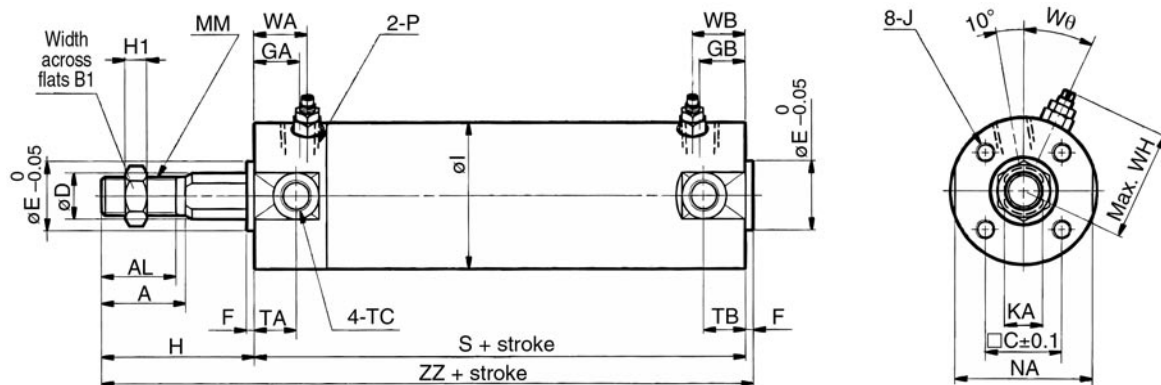
* The material is stainless steel on ø20 to ø32.

Basic

With rubber bumper/CG1KBN ø20 to ø63



With air cushion/CG1KBA ø40 to ø63



Bore (mm)	Stroke range (mm)	A	AL	B ₁	C	D	E	F	GA	GB	H	H ₁	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 Depth 7	8	M8	24	1/8	69	11	11	M5	106
25	Up to 300	22	19.5	17	16.5	11	14	2	12	10	40	6	31	M5 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 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 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 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 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 p.1.7-8 to 1.7-10. Also, refer to p.1.7-12 for auto switch equipped style.

Note 2) (): Long stroke

With air cushion

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

Note) (): Long stroke

⚠ Precautions

Be sure to read before handling. Refer to p.0-39 to 0-46 for Safety Instruction and common precautions.

Handling

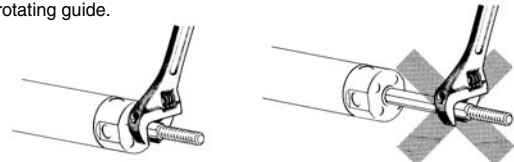
⚠ Cautions

- 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. Refer to the table below for the allowable range of rotational torque.

Allowable rotational torque (Nm)	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.

To tighten, take precautions to prevent the tightening torque from being applied to the non-rotating guide.



- ② To replace a rod seal, contact SMC.

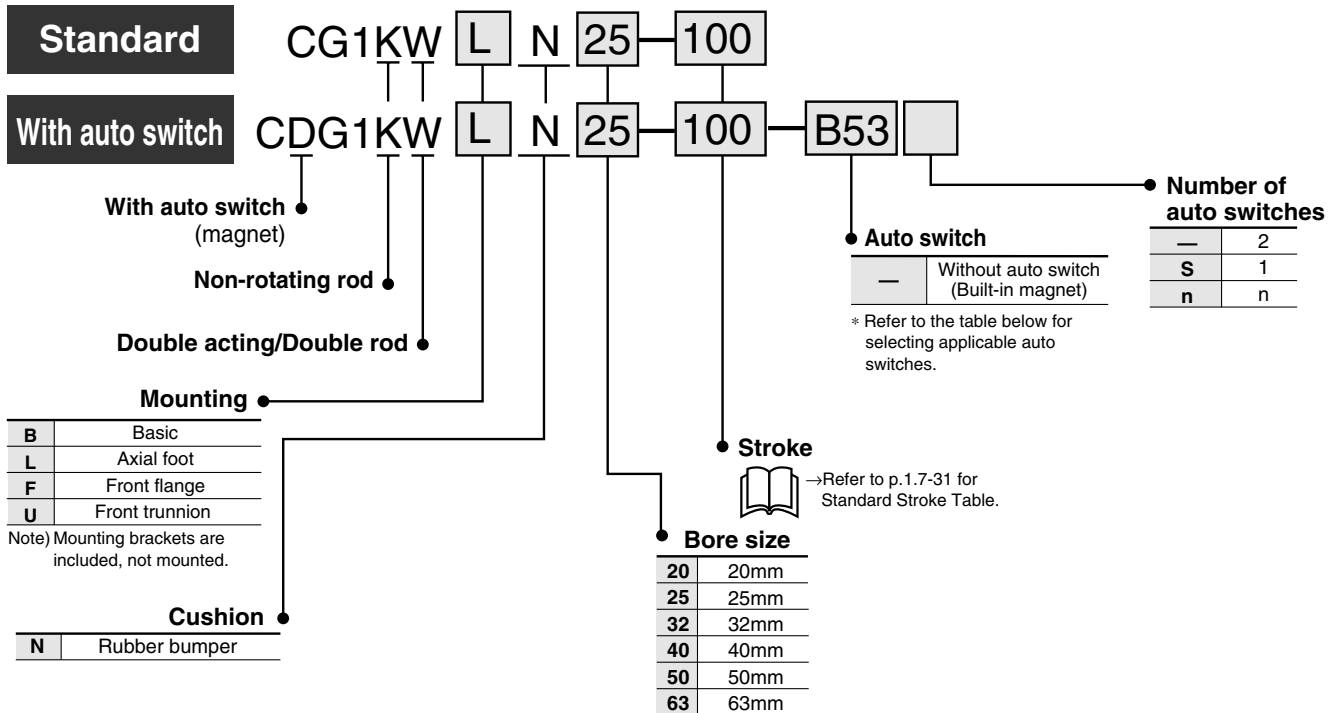
A rod seal could lead to an air leak, depending on the position in which it is fitted. Therefore, make sure to contact SMC if a rod seal must be replaced.

Non-rotating Rod: Double Acting Double Rod

Series *CG1KW*

ø20, ø25, ø32, ø40, ø50, ø63

How to Order



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			0.5 (—)	3 (L)	5 (Z)	None (N)				
Reed switch	—	Grommet	Yes	3 wire (NPN)	—	5V	—	C76	—	●	●	—	—	IC	—	
				2 wire	24V	12V	—	—	B53	●	●	●	—	—	PLC	
			200V or less				—	B54	●	●	●	—	—	—		
			100V			C73	—	●	●	●	—	—				
		5V, 12V	100V or less			C80	—	●	●	—	—	IC	Relay PLC			
		Connector	12V		—	C73C	—	●	●	●	●	—				
	5V, 12V		24V or less		C80C	—	●	●	●	●	IC					
	Diagnostic indication (2 colour)	Grommet	Yes	—	—	—	B59W	●	●	—	—	—	—			
	Solid state switch	—	Grommet	Yes	3 wire (NPN)	5V, 12V	—	H7A1	G59	●	●	○	—	IC	Relay PLC	
3 wire (PNP)					H7A2			G5P	●	●	○	—	—			
Connector			2 wire		12V			H7B	K59	●	●	○	—	—		
			H7C					—	●	●	●	●	—			
Diagnostic indication (2 colour)		Grommet	3 wire (NPN)	24V	5V, 12V	—	H7NW	G59W	●	●	○	—	IC			
			3 wire (PNP)				H7PW	G5PW	●	●	○	—	—			
			2 wire				12V	H7BW	K59W	●	●	○	—	—		
			H7BA					G5BA	—	●	○	—	—			
			With timer				3 wire (NPN)	5V, 12V	—	G5NT	—	●	○	—		IC
			Diagnostic output (2 colour)				—		H7NF	G59F	●	●	○	—		—
			Latch with diagnostic output (2 colour)					H7LF	—	●	●	○	—	—		

* Lead wire length 0.5m..... 3m.....L e.g.) C73C 5m.....Z None.....N e.g.) C73CZ C73CL C73CN

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

Non-rotating Rod: Double Acting Double Rod *Series CG1KW*

High non-rotating accuracy

$\phi 20, \phi 25$ ————— $\pm 1^\circ$
 $\phi 32$ ————— $\pm 0.8^\circ$
 $\phi 40$ to $\phi 63$ ————— $\pm 0.5^\circ$

High speed operation/Long life

Piston speed is between 50 and 500mm/s and long life is expected.

Can operate without lubrication.

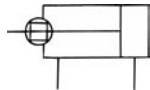
The same installation dimensions as the standard cylinder.

Auto switches can also be mounted.

It can be installed with auto switches to simplify the detection of the stroke position of the cylinder.



JIS symbol



Specifications

Bore size (mm)	20	25	32	40	50	63
Action	Double acting/Double rod					
Lubrication	Non-lube					
Fluid	Air					
Proof pressure	1.5MPa					
Max. operating pressure	1.0MPa					
Min. operating pressure	0.08MPa					
Ambient and fluid temperature	Without auto switch: -10°C to $+70^\circ\text{C}$ (No freezing)					
	With auto switch: -10°C to $+60^\circ\text{C}$ (No freezing)					
Piston speed	50 to 500mm/s					
Thread tolerance	JIS class 2					
Stroke tolerance	up to 600 $^{+1.4}_0$ mm					
Cushion	Rubber bumper					
Rod non-rotating accuracy	$\pm 1^\circ$	$\pm 0.8^\circ$	$\pm 0.8^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$	$\pm 0.5^\circ$
Mounting	Basic, Axial foot, Front flange, Front trunnion					

Accessories

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

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

Stroke

Bore size (mm)	Standard stroke (mm) ⁽¹⁾	Long stroke (mm)
20	25, 50, 75, 100, 125, 150, 200	—
25	25, 50, 75, 100, 125, 150, 200, 250, 300	—
32		—
40		301 to 500
50/63		301 to 600

Note 1) Other intermediate strokes can be manufactured upon receipt of order. Spacers are not used for the intermediate strokes.

