



**Обзор программы поставки**
**Усилие цилиндра одностороннего действия (Н)**

Исполнение	Ø	Давление (МПа)		
		0.3	0.5	0.7
S	12	21	44	66
	16	45	86	126
	20	79	142	205
	25	126	224	323
	32	211	372	533
	40	338	589	841
	50	535	928	1316
T	12	14	31	48
	16	24	54	85
	20	44	91	138
	25	84	160	235
	32	152	273	393
	40	288	499	710
	50	412	742	1072

**Усилие цилиндра двустороннего действия (Н)**

Ø	Движение	Давление (МПа)		
		0.3	0.5	0.7
12	при втягивании	25	42	59
	при выдвигании	34	57	79
16	при втягивании	45	75	106
	при выдвигании	60	101	141
20	при втягивании	71	118	165
	при выдвигании	94	157	220
25	при втягивании	113	189	264
	при выдвигании	147	245	344
32	при втягивании	181	302	422
	при выдвигании	241	402	563
40	при втягивании	317	528	739
	при выдвигании	377	628	880
50	при втягивании	495	825	1150
	при выдвигании	589	982	1370
63	при втягивании	841	1400	1960
	при выдвигании	935	1560	2180
80	при втягивании	1360	2270	3170
	при выдвигании	1510	2510	3520
100	при втягивании	2140	3570	5000
	при выдвигании	2360	3930	5500
125	при втягивании	3376	5627	7878
	при выдвигании	3682	6136	8590
140	при втягивании	4313	7188	10063
	при выдвигании	4618	7697	10776
160	при втягивании	5655	9425	13195
	при выдвигании	6032	10053	14074
180	при втягивании	7257	12095	16933
	при выдвигании	7634	12724	17813
200	при втягивании	9048	15080	21112
	при выдвигании	9425	15708	21991

**Усилие пружины цилиндра одностороннего действия (Н)**

Исполнение	Ø	Длина хода (мм)	Пружина натянута	Пружина ослаблена
		10	13	3.9
	16	5	15	10.3
		10	15	5.9
	20	5	15	10
		10	15	5.9
	25	5	20	16
		10	20	11
	32	5	30	23
		10	30	16
	40	5	30	13
		10	39	21
	50	10	50	30
		20	54	24
T	12	5	11	2.9
		10	9.7	2.8
	16	5	20	3.9
		10	20	3.9
	20	5	27	5.3
		10	27	5.9
	25	5	29	9.8
		10	29	9.8
	32	5	29	20
		10	29	20
	40	5	29	20
		10	29	20
	50	10	83	24
		20	83	24

**Исполнения по запросу**

<b>XA...</b>	Модификации конца штока (по форме и размеру)
<b>XB6 *</b>	Высокотемпературное от -10 до + 150°C (без магнита)
<b>XB7 *</b>	Низкотемпературное от -40 до + 70°C (без магнита)
<b>XB9 *</b>	Низкоскоростное (10 ~ 50 мм/с)
<b>XB10</b>	С промежуточной длиной хода
<b>XB13 *</b>	Низкоскоростное (5~50 мм/с)
<b>XB14 *</b>	С термостойкими (0 ~ 150°C) датчиками положения (Ø16 ~ Ø63)
<b>XC4 *</b>	Усиленный скребок (Ø20 ~ Ø100)
<b>XC6 *</b>	Нержавеющие шток, гайка штока, поршень и стопорное кольцо
<b>XC8 *</b>	С регулируемым ходом на выдвигание
<b>XC9 *</b>	С регулируемым ходом на втягивание
<b>XC10 *</b>	Сдвоенный двухштоковый пневмоцилиндр (4-позиционный)
<b>XC11 *</b>	Сдвоенный пневмоцилиндр (3-позиционный)
<b>XC35 *</b>	Дополнительный латунный скребок (Ø32 ~ Ø100)
<b>X271</b>	Уплотнения из фторполимера
<b>P*</b>	Подвод воздуха с торца
<b>S</b>	Повышенная устойчивость к боковым нагрузкам (Ø32 ~ Ø100)
<b>B</b>	Блокировка в одном из крайних положений (Ø20 ~ Ø100)
<b>R, V</b>	Водозащита (Ø20 ~ Ø100)

\* для Ø12 ~ Ø100

## Номер для заказа

### Цилиндры двустороннего действия

**Исполнение цилиндра**

—	Без магнитного кольца
D	С магнитным кольцом

**Модификация**

—	Стандарт
K*	С защитой от проворота
W	С двусторонним штоком
KW*	С защитой от проворота и двусторонним штоком

\*Для  $\varnothing 12 \sim \varnothing 63$

**Диаметр поршня (мм)**

12	40	125
16	50	140
20	63	160
25	80	180
32	100	200

**Присоединительная резьба**

—	M (для $\varnothing 12 \sim \varnothing 25$ )
TF	G (для $\varnothing 32 \sim \varnothing 200$ )

\* Исполнение с быстроразъёмным фитингом - по запросу

**Ход (мм)**

**Демпфер**

—	Стандарт
C	С упругим демпфером

\* для  $\varnothing 125 \sim \varnothing 200$  - только исполнение С  
\*\* в модификациях К и KW упругий демпфер возможен только для  $\varnothing 12$  с магнитным кольцом

**Тип крепления**

B	Базовый (сквозные отв.)
A*	Резьбовые отв. в корпусе
L*	На лапах
F*	Передний фланец
G*	Задний фланец
D*	Двойная задняя опора

\* Для  $\varnothing 12 \sim \varnothing 100$   
\*\* Крепления G и D недоступны для модификации KW

**Резьба штока**

—	Стандарт (внутренняя)
M	Наружная

**Опции**

—	Стандарт
XA...*	Модификации конца штока (по форме и размеру). См. стр. 5-15
XC6*	Нержавеющий шток
XB6*	Высокая температура -10 ~ 150°C
XB7*	Низкая температура -40 ~ 70°C
XC10*	Сдвоенный двухштоковый пневмоцилиндр (4-позиционный)
XC11*	Сдвоенный пневмоцилиндр (3-позиционный)
XC35*	Дополнительный латунный скребок
XC4*	Усиленный скребок

\* По запросу

**Пазы для установки датчиков**

—	Нет (для $\varnothing 12 \sim \varnothing 25$ без магнитного кольца)
Z	Есть (на двух гранях - $\varnothing 12 \sim 25$ ; на четырёх гранях - $\varnothing 32 \sim 50$ )

### Цилиндры двустороннего действия с увеличенным ходом

**Исполнение цилиндра**

—	Без магнитного кольца
D	С магнитным кольцом

**Тип крепления**

A	Резьбовые отв. в корпусе
L	На лапах
F	Передний фланец
G	Задний фланец
D	Двойная задняя опора

**Диаметр поршня (мм)**

32	40	50	63	80	100
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**Ход (мм)**

125	150	175	200	250	300
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**Резьба штока**

—	Стандарт (внутренняя)
M	Наружная

**Опции**

—	Стандарт
XA...*	Модификации конца штока (по форме и размеру). См. стр. 5-15
XC6*	Нержавеющий шток
XC4*	Усиленный скребок

\* По запросу

\* Исполнение с быстроразъёмным фитингом - по запросу

### Цилиндры одностороннего действия

**Исполнение цилиндра**

—	Без магнитного кольца
D	С магнитным кольцом

**Тип крепления**

B	Базовый (сквозные отв.)
A	Резьбовые отв. в корпусе
L	На лапах
F	Передний фланец
G	Задний фланец
D	Двойная задняя опора

**Диаметр поршня (мм)**

12	16	20	25	32	40	50
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**Присоединительная резьба**

—	M (для $\varnothing 12 \sim \varnothing 25$ )
TF	G (для $\varnothing 32 \sim \varnothing 50$ )

\* Исполнение с быстроразъёмным фитингом - по запросу

**Ход (мм)**

**Принцип действия**

S	Одностороннего действия, втянут без давления
T	Одностороннего действия, выдвинут без давления

**Резьба штока**

—	Стандарт (внутренняя)
M	Наружная

**Опции**

—	Стандарт
XA...*	Модификации конца штока (по форме и размеру). См. стр. 5-15
XC6*	Нержавеющий шток

\* По запросу

**Пазы для установки датчиков**

—	Нет (для $\varnothing 12 \sim \varnothing 25$ без магнитного кольца)
Z	Есть (на двух гранях - $\varnothing 12 \sim 25$ ; на четырёх гранях - $\varnothing 32 \sim 50$ )

### Для пневмоцилиндров двустороннего действия

Ø поршня (мм)	Номер для заказа		
	Стандарт	С двусторонним штоком (исполнение W)	С увеличенным ходом
12	CQ2B12-PS	CQ2WB12-PS	-
16	CQ2B16-PS	CQ2WB16-PS	-
20	CQ2B20-PS	CQ2WB20-PS	-
25	CQ2B25-PS	CQ2WB25-PS	-
32	CQ2B32-PS	CQ2WB32-PS	CQ2A32-L-PS
40	CQ2B40-PS	CQ2WB40-PS	CQ2A40-L-PS
50	CQ2B50-PS	CQ2WB50-PS	CQ2A50-L-PS
63	CQ2B63-PS	CQ2WB63-PS	CQ2A63-L-PS
80	CQ2B80-PS	CQ2WB80-PS	CQ2A80-L-PS
100	CQ2B100-PS	CQ2WB100-PS	CQ2A100-L-PS
125	CQ2B125-PS	CQ2WB125-PS	-
140	CQ2B140-PS	CQ2WB140-PS	-
160	CQ2B160-PS	CQ2WB160-PS	-
180	CQ2B180-PS	CQ2WB180-PS	-
200	CQ2B200-PS	CQ2WB200-PS	-

## Ремкомплект

### Для пневмоцилиндров одностороннего действия

Ø поршня (мм)	Номер для заказа	
	С норм. втянутым штоком	С норм. выдвинутым штоком
12	CQ2B12-S-PS	CQ2B12-T-PS
16	CQ2B16-S-PS	CQ2B16-T-PS
20	CQ2B20-S-PS	CQ2B20-T-PS
25	CQ2B25-S-PS	CQ2B25-T-PS
32	CQ2B32-S-PS	CQ2B32-T-PS
40	CQ2B40-S-PS	CQ2B40-T-PS
50	CQ2B50-S-PS	CQ2B50-T-PS

**Вес**
**Вес цилиндров CQ2B двустороннего действия (г)**

Ø поршня (мм)	Ход (мм)																	
	5	10	15	20	25	30	35	40	45	50	75	100	125	150	175	200	250	300
12	29	35	41	47	54	60	-	-	-	-	-	-	-	-	-	-	-	-
16	42	50	59	67	76	84	-	-	-	-	-	-	-	-	-	-	-	-
20	63	75	88	101	114	127	140	152	165	178	-	-	-	-	-	-	-	-
25	86	100	115	129	144	158	173	187	202	216	-	-	-	-	-	-	-	-
32	125	145	165	184	204	224	244	263	283	303	448	547	-	-	-	-	-	-
40	187	208	230	251	273	294	315	337	358	380	552	664	-	-	-	-	-	-
50	-	339	372	405	438	471	504	537	570	603	872	1043	-	-	-	-	-	-
63	-	480	518	556	594	632	670	708	746	784	1112	1308	-	-	-	-	-	-
80	-	916	976	1036	1097	1157	1217	1277	1338	1398	1917	2215	-	-	-	-	-	-
100	-	1608	1688	1768	1849	1929	2010	2090	2170	2251	2982	3391	-	-	-	-	-	-
125	-	5240	-	5480	-	5710	-	5940	-	6180	6760	7350	7930	8520	9100	9690	10860	12030
140	-	6190	-	6440	-	6710	-	6980	-	7250	7900	8570	9230	9900	10560	11230	12550	13880
160	-	8570	-	8880	-	9200	-	9520	-	9840	10640	11440	12250	13050	13850	14650	16260	17850
180	-	11540	-	11920	-	12310	-	12700	-	13090	14050	15030	16000	16970	17930	18900	20840	22780
200	-	14560	-	15070	-	15490	-	15920	-	16340	17410	18470	19540	20600	21670	22820	24850	26990

**Вес цилиндров CDQ2B двустороннего действия (г)**

Ø поршня (мм)	Ход (мм)																	
	5	10	15	20	25	30	35	40	45	50	75	100	125	150	175	200	250	300
12	43	49	55	61	67	73	-	-	-	-	-	-	-	-	-	-	-	-
16	64	71	79	87	95	102	-	-	-	-	-	-	-	-	-	-	-	-
20	94	106	118	131	143	155	167	179	191	203	-	-	-	-	-	-	-	-
25	134	149	164	180	195	210	226	241	256	272	-	-	-	-	-	-	-	-
32	182	202	222	241	261	281	300	320	340	359	459	558	-	-	-	-	-	-
40	269	290	312	333	355	376	398	420	441	463	575	687	-	-	-	-	-	-
50	-	455	488	521	554	587	620	653	686	719	891	1062	-	-	-	-	-	-
63	-	627	665	703	741	779	817	855	893	931	1129	1326	-	-	-	-	-	-
80	-	1162	1222	1282	1342	1403	1463	1524	1584	1644	1941	2237	-	-	-	-	-	-
100	-	1966	2047	2127	2208	2288	2368	2449	2529	2610	3018	3426	-	-	-	-	-	-
125	-	5300	-	5540	-	5770	-	6010	-	6240	6830	7400	7990	8580	9160	9750	10920	12090
140	-	6260	-	6510	-	6780	-	7050	-	7320	7970	8640	9300	9970	10630	11300	12620	13950
160	-	8650	-	8960	-	9280	-	9600	-	9920	10720	11520	12330	13130	13930	14730	16340	17930
180	-	11620	-	12000	-	12390	-	12780	-	13170	14130	15110	16080	17050	18010	18980	20920	22860
200	-	14640	-	15150	-	15570	-	16000	-	16420	17490	18550	19620	20680	21750	22900	24930	27070

**Вес цилиндров CQ2B одностороннего действия (г)**

Принцип действия	Диаметр поршня (мм)	Ход (мм)			
		5	10	15	20
Шток втянут без давления	12	29	35	-	-
	16	42	51	-	-
	20	63	76	-	-
	25	87	101	-	-
	32	125	145	-	-
	40	196	217	-	-
Шток выдвинут без давления	50	-	357	-	426
	12	29	35	-	-
	16	43	50	-	-
	20	67	78	-	-
	25	92	104	-	-
	32	135	151	-	-
40	206	223	-	-	
	50	-	374	-	429

**Вес цилиндров CDQ2B одностороннего действия (г)**

Принцип действия	Диаметр поршня (мм)	Ход (мм)			
		5	10	15	20
Шток втянут без давления	12	44	49	-	-
	16	64	72	-	-
	20	97	109	-	-
	25	135	150	-	-
	32	182	202	-	-
	40	269	290	-	-
	50	-	456	-	521
	Шток выдвинут без давления	12	49	65	-
16		63	71	-	-
20		110	119	-	-
25		149	163	-	-
32		192	208	-	-
40		279	296	-	-
50		-	486	-	540



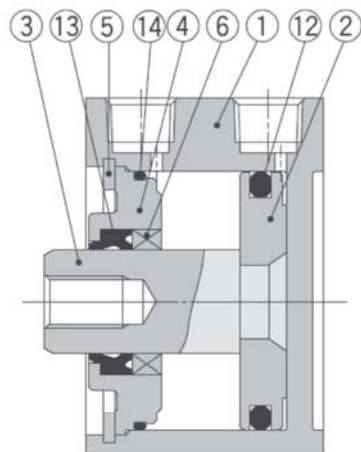
# Компактный цилиндр CQ2

## Конструкция

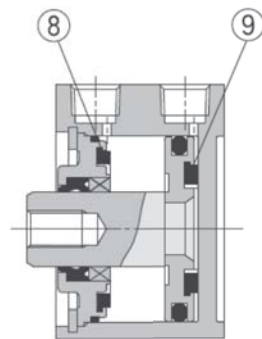
### Компактный цилиндр двустороннего действия

Ø12~100

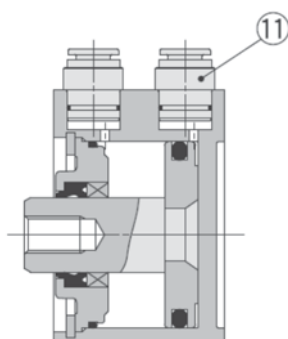
Исполнение без магнитного кольца CQ2



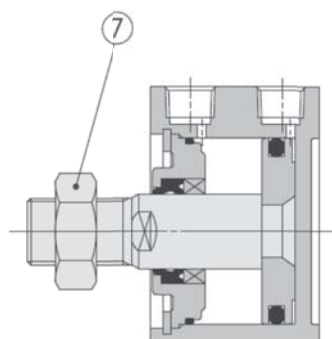
Стандарт.  
Шток с внутренней резьбой



Исполнение  
с упругим демпфером  
(опция)



Исполнение с быстроразъемными фитингами  
(опция)



Исполнение  
с наружной резьбой на штоке  
(опция)

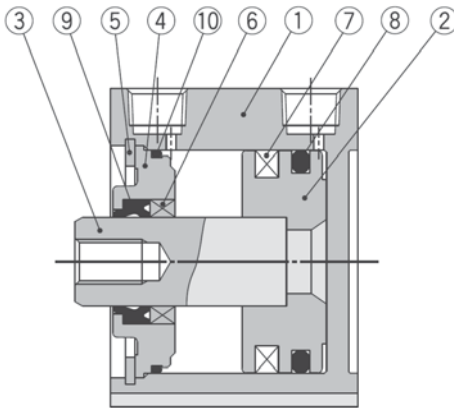
### Спецификация

Поз.	Наименование	Материал	Примечание
1	Гильза цилиндра	Анодированный алюминиевый сплав	-
2	Поршень	Хромированный алюминиевый сплав	-
3	Шток	Сталь нержавеющая	Ø12 ~ Ø25
		Сталь хромированная	Ø32 ~ Ø100
4	Крышка цилиндра	Анодированный алюминиевый сплав	Ø12 ~ Ø40
		Хромированный алюминиевый сплав	Ø50 ~ Ø100
5	Крепежное кольцо	Сталь инструментальная фосфатированная	-
6	Опора поршневого штока	Подшипниковый сплав	Ø50 ~ Ø100
7	Гайка поршневого штока	Сталь никелированная	-
8	Демпфер А	Уретан	-
9	Демпфер В	-	-
11	Быстроразъемный фитинг	-	Ø32 ~ Ø63
12	Поршневое уплотнение	NBR	-
13	Маслосъемник		-
14	Прокладка		-

## Конструкция

Ø12~100

Исполнение с магнитным кольцом CDQ2

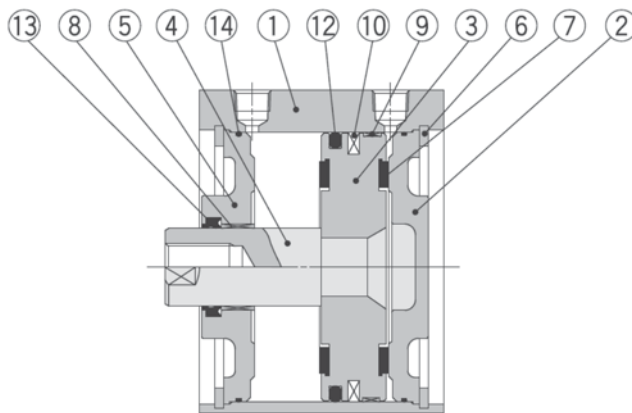


### Спецификация

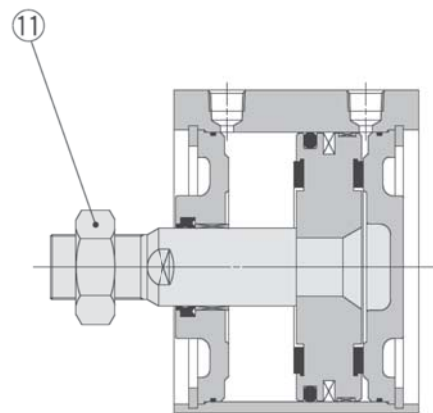
Поз.	Наименование	Материал	Примечание
1	Гильза цилиндра	Анодированный алюминиевый сплав	-
2	Поршень	Хромированный алюминиевый сплав	-
3	Шток	Сталь нержавеющая	ø12 ~ ø25
		Сталь хромированная	ø32 ~ ø100
4	Крышка цилиндра	Анодированный алюминиевый сплав	ø12 ~ ø40
		Хромированный алюминиевый сплав	ø50 ~ ø100
5	Крепежное кольцо	Сталь инструментальная фосфатированная	-
6	Опора поршневого штока	Подшипниковый сплав	ø50 ~ ø100
7	Магнит	-	-
8	Поршневое уплотнение	NBR	-
9	Маслосъемник		-
10	Прокладка		-

Ø125~200

Исполнения CQ2/CDQ2



Стандарт.  
Шток с внутренней резьбой



Исполнение  
с наружной резьбой на штоке  
(опция)

### Спецификация

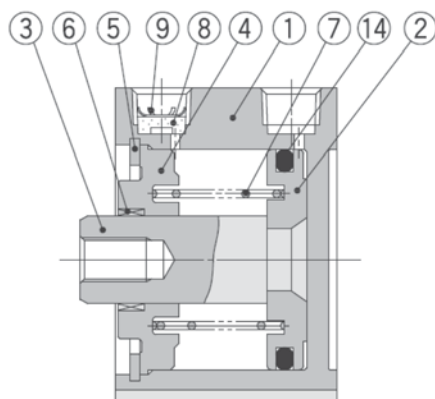
Поз.	Наименование	Материал
1	Гильза цилиндра	Анодированный алюминиевый сплав
2	Поршневая крышка	Сталь никелированная
3	Поршень	Хромированный алюминиевый сплав
4	Шток	Сталь хромированная
5	Штоковая крышка	Сталь никелированная
6	Крепежное кольцо	Сталь инструментальная фосфатированная
7	Демпфер	Уретан
8	Опора поршневого штока	Подшипниковый сплав
9	Поршневое уплотнение	Полимер
10	Магнит (только у CDQ2)	-
11	Гайка поршневого штока	Сталь никелированная
12	Поршневое уплотнение	NBR
13	Маслосъемник	
14	Прокладка	

# Компактный цилиндр CQ2

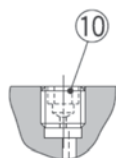
## Конструкция

### Компактный цилиндр одностороннего действия

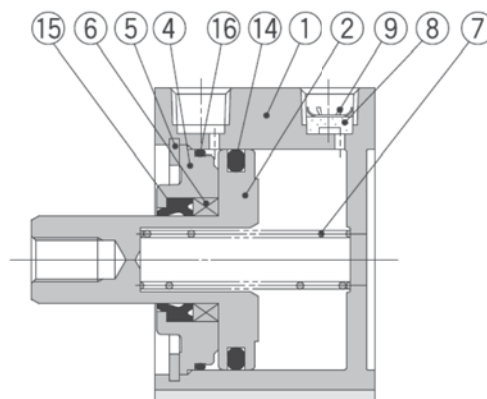
Исполнение без магнитного кольца CQ2



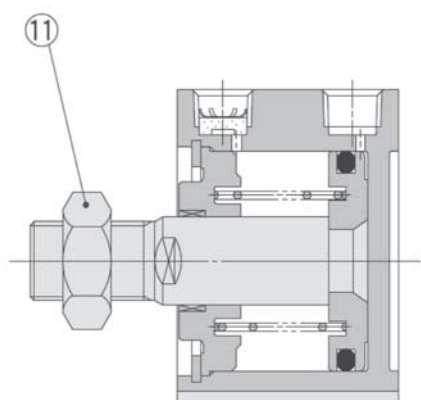
Втянут без давления



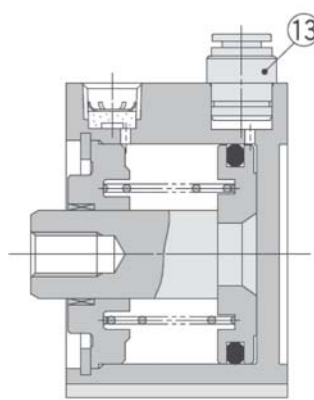
Присоединение M5



Выдвинут без давления



Исполнение с наружной резьбой на штоке (опция)



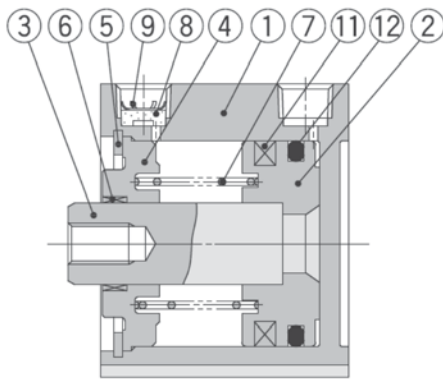
Исполнение с быстроразъемными фитингами (опция)

### Спецификация

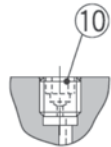
Поз.	Наименование	Материал	Примечание
1	Гильза цилиндра	Анодированный алюминиевый сплав	-
2	Поршень	Хромированный алюминиевый сплав	-
3	Шток	Сталь нержавеющая	$\varnothing 12 \sim \varnothing 25$
		Сталь хромированная	$\varnothing 32 \sim \varnothing 50$
4	Крышка цилиндра	Анодированный алюминиевый сплав	$\varnothing 12 \sim \varnothing 40$
		Хромированный алюминиевый сплав	$\varnothing 50$
5	Крепежное кольцо	Сталь инструментальная фосфатированная	-
6	Опора поршневого штока	Подшипниковый сплав	$\varnothing 50$
7	Пружина	Пружинная сталь	-
8	Бронзовый фильтрующий элемент	Спеченный бронзовый порошок	Для присоединения Rc 1/8, Rc 1/4
9	Крепежное кольцо	Сталь инструментальная	
10	Заглушка с деаэр. отв.	Сталь легированная	Для присоединения M5
11	Гайка поршневого штока	Сталь никелированная	-
13	Быстроразъемный фитинг	-	$\varnothing 32 \sim \varnothing 50$
12	Поршневое уплотнение	NBR	-
13	Маслосъемник		-
14	Прокладка		-

## Конструкция

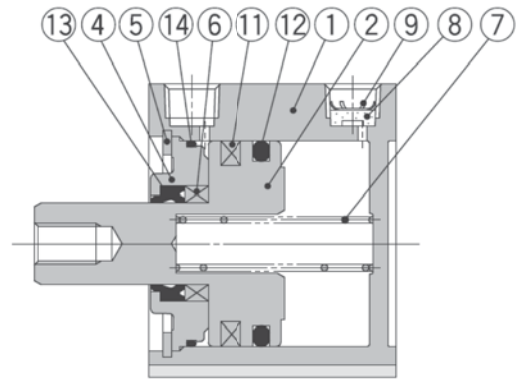
Исполнение с магнитным кольцом CDQ2



Втянут без давления



Присоединение M5



Выдвинут без давления

### Спецификация

Поз.	Наименование	Материал	Примечание
1	Гильза цилиндра	Анодированный алюминиевый сплав	-
2	Поршень	Хромированный алюминиевый сплав	-
3	Шток	Сталь нержавеющая	ø12 ~ ø25
		Сталь хромированная	ø32 ~ ø50
4	Крышка цилиндра	Анодированный алюминиевый сплав	ø12 ~ ø40
		Хромированный алюминиевый сплав	ø50
5	Крепежное кольцо	Сталь инструментальная фосфатированная	-
6	Опора поршневого штока	Подшипниковый сплав	ø50
7	Пружина	Пружинная сталь	
8	Бронзовый фильтрующий элемент	Спеченный бронзовый порошок	Для присоединения Rc 1/8, Rc 1/4
9	Крепежное кольцо	Сталь инструментальная	
10	Заглушка с деаэр. отв.	Сталь легированная	Для присоединения M5
11	Магнит	-	-
12	Поршневое уплотнение	NBR	-
13	Маслосъемник		-
14	Прокладка		-

### Ремкомплект

Для пневмоцилиндров двустороннего действия

ø поршня (мм)	Номер для заказа		
	Стандарт	С двусторонним штоком (исполнение W)	С увеличенным ходом
12	CQ2B12-PS	CQ2WB12-PS	-
16	CQ2B16-PS	CQ2WB16-PS	-
20	CQ2B20-PS	CQ2WB20-PS	-
25	CQ2B25-PS	CQ2WB25-PS	-
32	CQ2B32-PS	CQ2WB32-PS	CQ2A32-L-PS
40	CQ2B40-PS	CQ2WB40-PS	CQ2A40-L-PS
50	CQ2B50-PS	CQ2WB50-PS	CQ2A50-L-PS
63	CQ2B63-PS	CQ2WB63-PS	CQ2A63-L-PS
80	CQ2B80-PS	CQ2WB80-PS	CQ2A80-L-PS
100	CQ2B100-PS	CQ2WB100-PS	CQ2A100-L-PS
125	CQ2B125-PS	CQ2WB125-PS	-
140	CQ2B140-PS	CQ2WB140-PS	-
160	CQ2B160-PS	CQ2WB160-PS	-
180	CQ2B180-PS	CQ2WB180-PS	-
200	CQ2B200-PS	CQ2WB200-PS	-

Для пневмоцилиндров одностороннего действия

ø поршня (мм)	Номер для заказа	
	С норм. втянутым штоком	С норм. выдвинутым штоком
12	CQ2B12-S-PS	CQ2B12-T-PS
16	CQ2B16-S-PS	CQ2B16-T-PS
20	CQ2B20-S-PS	CQ2B20-T-PS
25	CQ2B25-S-PS	CQ2B25-T-PS
32	CQ2B32-S-PS	CQ2B32-T-PS
40	CQ2B40-S-PS	CQ2B40-T-PS
50	CQ2B50-S-PS	CQ2B50-T-PS

# Компактный цилиндр CQ2

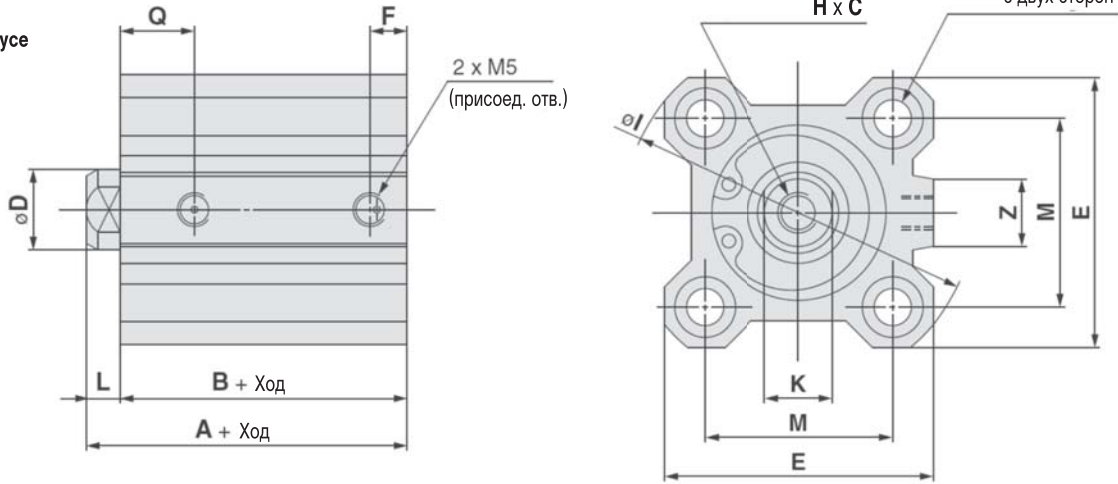
## Размеры

### Цилиндр двустороннего действия

Исполнение без пазов для установки датчиков

Ø12 ~ Ø25

**CQ2B:**  
Сквозные отв. в корпусе  
(стандарт)



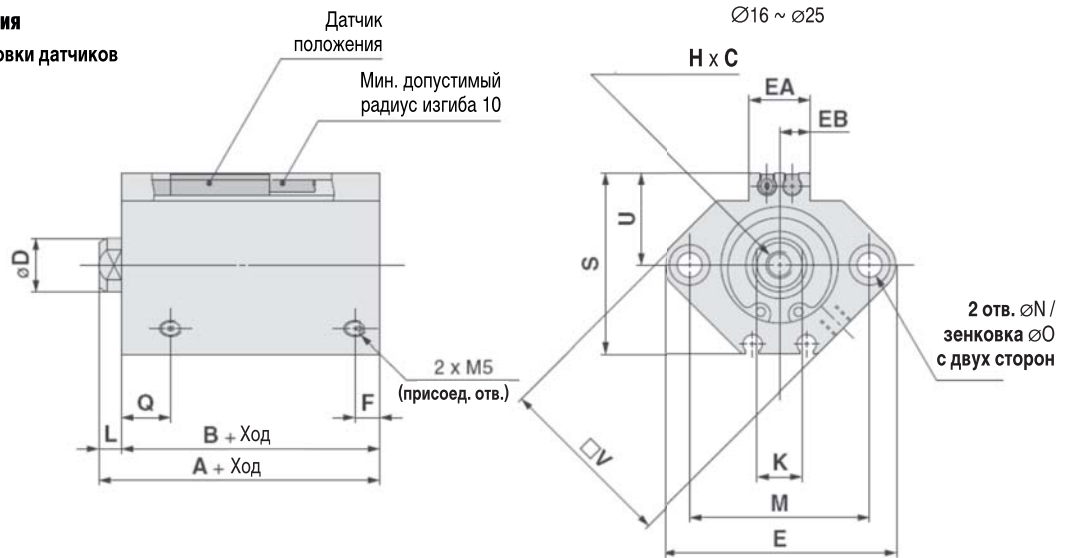
Ø поршня (мм)	Ход (мм)	A	B	C	D	E	F	H	I	K	L	M	N	O	Q	Z
12	5 ~ 30	20.5	17	6	6	25	5	M3	32	5	3.5	15.5	3.5	6.5x3.5	7.5	-
16		22	18.5	8	8	29	5.5	M4	38	6	3.5	20	3.5	6.5x3.5	8	10
20	5 ~ 50	24	19.5	7	10	36	5.5	M5	47	8	4.5	25.5	5.5	9x7	9	10
25		27.5	22.5	12	12	40	5.5	M6	52	10	5	28	5.5	9x7	11	10

### Цилиндр двустороннего действия

Исполнение с пазами для установки датчиков

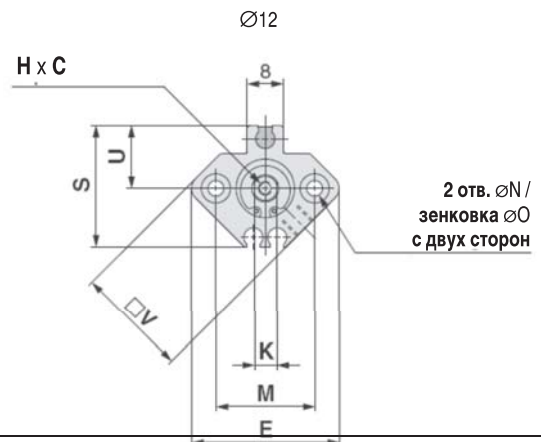
Ø12 ~ Ø25

**CDQ2B:**  
Сквозные отв. в корпусе  
(стандарт)



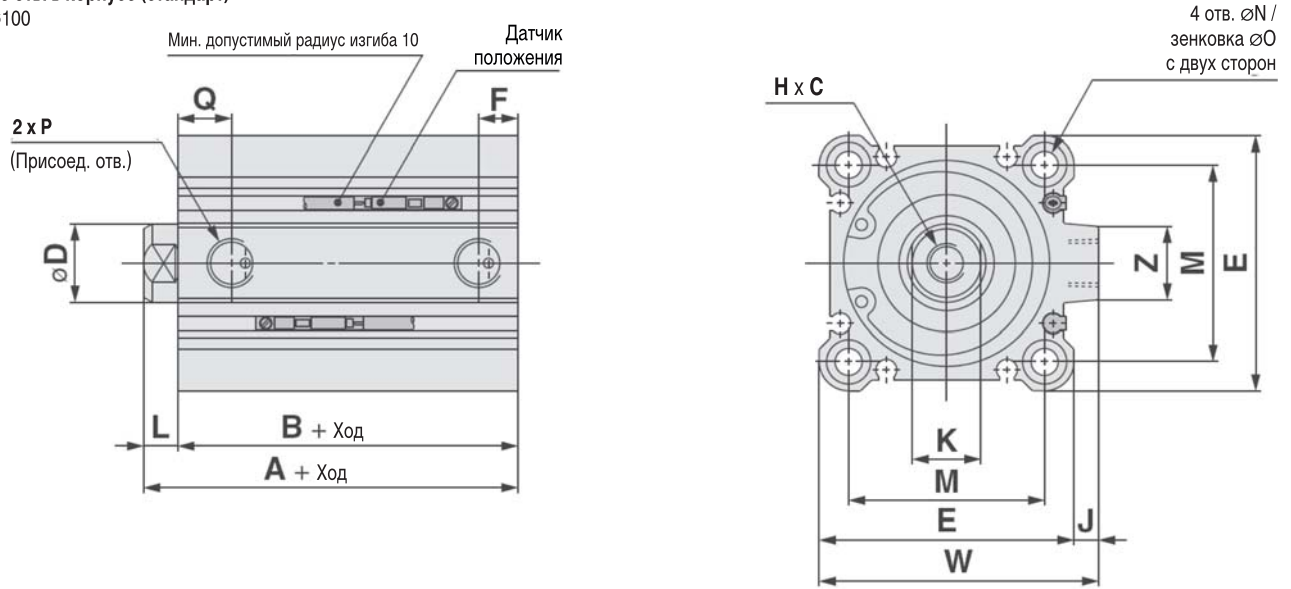
Ø поршня (мм)	Ход (мм)	A	B	C	D	E	EA	EB	F	H
12	5 ~ 30	31.5	28	6	6	33	-	-	6.5	M3
16		34	30.5	8	8	37	13.2	6.6	5.5	M4
20	5 ~ 50	36	31.5	7	10	47	13.6	6.8	5.5	M5
25		37.5	32.5	12	12	52	13.6	6.8	5.5	M6

Ø поршня (мм)	Ход (мм)	K	L	M	N	O	Q	S	U	V
12	5 ~ 30	5	3.5	22	3.5	6.5x3.5	11	27.5	14	25
16		6	3.5	28	3.5	6.5x3.5	10	29.5	15	29
20	5 ~ 50	8	4.5	36	5.5	9x7	10.5	35.5	18	36
25		10	5	40	5.5	9x7	11	40.5	21	40



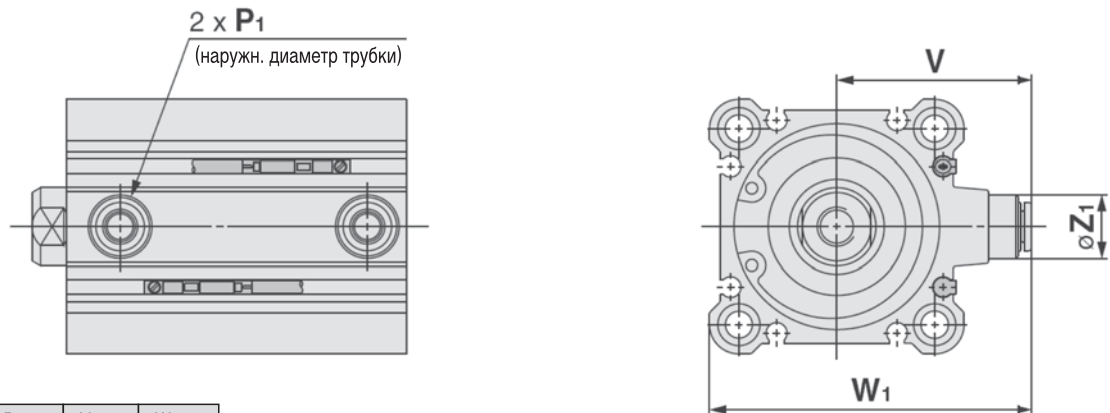
## Размеры

Исполнение CQ2B/CDQ2B:  
Сквозные отв. в корпусе (стандарт)  
Ø32 ~ Ø100



Ø поршня (мм)	Ход (мм)	Без магнитного кольца					С магнитным кольцом					C	D	E	H	J	K	L	M	N	O	W	Z
		A	B	F	P	Q	A	B	F	P	Q												
32	5	30	23	5.5	M5	11.5	40	33	7.5	G1/8	10.5	13	16	45	M8	4.5	14	7	34	5.5	9x7	49.5	14
	10 ~ 50			7.5	G1/8	10.5																	
	75, 100	40	33																				
40	5 ~ 50	36.5	29.5	8	G1/8	11	46.5	39.5	8	G1/8	11	13	16	52	M8	5	14	7	40	5.5	9x7	57	15
	75, 100	46.5	39.5																				
50	10 ~ 50	38.5	30.5	10.5	G1/4	10.5	48.5	40.5	10.5	G1/4	10.5	15	20	64	M10	7	17	8	50	6.6	11x8	71	19
	75, 100	48.5	40.5																				
63	10 ~ 50	44	36	10.5	G1/4	15	54	46	10.5	G1/4	15	15	20	77	M10	7	17	8	60	9	14x10.5	84	19
	75, 100	54	46																				
80	10 ~ 50	53.5	43.5	12.5	G3/8	16	63.5	53.5	12.5	G3/8	16	21	25	98	M16	6	22	10	77	11	17.5x13.5	104	25
	75, 100	63.5	53.5																				
100	10 ~ 50	65	53	13	G3/8	23	75	63	13	G3/8	23	27	30	117	M20	6.5	27	12	94	11	17.5x13.5	123.5	25
	75, 100	75	63																				

Исполнение с быстроразъемными фитингами  
(Ø32 ~ Ø63)



Ø поршня (мм)	Z1	P1	V	W1
32	13	6	36.5	59
40	13	6	40.5	66
50	16	8	50	82
63	16	8	56.5	95



# Компактный цилиндр CQ2

## Размеры

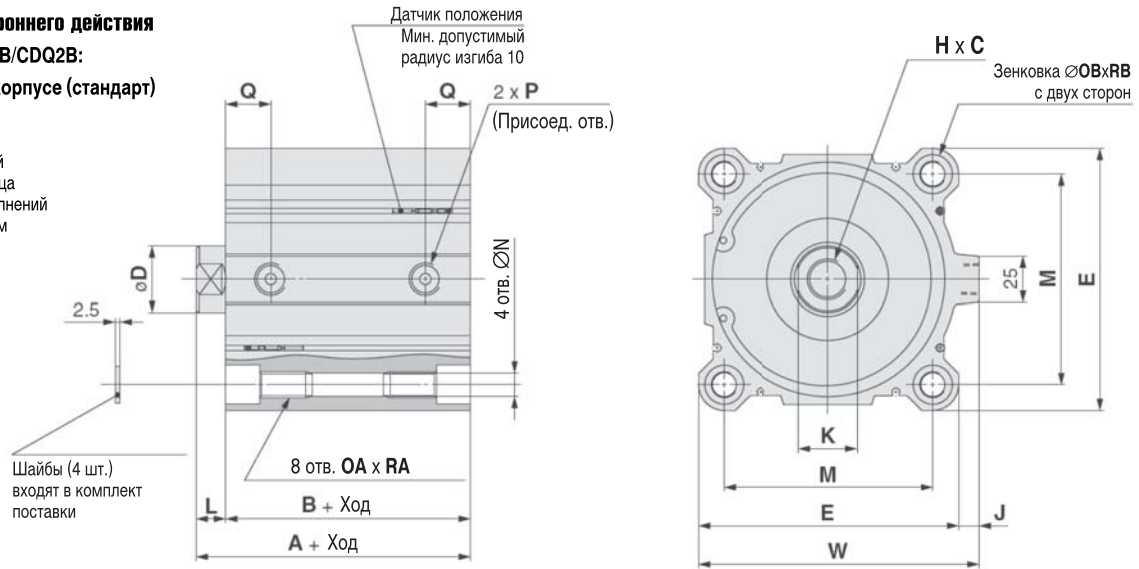
### Цилиндр двустороннего действия

#### Исполнение CQ2B/CDQ2B:

#### сквозные отв. в корпусе (стандарт)

Ø125 ~ Ø160

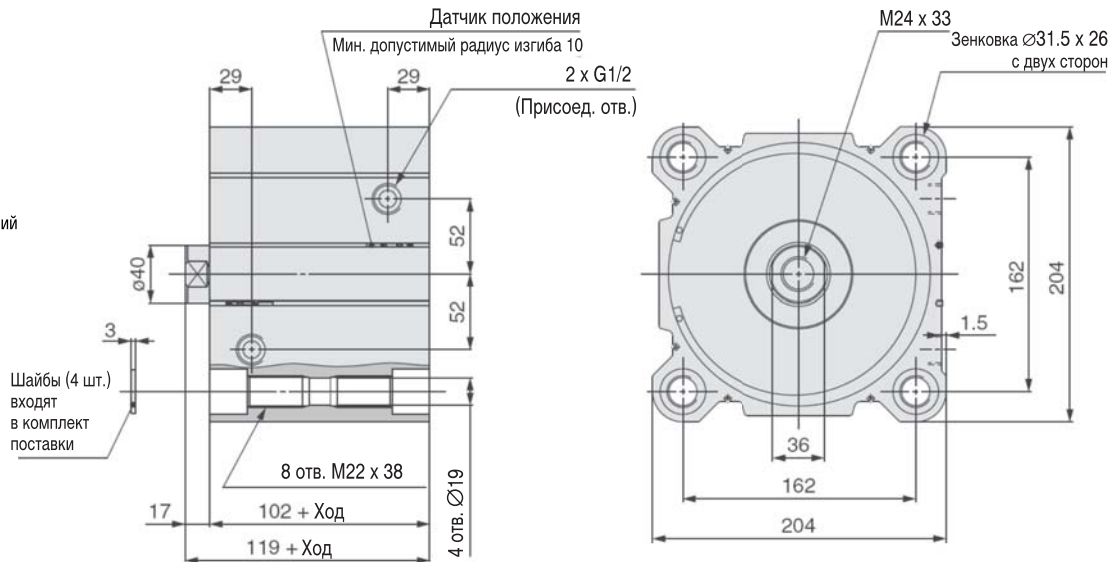
Размеры исполнений без магнитного кольца такие же, как у исполнений с магнитным кольцом



Ø поршня (мм)	Ход (мм)	A	B	C	D	E	H	J	K	L	M	N	OA	OB	P	Q	RA	RB	W
125	10, 20, 30, 40, 50	99	83	30	36	142	M22 x 2.5	11	32	16	114	12.5	M14 x 2	21.2	3/8	24.5	25	18.4	153
140	75, 100, 125, 150, 175,	99	83	30	36	158	M22 x 2.5	10	32	16	128	12.5	M14 x 2	21.2	3/8	24.5	25	18.4	168
160	200, 250, 300	108	91	33	40	178	M24 x 3	10	36	17	144	14.5	M16 x 2	24.2	3/8	27.5	28	21.2	188

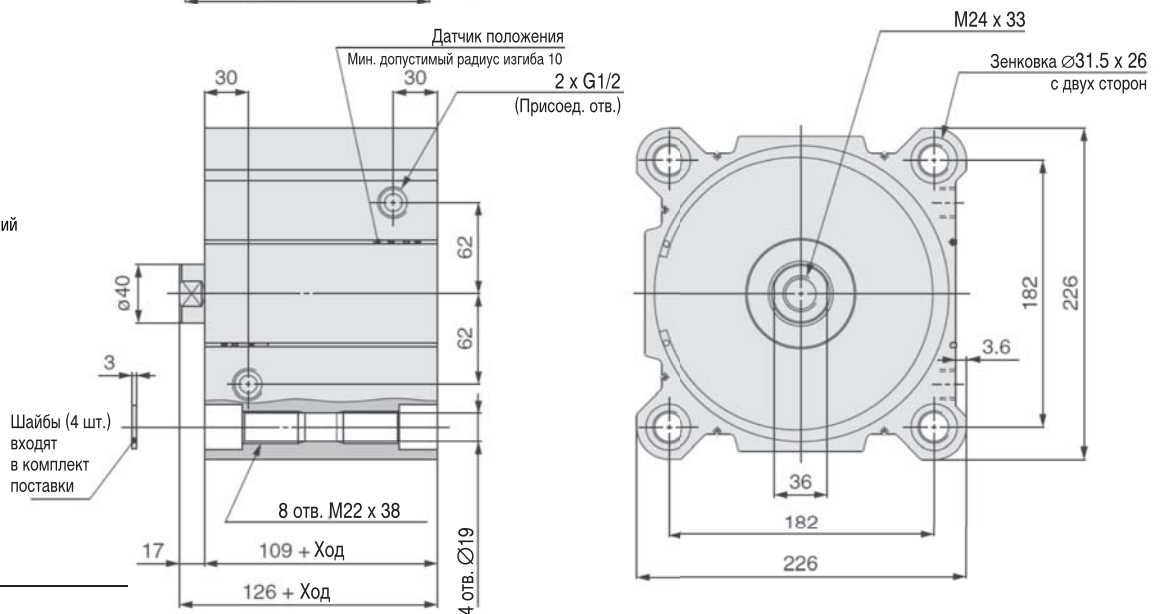
Ø180

Размеры исполнений без магнитного кольца такие же, как у исполнений с магнитным кольцом



Ø200

Размеры исполнений без магнитного кольца такие же, как у исполнений с магнитным кольцом

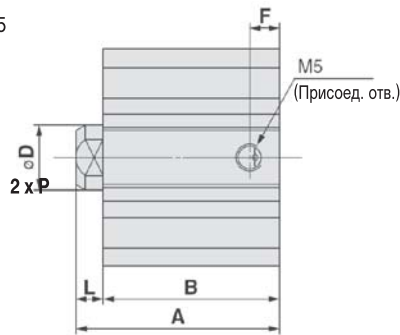


## Размеры

### Цилиндр одностороннего действия

Исполнение без пазов  
для установки датчиков

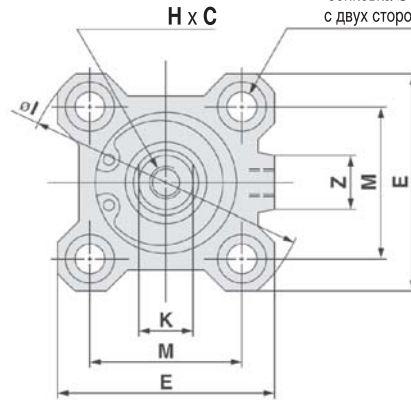
∅12 ~ ∅25



### CQ2B...-...S

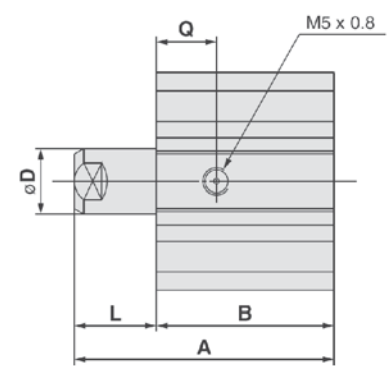
С нормально втянутым штоком

4 отв. ∅N /  
зенковка ∅O  
с двух сторон



### CQ2B...-...T

С нормально выдвинутым штоком



∅ поршня (мм)	Ход (мм)	A		B	C	D	E	F	H	I	K	L		M	N	O	Q	Z
		втянутый шток	выдвинутый шток									втянутый шток	выдвинутый шток					
12	5	25.5	30.5	22	6	6	25	5	M3	32	5	3.5	8.5	15.5	3.5	6.5x3.5	7.5	-
	10	30.5	40.5	27									13.5					
16	5	27	32	23.5	8	8	29	5.5	M4	38	6	3.5	8.5	20	3.5	6.5x3.5	8	10
	10	32	42	28.5									13.5					
20	5	29	34	24.5	7	10	36	5.5	M5	47	8	4.5	9.5	25.5	5.5	9x7	9	10
	10	34	44	29.5									14.5					
25	5	32.5	37.5	27.5	12	12	40	5.5	M6	52	10	5	10	28	5.5	9x7	11	10
	10	37.5	47.5	32.5									15					

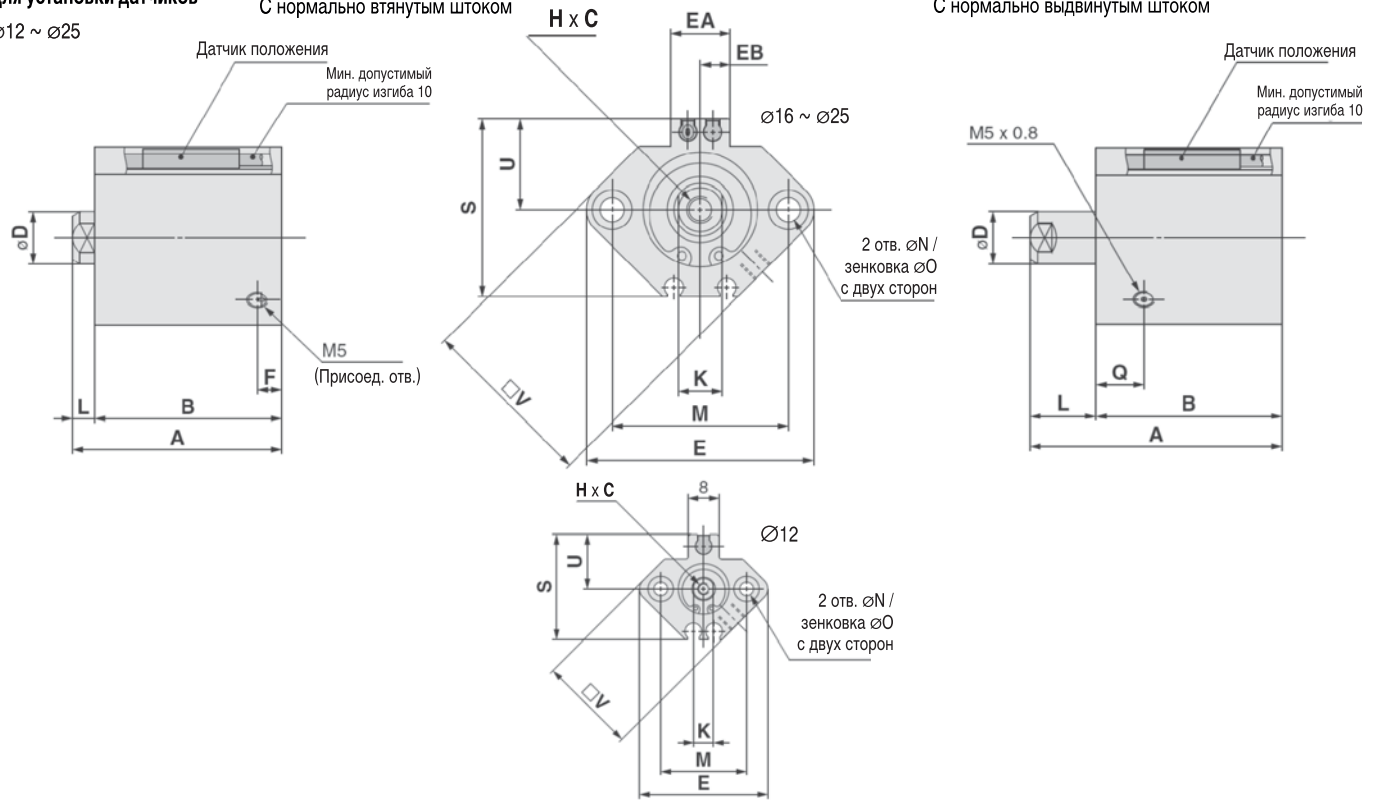
# Компактный цилиндр CQ2

## Размеры

Исполнение с пазами  
для установки датчиков  
Ø12 ~ Ø25

**CDQ2B...-...S**  
С нормально втянутым штоком

**CDQ2B...-...T**  
С нормально выдвинутым штоком



Ø поршня (мм)	Ход (мм)	Втянутый шток		Выдвинутый шток		C	D	E	EA	EB	F	H	K	L		M	N	O	Q	S	U	V
		A	B	A	B									втянутый шток	выдвинутый шток							
12	5	36.5	33	45.9	37.4	6	6	33	-	-	6.5	M3	5	3.5	8.5	22	3.5	6.5x3.5	11	27.5	14	25
	10	41.5	38	55.9	42.4									13.5								
16	5	39	35.5	44	35.5	8	8	37	13.2	6.6	5.5	M4	6	3.5	8.5	28	3.5		10	29.5	15	29
	10	44	40.5	54	40.5									13.5								
20	5	41	36.5	46	36.5	7	10	47	13.6	6.8	5.5	M5	8	4.5	9.5	36	5.5	9x7	10.5	35.5	18	36
	10	46	41.5	56	41.5									14.5								
25	5	42.5	37.5	47.5	37.5	12	12	52	13.6	6.8	5.5	M6	10	5	10	40	5.5		11	40.5	21	40
	10	47.5	42.5	57.5	42.5									15								

## Размеры

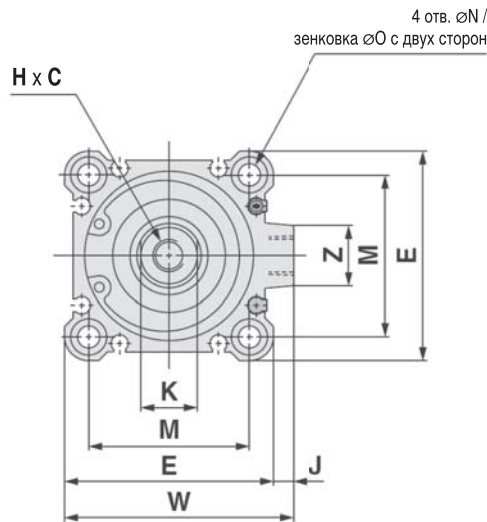
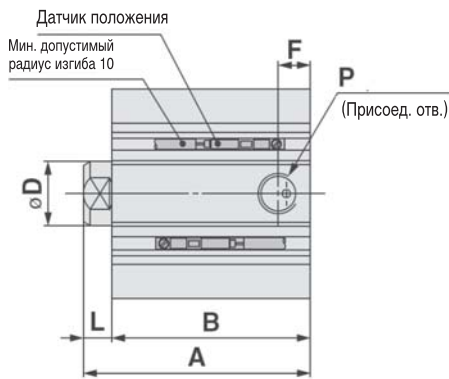
### Цилиндр одностороннего действия

∅32 ~ ∅50

CQ2B...-...S

CDQ2B...-...S

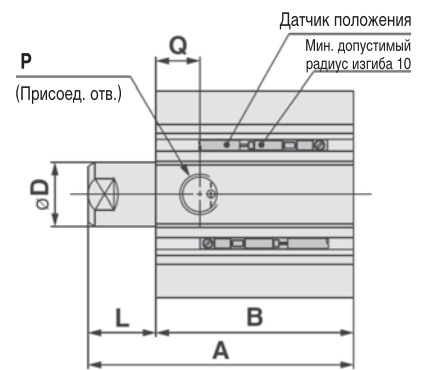
С нормально втянутым штоком



CQ2B...-...T

CDQ2B...-...T

С нормально выдвинутым штоком



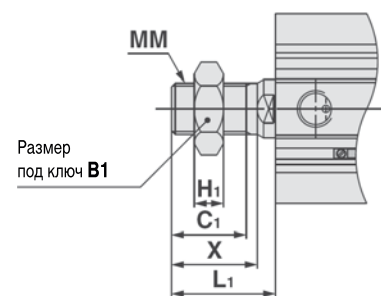
∅ поршня (мм)	Ход (мм)	Без магнитного кольца						С магнитным кольцом					
		A		B	F	P	Q	A		B	F	P	Q
		втянутый шток	выдвинутый шток					втянутый шток	выдвинутый шток				
32	5	35	40	28	5.5	M5	11.5	45	50	38	7.5	G1/8	10.5
	10	40	50	33	7.5	G1/8	10.5	50	60	43			
40	5	41.5	46.5	34.5	8	G1/8	11	51.5	56.5	44.5	8	G1/8	11
	10	46.5	56.5	39.5	8			56.5	66.5	49.5			
50	5	48.5	68.5	40.5	10.5	G1/4	10.5	58.5	68.5	50.5	10.5	G1/4	10.5
	10	58.5	78.5	50.5	10.5			68.5	88.5	60.5			

∅ поршня (мм)	Ход (мм)	C	D	E	H	J	K	L		M	N	O	W	Z
								втянутый шток	выдвинутый шток					
								32	5					
	10								17					
40	5	13	16	52	M8	5	14	7	12	40	5.5	9x7	57	15
	10								17					
50	5	15	20	64	M10	7	17	8	18	50	6.6	11x8	71	19
	10								28					

Размеры быстроразъемных фитингов такие же, как у цилиндров двустороннего действия

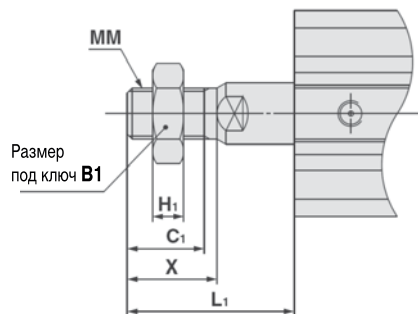
### Исполнение с наружной резьбой на штоке

#### Цилиндр двустороннего действия



∅ поршня (мм)	B1	C1	H1	L1	MM	X
12	8	9	4	14	M5	10.5
16	10	10	5	15.5	M6	12
20	13	12	5	18.5	M8	14
25	17	15	6	22.5	M10x1.25	17.5
32, 40	22	20.5	8	28.5	M14x1.5	23.5
50, 63	27	26	11	33.5	M18x1.5	28.5
80	32	32.5	13	43.5	M22x1.5	35.5
100	41	32.5	16	43.5	M26x1.5	35.5
125, 140	46	42	18	58	M30x1.5	45
160, 180, 200	55	47	21	64	M36x1.5	50

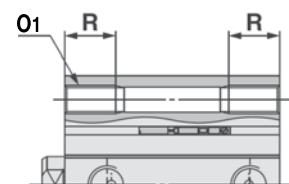
#### Цилиндр одностороннего действия



∅ поршня (мм)	L1	выдвинутый шток			
		Ход 5 мм	Ход 10 мм	Ход 20 мм	-
12	14	19	24	-	
16	15.5	20.5	25.5	-	
20	18.5	23.5	28.5	-	
25	22.5	27.5	32.5	-	
32, 40	28.5	33.5	38.5	-	
50	33.5	-	43.5	53.5	

Остальные размеры такие же, как у цилиндра двустороннего действия

### Исполнение с резьбовыми отв. в корпусе CQ2A/CDQ2A



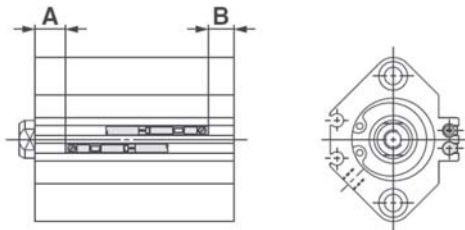
∅ поршня (мм)	O1	R
12, 16	M4	7
20, 25, 32, 40	M6	10
50	M8	14
63	M10	18
80, 100	M12	22

# Компактный цилиндр CQ2

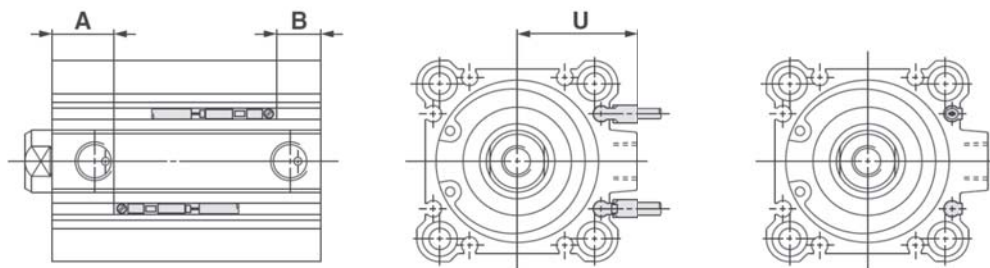
## Датчики положения

Электронные датчики положения M9N(V)L, M9P(V)L, M9B(V)L и герконовые датчики положения A90(V)L, A93(V)L, A96(V)L устанавливаются в профильных пазах цилиндра. Характеристики датчиков приведены в разделе «Универсальные датчики положения»

Ø12 ~ Ø25



Ø32 ~ Ø200



### Монтажное положение датчиков и зона переключения

Ø поршня (мм)	D-A9 (V)L					D-M9 (V)L							
	A	B	Двустороннее действие, стандарт	Двустороннее действие, двусторонний шток	Одностороннее действие	U*	Зона переключения	A	B	Двустороннее действие, стандарт	Двустороннее действие, двусторонний шток	Одностороннее действие	U*
12	2	3	7.5	3 (7.5)	19	7.5	6	7	11.5	7 (11.5)	21.5	3	
16	5 (3)	2.5	8	2.5 (4.5)	20	9.5	9 (7)	6.5	12	6.5 (8.5)	22.5	5	
20	5	3.5	10	3.5	23	10	9	7.5	14	7.5	25	5.5	
25	5.5	4	10.5	4	26	9	9.5	8	14.5	8	28	5.5	
32	8	5	12.5	5	27.5	9	12	9	16.5	9	30	5	
40	12	7.5	18	7.5	30	9.5	16	11.5	22	11.5	32	5	
50	10	10.5	20.5	10.5	35	9.5	14	14.5	24.5	14.5	37.5	6	
63	12.5	13.5	19.5	-	40.5	11	16.5	17.5	23.5	-	42.5	6.5	
80	15.5	18	25.5	-	49	10.5	19.5	22	29.5	-	51	7	
100	20	23	30.5	-	57	10.5	24	27	34.5	-	59	7.5	
125	30	30	-	-	67.5	13.5	34	34	-	-	69.5	7.5	
140	30	30	-	-	74.5	12.5	34	34	-	-	76.5	8	
160	34	34	-	-	83.5	12	38	38	-	-	85.5	7.5	
180	40.5	40.5	-	-	103.5	13	44.5	44.5	-	-	105.5	7.5	
200	43.5	43.5	-	-	110.5	12.5	47.5	47.5	-	-	112.5	8.5	

\* Для угловых датчиков

\*\* Размеры в скобках для цилиндра одностороннего действия с норм. выдвинутым штоком (исполнение T)

### Минимальная длина хода при использовании датчиков положения (мм)

Ø(мм)	Кол-во датчиков	D-A9□L	D-A9□VL	D-M9□L	D-M9□VL
12 ~ 100	1	10	5	15	5
	2	10	10	15	5
125 ~ 200	1	5		5	
	2	10		5	

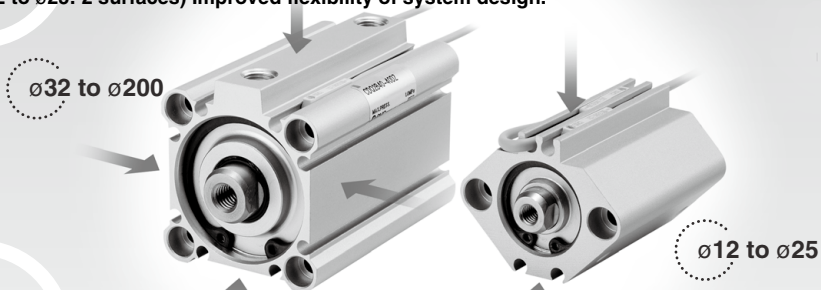
# Compact Cylinder

## Series CQ2

Remodeled with a new body to get more flexibility!