Note 2) The maximum limit is 1500 stroke, but the products that exceed the standard or long stroke limit are not guaranteed.



Precautions

Be sure to read before handling.
 Refer to p.0-39 to 0-46 for Safety Instruction and common precautions.
 Refer to p.1.7-6 for precautions on series CG1K.

With Auto Switch

Auto switch can be mounted. Refer to p.1.7-34 for details.

Series CG1KW

Weight

(kg)

Bore size (mm)		20	25	32	40	50	63
Basic weight	Basic	0.13	0.22	0.33	0.55	1.02	1.37
	Axial foot	0.24	0.35	0.49	0.77	1.50	2.09
	Flange	0.21	0.32	0.47	0.75	1.36	1.87
	Trunnion	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 pins)		0.05	0.09	0.09	0.13	0.26	0.26
Additional weight by each 50 stroke		0.07	0.10	0.13	0.23	0.34	0.38

Calculation example: CG1KWL32-100 (Foot, ø32, 100 stroke)

• Basic weight.....0.49 (Foot, ø32)

• Additional weight.....0.13/50 stroke

• Cylinder stroke.....100 stroke

0.49+0.13 X 100/50=0.75kg

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 attached for the foot style and the flange style.

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-K5						

Note) A set of following stainless steel mounting screws is attached.

(A switch mounting band is not attached. Please order the band separately.)

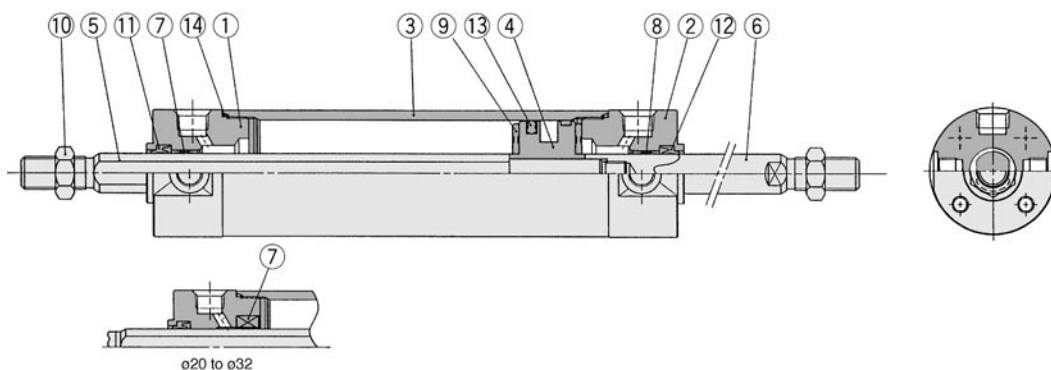
BBA3: D-B5/B6/G5 types

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.

Construction



Component Parts

No.	Description	Material	Note
①	Rod cover A	Aluminum alloy	White hard anodized
②	Rod cover B	Aluminum alloy	White 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 cast
⑨	Bumper	Urethane	
⑩	Rod end nut	Rolled steel	

* The material is stainless steel for ø20 to ø32.

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

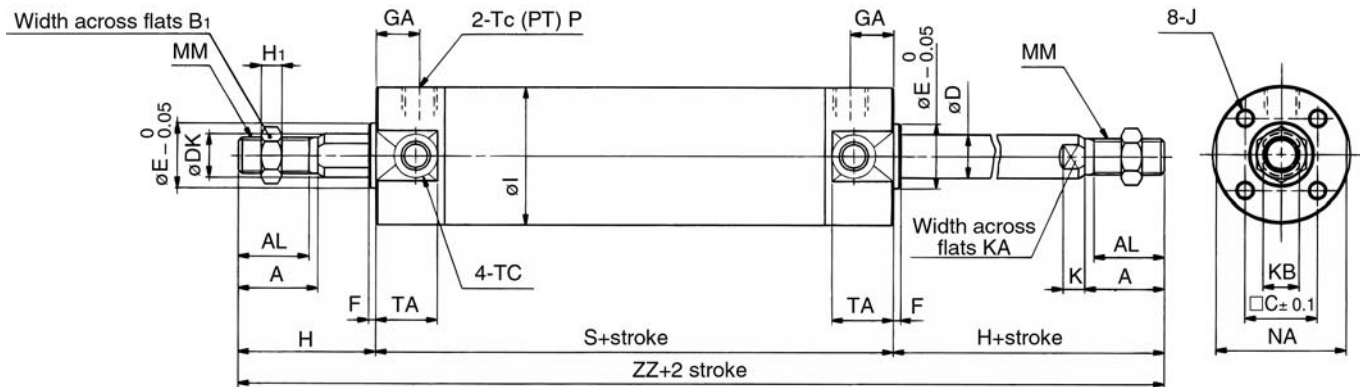
*** A magnet is equipped on the piston of the cylinder with auto switch.

Replacement Parts/With rubber bumper

No.	Description	Material	Bore size (mm)/Part No.					
			ø20	ø25	ø32	ø40	ø50	ø63
⑪	Rod seal A	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-16Z	PDU-20Z	
⑫	Rod seal B	NBR	SS-9 X 8K2Q	SS-11 X 10K2	SS-12	SS-16S	SS-20S	
⑬	Piston seal	NBR	PPD-20	PPD-25-19	PPD-32	PPD-40	PPD-50	PPD-63
⑭	Tube gasket	NBR	CM-020-16-123	CM-025-16-124	CM-032-16-126	CM-040-16-127	CM-050-16-128	CM-063-16-129

Non-rotating Rod: Double Acting Double Rod *Series CG1KW*

Basic CG1KWBN: With rubber bumper



Bore (mm)	Stroke range (mm)	A	AL	B1	□C	D	DK	E	F	GA	H1	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 Depth 7	5	6	8	M8	24	1/8	77
25	Up to 300	22	19.5	17	16.5	10	11	14	2	12	6	31	M5 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 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 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 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 Depth 16	7	18	18	M18 X 1.5	69	1/4	102

Bore (mm)	TA	TC	H	ZZ
20	11	M5	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 1) Dimensions are the same as CG1W standard. Refer to p.1.7-19.
Note 2) Old number is made-to-order CG1*N**-XC21.

⚠ Precautions

Be sure to read before handling. Refer to p.0-39 to 0-46 for Safety Instruction and common precautions.

Handling

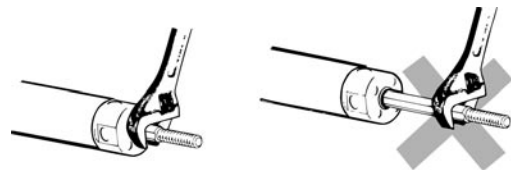
⚠ Cautions

- 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 (Nm)	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.

To tighten, take precautions to prevent the tightening torque from being applied to the non-rotating guide.



- ② To replace a rod seal, contact SMC.

A rod seal could lead to an air leak, depending on the position in which it is fitted. Therefore, make sure to contact SMC if a rod seal must be replaced.

Series CDG1KW Auto Switch Specifications



Refer to p.5.3-2 for details of the auto switch.

Applicable auto switch

Auto switch model		Electrical entry (Function)	Page
Reed switch	D-C7, C8	Grommet	5.3- 9
	D-C73C, C80C	Connector	5.3-11
	D-B5, B6	Grommet	5.3-10
	D-B59W	Grommet (2 colour indicator)	5.3-25
Solid state switch	D-H7□	Grommet	5.3-29
	D-H7□W	Grommet (2 colour indicator)	5.3-42
	D-H7LF	Grommet (2 colour, Latch with diagnostic output)	5.3-49
	D-H7NF	Grommet (2 colour, Diagnostic output)	5.3-50
	D-H7BAL	Grommet (2 colour, Water resistant)	5.3-55
	D-H7C	Connector	5.3-31
	D-G5, K5	Grommet	5.3-30
	D-G5□W, K59W	Grommet (2 colour indicator)	5.3-43
	D-G59F	Grommet (2 colour, Diagnostic output)	5.3-51
	D-G5NTL	Grommet (With timer)	5.3-59
	D-G5BAL	Grommet (2 colour, Water resistant)	5.3-56

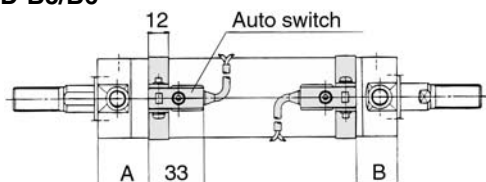


Precautions

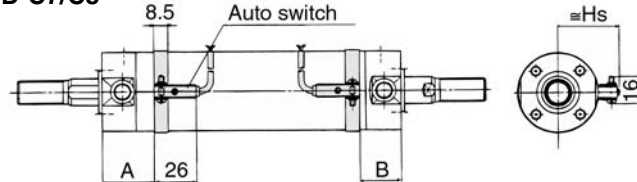
Be sure to read before handling.
Refer to p.0-44 to 0-46 for Safety
Instructions and common
precautions.

Auto Switch Mounting Position and Mounting Height

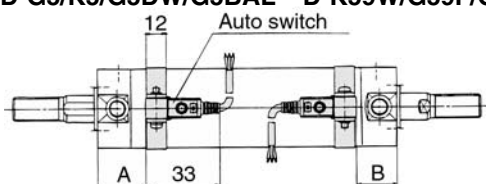
D-B5/B6



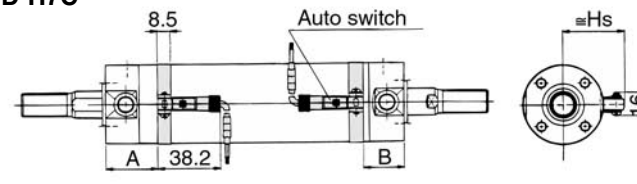
D-C7/C8



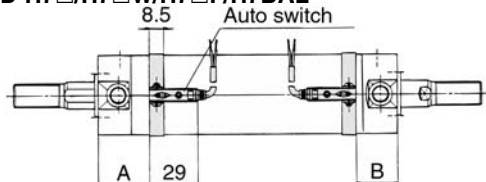
D-G5/K5/G5DW/G5BAL D-K59W/G59F/G5NT



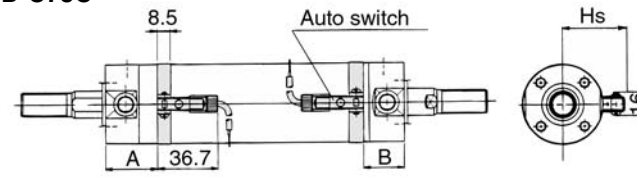
D-H7C



D-H7□/H7□W/H7□F/H7BAL



D-C73C



(): D-H7LF (36)

Auto Switch Mounting Height

Bore (mm)	D-C7/D-C8			D-C73C/D-C80C			D-B5/D-B6			D-B59W		
	A	B	Hs	A	B	Hs	A	B	Hs	A	B	Hs
20	30	28.5	24.5	30	28.5	27	24	22.5	27	27	25.5	27.5
25	30	28.5	27	30	28.5	29.5	24	22.5	30	27	25.5	30
32	31	29.5	30.5	31	29.5	33	25	23.5	33.5	28	26.5	33.5
40	35.5	33	35	35.5	33	37.5	29.5	27	38	32.5	30	38
50	43	40.5	40.5	43	40.5	43	37	34.5	43.5	40	37.5	43.5
63	43	40.5	47.5	43	40.5	50	37	34.5	50.5	40	37.5	50.5
80	—	—	—	—	—	—	46.5	45	59	49.5	48	59
100	—	—	—	—	—	—	46.5	45	69.5	49.5	48	69.5

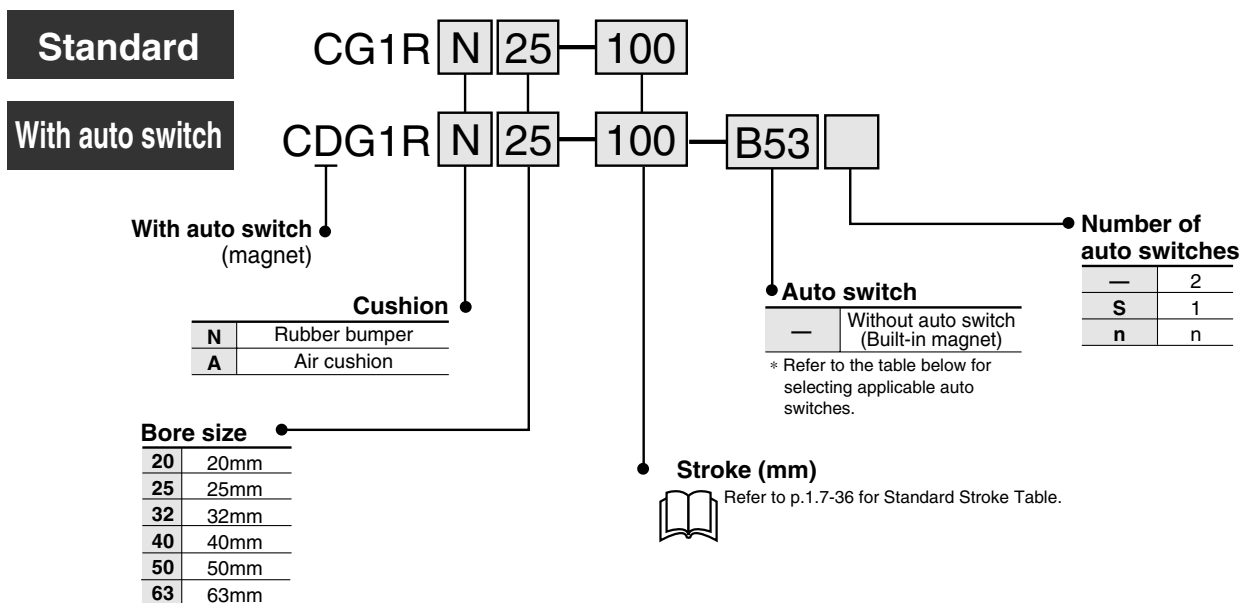
Bore (mm)	D-H7□ D-H7□W			D-H7C D-H7BAL			D-H7□F			D-G5 D-G5N D-K59N			D-K5 D-G5□W			D-G59F		
	A	B	Hs	A	B	Hs	A	B	Hs	A	B	Hs	A	B	Hs	A	B	Hs
20	29	27.5	27	27.5	26	24.5	25.5	24	27.5	24	22.5	27.5	24	22.5	27.5	24	22.5	27.5
25	29	27.5	30	27.5	26	27	25.5	24	30	24	22.5	30	24	22.5	30	24	22.5	30
32	30	28.5	33	28.5	27	30.5	26.5	25	33.5	25	23.5	33.5	25	23.5	33.5	25	23.5	33.5
40	34.5	32	37.5	33	30.5	35	31	28.5	38	29.5	27	38	29.5	27	38	29.5	27	38
50	42	39.5	43	40.5	38	40.5	38.5	36	43.5	37	34.5	43.5	37	34.5	43.5	37	34.5	43.5
63	42	39.5	50	40.5	38	47.5	38.5	36	50.5	37	34.5	50.5	37	34.5	50.5	37	34.5	50.5
80	—	—	—	—	—	—	48	46.5	59	46.5	45	59	46.5	45	59	46.5	45	59
100	—	—	—	—	—	—	48	46.5	69.5	46.5	45	69.5	46.5	45	69.5	46.5	45	69.5

Direct Mount: Double Acting

Series *CG1R*

ø20, ø25, ø32, ø40, ø50, ø63

How to Order



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				0.5 (—)	3 (L)	5 (Z)	None (N)		
Reed switch	—	Grommet	Yes	3 wire (NPN)	—	5V	—	C76	—	●	●	—	—	IC	—
				2 wire	—	—	—	B53	—	●	●	●	—	—	PLC
			No	2 wire	24V	12V	200V or less	B54	—	●	●	●	—	—	—
			Yes	2 wire	24V	100V	100V or less	C73	—	●	●	●	—	—	—
		Connector	No	2 wire	5V, 12V	100V or less	—	C80	—	●	●	—	—	IC	—
			Yes	2 wire	12V	—	—	C73C	—	●	●	●	●	—	—
			No	2 wire	5V, 12V	24V or less	—	C80C	—	●	●	●	●	—	—
		Diagnostic indication (2 colour)	Grommet	2 wire	—	—	—	B59W	—	●	●	—	—	—	—
Solid state switch	—	Grommet	Yes	3 wire (NPN)	5V, 12V	—	—	H7A1	G59	●	●	○	—	IC	—
				3 wire (PNP)	5V, 12V	—	—	H7A2	G5P	●	●	○	—	—	—
		Connector	Yes	2 wire	12V	—	—	H7B	K59	●	●	○	—	—	—
				2 wire	12V	—	—	H7C	—	●	●	●	●	—	—
	Diagnostic indication (2 colour)	Grommet	Yes	3 wire (NPN)	5V, 12V	—	—	H7NW	G59W	●	●	○	—	IC	—
				3 wire (PNP)	5V, 12V	—	—	H7PW	G5PW	●	●	○	—	—	—
				2 wire	12V	—	—	H7BW	K59W	●	●	○	—	—	—
				2 wire	12V	—	—	H7BA	G5BA	—	●	○	—	—	—
	Water resistant (2 colour)	Grommet	Yes	3 wire (NPN)	5V, 12V	—	—	—	G5NT	—	●	○	—	—	—
	With timer			3 wire (PNP)	5V, 12V	—	—	—	G5NT	—	●	○	—	—	—
	Diagnostic output (2 colour)			4 wire (NPN)	5V, 12V	—	—	H7NF	G59F	●	●	○	—	IC	—
	Latch with diagnostic output (2 colour)			4 wire (NPN)	—	—	—	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.

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

CA1

CS1

Series CG1R

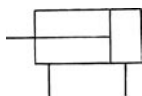
The CG1R Series direct mount cylinder can be installed directly through the use of a square rod cover.

Space saving configuration

Because it is directly mounted without using brackets, its overall length is shorter, and its installation pitch can be made smaller. Thus, the space that is required for installation has been dramatically reduced.



JIS symbol



Made to order

Refer to P.5.4-1 for made to order products of series CG1R.

⚠ Precautions

Be sure to read before handling.
Refer to p.0-39 to 0-43 for Safety Instruction and common precautions.
Refer to p.1.7-6 for precautions on series CG1K.