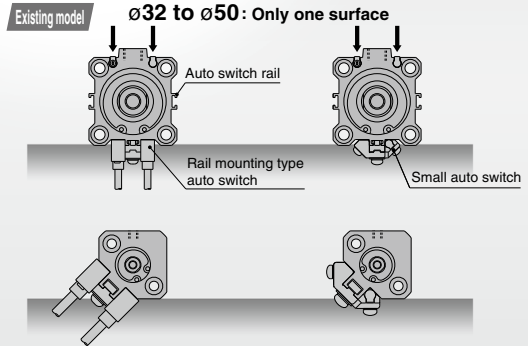
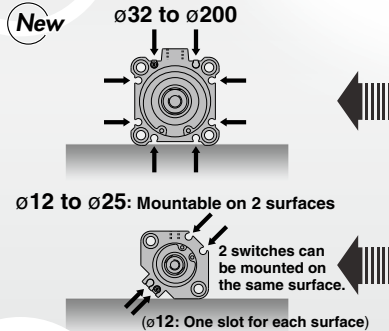
### Can mount small auto switches on 4 surfaces.

Auto switches can be mounted on any of the 4 surfaces, depending on the installation conditions. (ø12 to ø25: 2 surfaces) Improved flexibility of system design.



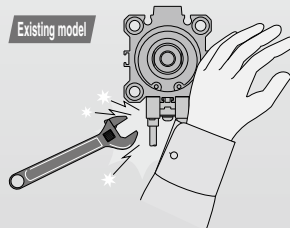
Auto switch mounting rail removed  
A round slot for mounting small auto switches is provided on 4 surfaces.

Available up to ø200



### No projection of auto switch

- Prevention of damage to auto switch
  - Sleeves cannot get caught in the auto switch and its mounting rail.
  - ➡ Improved ease of work and safety
  - Reduction in labor for design
- There is no need to check for interference with a machine, because the outer dimensions of the cylinder do not change when the auto switch is mounted.



Exclusive bodies (-XB10) for ø32 to ø100 intermediate strokes (50 st or more) now kept in inventory\*, enabling shorter delivery times. \* Formerly produced upon receipt of order

Bore size (mm)	Stroke										
	50	55	60	65	70	75	80	85	90	95	100
ø32 to ø100	◆	●	●	●	●	◆	●	●	●	●	◆

◆ Standard stroke ● Currently stocked intermediate stroke

CUJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

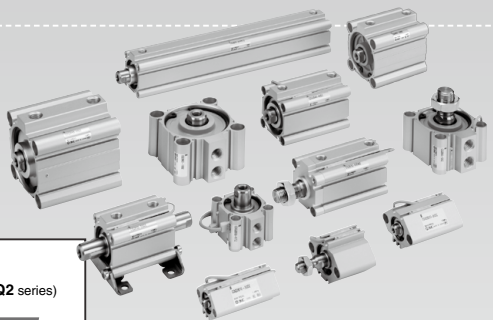
D-□

-X□

Technical data

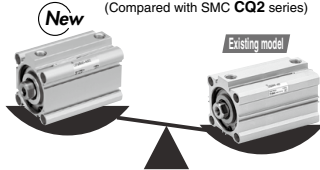


# Series CQ2 Compact Cylinder



**Lighter weight**

Reduced by **5 to 13%**  
(Compared with SMC CQ2 series)



The body strength (kinetic energy, allowable load, withstand pressure, etc.) is the same as the existing product.

**Contribution to environment and ecology**  
**Reduction of CO<sub>2</sub> discharge by 1300 t by less use of aluminum**

### Weight

(Stroke 50 mm, built-in magnet, female thread and with rubber bumper) (g)

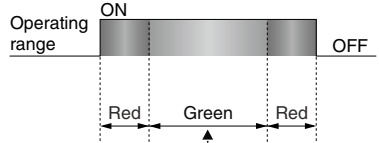
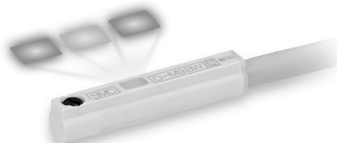
Bore size – Stroke	ø40-50 st
<b>New CQ2</b>	<b>456(483)</b>
Existing model CQ2	483(527)

( ): With male thread

**Small auto switch**

## 2-color indication solid state auto switch

○ Appropriate setting of the mounting position can be performed without mistakes.

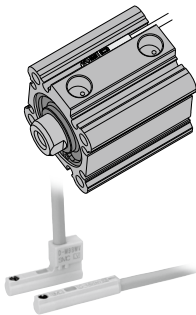


**A green light lights up at the optimum operating range.**

**Optimum operating range**

Even if 2-color indication solid state auto switches are fixed at the optimum operating range (the green light lights up), the operation may become unstable depending on the installation environment or magnetic field disturbance. (Magnetic body, external magnetic field, proximal installation of cylinders with built-in magnet and actuators, temperature change, other factors for magnetic force fluctuation during operation, etc.)

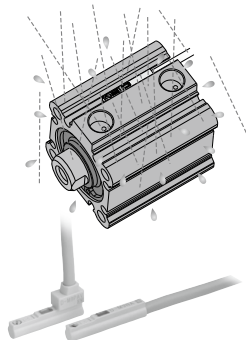
### For general environments



**D-M9□W(V)**

### Water resistant type

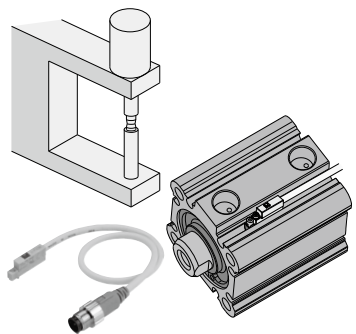
For environments exposed to water and coolant



**D-M9□A(V)**

### Magnetic field resistant type

For use with AC spot welders, which generate strong magnetic field



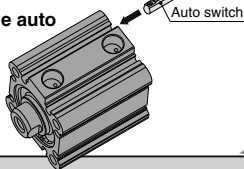
**D-P3DWA**

## Reduction in labor for work

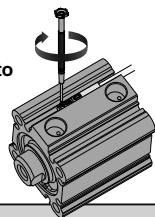
- Reduction in number of components
- No loss of components

**New**

- 1 Insert the auto switch.

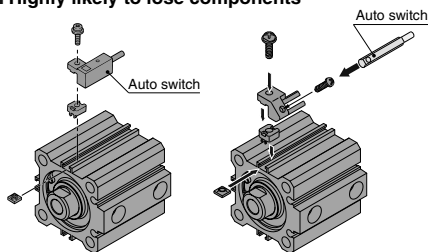


- 2 Fix the auto switch.

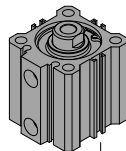


- Takes a lot of labor and time because there are many components.
- Highly likely to lose components

**Existing model**



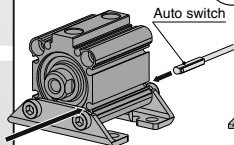
The nuts and screws may fall out when installed vertically.



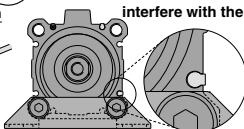
## Reduction in labor for design

- The auto switch can be replaced with the foot brackets mounted.

**New**

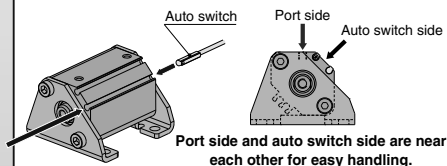
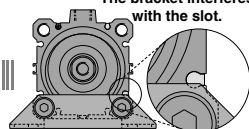


The bracket does not interfere with the slot.

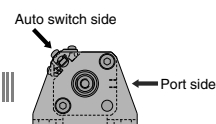


**Existing model**

The bracket interferes with the slot.

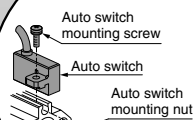
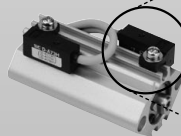
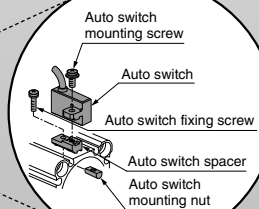
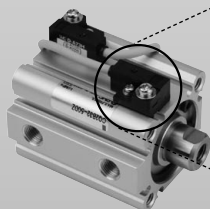


Port side and auto switch side are near each other for easy handling.



- The rail mounting type auto switch can be mounted.

Refer to page 959 for further information on auto switch mounting bracket.



CUJ

CU

CQS

CQZ-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

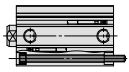
Reduction  
in labor  
for order

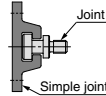
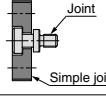


### Part numbers with rod end bracket and/or mounting bolt

This reduces the steps to order the cylinder, rod end bracket, and mounting bolt separately.

Applicable cylinders: C(D)Q2, C(D)Q2□□□□S/-□T (Single acting)

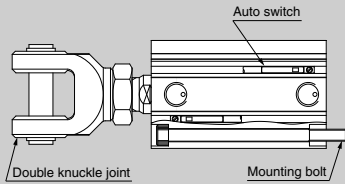
Example) **CDQ2B32-30DMZ-L W -M9BW**

Mounting bolt	
Nil	No mounting bolt
<b>L</b>	Mounting bolt is shipped together. 

Rod end bracket	
Nil	No bracket and bolt
<b>D</b>	Simple joint A type + Joint 
<b>E</b>	Simple joint B type + Joint 
<b>V</b>	Single knuckle joint 
<b>W</b>	Double knuckle joint 

#### Ordering Example of Cylinder Assembly

Cylinder model: **CDQ2B32-30DMZ-LW-M9BW**



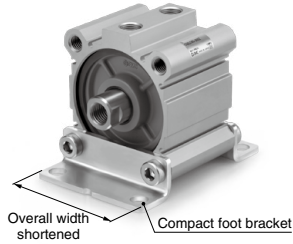
Mounting bracket **B** : Through-hole (Standard)  
 Mounting bolt **L** : Yes  
 Rod end bracket **W** : Double knuckle joint  
 Auto switch **D-M9BW** : 2 pcs.

↳ Mounting bolt, single knuckle joint and auto switch are shipped together with the product.

Reduction of  
installation  
space

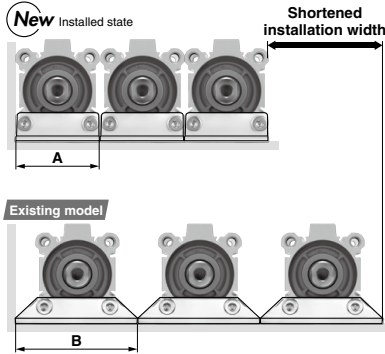
## Added compact type foot brackets.

- Compact foot bracket has the same width as the cylinder
- Overall width reduced by up to **43%** (for  $\phi 12$ )



## ■ More compact installation space possible

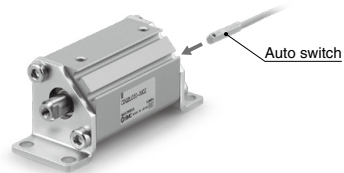
- Short pitch mounting is possible.
- Allows installation close against a wall.



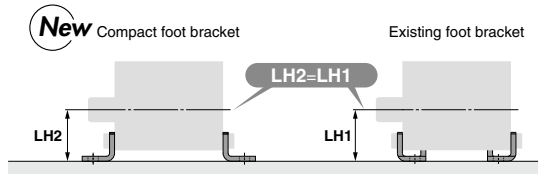
Bore size (mm)	New Compact foot type width A (mm)	Existing foot type width B (mm)	Reduced width for short pitch mounting (mm)		
			1 unit	2 units	3 units
12	25	44	19	38	57
16	29	48	19	38	57
20	36	62	26	52	78
25	40	66	26	52	78
32	45	71	26	52	78
40	52	78	26	52	78
50	64	95	31	62	93
63	77	113	36	72	108
80	98	140	42	84	126
100	117	162	45	90	135

\* Short pitch mounting is possible only without auto switch.  
Consult with SMC for mounting with auto switch.

- Small auto switch can be mounted with compact foot brackets attached.



- Height from the bottom of brackets to the center of a cylinder is the same as the existing model.



Applicable cylinders: C(D)Q2, C(D)Q2W, C(D)Q2 (Single acting) (Spring return/Spring extend), C(D)Q2K, C(D)Q2KW (Non-rotating), C(D)Q2 (Long stroke), C(D)Q2□S (Anti-lateral load), C(D)BQ2 (End lock), C(D)Q2□R/□V (Water resistant)

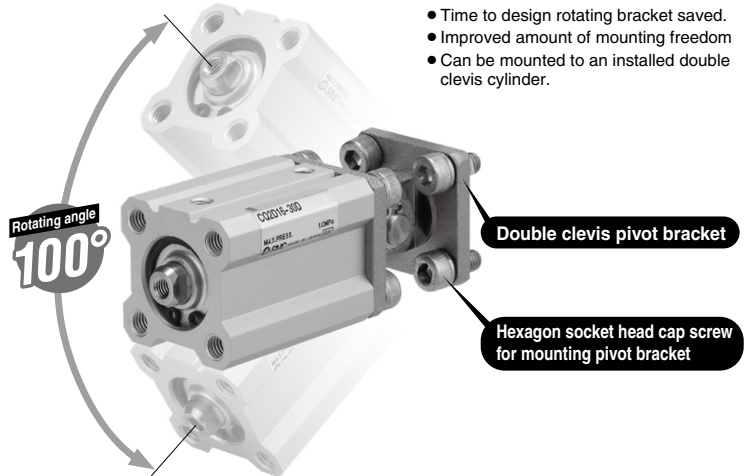
Reduction  
in labor  
for design

### Added pivot brackets for double clevis.

■ Rotating angle: Max. 100°  
(For  $\phi 12$ ,  $\phi 16$ )



- Time to design rotating bracket saved.
- Improved amount of mounting freedom
- Can be mounted to an installed double clevis cylinder.



Applicable cylinders: CQ2 (Bore size  $\phi 12$  to  $\phi 100$ , Mounting bracket, Applicable only to double clevis.)





# Combinations of Standard Products and Made

## Series CQ2

● : Standard
○ : Made to Order
○ : Special product (For details, please contact SMC.)
— : Not available

Symbol	Specifications	Applicable bore size	CQ2 (Standard)				CQ2 (Large Bore Size)	
			Double acting		Single acting		Double acting	
			Single rod	Double rod	Single rod/ Spring return	Single rod/ Spring extend	Single rod	Double rod
			ø12 to ø100		ø12 to ø50		ø125 to ø200	
<b>Standard</b>	<b>Standard product</b>		●	●	●	●	●	
<b>D</b>	<b>Built-in magnet</b>		●	●	●	●	●	
<b>CQ2□A</b>	<b>Both ends tapped</b>		●	●	●	●	●	
<b>CQ2□-□M</b>	<b>Rod end male thread</b>	ø12 to ø100	●	●	●	●	●	
<b>CQ2□-□C</b>	<b>With rubber bumper</b>		●	●	○	○	● Note 2	
<b>CQ2□-□F</b>	<b>With boss on head end</b>		●	—	●	○	—	
<b>CQ2□F</b>	<b>With One-touch fittings</b>	ø32 to ø63	●	●	●	●	○	
<b>CQ2<sub>g</sub><sup>F</sup></b>	<b>Foot/Flange</b>		●	●	●	○	○	
<b>CQ2D</b>	<b>Double clevis</b>	ø12 to ø100	●	—	●	●	○	
<b>CQ2□H</b>	<b>Air-hydro type</b>	ø20 to ø100	●	●	—	—	○	
<b>10-, 11-</b>	<b>Clean series</b>		●	○	○	○	○	
<b>25-</b>	<b>Copper (Cu)-free</b> Note 15)		●	○	○	○	○	
<b>25A</b>	<b>Copper (Cu) and zinc (Zn)-free</b> Note 15)	ø12 to ø200	●	○	○	○	○	
<b>20-</b>	<b>Copper</b> Note 14) and fluorine-free series		●	○	●	●	●	
<b>CQ2□<sup>H</sup></b>	<b>Water resistant</b>	ø20 to ø100	●	● Note 6)	○	○	○	
<b>CQ2□IM</b>	<b>Cylinder with Stable Lubrication Function (Lube-retainer)</b> Note 9)	ø32 to ø100	●	○	○	○	—	
<b>XB6</b>	<b>Heat resistant cylinder (-10 to 150°C)</b>	ø12 to ø100	○	○	○	○	○	
<b>XB7</b>	<b>Cold resistant cylinder (-40 to 70°C)</b>	ø12 to ø40	○	○	○	○	○	
<b>XB9</b>	<b>Low-speed cylinder (10 to 50 mm/s)</b>	ø12 to ø100	○	○	○	○	○	
<b>XB10</b>	<b>Intermediate stroke (Exclusive body type)</b>	ø12 to ø200	○	○	○	○	○	
<b>XB10A</b>	<b>Intermediate stroke (Spacer-installed type)</b>	ø32 to ø100	○	○	○	○	○	
<b>XB11</b>	<b>Long stroke (Air-hydro type only)</b>	ø20 to ø100	○	—	—	—	—	
<b>XB13</b>	<b>Low-speed cylinder (5 to 50 mm/s)</b>	ø12 to ø100	○	○	○	○	○	
<b>XB14</b>	<b>Cylinder with heat resistant auto switch</b>	ø16 to ø63	○	○	○	○	○	
<b>XC2(A)</b>	<b>Rod end length, 10 mm increased (For foot and flange bracket)</b>	ø12 to ø100	○	○	○	○	—	
<b>XC4</b>	<b>With heavy-duty scraper</b>	ø20 to ø100	○	○ Note 6)	○	○	○	
<b>XC6</b>	<b>Piston rod/Retaining ring/Rod end nut material: Stainless steel</b>		○	○	○	○	○	
<b>XC8</b>	<b>Adjustable stroke cylinder/Adjustable extension type</b>		○	—	—	○	—	
<b>XC9</b>	<b>Adjustable stroke cylinder/Adjustable retraction type</b>		○	—	—	○	—	
<b>XC10</b>	<b>Dual stroke cylinder/Double rod</b>		○	—	○	○	—	
<b>XC11</b>	<b>Dual stroke cylinder/Single rod</b>	ø12 to ø100	○	—	○	○	—	
<b>XC26</b>	<b>With split pins for double clevis pin/double knuckle joint pin and flat washers</b>		○	—	○	○	○	
<b>XC27</b>	<b>Double clevis pin/Double knuckle joint pin material: Stainless steel 304</b>		○	○	○	○	○	
<b>XC35</b>	<b>With coil scraper</b>	ø32 to ø100	○	○	○	○	○	
<b>XC36</b>	<b>With boss on rod end</b>	ø12 to ø100	○	○	○	○	○	
<b>XC85</b>	<b>Grease for food processing machines</b>		○	○	○	○	○	
<b>XC92</b>	<b>Dust resistant actuator</b>	ø32 to ø100	○	○	○	○	○	
<b>X144</b>	<b>Special port location</b>	ø12 to ø25	○	○	○	—	—	
<b>X202</b>	<b>Full length dimension is the same as Series CQ1.</b>	ø12 to ø100	○	—	○	○	—	
<b>X203</b>	<b>L dimension from rod cover is the same as Series CQ1.</b>	ø12 to ø32	○	—	○	○	—	
<b>X235</b>	<b>Special rod end for double rod cylinder</b>	ø12 to ø200	—	○	—	—	○	
<b>X271</b>	<b>Fluororubber seals</b>	ø12 to ø160	○	○	○	○	○ Note 12)	
<b>X293</b>	<b>Full length dimension is the same as Series CQ1W.</b>		—	○	—	—	— Note 12)	
<b>X525</b>	<b>Long stroke of adjustable extension stroke cylinder (-XC8)</b>	ø12 to ø100	○	—	○	○	—	
<b>X526</b>	<b>Long stroke of adjustable retraction stroke cylinder (-XC9)</b>		○	—	○	○	—	
<b>X633</b>	<b>Intermediate stroke of double rod cylinder</b>	ø12 to ø200	—	○	—	—	○	
<b>X636</b>	<b>Long stroke of dual stroke single rod cylinder</b>	ø12 to ø100	—	○	—	—	—	
<b>X1876</b>	<b>Cylinder tube: With concave boss on head end</b>	ø20 to ø100	○	—	○	○	—	

Note 1) ø12 with auto switch: With rubber bumper (Standard)  
 Note 2) With rubber bumper (Standard)  
 Note 3) ø12 to ø16: (○), for ø20 to ø100 only (up to ø50 for single acting type)

Note 4) ø12 to ø32: (○), for ø40 to ø63 only  
 Note 5) ø12: (—)  
 Note 6) ø20 to ø32: (○), for ø40 to ø100 only

Note 7) ø20 to ø25: (○), for ø32 to ø100 only  
 Note 8) Rod end lock: (—), for head end lock only  
 Note 9) Only the products with an auto switch and without rubber bumper are compatible.



# Compact Cylinder: Standard Double Acting, Single Rod

# Series CQ2

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

## How to Order

Without auto switch  
ø12 to ø25

CQ2 B 20 - 30 D

Without auto switch  
ø32 to ø100

CQ2 B 32 - 30 D Z

With auto switch

CDQ2 B 32 - 30 D M Z - L W - M9BW

### Mounting

<b>B</b>	Through-hole (Standard)	<b>F</b>	Rod flange
<b>A</b>	Both ends tapped	<b>G</b>	Head flange
<b>L</b>	Foot	<b>D</b>	Double clevis
<b>LC</b>	Compact foot		

- \* Mounting brackets are shipped together (but not assembled).
- \* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQ2" on pages 790 and 795.

### Type

<b>H</b>	Pneumatic
<b>Ni</b>	Air-hydro (Note 1)

Note 1) Bore sizes available for air-hydro type are ø20 to ø100.

With auto switch  
(Built-in magnet)

### Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

### Port thread type

<b>Ni</b>	M thread	ø12 to ø25
	Rc	
<b>TN</b>	NPT	ø32 to ø100
<b>TF</b>	G	
<b>F</b>	Built-in One-touch fittings (Note 2)	

Note 2) Bore sizes available with One-touch fittings are ø32 to ø63. Besides, it is not possible to use for air-hydro type.

Note 3) "TF" is not available for air-hydro type.

\* For cylinders without auto switch, M threads are compatible only for ø32-5 mm stroke.

### Mounting bolt

<b>Ni</b>	None
<b>L</b>	Shipped together

- \* Mounting bolt is shipped together only when the mounting bracket is "B".
- \* For details about the mounting bolt sizes, refer to pages 790 and 795.
- \* Mounting bolt is shipped together.

### Number of auto switches

<b>Ni</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

### Auto switch

<b>Ni</b>	Without auto switch
-----------	---------------------

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

### Made to Order

Refer to the next page for details.

### Auto switch mounting groove

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø100	4 surfaces

### Body option

<b>Ni</b>	Standard (Rod end female thread)
<b>F</b>	With boss on head end
<b>C</b>	With rubber bumper (Note 4)
<b>M</b>	Rod end male thread

\* Combination of body options ("CM", "FC", "FM", "FCM") is available.

Note 4) Air-hydro type with rubber bumper is not available.

### Rod end bracket (Refer to pages 804 and 805.)

<b>Ni</b>	None
<b>D</b>	Simple joint A type + Joint
<b>E</b>	Simple joint B type + Joint
<b>V</b>	Single knuckle joint
<b>W</b>	Double knuckle joint

\* The single knuckle joint and double knuckle joint cannot be mounted for the rod end female thread.

\* A knuckle joint pin is not provided with the single knuckle joint.

\* The simple joint A and B types cannot be mounted for the rod end male thread.

\* Rod end bracket is shipped together.

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDQ2L32-25DZ

### Cylinder stroke (mm)

Refer to page 785 and 786 for standard strokes and intermediate strokes.

### Action

<b>D</b>	Double acting
----------	---------------

### Applicable Auto Switches (Refer to pages 1559 to 1673 for further information on auto switches.)

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load					
					DC	AC	Perpendicular	In-line	0.5 (Ni)	1 (M)	3 (L)	5 (Z)	None (N)							
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	—	M9NV M9N	●	●	○	—	—	—	—	○	IC circuit				
				3-wire (PNP)				●	●	○	—	—	—	—	○					
				2-wire				●	●	○	—	—	—	—	○		—			
	Diagnostic indication (2-color indication)			3-wire (NPN)				24 V	—	M9NWW M9NW	●	●	○	—	—	—		—	○	IC circuit
				3-wire (PNP)							●	●	○	—	—	—		—	○	
				2-wire							●	●	○	—	—	—	—	○		
Water resistant (2-color indication)	3-wire (NPN)	24 V	—	M9NAV <sup>*1</sup> M9NA <sup>*1</sup>	●	●	○				—	—	—	—	○	IC circuit				
	3-wire (PNP)				●	●	○				—	—	—	—	○					
	2-wire				●	●	○				—	—	—	—	○					
Magnetic field resistant (2-color indication)	2-wire (Non-polar)				24 V	—	M9BAV <sup>*1</sup> M9BA <sup>*1</sup>	●	●	○	—	—	—	—	○	—				
	3-wire (NPN equivalent)							—	P3DWA	●	—	—	—	—	○					
	2-wire							—	P3DWA	●	—	—	—	—	○					
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)				24 V	—	A96V A96	●	—	—	—	—	—	—	○	IC circuit	—
				2-wire						A93V <sup>*2</sup> A93	●	●	●	—	—	—	—	—	—	—
			No	2-wire				24 V	5 V, 12 V	A90V A90	●	—	—	—	—	—	—	—	—	—

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

\*2 If water resistance is needed, we recommend water resistant cylinders be used. (Page 941)

\*3 1 m type lead wire is only applicable to D-A93.

\*4 Lead wire length symbols: 0.5 m ..... Ni (Example) M9NV  
1 m ..... M (Example) M9NW  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

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

\* The D-P3DWA□ type is available from ø32 to ø100 only.

\* There are other applicable auto switches other than the listed above. For details, refer to page 960.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

For the D-P3DWA, refer to the **WEB catalog**.

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

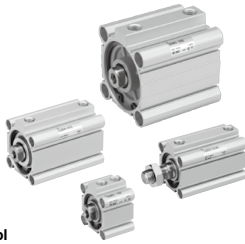
-Z

D-□

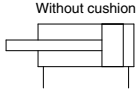
-X□

Technical data

# Series CQ2



Symbol



Without cushion



**Made to Order: Individual Specifications**  
(For details, refer to pages 964 to 973.)

Symbol	Specifications
-X144	Special port location, with auto switch ø12 to ø25 only
-X202	Full length dimension is the same as Series CQ1, Except ø16, ø25.
-X203	L dimension from rod cover is the same as Series CQ1, ø20, ø32 only.
-X271	Fluororubber seats
-X525	Long stroke of adjustable extension stroke cylinder (-XC8)
-X526	Long stroke of adjustable retraction stroke cylinder (-XC9)
-X636	Long stroke of dual stroke single rod cylinder
-X1876	Cylinder tube: With concave boss on head end

## Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C) w/o auto switch only
-XB7	Cold resistant cylinder (-40 to 70°C) w/o auto switch only
-XB9	Low-speed cylinder (10 to 50 mm/s)
-XB10	Intermediate stroke (Exclusive body type)
-XB10A	Intermediate stroke (Spacer-installed type)
-XB11	Long stroke (Air-hydro type only)
-XB13	Low-speed cylinder (5 to 50 mm/s)
-XB14	Cylinder with heat resistant auto switch ø16 to ø63 only
-XC2(A)	Rod end length, 10 mm increased (For foot and flange bracket)
-XC4	With heavy-duty scraper, ø20 to ø100 only
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod
-XC11	Dual stroke cylinder/Single rod
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-XC27	Double clevis pin/Double knuckle joint pin material: Stainless steel 304
-XC35	With coil scraper, ø32 to ø100 only
-XC36	With boss on rod end
-XC85	Grease for food processing equipment
-XC92	Dust resistant actuator

## Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

## Specifications

### Pneumatic type

Bore size (mm)		12	16	20	25	32	40	50	63	80	100
<b>Action</b>		Double acting, Single rod									
<b>Fluid</b>		Air									
<b>Proof pressure</b>		1.5 MPa									
<b>Maximum operating pressure</b>		1.0 MPa									
<b>Minimum operating pressure</b>		0.07 MPa		0.05 MPa							
<b>Ambient and fluid temperature</b>		Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)									
<b>Lubrication</b>		Not required (Non-lube)									
<b>Piston speed</b>		50 to 500 mm/s									
<b>Allowable kinetic energy (J)</b>	<b>Standard</b>	0.022	0.038	0.055	0.09	0.15	0.26	0.46	0.77	1.36	2.27
	<b>With rubber bumper</b>	0.043	0.075	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54
<b>Stroke length tolerance</b>		+1.0 mm (Note)									

Note) Stroke length tolerance does not include the amount of bumper change.

### Air-hydro type

Bore size (mm)		20	25	32	40	50	63	80	100
<b>Action</b>		Double acting, Single rod							
<b>Fluid</b>		Turbine oil (Note)							
<b>Proof pressure</b>		1.5 MPa							
<b>Maximum operating pressure</b>		1.0 MPa							
<b>Minimum operating pressure</b>		0.18 MPa						0.1 MPa	
<b>Ambient and fluid temperature</b>		5 to 60°C							
<b>Piston speed</b>		5 to 50 mm/s							
<b>Cushion</b>		None							
<b>Stroke length tolerance</b>		+1.0 mm 0							

Note) Refer to page 7 for Actuator Precautions (5).

## Standard Strokes

### Pneumatic type (mm)

Bore size	Standard stroke
<b>12, 16</b>	5, 10, 15, 20, 25, 30
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

### Air-hydro type (mm)

Bore size	Standard stroke
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

- For long strokes exceeding the standard stroke range, refer to page 854.
- For intermediate strokes, refer to page 787.

## Mounting Brackets/Part No.

Bore size (mm)	Model	Foot (Note 1)	Compact foot (Note 1)	Flange	Double clevis	
12	Without switch	CQ2□□-□D	CQ-L012	CQ-LC012	CQ-F012	CQ-D012
	With switch	CDQ2□□-□DZ	CQ-LZ12	CQ-LCZ12		
16	Without switch	CQ2□□-□D	CQ-L016	CQ-LC016	CQ-F016	CQ-D016
	With switch	CDQ2□□-□DZ	CQ-LZ16	CQ-LCZ16		
20	Without switch	CQ2□□-□D	CQ-L020	CQ-LC020	CQ-F020	CQ-D020
	With switch	CDQ2□□-□DZ	CQ-LZ20	CQ-LCZ20		
25	Without switch	CQ2□□-□D	CQ-L025	CQ-LC025	CQ-F025	CQ-D025
	With switch	CDQ2□□-□DZ	CQ-LZ25	CQ-LCZ25		
32	C(D)Q2□□-□DZ	CQ-L032	CQ-LC032	CQ-F032	CQ-D032	
40	C(D)Q2□□-□DZ	CQ-L040	CQ-LC040	CQ-F040	CQ-D040	
50	C(D)Q2□□-□DZ	CQ-L050	CQ-LC050	CQ-F050	CQ-D050	
63	C(D)Q2□□-□DZ	CQ-L063	CQ-LC063	CQ-F063	CQ-D063	
80	C(D)Q2□□-□DZ	CQ-L080	CQ-LC080	CQ-F080	CQ-D080	
100	C(D)Q2□□-□DZ	CQ-L100	CQ-LC100	CQ-F100	CQ-D100	

Note 1) When ordering foot and compact foot brackets, the required quantity will be different depending on the bore size. ø12 to ø25:

- Without switch: Order 2 pieces per cylinder.
- With switch: Order 1 piece per cylinder. (Part number for a set of 2 foot brackets) ø32 to ø100:
- Order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows.

- Foot, Compact foot, Flange: Body mounting bolts
- Double clevis: Clevis pin, Type C retaining rings for axis, Body mounting bolts

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.



## Type

Bore size (mm)		12	16	20	25	32	40	50	63	80	100		
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	●	●		
		Both ends tapped style	●	●	●	●	●	●	●	●	●		
		Built-in magnet	●	●	●	●	●	●	●	●	●		
	Piping	Screw-in type	—	M5 x 0.8	M5 x 0.8	M5 x 0.8	M5 x 0.8	<small>Note 1)</small> Rc 1/8	Rc 1/8	Rc 1/4	Rc 1/4	Rc 3/8	Rc 3/8
			TN	—	—	—	—	NPT1/8	NPT1/8	NPT1/4	NPT3/8	NPT3/8	
		TF	—	—	—	—	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8	
		Built-in One-touch fittings <small>Note 3)</small>	—	—	—	—	ø6 <small>Note 2)</small>	ø6	ø8	ø8	—	—	
	Rod end male thread	●	●	●	●	●	●	●	●	●	●		
	With rubber bumper	●	●	●	●	●	●	●	●	●	●		
	Air-hydraulic	Mounting	Through-hole (Standard)	—	—	●	●	●	●	●	●	●	
Both ends tapped style			—	—	●	●	●	●	●	●	●		
Built-in magnet			—	—	●	●	●	●	●	●	●		
Piping		Screw-in type	—	—	—	M5 x 0.8	M5 x 0.8	<small>Note 1)</small> Rc 1/8	Rc 1/8	Rc 1/4	Rc 1/4	Rc 3/8	Rc 3/8
			TN	—	—	—	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8	NPT3/8	
Rod end male thread	—	—	—	—	●	●	●	●	●	●			

Note 1) For a ø32 cylinder without an auto switch, M5 x 0.8 is used for 5-stroke piping dimension. Thus, do not enter a symbol for the port tread type.

Note 2) The dimension of the ø32-5 mm stroke with built-in One-touch fittings is the same as that of the 10 mm stroke cylinder tube.

Note 3) One-touch fittings cannot be replaced.

### Retaining Ring Installation/Removal

#### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

### Mounting

#### ⚠ Caution

The CQ2 series compact cylinders are designed to create compact mechanical equipment and promote space saving. Thus, if it is used in the same manner as conventional cylinders such as tie-rod cylinders, it may degrade the performance. Pay sufficient attention to the operating conditions when using.

#### 1. Allowable lateral load

Lateral load that can apply to the piston rod end is limited. If a cylinder is used with a lateral load over the limit, it may cause air leakage due to abnormal friction of seals, galling of cylinder tubes and pistons, or abnormal friction of the bearing part. The lateral load applied to the piston rod must be within the allowable range indicated in this catalog. When the load exceeds the limit, use a double rod cylinder, install a guide, or change the bore size to suit the load in order to make the load within the allowable range. As a standard product, an anti-lateral load type cylinder that is resistant to approx. 2 times more than the conventional compact CQ2 series is also available (page 913).

### Mounting

#### 2. Connection with a work piece

When a work piece is mounted on the piston rod end, connect them aligning the center of piston rod and a work piece. If they are off-center, lateral load is generated and phenomena mentioned in (1) may occur. In order not to apply the off-center load, use of a floating joint or simple joint is recommended.

#### 3. Simultaneous use of multiple cylinders

It is difficult to control the speed of pneumatic cylinders. The following conditions cause speed change: change in supply pressure, load, temperature and lubrication, performance difference of each cylinder, deterioration of each part over time, etc. As speed controller can be used to control the speed of multiple cylinders simultaneously for a short period of time, but depending on conditions, it may not work as desired. If multiple cylinders cannot operate simultaneously, unreasonable force is applied to the piston rod because cylinder positions may not be the same. This may cause abnormal friction of seals and bearings, and galling of cylinder tubes and pistons. Do not use an application to operate several cylinders simultaneously by adjusting cylinder speed. If this is inevitable, use a high rigid guide against load, so that the cylinder is not damaged even when the each cylinder output is slightly different.





# Series CQ2

## Weight

### Weight

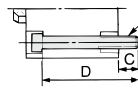
Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	29	35	41	47	54	60	—	—	—	—	—	—
16	42	50	59	67	76	84	—	—	—	—	—	—
20	63	75	88	101	114	127	140	152	165	178	—	—
25	86	100	115	129	144	158	173	187	202	216	—	—
32	125	145	165	184	204	224	244	263	283	303	448	547
40	187	208	230	251	273	294	315	337	358	380	552	664
50	—	339	372	405	438	471	504	537	570	603	872	1043
63	—	480	518	556	594	632	670	708	746	784	1112	1308
80	—	916	976	1036	1097	1157	1217	1277	1338	1398	1917	2215
100	—	1608	1688	1768	1849	1929	2010	2090	2170	2251	2982	3391

### Mounting Bolt for CQ2B/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQ2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

#### Example) CQ-M3 x 25L 4 pcs.

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
CQ2B12-5D	6.5	25	CQ-M3 x 25L
-10D		30	x 30L
-15D		35	x 35L
-20D		40	x 40L
-25D		45	x 45L
-30D	50	x 50L	
CQ2B16-5D	5	25	CQ-M3 x 25L
-10D		30	x 30L
-15D		35	x 35L
-20D		40	x 40L
-25D		45	x 45L
-30D	50	x 50L	
CQ2B20-5D	7.5	25	CQ-M5 x 25L
-10D		30	x 30L
-15D		35	x 35L
-20D		40	x 40L
-25D		45	x 45L
-30D	50	x 50L	
-35D	55	x 55L	
-40D	60	x 60L	
-45D	65	x 65L	
-50D	70	x 70L	
CQ2B25-5D	9.5	30	CQ-M5 x 30L
-10D		35	x 35L
-15D		40	x 40L
-20D		50	x 50L
-30D		60	x 60L
-35D	65	x 65L	
-40D	70	x 70L	
-45D	75	x 75L	
-50D	80	x 80L	
CQ2B32-5DZ	9	30	CQ-M5 x 30L
-10DZ		35	x 35L
-15DZ		40	x 40L
-20DZ		45	x 45L
-25DZ		50	x 50L
-30DZ	55	x 55L	
-35DZ	60	x 60L	
-40DZ	65	x 65L	
-45DZ	70	x 70L	
-50DZ	75	x 75L	
-55DZ-XB10	90	x 90L	
-60DZ-XB10	95	x 95L	
-65DZ-XB10	100	x 100L	
-70DZ-XB10	105	x 105L	
-75DZ	110	x 110L	
-80DZ-XB10	115	x 115L	
-85DZ-XB10	120	x 120L	
-90DZ-XB10	125	x 125L	
-95DZ-XB10	130	x 130L	
-100DZ	135	x 135L	

Cylinder model	C	D	Mounting bolt part no.
CQ2B40-5DZ	7.5	35	CQ-M5 x 35L
-10DZ		40	x 40L
-15DZ		45	x 45L
-20DZ		50	x 50L
-25DZ		55	x 55L
-30DZ		60	x 60L
-35DZ		65	x 65L
-40DZ		70	x 70L
-45DZ		75	x 75L
-50DZ		80	x 80L
-55DZ-XB10		95	x 95L
-60DZ-XB10		100	x 100L
-65DZ-XB10		105	x 105L
-70DZ-XB10		110	x 110L
-75DZ		115	x 115L
-80DZ-XB10	120	x 120L	
-85DZ-XB10	125	x 125L	
-90DZ-XB10	130	x 130L	
-95DZ-XB10	135	x 135L	
-100DZ	140	x 140L	
CQ2B50-10DZ	12.5	45	CQ-M6 x 45L
-15DZ		50	x 50L
-20DZ		55	x 55L
-25DZ		60	x 60L
-30DZ		65	x 65L
-35DZ		70	x 70L
-40DZ		75	x 75L
-45DZ		80	x 80L
-50DZ		85	x 85L
-55DZ-XB10		100	x 100L
-60DZ-XB10		105	x 105L
-65DZ-XB10		110	x 110L
-70DZ-XB10		115	x 115L
-75DZ		120	x 120L
-80DZ-XB10		125	x 125L
-85DZ-XB10	130	x 130L	
-90DZ-XB10	135	x 135L	
-95DZ-XB10	140	x 140L	
-100DZ	145	x 145L	
CQ2B63-10DZ	14.5	50	CQ-M8 x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ		70	x 70L
-35DZ		75	x 75L
-40DZ		80	x 80L
-45DZ		85	x 85L
-50DZ		90	x 90L
-55DZ-XB10		105	x 105L
-60DZ-XB10		110	x 110L
-65DZ-XB10		115	x 115L
-70DZ-XB10		120	x 120L
-75DZ		125	x 125L
-80DZ-XB10		130	x 130L
-85DZ-XB10	135	x 135L	
-90DZ-XB10	140	x 140L	
-95DZ-XB10	145	x 145L	
-100DZ	150	x 150L	

Cylinder model	C	D	Mounting bolt part no.
CQ2B80-10DZ	15	55	CQ-M10 x 55L
-15DZ		60	x 60L
-20DZ		65	x 65L
-25DZ		70	x 70L
-30DZ		75	x 75L
-35DZ		80	x 80L
-40DZ		85	x 85L
-45DZ		90	x 90L
-50DZ		95	x 95L
-55DZ-XB10		110	x 110L
-60DZ-XB10		115	x 115L
-65DZ-XB10		120	x 120L
-70DZ-XB10		125	x 125L
-75DZ		130	x 130L
-80DZ-XB10		135	x 135L
-85DZ-XB10	140	x 140L	
-90DZ-XB10	145	x 145L	
-95DZ-XB10	150	x 150L	
-100DZ	155	x 155L	
CQ2B100-10DZ	15.5	65	CQ-M10 x 65L
-15DZ		70	x 70L
-20DZ		75	x 75L
-25DZ		80	x 80L
-30DZ		85	x 85L
-35DZ		90	x 90L
-40DZ		95	x 95L
-45DZ		100	x 100L
-50DZ		105	x 105L
-55DZ-XB10		120	x 120L
-60DZ-XB10		125	x 125L
-65DZ-XB10		130	x 130L
-70DZ-XB10		135	x 135L
-75DZ		140	x 140L
-80DZ-XB10		145	x 145L
-85DZ-XB10	150	x 150L	
-90DZ-XB10	155	x 155L	
-95DZ-XB10	160	x 160L	
-100DZ	165	x 165L	

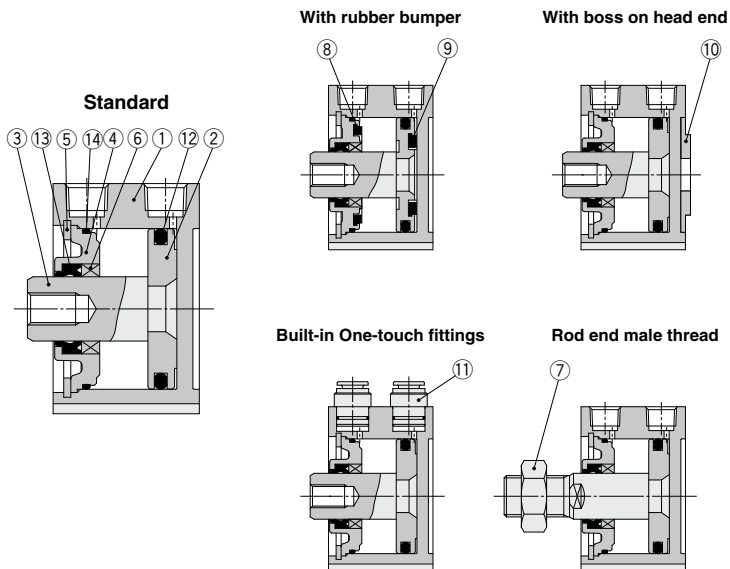
### Additional Weight

Bore size (mm)	12	16	20	25	32	40	50	63	80	100
Both ends tapped	2	2	6	6	6	6	6	19	45	45
Rod end Male thread	1.5	3	6	12	26	27	53	53	120	175
male thread Nut	1	2	4	8	17	17	32	32	49	96
With boss on head end	0.7	1.3	2	3	5	7	13	25	45	96
With rubber bumper	0	0	-2	-3	-3	-7	-9	-18	-31	-56
Built-in One-touch fittings	—	—	—	—	—	12	12	21	21	—
Foot (Including mounting bolts)	55	67	164	186	142	154	243	317	683	1052
Compact foot (Including mounting bolts)	41	51	121	140	99	114	177	241	501	770
Rod flange (Including mounting bolts)	57	69	139	161	180	214	373	559	1056	1365
Head flange (Including mounting bolts)	54	65	133	152	165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)	32	39	88	123	151	196	393	554	1109	1887

#### Calculation: (Example) CQ2D32-20DCMZ

- Basic weight: CQ2B32-20DZ ..... 184 g
  - Additional weight: Both ends tapped ..... 6 g
  - Rod end male thread ..... 43 g
  - With rubber bumper ..... -3 g
  - Double clevis ..... 151 g
- 381 g

## Construction



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø100, Chromated, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	For ø50 or more only
7	Rod end nut	Carbon steel	Zinc chromated
8	Bumper A	Urethane	

No.	Description	Material	Note
9	Bumper B	Urethane	
10	Centering location ring	Aluminum alloy	ø20 to ø100, Hard anodized
11	One-touch fitting	—	ø32 to ø63
12	Piston seal	NBR	
13	Rod seal	NBR	
14	Gasket	NBR	

### Replacement Parts/Seal Kit (Pneumatic type)

Bore size (mm)	Kit no.	Contents
12	CQ2B12-PS	Kits include items 12, 13, 14 from the table.
16	CQ2B16-PS	
20	CQ2B20-PS	
25	CQ2B25-PS	
32	CQ2B32-PS	
40	CQ2B40-PS	
50	CQ2B50-PS	
63	CQ2B63-PS	
80	CQ2B80-PS	
100	CQ2B100-PS	

### Replacement Parts/Seal Kit (Air-hydro type)

Bore size (mm)	Kit no.	Contents
20	CQ2BH20-PS	Kits include items 12, 13, 14 from the table.
25	CQ2BH25-PS	
32	CQ2BH32-PS	
40	CQ2BH40-PS	
50	CQ2BH50-PS	
63	CQ2BH63-PS	
80	CQ2BH80-PS	
100	CQ2BH100-PS	

\* Seal kit includes 12, 13, 14. Order the seal kit, based on each bore size.  
\* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.:** GR-S-010 (10 g)

\* Seal kit includes 12, 13, 14. Order the seal kit, based on each bore size.  
\* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.:** GR-S-010 (10 g)

CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Series CQ2

## Clean Series

**10** - C □ Q2B    Bore size    -    Stroke    **D(M)Z**<sup>\*1</sup>

\*1 "Z" is not available for ø12 to ø25 without auto switches.

• Clean series

<b>10</b>	Relief type
<b>11</b>	Vacuum type

• ø12, ø16, ø20, ø25, ø32  
ø40, ø50, ø63, ø80, ø100

Applicable for using inside the clean room graded Class 100 by making an actuator's rod section a double seal construction and discharging by relief port directly to the outside of clean room.



## Specifications

Bore size (mm)	12	16	20	25	32	40	50	63	80	100
<b>Action</b>	Double acting, Single rod									
<b>Proof pressure</b>	1.5 MPa									
<b>Maximum operating pressure</b>	1.0 MPa									
<b>Cushion</b>	None <sup>Note)</sup>									
<b>Piston speed</b>	30 to 400 mm/s								30 to 300 mm/s	
<b>Mounting</b>	Through-hole									

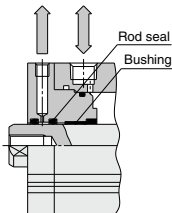
Note) ø12 with auto switch: With rubber bumper (Standard)

**For details, refer to the separate catalog (CAT.E02-23), "Pneumatics Equipment for Clean Room."**

## Construction

### 10-CQ2 series (Double seal)

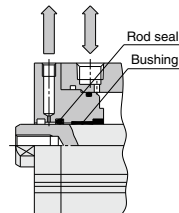
#### Relief port



A relief port is provided in the area between the double rod seals to discharge the exhaust air outside of the clean room. Thus, the amount of dust generated has been reduced to 1/20 of that of an ordinary cylinder.

### 11-CQ2 series (Single seal, Vacuum suction)

#### Vacuum port (Vacuum suction)



Structurally identical to the "10-" series, the outer rod seal has been removed to evacuate through the vacuum port. This draws out any external air from the clearance between the rod and the cover to practically eliminate the generation of external dust. This should be used in an application that requires an even higher level of cleanliness than the 10- series.

**Water Resistant**

Refer to pages 941 to 953 for details.

**CDQ2** **Mounting** **Bore size** **R** - **Stroke** **D** **Option** **Z**<sup>2</sup> - **M9BAL** - **-XC6** **Suffix**

• With auto switch  
(Built-in magnet)

• Water resistant cylinder  

<b>R</b>	NBR seals (Nitrile rubber)
<b>V</b>	FKM seals (Fluororubber)

• Water resistant  
2-color indication  
solid state auto switch  
**Made to Order**

**Suffix**

<b>Nil</b>	Piston rod/Retaining ring/Rod end nut material: Stainless steel
<b>A</b>	Piston rod/Rod end nut/Cover holding bolt material: Stainless steel

(Note) -XC6A: ø20 to ø32 only

\*2 "Z" is not available for ø20 and ø25 without auto switches.

Ideal for use under the atmosphere having coolant for machine tools, etc. Compatible for the environment, where waterdrops are splashed around the food processing machinery and the car washers, etc.



**Specifications**

Bore size (mm)	20	25	32	40	50	63	80	100
<b>Action</b>	Double acting, Single rod							
<b>Cushion</b>	None							
<b>Made to Order</b>	Piston rod/Retaining ring/Rod end nut material: Stainless steel (-XC6)							

\* The specifications other than above are the same as those of the standard. Some dimensions may vary from those of the standard. Refer to page 941 for details.

**Compact Cylinder with Stable Lubrication Function (Lub-retainer)**

**CDQ2** **Mounting style** **Bore size** **M** - **Stroke** **D** **Body option** **Z** **Mounting bolt** **Rod end thread** - **Auto switch**

• With auto switch  
(Built-in magnet)

• With stable lubrication function (Lub-retainer)

\* Available only for with auto switch.