Specifications

Bore size (mm)	20	25	32	40	50	63
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					
Thread tolerance	JIS class 2					
Stroke tolerance	up to 300 ^{+1.4} ₀ mm					
Cushion	Rubber bumper/Air cushion					

Weight

Bore size (mm)	20	25	32	40	50	63
Basic weight	0.14	0.23	0.35	0.57	1.04	1.49
Single knuckle joint	0.05	0.09	0.09	0.10	0.22	0.22
Double knuckle joint (with pins)	0.05	0.09	0.09	0.13	0.26	0.26
Additional weight by each 50 stroke	0.05	0.07	0.09	0.15	0.22	0.26
Additional weight by air cushion	0.01	0.01	0.02	0.02	0.03	0.03

Calculation example: CG1RN32-100 • Basic weight.....0.35
(ø32, 100 stroke) • Additional weight.....0.09/50 stroke
• Cylinder stroke.....100 stroke
0.35+0.09 X 100/50=0.53kg

Accessories

	Mounting	Basic
Standard	Rod end nut	●
Option	Single knuckle joint	●
	Double knuckle joint* (with pins)	●

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

Stroke

Bore size (mm)	Standard stroke* (mm)
20	25, 50, 75, 100, 125, 150
25/32	25, 50, 75, 100, 125, 150, 200
40/50/63	25, 50, 75, 100, 125, 150, 200, 250, 300

* Other intermediate strokes can be manufactured upon receipt of order. Long strokes are not available. Spacers are not used for the intermediate strokes.

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/K5						



Note 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.

Direct Mount: Double Acting *Series CG1R*

Clean Series

10-CG1RN **Bore size** — **Stroke**

- Clean series (with relief port)

The rod portion of the actuator has a double seal construction, and a relief port is provided to discharge the exhaust air directly outside of the clean room. Thus, it can be used in a Class 100 clean room.

Specifications

Bore size (mm)	ø20, ø25, ø32, ø40, ø50, ø63
Action	Double acting
Fluid	Air
Max. operating pressure	1.0MPa
Min. operating pressure	0.05MPa
Cushion	Rubber bumper
Piston speed	50 to 400mm/s
Relief port size	M5

* Auto switch can be mounted.

Copper Free

20-CG1R **Cushion** — **Bore size** — **Stroke**

- Copper free

This cylinder eliminates any influences of copper ions or fluororesins on colour CRTs. Copper materials have been nickel plated or replaced with non-copper materials to prevent the generation of copper ions.

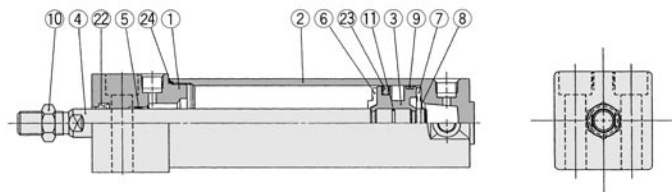
Specifications

Bore size (mm)		ø20, ø25, ø32, ø40, ø50, ø63
Action		Double acting
Fluid		Air
Max. operating pressure		1.0MPa
Min. operating pressure		0.05MPa
Cushion	Symbol N	Rubber bumper
	Symbol A	Air cushion
Piston speed		50 to 1000mm/s

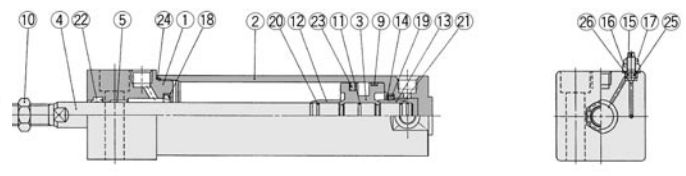
* Auto switch can be mounted.

Construction

Standard/Bottom mounting/With rubber bumper



With air cushion



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	White hard anodized
②	Tube cover	Aluminum alloy	White hard anodized
③	Piston	Aluminum alloy	Chromated
④	Piston rod*	Carbon steel	Hard chrome plated
⑤	Bushing	Oil impregnated sintered alloy	ø40 or larger: Lead bronze cast
⑥	Bumper A	Urethane	
⑦	Bumper B	Urethane	ø40 or larger: the same as bumper A
⑧	Snap ring	Stainless steel	
⑨	Wear ring	Resin	
⑩	Rod end nut	Rolled steel	Nickel plated
⑪	Piston gasket	NBR	

No.	Description	Material	Note
⑫	Cushion ring A	Brass	
⑬	Cushion ring B	Brass	ø32 or larger: the same as ring A
⑭	Seal retainer	Rolled steel	
⑮	Cushion valve	Rolled steel	Electroless nickel plated
⑯	Valve retainer	Rolled steel	Electroless nickel plated
⑰	Lock nut	Carbon steel	Nickel plated
⑱	Cushion seal A	Urethane	
⑲	Cushion seal B	Urethane	
⑳	Cushion ring gasket A	NBR	
㉑	Cushion ring gasket B	NBR	ø32 or larger: the same as gasket A

Note) A rubber magnet is equipped on the piston of the cylinder with auto switch.
* The material is stainless steel on auto switch equipped styles ø20 and ø25.

Replacement Parts/With rubber bumper

No.	Description	Material	Bore size (mm)/Part No.					
			ø20	ø25	ø32	ø40	ø50	ø63
㉒	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-16Z	PDU-20Z	PDU-20Z
㉓	Piston seal	NBR	PPD-20	PPD-25-19	PPD-32	PPD-40	PPD-50	PPD-63
㉔	Tube gasket	NBR	CM-020-16-123	CM-025-16-124	CM-032-16-126	CM-040-16-127	CM-050-16-128	CM-063-16-129

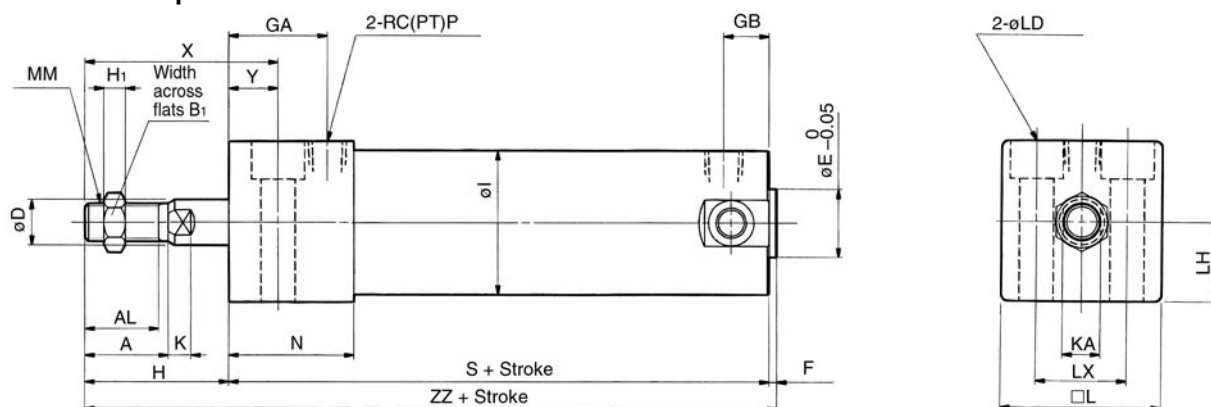
With air cushion (Parts ㉒ to ㉔ are the same as rubber bumper style.)

㉕	Valve seal	NBR	O ring ø4.5 X ø2.5 X ø1				O ring ø5.5 X ø3.5 X ø1	
㉖	Valve retaining gasket	NBR	O ring ø6.4 X ø5.2 X ø0.6				O ring ø7.4 X ø5.8 X ø0.8	