**Specifications**

Bore size (mm)	32, 40, 50, 63, 80, 100
<b>Action</b>	Double acting, Single rod
<b>Minimum operating pressure</b>	0.1 MPa
<b>Piston speed</b>	50 to 500 mm/s
<b>Cushion</b>	None

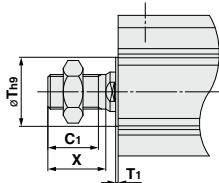
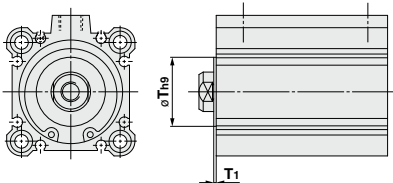
\* Specifications other than those shown above are the same as the standard model.



**Dimensions** (Dimensions other than those shown below are the same as the standard model.)

ø32 to ø100

DMZ: Rod end male thread



Bore size	T	T <sub>1</sub>	C <sub>1</sub>	X
32	22	1	20.5	23.5
40	28	1	20.5	23.5
50	35	2	24	26.5
63	35	2	24	26.5
80	—	—	32.5	35.5
100	—	—	32.5	35.5

\* The mounting dimensions of the mounting bracket are the same as the standard model.

For details, refer to the **WEB catalog**.

# Standard: Double Acting, Single Rod

## Series CDQ2

### With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.954 to 960
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

## Weight

### Weight

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	43	49	55	61	67	73	—	—	—	—	—	—
16	64	71	79	87	95	102	—	—	—	—	—	—
20	94	106	118	131	143	155	167	179	191	203	—	—
25	134	149	164	180	195	210	226	241	256	272	—	—
32	182	202	222	241	261	281	300	320	340	359	459	558
40	269	290	312	333	355	376	398	420	441	463	575	687
50	—	455	488	521	554	587	620	653	686	719	891	1062
63	—	627	665	703	741	779	817	855	893	931	1129	1326
80	—	1162	1222	1282	1342	1403	1463	1524	1584	1644	1941	2237
100	—	1966	2047	2127	2208	2288	2368	2449	2529	2610	3018	3426

### Additional Weight

Bore size (mm)		12	16	20	25	32	40	50	63	80	100
Both ends tapped											
Rod end	Male thread	1.5	3	6	12	26	27	53	53	120	175
male thread	Nut	1	2	4	8	17	17	32	32	49	116
With boss on head end		0.7	1.3	2	3	5	7	13	25	45	96
With rubber bumper		0	0	-2	-3	-3	-7	-9	-18	-31	-56
Built-in One-touch fittings											
Foot (Including mounting bolts)		49	62	147	169	142	154	243	317	683	1052
Compact foot (Including mounting bolts)		32	40	97	116	99	114	117	241	501	770
Rod flange (Including mounting bolts)		54	67	131	153	180	214	373	559	1056	1365
Head flange (Including mounting bolts)		52	63	124	144	165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)		29	35	78	114	151	196	393	554	1109	1887

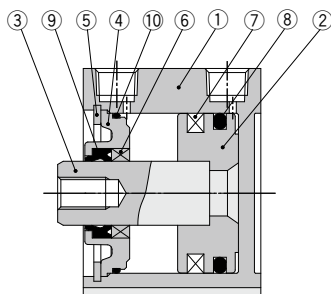
Calculation: (Example) **CDQ2B32-20DCMZ**

- Basic weight: CDQ2B32-20DZ..... 241 g
- Additional weight: Both ends tapped ..... 6 g
- Rod end male thread ..... 43 g
- With rubber bumper ..... -3 g
- Double clevis ..... 151 g

438 g

Add each weight of auto switches when auto switches are mounted.

## Construction



## Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø100, Chromated, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	For ø50 or more only
7	Magnet	—	—
8	Piston seal	NBR	—
9	Rod seal	NBR	—
10	Gasket	NBR	—

## Replacement Parts/Seal Kit (Pneumatic type)

Bore size (mm)	Kit no.	Contents
12	CQ2B12-PS	Kits include items ⑧, ⑨, ⑩ from the table.
16	CQ2B16-PS	
20	CQ2B20-PS	
25	CQ2B25-PS	
32	CQ2B32-PS	
40	CQ2B40-PS	
50	CQ2B50-PS	
63	CQ2B63-PS	
80	CQ2B80-PS	
100	CQ2B100-PS	

\* Seal kit includes ⑧, ⑨, ⑩. Order the seal kit, based on each bore size.  
 \* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.:** GR-S-010 (10 g)

## Replacement Parts/Seal Kit (Air-hydro type)

Bore size (mm)	Kit no.	Contents
20	CQ2BH20-PS	Kits include items ⑧, ⑨, ⑩ from the table.
25	CQ2BH25-PS	
32	CQ2BH32-PS	
40	CQ2BH40-PS	
50	CQ2BH50-PS	
63	CQ2BH63-PS	
80	CQ2BH80-PS	
100	CQ2BH100-PS	

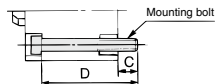
\* Seal kit includes ⑧, ⑨, ⑩. Order the seal kit, based on each bore size.  
 \* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.:** GR-S-010 (10 g)

## Mounting Bolt for CDQ2B/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQ2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 35L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.	Cylinder model	C	D	Mounting bolt part no.	Cylinder model	C	D	Mounting bolt part no.
CDQ2B12-5DZ	5.5	35	CQ-M3 x 35L	CDQ2B40-5DZ	7.5	45	CQ-M5 x 45L	CDQ2B80-10DZ	15	65	CQ-M10 x 65L
-10DZ		40	x 40L	-10DZ		50	x 50L	-15DZ		70	x 70L
-15DZ		45	x 45L	-15DZ		55	x 55L	-20DZ		75	x 75L
-20DZ		50	x 50L	-20DZ		60	x 60L	-25DZ		80	x 80L
-25DZ		55	x 55L	-25DZ		65	x 65L	-30DZ		85	x 85L
-30DZ	65	x 60L	-30DZ	70	x 70L	-35DZ	90	x 90L			
CDQ2B16-5DZ	8	40	CQ-M3 x 40L	-35DZ	75	x 75L	-40DZ	95	x 95L		
-10DZ		45	x 45L	-40DZ	80	x 80L	-45DZ	100	x 100L		
-15DZ		50	x 50L	-45DZ	85	x 85L	-50DZ	105	x 105L		
-20DZ		55	x 55L	-50DZ	90	x 90L	-55DZ-XB10	110	x 110L		
-25DZ		60	x 60L	-55DZ-XB10	95	x 95L	-60DZ-XB10	115	x 115L		
-30DZ	65	x 65L	-60DZ-XB10	100	x 100L	-65DZ-XB10	120	x 120L			
CDQ2B20-5DZ	10.5	40	CQ-M5 x 40L	-65DZ-XB10	105	x 105L	-70DZ-XB10	125	x 125L		
-10DZ		45	x 45L	-70DZ-XB10	110	x 110L	-75DZ	130	x 130L		
-15DZ		50	x 50L	-75DZ	115	x 115L	-80DZ-XB10	135	x 135L		
-20DZ		55	x 55L	-80DZ-XB10	120	x 120L	-85DZ-XB10	140	x 140L		
-25DZ		60	x 60L	-85DZ-XB10	125	x 125L	-90DZ-XB10	145	x 145L		
-30DZ	65	x 65L	-90DZ-XB10	130	x 130L	-95DZ-XB10	150	x 150L			
-35DZ	70	x 70L	-95DZ-XB10	135	x 135L	-100DZ	155	x 155L			
-40DZ	75	x 75L	-100DZ	140	x 140L	CDQ2B100-10DZ	75	CQ-M10 x 75L			
-45DZ	80	x 80L	CDQ2B50-10DZ	55	CQ-M6 x 55L	-15DZ	80	x 80L			
-50DZ	85	x 85L	-15DZ	60	x 60L	-20DZ	85	x 85L			
CDQ2B25-5DZ	9.5	40	CQ-M5 x 40L	-20DZ	65	x 65L	-25DZ	90	x 90L		
-10DZ		45	x 45L	-25DZ	70	x 70L	-30DZ	95	x 95L		
-15DZ		50	x 50L	-30DZ	75	x 75L	-35DZ	100	x 100L		
-20DZ		55	x 55L	-35DZ	80	x 80L	-40DZ	105	x 105L		
-25DZ		60	x 60L	-40DZ	85	x 85L	-45DZ	110	x 110L		
-30DZ	65	x 65L	-45DZ	90	x 90L	-50DZ	115	x 115L			
-35DZ	70	x 70L	-50DZ	95	x 95L	-55DZ-XB10	120	x 120L			
-40DZ	75	x 75L	-55DZ-XB10	100	x 100L	-60DZ-XB10	125	x 125L			
-45DZ	80	x 80L	-60DZ-XB10	105	x 105L	-65DZ-XB10	130	x 130L			
-50DZ	85	x 85L	-65DZ-XB10	110	x 110L	-70DZ-XB10	135	x 135L			
CDQ2B32-5DZ	9	40	CQ-M5 x 40L	-70DZ-XB10	115	x 115L	-75DZ	140	x 140L		
-10DZ		45	x 45L	-75DZ	120	x 120L	-80DZ-XB10	145	x 145L		
-15DZ		50	x 50L	-80DZ-XB10	125	x 125L	-85DZ-XB10	150	x 150L		
-20DZ		55	x 55L	-85DZ-XB10	130	x 130L	-90DZ-XB10	155	x 155L		
-25DZ		60	x 60L	-90DZ-XB10	135	x 135L	-95DZ-XB10	160	x 160L		
-30DZ	65	x 65L	-95DZ-XB10	140	x 140L	-100DZ	165	x 165L			
-35DZ	70	x 70L	-100DZ	145	x 145L						
-40DZ	75	x 75L	CDQ2B63-10DZ	60	CQ-M8 x 60L						
-45DZ	80	x 80L	-15DZ	65	x 65L						
-50DZ	85	x 85L	-20DZ	70	x 70L						
-55DZ-XB10	90	x 90L	-25DZ	75	x 75L						
-60DZ-XB10	95	x 95L	-30DZ	80	x 80L						
-65DZ-XB10	100	x 100L	-35DZ	85	x 85L						
-70DZ-XB10	105	x 105L	-40DZ	90	x 90L						
-75DZ	110	x 110L	-45DZ	95	x 95L						
-80DZ-XB10	115	x 115L	-50DZ	100	x 100L						
-85DZ-XB10	120	x 120L	-55DZ-XB10	105	x 105L						
-90DZ-XB10	125	x 125L	-60DZ-XB10	110	x 110L						
-95DZ-XB10	130	x 130L	-65DZ-XB10	115	x 115L						
-100DZ	135	x 135L	-70DZ-XB10	120	x 120L						
			-75DZ	125	x 125L						
			-80DZ-XB10	130	x 130L						
			-85DZ-XB10	135	x 135L						
			-90DZ-XB10	140	x 140L						
			-95DZ-XB10	145	x 145L						
			-100DZ	150	x 150L						

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

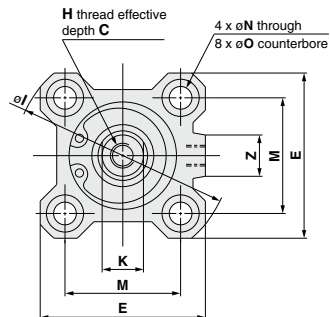
Technical data

# Series CQ2

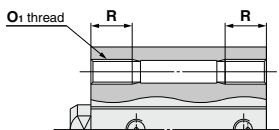
## Dimensions

### Ø12 to Ø25/Without Auto Switch

#### Standard (Through-hole): CQ2B

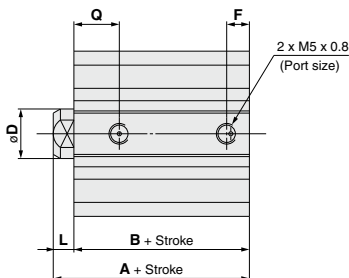


#### Both ends tapped: CQ2A

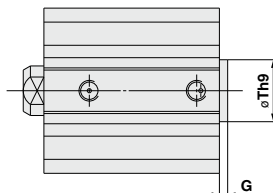


#### Both Ends Tapped (mm)

Bore size (mm)	O <sub>1</sub>	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10



#### With boss on head end

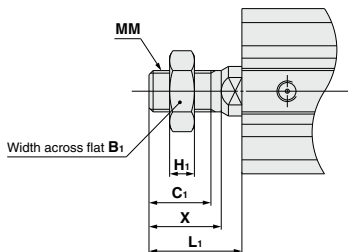


#### With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15 <sup>-0.043</sup>
16	1.5	20 <sup>-0.052</sup>
20	2	13 <sup>-0.043</sup>
25	2	15 <sup>-0.043</sup>

Note 1) With boss on rod end: Option (Suffix "XC36" to the end of model number.)

#### Rod end male thread



#### Rod End Male Thread (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

#### Standard

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	H	I	K	L	M	N	O	Q	Z
12	5 to 30	20.5	17	6	6	25	5	M3 x 0.5	32	5	3.5	15.5	3.5	6.5 depth 3.5	7.5	-
16	5 to 30	22	18.5	8	8	29	5.5	M4 x 0.7	38	6	3.5	20	3.5	6.5 depth 3.5	8	10
20	5 to 50	24	19.5	7	10	36	5.5	M5 x 0.8	47	8	4.5	25.5	5.5	9 depth 7	8	10
25	5 to 50	27.5	22.5	12	12	40	5.5	M6 x 1.0	52	10	5	28	5.5	9 depth 7	9	10

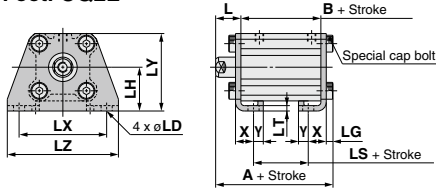
Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

\* For details about the rod end nut and accessory brackets, refer to page 804.

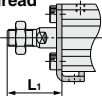
Note 3) For calculation on the longitudinal dimension of intermediate strokes, refer to page 787.



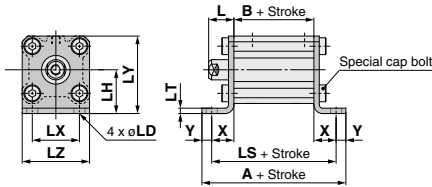
**Foot: CQ2L**



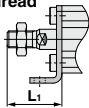
**Rod end male thread**



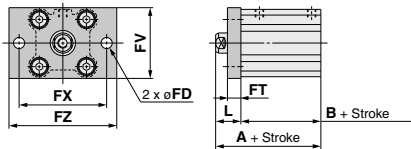
**Compact foot: CQ2LC**



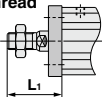
**Rod end male thread**



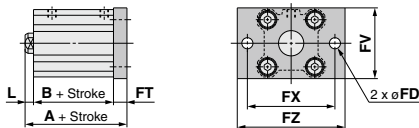
**Rod flange: CQ2F**



**Rod end male thread**



**Head flange: CQ2G**



**Rod end male thread**



**Foot**

Bore size (mm)	Stroke range (mm)	A	B	L	L <sub>1</sub>	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	35.3	17	13.5	24	4.5	2.8	17	5	2	34	29.5	44	8	4.5
16	5 to 30	36.8	18.5	13.5	25.5	4.5	2.8	19	6.5	2	38	33.5	48	8	5
20	5 to 50	41.2	19.5	14.5	28.5	6.6	4	24	7.5	3.2	48	42	62	9.2	5.8
25	5 to 50	44.7	22.5	15	32.5	6.6	4	26	7.5	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact Foot**

Bore size (mm)	Stroke range (mm)	A	B	L	L <sub>1</sub>	LD	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	44.6	17	13.5	24	4.5	17	35.6	2	15.5	29.5	25	9.3	4.5
16	5 to 30	47.1	18.5	13.5	25.5	4.5	19	37.1	2	20	33.5	29	9.3	5
20	5 to 50	57.5	19.5	14.5	28.5	6.6	24	45.9	3.2	25.5	42	36	13.2	5.8
25	5 to 50	60.5	22.5	15	32.5	6.6	26	48.9	3.2	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod Flange**

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L	L <sub>1</sub>
12	5 to 30	30.5	17	4.5	5.5	25	45	55	13.5	24
16	5 to 30	32	18.5	4.5	5.5	30	45	55	13.5	25.5
20	5 to 50	34	19.5	6.6	8	39	48	60	14.5	28.5
25	5 to 50	37.5	22.5	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

Bore size (mm)	Stroke range (mm)	A	L	L <sub>1</sub>
12	5 to 30	26	3.5	14
16	5 to 30	27.5	3.5	15.5
20	5 to 50	32	4.5	18.5
25	5 to 50	35.5	5	22.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

( \* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange. )

\* For details about the rod end nut and accessory brackets, refer to page 804.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

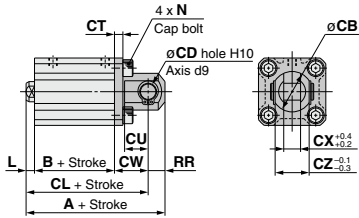
MU-Z

D-□

-X□

Technical data

**Double clevis: CQ2D**



**Rod end male thread**



**Double Clevis**

(mm)

Bore size (mm)	Stroke range (mm)	A	B	CB	CD	CL	CT	CU	CW	CX	CZ	L	L <sub>1</sub>	N	RR
12	5 to 30	40.5	17	12	5	34.5	4	7	14	5	10	3.5	14	M4 x 0.7	6
16	5 to 30	43	18.5	14	5	37	4	10	15	6.5	12	3.5	15.5	M4 x 0.7	6
20	5 to 50	51	19.5	20	8	42	5	12	18	8	16	4.5	18.5	M6 x 1.0	9
25	5 to 50	57.5	22.5	24	10	47.5	5	14	20	10	20	5	22.5	M6 x 1.0	10

Double clevis bracket material: Carbon steel  
Surface treatment: Nickel plated

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

**CJU**

**CU**

**CQS**

**CQ2**  
**-Z**

**RQ**

**CQM**

**CQU**

**MU**  
**-Z**

**D-□**

**-X□**

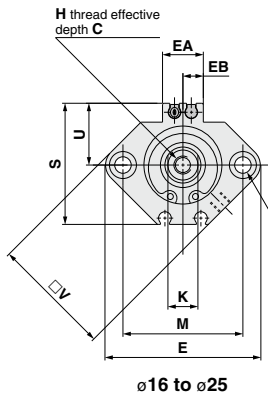
Technical  
data

# Series CQ2

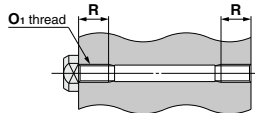
## Dimensions

### Ø12 to Ø25/With Auto Switch

#### Standard (Through-hole): CDQ2B



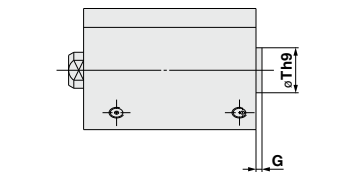
#### Both ends tapped: CDQ2A



#### Both Ends Tapped (mm)

Bore size (mm)	Ø1	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10

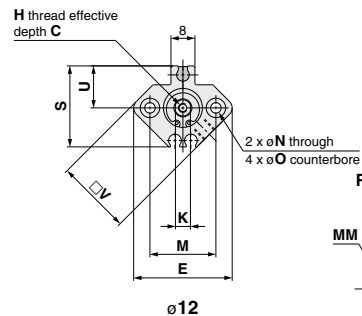
#### With boss on head end



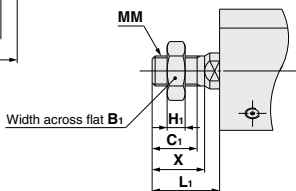
#### With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15 <sup>0</sup> <sub>-0.043</sub>
16	1.5	20 <sup>0</sup> <sub>-0.032</sub>
20	2	13 <sup>0</sup> <sub>-0.043</sub>
25	2	15 <sup>0</sup> <sub>-0.043</sub>

Note 1) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)



#### Rod end male thread



#### Rod End Male Thread (mm)

Bore size (mm)	B1	C1	H1	L1	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

**Standard** For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

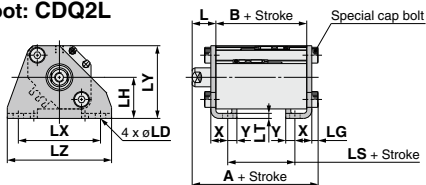
Bore size (mm)	Stroke range (mm)	A	B	C	D	E	EA	EB	F	H	K	L	M	N	O	Q	S	U	V
12	5 to 30	31.5	28	6	6	33	—	—	6.5	M3 x 0.5	5	3.5	22	3.5	6.5 depth 3.5	11	27.5	14	25
16	5 to 30	34	30.5	8	8	37	13.2	6.6	5.5	M4 x 0.7	6	3.5	28	3.5	6.5 depth 3.5	10	29.5	15	29
20	5 to 50	36	31.5	7	10	47	13.6	6.8	5.5	M5 x 0.8	8	4.5	36	5.5	9 depth 7	8	35.5	18	36
25	5 to 50	37.5	32.5	12	12	52	13.6	6.8	5.5	M6 x 1.0	10	5	40	5.5	9 depth 7	9	40.5	21	40

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

\* For details about the rod end nut and accessory brackets, refer to page 804.

Note 3) For calculation on the longitudinal dimension of intermediate strokes, refer to page 787.

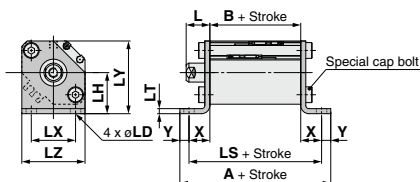
**Foot: CDQ2L**



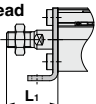
**Rod end male thread**



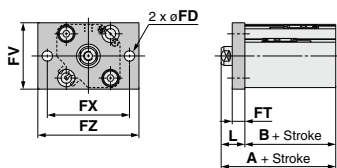
**Compact foot: CDQ2LC**



**Rod end male thread**



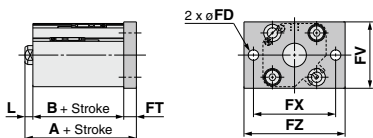
**Rod flange: CDQ2F**



**Rod end male thread**



**Head flange: CDQ2G**



**Rod end male thread**



**Foot**

		(mm)													
Bore size (mm)	Stroke range (mm)	A	B	L	L <sub>1</sub>	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	46.3	28	13.5	24	4.5	2.8	17	16	2	34	29.5	44	8	4.5
16	5 to 30	48.8	30.5	13.5	25.5	4.5	2.8	19	18.5	2	38	33.5	48	8	5
20	5 to 50	53.2	31.5	14.5	28.5	6.6	4	24	19.5	3.2	48	42	62	9.2	5.8
25	5 to 50	54.7	32.5	15	32.5	6.6	4	26	17.5	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact Foot**

		(mm)												
Bore size (mm)	Stroke range (mm)	A	B	L	L <sub>1</sub>	LD	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	55.6	28	13.5	24	4.5	17	46.6	2	15.5	29.5	25	9.3	4.5
16	5 to 30	59.1	30.5	13.5	25.5	4.5	19	49.1	2	20	33.5	29	9.3	5
20	5 to 50	69.5	31.5	14.5	28.5	6.6	24	57.9	3.2	25.5	42	36	13.2	5.8
25	5 to 50	70.5	32.5	15	32.5	6.6	26	58.9	3.2	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod Flange**

		(mm)										
Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L	L <sub>1</sub>		
12	5 to 30	41.5	28	4.5	5.5	25	45	55	13.5	24		
16	5 to 30	44	30.5	4.5	5.5	30	45	55	13.5	25.5		
20	5 to 50	46	31.5	6.6	8	39	48	60	14.5	28.5		
25	5 to 50	47.5	32.5	6.6	8	42	52	64	15	32.5		

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

		(mm)		
Bore size (mm)	Stroke range (mm)	A	L	L <sub>1</sub>
12	5 to 30	37	3.5	14
16	5 to 30	39.5	3.5	15.5
20	5 to 50	44	4.5	18.5
25	5 to 50	45.5	5	22.5

(\*) The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to page 804.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

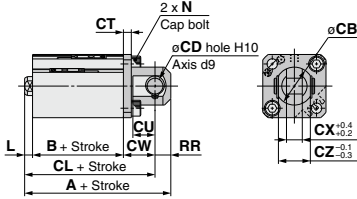
MU-Z

D-□

-X□

Technical data

**Double clevis: CDQ2D**



**Rod end male thread**



**Double Clevis**

(mm)

Bore size (mm)	Stroke range (mm)	A	B	CB	CD	CL	CT	CU	CW	CX	CZ	L	L <sub>1</sub>	N	RR
12	5 to 30	51.5	28	12	5	45.5	4	7	14	5	10	3.5	14	M4 x 0.7	6
16	5 to 30	55	30.5	14	5	49	4	10	15	6.5	12	3.5	15.5	M4 x 0.7	6
20	5 to 50	63	31.5	20	8	54	5	12	18	8	16	4.5	18.5	M6 x 1.0	9
25	5 to 50	67.5	32.5	24	10	57.5	5	14	20	10	20	5	22.5	M6 x 1.0	10

Double clevis bracket material: Carbon steel  
Surface treatment: Nickel plated

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

**CJ**

**CU**

**CQS**

**CQ2**  
**-Z**

**RQ**

**CQM**

**CQU**

**MU**  
**-Z**

**D**-□

**-X**□

Technical  
data

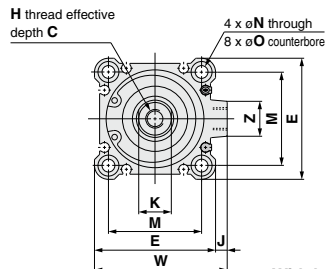
# Series CQ2

## Dimensions

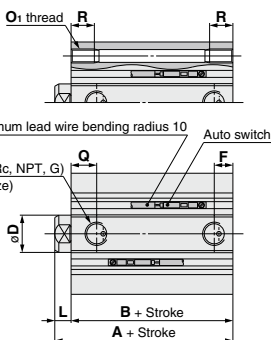
### Ø32 to Ø50/With Auto Switch

(In the case of without auto switches, the A, B, F, P and Q dimensions will be only changed. Refer to the dimension table.)

#### Standard (Through-hole): CQ2B/CDQ2B



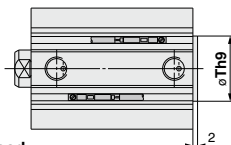
#### Both ends tapped: CQ2A/CDQ2A



#### Both Ends Tapped (mm)

Bore size (mm)	O <sub>1</sub>	R
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14

#### With boss on head end

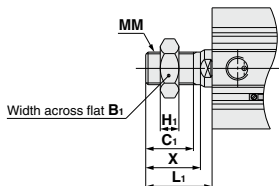


#### With Boss on Head End (mm)

Bore size (mm)	Th9
32	21 <sup>0</sup> <sub>-0.052</sub>
40	28 <sup>0</sup> <sub>-0.052</sub>
50	35 <sup>0</sup> <sub>-0.052</sub>

Note 1) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

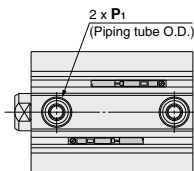
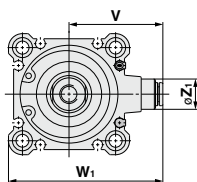
#### Rod end male thread



#### Rod End Male Thread (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5

#### Built-in One-touch fittings: Ø32 to Ø50



#### Built-in One-touch Fittings (mm)

Bore size (mm)	Z <sub>1</sub>	P <sub>1</sub>	V	W <sub>1</sub>
32	13	6	36.5	59
40	13	6	40.5	66
50	16	8	50	82

Note 2) The dimensions of the Ø32.5 mm stroke with built-in One-touch fittings is the same as that of the 10 mm stroke cylinder tube.

#### Standard For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke range (mm)	Without auto switch				With auto switch				C	D	E	H	J	K	L	M	N		
		A	B	F	P	Q	A	B	F										P	Q
32	5	30	23	5.5	M5 x 0.8	10	40	33	7.5	1/8	10	13	16	45	M8 x 1.25	4.5	14	7	34	5.5
	10 to 50	40	33	7.5	1/8	12.5	46.5	39.5	7.5	1/8	12.5	13	16	52	M8 x 1.25	5	14	7	40	5.5
	75, 100	48.5	40.5	10.5	1/4	10.5	48.5	40.5	10.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	8	50	6.6
40	5 to 50	36.5	29.5	7.5	1/8	12.5	46.5	39.5	7.5	1/8	12.5	13	16	52	M8 x 1.25	5	14	7	40	5.5
	75, 100	46.5	39.5	10.5	1/4	10.5	48.5	40.5	10.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	8	50	6.6
	10 to 50	38.5	30.5	10.5	1/4	10.5	48.5	40.5	10.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	8	50	6.6
50	75, 100	48.5	40.5	10.5	1/4	10.5	48.5	40.5	10.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	8	50	6.6
	10 to 50	38.5	30.5	10.5	1/4	10.5	48.5	40.5	10.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	8	50	6.6
	75, 100	48.5	40.5	10.5	1/4	10.5	48.5	40.5	10.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	8	50	6.6

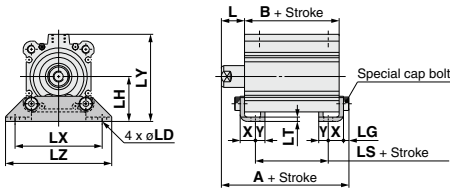
Bore size (mm)	O	W	Z
32	9 depth 7	49.5	14
40	9 depth 7	57	15
50	11 depth 8	71	19

Note 3) The external dimensions with rubber bumper are same as those of the standard, as shown above.

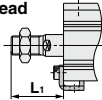
\* For details about the rod end nut and accessory brackets, refer to page 804.

Note 4) For calculation on the longitudinal dimension of intermediate strokes, refer to page 787. The spacer-installed type (Standard, -XB10A) and the exclusive body type (-XB10) are available.

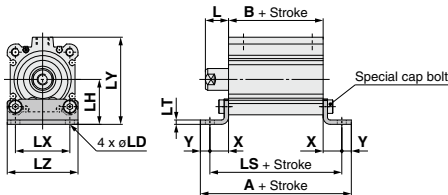
## Foot: CQ2L/CDQ2L



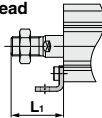
### Rod end male thread



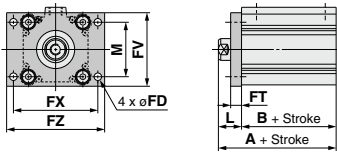
## Compact foot: CQ2LC/CDQ2LC



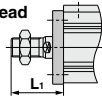
### Rod end male thread



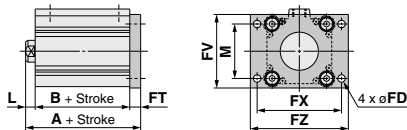
## Rod flange: CQ2F/CDQ2F



### Rod end male thread



## Head flange: CQ2G/CDQ2G



### Rod end male thread



## Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD	LG	LH	LT	LX	LY
		A	B	LS	A	B	LS								
32	5 to 50	47.2	23	7	57.2	33	17	17	38.5	6.6	4	30	3.2	57	57
	75, 100	57.2	33	17											
40	5 to 50	53.7	29.5	13.5	63.7	39.5	23.5	17	38.5	6.6	4	33	3.2	64	64
	75, 100	63.7	39.5	23.5											
50	10 to 50	58.7	30.5	7.5	66.7	40.5	17.5	18	43.5	9	5	39	3.2	79	78
	75, 100	66.7	40.5	17.5											

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

Bore size (mm)	LZ	X	Y
32	71	112	5.8
40	78	112	7
50	95	14.7	8

## Compact Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD	LH	LT	LX	LY	LZ
		A	B	LS	A	B	LS								
32	5 to 50	62	23	50.4	72	33	60.4	17	38.5	6.6	30	3.2	34	57	45
	75, 100	72	33	60.4											
40	5 to 50	70.9	28.5	56.9	80.9	39.5	66.9	17	38.5	6.6	33	3.2	40	64	52
	75, 100	80.9	39.5	66.9											
50	10 to 50	79.9	30.5	63.9	89.9	40.5	73.9	18	43.5	9	39	3.2	50	78	64
	75, 100	89.9	40.5	73.9											

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

Bore size (mm)	X	Y
32	13.7	5.8
40	13.7	7
50	16.7	8

## Rod Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ	L	L <sub>1</sub>	M
		A	B	A	B								
32	5 to 50	40	23	50	33	5.5	8	48	56	65	17	38.5	34
	75, 100	50	33										
40	5 to 50	46.5	29.5	56.5	39.5	5.5	8	54	62	72	17	38.5	40
	75, 100	56.5	39.5										
50	10 to 50	48.5	30.5	58.5	40.5	6.6	9	67	76	89	18	43.5	50
	75, 100	58.5	40.5										

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

## Head Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		L	L <sub>1</sub>
		A	A	A	A		
32	5 to 50	38	48	7	28.5		
	75, 100	48					
40	5 to 50	44.5	54.5	7	28.5		
	75, 100	54.5					
50	10 to 50	47.5	57.5	8	33.5		
	75, 100	57.5					

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to page 804.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

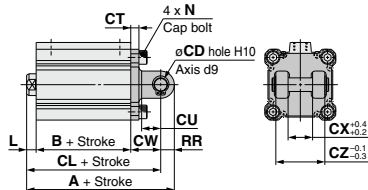
MU-Z

D-□

-X□

Technical data

Double clevis: CQ2D/CDQ2D



Rod end male thread



Double Clevis

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU	CW	CX	CZ	L	L <sub>1</sub>
		A	B	CL	A	B	CL								
32	5 to 50	60	23	50	70	33	60	10	5	14	20	18	36	7	28.5
	75, 100	70	33	60											
40	5 to 50	68.5	29.5	58.5	78.5	39.5	68.5	10	6	14	22	18	36	7	28.5
	75, 100	78.5	39.5	68.5											
50	10 to 50	80.5	30.5	66.5	90.5	40.5	76.5	14	7	20	28	22	44	8	33.5
	75, 100	90.5	40.5	76.5											

Double clevis bracket material: Cast iron  
Surface treatment: Painted

Bore size (mm)	N	RR
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

CJU

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

MU  
-Z

D-□

-X□

Technical  
data



# Series CQ2

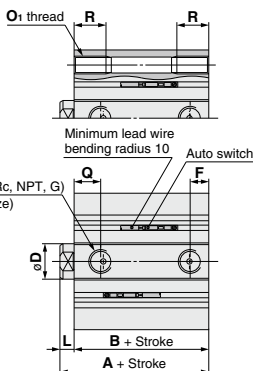
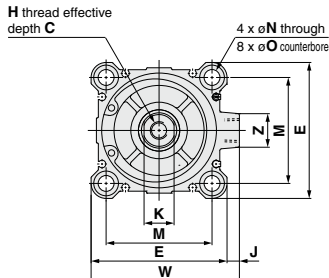
## Dimensions

### Ø63 to Ø100/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

#### Both ends tapped: CQ2A/CDQ2A

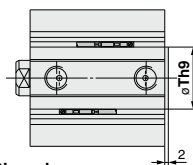
#### Standard (Through-hole): CQ2B/CDQ2B



#### Both Ends Tapped

Bore size (mm)	O <sub>1</sub>	R
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22

#### With boss on head end

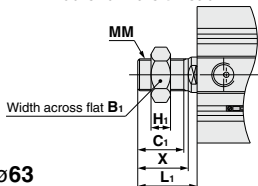


#### With Boss on Head End

Bore size (mm)	Th9
63	35 <sup>0</sup> <sub>-0.062</sub>
80	43 <sup>0</sup> <sub>-0.062</sub>
100	59 <sup>0</sup> <sub>-0.074</sub>

Note 1) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

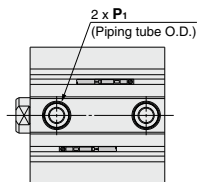
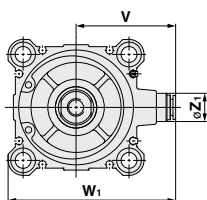
#### Rod end male thread



#### Rod End Male Thread

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
63	27	26	11	33.5	M18 x 1.5	28.5
80	32	32.5	13	43.5	M22 x 1.5	35.5
100	41	32.5	16	43.5	M26 x 1.5	35.5

#### Built-in One-touch fittings: Ø63



#### Built-in One-touch Fittings

Bore size (mm)	Z <sub>1</sub>	P <sub>1</sub>	V	W <sub>1</sub>
63	16	8	56.5	95

#### Standard

For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

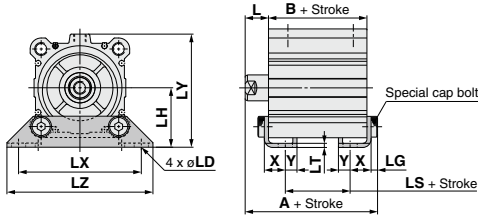
Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	W	Z
		A	B	A	B															
63	10 to 50	44	36	54	46	15	20	77	10.5	M10 x 1.5	7	17	8	60	9	14 depth 10.5	1/4	15	84	19
	75, 100	54	46																	
80	10 to 50	53.5	43.5	63.5	53.5	21	25	98	12.5	M16 x 2.0	6	22	10	77	11	17.5 depth 13.5	3/8	16	104	25
	75, 100	63.5	53.5																	
100	10 to 50	65	53	75	63	27	30	117	13	M20 x 2.5	6.5	27	12	94	11	17.5 depth 13.5	3/8	23	123.5	25
	75, 100	75	63																	

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

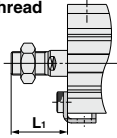
\* For details about the rod end nut and accessory brackets, refer to page 804.

Note 3) For calculation on the longitudinal dimension of intermediate strokes, refer to page 787.

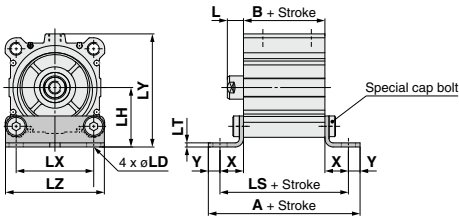
**Foot: CQ2L/CDQ2L**



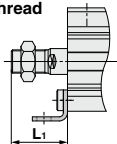
**Rod end male thread**



**Compact foot: CQ2LC/CDQ2LC**



**Rod end male thread**



**Foot**

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD	LH	LT	
		A	B	LS	A	B	LS						
63	10 to 50	62.2	36	10	72.2	46	20	18	43.5	11	5	46	3.2
	75, 100	72.2	46	20									
80	10 to 50	75	43.5	13.5	85	53.5	23.5	20	53.5	13	7	59	4.5
	75, 100	85	53.5	23.5									
100	10 to 50	88	53	19	98	63	29	22	53.5	13	7	71	6
	75, 100	98	63	29									

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

Bore size (mm)	Stroke range (mm)	LX	LY	LZ	X	Y
63	10 to 50	95	91.5	113	16.2	9
	75, 100					
80	10 to 50	118	114	140	19.5	11
	75, 100					
100	10 to 50	137	136	162	23	12.5
	75, 100					

**Compact Foot**

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD	LH	LT	LX
		A	B	LS	A	B	LS						
63	10 to 50	90.4	36	72.4	100.4	46	82.4	18	43.5	11	46	3.2	60
	75, 100	100.4	46	82.4									
80	10 to 50	110.5	43.5	98.5	120.5	53.5	98.5	20	53.5	13	59	4.5	77
	75, 100	120.5	53.5	98.5									
100	10 to 50	126	53	101	136	63	111	22	53.5	13	71	6	94
	75, 100	136	63	111									

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

Bore size (mm)	Stroke range (mm)	LY	LZ	X	Y
63	10 to 50	91.5	77	18.2	9
	75, 100				
80	10 to 50	114	98	22.5	11
	75, 100				
100	10 to 50	136	117	24	12.5
	75, 100				

\* For details about the rod end nut and accessory brackets, refer to page 804.

**CJ**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

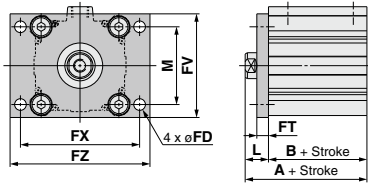
**MU-Z**

**D-□**

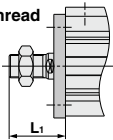
**-X□**

Technical data

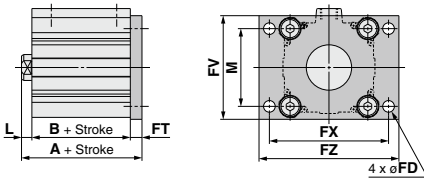
**Rod flange: CQ2F/CDQ2F**



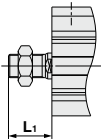
**Rod end male thread**



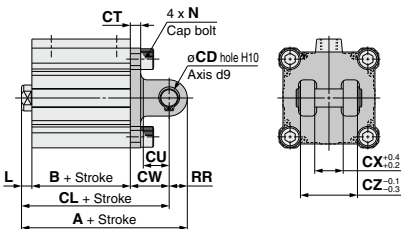
**Head flange: CQ2G/CDQ2G**



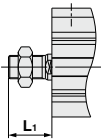
**Rod end male thread**



**Double clevis: CQ2D/CDQ2D**



**Rod end male thread**



**Rod Flange**

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ	L	L <sub>1</sub>	M
		A	B	A	B								
63	10 to 50	54	36	64	46	9	9	80	92	108	18	43.5	60
	75, 100	64	46										
80	10 to 50	63.5	43.5	73.5	53.5	11	11	99	116	134	20	53.5	77
	75, 100	73.5	53.5										
100	10 to 50	75	53	85	63	11	11	117	136	154	22	53.5	94
	75, 100	85	63										

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		L	L <sub>1</sub>
		A	B	A	B		
63	10 to 50	53		63		8	33.5
	75, 100	63					
80	10 to 50	64.5		74.5		10	43.5
	75, 100	74.5					
100	10 to 50	76		86		12	43.5
	75, 100	86					

\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Double Clevis**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU	CW	CX
		A	B	CL	A	B	CL					
63	10 to 50	88	36	74	98	46	84	14	8	20	30	22
	75, 100	98	46	84								
80	10 to 50	109.5	43.5	91.5	119.5	53.5	101.5	18	10	27	38	28
	75, 100	119.5	53.5	101.5								
100	10 to 50	132	53	110	142	63	120	22	13	31	45	32
	75, 100	142	63	120								

Double clevis bracket material: Cast iron  
Surface treatment: Painted

Bore size (mm)	Stroke range (mm)	CZ	L	L <sub>1</sub>	N	RR
63	10 to 50	44	8	33.5	M10 x 1.5	14
	75, 100					
80	10 to 50	56	10	43.5	M12 x 1.75	18
	75, 100					
100	10 to 50	64	12	43.5	M12 x 1.75	22
	75, 100					

\* For details about the rod end nut and accessory brackets, refer to page 804.  
\* Double clevis pin and retaining rings are included.

CJW

CU

CQS

CQ2-Z

RR

CQM

CQU

MU-Z

D-□

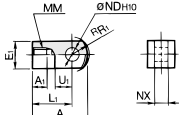
-X□

Technical data

# Accessory Brackets

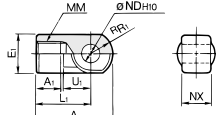
## Single Knuckle Joint

I-G012, I-Z015A  
I-G02, I-G03



Material: Carbon steel  
Surface treatment: Nickel plated

I-G04, I-G05  
I-G08, I-G10

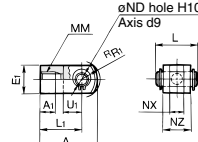


Material: Cast iron  
Surface treatment: Nickel plated

Part no.	Applicable bore size (mm)	A	A <sub>1</sub>	E <sub>1</sub>	L <sub>1</sub>	MM	<sup>°</sup> R <sub>1</sub>	U <sub>1</sub>	NDH <sub>10</sub>	NX
I-G012	12	21.5	6	□10	16	M5 x 0.8	6.3	7	5 <sup>+0.048</sup> <sub>-0.2</sub>	5 <sup>-0.2</sup> <sub>-0.4</sub>
I-Z015A	16	32	8	□12	25	M6 x 1	8.1	14	5 <sup>+0.048</sup> <sub>-0.2</sub>	6.4 <sup>-0.1</sup> <sub>-0.3</sub>
I-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8 <sup>+0.058</sup> <sub>-0.2</sub>	8 <sup>-0.2</sup> <sub>-0.4</sub>
I-G03	25	41	10.5	□20	30	M10 x 1.25	12.8	14	10 <sup>+0.068</sup> <sub>-0.2</sub>	10 <sup>-0.2</sup> <sub>-0.4</sub>
I-G04	32, 40	42	14	□22	30	M14 x 1.5	12	14	10 <sup>+0.068</sup> <sub>-0.2</sub>	18 <sup>-0.2</sup> <sub>-0.4</sub>
I-G05	50, 63	56	18	□28	40	M18 x 1.5	16	20	14 <sup>+0.070</sup> <sub>-0.2</sub>	22 <sup>-0.2</sup> <sub>-0.4</sub>
I-G08	80	71	21	□38	50	M22 x 1.5	21	27	18 <sup>+0.070</sup> <sub>-0.2</sub>	28 <sup>-0.2</sup> <sub>-0.4</sub>
I-G10	100	79	21	□44	55	M26 x 1.5	24	31	22 <sup>+0.084</sup> <sub>-0.2</sub>	32 <sup>-0.2</sup> <sub>-0.4</sub>

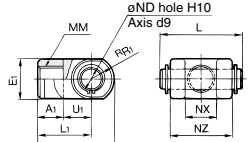
## Double Knuckle Joint

Y-G012, Y-Z015A  
Y-G02, Y-G03



Material: Carbon steel  
Surface treatment: Nickel plated

Y-G04, Y-G05  
Y-G08, Y-G10

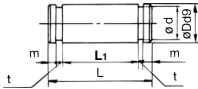


Material: Cast iron  
Surface treatment: Nickel plated

Part no.	Applicable bore size (mm)	A	A <sub>1</sub>	E <sub>1</sub>	L <sub>1</sub>	MM	<sup>°</sup> R <sub>1</sub>	U <sub>1</sub>	NDH <sub>10</sub>	NX	NZ	L	Applicable pin part no.
Y-G012	12	21.5	6	□10	16	M5 x 0.8	6.3	7	5 <sup>+0.048</sup> <sub>-0.2</sub>	5 <sup>-0.2</sup> <sub>-0.4</sub>	10	14.6	IY-G012
Y-Z015A	16	28	11	□12	21	M6 x 1	8.1	10	5 <sup>+0.048</sup> <sub>-0.2</sub>	6.5 <sup>-0.2</sup> <sub>-0.4</sub>	12	16.6	IY-J015
Y-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8 <sup>+0.058</sup> <sub>-0.2</sub>	8 <sup>-0.2</sup> <sub>-0.4</sub>	16	21	IY-G02
Y-G03	25	41	10.5	□20	30	M10 x 1.25	12.8	14	10 <sup>+0.068</sup> <sub>-0.2</sub>	10 <sup>-0.2</sup> <sub>-0.4</sub>	20	25.8	IY-G03
Y-G04	32, 40	42	16	□22	30	M14 x 1.5	12	14	10 <sup>+0.068</sup> <sub>-0.2</sub>	18 <sup>-0.2</sup> <sub>-0.4</sub>	36	41.6	IY-G04
Y-G05	50, 63	56	20	□28	40	M18 x 1.5	16	20	14 <sup>+0.070</sup> <sub>-0.2</sub>	22 <sup>-0.2</sup> <sub>-0.4</sub>	44	50.6	IY-G05
Y-G08	80	71	23	□38	50	M22 x 1.5	21	27	18 <sup>+0.070</sup> <sub>-0.2</sub>	28 <sup>-0.2</sup> <sub>-0.4</sub>	56	64	IY-G08
Y-G10	100	79	24	□44	55	M26 x 1.5	24	31	22 <sup>+0.084</sup> <sub>-0.2</sub>	32 <sup>-0.2</sup> <sub>-0.4</sub>	64	72	IY-G10

\* Knuckle pin and retaining rings are included.

## Knuckle Pin (Common with double clevis pin)

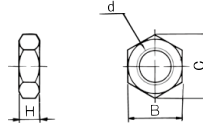


Material: Carbon steel  
Surface treatment: Zinc chromated (mm)

Part no.	Applicable bore size (mm)	Dd9	L	d	L <sub>1</sub>	m	t	Applicable retaining ring
IY-G012	12	5 <sup>-0.030</sup> <sub>-0.050</sub>	14.6	4.8	10.2	1.5	0.7	Type C5 for axis
IY-J015	16	5 <sup>-0.030</sup> <sub>-0.050</sub>	16.6	4.8	12.2	1.5	0.7	Type C5 for axis
IY-G02	20	8 <sup>-0.040</sup> <sub>-0.076</sub>	21	7.6	16.2	1.5	0.9	Type C8 for axis
IY-G03	25	10 <sup>-0.040</sup> <sub>-0.076</sub>	25.6	9.6	20.2	1.55	1.15	Type C10 for axis
IY-G04	32, 40	10 <sup>-0.040</sup> <sub>-0.076</sub>	41.6	9.6	36.2	1.55	1.15	Type C10 for axis
IY-G05	50, 63	14 <sup>-0.050</sup> <sub>-0.093</sub>	50.6	13.4	44.2	2.05	1.15	Type C14 for axis
IY-G08	80	18 <sup>-0.050</sup> <sub>-0.093</sub>	64	17	56.2	2.55	1.35	Type C18 for axis
IY-G10	100	22 <sup>-0.065</sup> <sub>-0.117</sub>	72	21	64.2	2.55	1.35	Type C22 for axis

\* Type C retaining rings for axis are included.

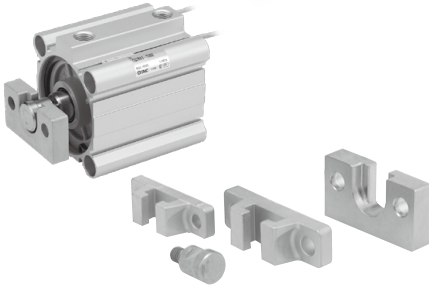
## Rod End Nut



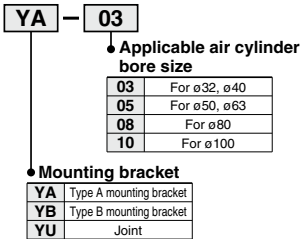
Material: Carbon steel  
Surface treatment: Zinc chromated (mm)

Part no.	Applicable bore size (mm)	d	H	B	C
NTJ-015A	12	M5 x 0.8	4	8	9.2
NT-015A	16	M6 x 1	5	10	11.5
NT-02	20	M8 x 1.25	5	13	15.0
NT-03	25	M10 x 1.25	6	17	19.6
NT-04	32, 40	M14 x 1.5	8	22	25.4
NT-05	50, 63	M18 x 1.5	11	27	31.2
NT-08	80	M22 x 1.5	13	32	37.0
NT-10	100	M26 x 1.5	16	41	47.3

**Simple Joint (CQ2):  $\phi 32$  to  $\phi 100$**



**Joint/Mounting Bracket (Type A/B)/Part No.**



**Allowable Eccentricity (mm)**

Bore size (mm)	32	40	50	63	80	100
Eccentricity tolerance	±1			±1.5 ±2		
Backlash	0.5					

<Ordering>

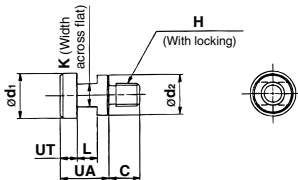
- Joints are not included with type A or B mounting brackets.
- Order them separately.

(Example)

- Bore size  $\phi 40$  Part no. ....
- Type A mounting bracket ..... YA-03
- Joint ..... YU-03

**Joint/Mounting Bracket (Type A/B)/Part No.**

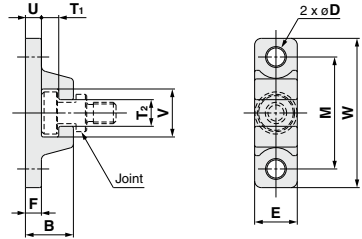
Bore size (mm)	Joint	Applicable mounting bracket	
		Type A mounting bracket	Type B mounting bracket
<b>32, 40</b>	YU-03	YA-03	YB-03
<b>50, 63</b>	YU-05	YA-05	YB-05
<b>80</b>	YU-08	YA-08	YB-08
<b>100</b>	YU-10	YA-10	YB-10



Material: Chromium molybdenum steel (Nickel plated) (mm)

Part no.	Applicable bore size (mm)	UA	C	d <sub>1</sub>	d <sub>2</sub>	H	K	L	UT	Weight (g)
<b>YU-03</b>	<b>32, 40</b>	17	11	15.8	14	M8 x 1.25	8	7	6	25
<b>YU-05</b>	<b>50, 63</b>	17	13	19.8	18	M10 x 1.5	10	7	6	40
<b>YU-08</b>	<b>80</b>	22	20	24.8	23	M16 x 2	13	9	8	90
<b>YU-10</b>	<b>100</b>	26	26	29.8	28	M20 x 2.5	14	11	10	160

**Type A Mounting Bracket**

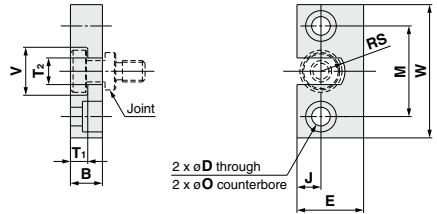


Material: Chromium molybdenum steel (Nickel plated) (mm)

Part no.	Bore size (mm)	B	D	E	F	M	T <sub>1</sub>	T <sub>2</sub>
<b>YA-03</b>	<b>32, 40</b>	18	6.8	16	6	42	6.5	10
<b>YA-05</b>	<b>50, 63</b>	20	9	20	8	50	6.5	12
<b>YA-08</b>	<b>80</b>	26	11	25	10	62	8.5	16
<b>YA-10</b>	<b>100</b>	31	14	30	12	76	10.5	18

Part no.	Bore size (mm)	U	V	W	Weight (g)
<b>YA-03</b>	<b>32, 40</b>	6	18	56	55
<b>YA-05</b>	<b>50, 63</b>	8	22	67	100
<b>YA-08</b>	<b>80</b>	10	28	83	195
<b>YA-10</b>	<b>100</b>	12	36	100	340

**Type B Mounting Bracket**



Material: Stainless steel (mm)

Part no.	Bore size (mm)	B	D	E	J	M	øO
<b>YB-03</b>	<b>32, 40</b>	12	7	25	9	34	11.5 depth 7.5
<b>YB-05</b>	<b>50, 63</b>	12	9	32	11	42	14.5 depth 8.5
<b>YB-08</b>	<b>80</b>	16	11	38	13	52	18 depth 12
<b>YB-10</b>	<b>100</b>	19	14	50	17	62	21 depth 14

Part no.	Bore size (mm)	T <sub>1</sub>	T <sub>2</sub>	V	W	RS	Weight (g)
<b>YB-03</b>	<b>32, 40</b>	6.5	10	18	50	9	80
<b>YB-05</b>	<b>50, 63</b>	6.5	12	22	60	11	120
<b>YB-08</b>	<b>80</b>	8.5	16	28	75	14	230
<b>YB-10</b>	<b>100</b>	10.5	18	36	90	18	455

**CUJ**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

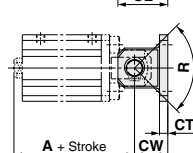
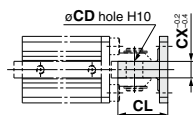
Technical data

# Series CQ2

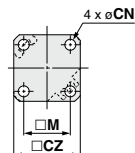
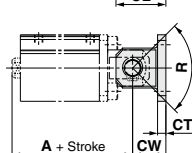
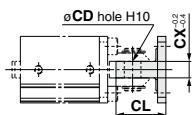
## Double Clevis Pivot Bracket

Bore size  $\varnothing 12$  to  $\varnothing 25$

Without auto switch



With auto switch



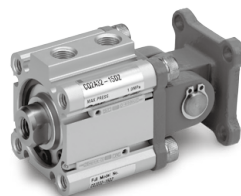
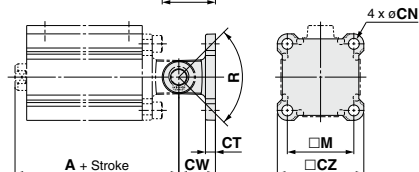
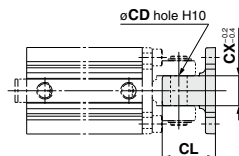
Bracket part no.	Bore size	Stroke range	A		CW	CT	CL	CX	CD	M	CZ	R	CN	Hexagon socket head cap screw for mounting pivot bracket (Accessory)
			Without auto switch	With auto switch										
CQ-C012	12	5 to 30	34.5	45.5	14	4	19	5	5	15.5	25	100°	4.5	M4 x 10L
CQ-C016	16	5 to 30	37	49	15	4	21	6.5	5	20	28	100°	4.5	M4 x 10L
CQ-C020	20	5 to 50	42	54	18	5	27	8	8	25.5	35	80°	6.6	M6 x 12L
CQ-C025	25	5 to 50	47.5	57.5	20	5	30	10	10	28	40	90°	6.6	M6 x 12L

\* The double clevis pin and retaining ring are not included.

Double clevis pivot bracket material: Carbon steel  
Surface treatment: Nickel plated

Bore size  $\varnothing 32$  to  $\varnothing 100$

Without auto switch, With auto switch



Bracket part no.	Bore size	Stroke range	A		CW	CT	CL	CX	CD	M	CZ	R	CN	Hexagon socket head cap screw for mounting pivot bracket (Accessory)
			Without auto switch	With auto switch										
CQ-C032	32	5 to 50	50	60	20	5	30	18	10	34	45	80°	6.6	M6 x 12L
		75, 100	60											
CQ-C040	40	5 to 50	58.5	68.5	22	6	32	18	10	40	52	80°	6.6	M6 x 14L
		75, 100	68.5											
CQ-C050	50	10 to 50	66.5	76.5	28	7	42	22	14	50	64	80°	9	M8 x 16L
		75, 100	76.5											
CQ-C063	63	10 to 50	74	84	30	8	44	22	14	60	77	60°	11	M10 x 20L
		75, 100	84											
CQ-C080	80	10 to 50	91.5	101.5	38	10	56	28	18	77	98	70°	13.5	M12 x 25L
		75, 100	101.5											
CQ-C100	100	10 to 50	110	120	45	13	67	32	22	94	117	70°	13.5	M12 x 30L
		75, 100	120											

\* The double clevis pin and retaining ring are not included.

Double clevis pivot bracket material: Cast iron  
Surface treatment: Painted

# Compact Cylinder: Standard Double Acting, Double Rod Series CQ2W

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

## How to Order

Without auto switch  
ø12 to ø25

CQ2W B □ 20 □ - 30 D □ - □

Without auto switch  
ø32 to ø100

CQ2W B □ 32 □ - 30 D □ Z - □

With auto switch

CDQ2W B □ 32 □ - 30 D M Z - M9BW □ - □

Mounting	
<b>B</b>	Through-hole (Standard)
<b>A</b>	Both ends tapped
<b>L</b>	Foot
<b>LC</b>	Compact foot
<b>F</b>	Flange

- \* Mounting brackets are shipped together (but not assembled).
- \* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQ2" on pages 810 and 813.