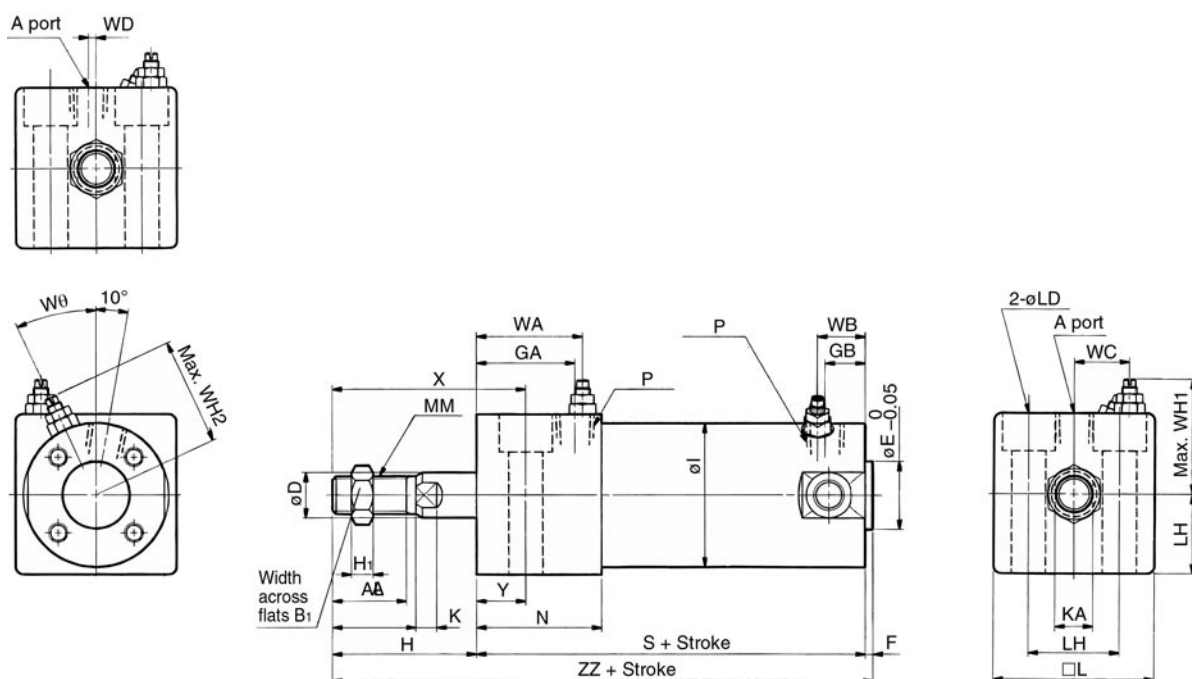
Series CG1R

Basic: Bottom Mounting

With rubber bumper/CG1RN



With air cushion/CG1RA



Bore (mm)	Stroke range (mm)	A	AL	B ₁	D	E	GA	GB	H	H ₁	I	K	KA	0L	LD	LH	LX	MM	N	P	S	X	Y	ZZ
20	Up to 150	18	15.5	13	8	12	20	10	27	5	26	5	6	30.4	05.5, 09.5 Depth of counter bore 6	15	18	M8	27	1/8	75	38	11	104
25	Up to 200	22	19.5	17	10	14	22	10	32	6	31	5.5	8	36.4	06.6, 011 Depth of counter bore 7	18	22	M10 X 1.25	29	1/8	77	44	12	111
32	Up to 200	22	19.5	17	12	18	26	10	32	6	38	5.5	10	42.4	09, 014 Depth of counter bore 9	21	24	M10 X 1.25	33	1/8	83	45	13	117
40	Up to 300	30	27	19	16	25	30	10	39	8	47	6	14	52.4	011, 017.5 Depth of counter bore 12	26	32	M14 X 1.5	37	1/8	94	55	16	135
50	Up to 300	35	32	27	20	30	33	12	45	11	58	7	18	64.5	014, 020 Depth of counter bore 14	32	41	M18 X 1.5	44	1/4	108	62	17	155
63	Up to 300	35	32	27	20	32	39	12	45	11	72	7	18	76.6	018, 026 Depth of counter bore 18	38	46	M18 X 1.5	50	1/4	114	64	19	161

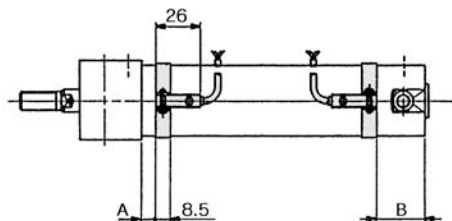
With air cushion

(mm)

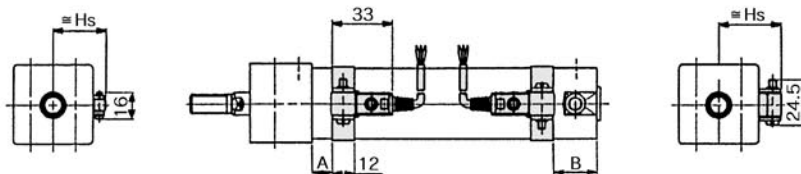
Bore (mm)	Stroke range (mm)	P	WA	WB	WC	WD	WH	WH ₂	W0
20	Up to 150	M5	20	15	8.5	2	25	23	30°
25	Up to 200	M5	24	15	11	2	27.5	25	30°
32	Up to 200	Rc(PT)1/8	28	15	14.5	—	30.5	28.5	25°
40	Up to 300	Rc(PT)1/8	32	15	18.5	—	35.5	33	20°
50	Up to 300	Rc(PT)1/4	35	17	22	—	43.5	40.5	20°
63	Up to 300	Rc(PT)1/4	41	17	29	—	49.5	47.5	20°

Auto Switch Mounting Position and Mounting Height

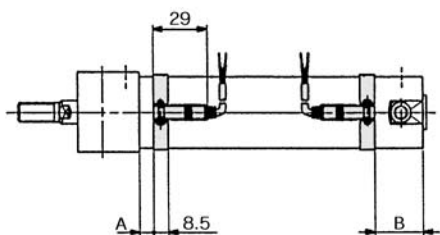
D-C7



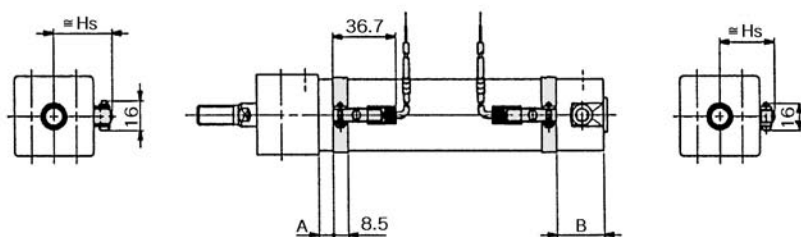
D-G5, D-K5



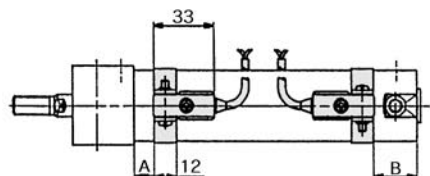
D-H



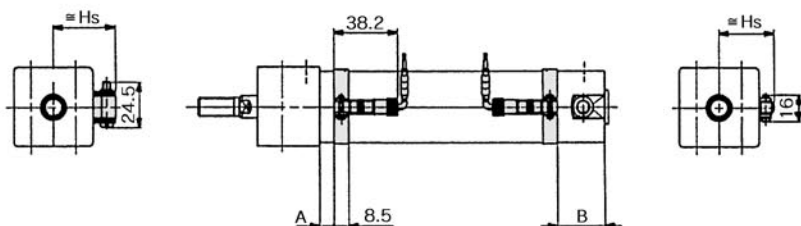
D-C73C



D-B



D-H7C



CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

CA1

CS1

Auto Switch Mounting Position

Auto switch model	D-C7, C8 D-C73C, C80C		D-B5, B6 D-G5□W, K59W D-G59F D-G5BAL		D-B59W		D-H7□ D-H7C		D-H7□W D-H7□F D-H7BAL		D-G5 D-K5 D-G5NTL	
	A	B	A	B	A	B	A	B	A	B	A	B
20	9	20.5	3	14.5	6	17.5	8	19.5	6.5	18	4.5	16
25	9	20.5	3	14.5	6	17.5	8	19.5	6.5	18	4.5	16
32	10	21.5	4	15.5	7	18.5	9	20.5	7.5	19	5.5	17
40	14.5	24	8.5	18	11.5	21	13.5	23	12	21.5	10	19.5
50	17	28.5	11	22.5	14	25.5	16	27.5	14.5	26	12.5	24
63	17	28.5	11	22.5	14	25.5	16	27.5	14.5	26	12.5	24

Mounting Height

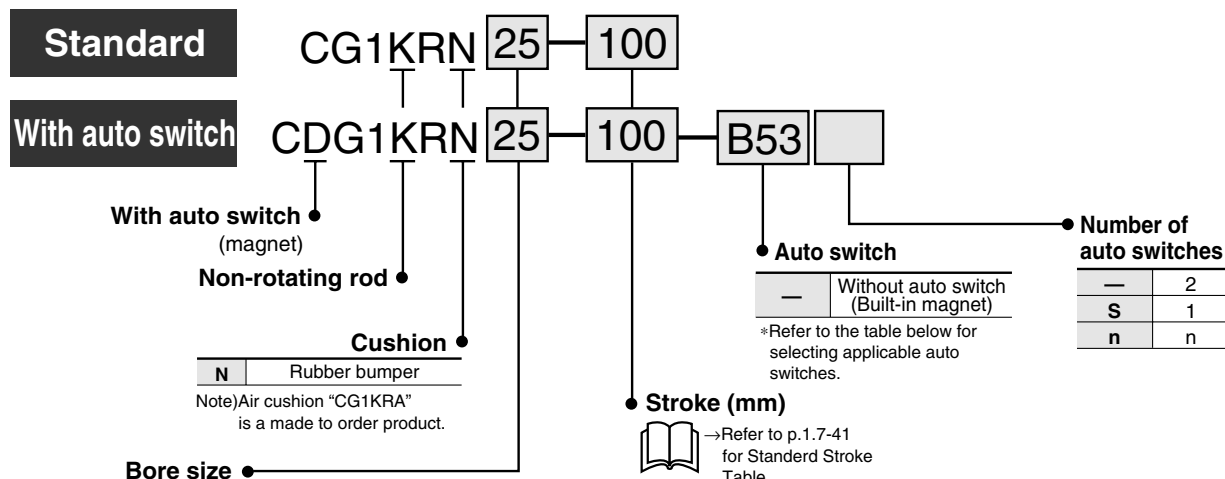
D-C7, C8 D-H7□ D-H7□W D-H7□F D-H7BAL		D-C73C D-C80C		D-B5, B6 D-B59W D-G5, K5 D-G5□W D-K59W		D-G5NTL D-G59F D-G5BAL	
Hs		Hs		Hs		Hs	
24.5		27		27.5		27.5	
27		29.5		30		30	
30.5		33		33.5		33.5	
35		37.5		38		38	
40.5		43		43.5		43.5	
47.5		50		50.5		50.5	

Direct Mount Non-rotating Rod: Double Acting

Series *CG1KR*

ø20, ø25, ø32, ø40, ø50, ø63

How to Order



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			0.5 (-)	3 (L)	5 (Z)	None (N)	
Reed switch	—	Grommet	Yes	3 wire (NPN)	—	5V	—	C76	—	●	●	—	IC
			No	2 wire	24V	12V	200V or less	—	B53	●	●	●	—
		Connector	Yes	2 wire	24V	12V	100V	C73	—	●	●	●	—
			No	2 wire	24V	12V	—	C73C	—	●	●	●	—
Solid state switch	—	Grommet	Yes	3 wire (NPN)	5V, 12V	—	—	H7A1	G59	●	●	○	—
		Connector	No	2 wire	12V	—	—	H7A2	G5P	●	●	○	—
	Diagnostic indication (2 colour)	Grommet	Yes	3 wire (NPN)	5V, 12V	—	—	H7B	K59	●	●	○	—
			No	2 wire	12V	—	—	H7C	—	●	●	●	—
		Grommet	Yes	3 wire (NPN)	5V, 12V	—	—	H7NW	G59W	●	●	○	—
			No	2 wire	12V	—	—	H7PW	G5PW	●	●	○	—
	Water resistant (2 colour)	Grommet	No	2 wire	12V	—	—	H7BA	G5BA	—	●	○	—
	With timer	Grommet	No	2 wire	12V	—	—	—	G5NT	—	●	○	—
	Diagnostic output (2 colour)	Grommet	No	2 wire	12V	—	—	—	G5NF	—	●	○	—
	Latch with diagnostic output (2 colour)	Grommet	No	2 wire	12V	—	—	—	G5LF	—	●	○	—

* Lead wire length 0.5m.....— e.g.) C73C, 5m.....Z e.g.) C73CZ, 3m.....L C73CL None.....N C73CN

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

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/K5						



Note) 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.