Type	
<b>Nil</b>	Pneumatic
<b>H</b>	Air-hydro (Note 1)

Note 1) Bore sizes available for air-hydro type are ø20 to ø100.

Bore size			
12	12 mm	40	40 mm
16	16 mm	50	50 mm
20	20 mm	63	63 mm
25	25 mm	80	80 mm
32	32 mm	100	100 mm

Auto switch mounting groove	
<b>Z</b>	ø12 to ø25 2 surfaces
	ø32 to ø100 4 surfaces

### Body option

<b>Nil</b>	Standard (Rod end female thread)
<b>C</b>	With rubber bumper (Note 4)
<b>M</b>	Rod end male thread

- \* Combination of body options ("CM") is available.
- Note 4) Air-hydro type with rubber bumper is not available.

### Number of auto switches

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

### Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

- \* Refer to the below table for applicable auto switches.

Made to Order

Refer to page 808 for details.

### Action

<b>D</b>	Double acting
----------	---------------

### Port thread type

<b>Nil</b>	M thread	ø12 to ø25
	Rc	
<b>TN</b>	NPT	ø32 to ø100
<b>TF</b>	G	
<b>F</b>	Built-in One-touch fittings (Note 2)	

### Cylinder stroke (mm)

Refer to page 808 for standard strokes.

## Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQ2WL32-25DZ

Note 2) Bore sizes available with One-touch fittings are ø32 to ø63. Besides, it is not possible to use for air-hydro type.

Note 3) "TF" is not available for the air-hydro type.

\* For cylinders without auto switch, M threads are compatible only for ø32-5 mm stroke.

## Applicable Auto Switches/Refer to pages 1559 to 1673 for further information on auto switches.

Type	Special function	Electrical entry	In-cylinder light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,	—	<b>M9NV</b>	<b>M9N</b>	●	●	○	—	—	—	IC circuit	
				3-wire (PNP)	12 V		<b>M9PV</b>	<b>M9P</b>	●	●	○	—	—			
				2-wire	12 V		<b>M9BV</b>	<b>M9B</b>	●	●	○	—	—	—		
				3-wire (NPN)	5 V,		<b>M9NVW</b>	<b>M9NW</b>	●	●	○	—	—	IC circuit		
	3-wire (PNP)	12 V	<b>M9PVW</b>	<b>M9PW</b>	●	●	○	—	—							
	2-wire	12 V	<b>M9BW</b>	<b>M9B</b>	●	●	○	—	—	—						
	3-wire (NPN)	5 V,	<b>M9BAV*1</b>	<b>M9BA*1</b>	○	○	○	○	○	IC circuit						
	3-wire (PNP)	12 V	<b>M9PAV*1</b>	<b>M9PA*1</b>	○	○	○	○	○							
2-wire	12 V	<b>M9BAW*1</b>	<b>M9BA*1</b>	○	○	○	○	○	—							
2-wire (Non-polar)	—	—	<b>P3DWA</b>	●	—	●	●	—	—		—					
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	<b>A96V</b>	<b>A96</b>	●	—	—	—	—	—	IC circuit	—
				12 V	100 V	<b>A93V*2</b>	<b>A93</b>	●	●	●	—	—	—	—	Relay, PLC	
				24 V	5 V, 12 V	100 V or less	<b>A90V</b>	<b>A90</b>	●	—	●	—	—	—	IC circuit	

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NVW  
3 m ..... L (Example) M9NVL  
5 m ..... Z (Example) M9NVZ

\* Solid state auto switches marked with "○" are produced upon receipt of order.  
\* The D-P3DWA□ type is available from ø32 to ø100 only.

\* There are other applicable auto switches other than the listed above. For details, refer to page 960.

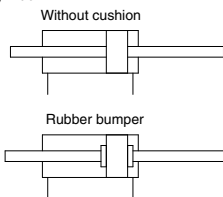
\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

For the D-P3DWA, refer to the **WEB catalog**.

# Series CQ2W



## Symbol



Made to Order: Individual Specifications  
(For details, refer to pages 964 to 973.)

Symbol	Specifications
-X144	Special port location, with auto switch $\phi 12$ to $\phi 25$ only
-X235	Special rod end for double rod cylinder
-X271	Fluororubber seals
-X293	Full length dimension is the same as Series CQ1W.
-X633	Intermediate stroke of double rod cylinder

## Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C) w/o auto switch only
-XB7	Heat resistant cylinder (-40 to 70°C) w/o auto switch only
-XB9	Low-speed cylinder (10 to 50 mm/s)
-XB10	Intermediate stroke (Exclusive body type)
-XB13	Low-speed cylinder (5 to 50 mm/s)
-XC2(A)	Rod end length, 10 mm increased (For foot and flange bracket)
-XC4	With heavy-duty scraper, $\phi 40$ to $\phi 100$ only
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC35	With coil scraper, $\phi 32$ to $\phi 100$ only
-XC36	With boss on rod end
-XC85	Grease for food processing equipment

## Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

## Specifications

### Pneumatic type

Bore size (mm)	12	16	20	25	32	40	50	63	80	100	
Action	Double acting, Double rod										
Fluid	Air										
Proof pressure	1.5 MPa										
Maximum operating pressure	1.0 MPa										
Minimum operating pressure	0.07 MPa					0.05 MPa					
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)										
Lubrication	Not required (Non-lube)										
Piston speed	50 to 500 mm/s										
Allowable kinetic energy (J)	Standard	0.022	0.038	0.055	0.09	0.15	0.26	0.46	0.77	1.36	2.27
	With rubber bumper	0.043	0.075	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54
Stroke length tolerance	+1.0 mm (Note) 0										

Note) Stroke length tolerance does not include the amount of bumper change.

### Air-hydro type

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting, Double rod							
Fluid	Turbine oil (Note)							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.18 MPa				0.1 MPa			
Ambient and fluid temperature	5 to 60°C							
Piston speed	5 to 50 mm/s							
Cushion	None							
Stroke length tolerance	+1.0 mm 0							

Note) Refer to page 7 for Actuator Precautions (5).

## Standard Strokes

### Pneumatic type (Non-lube) (mm)

Bore size	Standard stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30 35, 40, 45, 50, 75, 100
50, 63	10, 15, 20, 25, 30
80, 100	35, 40, 45, 50, 75, 100

### Air-hydro type (mm)

Bore size	Standard stroke
20, 25	5, 10, 15, 20, 25, 30 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30 35, 40, 45, 50, 75, 100
50, 63	10, 15, 20, 25, 30
80, 100	35, 40, 45, 50, 75, 100

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body. (5 mm intervals)		A spacer is installed in the standard stroke body. (1 mm intervals)		Exclusive body (-XB10)	
Part no.	Refer to "How to Order" for the standard model number. (P. 807)		Suffix "-X633" (P. 807) to the end of standard model number. (P. 971)		Suffix "-XB10" to the end of standard model number. (P. 807)	
Description	Strokes in 5 mm intervals are available by installing a spacer in the standard stroke cylinder.		Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.		Strokes in 1 mm intervals are available by using an exclusive body with the specified stroke.	
Stroke range	Bore size	Stroke range	Bore size	Stroke range	Bore size	Stroke range
	—	—	12, 16	6 to 29	12, 16	6 to 29
Example	32 to 100	55 to 95	20, 25	6 to 49	20, 25	6 to 49
			32, 40	6 to 99	32, 40	6 to 99
Part no.: CQ2WB50-65DZ CQ2WB50-75DZ with 10 mm width spacer inside The B dimension is 125.5 mm.		Part no.: CQ2WB50-72DZ-X633 CQ2WB50-75DZ with 3 mm width spacer inside The B dimension is 125.5 mm.		Part no.: CQ2WB50-65DZ-XB10 Makes 65 mm stroke tube. The B dimension is 115.5 mm.		

- Except air-hydro type
  - In the case of spacer type, intermediate strokes with bumper for  $\phi 40$  to  $\phi 100$ , "-X633" is not available.
  - In the case of exclusive body type with  $\phi 32$  to  $\phi 100$  (-XB10) with the stroke length exceeding 50 mm, reference values of the longitudinal dimension will be changed.
- Calculate length dimensions by deducting from those of 75 or 100 mm stroke models.

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.



## Type

Bore size (mm)		12	16	20	25	32	40	50	63	80	100	
Pneumatic	Mounting	●	●	●	●	●	●	●	●	●	●	
	Through-hole (Standard)	●	●	●	●	●	●	●	●	●	●	
	Both ends tapped	●	●	●	●	●	●	●	●	●	●	
Pneumatic	Built-in magnet	●	●	●	●	●	●	●	●	●	●	
	Piping	—	M5 x 0.8	M5 x 0.8	M5 x 0.8	M5 x 0.8	Note 1) M5 x 0.8 Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8	Rc3/8
		TF	—	—	—	—	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8	NPT3/8
	Piping	—	—	—	—	—	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
		Built-in One-touch fittings (Note 3)	—	—	—	—	ø6 (Note 2)	ø6	ø8	ø8	—	—
	Rod end male thread	●	●	●	●	●	●	●	●	●	●	
	With rubber bumper	●	●	●	●	●	●	●	●	●	●	
	Air-hydraulic	Mounting	—	—	●	●	●	●	●	●	●	●
		Through-hole (Standard)	—	—	●	●	●	●	●	●	●	●
		Both ends tapped	—	—	●	●	●	●	●	●	●	●
Air-hydraulic	Built-in magnet	—	—	●	●	●	●	●	●	●	●	
	Piping	—	—	M5 x 0.8	M5 x 0.8	Note 1) M5 x 0.8 Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8	Rc3/8	
		TF	—	—	—	—	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8	NPT3/8
Rod end male thread	—	—	●	●	●	●	●	●	●	●		

Note 1) ø32 without auto switch; M5 x 0.8 is used for 5 mm stroking dimension.

Thus, do not enter a symbol for the port thread type.

Note 2) The dimension of the ø32-5 mm stroke with built-in One-touch fittings is the same as that of the 10 mm stroke cylinder tube.

Note 3) One-touch fittings cannot be replaced.

## Retaining Ring Installation/Removal

### ⚠ Caution

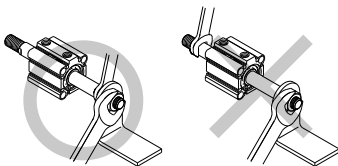
- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

## Mounting

### ⚠ Warning

Do not apply reverse torque to the piston rods sticking out from both sides of this cylinder at the same time. The torque makes connection threads inside loosen, which may cause an accident or malfunction.

Install or remove loads while the piston rod width across flat is secured. Do not fix the other side of the piston rod width across flat and apply reverse torque.



## Mounting Brackets/Part No.

Bore size (mm)	Model	Foot (Note 4)	Compact foot (Note 4)	Flange
12	Without switch	CQ2□□-□□	CQ-L012	CQ-LC012
	With switch	CQ2□□-□□Z	CQ-LZ12	CQ-LCZ12
16	Without switch	CQ2□□-□□	CQ-L016	CQ-LC016
	With switch	CQ2□□-□□Z	CQ-LZ16	CQ-LCZ16
20	Without switch	CQ2□□-□□	CQ-L020	CQ-LC020
	With switch	CQ2□□-□□Z	CQ-LZ20	CQ-LCZ20
25	Without switch	CQ2□□-□□	CQ-L025	CQ-LC025
	With switch	CQ2□□-□□Z	CQ-LZ25	CQ-LCZ25
32	CQ2□□-□□Z	CQ-L032	CQ-LC032	CQ-F032
40	CQ2□□-□□Z	CQ-L040	CQ-LC040	CQ-F040
50	CQ2□□-□□Z	CQ-L050	CQ-LC050	CQ-F050
63	CQ2□□-□□Z	CQ-L063	CQ-LC063	CQ-F063
80	CQ2□□-□□Z	CQ-L080	CQ-LC080	CQ-F080
100	CQ2□□-□□Z	CQ-L100	CQ-LC100	CQ-F100

Note 4) When ordering foot and compact foot brackets, the required quantity will be different depending on the bore size.

ø12 to ø25:

• Without switch: Order 2 pieces per cylinder.

• With switch: Order 1 piece per cylinder. (Part number for a set of 2 foot brackets)

ø32 to ø100:

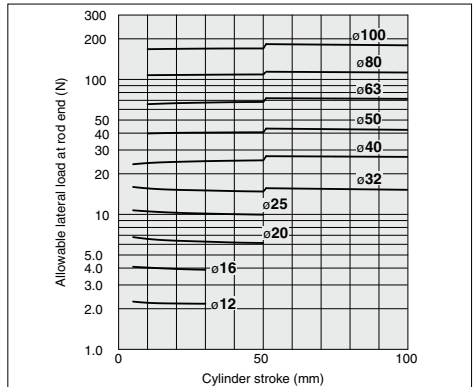
• Order 2 pieces per cylinder.

Note 5) Parts belonging to each bracket are as follows.

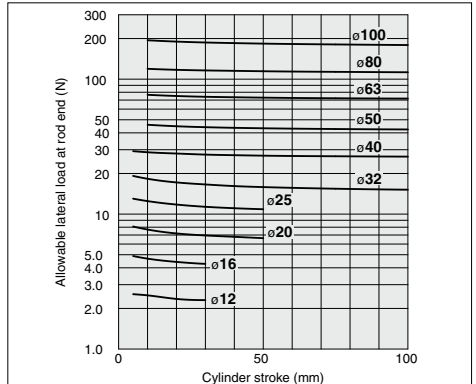
Foot, Compact foot, Flange: Body mounting bolts

## Allowable Lateral Load at Rod End

### Without Auto Switch



### With Auto Switch



CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Series CQ2W

## Theoretical Output

Bore size (mm)	Operating pressure (MPa)		
	0.3	0.5	0.7
12	25	42	59
16	45	75	106
20	71	118	165
25	113	189	264
32	181	302	422
40	317	528	739
50	495	825	1150
63	841	1400	1960
80	1360	2270	3170
100	2140	3570	5000

## Weight

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	42	49	56	63	70	77	—	—	—	—	—	—
16	59	68	77	86	95	104	—	—	—	—	—	—
20	89	104	119	134	149	164	179	194	209	224	—	—
25	119	136	153	170	187	204	221	238	255	272	—	—
32	185	212	235	257	280	303	326	349	372	395	555	670
40	279	308	337	367	396	426	455	484	514	543	749	896
50	—	497	538	580	622	664	705	747	789	830	1122	1331
63	—	646	682	718	754	790	826	862	899	935	1187	1368
80	—	1149	1225	1302	1378	1455	1531	1608	1684	1760	2296	2678
100	—	1960	2068	2177	2286	2394	2503	2612	2720	2829	3589	4132

## Additional Weight

Bore size (mm)	12	16	20	25	32	40	50	63	80	100	
Both ends tapped	2	2	6	6	6	6	6	19	45	45	
Rod end male thread	Male thread	3	6	12	24	52	54	106	106	240	350
Nut	—	2	4	8	16	34	34	64	64	98	232
With rubber bumper	0	0	-2	-2	-3	-7	-12	-20	-34	-57	
Built-in One-touch fittings	—	—	—	—	12	12	21	21	—	—	
Foot (Including mounting bolts)	57	71	170	195	158	170	267	342	722	1107	
Compact foot (Including mounting bolts)	41	51	121	140	99	114	177	241	501	770	
Flange (Including mounting bolts)	57	69	139	161	180	214	373	559	1056	1365	

Calculation: (Example) CQ2WF32-20DCMZ

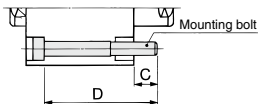
- Basic weight: CQ2WB32-20DZ ..... 257 g
- Additional weight: Both ends tapped ..... 6 g
- Rod end male thread ..... 86 g
- With rubber bumper ..... -3 g
- Flange ..... 180 g

526 g

## Mounting Bolt for CQ2WB/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQ2WB is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Example) CQ-M3 x 35L 4 pcs.



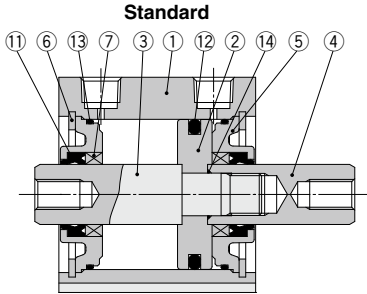
Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated

Cylinder model	C	D	Mounting bolt part no.
CQ2WB12-5D	8.3	35	CQ-M3 x 35L
-10D		40	x 40L
-15D		45	x 45L
-20D		50	x 50L
-25D		55	x 55L
-30D	60	x 60L	
CQ2WB16-5D	7.5	35	CQ-M3 x 35L
-10D		40	x 40L
-15D		45	x 45L
-20D		50	x 50L
-25D		55	x 55L
-30D	60	x 60L	
CQ2WB20-5D	6	30	CQ-M5 x 30L
-10D		35	x 35L
-15D		40	x 40L
-20D		45	x 45L
-25D		50	x 50L
-30D	55	x 55L	
-35D	60	x 60L	
-40D	65	x 65L	
-45D	70	x 70L	
-50D	75	x 75L	
CQ2WB25-5D	8	35	CQ-M5 x 35L
-10D		40	x 40L
-15D		45	x 45L
-20D		50	x 50L
-25D		55	x 55L
-30D	60	x 60L	
-35D	65	x 65L	
-40D	70	x 70L	
-45D	75	x 75L	
-50D	80	x 80L	

Cylinder model	C	D	Mounting bolt part no.
CQ2WB32-5DZ	6.5	35	CQ-M5 x 35L
-10DZ		40	x 40L
-15DZ		45	x 45L
-20DZ		50	x 50L
-25DZ		55	x 55L
-30DZ	60	x 60L	
-35DZ	65	x 65L	
-40DZ	70	x 70L	
-45DZ	75	x 75L	
-50DZ	80	x 80L	
-75DZ	115	x 115L	
-100DZ	140	x 140L	
CQ2WB40-5DZ	7	45	CQ-M5 x 45L
-10DZ		50	x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ	70	x 70L	
-35DZ	75	x 75L	
-40DZ	80	x 80L	
-45DZ	85	x 85L	
-50DZ	90	x 90L	
-75DZ	125	x 125L	
-100DZ	150	x 150L	
CQ2WB50-10DZ	12.5	55	CQ-M6 x 55L
-15DZ		60	x 60L
-20DZ		65	x 65L
-25DZ		70	x 70L
-30DZ		75	x 75L
-35DZ	80	x 80L	
-40DZ	85	x 85L	
-45DZ	90	x 90L	
-50DZ	95	x 95L	
-75DZ	130	x 130L	
-100DZ	155	x 155L	

Cylinder model	C	D	Mounting bolt part no.
CQ2WB63-10DZ	13.5	55	CQ-M8 x 55L
-15DZ		60	x 60L
-20DZ		65	x 65L
-25DZ		70	x 70L
-30DZ		75	x 75L
-35DZ	80	x 80L	
-40DZ	85	x 85L	
-45DZ	90	x 90L	
-50DZ	95	x 95L	
-75DZ	130	x 130L	
-100DZ	155	x 155L	
CQ2WB80-10DZ	12.5	60	CQ-M10 x 60L
-15DZ		65	x 65L
-20DZ		70	x 70L
-25DZ		75	x 75L
-30DZ		80	x 80L
-35DZ	85	x 85L	
-40DZ	90	x 90L	
-45DZ	95	x 95L	
-50DZ	100	x 100L	
-75DZ	135	x 135L	
-100DZ	160	x 160L	
CQ2WB100-10DZ	13	70	CQ-M10 x 70L
-15DZ		75	x 75L
-20DZ		80	x 80L
-25DZ		85	x 85L
-30DZ		90	x 90L
-35DZ	95	x 95L	
-40DZ	100	x 100L	
-45DZ	105	x 105L	
-50DZ	110	x 110L	
-75DZ	145	x 145L	
-100DZ	170	x 170L	

## Construction



### Component Parts

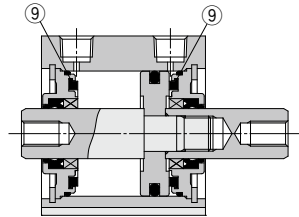
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod A	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Piston rod B	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
5	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø100, Chromated, Painted
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bushing	Bearing alloy	For ø50 or more only
8	Rod end nut	Carbon steel	Zinc chromated
9	Bumper	Urethane	
10	One-touch fitting	—	ø32 to ø63
11*	Rod seal	NBR	
12*	Piston seal	NBR	
13*	Tube gasket	NBR	
14	Piston gasket	NBR	

### Replacement Parts/Seal Kit (Pneumatic type)

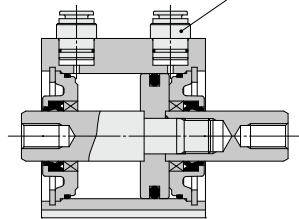
Bore size (mm)	Kit no.	Contents
12	CQ2WB12-PS	Kits include items ⑪, ⑫, ⑬ from the table.
16	CQ2WB16-PS	
20	CQ2WB20-PS	
25	CQ2WB25-PS	
32	CQ2WB32-PS	
40	CQ2WB40-PS	
50	CQ2WB50-PS	
63	CQ2WB63-PS	
80	CQ2WB80-PS	
100	CQ2WB100-PS	

\* Seal kit includes ⑪, ⑫, ⑬. Order the seal kit, based on each bore size.  
\* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.:** GR-S-010 (10 g)

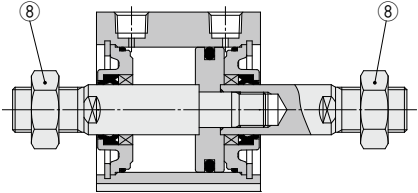
### With rubber bumper



### Built-in One-touch fittings ⑩



### Rod end male thread



### Replacement Parts/Seal Kit (Air-hydro type)

Bore size (mm)	Kit no.	Contents
20	CQ2WBH20-PS	Kits include items ⑪, ⑫, ⑬ from the table.
25	CQ2WBH25-PS	
32	CQ2WBH32-PS	
40	CQ2WBH40-PS	
50	CQ2WBH50-PS	
63	CQ2WBH63-PS	
80	CQ2WBH80-PS	
100	CQ2WBH100-PS	

\* Seal kit includes ⑪, ⑫, ⑬. Order the seal kit, based on each bore size.  
\* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.:** GR-S-010 (10 g)

CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Standard: Double Acting, Double Rod

## Series CDQ2W

### With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.954 to 960
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

## Weight

### Weight

(g)

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	50	58	65	73	80	87	—	—	—	—	—	—
16	77	87	96	106	115	125	—	—	—	—	—	—
20	120	136	151	166	182	197	212	228	243	258	—	—
25	170	185	201	216	232	247	263	279	294	310	—	—
32	238	260	283	306	329	352	375	398	421	444	558	673
40	353	383	412	442	471	500	530	559	589	618	765	912
50	—	609	645	681	716	752	788	823	859	895	1073	1252
63	—	798	840	882	924	966	1008	1051	1093	1135	1346	1556
80	—	1393	1469	1546	1622	1699	1775	1851	1928	2004	2387	2769
100	—	2334	2443	2551	2660	2769	2877	2986	3094	3203	3746	4289

### Additional Weight

(g)

Bore size (mm)	12	16	20	25	32	40	50	63	80	100	
Both ends tapped	1	1	3	3	6	6	6	19	45	45	
Rod end male thread	Male thread	3	6	12	24	52	54	106	106	240	350
	Nut	2	4	8	16	34	34	64	64	98	232
With rubber bumper	0	0	-2	-2	-3	-7	-12	-19	-34	-54	
Built-in One-touch fittings	—	—	—	—	12	12	21	21	—	—	
Foot (Including mounting bolts)	52	65	153	177	158	170	267	342	722	1107	
Compact foot (Including mounting bolts)	32	40	97	116	99	114	177	241	501	770	
Flange (Including mounting bolts)	54	67	131	153	180	214	373	559	1056	1365	

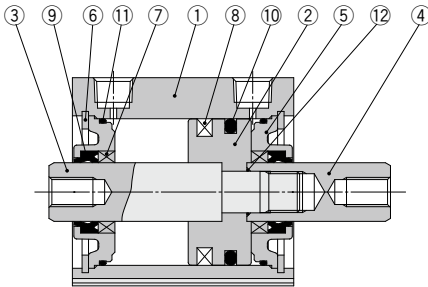
Calculation: (Example) **CDQ2WF32-20DCMZ**

- Basic weight: CDQ2WB32-20DZ ..... 306 g
- Additional weight: Both ends tapped ..... 6 g
- Rod end male thread ..... 86 g
- With rubber bumper ..... -3 g
- Rod flange ..... 180 g

Add each weight of auto switches when auto switches are mounted.

575 g

## Construction



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod A	Stainless steel	—
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Piston rod B	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
5	Collar	Aluminum alloy	ø12 to ø40, Anodized
6	Retaining ring	Aluminum alloy casted	ø50 to ø100, Chromated, Painted
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bushing	Bearing alloy	For ø50 or more only
8	Magnet	—	—
9 <sup>*)</sup>	Rod seal	NBR	—
10 <sup>*)</sup>	Piston seal	NBR	—
11 <sup>*)</sup>	Tube gasket	NBR	—
12	Piston gasket	NBR	—

### Replacement Parts/Seal Kit (Pneumatic type)

Bore size (mm)	Kit no.	Contents
12	CQ2WB12-PS	Kits include items ⑨, ⑩, ⑪ from the table.
16	CQ2WB16-PS	
20	CQ2WB20-PS	
25	CQ2WB25-PS	
32	CQ2WB32-PS	
40	CQ2WB40-PS	
50	CQ2WB50-PS	
63	CQ2WB63-PS	
80	CQ2WB80-PS	
100	CQ2WB100-PS	

- \* Seal kit includes ⑨, ⑩, ⑪. Order the seal kit, based on each bore size.
- \* Since the seal kit does not include a grease pack, order it separately.
- \* Grease pack part no.: GR-S-010 (10 g)

### Replacement Parts/Seal Kit (Air-hydro type)

Bore size (mm)	Kit no.	Contents
20	CQ2WBH20-PS	Kits include items ⑨, ⑩, ⑪ from the table.
25	CQ2WBH25-PS	
32	CQ2WBH32-PS	
40	CQ2WBH40-PS	
50	CQ2WBH50-PS	
63	CQ2WBH63-PS	
80	CQ2WBH80-PS	
100	CQ2WBH100-PS	

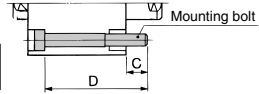
- \* Seal kit includes ⑨, ⑩, ⑪. Order the seal kit, based on each bore size.
- \* Since the seal kit does not include a grease pack, order it separately.
- \* Grease pack part no.: GR-S-010 (10 g)

### Mounting Bolt for CDQ2WB/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQ2WB is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 40L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2WB12-5DCZ</b>		40	CQ-M3 x 40L
-10DCZ	6.1	45	x 45L
-15DCZ		50	x 50L
-20DCZ		55	x 55L
-25DCZ		60	x 60L
-30DCZ		65	x 65L
<b>CDQ2WB16-5DZ</b>		45	CQ-M3 x 45L
-10DZ	7.5	50	x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ		70	x 70L
<b>CDQ2WB20-5DZ</b>		45	CQ-M5 x 45L
-10DZ	9	50	x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ		70	x 70L
-35DZ	75	x 75L	
-40DZ	80	x 80L	
-45DZ	85	x 85L	
-50DZ	90	x 90L	
<b>CDQ2WB25-5DZ</b>		45	CQ-M5 x 45L
-10DZ	8	50	x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ		70	x 70L
-35DZ	75	x 75L	
-40DZ	80	x 80L	
-45DZ	85	x 85L	
-50DZ	90	x 90L	

Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2WB32-5DZ</b>		45	CQ-M5 x 45L
-10DZ	6.5	50	x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ		70	x 70L
-35DZ	75	x 75L	
-40DZ	80	x 80L	
-45DZ	85	x 85L	
-50DZ	90	x 90L	
-75DZ	115	x 115L	
-100DZ	140	x 140L	
<b>CDQ2WB40-5DZ</b>		55	CQ-M5 x 55L
-10DZ	7	60	x 60L
-15DZ		65	x 65L
-20DZ		70	x 70L
-25DZ		75	x 75L
-30DZ		80	x 80L
-35DZ	85	x 85L	
-40DZ	90	x 90L	
-45DZ	95	x 95L	
-50DZ	100	x 100L	
-75DZ	125	x 125L	
-100DZ	150	x 150L	
<b>CDQ2WB50-10DZ</b>		65	CQ-M6 x 65L
-15DZ	12.5	70	x 70L
-20DZ		75	x 75L
-25DZ		80	x 80L
-30DZ		85	x 85L
-35DZ		90	x 90L
-40DZ	95	x 95L	
-45DZ	100	x 100L	
-50DZ	105	x 105L	
-75DZ	130	x 130L	
-100DZ	155	x 155L	

Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2WB63-10DZ</b>		65	CQ-M8 x 65L
-15DZ	13.5	70	x 70L
-20DZ		75	x 75L
-25DZ		80	x 80L
-30DZ		85	x 85L
-35DZ		90	x 90L
-40DZ	95	x 95L	
-45DZ	100	x 100L	
-50DZ	105	x 105L	
-75DZ	130	x 130L	
-100DZ	155	x 155L	
<b>CDQ2WB80-10DZ</b>		70	CQ-M10 x 70L
-15DZ	12.5	75	x 75L
-20DZ		80	x 80L
-25DZ		85	x 85L
-30DZ		90	x 90L
-35DZ		95	x 95L
-40DZ	100	x 100L	
-45DZ	105	x 105L	
-50DZ	110	x 110L	
-75DZ	135	x 135L	
-100DZ	160	x 160L	
<b>CDQ2WB100-10DZ</b>		80	CQ-M10 x 80L
-15DZ	13	85	x 85L
-20DZ		90	x 90L
-25DZ		95	x 95L
-30DZ		100	x 100L
-35DZ		105	x 105L
-40DZ	110	x 110L	
-45DZ	115	x 115L	
-50DZ	120	x 120L	
-75DZ	145	x 145L	
-100DZ	170	x 170L	

**CUJ**

**CU**

**CQS**

**CQZ-Z**

**RQ**

**QCM**

**CQU**

**MU-Z**

**D-□**

**-X□**

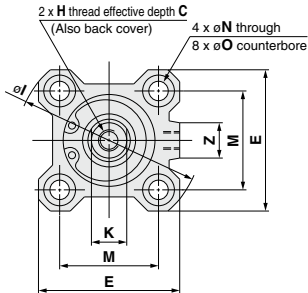
Technical data

# Series CQ2W

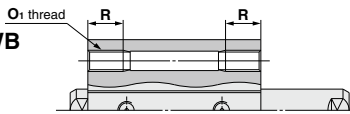
## Dimensions

### Ø12 to Ø25/Without Auto Switch

#### Standard (Through-hole): CQ2WB

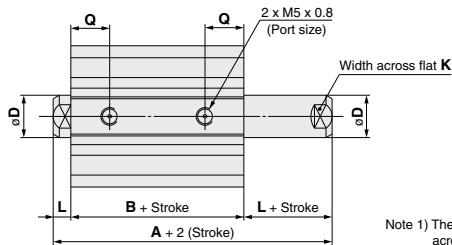


#### Both ends tapped: CQ2WA



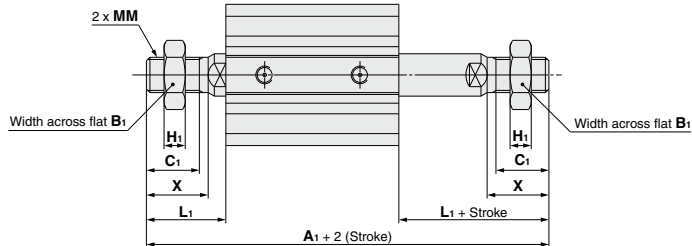
#### Both Ends Tapped

Bore size (mm)	$O_1$	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10



Note 1) The positions of left and right width across flats are not constant.

#### Rod end male thread



#### Rod End Male Thread

Bore size (mm)	$A_1$	$B_1$	$C_1$	$H_1$	$L_1$	MM	X
12	53.2	8	9	4	14	M5 x 0.8	10.5
16	57	10	10	5	15.5	M6 x 1.0	12
20	63	13	12	5	18.5	M8 x 1.25	14
25	74	17	15	6	22.5	M10 x 1.25	17.5

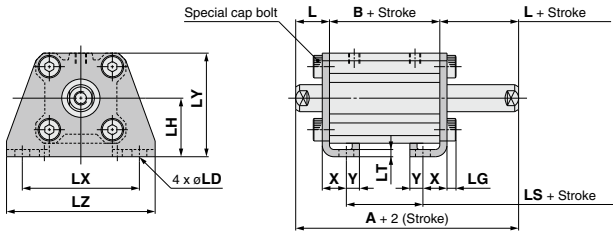
#### Standard

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	H	I	K	L	M	N	O	Q	Z
12	5 to 30	32.2	25.2	6	6	25	M3 x 0.5	32	5	3.5	15.5	3.5	6.5 depth 3.5	10	—
16	5 to 30	33	26	8	8	29	M4 x 0.7	38	6	3.5	20	3.5	6.5 depth 3.5	10	10
20	5 to 50	35	26	7	10	36	M5 x 0.8	47	8	4.5	25.5	5.5	9 depth 7	8	10
25	5 to 50	39	29	12	12	40	M6 x 1.0	52	10	5	28	5.5	9 depth 7	9	10

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

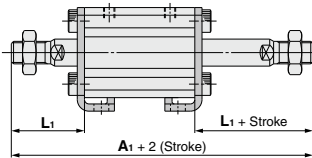
\* For details about the rod end nut and accessory brackets, refer to page 804.

Foot: CQ2WL



(Note) The positions of left and right width across flats are not constant.

Rod end male thread



Rod End Male Thread (mm)

Bore size (mm)	A1	L1
12	73.2	24
16	77	25.5
20	83	28.5
25	94	32.5

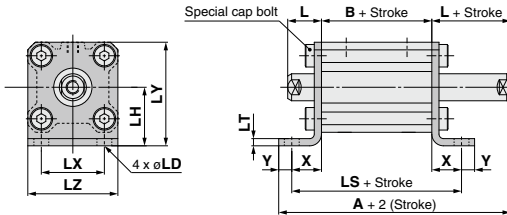
Foot

(mm)

Bore size (mm)	Stroke range (mm)	A	B	L	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	52.2	25.2	13.5	4.5	2.8	17	13.2	2	34	29.5	44	8	4.5
16	5 to 30	53	26	13.5	4.5	2.8	19	14	2	38	33.5	48	8	5
20	5 to 50	55	26	14.5	6.6	4	24	14	3.2	48	42	62	9.2	5.8
25	5 to 50	59	29	15	6.6	4	26	14	3.2	52	46	66	10.7	5.8

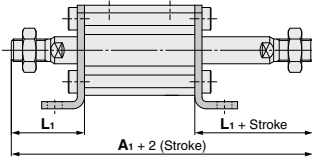
Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

Compact foot: CQ2WLC



(Note) The positions of left and right width across flats are not constant.

Rod end male thread



Rod End Male Thread (mm)

Bore size (mm)	A1	L1
12	73.2	24
16	77	25.5
20	83	28.5
25	94	32.5

Compact Foot

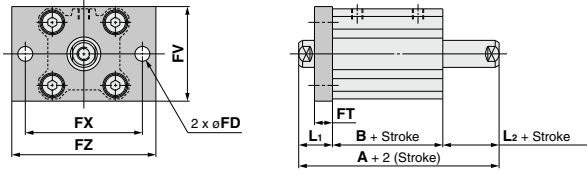
(mm)

Bore size (mm)	Stroke range (mm)	A	B	L	LD	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	52.5	25.2	13.5	4.5	17	43.8	2	15.5	29.5	25	9.3	4.5
16	5 to 30	53.8	26	13.5	4.5	19	44.6	2	20	33.5	29	9.3	5
20	5 to 50	59.5	26	14.5	6.6	24	52.4	3.2	25.5	42	36	13.2	5.8
25	5 to 50	63	29	15	6.6	26	55.4	3.2	28	46	40	13.2	5.8

\* For details about the rod end nut and accessory brackets, refer to page 804.

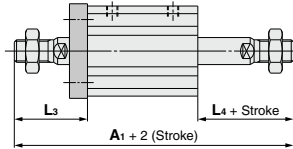
Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

Flange: CQ2WF



Note) The positions of left and right width across flats are not constant.

Rod end male thread



Rod End Male Thread (mm)

Bore size (mm)	A1	L3	L4
12	63.2	24	14
16	67	25.5	15.5
20	73	28.5	18.5
25	84	32.5	22.5

Flange (mm)

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L1	L2
12	5 to 30	42.2	25.2	4.5	5.5	25	45	55	13.5	3.5
16	5 to 30	43	26	4.5	5.5	30	45	55	13.5	3.5
20	5 to 50	45	26	6.6	8	39	48	60	14.5	4.5
25	5 to 50	49	29	6.6	8	42	52	64	15	5

\* For details about the rod end nut and accessory brackets, refer to page 804.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data



# Series CQ2W

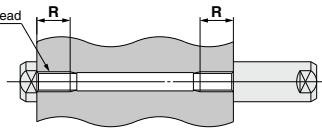
## Dimensions

### Ø12 to Ø25/With Auto Switch

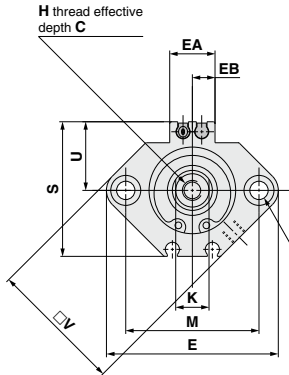
#### Both Ends Tapped

Bore size (mm)	O <sub>1</sub>	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10

#### Both ends tapped: CDQ2WA

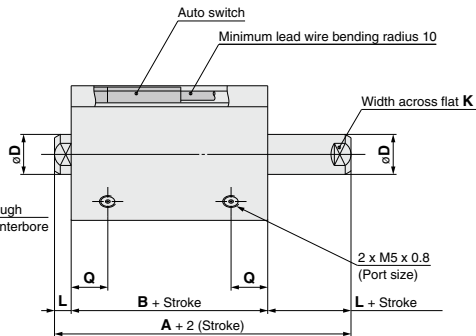


#### Standard (Through-hole): CDQ2WB

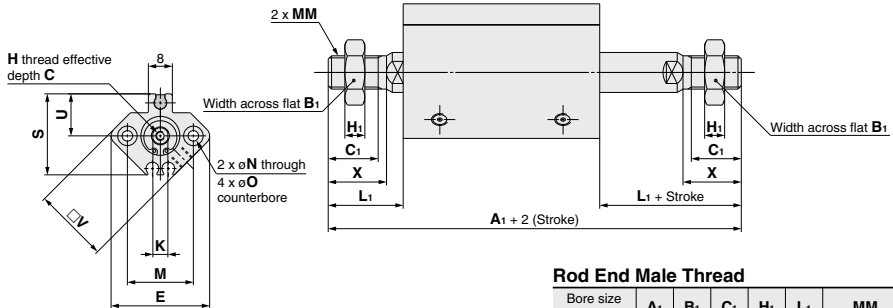


Ø16 to Ø25

Note 1) The positions of left and right width across flats are not constant.



#### Rod end male thread



Ø12

#### Rod End Male Thread

Bore size (mm)	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
12	60.4	8	9	4	14	M5 x 0.8	10.5
16	67	10	10	5	15.5	M6 x 1.0	12
20	75	13	12	5	18.5	M8 x 1.25	14
25	84	17	15	6	22.5	M10 x 1.25	17.5

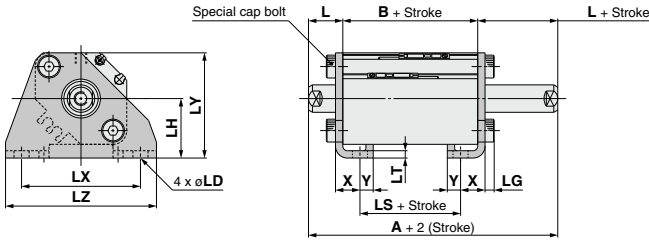
#### Standard For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	EA	EB	H	K	L	M	N	O	Q	S	U	V
12	5 to 30	39.4	32.4	6	6	33	—	—	M3 x 0.5	5	3.5	22	3.5	6.5 depth 3.5	10.5	27.5	14	25
16	5 to 30	43	36	8	8	37	13.2	6.6	M4 x 0.7	6	3.5	28	3.5	6.5 depth 3.5	10	29.5	15	29
20	5 to 50	47	38	7	10	47	13.6	6.8	M5 x 0.8	8	4.5	36	5.5	9 depth 7	8	35.5	18	36
25	5 to 50	49	39	12	12	52	13.6	6.8	M6 x 1.0	10	5	40	5.5	9 depth 7	9	40.5	21	40

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

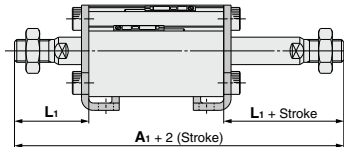
\* For details about the rod end nut and accessory brackets, refer to page 804.

**Foot: CDQ2WL**



Note) The positions of left and right width across flats are not constant.

**Rod end male thread**



**Rod End Male Thread**

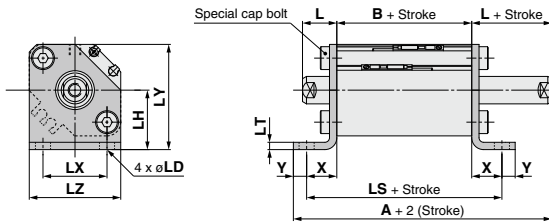
Bore size (mm)	A <sub>1</sub>	L <sub>1</sub>
12	80.4	24
16	87	25.5
20	95	28.5
25	104	32.5

**Foot**

Bore size (mm)	Stroke range (mm)	A	B	L	LD	LH	LS	LT	LX	LY	LZ	X	Y	
12	5 to 30	59.4	32.4	13.5	4.5	2.8	17	20.4	2	34	29.5	44	8	4.5
16	5 to 30	63	36	13.5	4.5	2.8	19	24	2	38	33.5	48	8	5
20	5 to 50	67	38	14.5	6.6	4	24	26	3.2	48	42	62	9.2	5.8
25	5 to 50	69	39	15	6.6	4	26	24	3.2	52	46	66	10.7	5.8

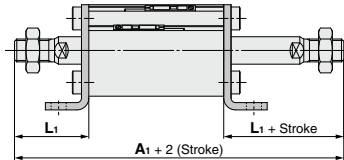
Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact foot: CDQ2WLC**



Note) The positions of left and right width across flats are not constant.

**Rod end male thread**



**Rod End Male Thread**

Bore size (mm)	A <sub>1</sub>	L <sub>1</sub>
12	80.4	24
16	87	25.5
20	95	28.5
25	104	32.5

**Compact Foot**

Bore size (mm)	Stroke range (mm)	A	B	L	LD	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	59.7	32.4	13.5	4.5	17	51	2	15.5	29.5	25	9.3	4.5
16	5 to 30	63.8	36	13.5	4.5	19	54.6	2	20	33.5	29	9.3	5
20	5 to 50	71.5	38	14.5	6.6	24	64.4	3.2	25.5	42	36	13.2	5.8
25	5 to 50	73	39	15	6.6	26	65.4	3.2	28	46	40	13.2	5.8

\* For details about the rod end nut and accessory brackets, refer to page 804.

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

CJ

CU

CQS

CQZ

RQ

CQM

CQU

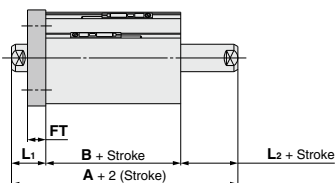
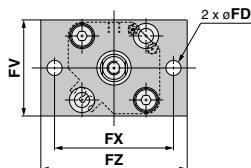
MU-Z

D-□

-X□

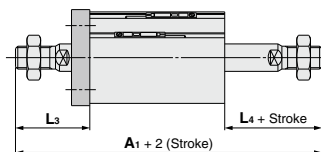
Technical data

Flange: CDQ2WF



Note) The positions of left and right width across flats are not constant.

Rod end male thread



Rod End Male Thread

Bore size (mm)	A <sub>1</sub>	L <sub>3</sub>	L <sub>4</sub>
12	70.4	24	14
16	77	25.5	15.5
20	85	28.5	18.5
25	94	32.5	22.5

Flange

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L <sub>1</sub>	L <sub>2</sub>
12	5 to 30	49.4	32.4	4.5	5.5	25	45	55	13.5	3.5
16	5 to 30	53	36	4.5	5.5	30	45	55	13.5	3.5
20	5 to 50	57	38	6.6	8	39	48	60	14.5	4.5
25	5 to 50	59	39	6.6	8	42	52	64	15	5

\* For details about the rod end nut and accessory brackets, refer to page 804.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

CUJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Series CQ2W

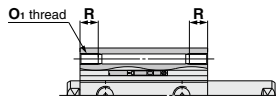
## Dimensions

### Ø32 to Ø50/With Auto Switch

(In the case of without auto switches, the A, B and P dimensions will be only changed. Refer to the dimension table.)

#### Standard (Through-hole): CQ2WB/CDQ2WB

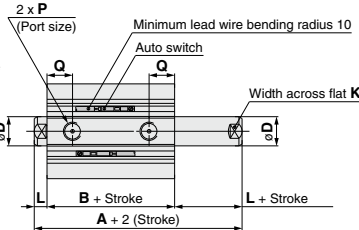
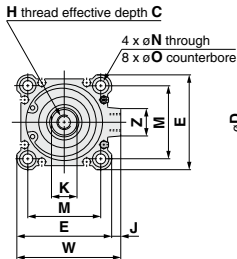
##### Both ends tapped: CQ2WA/CDQ2WA



##### Both Ends

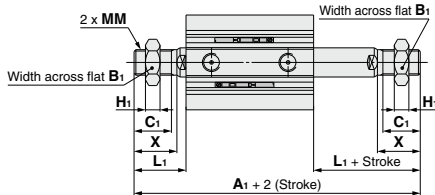
##### Tapped

Bore size (mm)	O1	R
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14



Note 1) The positions of left and right width across flats are not constant.

##### Rod end male thread

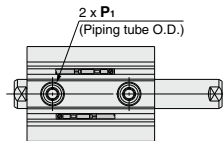
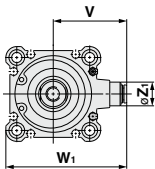


##### Rod End Male Thread

Bore size (mm)	Stroke range (mm)	(mm)	
		Without auto switch	With auto switch
32	5	A <sub>1</sub>	A <sub>1</sub>
	10 to 50		
	75, 100	87.5	97.5
40	5 to 50	97	107
	75, 100	107	
50	10 to 50	107.5	117.5
	75, 100	117.5	

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5

#### Built-in One-touch fittings: Ø32 to Ø50



##### Built-in One-touch Fittings

Bore size (mm)	Without auto switch		With auto switch		Z <sub>1</sub>	P <sub>1</sub>
	V	W <sub>1</sub>	V	W <sub>1</sub>		
32	38	60.5	36.5	59	13	6
40	42	68	40.5	66.5	13	6
50	50	82	50	82	16	8

#### Standard

For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch		
		A	B	P	A	B	P
32	5	44.5	30.5	M5	54.5	40.5	1/8
	10 to 50						
	75, 100	54.5	40.5	1/8			
40	5 to 50	54	40	1/8	64	50	1/8
	75, 100	64	50				
50	10 to 50	56.5	40.5	1/4	66.5	50.5	1/4
	75, 100	66.5	50.5				

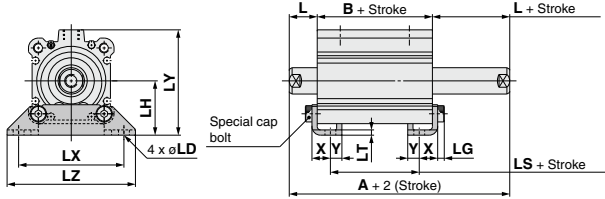
Bore size (mm)	C	D	E	H	J	K	L	M	N	O	Q	W	Z
32	13	16	45	M8 x 1.25	4.5	14	7	34	5.5	9 depth 7	10	49.5	14
40	13	16	52	M8 x 1.25	5	14	7	40	5.5	9 depth 7	12.5	57	15
50	15	20	64	M10 x 1.5	7	17	8	50	6.6	11 depth 8	14	71	19

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

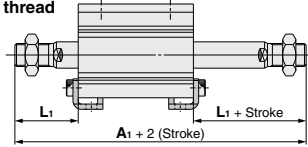
\* For details about the rod end nut and accessory brackets, refer to page 804.

# Compact Cylinder: Standard Double Acting, Double Rod **Series CQ2W**

## Foot: CQ2WL/CDQ2WL



### Rod end male thread



Note) The positions of left and right width across flats are not constant.

### Rod End Male Thread (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		L <sub>1</sub>
		A <sub>1</sub>	A <sub>1</sub>	
32	5 to 50	107.5		38.5
	75, 100	117.5	117.5	
40	5 to 50	117		38.5
	75, 100	127	127	
50	10 to 50	127.5		43.5
	75, 100	137.5	137.5	

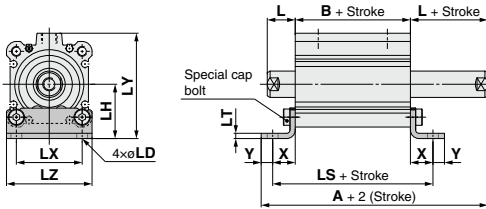
## Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch		
		A	B	LS	A	B	LS
32	5 to 50	64.5	30.5	14.5	74.5	40.5	24.5
	75, 100	74.5	40.5	24.5			
40	5 to 50	74	40	24	84	50	34
	75, 100	84	50	34			
50	10 to 50	76.5	40.5	17.5	86.5	50.5	27.5
	75, 100	86.5	50.5	27.5			

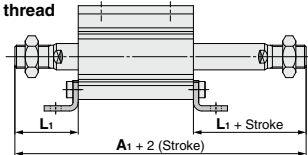
Bore size (mm)	L	LD	LG	LH	LT	LX	LY	LZ	X	Y
32	17	6.6	4	30	3.2	57	57	71	11.2	5.8
40	17	6.6	4	33	3.2	64	64	78	11.2	7
50	18	9	5	39	3.2	79	78	95	14.7	8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

## Compact foot: CQ2WLC/CDQ2WLC



### Rod end male thread



Note) The positions of left and right width across flats are not constant.

### Rod End Male Thread (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		L <sub>1</sub>
		A <sub>1</sub>	A <sub>1</sub>	
32	5 to 50	107.5		38.5
	75, 100	117.5	117.5	
40	5 to 50	117		38.5
	75, 100	127	127	
50	10 to 50	127.5		43.5
	75, 100	137.5	137.5	

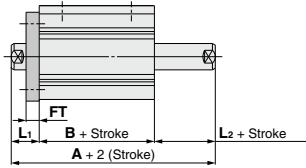
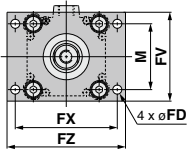
## Compact Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch												
		A	B	LS	A	B	LS	L	LD	LH	LT	LX	LY	LZ	X	Y	
32	5 to 50	67	30.5	57.9	77	40.5	67.9	17	6.6	30	3.2	34	57	45	13.7	5.8	
	75, 100	77	40.5	67.9													
40	5 to 50	77.7	40	67.4	87.7	50	77.4	17	6.6	33	3.2	40	64	52	13.7	7	
	75, 100	87.7	50	77.4													
50	10 to 50	83.2	40.5	73.9	93.2	50.5	83.9	18	9	39	3.2	50	78	64	16.7	8	
	75, 100	93.2	50.5	83.9													

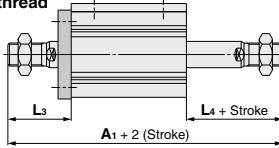
Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

Flange: CQ2WF/CDQ2WF

Note) The positions of left and right width across flats are not constant.



Rod end male thread



Rod End Male Thread

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L <sub>3</sub>	L <sub>4</sub>
		A <sub>1</sub>	A <sub>1</sub>		
32	5 to 50	97.5	107.5	38.5	28.5
	75, 100	107.5			
40	5 to 50	107	117	38.5	28.5
	75, 100	117			
50	10 to 50	117.5	127.5	43.5	33.5
	75, 100	127.5			

Flange

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ	L <sub>1</sub>	L <sub>2</sub>	M
		A	B	A	B								
32	5 to 50	54.5	30.5	64.5	40.5	5.5	8	48	56	65	17	7	34
	75, 100	64.5	40.5										
40	5 to 50	64	40	74	50	5.5	8	54	62	72	17	7	40
	75, 100	74	50										
50	10 to 50	66.5	40.5	76.5	50.5	6.6	9	67	76	89	18	8	50
	75, 100	76.5	50.5										

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

CUJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Series CQ2W

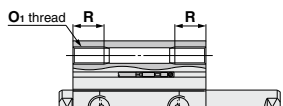
## Dimensions

### Ø63 to Ø100/With Auto Switch

(In the case of without auto switches, the A and B dimensions will be only changed. Refer to the dimension table.)

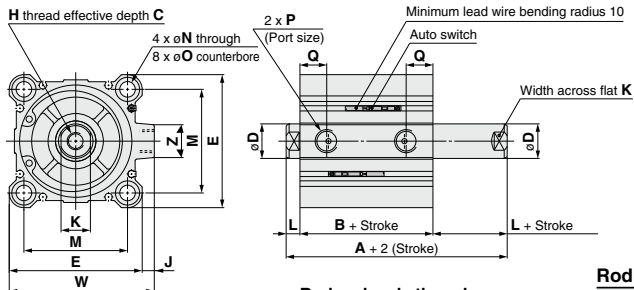
#### Both ends tapped: CQ2WA/CDQ2WA

#### Standard (Through-hole): CQ2WB/CDQ2WB



#### Both Ends

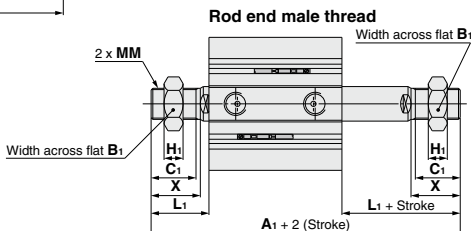
Tapped (mm)		
Bore size (mm)	O <sub>1</sub>	R
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22



Note 1) The positions of left and right width across flats are not constant.

#### Rod End Male Thread (mm)

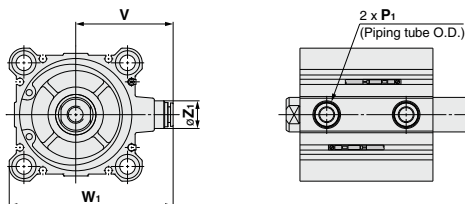
Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch
63	10 to 50	A <sub>1</sub>	A <sub>1</sub>
	75, 100		119
80	10 to 50		148
	75, 100		148
100	10 to 50		157.5
	75, 100		157.5



#### (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
63	27	26	11	33.5	M18 x 1.5	28.5
80	32	32.5	13	43.5	M22 x 1.5	35.5
100	41	32.5	16	43.5	M26 x 1.5	35.5

#### Built-in One-touch fittings



#### Built-in One-touch Fittings (mm)

Bore size (mm)	Z <sub>1</sub>	P <sub>1</sub>	V	W <sub>1</sub>
63	16	8	58.5	95

\* The dimension of the ø32.5 mm stroke with built-in One-touch fittings is the same as that of the 10 mm stroke cylinder tube.

For auto switch proper mounting position and its mounting height, refer to pages 954 to 960. (mm)

#### Standard

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch	
		A	B	A	B
63	10 to 50	58	42	68	52
	75, 100	68	52		
80	10 to 50	71	51	81	61
	75, 100	81	61		
100	10 to 50	84.5	60.5	94.5	70.5
	75, 100	94.5	70.5		

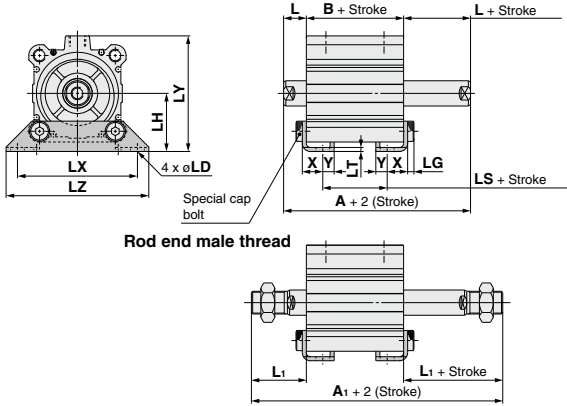
(mm)														
Bore size (mm)	C	D	E	H	J	K	L	M	N	O	P	Q	W	Z
63	15	20	77	M10 x 1.5	7	17	8	60	9	14 depth 10.5	1/4	15.5	84	19
80	21	25	98	M16 x 2.0	6	22	10	77	11	17.5 depth 13.5	3/8	18	104	25
100	27	30	117	M20 x 2.5	6.5	27	12	94	11	17.5 depth 13.5	3/8	22	123.5	25

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

\* For details about the rod end nut and accessory brackets, refer to page 804.

**Foot: CQ2WL/CDQ2WL**

(Note) The positions of left and right width across flats are not constant.



**Rod End Male Thread** (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L <sub>1</sub>
		A <sub>1</sub>	A <sub>1</sub>	
63	10 to 50	129	139	43.5
	75, 100	139	139	
80	10 to 50	158	168	53.5
	75, 100	168	168	
100	10 to 50	167.5	177.5	53.5
	75, 100	177.5	177.5	

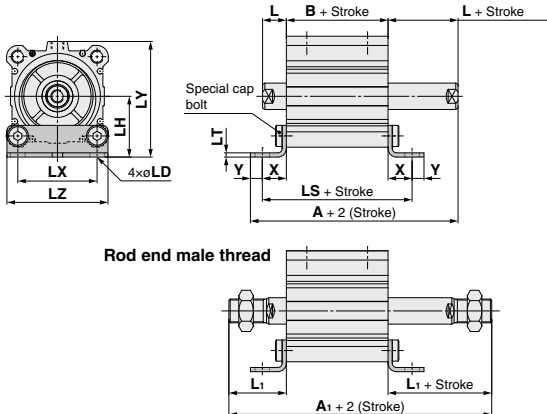
**Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	LD	LG	LH	LT	LX	LY	LZ	X	Y
		A	B	LS	A	B	LS										
63	10 to 50	78	42	16	88	52	26	18	11	5	46	3.2	95	91.5	113	16.2	9
	75, 100	88	52	26													
80	10 to 50	91	51	21	101	61	31	20	13	7	59	4.5	118	114	140	19.5	11
	75, 100	101	61	31													
100	10 to 50	104.5	60.5	26.5	114.5	70.5	36.5	22	13	7	71	6	137	136	162	23	12.5
	75, 100	114.5	70.5	36.5													

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact foot: CQ2WLC/CDQ2WLC**

(Note) The positions of left and right width across flats are not constant.



**Rod End Male Thread** (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L <sub>1</sub>
		A <sub>1</sub>	A <sub>1</sub>	
63	10 to 50	129	139	43.5
	75, 100	139	139	
80	10 to 50	158	168	53.5
	75, 100	168	168	
100	10 to 50	167.5	177.5	53.5
	75, 100	177.5	177.5	

**Compact Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	LD	LH	LT	LX	LY	LZ	X	Y
		A	B	LS	A	B	LS									
63	10 to 50	87.2	42	78.4	97.2	52	88.4	18	11	46	3.2	60	91.5	77	18.2	9
	75, 100	97.2	52	88.4												
80	10 to 50	104.5	51	96	114.5	61	106	20	13	59	4.5	77	114	98	22.5	11
	75, 100	114.5	61	106												
100	10 to 50	119	60.5	108.5	129	70.5	118.5	22	13	71	6	94	136	117	24	12.5
	75, 100	129	70.5	118.5												

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

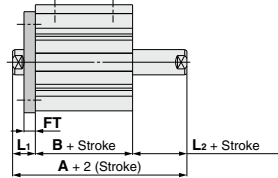
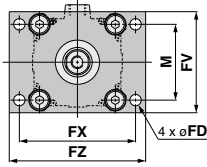
D-□

-X□

Technical data

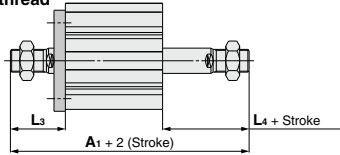


Flange: CQ2WF/CDQ2WF



Note) The positions of left and right width across flats are not constant.

Rod end male thread



Rod End Male Thread (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L <sub>3</sub>	L <sub>4</sub>
		A <sub>1</sub>	A <sub>1</sub>		
63	10 to 50	119	129	43.5	33.5
	75, 100	129	129		
80	10 to 50	148	158	53.5	43.5
	75, 100	158	158		
100	10 to 50	157.5	167.5	53.5	43.5
	75, 100	167.5	167.5		

Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ	L <sub>1</sub>	L <sub>2</sub>	M
		A	B	A	B								
63	10 to 50	68	42	78	52	9	9	80	92	108	18	8	60
	75, 100	78	52										
80	10 to 50	81	51	91	61	11	11	99	116	134	20	10	77
	75, 100	91	61										
100	10 to 50	94.5	60.5	104.5	70.5	11	11	117	136	154	22	12	94
	75, 100	104.5	70.5										

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Compact Cylinder: Standard Single Acting, Single Rod Series CQ2

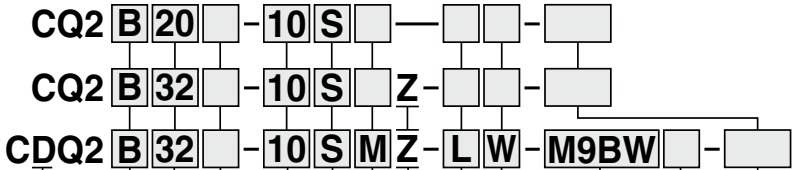
ø12, ø16, ø20, ø25, ø32, ø40, ø50

## How to Order

Without auto switch  
ø12 to ø25

Without auto switch  
ø32 to ø50

With auto switch



With auto switch  
(Built-in magnet)

### Mounting

<b>B</b>	Through-hole (Standard)	<b>F</b>	Rod flange
<b>A</b>	Both ends tapped	<b>G</b>	Head flange
<b>L</b>	Foot	<b>D</b>	Double clevis
<b>LC</b>	Compact foot		

- \* Mounting brackets are shipped together (but not assembled).
- \* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQ2" on pages 826 and 827.

### Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm

### Port thread type

<b>Nil</b>	M thread	ø12 to ø25
<b>TN</b>	NPT	ø32 to ø50
<b>TF</b>	G	
<b>F</b>	Built-in One-touch fittings <small>Note 1)</small>	

Note 1) Bore sizes available with One-touch fittings are ø32 to ø50.

- \* For cylinders without auto switch, M threads are compatible only for ø32-5 mm stroke model.

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2L32-10SZ

### Mounting bolt

<b>Nil</b>	None
<b>L</b>	Shipped together

\* Mounting bolt is shipped together only when the mounting bracket is "B".

\* For details about the mounting bolt sizes, refer to pages 826 and 829.

\* Mounting bolt is shipped together.

### Number of auto switches

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

### Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

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

### Made to Order

Refer to the next page for details.

### Auto switch mounting groove

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø50	4 surfaces

### Body option

<b>Nil</b>	Standard
<b>F</b>	With boss on head end
<b>M</b>	Rod end male thread

\* Combination of body options ("FM") is available.

### Action

<b>S</b>	Single acting, Spring return
<b>T</b>	Single acting, Spring extend

### Cylinder stroke (mm)

Refer to the next page for standard strokes.

### Rod end bracket

(Refer to pages 804 and 805.)

<b>Nil</b>	None
<b>D</b>	Simple joint A type + Joint
<b>E</b>	Simple joint B type + Joint
<b>V</b>	Single knuckle joint
<b>W</b>	Double knuckle joint

\* The single knuckle joint and double knuckle joint cannot be mounted for the rod end female thread.

\* A knuckle joint pin is not provided with the single knuckle joint.

\* The simple joint A and B types cannot be mounted for the rod end male thread.

\* Rod end bracket is shipped together.

### Applicable Auto Switches/Refer to pages 1559 to 1673 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	<b>M9NV</b>	<b>M9N</b>	●	●	○	—	—	—	IC circuit	Relay, PLC
				3-wire (PNP)	12 V		<b>M9PV</b>	<b>M9P</b>	●	●	○	—	—			
				2-wire	12 V		<b>M9BV</b>	<b>M9B</b>	●	●	○	—	—			
	3-wire (NPN)			5 V, 12 V	<b>M9NVW</b>		<b>M9NW</b>	●	●	○	—	—	IC circuit			
	3-wire (PNP)			12 V	<b>M9PVW</b>		<b>M9PW</b>	●	●	○	—	—				
	2-wire			12 V	<b>M9BWW</b>		<b>M9BW</b>	●	●	○	—	—				
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	— 5 V	—	<b>A96V</b>	<b>A96</b>	●	—	●	—	—	—	IC circuit	—
				2-wire	24 V		<b>A93V</b> *2	<b>A93</b>	●	●	●	—	—			
				3-wire (NPN)	5 V, 12 V		<b>M9PAV</b> *1	<b>M9PA</b> *1	○	○	○	●	—	IC circuit		
				3-wire (PNP)	12 V		<b>M9PAV</b> *1	<b>M9PA</b> *1	○	○	○	●	—			
				2-wire	12 V		<b>M9BAV</b> *1	<b>M9BA</b> *1	○	○	○	●	—			
				2-wire	24 V		<b>A93V</b> *2	<b>A93</b>	●	●	●	—	—	IC circuit		
2-wire	5 V, 12 V, 100 V or less	<b>A90V</b>	<b>A90</b>	●	●	●	—	—								

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

\*2 Consult with SMC regarding water resistant types with the above model numbers.

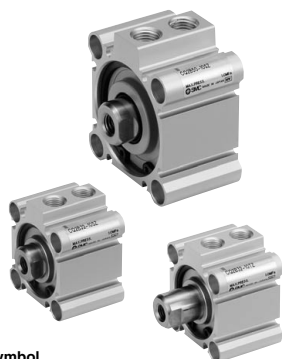
\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NVW  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

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

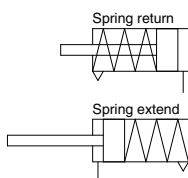
\* There are other applicable auto switches other than the listed above. For details, refer to page 960.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

# Series CQ2



Symbol



**Made to Order: Individual Specifications**  
(For details, refer to pages 964 to 973.)

Symbol	Specifications
-X144	Special port location, with auto switch $\phi 12$ to $\phi 25$ only
-X202	Full length dimension is the same as Series CQ1, Except $\phi 12$ , $\phi 16$ , $\phi 25$ .
-X203	L dimension from rod cover is the same as Series CQ1, $\phi 20$ , $\phi 32$ only.
-X271	Fluororubber seals
-X1876	Cylinder tube: With concave boss on head end

## Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape, spring return type only
-XB10	Intermediate stroke (Exclusive body type), Spring return type only
-XC2(A)	Rod end length, 10 mm increased (For foot and flange bracket)
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-XC27	Double clevis pin/Double knuckle joint pin material: Stainless steel 304
-XC36	With boss on rod end
-XC85	Grease for food processing equipment

## Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

## Specifications

Bore size (mm)	12	16	20	25	32	40	50
Action	Single acting, Single rod						
Fluid	Air						
Proof pressure	1.5 MPa						
Maximum operating pressure	1.0 MPa						
Minimum operating pressure (MPa)	0.25	0.25	0.18	0.18	0.17	0.15	0.13
Ambient and fluid temperature	Without auto switch: $-10$ to $70^{\circ}\text{C}$ (No freezing) With auto switch: $-10$ to $60^{\circ}\text{C}$ (No freezing)						
Lubrication	Not required (Non-lube)						
Piston speed	50 to 500 mm/s						
Allowable kinetic energy (J)	0.022	0.038	0.055	0.09	0.15	0.26	0.46
Stroke length tolerance	$+1.0$ mm 0						

## Standard Strokes

Bore size	Standard stroke (mm)
12, 16, 20, 25, 32, 40	5, 10
50	10, 20

## Manufacture of Intermediate Strokes

(Except single acting, spring return type)

Type	A spacer is installed in the standard stroke body.	
Part no.	Refer to "How to Order" for the standard model number. (P. 823)	
Description	Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.	
Stroke range	Bore size	Stroke range
	12 to 40	1 to 9
	50	1 to 19
Example	Part no.: CQ2B20-3T CQ2B20-5T with 2 mm width spacer inside The B dimension is 24.5 mm.	

## Type

		Bore size (mm)	12	16	20	25	32	40	50	
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	
		Both ends tapped	●	●	●	●	●	●	●	
	Built-in magnet		●	●	●	●	●	●	●	
	Piping	Pipe thread	—	M5 x 0.8	M5 x 0.8	M5 x 0.8	M5 x 0.8	Note 1) M5 x 0.8 Rc1/8	Rc1/8	Rc1/4
			TN	—	—	—	—	NPT1/8	NPT1/8	NPT1/4
			TF	—	—	—	—	G1/8	G1/8	G1/4
	Built-in One-touch fittings (Note 2)		—	—	—	—	$\phi 6/4$	$\phi 6/4$	$\phi 8/6$	
	Rod end male thread		●	●	●	●	●	●	●	
	With boss on head end		●	●	●	●	●	●	●	

Note 1)  $\phi 32$  without auto switch: M5 x 0.8 is used for 5 mm stroke piping dimension. Thus, do not enter a symbol for the port thread type.

Note 2) One-touch fittings cannot be replaced.

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Retaining Ring Installation/Removal

### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be blown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

## Spring Force

### Single Acting, Spring Return (N)

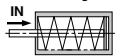
Bore size (mm)	Stroke (mm)	Spring reaction force (N)	
		Second	First
12	5	13	8.6
	10	13	3.9
16	5	15	10.3
	10	15	5.9
20	5	15	10
	10	15	5.9
25	5	20	16
	10	20	11
32	5	30	23
	10	30	16
40	5	30	13
	10	39	21
50	10	50	30
	20	54	24

### Single Acting, Spring Extend (N)

Bore size (mm)	Stroke (mm)	Spring reaction force (N)	
		Second	First
12	5	11	2.9
	10	9.7	2.8
16	5	20	3.9
	10	20	3.9
20	5	27	5.3
	10	27	5.9
25	5	29	9.8
	10	29	9.8
32	5	29	20
	10	29	20
40	5	29	20
	10	83	24
50	20	83	24

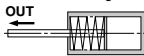
### Single acting, Spring return

Spring state with first mounting load



When spring is set in cylinder

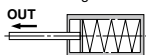
Spring state with second mounting load



When spring is compressed with air

### Single acting, Spring extend

Spring state with first mounting load



When spring is set in cylinder

Spring state with second mounting load



When spring is compressed with air

## Mounting Brackets/Part No.

Bore size (mm)	Model	Foot <sup>Note 1)</sup>	Compact foot <sup>Note 1)</sup>	Flange	Double clevis	
12	Without switch	CQ2□□-□□D	CQ-L012	CQ-LC012	CQ-F012	CQ-D012
	With switch	CQ2□□-□□DZ	CQ-LZ12	CQ-LCZ12		
16	Without switch	CQ2□□-□□D	CQ-L016	CQ-LC016	CQ-F016	CQ-D016
	With switch	CQ2□□-□□DZ	CQ-LZ16	CQ-LCZ16		
20	Without switch	CQ2□□-□□D	CQ-L020	CQ-LC020	CQ-F020	CQ-D020
	With switch	CQ2□□-□□DZ	CQ-LZ20	CQ-LCZ20		
25	Without switch	CQ2□□-□□D	CQ-L025	CQ-LC025	CQ-F025	CQ-D025
	With switch	CQ2□□-□□DZ	CQ-LZ25	CQ-LCZ25		
32	C(D)Q2□□-□□DZ	CQ-L032	CQ-LC032	CQ-F032	CQ-D032	
40	C(D)Q2□□-□□DZ	CQ-L040	CQ-LC040	CQ-F040	CQ-D040	
50	C(D)Q2□□-□□DZ	CQ-L050	CQ-LC050	CQ-F050	CQ-D050	

Note 1) When ordering foot and compact foot brackets, the required quantity will be different depending on the bore size.

ø12 to ø25:

• Without switch: Order 2 pieces per cylinder.

• With switch: Order 1 piece per cylinder. (Part number for a set of 2 foot brackets)

ø32 to ø50:

• Order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows.

Foot, Compact foot, Flange: Body mounting bolts

Double clevis: Clevis pin, Type C retaining rings for axis, Body mounting bolts

## Theoretical Output

Action	Bore size (mm)	Operating pressure (MPa)		
		0.3	0.5	0.7
Spring return	12	21	44	66
	16	45	86	126
	20	79	142	205
	25	126	224	323
	32	211	372	533
	40	338	589	841
Spring extend	50	535	928	1316
	12	14	31	48
	16	24	54	85
	20	44	91	138
	25	84	160	235
	32	152	273	393
40	288	499	710	
50	412	742	1072	

## Weight

### Weight (g)

Action	Bore size (mm)	Cylinder stroke (mm)			
		5	10	15	20
Spring return	12	29	35	—	—
	16	42	51	—	—
	20	63	76	—	—
	25	87	101	—	—
	32	125	145	—	—
	40	196	217	—	—
	50	—	357	—	426
Spring extend	12	29	35	—	—
	16	43	50	—	—
	20	67	78	—	—
	25	92	104	—	—
	32	135	151	—	—
	40	206	223	—	—
	50	—	374	—	429

### Additional Weight (g)

Bore size (mm)		12	16	20	25	32	40	50
Both ends tapped		2	2	6	6	6	6	6
Rod end male thread	Male thread	1.5	3	6	12	26	27	53
	Nut	1	2	4	8	17	17	32
With boss on head end		0.7	1.3	2	3	5	7	13
Built-in One-touch fittings		—	—	—	—	6	6	10.5
Foot (Including mounting bolts)		55	67	164	186	142	154	243
Compact foot (Including mounting bolts)		41	51	121	140	99	114	177
Rod flange (Including mounting bolts)		57	69	139	161	180	214	373
Head flange (Including mounting bolts)		54	65	133	152	165	198	348
Double clevis (Including pin, retaining rings, bolts)		32	39	88	123	151	196	393

Calculation: (Example) **CQ2B32-10SMZ**

- Basic weight: CQ2B32-10SZ ..... 145 g
  - Additional weight: Both ends tapped ..... 6 g
  - Rod end male thread ..... 43 g
  - Double clevis ..... 151 g
- 345 g

CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

Z

D-□

-X□

Technical data

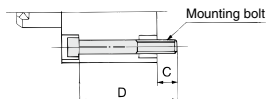
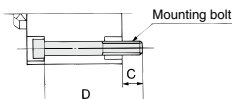
# Series CQ2

## Mounting Bolt for CQ2B/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQ2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 25L 4 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



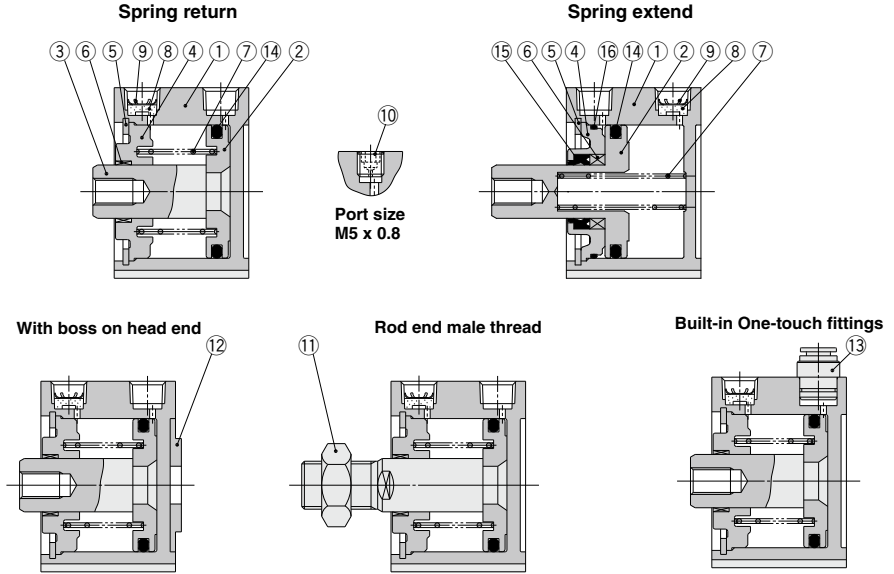
### Spring Return

Cylinder model	C	D	Mounting bolt part no.
<b>CQ2B12-5S</b>	6.5	25	CQ-M3 x 25L
<b>-10S</b>		30	x 30L
<b>CQ2B16-5S</b>	5	25	CQ-M3 x 25L
<b>-10S</b>		30	x 30L
<b>CQ2B20-5S</b>	7.5	25	CQ-M5 x 25L
<b>-10S</b>		30	x 30L
<b>CQ2B25-5S</b>	9.5	30	CQ-M5 x 30L
<b>-10S</b>		35	x 35L
<b>CQ2B32-5SZ</b>	9	30	CQ-M5 x 30L
<b>-10SZ</b>		35	x 35L
<b>CQ2B40-5SZ</b>	7.5	35	CQ-M5 x 35L
<b>-10SZ</b>		40	x 40L
<b>CQ2B50-10SZ</b>	12.5	45	CQ-M6 x 45L
<b>-20SZ</b>		55	x 55L

### Spring Extend

Cylinder model	C	D	Mounting bolt part no.
<b>CQ2B12-5T</b>	6.5	25	CQ-M3 x 25L
<b>-10T</b>		30	x 30L
<b>CQ2B16-5T</b>	5	25	CQ-M3 x 25L
<b>-10T</b>		30	x 30L
<b>CQ2B20-5T</b>	7.5	25	CQ-M5 x 25L
<b>-10T</b>		30	x 30L
<b>CQ2B25-5T</b>	9.5	30	CQ-M5 x 30L
<b>-10T</b>		35	x 35L
<b>CQ2B32-5TZ</b>	9	30	CQ-M5 x 30L
<b>-10TZ</b>		35	x 35L
<b>CQ2B40-5TZ</b>	7.5	35	CQ-M5 x 35L
<b>-10TZ</b>		40	x 40L
<b>CQ2B50-10TZ</b>	12.5	45	CQ-M6 x 45L
<b>-20TZ</b>		55	x 55L

**Construction**



**Component Parts**

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2*	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø50, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50, Chromated, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	ø50
7	Return spring	Piano wire	Zinc chromated
8	Bronze element	Sintered metallic BC	
9	Retaining ring	Carbon tool steel	Port size Rc1/8, 1/4
10	Plug with fixed orifice	Alloy steel	Port size M5 x 0.8
11	Rod end nut	Carbon steel	Zinc chromated
12	Centering location ring	Aluminum alloy	ø20 to ø50, Anodized
13	One-touch fitting	—	ø32 to ø50

\* On spring extend (Type T), piston and piston rod are integrated (stainless steel).  
(Except ø12 and ø16 of built-in magnet type)

**Replacement Parts**

No.	Description	Material	Note
14	Piston seal	NBR	
15	Rod seal	NBR	
16	Gasket	NBR	

**Replacement Parts/Seal Kit**

Bore size (mm)	Single acting/Spring return	Single acting/Spring extend
12	CQ2B12-S-PS	CQ2B12-T-PS
16	CQ2B16-S-PS	CQ2B16-T-PS
20	CQ2B20-S-PS	CQ2B20-T-PS
25	CQ2B25-S-PS	CQ2B25-T-PS
32	CQ2B32-S-PS	CQ2B32-T-PS
40	CQ2B40-S-PS	CQ2B40-T-PS
50	CQ2B50-S-PS	CQ2B50-T-PS
Contents	Kits include item 14 from the above table.	Kits include items 14, 15, 16 from the above table.
How to Order	* Seal kit includes 14. Order the seal kit, based on each bore size.	* Seal kit includes 14, 15, 16. Order the seal kit, based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.: GR-S-010 (10 g)**

**CJU**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

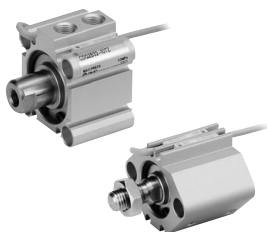
**-X□**

Technical data

# Standard: Single Acting, Single Rod

## Series CDQ2

### With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.954 to 960
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

## Weight

### Weight (g)

Action	Bore size (mm)	Cylinder stroke (mm)			
		5	10	15	20
Spring return	12	44	49	—	—
	16	64	72	—	—
	20	97	109	—	—
	25	135	150	—	—
	32	182	202	—	—
	40	269	290	—	—
Spring extend	50	—	456	—	521
	12	49	65	—	—
	16	63	71	—	—
	20	110	119	—	—
	25	149	163	—	—
	32	192	208	—	—
40	279	296	—	—	
50	—	486	—	540	

### Additional Weight (g)

Bore size (mm)		12	16	20	25	32	40	50
Both ends tapped		1	1	3	3	6	6	6
Rod end male thread	Male thread	1.5	3	6	12	26	27	53
	Nut	1	2	4	8	17	17	32
With boss on head end		0.7	1.3	2	3	5	7	13
Built-in One-touch fittings		—	—	—	—	6	6	10.5
Foot (Including mounting bolts)		49	62	147	169	142	154	243
Compact foot (Including mounting bolts)		32	40	97	116	99	114	177
Rod flange (Including mounting bolts)		54	67	131	153	180	214	373
Head flange (Including mounting bolts)		52	63	124	144	165	198	348
Double clevis (Including pin, retaining rings, bolts)		29	35	78	114	151	196	393

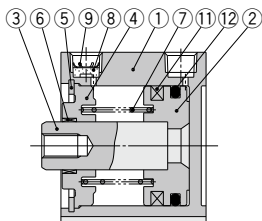
Calculation: (Example) **CDQ2D32-10SMZ**

Add each weight of auto switches when auto switches are mounted.

- Basic weight: CDQ2B32-10SZ ..... 202 g
  - Additional weight: Both ends tapped ..... 6 g
  - Rod end male thread ..... 43 g
  - Double clevis ..... 151 g
- 402 g

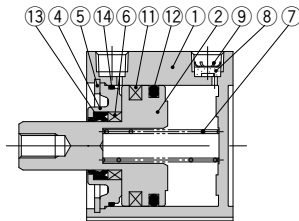
## Construction

### Spring return



Port size  
M5 x 0.8

### Spring extend



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø50, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50, Chromated, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	ø50
7	Return spring	Piano wire	Zinc chromated
8	Bronze element	Sintered metallic BC	
9	Retaining ring	Carbon tool steel	Port size Rc1/8, 1/4
10	Plug with fixed orifice	Alloy steel	Port size M5 x 0.8
11	Magnet	—	

No.	Description	Material	Note
12	Piston seal	NBR	
13	Rod seal	NBR	
14	Gasket	NBR	

### Replacement Parts/Seal Kit

Since the same as those of the standard, single acting, single rod, refer to page B27.

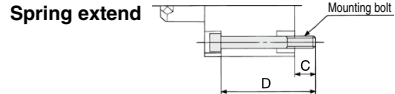
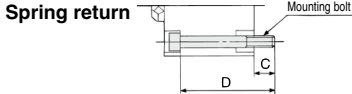
\* On spring extend (Type T), piston with ø20 or more and piston rod are integrated (stainless steel).

## Mounting Bolt for CDQ2B/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQ2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 35L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



### Spring Return

Cylinder model	C	D	Mounting bolt part no.
CDQ2B12-5SZ -10SZ	5.5	35	CQ-M3 x 35L
		40	x 40L
CDQ2B16-5SZ -10SZ	8	40	CQ-M3 x 40L
		45	x 45L
CDQ2B20-5SZ -10SZ	10.5	40	CQ-M5 x 40L
		45	x 45L
CDQ2B25-5SZ -10SZ	9.5	40	CQ-M5 x 40L
		45	x 45L
CDQ2B32-5SZ -10SZ	9	40	CQ-M5 x 40L
		45	x 45L
CDQ2B40-5SZ -10SZ	7.5	45	CQ-M5 x 45L
		50	x 50L
CDQ2B50-10SZ -20SZ	12.5	55	CQ-M6 x 55L
		65	x 65L

### Spring Extend

Cylinder model	C	D	Mounting bolt part no.
CDQ2B12-5TZ -10TZ	6.1	40	CQ-M3 x 40L
		45	x 45L
CDQ2B16-5TZ -10TZ	8	40	CQ-M3 x 40L
		45	x 45L
CDQ2B20-5TZ -10TZ	10.5	40	CQ-M5 x 40L
		45	x 45L
CDQ2B25-5TZ -10TZ	9.5	40	CQ-M5 x 40L
		45	x 45L
CDQ2B32-5TZ -10TZ	9	40	CQ-M5 x 40L
		45	x 45L
CDQ2B40-5TZ -10TZ	7.5	45	CQ-M5 x 45L
		50	x 50L
CDQ2B50-10TZ -20TZ	12.5	55	CQ-M6 x 55L
		65	x 65L

**CJU**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

Technical data

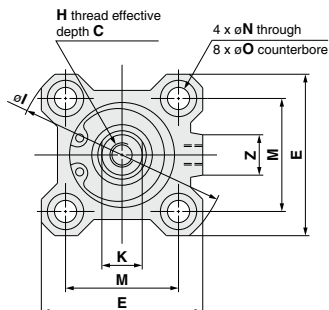


# Series CQ2

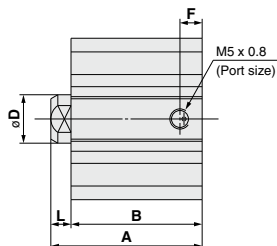
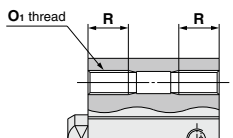
## Dimensions

### Ø12 to Ø25/Spring Return Without Auto Switch

#### Standard (Through-hole): CQ2B



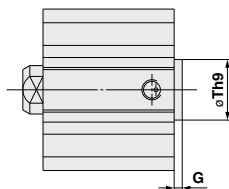
#### Both ends tapped: CQ2A



#### Both Ends Tapped (mm)

Bore size (mm)	O1	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10

#### With boss on head end

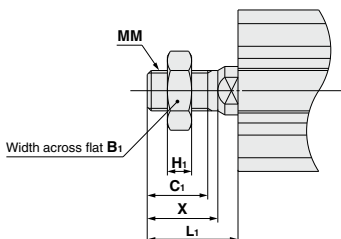


#### With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15 <sup>0</sup> <sub>-0.043</sub>
16	1.5	20 <sup>0</sup> <sub>-0.052</sub>
20	2	13 <sup>0</sup> <sub>-0.043</sub>
25	2	15 <sup>0</sup> <sub>-0.043</sub>

Note) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

#### Rod end male thread



#### Rod End Male Thread (mm)

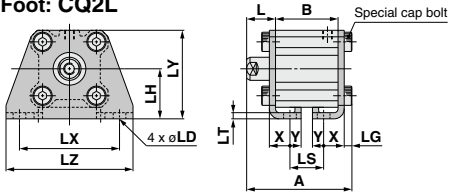
Bore size (mm)	B1	C1	H1	L1	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

#### Standard

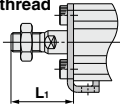
Bore size (mm)	Stroke (mm)	A	B	C	D	E	F	H	I	K	L	M	N	O	Z
12	5	25.5	22	6	6	25	5	M3 x 0.5	32	5	3.5	15.5	3.5	6.5 depth 3.5	—
	10	30.5	27												
16	5	27	23.5	8	8	29	5.5	M4 x 0.7	38	6	3.5	20	3.5	6.5 depth 3.5	10
	10	32	28.5												
20	5	29	24.5	7	10	36	5.5	M5 x 0.8	47	8	4.5	25.5	5.5	9 depth 7	10
	10	34	29.5												
25	5	32.5	27.5	12	12	40	5.5	M6 x 1.0	52	10	5	28	5.5	9 depth 7	10
	10	37.5	32.5												

\* For details about the rod end nut and accessory brackets, refer to page 804.

**Foot: CQ2L**



**Rod end male thread**



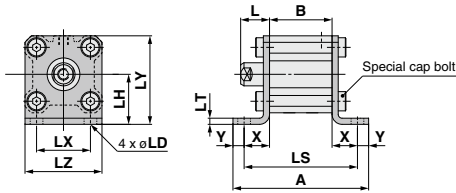
**Foot**

Bore size (mm)	A		B		L	L <sub>1</sub>	LD	LG	LH	LS	
	5st	10st	5st	10st						5st	10st
12	40.3	45.3	22	27	13.5	24	4.5	2.8	17	10	15
16	41.8	46.8	23.5	28.5	13.5	25.5	4.5	2.8	19	11.5	16.5
20	46.2	51.2	24.5	29.5	14.5	28.5	6.6	4	24	12.5	17.5
25	49.7	54.7	27.5	32.5	15	32.5	6.6	4	26	12.5	17.5

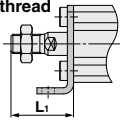
Bore size (mm)	LT	LX	LY	LZ	X	Y
12	2	34	29.5	44	8	4.5
16	2	38	33.5	48	8	5
20	3.2	48	42	62	9.2	5.8
25	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact foot: CQ2LC**



**Rod end male thread**



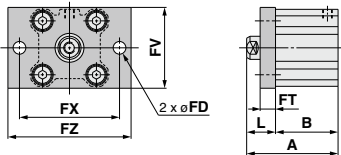
**Compact Foot**

Bore size (mm)	A		B		L	L <sub>1</sub>	LD	LH	LS		LT
	5st	10st	5st	10st					5st	10st	
12	49.6	54.6	22	27	13.5	24	4.5	17	40.6	45.6	2
16	52.1	57.1	23.5	28.5	13.5	25.5	4.5	19	42.1	47.1	2
20	62.5	67.5	24.5	29.5	14.5	28.5	6.6	24	50.9	55.9	3.2
25	65.5	70.5	27.5	32.5	15	32.5	6.6	26	53.9	58.9	3.2

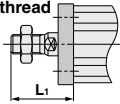
Bore size (mm)	LX	LY	LZ	X	Y
12	15.5	29.5	25	9.3	4.5
16	20	33.5	29	9.3	5
20	25.5	42	36	13.2	5.8
25	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod flange: CQ2F**



**Rod end male thread**

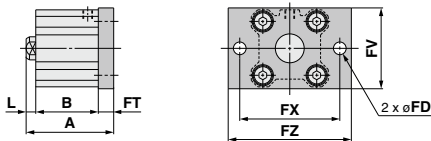


**Rod Flange**

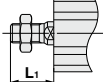
Bore size (mm)	A		B		FD	FT	FV	FX	FZ	L	L <sub>1</sub>
	5st	10st	5st	10st							
12	35.5	40.5	22	27	4.5	5.5	25	45	55	13.5	24
16	37	42	23.5	28.5	4.5	5.5	30	45	55	13.5	25.5
20	39	44	24.5	29.5	6.6	8	39	48	60	14.5	28.5
25	42.5	47.5	27.5	32.5	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head flange: CQ2G**



**Rod end male thread**



**Head Flange**

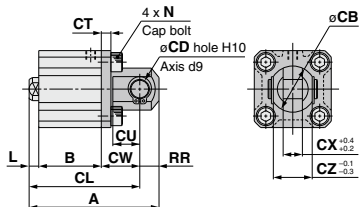
Bore size (mm)	A		L	L <sub>1</sub>
	5st	10st		
12	31	36	3.5	14
16	32.5	37.5	3.5	15.5
20	37	42	4.5	18.5
25	40.5	45.5	5	22.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

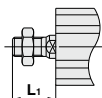
(\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.)

\* For details about the rod end nut and accessory brackets, refer to page 804.

**Double clevis: CQ2D**



**Rod end male thread**



**Double Clevis**

(mm)

Bore size (mm)	A		B		CB	CD	CL		CT	CU	CW
	5st	10st	5st	10st			5st	10st			
12	45.5	50.5	22	27	12	5	39.5	44.5	4	7	14
16	48	53	23.5	28.5	14	5	42	47	4	10	15
20	56	61	24.5	29.5	20	8	47	52	5	12	18
25	62.5	67.5	27.5	32.5	24	10	52.5	57.5	5	14	20

Bore size (mm)	CX	CZ	L	L <sub>1</sub>	N	RR
12	5	10	3.5	14	M4 x 0.7	6
16	6.5	12	3.5	15.5	M4 x 0.7	6
20	8	16	4.5	18.5	M6 x 1.0	9
25	10	20	5	22.5	M6 x 1.0	10

Double clevis bracket material: Carbon steel  
Surface treatment: Nickel plated

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

**CJU**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

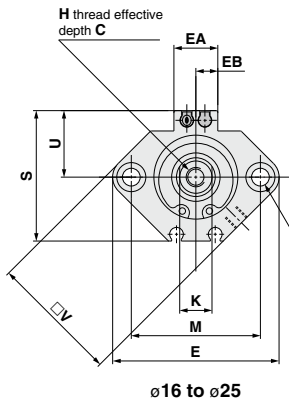
Technical data

# Series CQ2

## Dimensions

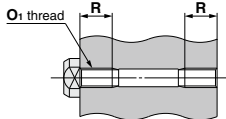
### Ø12 to Ø25/Spring Return With Auto Switch

#### Standard (Through-hole): CDQ2B



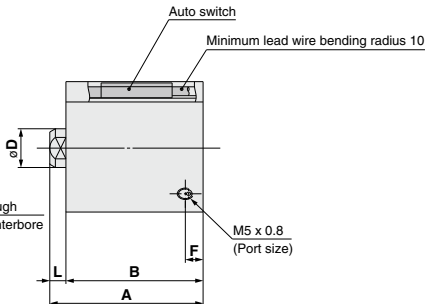
Ø16 to Ø25

#### Both ends tapped: CDQ2A

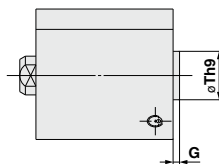


#### Both Ends Tapped

Bore size (mm)	Ø1	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10



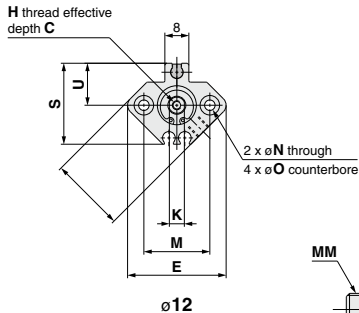
#### With boss on head end



#### With Boss on Head End

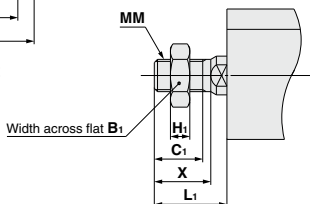
Bore size (mm)	G	Th9
12	1.5	15 <sup>0</sup> <sub>-0.043</sub>
16	1.5	20 <sup>0</sup> <sub>-0.050</sub>
20	2	13 <sup>0</sup> <sub>-0.043</sub>
25	2	15 <sup>0</sup> <sub>-0.043</sub>

Note) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)



Ø12

#### Rod end male thread



#### Rod End Male Thread

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

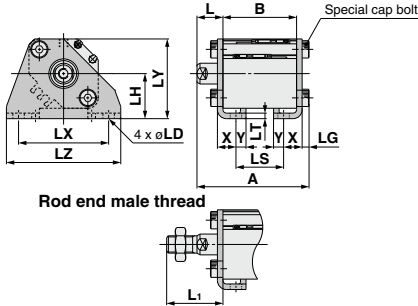
#### Standard For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

(mm)

Bore size (mm)	Stroke (mm)	A	B	C	D	E	EA	EB	F	H	K	L	M	N	O	S	U	V
12	5	36.5	33	6	6	33	—	—	6.5	M3 x 0.5	5	3.5	22	3.5	6.5 depth 3.5	27.5	14	25
	10	41.5	38															
16	5	39	35.5	8	8	37	13.2	6.6	5.5	M4 x 0.7	6	3.5	28	3.5	6.5 depth 3.5	29.5	15	29
	10	44	40.5															
20	5	41	36.5	7	10	47	13.6	6.8	5.5	M5 x 0.8	8	4.5	36	5.5	9 depth 7	35.5	18	36
	10	46	41.5															
25	5	42.5	37.5	12	12	52	13.6	6.8	5.5	M6 x 1.0	10	5	40	5.5	9 depth 7	40.5	21	40
	10	47.5	42.5															

\* For details about the rod end nut and accessory brackets, refer to page 804.

**Foot: CDQ2L**



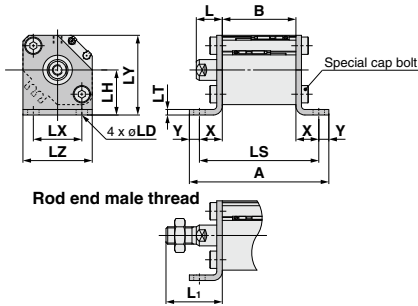
**Foot**

Bore size (mm)	A		B		L	L <sub>1</sub>	LD	LG	LH	LS	
	5st	10st	5st	10st						5st	10st
12	51.3	56.3	33	38	13.5	24	4.5	2.8	17	21	26
16	53.8	58.8	35.5	40.5	13.5	25.5	4.5	2.8	19	23.5	28.5
20	58.2	63.2	36.5	41.5	14.5	28.5	6.6	4	24	24.5	29.5
25	59.7	64.7	37.5	42.5	15	32.5	6.6	4	26	22.5	27.5

Bore size (mm)	LT	LX	LY	LZ	X	Y
12	2	34	29.5	44	8	4.5
16	2	38	33.5	48	8	5
20	3.2	48	42	62	9.2	5.8
25	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact foot: CDQ2LC**



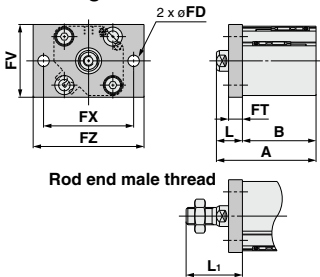
**Compact Foot**

Bore size (mm)	A		B		L	L <sub>1</sub>	LD	LH	LS		
	5st	10st	5st	10st					5st	10st	LT
12	60.6	65.6	33	38	13.5	24	4.5	17	51.6	56.6	2
16	64.1	69.1	35.5	40.5	13.5	25.5	4.5	19	54.1	59.1	2
20	74.5	79.5	36.5	41.5	14.5	28.5	6.6	24	62.9	67.9	3.2
25	75.5	80.5	37.5	42.5	15	32.5	6.6	26	63.9	68.9	3.2

Bore size (mm)	LX	LY	LZ	X	Y
12	15.5	29.5	25	9.3	4.5
16	20	33.5	29	9.3	5
20	25.5	42	36	13.2	5.8
25	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod flange: CDQ2F**

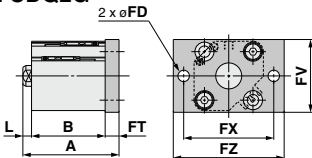


**Rod Flange**

Bore size (mm)	A		B		FD	FT	FV	FX	FZ	L	L <sub>1</sub>
	5st	10st	5st	10st							
12	46.5	51.5	33	38	4.5	5.5	25	45	55	13.5	24
16	49	54	35.5	40.5	4.5	5.5	30	45	55	13.5	25.5
20	51	56	36.5	41.5	6.6	8	39	48	60	14.5	28.5
25	52.5	57.5	37.5	42.5	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head flange: CDQ2G**



**Head Flange**

Bore size (mm)	A		L	L <sub>1</sub>	(* The dimensions except A, L and L <sub>1</sub> are the same as those of the rod flange.)
	5st	10st			
12	46.4	51.4	3.5	14	
16	44.5	49.5	3.5	15.5	
20	49	54	4.5	18.5	
25	50.5	55.5	5	22.5	

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Rod end male thread**



\* For details about the rod end nut and accessory brackets, refer to page 804.

**CJ**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

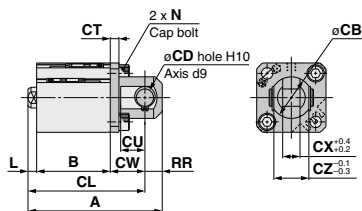
**MU-Z**

**D-□**

**-X□**

Technical data

**Double clevis: CDQ2D**



**Rod end male thread**



**Double Clevis**

Bore size (mm)	A		B		CB	CD	CL		CT	CU	CW
	5st	10st	5st	10st			5st	10st			
<b>12</b>	56.5	61.5	33	38	12	5	50.5	55.5	4	7	14
<b>16</b>	60	65	35.5	40.5	14	5	54	59	4	10	15
<b>20</b>	68	73	36.5	41.5	20	8	59	64	5	12	18
<b>25</b>	72.5	77.5	37.5	42.5	24	10	62.5	67.5	5	14	20

Bore size (mm)	CX	CZ	L	L <sub>1</sub>	N	RR
<b>12</b>	5	10	3.5	14	M4 x 0.7	6
<b>16</b>	6.5	12	3.5	15.5	M4 x 0.7	6
<b>20</b>	8	16	4.5	18.5	M6 x 1.0	9
<b>25</b>	10	20	5	22.5	M6 x 1.0	10

Double clevis bracket material: Carbon steel  
Surface treatment: Nickel plated

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

CJ

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

MU  
-Z

D-□

-X□

Technical  
data

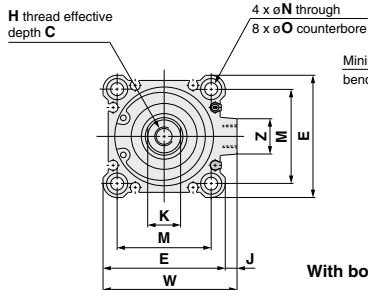
# Series CQ2

## Dimensions

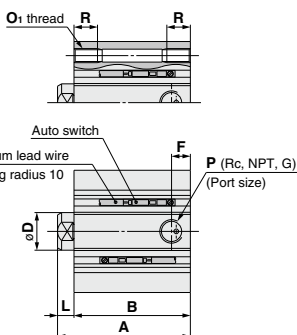
### ø32 to ø50/Spring Return With Auto Switch

(In the case of without auto switches, the A, B, F and P dimensions will be only changed. Refer to the dimension table.)

#### Standard (Through-hole): CQ2B/CDQ2B



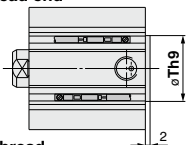
#### Both ends tapped: CQ2A/CDQ2A



#### Both Ends Tapped

Bore size (mm)	O1	R
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14

#### With boss on head end

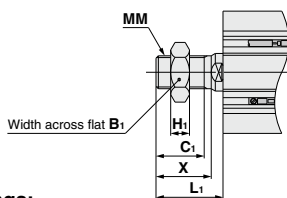


#### With Boss on Head End

Bore size (mm)	Th9
32	21 <sup>0.002</sup>
40	28 <sup>0.002</sup>
50	35 <sup>0.002</sup>

Note 1) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

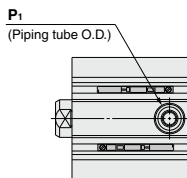
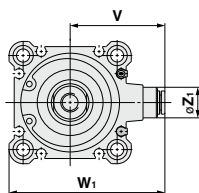
#### Rod end male thread



#### Rod End Male Thread

Bore size (mm)	B1	C1	H1	L1	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5

#### Built-in One-touch fittings: ø32 to ø50



#### Built-in One-touch Fittings

Bore size (mm)	Z1	P1	V	W1
32	13	6	36.5	59
40	13	6	40.5	66.5
50	16	8	50	82

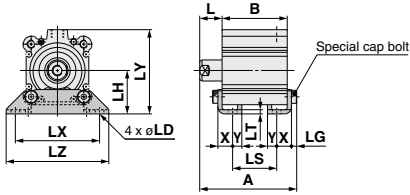
**Standard** For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke (mm)	Without auto switch				With auto switch				C	D	E	H	J	K	L	M	N	O	W	Z
		A	B	F	P	A	B	F	P												
32	5	35	28	5.5	M5 x 0.8	45	38	7.5	1/8	13	16	45	M8 x 1.25	4.5	14	7	34	5.5	9 depth 7	49.5	14
	10	40	33	7.5	1/8	50	43														
40	5	41.5	34.5			51.5	44.5														
	10	46.5	39.5	7.5	1/8	56.5	49.5	7.5	1/8	13	16	52	M8 x 1.25	5	14	7	40	5.5	9 depth 7	57	15
50	10	48.5	40.5	10.5		58.5	50.5														
	20	58.5	50.5	10.5	1/4	68.5	60.5	10.5	1/4	15	20	64	M10 x 1.5	7	17	8	50	6.6	11 depth 8	71	19

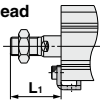
Note 2) The A, B dimensions of the ø32-5 mm stroke with built-in One-touch fittings without auto switch are the same as those of the ø32-10 mm stroke without auto switch.

\* For details about the rod end nut and accessory brackets, refer to page 804.

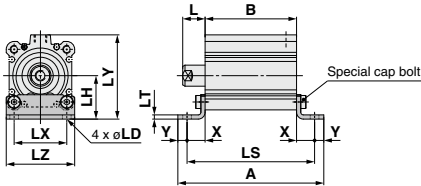
**Foot: CQ2L/CDQ2L**



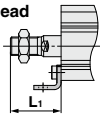
Rod end male thread



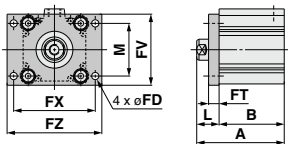
**Compact foot: CQ2LC/CDQ2LC**



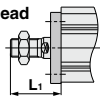
Rod end male thread



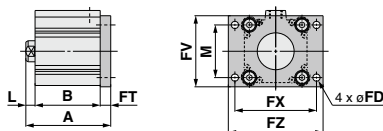
**Rod flange: CQ2F/CDQ2F**



Rod end male thread



**Head flange: CQ2G/CDQ2G**



Rod end male thread



**Foot** (mm)

Bore size (mm)	Without auto switch						With auto switch												
	A		B		LS		A		B		LS								
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st				
32	52.2	57.2	—	28	33	—	12	17	—	62.2	67.2	—	38	43	—	22	27	—	
40	58.7	63.7	—	34.5	39.5	—	18.5	23.5	—	68.7	73.7	—	44.5	49.5	—	28.5	33.5	—	
50	—	66.7	76.7	—	40.5	50.5	—	17.5	27.5	—	76.7	86.7	—	50.5	60.5	—	27.5	37.5	—

Bore size (mm)	L	L <sub>1</sub>	LD	LG	LH	LT	LX	LY	LZ	X	Y
32	17	38.5	6.6	4	30	32	57	57	71	112	5.8
40	17	38.5	6.6	4	33	32	64	64	78	112	7
50	18	43.5	9	5	39	32	79	78	95	147	8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact Foot** (mm)

Bore size (mm)	Without auto switch						With auto switch												
	A		B		LS		A		B		LS								
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st				
32	67	72	—	28	33	—	55.4	60.4	—	77	82	—	38	43	—	65.4	70.4	—	
40	75.9	80.9	—	34.5	39.5	—	61.9	66.9	—	85.9	90.9	—	44.5	49.5	—	71.9	76.9	—	
50	—	89.9	99.9	—	40.5	50.5	—	73.9	83.9	—	99.9	109.9	—	50.5	60.5	—	83.9	93.9	—

Bore size (mm)	L	L <sub>1</sub>	LD	LH	LT	LX	LY	LZ	X	Y
32	17	38.5	6.6	30	32	34	57	45	13.7	5.8
40	17	38.5	6.6	33	32	40	64	52	13.7	7
50	18	43.5	9	39	32	50	78	64	16.7	8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod Flange** (mm)

Bore size (mm)	Without auto switch						With auto switch						
	A		B		LS		A		B				
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	
32	45	50	—	28	33	—	55	60	—	38	43	—	
40	51.5	56.5	—	34.5	39.5	—	61.5	66.5	—	44.5	49.5	—	
50	—	58.5	68.5	—	40.5	50.5	—	68.5	78.5	—	50.5	60.5	—

Bore size (mm)	FD	FT	FV	FX	FZ	L	L <sub>1</sub>	M
32	5.5	8	48	56	65	17	38.5	34
40	5.5	8	54	62	72	17	38.5	40
50	6.6	9	67	76	89	18	43.5	50

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange** (mm)

Bore size (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>
	A			A				
	5st	10st	20st	5st	10st	20st		
32	43	48	—	53	58	—	7	28.5
40	49.5	54.5	—	59.5	64.5	—	7	28.5
50	—	57.5	67.5	—	67.5	77.5	8	33.5

(\*) The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to page 804.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

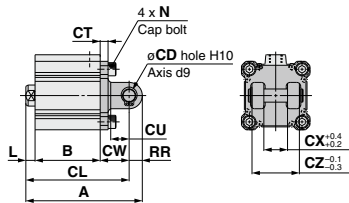
D-□

-X□

Technical data



**Double clevis: CQ2D/CDQ2D**



**Rod end male thread**



**Double Clevis**

(mm)

Bore size (mm)	Without auto switch						With auto switch											
	A		B		CL		A		B		CL							
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st						
<b>32</b>	65	70	—	28	33	—	55	60	—	75	80	—	38	43	—	65	70	—
<b>40</b>	73.5	78.5	—	34.5	39.5	—	63.5	68.5	—	83.5	88.5	—	44.5	49.5	—	73.5	78.5	—
<b>50</b>	—	90.5	100.5	—	40.5	50.5	—	76.5	86.5	—	100.5	110.5	—	50.5	60.5	—	86.5	96.5

Bore size (mm)	CD	CT	CU	CW	CX	CZ	L	L <sub>1</sub>	N	RR
<b>32</b>	10	5	14	20	18	36	7	28.5	M6 x 1.0	10
<b>40</b>	10	6	14	22	18	36	7	28.5	M6 x 1.0	10
<b>50</b>	14	7	20	28	22	44	8	33.5	M6 x 1.25	14

Double clevis bracket material: Cast iron  
Surface treatment: Painted

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

**CJU**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

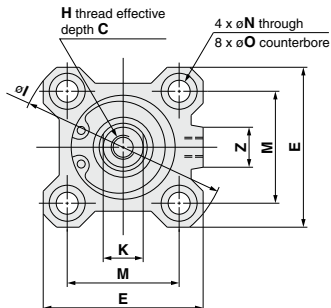
Technical data

# Series CQ2

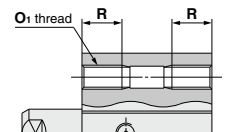
## Dimensions

### Ø12 to Ø25/Spring Extend Without Auto Switch

#### Standard (Through-hole): CQ2B

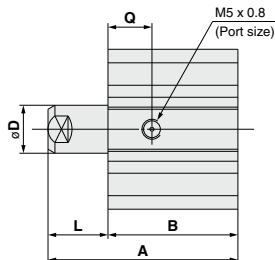


#### Both ends tapped: CQ2A

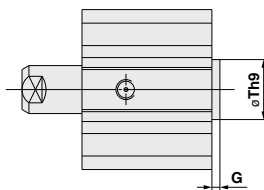


#### Both Ends Tapped

Bore size (mm)	O1	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10



#### With boss on head end

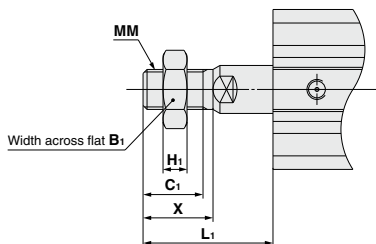


#### With Boss on Head End

Bore size (mm)	G	Th9
12	1.5	15 <sup>0</sup> <sub>-0.043</sub>
16	1.5	20 <sup>0</sup> <sub>-0.052</sub>
20	2	13 <sup>0</sup> <sub>-0.043</sub>
25	2	15 <sup>0</sup> <sub>-0.043</sub>

Note) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

#### Rod end male thread



#### Rod End Male Thread

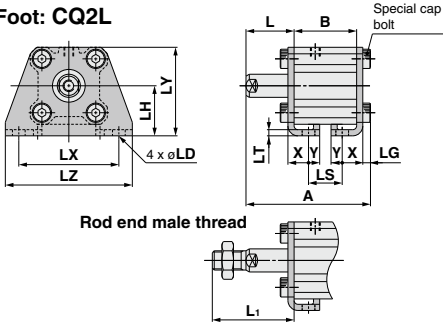
Bore size (mm)	B1	C1	H1	L1		MM	X
				5st	10st		
12	8	9	4	19	24	M5 x 0.8	10.5
16	10	10	5	20.5	25.5	M6 x 1.0	12
				8.5	13.5		
20	13	12	5	23.5	28.5	M8 x 1.25	14
				9.5	14.5		
25	17	15	6	27.5	32.5	M10 x 1.25	17.5
				10	15		

#### Standard

Bore size (mm)	Stroke (mm)	A	B	C	D	E	H	I	K	L	M	N	O	Q	Z
12	5	30.5	22	6	6	25	M3 x 0.5	32	5	8.5	15.5	3.5	6.5 depth 3.5	7.5	—
	10	40.5	27							13.5					
16	5	32	23.5	8	8	29	M4 x 0.7	38	6	8.5	20	3.5	6.5 depth 3.5	8	10
	10	42	28.5							13.5					
20	5	34	24.5	7	10	36	M5 x 0.8	47	8	9.5	25.5	5.5	9 depth 7	8	10
	10	44	29.5							14.5					
25	5	37.5	27.5	12	12	40	M6 x 1.0	52	10	10	28	5.5	9 depth 7	9	10
	10	47.5	32.5							15					

\* For details about the rod end nut and accessory brackets, refer to page 804.

**Foot: CQ2L**



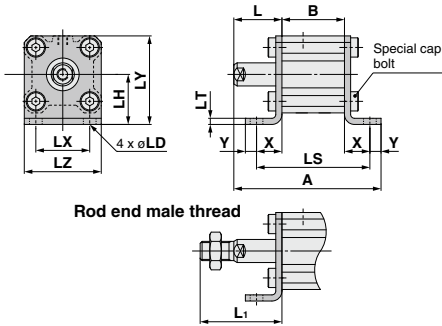
**Foot**

Bore size (mm)	A		B		L		L <sub>1</sub>		LD	LG	LH	LS	
	5st	10st	5st	10st	5st	10st	5st	10st				5st	10st
12	45.3	55.3	22	27	18.5	23.5	29	34	4.5	2.8	17	10	15
16	46.8	56.8	23.5	28.5	18.5	23.5	30.5	35.5	4.5	2.8	19	11.5	16.5
20	51.2	61.2	24.5	29.5	19.5	24.5	33.5	38.5	6.6	4	24	12.5	17.5
25	54.7	64.7	27.5	32.5	20	25	37.5	42.5	6.6	4	26	12.5	17.5

Bore size (mm)	LT	LX	LY	LZ	X	Y
12	2	34	29.5	44	8	4.5
16	2	38	33.5	48	8	5
20	3.2	48	42	62	9.2	5.8
25	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact foot: CQ2LC**



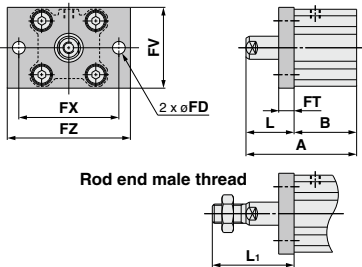
**Compact Foot**

Bore size (mm)	A		B		L		L <sub>1</sub>		LD	LH	LS		LT
	5st	10st	5st	10st	5st	10st	5st	10st			5st	10st	
12	54.3	64.3	22	27	18.5	23.5	29	34	4.5	17	40.6	45.6	2
16	56.3	66.3	23.5	28.5	18.5	23.5	30.5	35.5	4.5	19	42.1	47.1	2
20	63	73	24.5	29.5	19.5	24.5	33.5	38.5	6.6	24	50.9	55.9	3.2
25	66.5	76.5	27.5	32.5	20	25	37.5	42.5	6.6	26	53.9	58.9	3.2

Bore size (mm)	LX	LY	LZ	X	Y
12	15.5	29.5	25	9.3	4.5
16	20	33.5	29	9.3	5
20	25.5	42	36	13.2	5.8
25	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod flange: CQ2F**

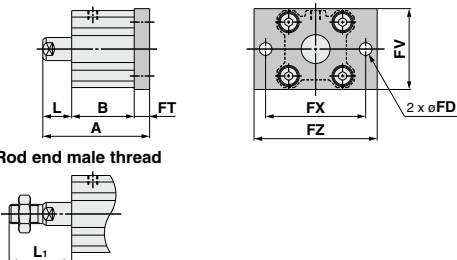


**Rod Flange**

Bore size (mm)	A		B		FD	FT	FV	FX	FZ	L		L <sub>1</sub>	
	5st	10st	5st	10st						5st	10st	5st	10st
12	40.5	50.5	22	27	4.5	5.5	25	45	55	18.5	23.5	29	34
16	42	52	23.5	28.5	4.5	5.5	30	45	55	18.5	23.5	30.5	35.5
20	44	54	24.5	29.5	6.6	8	39	48	60	19.5	24.5	33.5	38.5
25	47.5	57.5	27.5	32.5	6.6	8	42	52	64	20	25	37.5	42.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head flange: CQ2G**



**Head Flange**

Bore size (mm)	A		L		L <sub>1</sub>	
	5st	10st	5st	10st	5st	10st
12	36	46	8.5	13.5	19	24
16	37.5	47.5	8.5	13.5	20.5	25.5
20	42	52	9.5	14.5	23.5	28.5
25	45.5	55.5	10	15	27.5	32.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

(\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.)