Direct Mount Non-rotating Rod: Double Acting *Series CG1KR*

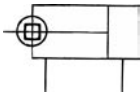
The CG1R Series direct mount cylinder can be installed directly through the use of a square rod cover.

Space saving configuration

Because it is directly mounted without using brackets, its overall length is shorter, and its installation pitch can be made smaller. Thus, the space that is required for installation has been dramatically reduced.



JIS symbol



Specifications

Bore size (mm)	20	25	32	40	50	63
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°C to +70°C (No freezing)					
	With auto switch: -10°C to +60°C (No freezing)					
Piston speed	50 to 500mm/s					
Stroke tolerance	JIS class 2					
Thread tolerance	up to 300 ^{+1.4} ₀ mm					
Cushion	Rubber bumper					
Rod non-rotating accuracy	±1°	±0.8°	±0.5°			

Weight

Bore size (mm)	20	25	32	40	50	63
Basic weight	0.14	0.24	0.35	0.56	1.04	1.48
Single knuckle joint	0.05	0.09	0.09	0.10	0.22	0.22
Double knuckle joint (with pins)	0.05	0.09	0.09	0.13	0.26	0.26
Additional weight by each 50 stroke	0.05	0.07	0.09	0.15	0.22	0.26

Calculation example: CG1KRN32-100
(ø32, 100 stroke)

- Basic weight.....0.35
 - Additional weight.....0.09/50 stroke
 - Cylinder stroke.....100 stroke
- 0.35+0.09 X 100/50=0.53kg

Stroke

Bore size (mm)	Standard stroke* (mm)
20	25, 50, 75, 100, 125, 150
25/32	25, 50, 75, 100, 125, 150, 200
40/50/63	25, 50, 75, 100, 125, 150, 200, 250, 300

* Other intermediate strokes can be manufactured upon receipt of order. Long strokes are not available.
Spacers are not used for the intermediate strokes.

Accessories

Mounting		Basic type
Standard	Rod end nut	●
	Single knuckle joint	●
Option	Double knuckle joint* (with pins)	●

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



Precautions

Be sure to read before handling.

Refer to p.0-39 to 0-46 for Safety Instruction and common precautions.

Refer to p.1.7-6 for precautions on CG1K series.

Handling



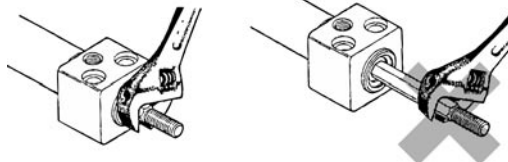
Cautions

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 allowable range of rotational torque.

Allowable rotational torque Nm	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. To tighten, take precautions to prevent the tightening torque from being applied to the non-rotating guide.



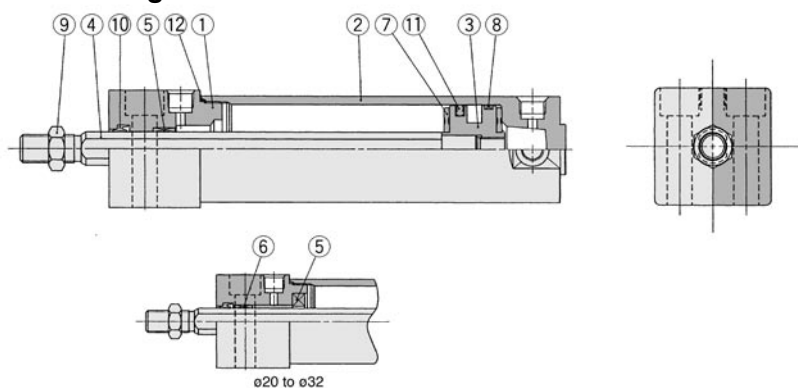
② To replace a rod seal, contact SMC.

A rod seal could lead to an air leak, depending on the position in which it is fitted. Therefore, make sure to contact SMC if a rod seal must be replaced.

Series CG1KR

Construction

Non-rotating rod/Bottom mounting



Component Parts

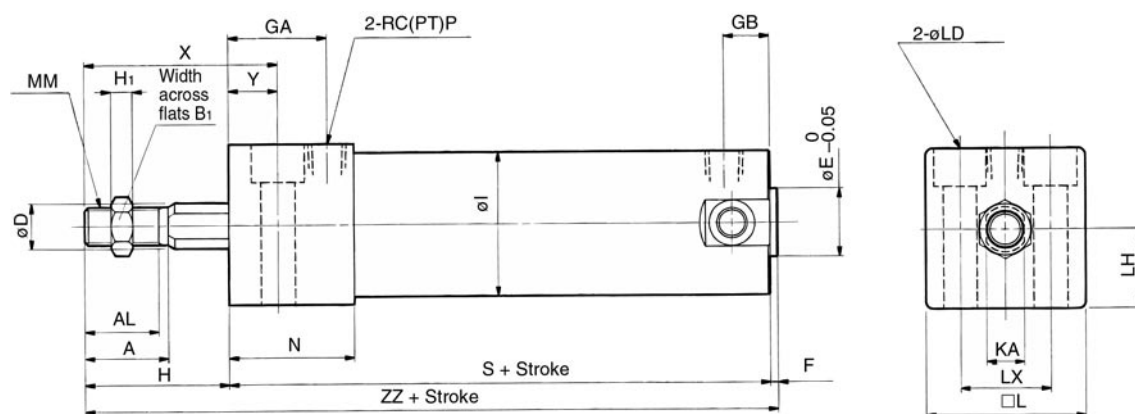
No.	Description	Material	Note
①	Rod cover	Aluminum alloy	White hard anodized
②	Tube gasket	Aluminum alloy	White hard anodized
③	Piston	Aluminum alloy	Chromated
④	Piston rod*	Carbon steel	Hard chrome plated
⑤	Non-rotating guide	Oil impregnated sintered alloy	
⑥	Bushing	Oil impregnated sintered alloy	ø20 to ø32 only
⑦	Rod end nut	Rolled steel	Nickel plated
⑧	Bumper	Urethane	
⑨	Wear ring	Resin	

* The material is stainless steel for ø20, ø25, and ø32

Replacement Parts

No.	Description	Material	Bore size (mm)/Part No.					
			ø20	ø25	ø32	ø40	ø50	ø63
⑩	Rod seal	NBR	SS-9 X 8K2Q	SS-11 X 10K2	SS-12	SS-16S	SS-20S	
⑪	Piston seal	NBR	PPD-20	PPD-25-19	PPD-32	PPD-40	PPD-50	PPD-63
⑫	Tube gasket	NBR	CM-020-16-123	CM-025-16-124	CM-032-16-126	CM-040-16-127	CM-050-16-128	CM-063-16-129

Basic/Bottom mounting: CG1KRN



Bore (mm)	Stroke range (mm)	A	AL	B ₁	D	E	GA	GB	H	H ₁	I	KA	L	LD	LH	LX	MM	N	P	S	X	Y	ZZ
20	Up to 150	18	15.5	13	9.2	12	20	10	27	5	26	8	30.4	ø5.5, ø9.5 Depth of counter bore ⁶	15	18	M8	27	1/8	75	38	11	104
25	Up to 200	22	19.5	17	11	14	22	10	32	6	31	10	36.4	ø6.6, ø11 Depth of counter bore ⁷	18	22	M10 X 1.25	29	1/8	77	44	12	111
32	Up to 200	22	19.5	17	12	18	26	10	32	6	38	10	42.4	ø9, ø14 Depth of counter bore ⁹	21	24	M10 X 1.25	33	1/8	83	45	13	117
40	Up to 300	30	27	19	16	25	30	10	39	8	47	14	52.4	ø11, ø17.5 Depth of counter bore ¹²	26	32	M14 X 1.5	37	1/8	94	55	16	135
50	Up to 300	35	32	27	20	30	33	12	45	11	58	18	64.5	ø14, ø20 Depth of counter bore ¹⁴	32	41	M18 X 1.5	44	1/4	108	62	17	155
63	Up to 300	35	32	27	20	32	39	12	45	11	72	18	76.6	ø18, ø26 Depth of counter bore ¹⁸	38	46	M18 X 1.5	50	1/4	114	64	19	161

Auto switch mounting position is the same as that on p.1.7-39.

Low Friction: Double Acting Single rod

Series CG1□Q

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

How to Order

Standard

CG1 L Q 25 100 F

With auto switch

CDG1 L Q 25 100 F B53

Mounting

With auto switch (magnet)

Low friction

Bore size

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

Auto switch

—	Without auto switch (Built-in magnet)
---	---------------------------------------

* Refer to the table below for selecting applicable auto switches.

Number of auto switches

—	2
S	1
n	n

Low friction direction

F	When pressurized on head side
B	When pressurized on rod side

Cylinder stroke

Refer to p.1.7-44 for Standard Stroke Table.

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.