\* For details about the rod end nut and accessory brackets, refer to page 804.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

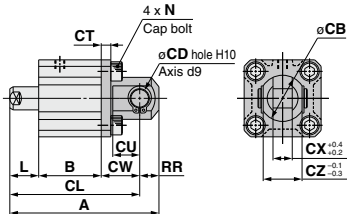
MU-Z

D-□

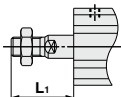
-X□

Technical data

**Double clevis: CQ2D**



**Rod end male thread**



**Double Clevis**

Bore size (mm)	A		B		CB	CD	CL		CT	CU	CW	CX	CZ
	5st	10st	5st	10st			5st	10st					
<b>12</b>	50.5	60.5	22	27	12	5	44.5	54.5	4	7	14	5	10
<b>16</b>	53	63	23.5	28.5	14	5	47	57	4	10	15	6.5	12
<b>20</b>	61	71	24.5	29.5	20	8	52	62	5	12	18	8	16
<b>25</b>	67.5	77.5	27.5	32.5	24	10	57.5	67.5	5	14	20	10	20

Bore size (mm)	L		L <sub>1</sub>		N	RR
	5st	10st	5st	10st		
<b>12</b>	8.5	13.5	19	24	M4 x 0.7	6
<b>16</b>	8.5	13.5	20.5	25.5	M4 x 0.7	6
<b>20</b>	9.5	14.5	23.5	28.5	M6 x 1.0	9
<b>25</b>	10	15	27.5	32.5	M6 x 1.0	10

Double clevis bracket material:  
Carbon steel  
Surface treatment: Nickel plated

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

CJ

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

MU  
-Z

D-□

-X□

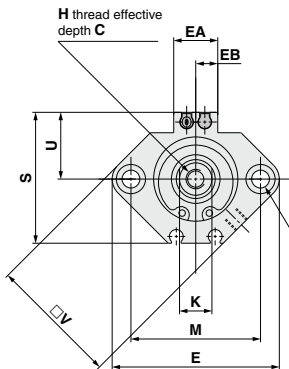
Technical  
data

# Series CQ2

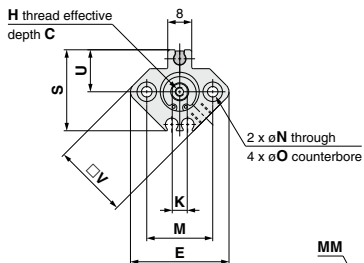
## Dimensions

### Ø12 to Ø25/Spring Extend With Auto Switch

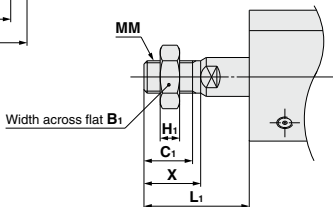
#### Standard (Through-hole): CDQ2B



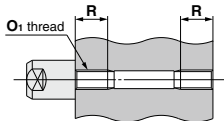
Ø16 to Ø25



Ø12

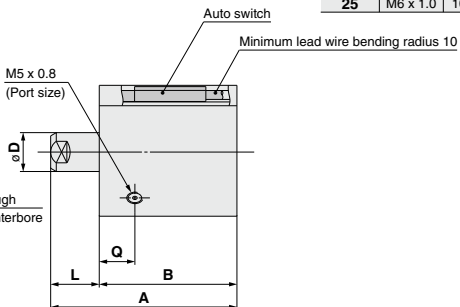


#### Both ends tapped: CDQ2A

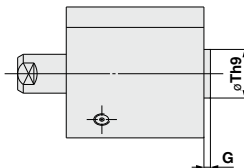


#### Both Ends Tapped

Bore size (mm)	Ø1	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10



#### With boss on head end



#### With Boss on Head End

Bore size (mm)	G	Th9
12	1.5	15 <sup>±0.043</sup>
16	1.5	20 <sup>±0.062</sup>
20	2	13 <sup>±0.043</sup>
25	2	15 <sup>±0.043</sup>

Note) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

#### Rod end male thread

#### Rod End Male Thread

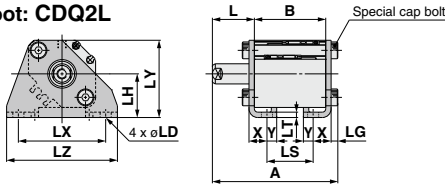
Bore size (mm)	B1	C1	H1	L1		MM	X
				5st	10st		
12	8	9	4	19	24	M5 x 0.8	10.5
16	10	10	5	20.5	25.5	M6 x 1.0	12
20	13	12	5	23.5	28.5	M8 x 1.25	14
25	17	15	6	27.5	32.5	M10 x 1.25	17.5

**Standard** For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

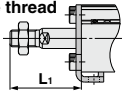
Bore size (mm)	Stroke (mm)	A	B	C	D	E	EA	EB	H	K	L	M	N	O	Q	S	U	V
12	5	45.9	37.4	6	6	33	—	—	M3 x 0.5	5	8.5 13.5	22	3.5	6.5 depth 3.5	11	27.5	14	25
	10	55.9	42.4															
16	5	44	35.5	8	8	37	13.2	6.6	M4 x 0.7	6	8.5 13.5	28	3.5	6.5 depth 3.5	10	29.5	15	29
	10	54	40.5															
20	5	46	36.5	7	10	47	13.6	6.8	M5 x 0.8	8	9.5 14.5	36	5.5	9 depth 7	8	35.5	18	36
	10	56	41.5															
25	5	47.5	37.5	12	12	52	13.6	6.8	M6 x 1.0	10	10 15	40	5.5	9 depth 7	9	40.5	21	40
	10	57.5	42.5															

\* For details about the rod end nut and accessory brackets, refer to page 804.

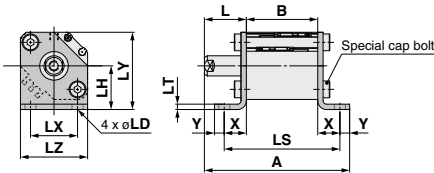
**Foot: CDQ2L**



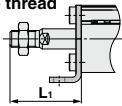
**Rod end male thread**



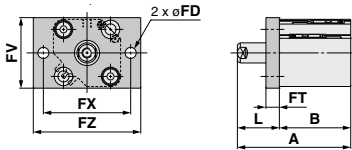
**Compact foot: CDQ2LC**



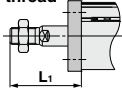
**Rod end male thread**



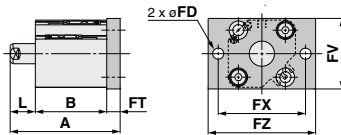
**Rod flange: CDQ2F**



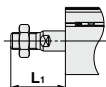
**Rod end male thread**



**Head flange: CDQ2G**



**Rod end male thread**



**Foot**

Bore size (mm)	A		B		L		L <sub>1</sub>		LD	LG	LH	LS	
	5st	10st	5st	10st	5st	10st	5st	10st				5st	10st
12	60.7	70.7	37.4	42.4	18.5	23.5	29	34	4.5	2.8	17	25.4	30.4
16	58.8	68.8	35.5	40.5	18.5	23.5	30.5	35.5	4.5	2.8	19	23.5	28.5
20	63.2	73.2	36.5	41.5	19.5	24.5	33.5	38.5	6.6	4	24	24.5	29.5
25	64.7	74.7	37.5	42.5	20	25	37.5	42.5	6.6	4	26	22.5	27.5

Bore size (mm)	LT	LX	LY	LZ	X	Y
12	2	34	29.5	44	8	4.5
16	2	38	33.5	48	8	5
20	3.2	48	42	62	9.2	5.8
25	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact Foot**

Bore size (mm)	A		B		L		L <sub>1</sub>		LD	LH	LS		LT
	5st	10st	5st	10st	5st	10st	5st	10st			5st	10st	
12	69.7	79.7	37.4	42.4	18.5	23.5	29	34	4.5	17	56	61	2
16	68.3	78.3	35.5	40.5	18.5	23.5	30.5	35.5	4.5	19	54.1	59.1	2
20	75	85	36.5	41.5	19.5	24.5	33.5	38.5	6.6	24	62.9	67.9	3.2
25	76.5	86.5	37.5	42.5	20	25	37.5	42.5	6.6	26	63.9	68.9	3.2

Bore size (mm)	LX	LY	LZ	X	Y
12	15.5	29.5	25	9.3	4.5
16	20	33.5	29	9.3	5
20	25	42	36	13.2	5.8
25	28.5	46	40	13.2	5.8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod Flange**

Bore size (mm)	A		B		FD	FT	FV	FX	FZ	L		L <sub>1</sub>	
	5st	10st	5st	10st						5st	10st		
12	55.9	65.9	37.4	42.4	4.5	5.5	25	45	55	18.5	23.5	29	34
16	54	64	35.5	40.5	4.5	5.5	30	45	55	18.5	23.5	30.5	35.5
20	56	66	36.5	41.5	6.6	8	39	48	60	19.5	24.5	33.5	38.5
25	57.5	67.5	37.5	42.5	6.6	8	42	52	64	20	25	37.5	42.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

Bore size (mm)	A		L		L <sub>1</sub>	
	5st	10st	5st	10st		
12	51.4	61.4	8.5	13.5	19	24
16	49.5	59.5	8.5	13.5	20.5	25.5
20	54	64	9.5	14.5	23.5	28.5
25	55.5	65.5	10	15	27.5	32.5

(\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.)

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to page 804.

**CJ**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

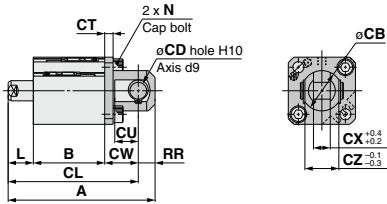
**MU-Z**

**D-□**

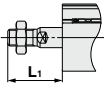
**-X□**

Technical data

**Double clevis: CDQ2D**



**Rod end male thread**



**Double Clevis**

(mm)

Bore size (mm)	A		B		CB	CD	CL		CT	CU	CW	CX	CZ
	5st	10st	5st	10st			5st	10st					
<b>12</b>	65.9	75.9	37.4	42.4	12	5	59.9	69.9	4	7	14	5	10
<b>16</b>	65	75	35.5	40.5	14	5	59	69	4	10	15	6.5	12
<b>20</b>	73	83	36.5	41.5	20	8	64	74	5	12	18	8	16
<b>25</b>	77.5	87.5	37.5	42.5	24	10	67.5	77.5	5	14	20	10	20

Bore size (mm)	L		L1		N	RR
	5st	10st	5st	10st		
<b>12</b>	8.5	13.5	19	24	M4 x 0.7	6
<b>16</b>	8.5	13.5	20.5	25.5	M4 x 0.7	6
<b>20</b>	9.5	14.5	23.5	28.5	M6 x 1.0	9
<b>25</b>	10	15	27.5	32.5	M6 x 1.0	10

Double clevis bracket material:  
Carbon steel  
Surface treatment:  
Nickel plated

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

**CJU**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

Technical data

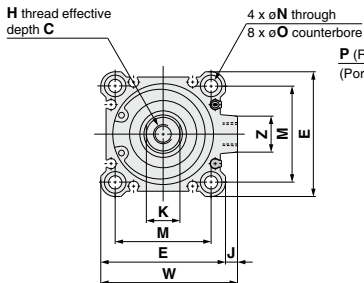
# Series CQ2

## Dimensions

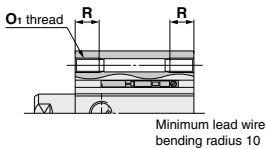
### ø32 to ø50/Spring Extend With Auto Switch

(In the case of without auto switches, the A, B, P and Q dimensions will be only changed. Refer to the dimension table.)

#### Standard (Through-hole): CQ2B/CDQ2B



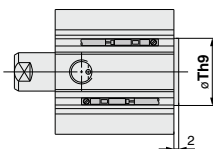
#### Both ends tapped: CQ2A/CDQ2A



#### Both Ends Tapped (mm)

Bore size (mm)	O <sub>1</sub>	R
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14

#### With boss on head end

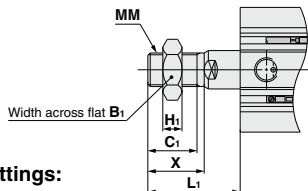


#### With Boss on Head End (mm)

Bore size (mm)	Th9
32	21 <sup>0.002</sup>
40	28 <sup>0.002</sup>
50	35 <sup>0.002</sup>

Note) With boss on rod end: Option  
(Suffix "-XC36" to the end of model number.)

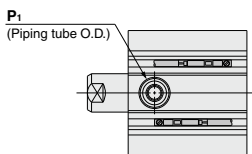
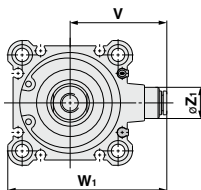
#### Rod end male thread



#### Rod End Male Thread (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>			MM	X
				5st	10st	20st		
32	22	20.5	8	33.5	38.5	—	M14 x 1.5	23.5
40	22	20.5	8	33.5	38.5	—	M14 x 1.5	23.5
50	27	26	11	—	43.5	53.5	M18 x 1.5	28.5

#### Built-in One-touch fittings: ø32 to ø50



#### Built-in One-touch Fittings (mm)

Bore size (mm)	Z <sub>1</sub>	P <sub>1</sub>	V	W <sub>1</sub>
32	13	6	36.5	59
40	13	6	40.5	66.5
50	16	8	50	82

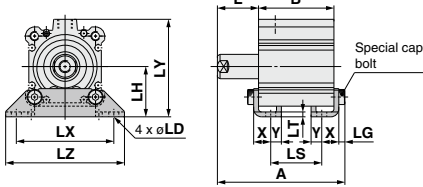
**Standard** For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke (mm)	Without auto switch				With auto switch															
		A	B	P	Q	A	B	P	Q	C	D	E	H	J	K	L	M	N	O	W	Z
32	5	40	28	M5 x 0.8	10	50	38	1/8	10	13	16	45	M8 x 1.25	4.5	14	12	34	5.5	9 depth 7	49.5	14
	10	50	33	1/8	—	60	43	—	—	—	—	—	—	—	—	17	—	—	—	—	—
40	5	46.5	34.5	—	12.5	56.5	44.5	1/8	12.5	13	16	52	M8 x 1.25	5	14	12	40	5.5	9 depth 7	57	15
	10	56.5	39.5	1/8	—	66.5	49.5	—	—	—	—	—	—	—	—	17	—	—	—	—	—
50	10	58.5	40.5	—	10.5	68.5	50.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	18	50	6.6	11 depth 8	71	19
	20	78.5	50.5	1/4	—	88.5	60.5	—	—	—	—	—	—	—	—	28	—	—	—	—	—

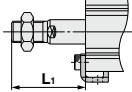
\* For details about the rod end nut and accessory brackets, refer to page 804.



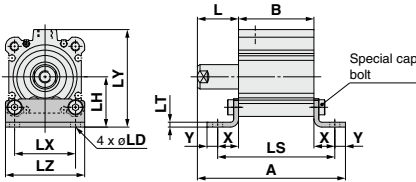
**Foot: CQ2L/CDQ2L**



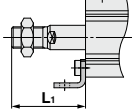
Rod end male thread



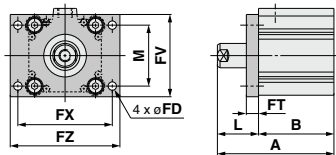
**Compact foot: CQ2LC/CDQ2LC**



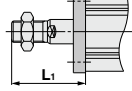
Rod end male thread



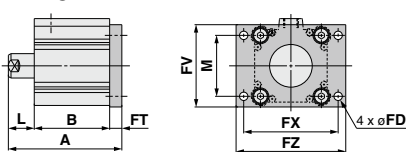
**Rod flange: CQ2F/CDQ2F**



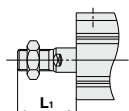
Rod end male thread



**Head flange: CQ2G/CDQ2G**



Rod end male thread



**Foot**

Bore size (mm)	Without auto switch						With auto switch											
	A		B		LS		A		B		LS							
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st						
32	57.2	67.2	-	28	33	-	12	17	-	67.2	77.2	-	38	43	-	22	27	-
40	63.7	73.7	-	34.5	39.5	-	18.5	23.5	-	73.7	83.7	-	44.5	49.5	-	28.5	33.5	-
50	-	76.7	96.7	-	40.5	50.5	-	17.5	27.5	-	86.7	106.7	-	50.5	60.5	-	27.5	37.5

Bore size (mm)	L		L <sub>1</sub>		LD	LG	LH	LT	LX	LY	LZ	X	Y		
	5st	10st	20st	5st										10st	20st
32	22	27	-	43.5	48.5	-	6.6	4	30	3.2	57	71	11.2	5.8	
40	22	27	-	43.5	48.5	-	6.6	4	33	3.2	64	64	78	11.2	7
50	-	28	38	-	53.5	63.5	9	5	39	3.2	79	78	95	14.7	8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact Foot**

Bore size (mm)	Without auto switch						With auto switch											
	A		B		LS		A		B		LS							
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st						
32	68.5	79.5	-	28	33	-	55.4	60.4	-	79.5	89.5	-	38	43	-	65.4	70.4	-
40	77.2	87.2	-	34.5	39.5	-	61.9	66.9	-	87.2	97.2	-	44.5	49.5	-	71.9	76.9	-
50	-	93.2	113.2	-	40.5	50.5	-	73.9	83.9	-	103.2	123.2	-	50.5	60.5	-	83.9	93.9

Bore size (mm)	L		L <sub>1</sub>		LD	LH	LT	LX	LY	LZ	X	Y		
	5st	10st	20st	5st									10st	20st
32	22	27	-	43.5	48.5	-	6.6	30	3.2	34	57	45	13.7	5.8
40	22	27	-	43.5	48.5	-	6.6	33	3.2	40	64	52	13.7	7
50	-	28	38	-	53.5	63.5	9	39	3.2	50	78	64	16.7	8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod Flange**

Bore size (mm)	Without auto switch						With auto switch										
	A		B		LS		A		B		FD	FT	FV	FX	FZ		
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st						10st	20st
32	50	60	-	28	33	-	60	70	-	38	43	-	5.5	8	45	56	65
40	56.5	66.5	-	34.5	39.5	-	66.5	76.5	-	44.5	49.5	-	5.5	8	54	62	72
50	-	68.5	88.5	-	40.5	50.5	-	78.5	88.5	-	50.5	60.5	6.6	9	67	76	89

Bore size (mm)	L		L <sub>1</sub>		M		
	5st	10st	20st	5st		10st	20st
32	22	27	-	43.5	48.5	-	34
40	22	27	-	43.5	48.5	-	40
50	-	28	38	-	53.5	63.5	50

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

Bore size (mm)	Without auto switch						With auto switch						
	A		B		LS		A		B		L	L <sub>1</sub>	
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st			10st
32	48	58	-	58	68	-	12	17	-	33.5	38.5	-	34
40	54.5	64.5	-	64.5	74.5	-	12	17	-	33.5	38.5	-	40
50	-	67.5	87.5	-	77.5	97.5	-	18	28	-	43.5	53.5	50

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to page 804.

CUJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

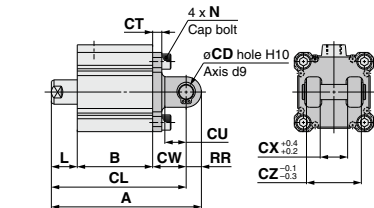
MU-Z

D-□

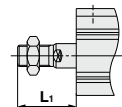
-X□

Technical data

**Double clevis: CQ2D/CDQ2D**



**Rod end male thread**



**Double Clevis**

(mm)

Bore size (mm)	Without auto switch						With auto switch												
	A		B		CL		A		B		CL								
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st							
<b>32</b>	70	80	—	28	33	—	60	70	—	80	90	—	38	43	—	70	80	—	
<b>40</b>	78.5	88.5	—	34.5	39.5	—	66.5	78.5	—	88.5	98.5	—	44.5	49.5	—	78.5	88.5	—	
<b>50</b>	—	100.5	120.5	—	40.5	50.5	—	86.5	106.5	—	110.5	130.5	—	50.5	60.5	—	96.5	116.5	—

Bore size (mm)	CD		CT		CU		CW		CX		CZ		L		L1		N		RR	
	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st
	<b>32</b>	10	5	14	20	18	36	12	17	—	33.5	38.5	—	—	—	—	—	M6 x 1.0	—	—
<b>40</b>	10	6	14	22	18	36	12	17	—	33.5	38.5	—	—	—	—	—	M6 x 1.0	—	—	10
<b>50</b>	14	7	20	28	22	44	—	18	28	—	43.5	53.5	—	—	—	—	M8 x 1.25	—	—	14

Double clevis bracket material: Cast iron  
Surface treatment: Painted

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Compact Cylinder: Large Bore Size Double Acting, Single Rod

## Series CQ2

ø125, ø140, ø160, ø180, ø200

### How to Order

Without auto switch

CQ2B 125 - 30 DC Z -

With auto switch

CDQ2B 125 - 30 DC Z - M9BW -

With auto switch  
(Built-in magnet)

Mounting

**B** Through-hole/Both ends tapped common (Standard)

\* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQ2" on page 844.

Bore size

125	125 mm
140	140 mm
160	160 mm
180	180 mm
200	200 mm

Port thread type

Nil	Rc
TN	NPT
TF	G

Cylinder stroke (mm)

Refer to page 843 for standard strokes.

Action

**D** Double acting

Made to Order  
Refer to page 843  
for details.

Number of auto switches

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

Auto switch

**Nil** Without auto switch

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

Auto switch mounting groove

**Z** ø125 to ø200 4 surfaces

Body option

**Nil** Standard (Rod end female thread)  
**M** Rod end male thread

Cushion

**C** Rubber bumper

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2B140-30DCZ

### Applicable Auto Switches

Refer to pages 1559 to 1673 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	—	<b>M9NV</b>	<b>M9N</b>	●	●	●	○	—	○	Relay, PLC	
				3-wire (PNP)			<b>M9PV</b>	<b>M9P</b>	●	●	●	○	—	○		
				2-wire			<b>M9BV</b>	<b>M9B</b>	●	●	●	○	—	○		
	3-wire (NPN)			<b>M9NWW</b>			<b>M9NW</b>	●	●	●	○	—	○			
	3-wire (PNP)			<b>M9PWW</b>			<b>M9PW</b>	●	●	●	○	—	○			
	2-wire			<b>M9BWW</b>			<b>M9BW</b>	●	●	●	○	—	○			
	3-wire (NPN)	<b>M9NAV</b> *1	<b>M9NA</b> *1	●	●	○	○	—	○	IC circuit						
	3-wire (PNP)	<b>M9PAV</b> *1	<b>M9PA</b> *1	●	●	○	○	—	○							
	2-wire	<b>M9BAV</b> *1	<b>M9BA</b> *1	○	○	●	○	—	○							
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	—	<b>A96V</b>	<b>A96</b>	●	—	—	—	—	—	IC circuit	—
				12 V			<b>A93V</b> *2	<b>A93</b>	●	●	●	—	—	—	—	Relay, PLC
				5 V, 12 V			<b>A90V</b>	<b>A90</b>	●	—	●	—	—	—	—	IC circuit

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

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

\* There are other applicable auto switches other than the listed above. For details, refer to page 960.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

# Compact Cylinder: Large Bore Size Double Acting, Single Rod *Series CQ2*

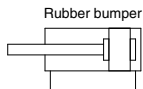
## Specifications



Bore size (mm)	125	140	160	180	200
<b>Action</b>	Double acting, Single rod				
<b>Fluid</b>	Air				
<b>Proof pressure</b>	1.5 MPa			1.05 MPa	
<b>Maximum operating pressure</b>	1.0 MPa			0.7 MPa	
<b>Minimum operating pressure</b>	0.05 MPa				
<b>Ambient and fluid temperature</b>	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)				
<b>Lubrication</b>	Not required (Non-lube)				
<b>Piston speed</b>	50 to 500 mm/s			20 to 400 mm/s	
<b>Allowable kinetic energy (J)</b>	7.4	9.8	12.4		
<b>Stroke length tolerance</b>	+1.4 mm (Note) 0				

Note) Stroke length tolerance does not include the amount of bumper change.

### Symbol



## Standard Strokes

Bore size (mm)	Standard stroke (mm)
125, 140, 160 180, 200	10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300



**Made to Order: Individual Specifications**  
(For details, refer to page 968.)

Symbol	Specifications
-X271	Fluororubber seals, ø125 to ø160 only

### Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB10	Intermediate stroke (Exclusive body type)
-XC85	Grease for food processing equipment

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	Exclusive body (-XB10)
Part no.	Refer to "How to Order" for the standard model number. (P. 842)	Suffix "-XB10" to the end of standard model number. (P. 842)
Description	Strokes in 5 mm intervals are available by installing a spacer in the standard stroke cylinder.	Strokes in 1 mm intervals are available by using an exclusive body with the specified stroke.
Stroke range	5 to 295	11 to 299
Example	Part no.: CQ2B160-165DCZ CQ2B160-175DCZ with 10 mm width spacer inside The B dimension is 266 mm.	Part no.: CQ2B160-165DCZ-XB10 Makes 165 mm stroke tube. The B dimension is 256 mm.

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

CJ

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

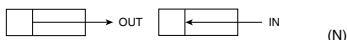
MU  
-Z

D-□

-X□

Technical  
data

## Theoretical Output



Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
125	IN	3376	5627	7878
	OUT	3682	6136	8590
140	IN	4313	7188	10063
	OUT	4618	7697	10776
160	IN	5655	9425	13195
	OUT	6032	10053	14074
180	IN	7257	12095	16933
	OUT	7634	12724	17813
200	IN	9048	15080	21112
	OUT	9425	15708	21991

## Weight

### Without Auto Switch

Bore size (mm)	Cylinder stroke (mm)												(kg)	
	10	20	30	40	50	75	100	125	150	175	200	250		300
125	5.24	5.48	5.71	5.94	6.18	6.76	7.35	7.93	8.52	9.10	9.69	10.86	12.03	
140	6.19	6.44	6.71	6.98	7.25	7.90	8.57	9.23	9.90	10.56	11.23	12.55	13.88	
160	8.57	8.88	9.20	9.52	9.84	10.64	11.44	12.25	13.05	13.85	14.65	16.26	17.85	
180	11.54	11.92	12.31	12.70	13.09	14.05	15.03	16.00	16.97	17.93	18.90	20.84	22.78	
200	14.56	15.07	15.49	15.92	16.34	17.41	18.47	19.54	20.60	21.67	22.82	24.85	26.99	

### With Auto Switch

Bore size (mm)	Cylinder stroke (mm)												(kg)	
	10	20	30	40	50	75	100	125	150	175	200	250		300
125	5.30	5.54	5.77	6.01	6.24	6.83	7.40	7.99	8.58	9.16	9.75	10.92	12.09	
140	6.26	6.51	6.78	7.05	7.32	7.97	8.64	9.30	9.97	10.63	11.30	12.62	13.95	
160	8.65	8.96	9.28	9.60	9.92	10.72	11.52	12.33	13.13	13.93	14.73	16.34	17.93	
180	11.62	12.00	12.39	12.78	13.17	14.13	15.11	16.08	17.05	18.01	18.98	20.92	22.86	
200	14.64	15.15	15.57	16.00	16.42	17.49	18.55	19.62	20.68	21.75	22.90	24.93	27.07	

### Additional Weight

Bore size (mm)		125	140	160 180 200
Rod end male thread	Male thread	0.31	0.31	0.48
	Nut	0.16	0.16	0.26

Calculation: (Example) **CDQ2B125-30DCMZ**

• Basic weight: CDQ2B125-30DCZ..... 5.77 kg

• Additional weight: Rod end male thread..... 0.47 kg  
Nut..... 0.26 kg

## Mounting Bolt for CQ2B

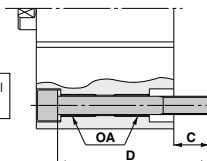
Mounting method: Mounting bolt for through-hole mounting of the C(D)Q2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M12 x 100L 4 pcs.**

Note 1) To install a through-hole type mounting bolt, make sure to use the flat washer that is provided.

Note 2) For mounting bolts for the stroke length exceeding 100 mm, use the OA screw provided on the cylinder tube to secure the cylinder.

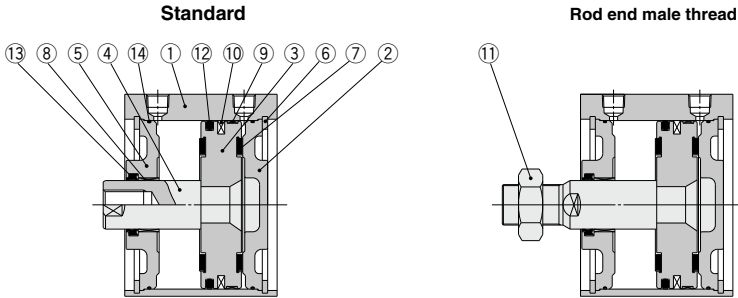
Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
C□Q2B125/140-10DCZ	22.9	100	CQ-M12 x 100L
		-20DCZ	110 x 110L
		-30DCZ	120 x 120L
		-40DCZ	130 x 130L
		-50DCZ	140 x 140L
		-75DCZ	165 x 165L
		-100DCZ	190 x 190L
C□Q2B160-10DCZ	27.7	110	CQ-M14 x 110L
		-20DCZ	120 x 120L
		-30DCZ	130 x 130L
		-40DCZ	140 x 140L
		-50DCZ	150 x 150L
		-75DCZ	175 x 175L
		-100DCZ	200 x 200L

Cylinder model	C	D	Mounting bolt part no.
C□Q2B180-10DCZ	36	125	CQ-M18 x 125L
		-20DCZ	135 x 135L
		-30DCZ	145 x 145L
		-40DCZ	155 x 155L
		-50DCZ	165 x 165L
		-75DCZ	190 x 190L
		-100DCZ	215 x 215L
C□Q2B200-10DCZ	39	135	CQ-M18 x 135L
		-20DCZ	145 x 145L
		-30DCZ	155 x 155L
		-40DCZ	165 x 165L
		-50DCZ	175 x 175L
		-75DCZ	200 x 200L
		-100DCZ	225 x 225L

## Construction



### Component Parts

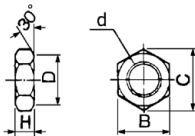
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover	Carbon steel	Nickel plated
3	Piston	Aluminum alloy	Chromated
4	Piston rod	Carbon steel	Hard chrome plated
5	Rod cover	Carbon steel	Nickel plated
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bumper	Urethane	
8	Bushing	Bearing alloy	
9	Wear ring	Resin	
10	Magnet	—	For CDQ2B□ only
11	Rod end nut	Carbon steel	Nickel plated
12	Piston seal	NBR	
13	Rod seal	NBR	
14	Tube gasket	NBR	

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
125	CQ2B125-PS	Kits include items ⑫, ⑬, ⑭ from the table.
140	CQ2B140-PS	
160	CQ2B160-PS	
180	CQ2B180-PS	
200	CQ2B200-PS	

- \* Seal kit includes ⑫, ⑬, ⑭. Order the seal kit, based on each bore size.
- \* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.: GR-S-010 (10 g)**

### Rod End Nut



Material: Carbon steel  
Surface treatment: Nickel plated

Part no.	Applicable bore size (mm)	d	H	B	C	D
NT-12	125, 140	M30 x 1.5	18	46	53.1	44
NT-16	160, 180, 200	M36 x 1.5	21	55	63.5	53

### Retaining Ring Installation/Removal

#### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

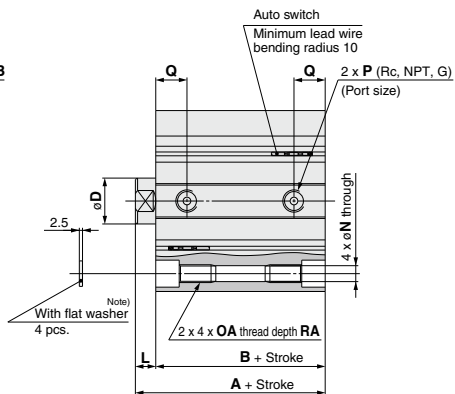
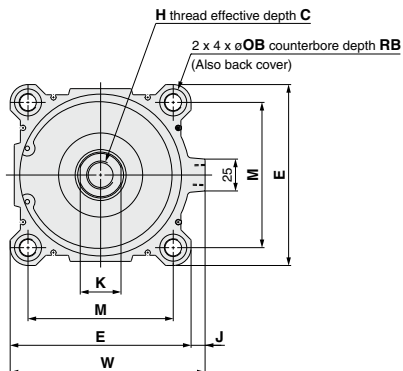
# Series CQ2

## Dimensions

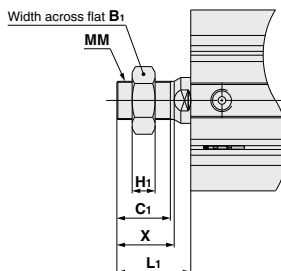
### Ø125 to Ø160

Standard (Through-hole): C□Q2B

The dimensions are the same with or without an auto switch.



#### Rod end male thread



#### Rod End Male Thread (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
125	46	42	18	58	M30 x 1.5	45
140	46	42	18	58	M30 x 1.5	45
160	55	47	21	64	M36 x 1.5	50

Bore size (mm)	Standard stroke	A	B	C	D	E	H	J	K	L	M	N	OA	OB	P	Q	RA	RB	W
125	10, 20, 30, 40, 50	99	83	30	36	142	M22 x 2.5	11	32	16	114	12.5	M14 x 2	21.2	3/8	24.5	25	18.4	153
140	75, 100, 125, 150	99	83	30	36	158	M22 x 2.5	10	32	16	128	12.5	M14 x 2	21.2	3/8	24.5	25	18.4	168
160	175, 200, 250, 300	108	91	33	40	178	M24 x 3	10	36	17	144	14.5	M16 x 2	24.2	3/8	27.5	28	21.2	188

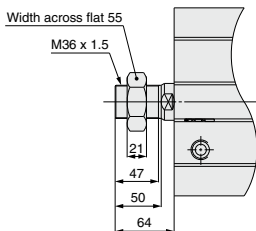
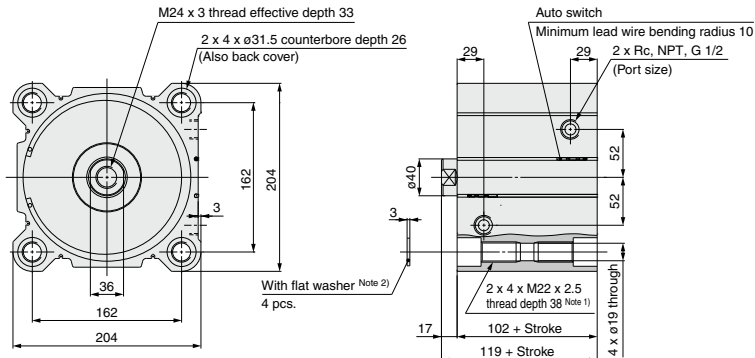
Note) Be sure to use the attached flat washer for mounting cylinder with through-holes.

Dimensions

**Ø180, Ø200**

**Ø180**

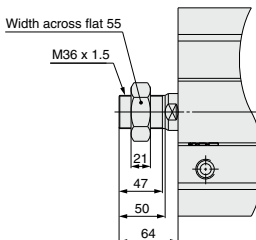
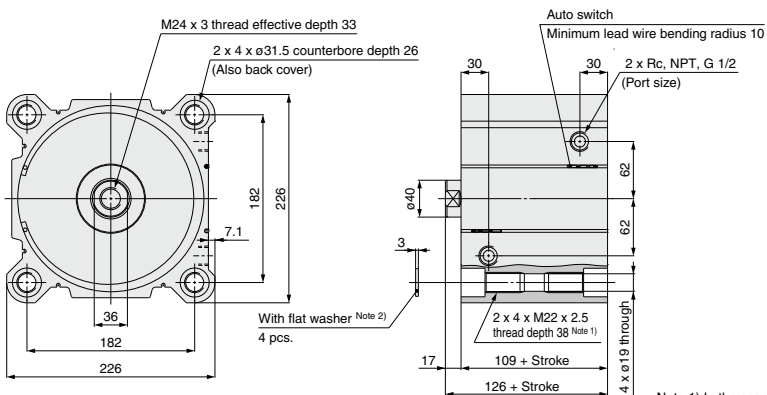
The dimensions are the same with or without an auto switch.



Note 1) In the case of 20 mm stroke or less, it would come with 2 x 4 x M22 x 2.5 through thread.

Note 2) Be sure to use the attached flat washer for mounting cylinder with through-holes.

**Ø200**



Note 1) In the case of 20 mm stroke or less, it would come with 2 x 4 x M22 x 2.5 through thread.

Note 2) Be sure to use the attached flat washer for mounting cylinder with through-holes.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data



# Compact Cylinder: Large Bore Size Double Acting, Double Rod Series CQ2W

ø125, ø140, ø160, ø180, ø200

## How to Order

Without auto switch

CQ2WB 125 [ ] - 30 DC [ ] Z - [ ]

With auto switch

CDQ2WB 125 [ ] - 30 DC [ ] Z - M9BW [ ] - [ ]

With auto switch  
(Built-in magnet)

Type  
W Double rod

Mounting

B Through-hole/Both ends tapped common (Standard)

\* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQ2WB" on page 851.

Bore size

125	125 mm
140	140 mm
160	160 mm
180	180 mm
200	200 mm

Port thread type

Nil	Rc
TN	NPT
TF	G

Cylinder stroke (mm)

Refer to page 849 for standard strokes.

Made to Order  
Refer to page 849 for details.

Number of auto switches

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

Auto switch

Nil Without auto switch

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

Auto switch mounting groove

Z ø125 to ø200 4 surfaces

Body option

Nil	Standard (Rod end female thread)
M	Rod end male thread

Cushion

C Rubber bumper

Action

D Double acting

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2WB140-30DCZ

### Applicable Auto Switches

Refer to pages 1559 to 1673 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	Relay, PLC
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○	
				2-wire				M9BV	M9B	●	●	●	○	—	○	
	3-wire (NPN)			M9NW	M9NW	●	●	●	○	—	○					
	3-wire (PNP)			M9PW	M9PW	●	●	●	○	—	○					
	2-wire			M9BW	M9BW	●	●	●	○	—	○					
	Water resistant (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NAV*1	M9NA*1	●	●	●	○	—	○	
				3-wire (PNP)				M9PAV*1	M9PA*1	●	●	●	○	—	○	
				2-wire				M9BAV*1	M9BA*1	●	●	●	○	—	○	
Reed auto switch	—	Grommet	No	3-wire (NPN equivalent)	24 V	5 V, 12 V	100 V or less	A96V	A96	●	—	—	—	—	○	
				2-wire				A93V*2	A93	●	●	●	○	—	—	○
								A90V	A90	●	—	—	—	—	○	

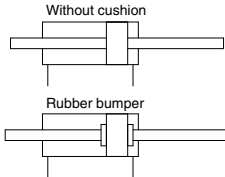
\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.  
 \*2 1 m type lead wire is only applicable to D-A93.  
 \* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
 1 m ..... M (Example) M9NWM  
 3 m ..... L (Example) M9NWL  
 5 m ..... Z (Example) M9NWZ  
 \* Solid state auto switches marked with "○" are produced upon receipt of order.  
 \* There are other applicable auto switches other than the listed above. For details, refer to page 960.  
 \* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

# Compact Cylinder: Large Bore Size Double Acting, Double Rod *Series CQ2W*

## Specifications



### Symbol



**Made to Order: Individual Specifications**  
(For details, refer to pages 968 to 971.)

Symbol	Specifications
-X235	Special rod end for double rod cylinder
-X271	Fluororubber seals, $\phi 125$ to $\phi 160$ only
-X633	Intermediate stroke of double rod cylinder,

### Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB10	Intermediate stroke (Exclusive body type)
-XC85	Grease for food processing equipment

\* -X633: Intermediate stroke in 5 mm intervals only

Bore size (mm)	125	140	160	180	200
Action	Double acting, Double rod				
Fluid	Air				
Proof pressure	1.5 MPa			1.05 MPa	
Maximum operating pressure	1.0 MPa			0.7 MPa	
Minimum operating pressure	0.05 MPa				
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)				
Lubrication	Not required (Non-lube)				
Piston speed	50 to 500 mm/s			20 to 400 mm/s	
Allowable kinetic energy (J)	7.4	9.8	12.4		
Stroke length tolerance	+1.4 mm (Note) 0				

Note) Stroke length tolerance does not include the amount of bumper change.

## Standard Strokes

Bore size (mm)	Standard stroke (mm)
125, 140, 160 180, 200	10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	Exclusive body (-XB10)
Part no.	Suffix "-X633" to the end of standard model number. (P. 848)	Suffix "-XB10" to the end of standard model number. (P. 848)
Description	Strokes in 5 mm intervals are available by installing a spacer in the standard stroke cylinder.	Strokes in 1 mm intervals are available by using an exclusive body with the specified stroke.
Stroke range	5 to 295	11 to 299
Example	Part no.: CQ2WB160-165DCZ-X633 CQ2WB160-175DCZ with 10 mm width spacer inside The B dimension is 266 mm.	Part no.: CQ2WB160-165DCZ-XB10 Makes 165 mm stroke tube. The B dimension is 256 mm.

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Series CQ2W

## Retaining Ring Installation/Removal

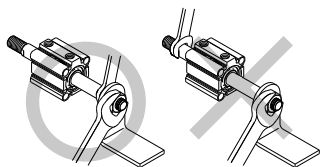
### ⚠ Caution

1. For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
2. Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

## Mounting

### ⚠ Warning

Do not apply reverse torque to the piston rods sticking out from both sides of this cylinder at the same time. The torque makes connection threads inside loosen, which may cause an accident or malfunction. Install or remove loads while the piston rod width across flat is secured. Do not fix the other side of the piston rod width across flat and apply reverse torque.



## Theoretical Output

Bore size (mm)	Operating pressure (MPa)		
	0.3	0.5	0.7
<b>125</b>	3376	5627	7878
<b>140</b>	4313	7188	10063
<b>160</b>	5655	9425	13195
<b>180</b>	7257	12095	16933
<b>200</b>	9048	15080	21112

## Weight

### Without Auto Switch

Bore size (mm)	Cylinder stroke (mm)												
	10	20	30	40	50	75	100	125	150	175	200	250	300
<b>125</b>	5.47	5.76	6.05	6.37	6.68	7.47	8.24	9.03	9.82	10.60	11.39	12.96	14.52
<b>140</b>	6.43	6.73	7.06	7.40	7.75	8.61	9.47	10.33	11.20	12.06	12.92	14.64	16.37
<b>160</b>	8.87	9.26	9.65	10.07	10.49	11.53	12.58	13.63	14.68	15.72	16.77	18.87	20.96
<b>180</b>	11.75	12.23	12.73	13.21	13.70	14.91	16.13	17.34	18.56	19.77	20.99	23.42	25.86
<b>200</b>	14.89	15.42	15.94	16.47	16.98	18.30	19.61	20.92	21.23	23.54	24.85	27.47	30.10

### With Auto Switch

Bore size (mm)	Cylinder stroke (mm)												
	10	20	30	40	50	75	100	125	150	175	200	250	300
<b>125</b>	5.53	5.82	6.11	6.43	6.74	7.53	8.30	9.09	9.88	10.66	11.45	13.02	14.58
<b>140</b>	6.50	6.80	7.13	7.47	7.82	8.68	9.54	10.40	11.27	12.13	12.99	14.71	16.44
<b>160</b>	8.95	9.34	9.73	10.15	10.57	11.61	12.66	13.71	14.76	15.80	16.85	18.95	21.04
<b>180</b>	11.83	12.31	12.81	13.29	13.78	14.99	16.21	17.42	18.64	19.85	21.07	23.50	25.94
<b>200</b>	14.97	15.50	16.02	16.55	17.06	18.38	19.69	21.00	21.31	23.62	24.93	27.55	30.18

### Additional Weight

Bore size (mm)		125	140	160, 180, 200
Rod end male thread	Male thread	0.62	0.62	0.96
	Nut	0.32	0.32	0.52

Calculation: (Example) **CDQ2WB125-30DCMZ**

- Basic weight: CDQ2WB125-30DCZ .....6.11 kg
  - Additional weight: Rod end male thread .....0.94 kg
- 7.05 kg

## Mounting Bolt for CQ2WB

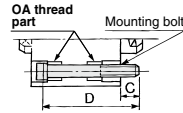
Mounting method: Mounting bolt for through-hole mounting of the C(D)Q2WB is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

### Example) CQ-M12 x 100L 4 pcs.

Note 1) To install a through-hole type mounting bolt, make sure to use the flat washer that is provided.

Note 2) For mounting bolts for the stroke length exceeding 100 mm, use the OA screw provided on the cylinder tube to secure the cylinder.

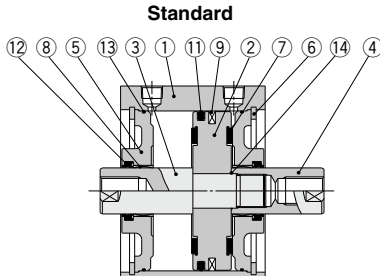
Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



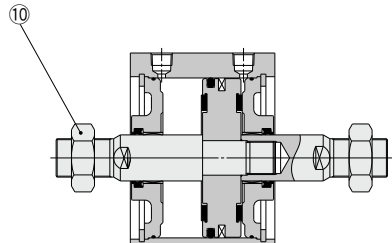
Cylinder model	C	D	Mounting bolt part no.
<b>C□Q2WB125/140-10DCZ</b>	22.9	100	CQ-M12 x 100L
-20DCZ		110	x 110L
-30DCZ		120	x 120L
-40DCZ		130	x 130L
-50DCZ		140	x 140L
-75DCZ		165	x 165L
-100DCZ		190	x 190L
<b>C□Q2WB160-10DCZ</b>	27.7	110	CQ-M14 x 110L
-20DCZ		120	x 120L
-30DCZ		130	x 130L
-40DCZ		140	x 140L
-50DCZ		150	x 150L
-75DCZ		175	x 175L
-100DCZ		200	x 200L

Cylinder model	C	D	Mounting bolt part no.
<b>C□Q2WB180-10DCZ</b>	36	125	CQ-M18 x 125L
-20DCZ		135	x 135L
-30DCZ		145	x 145L
-40DCZ		155	x 155L
-50DCZ		165	x 165L
-75DCZ		190	x 190L
-100DCZ		215	x 215L
<b>C□Q2WB200-10DCZ</b>	39	135	CQ-M18 x 135L
-20DCZ		145	x 145L
-30DCZ		155	x 155L
-40DCZ		165	x 165L
-50DCZ		175	x 175L
-75DCZ		200	x 200L
-100DCZ		225	x 225L

## Construction



Standard



Rod end male thread

## Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod A	Carbon steel	Hard chrome plated
4	Piston rod B	Carbon steel	Hard chrome plated
5	Rod cover	Carbon steel	Nickel plated
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bumper	Resin	
8	Bushing	Bearing alloy	
9	Magnet	—	For CDQ2WB□ only
10	Rod end nut	Carbon steel	Nickel plated
11	Piston seal	NBR	
12	Rod seal	NBR	
13	Tube gasket	NBR	
14	Piston gasket	NBR	

## Replacement Parts/Seal Kit

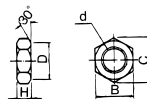
Bore size (mm)	Kit no.	Contents
125	CQ2WB125-PS	Kits include items ⑪, ⑫, ⑬ from the table.
140	CQ2WB140-PS	
160	CQ2WB160-PS	
180	CQ2WB180-PS	
200	CQ2WB200-PS	

\* Seal kit includes ⑪, ⑫, ⑬. Order the seal kit, based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.

Grease pack part no.: GR-S-010 (10 g)

## Rod End Nut



Material: Carbon steel  
Surface treatment: Nickel plated

Part no.	Applicable bore size (mm)	d	H	B	C	D
NT-12	125, 140	M30 x 1.5	18	46	53.1	44
NT-16	160, 180, 200	M36 x 1.5	21	55	63.5	53

CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

-Z

D-□

-X□

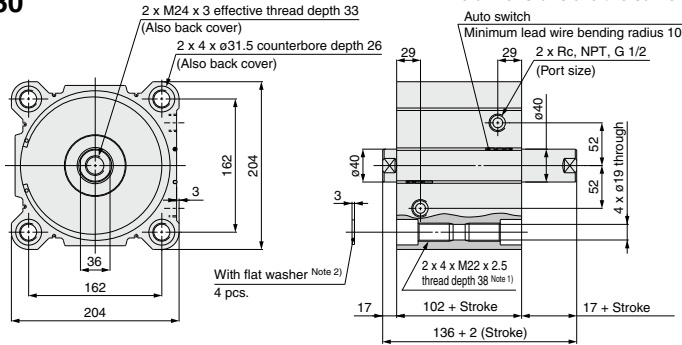
Technical data



Dimensions

**Ø180, Ø200**

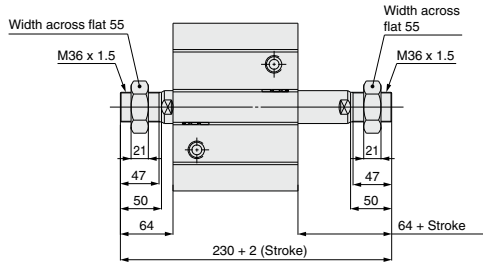
**Ø180**



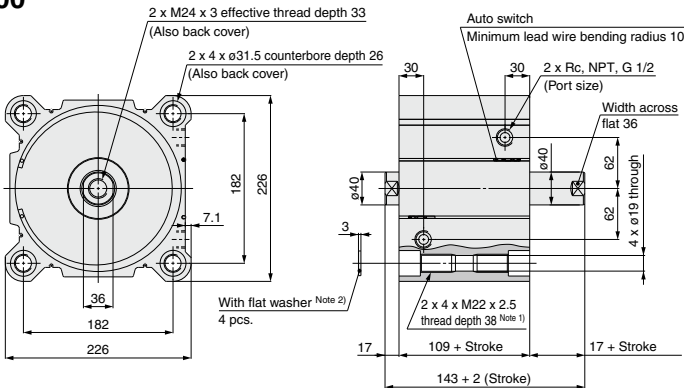
The dimensions are the same with or without an auto switch.

Note 1) In the case of 20 mm stroke or less, it would come with 2 x 4 x M22 x 2.5 through thread.

Note 2) Be sure to use the attached flat washer for mounting cylinder with through-holes.

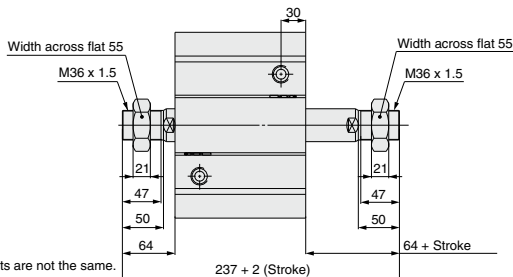


**Ø200**



Note 1) In the case of 20 mm stroke or less, it would come with 2 x 4 x M22 x 2.5 through thread.

Note 2) Be sure to use the attached flat washer for mounting cylinder with through-holes.



\* The positions of double rod width across flats are not the same.

CJ
CU
CQS
CQ2-Z
RQ
CQM
CQU
MU-Z

D-□
-X□

Technical data

# Compact Cylinder: Long Stroke Double Acting, Single Rod Series CQ2

ø32, ø40, ø50, ø63, ø80, ø100

## How to Order

Without auto switch

CQ2 A 32 - 200 DC Z -

With auto switch

CDQ2 A 32 - 200 DC Z - M9BW -

With auto switch  
(Built-in magnet)

### Mounting

A	Both ends tapped
L	Foot
LC	Compact foot
F	Rod flange
G	Head flange
D	Double clevis

\* Mounting brackets are shipped together (but not assembled).

### Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

### Port thread type

Nil	Rc
TN	NPT
TF	G
F	Built-in One-touch fittings (Note 1)

Note 1) Bore sizes available with One-touch fittings are ø32 to ø63.

### Cylinder stroke (mm)

Refer to page 855 for standard strokes.

### Action

D Double acting

### Cushion

C Rubber bumper

### Number of auto switches

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

### Made to Order

Refer to page 855 for details.

### Auto switch

Nil Without auto switch

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

### Auto switch mounting groove

Z 4 surfaces

### Body option

Nil	Standard (Rod end female thread)
M	Rod end male thread

## Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDQ2L40-200DCZ

Refer to pages 1559 to 1673 for further information on auto switches.

## Applicable Auto Switches

Refer to pages 1614 and 1615 for the D-P3DW type.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	○	—	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9PV	M9P	●	●	○	—	—			
				2-wire				M9BV	M9B	●	●	○	—	—	○		
				3-wire (NPN)				M9NVW	M9NW	●	●	○	—	—	○		
	Water resistant (2-color indication)	Grommet	Yes	3-wire (PNP)	24 V	5 V, 12 V	—	M9PVW	M9PW	●	●	○	—	—	○	IC circuit	
				2-wire				M9BWW	M9BW	●	●	○	—	—	○		
				3-wire (NPN)				M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	●	—	—	○		
				3-wire (PNP)				M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	●	—	—	○		
Magnetic field resistant (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	●	—	—	○	—		
			2-wire (Non-polar)				—	—	—	P3DWA	●	—	●	—		—	○
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	—	—	—	—	—	IC circuit	—
				2-wire				—	—	—	A93V <sup>*2</sup>	A93	●	●	●		
Reed auto switch	—	Grommet	No	2-wire	24 V	5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	IC circuit	Relay, PLC
				—				—	—	—	—	—	—	—	—		

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWX

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

\* There are other applicable auto switches other than the listed above. For details, refer to page 960.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

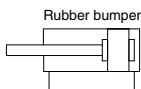
For the D-P3DWA, refer to the WEB catalog.

# Compact Cylinder: Long Stroke Double Acting, Single Rod *Series CQ2*

## Specifications



### Symbol



Bore size (mm)	32	40	50	63	80	100
<b>Action</b>	Double acting, Single rod					
<b>Fluid</b>	Air					
<b>Proof pressure</b>	1.5 MPa					
<b>Maximum operating pressure</b>	1.0 MPa					
<b>Minimum operating pressure</b>	0.05 MPa					
<b>Ambient and fluid temperature</b>	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)					
<b>Lubrication</b>	Not required (Non-lube)					
<b>Piston speed</b>	50 to 500 mm/s					
<b>Allowable kinetic energy (J)</b>	0.29	0.52	0.91	1.54	2.71	4.54
<b>Stroke length tolerance</b>	+1.4 mm Note) 0					

Note) Stroke length tolerance does not include the amount of bumper change.

## Standard Strokes

Bore size	Standard stroke
32, 40, 50 63, 80, 100	125, 150, 175, 200, 250, 300



**Made to Order: Individual Specifications**  
(For details, refer to page 968.)

Symbol	Specifications
-X271	Fluororubber seals

### Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB10	Intermediate stroke (Exclusive body type)
-XC4	With heavy-duty scraper
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-XC35	With coil scraper
-XC85	Grease for food processing equipment

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body,	Exclusive body (-XB10)
<b>Part no.</b>	Refer to "How to Order" for the standard model number. (P. 854)	Suffix "-XB10" to the end of standard model number. (P. 854)
<b>Description</b>	Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.	Strokes in 1 mm intervals are available by using an exclusive body with the specified stroke.
<b>Stroke range</b>	101 to 299	101 to 299
<b>Example</b>	Part no.: CQ2A50-166DCZ CQ2A50-175DCZ with 9 mm width spacer inside The B dimension is 230.5 mm.	Part no.: CQ2A50-166DCZ-XB10 Makes 166 mm stroke tube. The B dimension is 221.5 mm.

## Type

Bore size (mm)		32	40	50	63	80	100		
Pneumatic	Built-in magnet	●	●	●	●	●	●		
	Piping	Pipe thread	—	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8	Rc3/8
			TN	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8	NPT3/8
		Built-in One-touch fittings <sup>(Note)</sup>	ø6	ø6	ø8	ø8	—	—	
Rod end male thread		●	●	●	●	●	●		

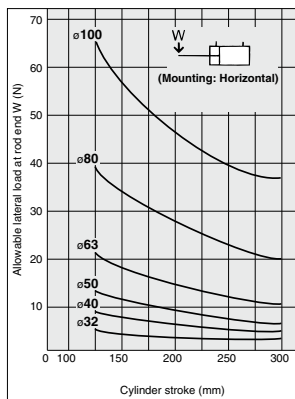
Note) One-touch fittings cannot be replaced.

Refer to pages 954 to 960 for the specifications of cylinders with auto switches.
<ul style="list-style-type: none"> <li>• Auto switch proper mounting position (detection at stroke end) and its mounting height</li> <li>• Minimum stroke for auto switch mounting</li> <li>• Operating range</li> <li>• Auto switch mounting brackets/Part no.</li> </ul>



# Series CQ2

## Allowable Lateral Load at Rod End



## Mounting Brackets/ Part No.

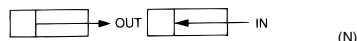
Bore size (mm)	Foot <sup>Note 1)</sup>	Compact foot <sup>Note 1)</sup>	Flange	Double clevis
32	CQ-L032	CQ-LC032	CQ-F032	CQ-D032
40	CQ-L040	CQ-LC040	CQ-F040	CQ-D040
50	CQ-L050	CQ-LC050	CQ-F050	CQ-D050
63	CQ-L063	CQ-LC063	CQ-F063	CQ-D063
80	CQ-L080	CQ-LC080	CQ-F080	CQ-D080
100	CQ-L100	CQ-LC100	CQ-F100	CQ-D100

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows.  
 Foot, Compact foot, Flange; Body mounting bolts  
 Double clevis: Clevis pin, Body mounting bolts,  
 Type C retaining rings for axis

## Theoretical Output

Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1155
	OUT	589	982	1374



Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
63	IN	841	1402	1962
	OUT	935	1559	2182
80	IN	1361	2268	3175
	OUT	1508	2513	3519
100	IN	2144	3574	5003
	OUT	2356	3927	5498

## Weight

### Without Auto Switch

Bore size (mm)	Cylinder stroke (mm)					
	125	150	175	200	250	300
32	708	817	918	1017	1215	1415
40	888	997	1107	1217	1438	1657
50	1352	1517	1682	1841	2177	2507
63	1706	1900	2095	2292	2676	3065
80	2832	3130	3429	3725	4324	4921
100	4540	4906	5270	5634	6367	7096

### With Auto Switch

Bore size (mm)	Cylinder stroke (mm)					
	125	150	175	200	250	300
32	726	826	927	1026	1224	1424
40	902	1012	1121	1231	1451	1671
50	1367	1532	1697	1856	2192	2522
63	1730	1924	2119	2316	2700	3089
80	2856	3154	3453	3749	4348	4945
100	4578	4944	5308	5672	6405	7134

### Additional Weight

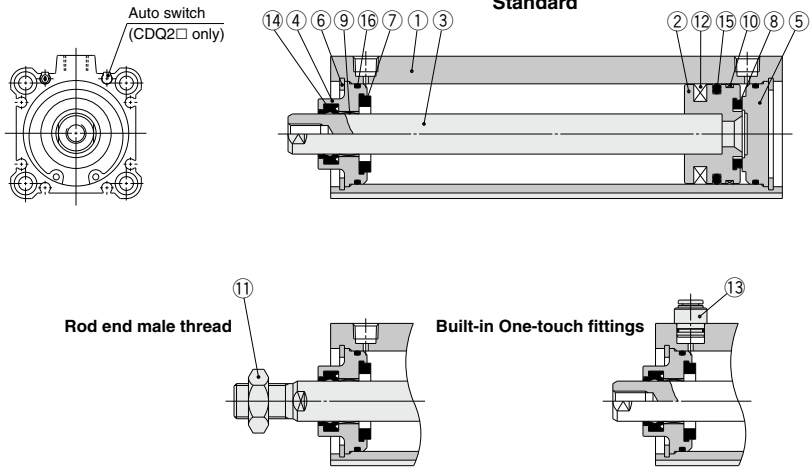
Bore size (mm)		32	40	50	63	80	100
Rod end male thread	Male thread	26	27	53	53	120	175
	Nut	17	17	32	32	49	116
Foot (Including mounting bolts)		146	158	253	349	672	1113
Compact foot (Including mounting bolts)		99	114	177	241	501	770
Rod flange (Including mounting bolts)		165	198	348	534	1017	1309
Head flange (Including mounting bolts)		165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)		151	196	393	554	1109	1887

Calculation: (Example) **CQ2D32-200DCMZ**

- Basic weight: CQ2A32-200DCZ.....1017 g
  - Additional weight: Rod end male thread .....43 g
  - Double clevis.....151 g
- 1211 g

Add each weight of auto switches when auto switches are mounted.