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

CA1

CS1

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	—
				2 wire	24V	12V	200V or less	—	—	B53	●	●	●	—	—
			—					—	B64	●	●	—	—	—	
			12V			100V	C73	—	●	●	●	—	—	—	
		5V, 12V	100V or less			C80	—	●	●	—	—	IC	Rela PLC		
		12V	—			C73C	—	●	●	●	●	—		—	
		5V, 12V	24V or less			C80C	—	●	●	●	●	IC		—	
		—	—			—	B59W	●	●	—	—	—	—		
		Connector	Yes			12V	—	C73C	—	●	●	●	●	—	—
	No		5V, 12V	24V or less	C80C	—	●	●	●	●	IC	—			
Diagnostic indication(2 colour)	Grommet	Yes	—	—	—	B59W	●	●	—	—	—	—			
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	H7A1	G59	●	●	○	—	IC	Rela PLC
				3 wire (PNP)				H7A2	G5P	●	●	○	—		
		Connector		2 wire				12V	H7B	K59	●	●	○	—	
	3 wire (NPN)			H7C				—	—	●	●	●	●	—	
	Grommet	3 wire (PNP)		5V, 12V				H7NW	G59W	●	●	○	—	IC	
		2 wire		12V				H7PW	G5PW	●	●	○	—		
		4 wire (NPN)	5V, 12V	H7BW	K59W	●	●	○	—	—					
				H7BA	G5BA	—	—	○	—	—					
				—	G5NT	—	●	○	—	IC					
				H7NF	G59F	●	●	○	—		—				
				—	H7LF	—	●	●	○	—	—				

* Lead wire length 0.5m..... e.g.) C73C 5m.....Z e.g.) C73CZ
3m.....L C73CL None.....N C73CN

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

Series CG1□Q

Designed with a low sliding resistance of the piston, this air cylinder is ideal for applications such as contact pressure control, which requires smooth movements at low pressures.

Low sliding resistance

Stable sliding resistance

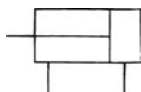
The sliding resistance remains stable even when the operating pressure changes.

Long strokes can be manufactured.

Auto switches can be mounted.



JIS symbol



⚠ Precautions

Be sure to read before handling.
Refer to p.0-39 to 0-43 for Safety Instruction and common precautions.
Refer to p.1.7-6 for precautions on series CG1.

Handling

⚠ 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.

With auto switch

Auto switches can be mounted. Mounting position/height is the same as the double acting/single rod style. Refer to p.1.7-12 and 1.7-13.

Mounting Bracket Part No.

Refer to p.1.7-45 for other mounting brackets.

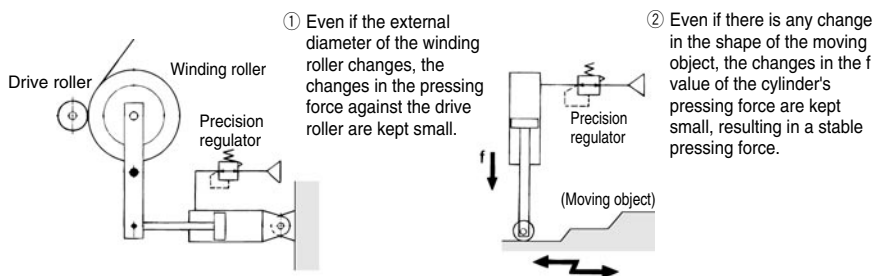
Auto Switch Mounting Bracket Part No.

Refer to p.1.7-45 for part number of the switch mounting band for adding auto switches on built-in magnet cylinders.

1-7-44

Application Example

A low friction cylinder is used in combination with a precision regulator (IR Series, etc.).



Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting/Single rod							
Lubrication	Non-lube							
Fluid	Air							
Proof pressure	1.05MPa							
Max. operating pressure	0.7MPa							
Min. operating pressure	0.025MPa				0.01MPa			
Ambient and fluid temperature	Without auto switch: -10°C to +70°C (No freezing)							
	With auto switch: -10°C to +60°C (No freezing)							
Piston speed	500mm/s							
Stroke tolerance	up to 700 ^{+1.4} ₀ mm							
Cushion	None			Rubber bumper				
Mounting	Basic, Axial foot, Front flange, Rear flange, Front trunnion, Rear trunnion, Clevis (Used for changing the port location by 90 degrees.)							
Low friction direction	One direction (Refer to "Selection of the direction".)							
Allowable leakage	0.5 ℓ /min (ANR) or less							



* Long stroke applies to the axial foot type and the front flange type.
Front/Rear trunnion types 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	—	—	—	—	●*	●*	●

* There are no pivot brackets for bore size ø80 and ø100.

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

Stroke Table

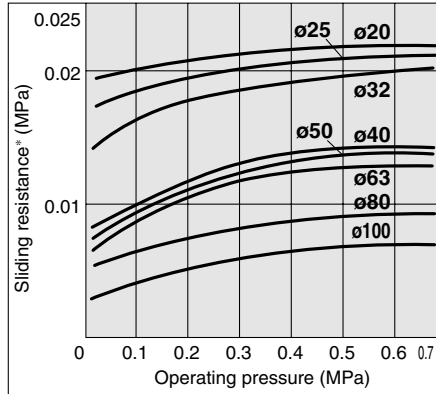
Bore size (mm)	Standard stroke (mm) ⁽¹⁾	Long stroke ⁽²⁾ (mm)
20	25, 50, 75, 100, 125, 150, 200	201 to 350
25		301 to 400
32		301 to 450
40	25, 50, 75, 100, 125, 150, 200	301 to 500
50/63	250, 300	301 to 600
80		301 to 700
100		301 to 700



- Note 1) Other intermediate strokes can be manufactured upon receipt of order. Refer to p.1.7-46 for dimensions.
Note 2) The longer the stroke, the greater the sliding resistance could become, due to the sagging of the piston rod. Therefore, consider installing a guide for such operation.
Note 3) Contact SMC for applications that exceed the stroke range shown above. (The maximum manufacturable stroke is 1500mm.)

Low Friction: 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

- To use the air cylinder as a balancer, 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 effect low friction operation both in the extending and retracting directions.
- When it is necessary to operate it as an ordinary double acting cylinder at an even lower operating speeds, use a low speed cylinder (see "Made to Order" on Page SPECIALS-1).

Weight

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

Calculation example: CG1LQ20-100B

(Foot, ø20, 100 stroke)

- Basic weight.....0.22 (Foot, ø20)
- Additional weight.....0.05/50 stroke
- Cylinder stroke.....100 stroke

$$0.22 + 0.05 \times 100 / 50 = 0.32 \text{ kg}$$

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 pins, snap rings and mounting bolts are attached for the clevis style.

*** Mounting bolts are attached for the foot style and the 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	—	—	—	—	—	—	—	—



Note 1) 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.

Note 2) The material is stainless steel on auto switch equipped styles ø20 and ø25.

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

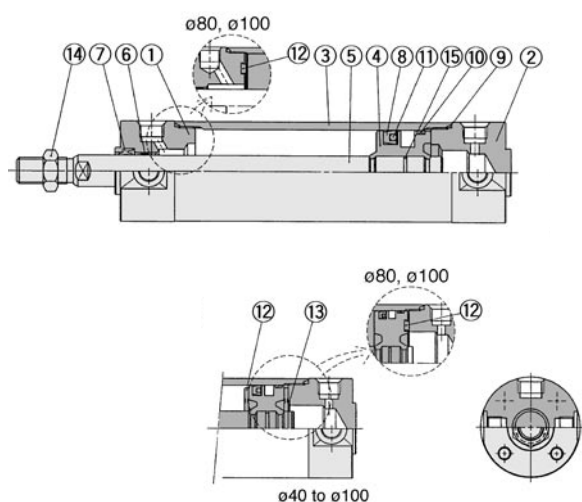
C92

CA1

CS1

Series CG1□Q

Construction



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	White hard anodized
②	Head cover	Aluminum alloy	White hard anodized
③	Cylinder tube	Aluminum alloy	Hard anodized
④	Piston	Aluminum alloy	Chromated
⑤	Piston rod*	Carbon steel	Hard chrome plated
⑥	Bushing	Oil impregnated sintered alloy	ø40 or larger: Lead bronze cast
⑩	Wear ring	Resin	
⑫	Bumper	Urethane	
⑬	Snap ring	Stainless steel	
⑭	Rod end nut	Rolled steel	Nickel plated
⑮	Piston gasket	NBR	

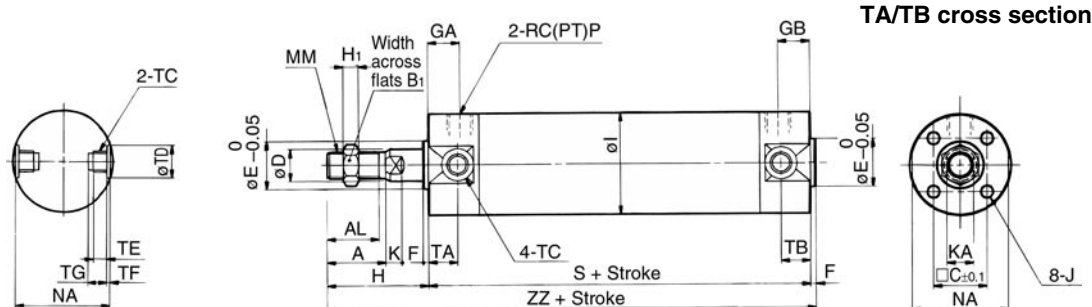
* The material is stainless steel on auto switch equipped styles ø20 and ø25.