## Construction



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Carbon steel	Hard chrome plated
4	Collar	Aluminum alloy	Anodized
5	Bottom plate	Aluminum alloy	Anodized
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bumper A	Urethane	
8	Bumper B	Urethane	
9	Bushing	Bearing alloy	
10	Wear ring	Resin	
11	Rod end nut	Carbon steel	Zinc chromated
12	Magnet	—	For CDQ2A□ only
13	One-touch fitting	—	ø32 to ø63
14	Rod seal	NBR	
15	Piston seal	NBR	
16	Tube gasket	NBR	

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
32	CQ2A32-L-PS	Kits include items 14, 15, 16 from the table.
40	CQ2A40-L-PS	
50	CQ2A50-L-PS	
63	CQ2A63-L-PS	
80	CQ2A80-L-PS	
100	CQ2A100-L-PS	

- \* Seal kit includes 14, 15, 16. Order the seal kit, based on each bore size.
  - \* Since the seal kit does not include a grease pack, order it separately.
- Grease pack part no.:** GR-S-010 (10 g)

### Retaining Ring Installation/Removal

#### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

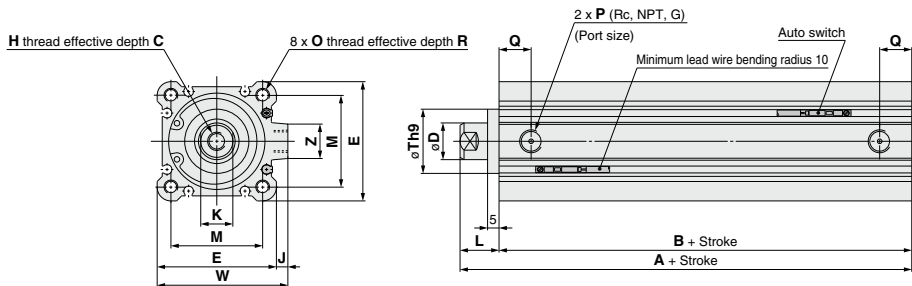
# Series CQ2

## Dimensions

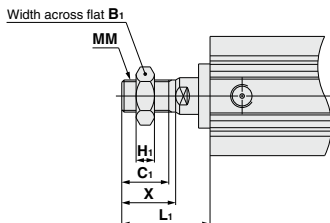
### ∅32 to ∅50

The dimensions are the same with or without an auto switch.

Both ends tapped: C□Q2A



Rod end male thread



Rod End Male Thread (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	38.5	M14 x 1.5	23.5
40	22	20.5	8	38.5	M14 x 1.5	23.5
50	27	26	11	43.5	M18 x 1.5	28.5

The dimensions with built-in One-touch fittings are equivalent to those of the CQ2 series, double acting, single rod. Refer to page 800.

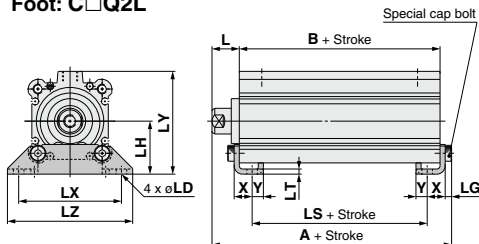
Both Ends Tapped For auto switch proper mounting position and its mounting height, refer to pages 954 to 960. (mm)

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	H	J	K	L	M	O	P	Q	R	Th9	W	Z
32	125 to 200 (Note 1)	62.5	45.5	13	16	45	M8 x 1.25	4.5	14	17	34	M6 x 1.0	1/8	10	10	22 <sup>0.002</sup>	49.5	14
		72	55	13	16	52	M8 x 1.25	5	14	17	40	M6 x 1.0	1/8	12.5	10	28 <sup>0.002</sup>	57	15
40	250, 300	73.5	55.5	15	20	64	M10 x 1.5	7	17	18	50	M8 x 1.25	1/4	14	14	35 <sup>0.002</sup>	71	19

Note 1) For 125 to 200 strokes, strokes are available in 25 mm intervals.

Note 2) For calculation on the longitudinal dimension of intermediate strokes, refer to page 855.

Foot: C□Q2L



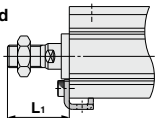
Foot (mm)

Bore size (mm)	A	B	L	L <sub>1</sub>	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
32	69.7	45.5	17	38.5	6.6	4	30	29.5	3.2	57	57	71	11.2	5.8
40	79.2	55	17	38.5	6.6	4	33	39	3.2	64	64	78	11.2	7
50	81.7	55.5	18	43.5	9	5	39	32.5	3.2	79	78	95	14.7	8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

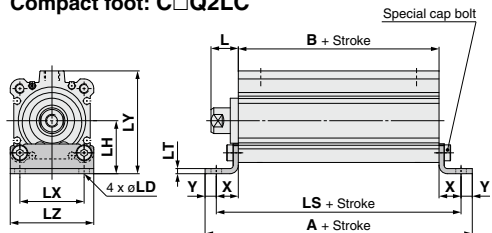
\* For details about the rod end nut and accessory brackets, refer to page 804.

Rod end male thread



The dimensions are the same with or without an auto switch.

## Compact foot: C□Q2LC

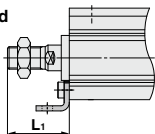


### Compact Foot

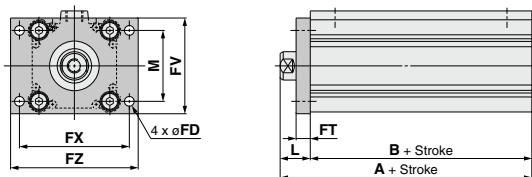
Bore size (mm)	A	B	L	L <sub>1</sub>	LD	LH	LS	LT	LX	LY	LZ	X	Y
32	84.5	45.5	17	38.5	6.6	30	72.9	3.2	34	57	45	13.7	5.8
40	96.4	55	17	38.5	6.6	33	82.4	3.2	40	64	52	13.7	7
50	104.9	55.5	18	43.5	9	39	88.9	3.2	50	78	64	16.7	8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

## Rod end male thread



## Rod flange: C□Q2F

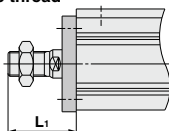


### Rod Flange

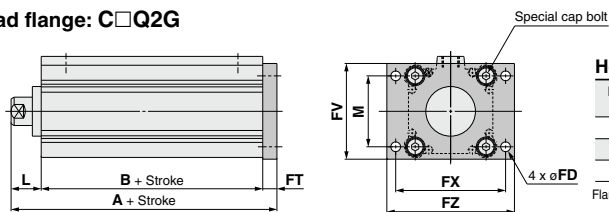
Bore size (mm)	A	B	FD	FT	FV	FX	FZ	L	L <sub>1</sub>	M
32	62.5	45.5	5.5	8	48	56	65	17	38.5	34
40	72	55	5.5	8	54	62	72	17	38.5	40
50	73.5	55.5	6.6	9	67	76	89	18	43.5	50

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

## Rod end male thread



## Head flange: C□Q2G



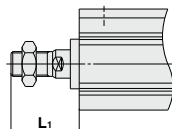
### Head Flange

Bore size (mm)	A
32	70.5
40	80
50	82.5

(\*) The dimensions except A are the same as those of the rod flange.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

## Rod end male thread

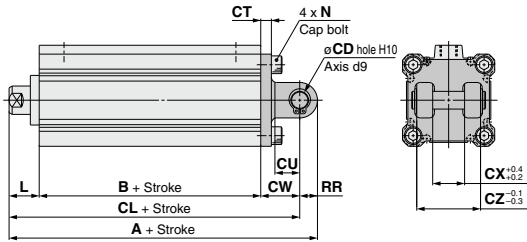


\* For details about the rod end nut and accessory brackets, refer to page 804.

# Compact Cylinder: Long Stroke Double Acting, Single Rod *Series CQ2*

The dimensions are the same with or without an auto switch.

## Double clevis: C□Q2D



## Double Clevis

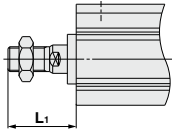
Bore size (mm)	A	B	CD	CL	CT	CU	CW	CX	CZ
32	92.5	45.5	10	82.5	5	14	20	18	36
40	104	55	10	94	6	14	22	18	36
50	115.5	55.5	14	101.5	7	20	28	22	44

Bore size (mm)	L	L <sub>1</sub>	N	RR
32	17	38.5	M6 x 1.0	10
40	17	38.5	M6 x 1.0	10
50	18	43.5	M8 x 1.25	14

Double clevis bracket material: Cast iron  
Surface treatment: Painted

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are shipped together.

## Rod end male thread



CJU

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

MU  
-Z

D-□

-X□

Technical  
data

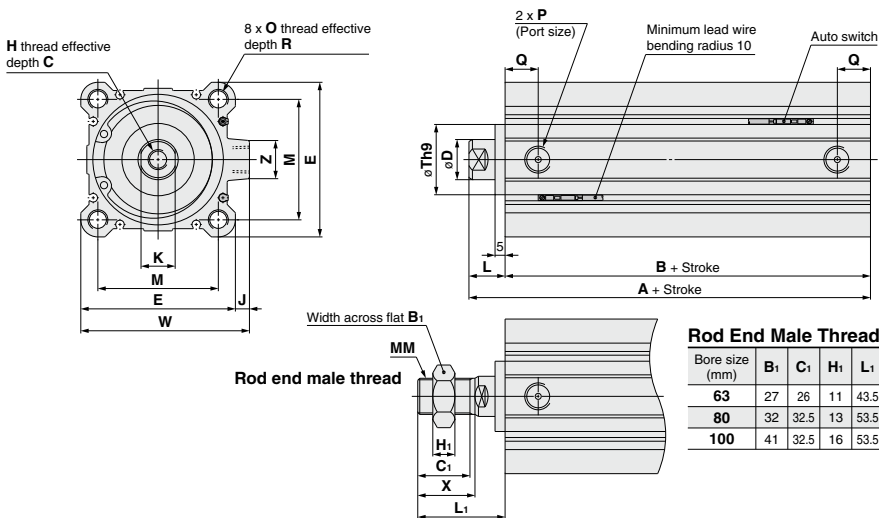
# Series CQ2

## Dimensions

### Ø63 to Ø100

Both ends tapped: C□Q2A

The dimensions are the same with or without an auto switch.



Rod End Male Thread							(mm)
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X	Z
63	27	26	11	43.5	M18 x 1.5	28.5	
80	32	32.5	13	53.5	M22 x 1.5	35.5	
100	41	32.5	16	53.5	M26 x 1.5	35.5	

The dimensions with built-in One-touch fittings are equivalent to those of the CQ2 series, double acting, single rod. Refer to page 802.

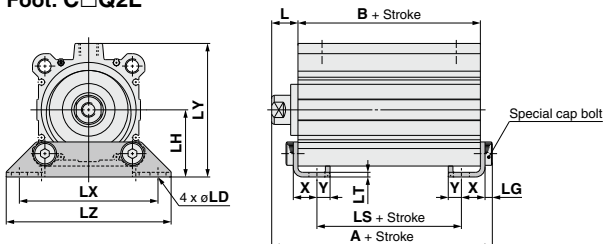
**Both Ends Tapped** For auto switch proper mounting position and its mounting height, refer to pages 954 to 960. (mm)

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	H	J	K	L	M	O	P	Q	R	Th9	W	Z
63	125 to 200 (Note 1) 250, 300	75	57	15	20	77	M10 x 1.5	7	17	18	60	M10 x 1.5	1/4	16.5	18	35 <sup>0</sup> <sub>-0.062</sub>	84	19
80		86	66	21	25	98	M16 x 2.0	6	22	20	77	M12 x 1.75	3/8	19	22	43 <sup>0</sup> <sub>-0.062</sub>	104	25
100		97.5	75.5	27	30	117	M20 x 2.5	6.5	27	22	94	M12 x 1.75	3/8	23	22	59 <sup>0</sup> <sub>-0.074</sub>	123.5	25

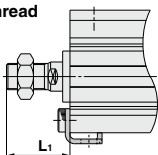
Note 1) For 125 to 200 strokes, strokes are available in 25 mm intervals.

Note 2) For calculation on the longitudinal dimension of intermediate strokes, refer to page 855.

**Foot: C□Q2L**



**Rod end male thread**



**Foot**

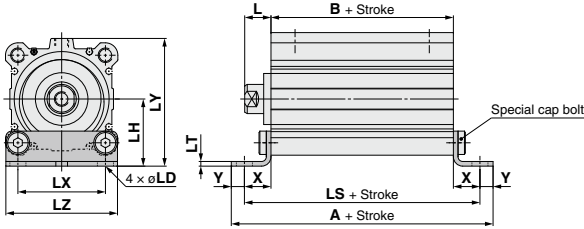
Foot														(mm)
Bore size (mm)	A	B	L	L <sub>1</sub>	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
63	83.2	57	18	43.5	11	5	46	31	3.2	95	91.5	113	16.2	9
80	97.5	66	20	53.5	13	7	59	36	4.5	118	114	140	19.5	11
100	110.5	75.5	22	53.5	13	7	71	41.5	6	137	136	162	23	12.5

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

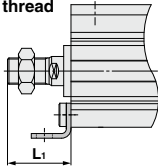
= For details about the rod end nut and accessory brackets, refer to page 804.

The dimensions are the same with or without an auto switch.

**Compact foot: C□Q2LC**



**Rod end male thread**

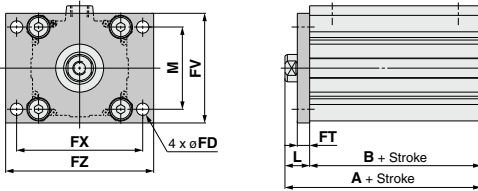


**Compact Foot**

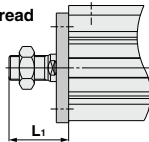
Bore size (mm)	A	B	L	L <sub>1</sub>	LD	LH	LS	LT	LX	LY	LZ	X	Y
63	111.4	57	18	43.5	11	46	93.4	3.2	60	91.5	77	18.2	9
80	133	66	20	53.5	13	59	111	4.5	77	114	98	22.5	11
100	148.5	75.5	22	53.5	13	71	123.5	6	94	136	117	24	12.5

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod flange: C□Q2F**



**Rod end male thread**

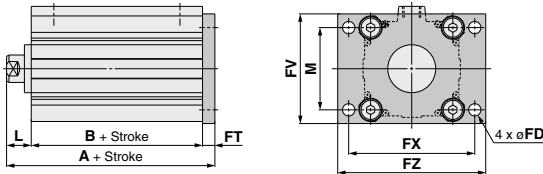


**Rod Flange**

Bore size (mm)	A	B	FD	FT	FV	FX	FZ	L	L <sub>1</sub>	M
63	75	57	9	9	80	92	108	18	43.5	60
80	86	66	11	11	99	116	134	20	53.5	77
100	97.5	75.5	11	11	117	136	154	22	53.5	94

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head flange: C□Q2G**



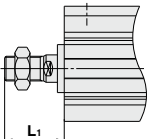
**Head Flange**

Bore size (mm)	A
63	84
80	97
100	108.5

(\* The dimensions except A are the same as those of the rod flange.)

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Rod end male thread**



\* For details about the rod end nut and accessory brackets, refer to page 804.

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

-Z

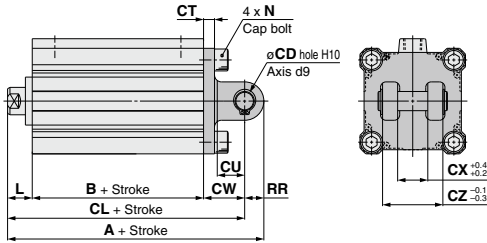
D-□

-X□

Technical data

The dimensions are the same with or without an auto switch.

Double clevis: C□Q2D



Double Clevis

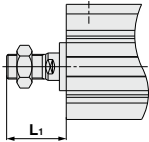
Bore size (mm)	A	B	CD	CL	CT	CU	CW	CX	CZ
63	119	57	14	105	8	20	30	22	44
80	142	66	18	124	10	27	38	28	56
100	164.5	75.5	22	142.5	13	31	45	32	64

Bore size (mm)	L	L <sub>1</sub>	N	RR
63	18	43.5	M10 x 1.5	14
80	20	53.5	M12 x 1.75	18
100	22	53.5	M12 x 1.75	22

Double clevis bracket material: Cast iron  
Surface treatment: Nickel plated

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are shipped together.

Rod end male thread



CUJ

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

MU  
-Z

D-□

-X□

Technical  
data



# Compact Cylinder: Non-rotating Rod Double Acting, Single Rod Series **CQ2K**

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63

## How to Order

**Without auto switch**  
ø12 to ø25

**CQ2K B 20** [ ] - **30 D** [ ] - [ ]

**Without auto switch**  
ø32 to ø63

**CQ2K B 32** [ ] - **30 D** [ ] **Z** - [ ]

**With auto switch**

**CDQ2K B 32** [ ] - **30 D** [ ] **Z** - **M9BW** [ ] - [ ]

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

**Non-rotating rod**

**Mounting**

<b>B</b>	Through-hole (Standard)	ø12 to ø63
<b>A</b>	Both ends tapped	
<b>L</b>	Foot	
<b>LC</b>	Compact foot	ø40, ø50, ø63
<b>F</b>	Rod flange	ø63
<b>G</b>	Head flange	
<b>D</b>	Double clevis	

**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

**Auto switch**

<b>Nil</b>	Without auto switch
------------	---------------------

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

**Auto switch mounting groove**

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø63	4 surfaces

**Body option**

<b>Nil</b>	Standard (Rod end female thread)
<b>F</b>	With boss on head end
<b>C</b>	With rubber bumper (ø12 with auto switch only)
<b>M</b>	Rod end male thread

\* Combination of body options ("FM") is available.

**Action**

<b>D</b>	Double acting
----------	---------------

**Built-in Magnet Cylinder Model**

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2KB32-30DZ

**Cylinder stroke (mm)**

Refer to page 864 for standard strokes.

**Refer to pages 1559 to 1673 for further information on auto switches.**

**Refer to pages 1614 and 1615 for the D-P3DW type.**

**Bore size**

12 (Note 1)	12 mm	32	32 mm
16	16 mm	40	40 mm
20	20 mm	50	50 mm
25	25 mm	63	63 mm

Note 1) When ø12 with auto switch is required, the body option should be with rubber bumper (C).  
Example) CDQ2KB12-30DCZ

**Port thread type**

<b>Nil</b>	M thread	ø12 to ø25
	Rc	
<b>TN</b>	NPT	ø32 to ø63
<b>TF</b>	G	
<b>F</b>	Built-in One-touch fittings (Note 2)	

Note 2) Bore sizes available with One-touch fittings are ø32 to ø63.

\* For cylinders without auto switch, M threads are compatible only for ø32-5 mm stroke model.

## Applicable Auto Switches

Refer to pages 1559 to 1673 for further information on auto switches.

Refer to pages 1614 and 1615 for the D-P3DW type.

Type	Special function	Electrical entry	In-cable/light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load			
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V	—	<b>M9NV</b>	<b>M9N</b>	●	●	○	—	○	IC circuit	Relay, PLC			
				3-wire (PNP)	12 V		<b>M9PV</b>	<b>M9P</b>	●	●	○	—	○					
				2-wire	12 V		<b>M9BV</b>	<b>M9B</b>	●	●	○	—	○					
				3-wire (NPN)	5 V		<b>M9NVW</b>	<b>M9NW</b>	●	●	○	—	○					
	Diagnostic indication (2-color indication)			3-wire (PNP)	12 V		<b>M9PW</b>	<b>M9PW</b>	●	●	○	—	○			IC circuit		
				2-wire	12 V		<b>M9BWW</b>	<b>M9BW</b>	●	●	○	—	○					
				Water resistant (2-color indication)	3-wire (NPN)		5 V	<b>M9NAV*1</b>	<b>M9NA*1</b>	○	○	●	○				○	IC circuit
					3-wire (PNP)		12 V	<b>M9PAV*1</b>	<b>M9PA*1</b>	○	○	●	○				○	
Magnetic field resistant (2-color indication)	2-wire	12 V	<b>M9BAV*1</b>	<b>M9BA*1</b>	○	○	●	○	○	—								
	2-wire (Non-polar)	—	<b>P3DWA</b>	●	—	●	●	—	○									
	3-wire (NPN equivalent)	—	<b>A96V</b>	<b>A96</b>	●	—	—	—	—		IC circuit							
Reed auto switch	—	Grommet	Yes	2-wire	24 V	<b>A93V*2</b>	<b>A93</b>	●	●	●	●	—	—	Relay, PLC				
				5 V, 12 V	<b>A90V</b>	<b>A90</b>	●	—	●	—	—	—	IC circuit					
				100 V or less														

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

\* Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
 1 m ..... M (Example) M9NVM  
 3 m ..... L (Example) M9NVL  
 5 m ..... Z (Example) M9NVZ

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

\* The D-P3DWA□ type is available from ø32 to ø63 only.

\* There are other applicable auto switches other than the listed above. For details, refer to page 960.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

For the D-P3DWA, refer to the **WEB catalog**.



**CUJ**

**CU**

**CQS**

**CQZ**

**Z**

**RQ**

**CQM**

**CQU**

**MU**

**-Z**

**D-□**

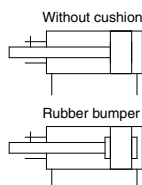
**-X□**

Technical data

# Series CQ2K



Symbol



**Made to Order: Individual Specifications**  
(For details, refer to page 973.)

Symbol	Specifications
-X1876	Cylinder tube: With concave boss on head end

## Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB10	Intermediate stroke (Exclusive body type): ø40 to ø63
-XC2(A)	Rod end length, 10 mm increased (For foot and flange bracket)
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod
-XC11	Dual stroke cylinder/Single rod
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

## Specifications

Bore size (mm)	12	16	20	25	32	40	50	63
Action	Double acting, Single rod							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.07 MPa	0.05 MPa						
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)							
Lubrication	Not required (Non-lube)							
Piston speed	50 to 500 mm/s							
Allowable kinetic energy (J)	0.022 0.043 Note 1)	0.038	0.055	0.09	0.15	0.26	0.46	0.77
Stroke length tolerance	+1.0 mm Note 2) 0							
Rod non-rotating accuracy	±2°	±1°				±0.8°		

\* ø12 with auto switch: With rubber bumper (Standard)

Note 1) For cylinders with rubber bumper (ø12 with auto switch only)

Note 2) Stroke length tolerance does not include the amount of bumper change.

## Standard Strokes

Bore size	Standard stroke (mm)
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	
Part no.	Refer to "How to Order" for the standard model number. (P. 863)	
Description	Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.	
Stroke range	Bore size	Stroke range
	12, 16	1 to 29
	20, 25	1 to 49
	32 to 63	1 to 99
Example	Part no.: CQ2KB50-57DZ CQ2KB50-75DZ with 18 mm width spacer inside The B dimension is 115.5 mm.	

## Type

Bore size (mm)	12	16	20	25	32	40	50	63		
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	
		Both ends tapped	—	—	—	—	●	●	●	
	Piping	Built-in magnet	●	●	●	●	●	●	●	
		Pipe thread	—	M5 x 0.8	M5 x 0.8	M5 x 0.8	M5 x 0.8 Note 1) Rc1/8	Rc1/8	Rc1/4	Rc1/4
			TN	—	—	—	NPT1/8	NPT1/8	NPT1/4	NPT1/4
		TF	—	—	—	—	G1/8	G1/8	G1/4	G1/4
	Built-in One-touch fittings	—	—	—	—	ø6 Note 2)	ø6	ø8	ø8	
	Rod end male thread	●	●	●	●	●	●	●	●	
	With boss on head end	●	●	●	●	●	●	●	●	

Note 1) ø32 without auto switch: M5 x 0.8 is used for 5 mm stroke piping dimension.

Thus, do not enter a symbol for the port thread type.

Note 2) The dimensions of the ø32-5 mm stroke with built-in One-touch fittings are the same as those of the 10 mm stroke cylinder tube.

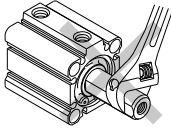
## Retaining Ring Installation/Removal

### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

## Mounting

- Install or remove loads while the piston rod width across flat is secured.



- Using a non-rotating rod cylinder  
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 deform, causing a loss of non-rotating accuracy.  
Use the below table as a guide for the allowable rotational torque ranges.

Allowable rotational torque	12	16	20	25	32	40	50	63
N·m or less	0.04	0.15	0.20	0.25	0.44	0.44	0.44	0.44

Operate the cylinder in such a way that the load to the piston rod is always applied in the axial direction.

- When a work piece is secured to the end of the piston rod, ensure that the piston rod is retracted entirely, and place a wrench on the portion of the rod that protrudes beyond the section. Also, tighten in a way that prevents the tightening torque from being applied to the non-rotating guide.

## Mounting Brackets/Part No.

Bore size (mm)	Foot <sup>Note 1)</sup>	Compact foot <sup>Note 1)</sup>	Flange	Double clevis
40	CQ-L040	CQ-LC040	CQ-F040	CQ-D040
50	CQ-L050	CQ-LC050	CQ-F050	CQ-D050
63	CQ-L063	CQ-LC063	CQ-F063	CQ-D063

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows.

Foot, Compact foot, Flange: Body mounting bolts  
Double clevis: Clevis pin, Body mounting bolts, Type C retaining rings for axis

## Theoretical Output

Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
12	IN	25	42	59
	OUT	34	57	79
16	IN	45	75	106
	OUT	60	101	141
20	IN	71	118	165
	OUT	94	157	220
25	IN	113	189	264
	OUT	147	245	344
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1150
	OUT	589	982	1370
63	IN	841	1400	1960
	OUT	935	1560	2180

## Weight

### Weight

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	60	67	74	81	88	95	—	—	—	—	—	—
16	58	67	76	85	94	103	—	—	—	—	—	—
20	103	117	131	145	159	173	187	201	215	229	—	—
25	137	152	167	182	197	212	227	242	257	272	—	—
32	196	215	234	253	272	291	310	329	347	366	506	601
40	205	226	248	269	291	312	333	355	376	398	570	682
50	—	356	390	424	457	491	525	559	592	626	901	1075
63	—	524	563	602	641	680	720	759	798	837	1173	1375

### Additional Weight

Bore size (mm)		12	16	20	25	32	40	50	63
Both ends tapped		—	—	—	—	—	6	6	19
Rod end male thread	Male thread	1.5	3	6	12	26	27	53	53
	Nut	1	2	4	8	17	17	32	32
With boss on head end		0.7	1.3	2	3	5	7	13	25
Built-in One-touch fittings		—	—	—	—	—	12	12	21
Foot (Including mounting bolts)		—	—	—	—	—	153	242	316
Compact foot (Including mounting bolts)		41	51	121	140	99	114	177	241
Rod flange (Including mounting bolts)		—	—	—	—	—	213	372	558
Head flange (Including mounting bolts)		—	—	—	—	—	198	348	534
Double clevis (Including pin, retaining rings, bolts)		—	—	—	—	—	196	393	554

Calculation: (Example) **CQ2KD40-20DMZ**

- Basic weight: CQ2KB40-20DZ ..... 269 g
- Additional weight: Both ends tapped ..... 6 g
- Rod end male thread ..... 44 g
- Double clevis ..... 196 g

515 g

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

-Z

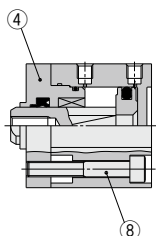
D-□

-X□

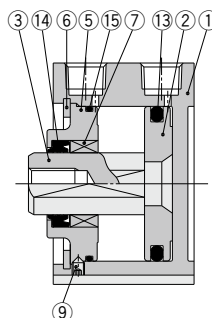
Technical data

## Construction

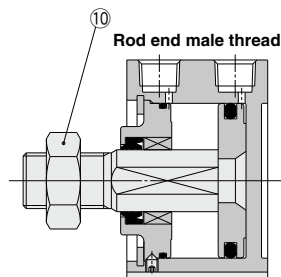
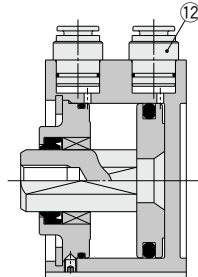
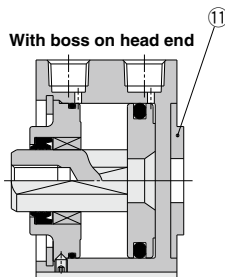
### Standard (ø12 to ø32)



### Standard (ø40 to ø63)



### Built-in One-touch fittings



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plated ø12, Electroless nickel plated
4	Rod cover	Aluminum alloy	ø16 to ø32, Anodized
		Brass	ø12, Electroless nickel plated
5	Collar	Aluminum alloy	ø40 to ø63, Anodized
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bushing	Oil-impregnated sintered alloy	ø16 to ø63
8	Hexagon socket head cap screw	Alloy steel	ø12 to ø32, Nickel plated
9	Hexagon socket set screw	Alloy steel	ø40 to ø63, Nickel plated
10	Rod end nut	Carbon steel	Zinc chromated
11	Centering location ring	Aluminum alloy	ø20 to ø63, Anodized
12	One-touch fitting	—	ø32 to ø63
13	Piston seal	NBR	
14	Rod seal	NBR	
15	Tube gasket	NBR	

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
12	CQ2KB12-PS	Kits include items 13, 14, 15 from the table.
16	CQ2KB16-PS	
20	CQ2KB20-PS	
25	CQ2KB25-PS	
32	CQ2KB32-PS	
40	CQ2KB40-PS	
50	CQ2KB50-PS	
63	CQ2KB63-PS	

\* Seal kit includes 13, 14, 15. Order the seal kit based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.

**Grease pack part no.: GR-S-010 (10 g)**

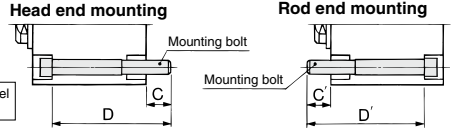
# Compact Cylinder: Non-rotating Rod Double Acting, Single Rod *Series CQ2K*

## Mounting Bolt for CQ2KB/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQ2KB is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 30L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
<b>CQ2KB12-5D</b>	6.5	30	CQ-M3 x 30L	6.5	30	CQ-M3 x 30L
-10D		35	x 35L		35	x 35L
-15D		40	x 40L		40	x 40L
-20D		45	x 45L		45	x 45L
-25D		50	x 50L		50	x 50L
-30D		55	x 55L		55	x 55L
<b>CQ2KB16-5D</b>	5	30	CQ-M3 x 30L	5	30	CQ-M3 x 30L
-10D		35	x 35L		35	x 35L
-15D		40	x 40L		40	x 40L
-20D		45	x 45L		45	x 45L
-25D		50	x 50L		50	x 50L
-30D		55	x 55L		55	x 55L
<b>CQ2KB20-5D</b>	8	35	CQ-M5 x 35L	9.5	35	CQ-M5 x 35L
-10D		40	x 40L		40	x 40L
-15D		45	x 45L		45	x 45L
-20D		50	x 50L		50	x 50L
-25D		55	x 55L		55	x 55L
-30D		60	x 60L		60	x 60L
-35D		65	x 65L		65	x 65L
-40D		70	x 70L		70	x 70L
-45D		75	x 75L		75	x 75L
-50D		80	x 80L		80	x 80L
<b>CQ2KB25-5D</b>	10	40	CQ-M5 x 40L	6.5	35	CQ-M5 x 35L
-10D		45	x 45L		40	x 40L
-15D		50	x 50L		45	x 45L
-20D		55	x 55L		50	x 50L
-25D		60	x 60L		55	x 55L
-30D		65	x 65L		60	x 60L
-35D		70	x 70L		65	x 65L
-40D		75	x 75L		70	x 70L
-45D		80	x 80L		75	x 75L
-50D		85	x 85L		80	x 80L
<b>CQ2KB32-5DZ</b>	8.5	40	CQ-M5 x 40L	10	40	CQ-M5 x 40L
-10DZ		45	x 45L		45	x 45L
-15DZ		50	x 50L		50	x 50L
-20DZ		55	x 55L		55	x 55L
-25DZ		60	x 60L		60	x 60L
-30DZ		65	x 65L		65	x 65L
-35DZ		70	x 70L		70	x 70L
-40DZ		75	x 75L		75	x 75L
-45DZ		80	x 80L		80	x 80L
-50DZ		85	x 85L		85	x 85L
-75DZ	120	x 120L	120	x 120L		
-100DZ	145	x 145L	145	x 145L		

Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
<b>CQ2KB40-5DZ</b>	7.5	35	CQ-M5 x 35L	7.5	35	CQ-M5 x 35L
-10DZ		40	x 40L		40	x 40L
-15DZ		45	x 45L		45	x 45L
-20DZ		50	x 50L		50	x 50L
-25DZ		55	x 55L		55	x 55L
-30DZ		60	x 60L		60	x 60L
-35DZ		65	x 65L		65	x 65L
-40DZ		70	x 70L		70	x 70L
-45DZ		75	x 75L		75	x 75L
-50DZ		80	x 80L		80	x 80L
-75DZ	115	x 115L	115	x 115L		
-100DZ	140	x 140L	140	x 140L		
<b>CQ2KB50-10DZ</b>	12.5	45	CQ-M6 x 45L	12.5	45	CQ-M6 x 45L
-15DZ		50	x 50L		50	x 50L
-20DZ		55	x 55L		55	x 55L
-25DZ		60	x 60L		60	x 60L
-30DZ		65	x 65L		65	x 65L
-35DZ		70	x 70L		70	x 70L
-40DZ		75	x 75L		75	x 75L
-45DZ		80	x 80L		80	x 80L
-50DZ		85	x 85L		85	x 85L
-75DZ		120	x 120L		120	x 120L
-100DZ	145	x 145L	145	x 145L		
<b>CQ2KB63-10DZ</b>	14.5	50	CQ-M8 x 50L	14.5	50	CQ-M8 x 50L
-15DZ		55	x 55L		55	x 55L
-20DZ		60	x 60L		60	x 60L
-25DZ		65	x 65L		65	x 65L
-30DZ		70	x 70L		70	x 70L
-35DZ		75	x 75L		75	x 75L
-40DZ		80	x 80L		80	x 80L
-45DZ		85	x 85L		85	x 85L
-50DZ		90	x 90L		90	x 90L
-75DZ		125	x 125L		125	x 125L
-100DZ	150	x 150L	150	x 150L		

**CJ**

**CU**

**CQS**

**CQZ-Z**

**RQ**

**CQM**

**CQU**

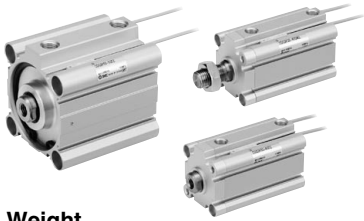
**MU-Z**

**D-□**

**-X□**

Technical data

# Non-rotating Rod: Double Acting, Single Rod Series **CDQ2K** With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.954 to 960
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

## Weight

### Weight

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	71	77	83	89	96	102	—	—	—	—	—	—
16	74	82	89	97	105	113	—	—	—	—	—	—
20	119	132	144	156	168	180	192	204	217	229	—	—
25	162	177	192	208	223	238	254	269	284	300	—	—
32	227	247	266	286	306	326	345	365	385	404	504	604
40	240	261	283	305	326	348	369	391	413	434	546	658
50	—	433	466	499	532	565	598	630	663	697	869	1041
63	—	622	660	698	736	774	812	850	888	926	1124	1321

### Additional Weight

Bore size (mm)		12	16	20	25	32	40	50	63
Both ends tapped		—	—	—	—	—	6	6	19
Rod end male thread	Male thread	1.5	3	6	12	26	27	53	53
	Nut	1	2	4	8	17	17	32	32
With boss on head end		0.7	1.3	2	3	5	7	13	25
Built-in One-touch fittings		—	—	—	—	12	12	21	21
Foot (Including mounting bolts)		—	—	—	—	—	153	242	316
Compact foot (Including mounting bolts)		32	40	97	116	99	114	177	241
Rod flange (Including mounting bolts)		—	—	—	—	—	213	372	558
Head flange (Including mounting bolts)		—	—	—	—	—	198	348	534
Double clevis (Including pin, retaining rings and bolts)		—	—	—	—	—	196	393	554

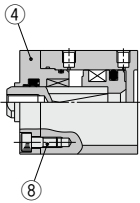
Calculation: (Example) **CDQ2KD40-25DMZ**

- Basic weight: CDQ2KB40-25DZ ..... 326 g
- Additional weight: Both ends tapped ..... 6 g
- Rod end male thread ..... 44 g
- Double clevis ..... 196 g

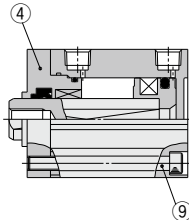
Add each weight of auto switches when auto switches are mounted.

## Construction

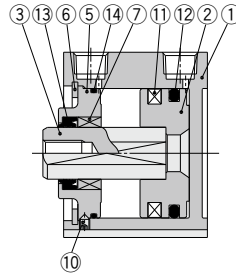
ø12 to ø25



ø32



ø40 to ø63



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plated
4	Rod cover	Brass	ø12, Electroless nickel plated
		Aluminum alloy	ø16 to ø32, Anodized
5	Collar	Aluminum alloy	ø40 to ø63, Anodized
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bushing	Oil-impregnated sintered alloy	ø16 to ø63
8	Hexagon socket head cap screw	Alloy steel	ø12 to ø25, Zinc chromated
9	Hexagon socket head cap screw	Alloy steel	ø32, Zinc chromated
10	Hexagon socket set screw	Alloy steel	ø40 to ø63, Zinc chromated
11	Magnet	—	—
12	Piston seal	NBR	—
13	Rod seal	NBR	—
14	Tube gasket	NBR	—

### Replacement Parts/Seal Kit (Pneumatic type (Non-lube))

Bore size (mm)	Kit no.	Contents
12	CQ2KB12-PS	Kits include items 12, 13, 14 from the table.
16	CQ2KB16-PS	
20	CQ2KB20-PS	
25	CQ2KB25-PS	
32	CQ2KB32-PS	
40	CQ2KB40-PS	
50	CQ2KB50-PS	
63	CQ2KB63-PS	

- \* Seal kit includes 12, 13, 14. Order the seal kit, based on each bore size.
- \* Since the seal kit does not include a grease pack, order it separately.

Grease pack part no.: GR-S-010 (10 g)

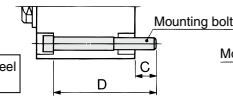
### Mounting Bolt for CDQ2KB/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQ2KB is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

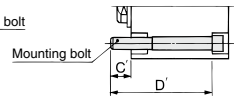
**Example) CQ-M3 x 35L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated

Head end mounting



Rod end mounting



Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
<b>CDQ2KB12-5DCZ</b>	5.5	35	CQ-M3 x 35L	5.5	40	CQ-M3 x 40L
<b>-10DCZ</b>		40	x 40L		45	x 45L
<b>-15DCZ</b>		45	x 45L		50	x 50L
<b>-20DCZ</b>		50	x 50L		55	x 55L
<b>-25DCZ</b>		55	x 55L		60	x 60L
<b>-30DCZ</b>		60	x 60L		65	x 65L
<b>CDQ2KB16-5DZ</b>	8	40	CQ-M3 x 40L	8	45	CQ-M3 x 45L
<b>-10DZ</b>		45	x 45L		50	x 50L
<b>-15DZ</b>		50	x 50L		55	x 55L
<b>-20DZ</b>		55	x 55L		60	x 60L
<b>-25DZ</b>		60	x 60L		65	x 65L
<b>-30DZ</b>		65	x 65L		70	x 70L
<b>CDQ2KB20-5DZ</b>	10.5	40	CQ-M5 x 40L	7.5	45	CQ-M5 x 45L
<b>-10DZ</b>		45	x 45L		50	x 50L
<b>-15DZ</b>		50	x 50L		55	x 55L
<b>-20DZ</b>		55	x 55L		60	x 60L
<b>-25DZ</b>		60	x 60L		65	x 65L
<b>-30DZ</b>		65	x 65L		70	x 70L
<b>-35DZ</b>		70	x 70L		75	x 75L
<b>-40DZ</b>	75	x 75L	80	x 80L		
<b>-45DZ</b>	80	x 80L	85	x 85L		
<b>-50DZ</b>	85	x 85L	90	x 90L		
<b>CDQ2KB25-5DZ</b>	9.5	40	CQ-M5 x 40L	6.5	45	CQ-M5 x 45L
<b>-10DZ</b>		45	x 45L		50	x 50L
<b>-15DZ</b>		50	x 50L		55	x 55L
<b>-20DZ</b>		55	x 55L		60	x 60L
<b>-25DZ</b>		60	x 60L		65	x 65L
<b>-30DZ</b>		65	x 65L		70	x 70L
<b>-35DZ</b>		70	x 70L		75	x 75L
<b>-40DZ</b>	75	x 75L	80	x 80L		
<b>-45DZ</b>	80	x 80L	85	x 85L		
<b>-50DZ</b>	85	x 85L	90	x 90L		
<b>CDQ2KB32-5DZ</b>	8.5	50	CQ-M5 x 50L	10	50	CQ-M5 x 50L
<b>-10DZ</b>		55	x 55L		55	x 55L
<b>-15DZ</b>		60	x 60L		60	x 60L
<b>-20DZ</b>		65	x 65L		65	x 65L
<b>-25DZ</b>		70	x 70L		70	x 70L
<b>-30DZ</b>		75	x 75L		75	x 75L
<b>-35DZ</b>	80	x 80L	80	x 80L		

Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
<b>CDQ2KB32-40DZ</b>	8.5	85	CQ-M5 x 85L	10	85	CQ-M5 x 85L
<b>-45DZ</b>		90	x 90L		90	x 90L
<b>-50DZ</b>		95	x 95L		95	x 95L
<b>-75DZ</b>		120	x 120L		120	x 120L
<b>-100DZ</b>		145	x 145L		145	x 145L
<b>CDQ2KB40-5DZ</b>	7.5	45	CQ-M5 x 45L	7.5	45	CQ-M5 x 45L
<b>-10DZ</b>		50	x 50L		50	x 50L
<b>-15DZ</b>		55	x 55L		55	x 55L
<b>-20DZ</b>		60	x 60L		60	x 60L
<b>-25DZ</b>		65	x 65L		65	x 65L
<b>-30DZ</b>		70	x 70L		70	x 70L
<b>-35DZ</b>		75	x 75L		75	x 75L
<b>-40DZ</b>	80	x 80L	80	x 80L		
<b>-45DZ</b>	85	x 85L	85	x 85L		
<b>-50DZ</b>	90	x 90L	90	x 90L		
<b>-75DZ</b>	115	x 115L	115	x 115L		
<b>-100DZ</b>	140	x 140L	140	x 140L		
<b>CDQ2KB50-10DZ</b>	12.5	55	CQ-M6 x 55L	12.5	55	CQ-M6 x 55L
<b>-15DZ</b>		60	x 60L		60	x 60L
<b>-20DZ</b>		65	x 65L		65	x 65L
<b>-25DZ</b>		70	x 70L		70	x 70L
<b>-30DZ</b>		75	x 75L		75	x 75L
<b>-35DZ</b>		80	x 80L		80	x 80L
<b>-40DZ</b>	85	x 85L	85	x 85L		
<b>-45DZ</b>	90	x 90L	90	x 90L		
<b>-50DZ</b>	95	x 95L	95	x 95L		
<b>-75DZ</b>	120	x 120L	120	x 120L		
<b>-100DZ</b>	145	x 145L	145	x 145L		
<b>CDQ2KB63-10DZ</b>	14.5	60	CQ-M8 x 60L	14.5	60	CQ-M8 x 60L
<b>-15DZ</b>		65	x 65L		65	x 65L
<b>-20DZ</b>		70	x 70L		70	x 70L
<b>-25DZ</b>		75	x 75L		75	x 75L
<b>-30DZ</b>		80	x 80L		80	x 80L
<b>-35DZ</b>		85	x 85L		85	x 85L
<b>-40DZ</b>		90	x 90L		90	x 90L
<b>-45DZ</b>	95	x 95L	95	x 95L		
<b>-50DZ</b>	100	x 100L	100	x 100L		
<b>-75DZ</b>	125	x 125L	125	x 125L		
<b>-100DZ</b>	150	x 150L	150	x 150L		

**CJ**

**CU**

**CQS**

**CQZ**

**-Z**

**RQ**

**CQM**

**CQU**

**MU**

**-Z**

**D-□**

**-X□**

Technical data

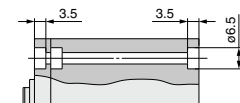
# Series CQ2K

## Dimensions

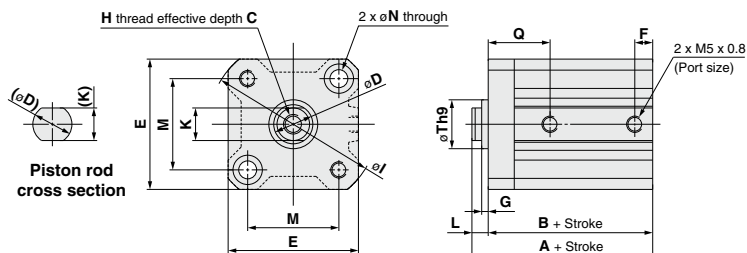
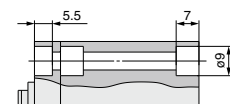
### Ø12 to Ø25/Without Auto Switch

Standard (Through-hole): CQ2KB

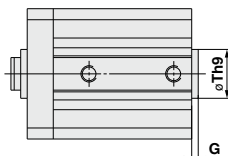
Ø12, Ø16



Ø20, Ø25



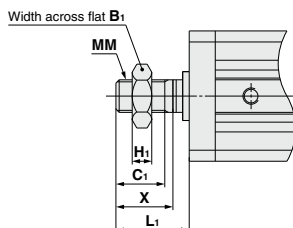
With boss on head end



With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15 <sup>+0.043</sup>
16	1.5	20 <sup>+0.052</sup>
20	2	13 <sup>+0.043</sup>
25	2	15 <sup>+0.043</sup>

Rod end male thread



Rod End Male Thread (mm)

Bore size (mm)	B1	C1	H1	L1	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

Standard

(mm)

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	G	H	I	K	L	M	N	Q	Th9
12	5 to 30	25.5	22	6	6	25	5	1.5	M3 x 0.5	32	5.2	3.5	15.5	3.5	12.5	15 <sup>+0.043</sup>
16	5 to 30	27	23.5	8	8	29	5.5	1.5	M4 x 0.7	38	6	3.5	20	3.5	13	20 <sup>+0.052</sup>
20	5 to 50	32	27.5	7	10	36	5.5	2	M5 x 0.8	47	8	4.5	25.5	5.5	16	13 <sup>+0.043</sup>
25	5 to 50	35.5	30.5	12	12	40	5.5	2	M6 x 1.0	52	10	5	28	5.5	17	15 <sup>+0.043</sup>

\* For details about the rod end nut and accessory brackets, refer to page 804.

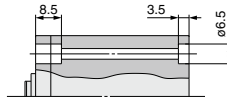
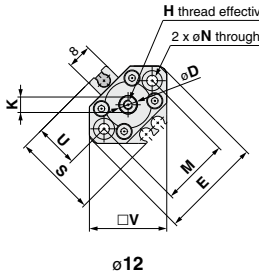


Dimensions

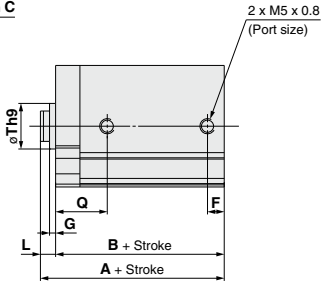
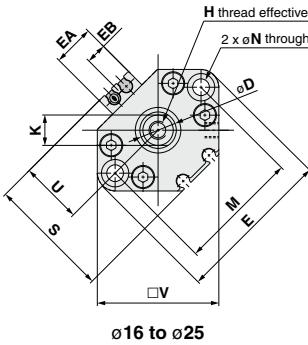
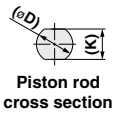
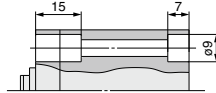
**Ø12 to Ø25/With Auto Switch**

Standard (Through-hole): **CDQ2KB**

Ø12, Ø16

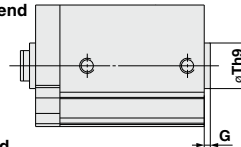


Ø20, Ø25

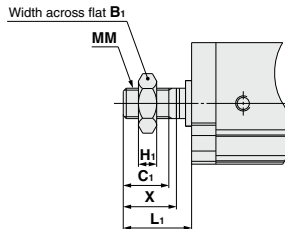


Ø16 to Ø25

With boss on head end



Rod end male thread



**Rod End Male Thread** (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

**Standard** For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

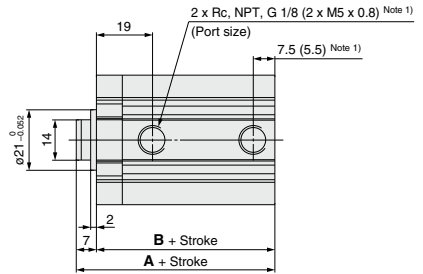
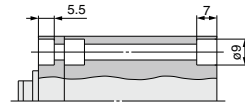
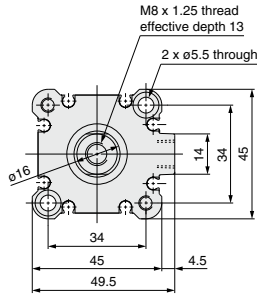
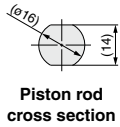
Bore size (mm)	Stroke range (mm)	A	B	C	D	E	EA	EB	F	G	H	K	L	M	N	Q	S	Th9	U	V
12	5 to 30	36.5	33	6	6	33	—	—	6.5	1.5	M3 x 0.5	5.2	3.5	22	3.5	16	27.5	15 <sup>+0.043</sup>	14	25
16	5 to 30	39	35.5	8	8	37	13.2	6.6	5.5	1.5	M4 x 0.7	6	3.5	28	3.5	15	29.5	20 <sup>+0.052</sup>	15	29
20	5 to 50	44	39.5	7	10	47	13.6	6.8	5.5	2	M5 x 0.8	8	4.5	36	5.5	16	35.5	13 <sup>+0.043</sup>	18	36
25	5 to 50	45.5	40.5	12	12	52	13.6	6.8	5.5	2	M6 x 1.0	10	5	40	5.5	17	40.5	15 <sup>+0.043</sup>	21	40

\* For details about the rod end nut and accessory brackets, refer to page 804.

# Series CQ2K

## Dimensions

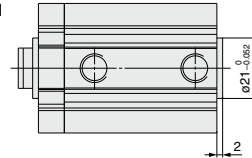
### Ø32/Without Auto Switch



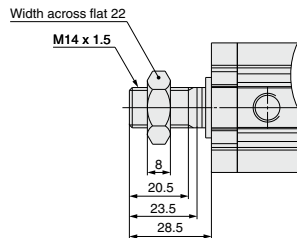
Note 1) ( ): Stroke 5 mm

Stroke range (mm)	A	B
5 to 50	39	32
75, 100	49	42

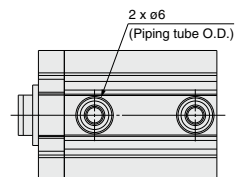
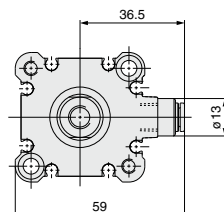
#### With boss on head end



#### Rod end male thread



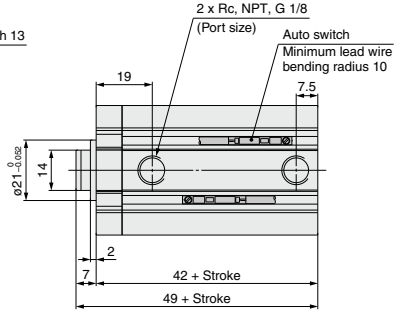
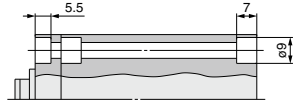
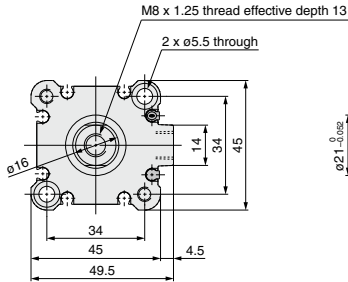
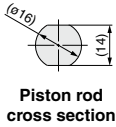
#### Built-in One-touch fittings: Ø32



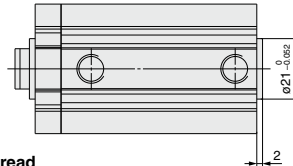
Note 2) The dimensions of the Ø32-5 mm stroke with built-in One-touch fittings are the same as those of the 10 mm stroke cylinder tube.  
= For details about the rod end nut and accessory brackets, refer to page 804.

Dimensions

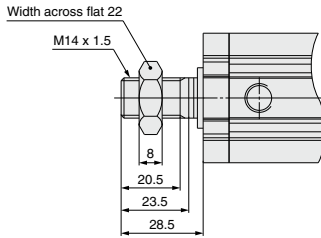
**Ø32**/With Auto Switch



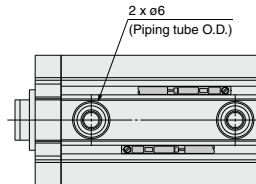
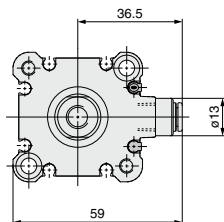
With boss on head end



Rod end male thread



Built-in One-touch fittings: Ø32



CUJ
CU
CQS
CQ2-Z
RQ
CQM
CQU
MU-Z

D-□
-X□

\* For details about the rod end nut and accessory brackets, refer to page 804.

# Series CQ2K

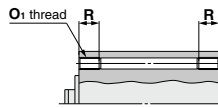
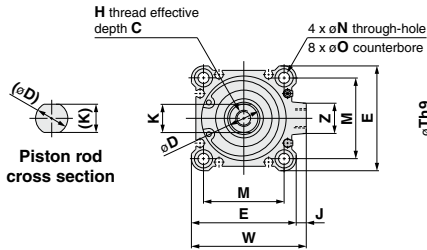
## Dimensions

### Ø40 to Ø63/With Auto Switch

(In the case of without auto switches, the A and B dimensions will be only changed. Refer to the dimension table.)

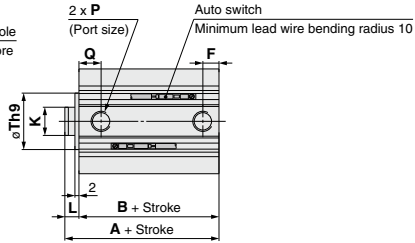
#### Both ends tapped: CDQ2KA

#### Standard (Through-hole): CDQ2KB

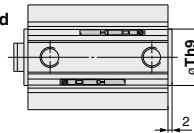


#### Both Ends Tapped (mm)

Bore size (mm)	O <sub>1</sub>	R
40	M6 x 1.0	10
50	M8 x 1.25	14
63	M10 x 1.5	18



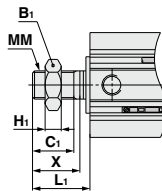
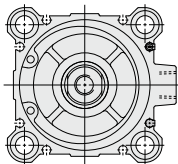
#### With boss on head end



#### With Boss on Head End (mm)

Bore size (mm)	Th9
40	28 <sup>0</sup> <sub>-0.062</sub>
50	35 <sup>0</sup> <sub>-0.062</sub>
63	35 <sup>0</sup> <sub>-0.062</sub>

#### Rod end male thread

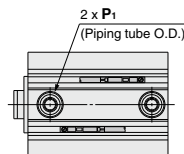
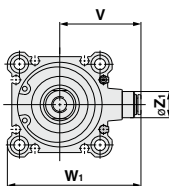


#### Cylinder tube form ø63

#### Rod End Male Thread (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5
63	27	26	11	33.5	M18 x 1.5	28.5

#### Built-in One-touch fittings: Ø40 to Ø63



#### Built-in One-touch Fittings (mm)

Bore size (mm)	Z <sub>1</sub>	P <sub>1</sub>	V	W <sub>1</sub>
40	13	6	40.5	66.5
50	16	8	50	82
63	16	8	56.5	95

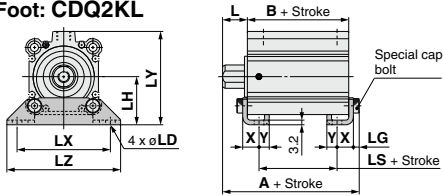
#### Standard

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	Th9	W	Z
		A	B	A	B																
40	5 to 50	36.5	29.5	46.5	39.5	13	16	52	7.5	M8 x 1.25	5	14	7	40	5.5	9 depth 7	1/8	12.5	28 <sup>0</sup> <sub>-0.052</sub>	57	15
	75, 100	46.5	39.5																		
50	10 to 50	38.5	30.5	48.5	40.5	15	20	64	10.5	M10 x 1.5	7	18	8	50	6.6	11 depth 8	1/4	10.5	35 <sup>0</sup> <sub>-0.062</sub>	71	19
	75, 100	48.5	40.5																		
63	10 to 50	44	36	54	46	15	20	77	10.5	M10 x 1.5	7	18	8	60	9	14 depth 10.5	1/4	15	35 <sup>0</sup> <sub>-0.062</sub>	84	19
	75, 100	54	46																		

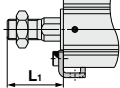
\* For details about the rod end nut and accessory brackets, refer to page 804.