Replacement Parts

No.	Description	Material	Bore size (mm)/Part No.							
			ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
⑦	Piston seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-16Z	PDU-20Z		PDU-25Z	PDU-30Z
⑧	Rod seal	NBR	GY-20 X 11 X 4	GY-25 X 16 X 4	GY-32 X 21 X 5	GY-40 X 28 X 5	GY-50 X 38 X 5	GY-63 X 51 X 5	GY-80 X 66 X 6	GY-100 X 86 X 6
⑨	Tube gasket	NBR	CM-020-16-123	CM-025-16-124	CM-032-16-126	CM-040-16-127	CM-050-16-128	CM-063-16-129	CM-080-16-152	CM-100-16-153
⑪	Back up O ring	NBR	CM20-1552	CM25-1553	CG032-15-64685	CA40-1546	CA50-1545	CA63-1544	CA80-1549	CM100-1543

* A rubber magnet is equipped on the piston of the cylinder with auto switch.

Basic/CG1BQ



T/TA cross section (mm)

Bore size (mm)	TC*	TDH9	TE	TF	TG
20	M5	8 ^{+0.08} ₀	4	0.5	5.5
25	M6 X 0.75	10 ^{+0.08} ₀	5	1	6.5
32	M8 X 1.0	12 ^{+0.08} ₀	5.5	1	7.5
40	M10 X 1.25	14 ^{+0.08} ₀	6	1.25	8.5
50	M12 X 1.25	16 ^{+0.08} ₀	7.5	2	10
63	M14 X 1.5	18 ^{+0.08} ₀	11.5	3	14.5

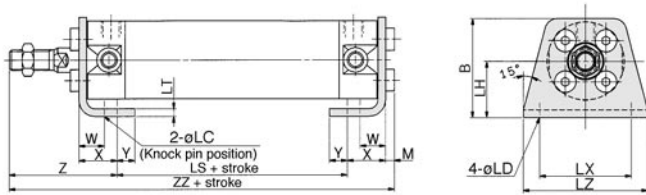
* Trunnion mounting taps with width across flats NA are not attached for bore sizes ø80 and ø100.

Bore (mm)	Stroke range (mm)	A	AL	B ₁	C	D	E	F	GA	GB	H	H ₁	I	J	K	KA	MM	NA	P	S	TA	TB	ZZ
20	Up to 350	18	15.5	13	14	8	12	2	12	12	35	5	26	M4 Depth 7	5	6	M8	24	1/8	77	11	11	114
25	Up to 400	22	19.5	17	16.5	10	14	2	12	12	40	6	31	M5 Depth 7.5	5.5	8	M10 X 1.25	29	1/8	77	11	11	119
32	Up to 450	22	19.5	13	20	12	18	2	12	12	40	6	38	M5 Depth 8	5.5	10	M10 X 1.25	35.5	1/8	79	11	11	121
40	Up to 800	30	27	19	26	16	25	2	13	13	50	8	47	M6 Depth 12	6	14	M14 X 1.5	44	1/8	87	12	12	139
50	Up to 1200	35	32	27	32	20	30	2	14	14	58	11	58	M8 Depth 16	7	18	M18 X 1.5	55	1/4	102	13	13	162
63	Up to 1200	35	32	27	38	20	32	2	14	14	58	11	72	M10 Depth 16	7	18	M18 X 1.5	69	1/4	102	13	13	162
80	Up to 1400	40	37	32	50	25	40	3	20	20	71	13	89	M10 Depth 22	10	22	M22 X 1.5	80	3/8	122	—	—	196
100	Up to 1500	40	37	41	60	30	50	3	20	20	71	16	110	M12 Depth 22	10	26	M26 X 1.5	100	1/2	122	—	—	196

Low Friction: Double Acting Single Rod **Series CG1□Q**

With Mounting Bracket

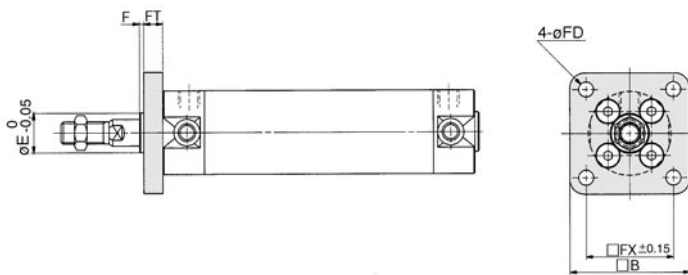
Axial foot/CG1LQ



Axial foot

Bore (mm)														(mm)	
	B	LC	LD	LH	LS	LT	LX	LZ	M	W	X	Y	Z	ZZ	
	Without 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	6.6	25	53	3	44	58	3.5	10	16	8	53	125.5	
40	54.5	4	6.6	30	60	3	54	71	4	10	16.5	8.5	63.5	144	
50	70.5	5	9	40	67	4.5	66	86	5	17.5	22	11	75.5	169.5	
63	82.5	5	11	45	67	4.5	82	106	5	17.5	22	13	75.5	169.5	
80	101	6	11	55	74	4.5	100	125	5	20	28.5	14	95	202.5	
100	121	6	14	65	74	6	120	150	7	20	30	16	95	206	

Front flange/CG1FQ



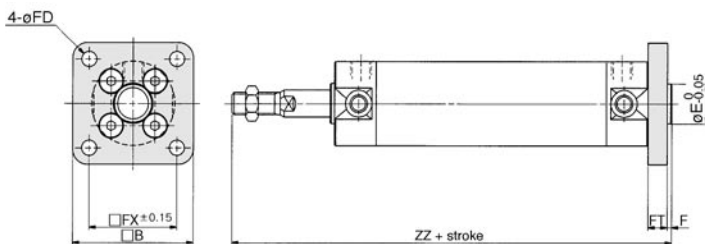
Flange

Flange (mm)

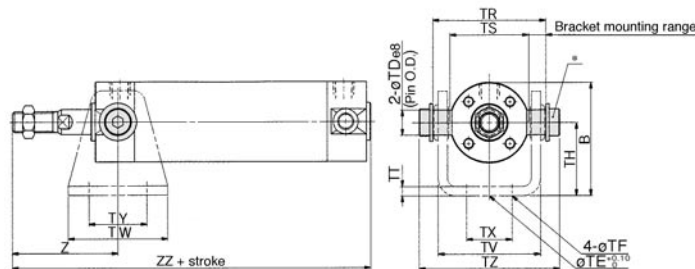
Bore (mm)	Stroke range		B	E	F	FX	FD	FT	Rear flange ZZ
	Front	Rear							Without rod boot
20	Up to 350	Up to 200	40	12	2	28	5.5	6	120
25	Up to 400	Up to 300	44	14	2	32	5.5	7	126
32	Up to 450	Up to 300	53	18	2	38	6.6	7	128
40	Up to 800	Up to 500	61	25	2	46	6.6	8	147
50	Up to 1200	Up to 600	76	30	2	58	9	9	171
63	Up to 1200	Up to 600	92	32	2	70	11	9	171
80	Up to 1400	Up to 750	104	40	3	82	11	11	207
100	Up to 1500	Up to 750	128	50	3	100	14	14	210

Note) End boss is machined on the flange for øE.

Rear flange/CG1GQ



Front trunnion/CG1UQ



Trunnion

Trunnion

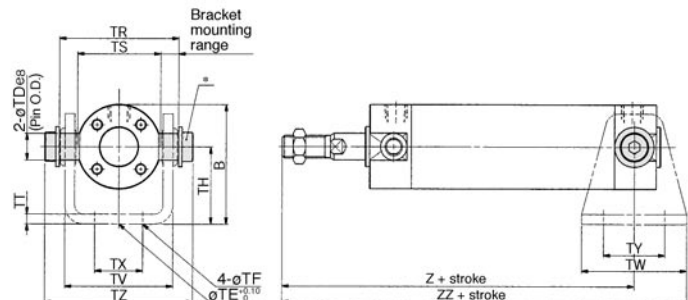
(mm)

Bore (mm)	Stroke range		B	TDe8	TE	TF	TH	TR	TS	TT	TV
	Front	Rear									
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 (mm)	TW	TX	TY	TZ	Front		Rear			
					Z		ZZ			
					Without rod boot		Without 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 pins, flat washer and hexagon socket head cap bolt.
Note) Refer to p.1.7-11 for pivot bracket.

Rear trunnion/CG1TQ



CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

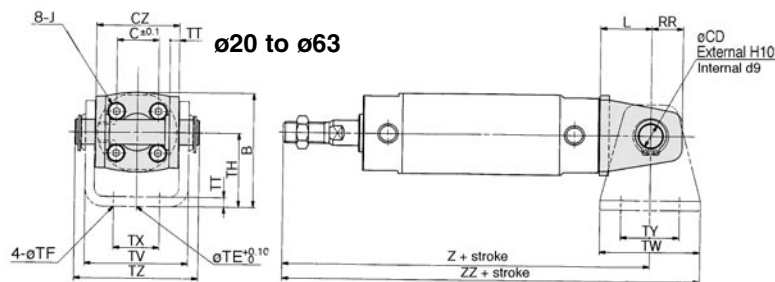
CA1

CS1

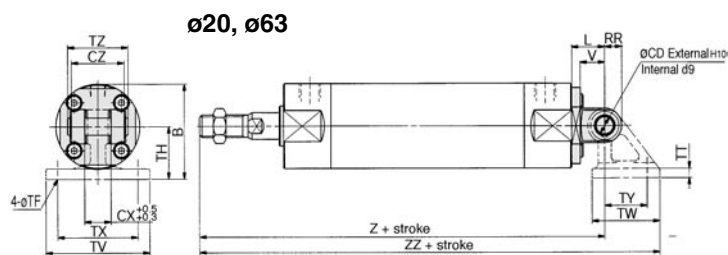
Series CG1□Q

With Mounting Bracket

Clevis/CG1DQ



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



* Clevis pins and snap rings are attached.

Clevis

(mm)

Bore (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 (mm)	TT	TV	TW	TX	TY	TZ	Z	ZZ	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) *Refer to p.1.7-11 for pivot bracket.