# Compact Cylinder: Non-rotating Rod Double Acting, Single Rod *Series CQ2K*

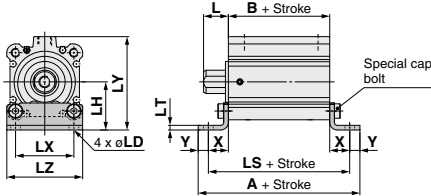
## Foot: CDQ2KL



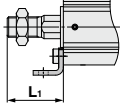
Rod end male thread



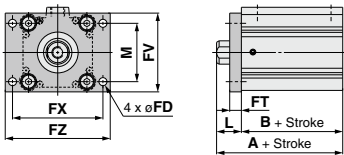
## Compact foot: CQ2KLC/CDQ2KLC



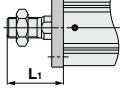
Rod end male thread



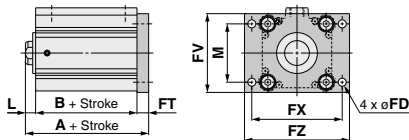
## Rod flange: CDQ2KF



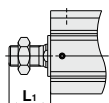
Rod end male thread



## Head flange: CDQ2KG



Rod end male thread



\* For details about the rod end nut and accessory brackets, refer to page 804.

## Foot

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
40	5 to 50	53.7	29.5	13.5	63.7	39.5	23.5	17	38.5	6.6
	75, 100	63.7	39.5	23.5						
50	10 to 50	56.7	30.5	7.5	66.7	40.5	17.5	18	43.5	9
	75, 100	66.7	40.5	17.5						
63	10 to 50	62.2	36	10	72.2	46	20	18	43.5	11
	75, 100	72.2	46	20						

Bore size (mm)	LG	LH	LX	LY	LZ	X	Y
40	4	33	64	64	78	11.2	7
50	5	39	79	78	95	14.7	8
63	5	46	95	91.5	113	16.2	9

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

## Compact Foot

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
40	5 to 50	70.9	29.5	56.9	80.9	39.5	66.9	17	38.5	6.6
	75, 100	80.9	39.5	66.9						
50	10 to 50	79.9	30.5	63.9	89.9	40.5	73.9	18	43.5	9
	75, 100	89.9	40.5	73.9						
63	10 to 50	90.4	36	72.4	100.4	46	82.4	18	43.5	11
	75, 100	100.4	46	82.4						

Bore size (mm)	LH	LT	LX	LY	LZ	X	Y
40	33	3.2	40	64	52	13.7	7
50	39	3.2	50	78	64	16.7	8
63	46	3.2	60	91.5	77	18.2	9

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

## Rod Flange

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch		FD	FT	FV	FX	FZ
		A	B	A	B						
40	5 to 50	46.5	29.5	56.5	39.5	5.5	8	54	62	72	
	75, 100	56.5	39.5								
50	10 to 50	48.5	30.5	58.5	40.5	6.6	9	67	76	89	
	75, 100	58.5	40.5								
63	10 to 50	54	36	64	46	9	9	80	92	108	
	75, 100	64	46								

Bore size (mm)	L	L <sub>1</sub>	M
40	17	38.5	40
50	18	43.5	50
63	18	43.5	60

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

## Head Flange

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch	
		A	A	L	L <sub>1</sub>
40	5 to 50	44.5	54.5	7	28.5
	75, 100	54.5			
50	10 to 50	47.5	57.5	8	33.5
	75, 100	57.5			
63	10 to 50	53	63	8	33.5
	75, 100	63			

\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

CJU

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

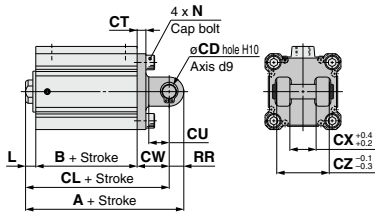
D-□

-X□

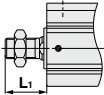
Technical data

# Compact Cylinder: Non-rotating Rod Double Acting, Single Rod *Series CQ2K*

## Double clevis: CDQ2KD



## Rod end male thread



- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

## Double Clevis

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU
		A	B	CL	A	B	CL			
40	5 to 50	68.5	29.5	58.5	78.5	39.5	68.5	10	6	14
	75, 100	78.5	39.5	68.5						
50	10 to 50	80.5	30.5	66.5	90.5	40.5	76.5	14	7	20
	75, 100	90.5	40.5	76.5						
63	10 to 50	88	36	74	98	46	84	14	8	20
	75, 100	98	46	84						

Bore size (mm)	CW	CX	CZ	L	L1	N	RR
40	22	18	36	7	28.5	M6 x 1.0	10
50	28	22	44	8	33.5	M8 x 1.25	14
63	30	22	44	8	33.5	M10 x 1.5	14

Double clevis bracket material: Cast iron  
Surface treatment: Painted

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Compact Cylinder: Non-rotating Rod Double Acting, Double Rod

## Series CQ2KW

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63

### How to Order

Without auto switch  
ø12 to ø25

CQ2KW **B** **20** - **30D**

Without auto switch  
ø32 to ø63

CQ2KW **B** **32** - **30D** **Z**

With auto switch

CDQ2KW **B** **32** - **30D** **Z** - **M9BW**

With auto switch  
(Built-in magnet)

#### Mounting

<b>B</b>	Through-hole (Standard)	ø12 to ø63
<b>A</b>	Both ends tapped	
<b>L</b>	Foot	ø40 to ø63
<b>LC</b>	Compact foot	
<b>F</b>	Flange	

- \* Mounting brackets are shipped together (but not assembled).
- \* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQ2KW" on pages 881 and 883.

#### Bore size

<b>12</b>	12 mm	<b>32</b>	32 mm
<b>16</b>	16 mm	<b>40</b>	40 mm
<b>20</b>	20 mm	<b>50</b>	50 mm
<b>25</b>	25 mm	<b>63</b>	63 mm

#### Port thread type

<b>Nil</b>	M thread	ø12 to ø25
	Rc	
<b>TN</b>	NPT	ø32 to ø63
<b>TF</b>	G	
<b>F</b>	Built-in One-touch fittings <small>Note 1)</small>	

Note 1) Bore sizes available with One-touch fittings are ø32 to ø63.

\* For cylinders without auto switch, M threads are compatible only for ø32-5 mm stroke model.

Number of auto switches

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

#### Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

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

#### Auto switch mounting groove

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø63	4 surfaces

#### Body option

<b>Nil</b>	Standard (Rod end female thread)
<b>C</b>	With rubber bumper (ø12 with auto switch only)
<b>M</b>	Rod end male thread

#### Cylinder stroke (mm)

Refer to page 878 for standard strokes.

#### Action

**D** Double acting

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQ2KWB32-30DZ

### Applicable Auto Switches

Refer to pages 1559 to 1673 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load			
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	○	○	○	○	IC circuit		
				3-wire (PNP)				M9PV	M9P	●	●	○	○	○	—			
				2-wire				M9BV	M9B	●	●	○	○	○			—	
				3-wire (NPN)				M9NVW	M9NW	●	●	○	○	○				IC circuit
	3-wire (PNP)	M9PVW	M9PW	●	●	○	○	○	—									
	2-wire	M9BW	M9B	●	●	○	○	○		—								
	3-wire (NPN)	M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	●	○	○			IC circuit							
	3-wire (PNP)	M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	●	○	○				—						
2-wire	M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	●	○	○	—										
2-wire (Non-polar)	—	P3DWA	●	—	●	—	○		—									
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—			A96V	A96		●	●	—	—	—	○
				2-wire						A93V <sup>*2</sup>	A93	●	●	●	●	—	—	—
			No	2-wire		5 V, 12 V	100 V or less	A90V		A90	●	—	●	—	—	—	○	IC circuit

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

\*2 Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NVW  
2 m ..... L (Example) M9NVW  
3 m ..... Z (Example) M9NVW  
5 m ..... n (Example) M9NVW

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

\* The D-P3DWA□ type is available from ø32 to ø63 only.

\* There are other applicable auto switches other than the listed above. For details, refer to page 960.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

For the D-P3DWA, refer to the **WEB catalog**.

CUJ

CU

CQS

CQZ

Z

RQ

CQM

CQU

MU

Z

D-□

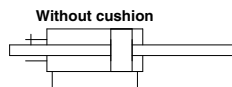
-X□

Technical data

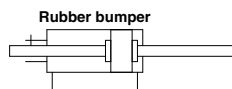
# Series CQ2KW



## Symbol



Without cushion



Rubber bumper



Made to Order: Individual Specifications  
(For details, refer to page 971.)

Symbol	Specifications
-X633	Intermediate stroke of double rod cylinder

## Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB10	Intermediate stroke (Exclusive body type)
-XC2(A)	Rod end length, 10 mm increased (For foot and flange bracket)

\* -X633: Intermediate stroke in 5 mm intervals only

## Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

## Specifications

Bore size (mm)	12	16	20	25	32	40	50	63
Action	Double acting, Double rod							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.07 MPa		0.05 MPa					
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)							
Lubrication	Not required (Non-Lube)							
Piston speed	50 to 500 mm/s							
Allowable kinetic energy (J)	0.022 <small>0.043 Note 1)</small>	0.038	0.055	0.09	0.15	0.26	0.46	0.77
Stroke length tolerance	+1.0 mm Note 2)							
Rod non-rotating accuracy	±2°		±1°			±0.8°		

\* ø12 with auto switch: With rubber bumper (Standard)

Note 1) For cylinders with rubber bumper (ø12 with auto switch only)

Note 2) Stroke length tolerance does not include the amount of bumper change.

## Standard Strokes

Bore size	Standard stroke (mm)
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.
Part no.	Refer to "How to Order" for the standard model number. (P. 877)
Description	Strokes in 5 mm intervals are available by installing a spacer in the standard stroke cylinder.
Stroke range	Bore size
	Stroke range
Example	32 to 63
	55 to 95
Example	Part no.: CQ2KWB50-65DZ CQ2KWB50-75DZ with 10 mm width spacer inside The B dimension is 125.5 mm.

## Type

Bore size (mm)		12	16	20	25	32	40	50	63		
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●		
		Both ends tapped	—	—	—	—	—	—	—		
	Piping	Built-in magnet	●	●	●	●	●	●	●		
		Pipe thread	—	M5 x 0.8	M5 x 0.8	M5 x 0.8	M5 x 0.8	<small>Note 1)</small> M5 x 0.8 Rc1/8	Rc1/8	Rc1/4	Rc1/4
			TN	—	—	—	—	NPT1/8	NPT1/8	NPT1/4	NPT1/4
			TF	—	—	—	—	G1/8	G1/8	G1/4	G1/4
Built-in one-touch fittings	—	—	—	—	ø6 <small>Note 2)</small>	ø6	ø8	ø8			
Rod end male thread	●	●	●	●	●	●	●	●			

Note 1) ø32 without auto switch: M5 x 0.8 is used for 5 mm stroke piping dimension.

Thus, do not enter a symbol for the port thread type.

Note 2) The dimensions of the ø32-5 mm stroke with built-in One-touch fitting are the same as those of the 10 mm stroke cylinder tube.

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.



**Retaining Ring Installation/Removal**

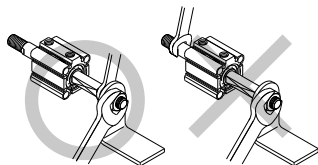
**⚠ Caution**

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flung out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

**Mounting**

**⚠ Warning**

- Do not apply reverse torque to the piston rods sticking out from both sides of this cylinder at the same time. The torque makes connection threads inside loosen, which may cause an accident or malfunction. Install or remove loads while the piston rod width across flat is secured. Also, tighten by giving consideration to prevent the tightening torque from being applied to the non-rotating guide. Do not fix the other side of the piston rod width across flat and apply reverse torque.



- Using a non-rotating rod cylinder  
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 deform, causing a loss of non-rotating accuracy. Use the below table as a guide for the allowable rotational torque ranges.

Allowable rotational torque	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63
N·m or less	0.04	0.15	0.20	0.25	0.44	0.44	0.44	0.44

**Mounting Brackets/Part No.**

Bore size (mm)	Foot <small>Note 1)</small>	Compact foot <small>Note 1)</small>	Flange
40	CQ-L040	CQ-LC040	CQ-F040
50	CQ-L050	CQ-LC050	CQ-F050
63	CQ-L063	CQ-LC063	CQ-F063

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.  
Note 2) Parts belonging to each bracket are as follows.  
Foot, Compact foot, Flange: Body mounting bolts

**Theoretical Output**

(N)

Bore size (mm)	Operating pressure (MPa)		
	0.3	0.5	0.7
12	25	42	59
16	45	75	106
20	71	118	165
25	113	189	264
32	181	302	422
40	317	528	739
50	495	825	1150
63	841	1400	1960

**Weight**

**Weight**

(g)

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	62	69	76	83	90	97	—	—	—	—	—	—
16	62	73	84	95	106	117	—	—	—	—	—	—
20	101	116	131	146	161	176	191	206	221	236	—	—
25	138	155	172	189	206	223	240	257	274	291	—	—
32	233	256	279	302	325	348	371	394	417	440	600	715
40	336	365	394	424	453	483	512	541	571	600	806	953
50	—	517	558	600	642	684	725	767	809	850	1142	1351
63	—	742	779	815	851	887	923	959	995	1032	1285	1465

**Additional Weight**

(g)

Bore size (mm)		12	16	20	25	32	40	50	63
Both ends tapped		—	—	—	—	—	6	6	19
Rod end male thread	Male thread	3	6	12	24	52	54	106	106
	Nut	2	4	8	16	34	34	64	64
Built-in One-touch fittings		—	—	—	—	12	12	21	21
Foot (Including mounting bolts)		—	—	—	—	—	154	243	317
Compact foot (Including mounting bolts)		—	—	—	—	—	114	177	241
Flange (Including mounting bolts)		—	—	—	—	—	214	373	559

Calculation: (Example) **CQ2KWA40-20DMZ**

- Basic weight: CQ2KWB40-20DZ ..... 424 g
  - Additional weight: Both ends tapped ..... 6 g  
Rod end male thread ..... 88 g
- 518 g

**CJ**

**CU**

**CQS**

**CQZ**

**RQ**

**CQM**

**CQU**

**MU**

**-Z**

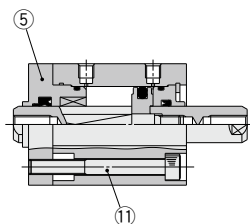
**D-□**

**-X□**

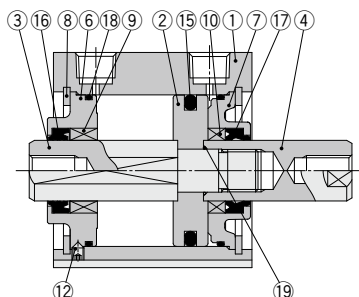
Technical data

## Construction

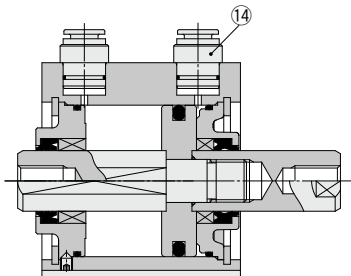
### Standard (ø12 to ø32)



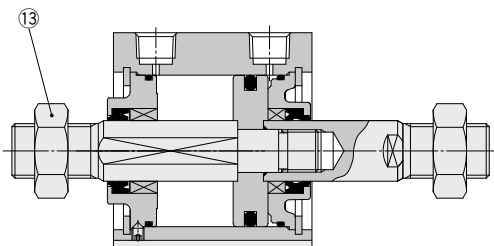
### Standard (ø40 to ø63)



### Built-in One-touch fittings



### Rod end male thread



## Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod A	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plated
4	Piston rod B	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plated
5	Rod cover	Brass	ø12, Electroless nickel plated
		Aluminum alloy	ø16 to ø32, Anodized
6	Collar for non-rotating	Aluminum alloy	ø40 to ø63, Anodized
7	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø63, Chromated, Painted
8	Retaining ring	Carbon tool steel	Phosphate coated
9	Bushing for non-rotating	Oil-impregnated sintered alloy	ø16 to ø63
10	Bushing	Bearing alloy	ø50, ø63
11	Hexagon socket head cap screw	Alloy steel	ø12 to ø32, Zinc chromated
12	Hexagon socket set screw	Alloy steel	ø40 to ø63, Zinc chromated
13	Rod end nut	Carbon steel	Zinc chromated
14	One-touch fitting	—	ø32 to ø63
15	Piston seal	NBR	
16	Rod seal for non-rotating	NBR	
17	Rod seal	NBR	
18	Gasket	NBR	
19	Piston gasket	NBR	ø32 to ø63

## Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
12	CQ2KWB12-PS	Kits include items 15, 16, 17, 18 from the table.
16	CQ2KWB16-PS	
20	CQ2KWB20-PS	
25	CQ2KWB25-PS	
32	CQ2KWB32-PS	
40	CQ2KWB40-PS	
50	CQ2KWB50-PS	
63	CQ2KWB63-PS	

\* Seal kit includes 15, 16, 17, 18. Order the seal kit based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.

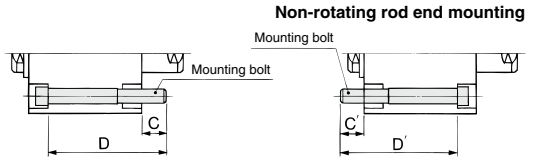
**Grease pack part no.:** GR-S-010 (10 g)

### Mounting Bolt for CQ2KWB/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQ2KWB is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 40L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
<b>CQ2KWB12-5D</b>	8.3	40	CQ-M3 x 40L	8.3	40	CQ-M3 x 40L
<b>-10D</b>		45	x 45L		45	x 45L
<b>-15D</b>		50	x 50L		50	x 50L
<b>-20D</b>		55	x 55L		55	x 55L
<b>-25D</b>		60	x 60L		60	x 60L
<b>-30D</b>		65	x 65L		65	x 65L
<b>CQ2KWB16-5D</b>	7.5	40	CQ-M3 x 40L	7.5	40	CQ-M3 x 40L
<b>-10D</b>		45	x 45L		45	x 45L
<b>-15D</b>		50	x 50L		50	x 50L
<b>-20D</b>		55	x 55L		55	x 55L
<b>-25D</b>		60	x 60L		60	x 60L
<b>-30D</b>		65	x 65L		65	x 65L
<b>CQ2KWB20-5D</b>	6.5	40	CQ-M5 x 40L	8	40	CQ-M5 x 40L
<b>-10D</b>		45	x 45L		45	x 45L
<b>-15D</b>		50	x 50L		50	x 50L
<b>-20D</b>		55	x 55L		55	x 55L
<b>-25D</b>		60	x 60L		60	x 60L
<b>-30D</b>		65	x 65L		65	x 65L
<b>-35D</b>		70	x 70L		70	x 70L
<b>-40D</b>		75	x 75L		75	x 75L
<b>-45D</b>		80	x 80L		80	x 80L
<b>-50D</b>		85	x 85L		85	x 85L
<b>CQ2KWB25-5D</b>	8.5	45	CQ-M5 x 45L	10	45	CQ-M5 x 45L
<b>-10D</b>		50	x 50L		50	x 50L
<b>-15D</b>		55	x 55L		55	x 55L
<b>-20D</b>		60	x 60L		60	x 60L
<b>-25D</b>		65	x 65L		65	x 65L
<b>-30D</b>		70	x 70L		70	x 70L
<b>-35D</b>		75	x 75L		75	x 75L
<b>-40D</b>		80	x 80L		80	x 80L
<b>-45D</b>		85	x 85L		85	x 85L
<b>-50D</b>		90	x 90L		90	x 90L
<b>CQ2KWB32-5DZ</b>	11	50	CQ-M5 x 50L	7.5	45	CQ-M5 x 45L
<b>-10DZ</b>		55	x 55L		50	x 50L
<b>-15DZ</b>		60	x 60L		55	x 55L
<b>-20DZ</b>		65	x 65L		60	x 60L
<b>-25DZ</b>		70	x 70L		65	x 65L
<b>-30DZ</b>		75	x 75L		70	x 70L
<b>-35DZ</b>		80	x 80L		75	x 75L
<b>-40DZ</b>		85	x 85L		80	x 80L
<b>-45DZ</b>		90	x 90L		85	x 85L
<b>-50DZ</b>		95	x 95L		90	x 90L
<b>-75DZ</b>		130	x 130L		125	x 125L
<b>-100DZ</b>	155	x 155L	150	x 150L		

Cylinder model	C	D	Mounting bolt part no.
<b>CQ2KWB40-5DZ</b>	7	45	CQ-M5 x 45L
<b>-10DZ</b>		50	x 50L
<b>-15DZ</b>		55	x 55L
<b>-20DZ</b>		60	x 60L
<b>-25DZ</b>		65	x 65L
<b>-30DZ</b>		70	x 70L
<b>-35DZ</b>		75	x 75L
<b>-40DZ</b>		80	x 80L
<b>-45DZ</b>		85	x 85L
<b>-50DZ</b>		90	x 90L
<b>-75DZ</b>	125	x 125L	
<b>-100DZ</b>	150	x 150L	
<b>CQ2KWB50-10DZ</b>	12.5	55	CQ-M6 x 55L
<b>-15DZ</b>		60	x 60L
<b>-20DZ</b>		65	x 65L
<b>-25DZ</b>		70	x 70L
<b>-30DZ</b>		75	x 75L
<b>-35DZ</b>		80	x 80L
<b>-40DZ</b>		85	x 85L
<b>-45DZ</b>		90	x 90L
<b>-50DZ</b>		95	x 95L
<b>-75DZ</b>		130	x 130L
<b>-100DZ</b>	155	x 155L	
<b>CQ2KWB63-10DZ</b>	13.5	55	CQ-M8 x 55L
<b>-15DZ</b>		60	x 60L
<b>-20DZ</b>		65	x 65L
<b>-25DZ</b>		70	x 70L
<b>-30DZ</b>		75	x 75L
<b>-35DZ</b>		80	x 80L
<b>-40DZ</b>		85	x 85L
<b>-45DZ</b>		90	x 90L
<b>-50DZ</b>		95	x 95L
<b>-75DZ</b>		130	x 130L
<b>-100DZ</b>	155	x 155L	

\* ø40 to ø63: The C' and D' dimensions are the same as those of C and D.

**CJU**

**CU**

**CQS**

**CQZ**

**RQ**

**CQM**

**CQU**

**MU**

**-Z**

**D-□**

**-X□**

Technical data

# Non-rotating Rod: Double Acting, Double Rod Series **CDQ2KW** With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.954 to 960
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

## Weight

### Weight

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
<b>12</b>	76	83	90	98	105	113	—	—	—	—	—	—
<b>16</b>	89	99	109	118	128	138	—	—	—	—	—	—
<b>20</b>	148	164	179	194	210	225	240	256	271	286	—	—
<b>25</b>	213	228	244	259	275	291	306	322	337	353	—	—
<b>32</b>	259	282	305	328	351	374	397	420	443	466	580	695
<b>40</b>	441	471	500	530	559	588	618	647	677	706	853	1000
<b>50</b>	—	642	684	726	767	809	851	892	934	976	1184	1393
<b>63</b>	—	871	907	943	979	1015	1051	1088	1124	1160	1341	1521

### Additional Weight

Bore size (mm)	12	16	20	25	32	40	50	63
Both ends tapped	—	—	—	—	—	6	6	19
Rod end male thread	3	6	12	24	52	54	106	106
Nut	2	4	8	16	34	34	64	64
Built-in One-touch fittings	—	—	—	—	12	12	21	21
Foot (Including mounting bolts)	—	—	—	—	—	154	243	317
Compact foot (Including mounting bolts)	—	—	—	—	—	114	177	241
Flange (Including mounting bolts)	—	—	—	—	—	214	373	559

Calculation: (Example) **CDQ2KWA40-20DMZ**

• Basic weight: CDQ2KWB40-20DZ.....530 g

• Additional weight: Both ends tapped.....6 g

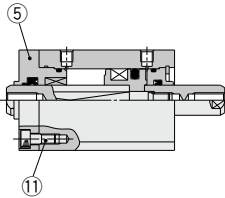
Rod end male thread.....88 g

624 g

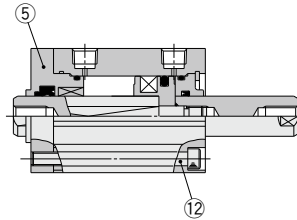
Add each weight of auto switches when auto switches are mounted.

## Construction

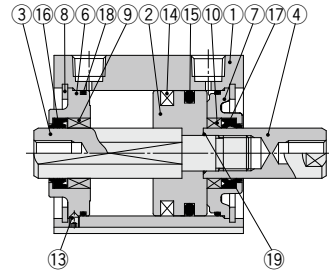
ø12 to ø25



ø32



ø40 to ø63



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod A	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plated
4	Piston rod B	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plated
5	Rod cover	Brass	ø12, Electroless nickel plated
		Aluminum alloy	ø16 to ø32, Anodized
6	Collar for non-rotating	Aluminum alloy	ø40 to ø63, Anodized
7	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø63, Chromated, Painted
8	Retaining ring	Carbon tool steel	Phosphate coated
9	Bushing for non-rotating	Oil-impregnated sintered alloy	ø16 to ø63
10	Bushing	Bearing alloy	ø50, ø63
11	Hexagon socket head cap screw	Alloy steel	ø12 to ø25, Zinc chromated
12	Hexagon socket head cap screw	Alloy steel	ø32, Zinc chromated
13	Hexagon socket set screw	Alloy steel	ø40 to ø63, Zinc chromated
14	Magnet	—	—

No.	Description	Material	Note
15	Piston seal	NBR	
16	Rod seal for non-rotating	NBR	
17	Rod seal	NBR	
18	Gasket	NBR	
19	Piston gasket	NBR	ø32 to ø63

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
12	CQ2KWB12-PS	Kits include items 15, 16, 17, 18 from the table.
16	CQ2KWB16-PS	
20	CQ2KWB20-PS	
25	CQ2KWB25-PS	
32	CQ2KWB32-PS	
40	CQ2KWB40-PS	
50	CQ2KWB50-PS	
63	CQ2KWB63-PS	

\* Seal kit includes 15, 16, 17, 18. Order the seal kit based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.

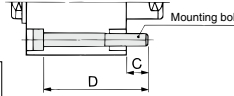
Grease pack part no.: GR-S-010 (10 g)

**Mounting Bolt for CDQ2KWB/With Auto Switch**

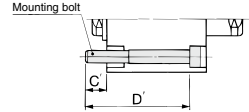
Mounting method: Mounting bolt for through-hole mounting of the CDQ2KWB is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 40L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



**Non-rotating rod end mounting**



Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
<b>CDQ2KWB12-5DCZ</b>	6.1	40	CQ-M3 x 40L	6.1	45	CQ-M3 x 45L
<b>-10DCZ</b>		45	x 45L		50	x 50L
<b>-15DCZ</b>		50	x 50L		55	x 55L
<b>-20DCZ</b>		55	x 55L		60	x 60L
<b>-25DCZ</b>		60	x 60L		65	x 65L
<b>-30DCZ</b>		65	x 65L		70	x 70L
<b>CDQ2KWB16-5DZ</b>	7.5	45	CQ-M3 x 45L	7.5	50	CQ-M3 x 50L
<b>-10DZ</b>		50	x 50L		55	x 55L
<b>-15DZ</b>		55	x 55L		60	x 60L
<b>-20DZ</b>		60	x 60L		65	x 65L
<b>-25DZ</b>		65	x 65L		70	x 70L
<b>-30DZ</b>		70	x 70L		75	x 75L
<b>CDQ2KWB20-5DZ</b>	9	45	CQ-M5 x 45L	11	55	CQ-M5 x 55L
<b>-10DZ</b>		50	x 60L		60	x 60L
<b>-15DZ</b>		55	x 55L		65	x 65L
<b>-20DZ</b>		60	x 60L		70	x 70L
<b>-25DZ</b>		65	x 65L		75	x 75L
<b>-30DZ</b>		70	x 70L		80	x 80L
<b>-35DZ</b>		75	x 75L		85	x 85L
<b>-40DZ</b>		80	x 80L		90	x 90L
<b>-45DZ</b>		85	x 85L		95	x 95L
<b>-50DZ</b>	90	x 90L	100	x 100L		
<b>CDQ2KWB25-5DZ</b>	8	45	CQ-M5 x 45L	10	55	CQ-M5 x 55L
<b>-10DZ</b>		50	x 50L		60	x 60L
<b>-15DZ</b>		55	x 55L		65	x 65L
<b>-20DZ</b>		60	x 60L		70	x 70L
<b>-25DZ</b>		65	x 65L		75	x 75L
<b>-30DZ</b>		70	x 70L		80	x 80L
<b>-35DZ</b>		75	x 75L		85	x 85L
<b>-40DZ</b>		80	x 80L		90	x 90L
<b>-45DZ</b>		85	x 85L		95	x 95L
<b>-50DZ</b>	90	x 90L	100	x 100L		
<b>CDQ2KWB32-5DZ</b>	11	60	CQ-M5 x 60L	7.5	55	CQ-M5 x 55L
<b>-10DZ</b>		65	x 65L		60	x 60L
<b>-15DZ</b>		70	x 70L		65	x 65L
<b>-20DZ</b>		75	x 75L		70	x 70L
<b>-25DZ</b>		80	x 80L		75	x 75L
<b>-30DZ</b>		85	x 85L		80	x 80L
<b>-35DZ</b>		90	x 90L		85	x 85L
<b>-40DZ</b>		95	x 95L		90	x 90L
<b>-45DZ</b>		100	x 100L		95	x 95L
<b>-50DZ</b>		105	x 105L		100	x 100L
<b>-75DZ</b>		130	x 130L		125	x 125L
<b>-100DZ</b>	155	x 155L	150	x 150L		

Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2KWB40-5DZ</b>	7	55	CQ-M5 x 55L
<b>-10DZ</b>		60	x 60L
<b>-15DZ</b>		65	x 65L
<b>-20DZ</b>		70	x 70L
<b>-25DZ</b>		75	x 75L
<b>-30DZ</b>		80	x 80L
<b>-35DZ</b>		85	x 85L
<b>-40DZ</b>		90	x 90L
<b>-45DZ</b>		95	x 95L
<b>-50DZ</b>		100	x 100L
<b>-75DZ</b>	125	x 125L	
<b>-100DZ</b>	150	x 150L	
<b>CDQ2KWB50-10DZ</b>	12.5	65	CQ-M6 x 65L
<b>-15DZ</b>		70	x 70L
<b>-20DZ</b>		75	x 75L
<b>-25DZ</b>		80	x 80L
<b>-30DZ</b>		85	x 85L
<b>-35DZ</b>		90	x 90L
<b>-40DZ</b>		95	x 95L
<b>-45DZ</b>		100	x 100L
<b>-50DZ</b>		105	x 105L
<b>-75DZ</b>		130	x 130L
<b>-100DZ</b>	155	x 155L	
<b>CDQ2KWB63-10DZ</b>	13.5	65	CQ-M8 x 65L
<b>-15DZ</b>		70	x 70L
<b>-20DZ</b>		75	x 75L
<b>-25DZ</b>		80	x 80L
<b>-30DZ</b>		85	x 85L
<b>-35DZ</b>		90	x 90L
<b>-40DZ</b>		95	x 95L
<b>-45DZ</b>		100	x 100L
<b>-50DZ</b>		105	x 105L
<b>-75DZ</b>		130	x 130L
<b>-100DZ</b>	155	x 155L	

\* ø40 to ø63: The C' and D' dimensions are the same as those of C and D.

**CJU**

**CU**

**CQS**

**CDQ-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

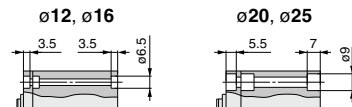
Technical data

# Series CQ2KW

## Dimensions

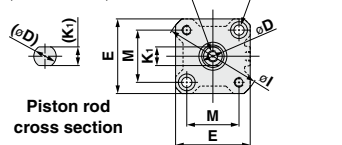
### ∅12 to ∅32/Without Auto Switch

#### Standard (Through-hole): CQ2KWB

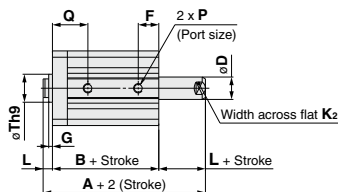


#### ∅12 to ∅25

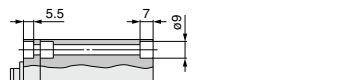
2 x H thread effective depth C  
(Also back cover)



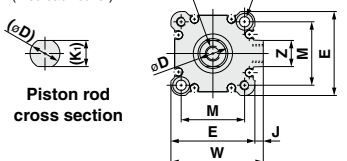
Piston rod cross section



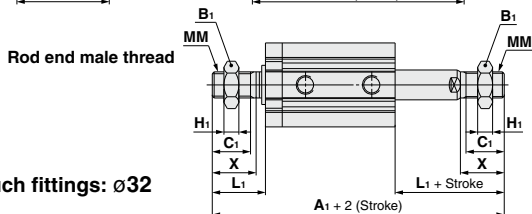
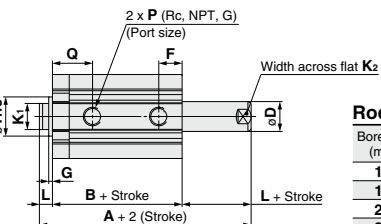
#### ∅32



2 x H thread effective depth C  
(Also back cover)



Piston rod cross section



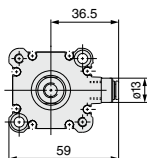
Rod end male thread

#### Rod End Male Thread (mm)

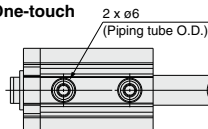
Bore size (mm)	Stroke range (mm)	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>
12	5 to 30	58.2	8	9	4
16	5 to 30	62	10	10	5
20	5 to 50	71	13	12	5
25	5 to 50	82	17	15	6
32	5 to 50	96.5	22	20.5	8
	75, 100	106.5			

Bore size (mm)	L <sub>1</sub>	MM	X
12	14	M5 x 0.8	10.5
16	15.5	M6 x 1.0	12
20	18.5	M8 x 1.25	14
25	22.5	M10 x 1.25	17.5
32	28.5	M14 x 1.5	23.5

#### Built-in One-touch fittings: ∅32



#### Built-in One-touch fittings



\* The dimensions of ∅32-5 mm stroke with built-in One-touch fittings are the same as those of the 10 mm stroke cylinder tube. (mm)

#### Standard

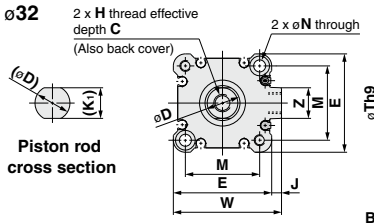
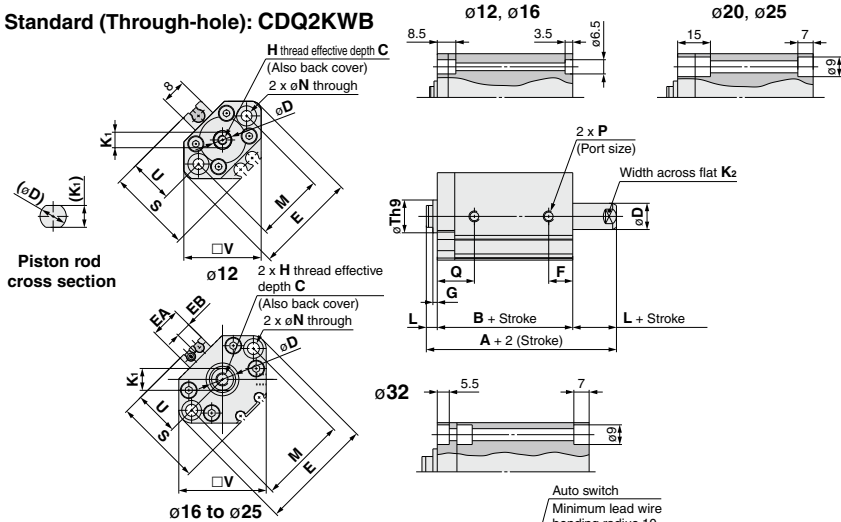
Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	G	H	I	J	K <sub>1</sub>	K <sub>2</sub>	L	M	N	P	Q	Th9	W	Z
12	5 to 30	37.2	30.2	6	6	25	10	1.5	M3 x 0.5	32	—	5.2	5	3.5	15.5	3.5	M5 x 0.8	15	15 <sup>0.043</sup>	—	—
16	5 to 30	38	31	8	8	29	10	1.5	M4 x 0.7	38	—	6	6	3.5	20	3.5	M5 x 0.8	15	20 <sup>0.052</sup>	—	—
20	5 to 50	43	34	7	10	36	8	2	M5 x 0.8	47	—	8	8	4.5	25.5	5.5	M5 x 0.8	16	13 <sup>0.043</sup>	—	—
25	5 to 50	47	37	12	12	40	9	2	M6 x 1.0	52	—	10	10	5	28	5.5	M5 x 0.8	17	15 <sup>0.043</sup>	—	—
	5	53.5	39.5	13	16	45	10	2	M8 x 1.25	—	4.5	14	14	7	34	5.5	M5 x 0.8	19	21 <sup>0.052</sup>	49.5	14
	10 to 50	—	—														—				
75, 100	63.5	49.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1/8	—	—	—	—

\* For details about the rod end nut and accessory brackets, refer to page 804.  
Note) The positions of piston rod's width across flats (K<sub>2</sub>) are not constant.

Dimensions

**Ø12 to Ø32/With Auto Switch**

Standard (Through-hole): CDQ2KWB

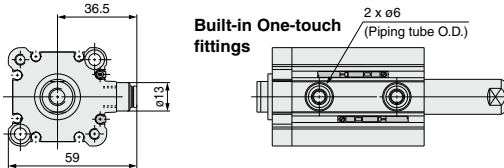


**Rod End Male Thread (mm)**

Bore size (mm)	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>
12	65.4	8	9	4
16	72	10	10	5
20	83	13	12	5
25	92	17	15	6
32	106.5	22	20.5	8

Bore size (mm)	L <sub>1</sub>	MM	X
12	14	M5 x 0.8	10.5
16	15.5	M6 x 1.0	12
20	18.5	M8 x 1.25	14
25	22.5	M10 x 1.25	17.5
32	28.5	M14 x 1.5	23.5

**Built-in One-touch fittings: Ø32**



**Standard** For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	EA	EB	F	G	H	J	K <sub>1</sub>	K <sub>2</sub>	L	M	N	P	Q	S	Th9	U	V	W	Z
12	5 to 30	44.4	37.4	6	6	33	—	—	10.5	1.5	M3 x 0.5	—	5.2	5	3.5	22	3.5	M5 x 0.8	15.5	27.5	15 <sup>-0.043</sup>	14	25	—	—
16	5 to 30	48	41	8	8	37	13.2	6.6	10	1.5	M4 x 0.7	—	6	6	3.5	28	3.5	M5 x 0.8	15	29.5	20 <sup>-0.052</sup>	15	29	—	—
20	5 to 50	55	46	7	10	47	13.6	6.8	8	2	M5 x 0.8	—	8	8	4.5	36	5.5	M5 x 0.8	16	35.5	13 <sup>-0.043</sup>	18	36	—	—
25	5 to 50	57	47	12	12	52	13.6	6.8	9	2	M6 x 1.0	—	10	10	5	40	5.5	M5 x 0.8	17	40.5	15 <sup>-0.043</sup>	21	40	—	—
32	5 to 50, 75, 100	83.5	49.5	13	16	45	—	—	10	2	M8 x 1.25	4.5	14	14	7	34	5.5	1/8	19	—	21 <sup>-0.052</sup>	—	—	49.5	14

\* For details about the rod end nut and accessory brackets, refer to page 804.  
Note) The positions of piston rod's width across flats (K<sub>2</sub>) are not constant.

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

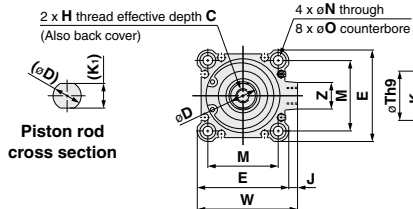
# Series CQ2KW

## Dimensions

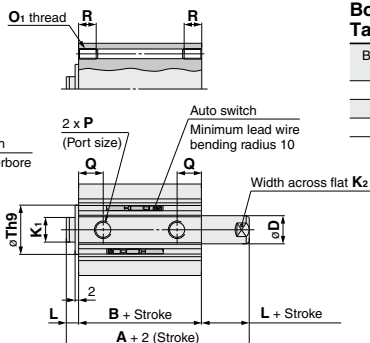
### Ø40 to Ø63/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

#### Standard (Through-hole): CQ2KWB/CDQ2KWB



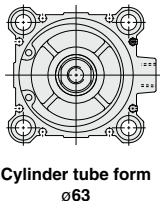
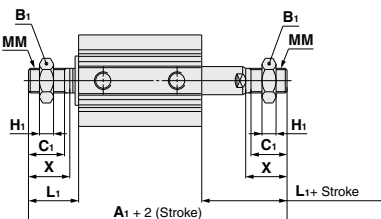
#### Both ends tapped: CQ2KWA/CDQ2KWA



#### Both Ends Tapped

Bore size (mm)	O <sub>1</sub>	R
40	M6 x 1.0	10
50	M8 x 1.25	14
63	M10 x 1.5	18

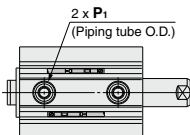
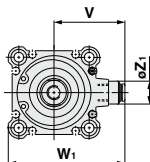
#### Rod end male thread



#### Rod End Male Thread

Bore size (mm)	Stroke range (mm)	A <sub>1</sub>		B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
		Without auto switch	With auto switch						
40	5 to 50	97	107	22	20.5	8	28.5	M14 x 1.5	23.5
	75, 100	107							
50	10 to 50	107.5	117.5	27	26	11	33.5	M18 x 1.5	28.5
	75, 100	117.5							
63	10 to 50	109	119	27	26	11	33.5	M18 x 1.5	28.5
	75, 100	119							

#### Built-in One-touch fittings: Ø40 to Ø63



#### Built-in One-touch Fittings

Bore size (mm)	Z <sub>1</sub>	P <sub>1</sub>	V	W <sub>1</sub>
40	13	6	40.5	66.5
50	16	8	50	82
63	16	8	56.5	95

#### Standard For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	H	J	K <sub>1</sub>	K <sub>2</sub>	L	M	N	O	P	Q	Th9	W	Z
		A	B	A	B																
40	5 to 50	54	40	64	50	13	16	52	M8 x 1.25	5	14	14	7	40	5.5	9 depth 7	1/8	12.5	28 <sup>0</sup> <sub>-0.052</sub>	57	15
	75, 100	64	50																		
50	10 to 50	56.5	40.5	66.5	50.5	15	20	64	M10 x 1.5	7	18	17	8	50	6.6	11 depth 8	1/4	14	35 <sup>0</sup> <sub>-0.062</sub>	71	19
	75, 100	66.5	50.5																		
63	10 to 50	58	42	68	52	15	20	77	M10 x 1.5	7	18	17	8	60	9	14 depth 10.5	1/4	15.5	35 <sup>0</sup> <sub>-0.062</sub>	84	19
	75, 100	68	52																		

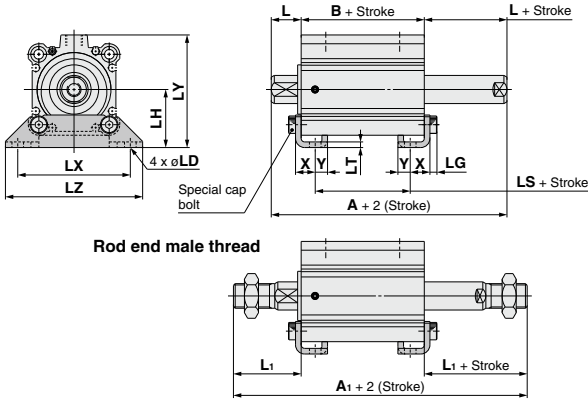
\* For details about the rod end nut and accessory brackets, refer to page 804.

Note) The positions of piston rod's width across flats (K<sub>2</sub>) are not constant.



**Compact Cylinder: Non-rotating Rod  
Double Acting, Double Rod *Series CQ2KW***

**Foot: CQ2KWL/CDQ2KWL**



**Rod End Male Thread** (mm)

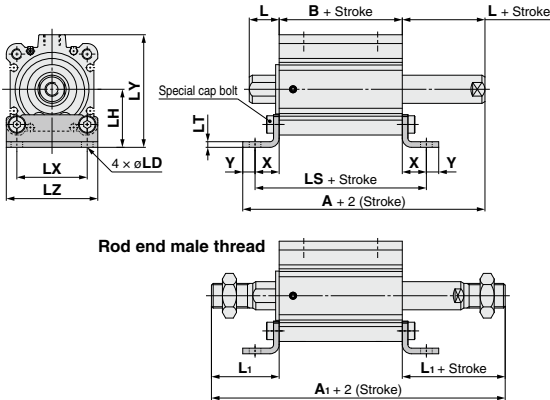
Bore size (mm)	Stroke range (mm)	A1		L1
		Without auto switch	With auto switch	
40	5 to 50	117	127	38.5
	75, 100	127	127	
50	10 to 50	127.5	137.5	43.5
	75, 100	137.5	137.5	
63	10 to 50	129	139	43.5
	75, 100	139	139	

**Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	LD	LG	LH	LT	LX	LY	LZ	X	Y
		A	B	LS	A	B	LS										
40	5 to 50	74	40	24	84	50	34	17	6.6	4	33	3.2	64	68	78	11.2	7
	75, 100	84	50	34													
50	10 to 50	76.5	40.5	17.5	86.5	50.5	27.5	18	9	5	39	3.2	79	78	95	14.7	8
	75, 100	86.5	50.5	27.5													
63	10 to 50	78	42	16	88	52	26	18	11	5	46	3.2	95	91.5	113	16.2	8
	75, 100	88	52	26													

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact foot: CQ2KWLC/CDQ2KWLC**



**Rod End Male Thread** (mm)

Bore size (mm)	Stroke range (mm)	A1		L1
		Without auto switch	With auto switch	
40	5 to 50	117	127	38.5
	75, 100	127	127	
50	10 to 50	127.5	137.5	43.5
	75, 100	137.5	137.5	
63	10 to 50	129	139	43.5
	75, 100	139	139	

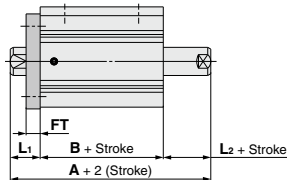
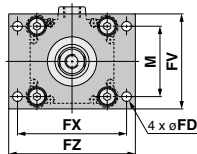
**Compact Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	LD	LH	LT	LX	LY	LZ	X	Y
		A	B	LS	A	B	LS									
40	5 to 50	81.4	40	67.4	91.4	50	77.4	17	6.6	33	3.2	40	64	52	13.7	7
	75, 100	91.4	50	77.4												
50	10 to 50	89.9	40.5	73.9	99.9	50.5	83.9	18	9	39	3.2	50	78	64	16.7	8
	75, 100	99.9	50.5	83.9												
63	10 to 50	96.4	42	78.4	106.4	52	88.4	18	11	46	3.2	60	91.5	77	18.2	9
	75, 100	106.4	52	88.4												

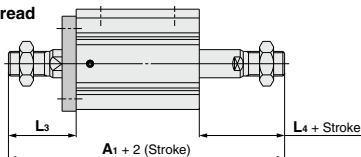
\* For details about the rod end nut and accessory brackets, refer to page 804.

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

Flange: CQ2KWF/CDQ2KWF



Rod end male thread



Rod End Male Thread

Bore size (mm)	Stroke range (mm)	A <sub>1</sub>		L <sub>3</sub>	L <sub>4</sub>
		Without auto switch	With auto switch		
40	5 to 50	107	117	38.5	28.5
	75, 100	117			
50	10 to 50	117.5	127.5	43.5	33.5
	75, 100	127.5			
63	10 to 50	119	129	43.5	33.5
	75, 100	129			

Flange For auto switch proper mounting position and its mounting height, refer to pages 954 to 960. (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ	L <sub>1</sub>	L <sub>2</sub>	M
		A	B	A	B								
40	5 to 50	64	40	74	50	5.5	8	54	62	72	17	7	40
	75, 100	74	50										
50	10 to 50	66.5	40.5	76.5	50.5	6.6	9	67	76	89	18	8	50
	75, 100	76.5	50.5										
63	10 to 50	68	42	78	52	9	9	80	92	108	18	8	60
	75, 100	78	52										

\* For details about the rod end nut and accessory brackets, refer to page 804.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Compact Cylinder: Axial Piping Double Acting, Single Rod Series CQP2

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

## How to Order

Without auto switch

CQP2B [ ] 50 [ ] - 30 D [ ] - [ ]

With auto switch

CDQP2B [ ] 50 [ ] - 30 D [ ] - M9BW [ ] - [ ]

With auto switch  
(Built-in magnet)

Axial piping

Mounting

B Through-hole

\* Cylinder mounting bolts are not included.  
Order them separately referring to "Mounting Bolt for CQP2" on pages 891 and 894.

Type

Nil	Pneumatic
H	Air-hydro <sup>Note 1)</sup>

Note 1) Bore sizes available for air-hydro type are ø20 to ø100.

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Port thread type

Nil	M thread	ø12 to ø25
	Rc	
TN	NPT	ø32 to ø100
TF	G	

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQP2B32-30D

Made to Order  
Refer to page 889 for details.

Number of auto switches

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

Auto switch

Nil Without auto switch

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

Body option

Nil	Standard (Rod end female thread)
C	With rubber bumper <sup>Note 2)</sup>
M	Rod end male thread

\* Combination of body option ("CM") is available.  
Note 2) Air-hydro type with rubber bumper is not available.

Action

D Double acting

Cylinder stroke (mm)

Refer to page 889 for standard strokes.

### Applicable Auto Switches/Refer to pages 1559 to 1673 for further information on auto switches.

Type	Special function	Electrical entry	Indicator/light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (Z)	5 (N)	None (N)				
Solid state auto switch	—	Grommet	—	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	○	—	○	IC circuit		
				3-wire (PNP)				M9PV	M9P	●	●	○	—	○			
		Connector	2-wire	M9BV				M9B	●	●	○	—	○				
			—	J79C				—	●	—	●	—	○				
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NVV	M9NW	●	●	○	—	○	IC circuit		
				3-wire (PNP)				M9PVV	M9PW	●	●	○	—	○			
	Water resistant (2-color indication)	Grommet	—	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	○	—	○	—		
				3-wire (NPN)				M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	●	—	○			
	—	Grommet	—	3-wire (PNP)	24 V	5 V, 12 V	—	M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	●	—	○	IC circuit		
				2-wire				M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	●	—	○			
—	Grommet	—	4-wire	24 V	5 V, 12 V	—	—	F79F	●	—	○	—	○	IC circuit			
			2-wire (Non-polar)				—	P4DW	—	—	●	—	○				
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	—	●	—	—	IC circuit		
								—	A72	A72H	●	—	●	—		—	
		Connector	No	2-wire				12 V	100 V	A93V <sup>*2</sup>	A93	●	●	●	—	—	—
								5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	
		Grommet	Yes	—				12 V	—	A73C	—	●	—	●	●	—	IC circuit
								5 V, 12 V	24 V or less	A80C	—	●	—	●	●	—	
Diagnostic indication (2-color indication)	Grommet	Yes	—	—	—	—	A79W	—	●	—	●	—	—	—			

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

\*2 1 m type lead wire is only applicable to D-A93.

Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NVW  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ  
None ..... N (Example) J79CN

\* Solid state auto switches marked with "C" are produced upon receipt of order.

\* The D-P4DW type is available from ø40 to ø100 only.

\* Only for the D-P4DW type, an auto switch is assembled and shipped with the cylinder.

\* There are other applicable auto switches other than the listed above. For details, refer to page 912.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

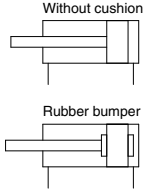
# Compact Cylinder: Axial Piping Double Acting, Single Rod *Series CQP2*

## Specifications

Rod end male thread



Symbol



Made to Order

**Made to Order: Individual Specifications**  
(For details, refer to page 968.)

Symbol	Specifications
-X271	Fluororubber seals

**Made to Order**

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C) w/o auto switch only
-XB7	Cold resistant cylinder (-40 to 70°C) w/o auto switch only
-XB9	Low-speed cylinder (10 to 50 mm/s)
-XB13	Low-speed cylinder (5 to 50 mm/s)
-XC4	With heavy-duty scraper, ø32 to ø100 only
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC35	With coil scraper
-XC36	With boss on rod end
-XC85	Grease for food processing equipment

Refer to pages 908 to 912 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

### Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions. Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

### Pneumatic type

Bore size (mm)	12	16	20	25	32	40	50	63	80	100	
<b>Action</b>	Double acting, Single rod										
<b>Fluid</b>	Air										
<b>Proof pressure</b>	1.5 MPa										
<b>Maximum operating pressure</b>	1.0 MPa										
<b>Minimum operating pressure</b>	0.07 MPa		0.05 MPa								
<b>Ambient and fluid temperature</b>	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)										
<b>Lubrication</b>	Not required (Non-lube)										
<b>Piston speed</b>	50 to 500 mm/s										
<b>Allowable kinetic energy (J)</b>	Without cushion	0.022	0.038	0.055	0.09	0.15	0.26	0.46	0.77	1.36	2.27
	With rubber bumper	0.043	0.075	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54
<b>Stroke length tolerance</b>	±1.0 mm (Note) 0										

Note) Stroke length tolerance does not include the amount of bumper change.

### Air-hydro type

Bore size (mm)	20	25	32	40	50	63	80	100
<b>Action</b>	Double acting, Single rod							
<b>Fluid</b>	Turbine oil (Note)							
<b>Proof pressure</b>	1.5 MPa							
<b>Maximum operating pressure</b>	1.0 MPa							
<b>Minimum operating pressure</b>	0.18 MPa						0.1 MPa	
<b>Ambient and fluid temperature</b>	5 to 60°C							
<b>Piston speed</b>	5 to 50 mm/s							
<b>Cushion</b>	None							
<b>Stroke length tolerance</b>	±1.0 mm 0							

Note) Refer to page 7 for Actuator Precautions (5).

## Standard Strokes

### Pneumatic type (Non-lube) (mm)

Bore size	Standard stroke
<b>12, 16</b>	5, 10, 15, 20, 25, 30
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

### Air-hydro type (mm)

Bore size	Standard stroke
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	
Part no.	Refer to "How to Order" for the standard model number. (P. 888)	
Description	Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.	
Stroke range	Bore size	Stroke range
	12, 16	1 to 29
	20, 25	1 to 49
	32 to 100	1 to 99
Example	Part no.: CQP2B50-57D CQP2B50-75D with 18 mm width spacer inside The B dimension is 115.5 mm.	

- Except air-hydro type
- In the case of spacer type, intermediate strokes with bumper for ø40 to ø100, it can be manufactured in 5 mm intervals in 5 mm and 55 to 95 mm.

## Retaining Ring Installation/Removal

### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

## Mounting/Removal

- Do not remove the hexagon socket set screw on the side of the rod.
- Be aware that if the hexagon socket set screw is removed with compressed air supplied to the cylinder, an internal steel ball could fly out or the compressed air could be discharged, leading to injury to humans or damage to peripheral equipment.

## Type

Bore size (mm)		12	16	20	25	32	40	50	63	80	100	
Pneumatic	Mounting   Through-hole (Standard)	●	●	●	●	●	●	●	●	●	●	
	Built-in magnet	●	●	●	●	●	●	●	●	●	●	
	Piping   Pipe thread	M5 x 0.8	●	●	●	●	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8	Rc3/8
		M5 x 0.8	●	●	●	●	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8	NPT3/8
Air-hydro	Rod end male thread	●	●	●	●	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8	
	With rubber bumper	●	●	●	●	●	●	●	●	●	●	
	Mounting   Through-hole (Standard)	—	—	●	●	●	●	●	●	●	●	
	Built-in magnet	—	—	●	●	●	●	●	●	●	●	
Piping   Pipe thread	M5 x 0.8	—	—	●	●	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8	Rc3/8	
	—	—	●	●	●	●	●	●	●	●	●	

## Theoretical Output



Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
12	IN	25	42	59
	OUT	34	57	79
16	IN	45	75	106
	OUT	60	101	141
20	IN	71	118	165
	OUT	94	157	220
25	IN	113	189	264
	OUT	147	245	344
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1150
	OUT	589	982	1370
63	IN	841	1400	1960
	OUT	935	1560	2180
80	IN	1360	2270	3170
	OUT	1510	2510	3520
100	IN	2140	3570	5000
	OUT	2360	3930	5500

## Weight

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	32	39	46	53	60	67	—	—	—	—	—	—
16	54	63	72	81	90	98	—	—	—	—	—	—
20	70	84	98	112	126	140	154	168	182	196	—	—
25	102	117	132	147	161	176	191	206	220	235	—	—
32	149	173	199	222	246	270	295	319	343	367	487	607
40	224	258	280	310	336	362	388	414	440	467	602	737
50	—	414	455	496	538	579	620	662	703	744	949	1154
63	—	584	632	679	727	774	822	870	917	965	1205	1445
80	—	1085	1163	1242	1320	1399	1477	1556	1634	1713	2108	2503
100	—	1894	1992	2091	2189	2287	2385	2483	2581	2679	3169	3659

## Additional Weight

Bore size (mm)		12	16	20	25	32	40	50	63	80	100
Rod end	Male thread	1.5	3	6	12	26	27	53	53	120	175
male thread	Nut	1	2	4	8	17	17	32	32	49	116
With rubber bumper		0	0	-2	-3	-3	-7	-9	-18	-31	-56

Calculation: (Example) CQP2B32-20DCM

- Basic weight: CQP2B32-20D..... 222 g
- Additional weight: Rod end male thread ..... 43 g
- With rubber bumper..... -3 g

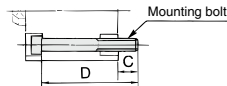
262 g

## Mounting Bolt for CQP2B/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQP2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 25L 2 pcs.**

Material: Chromium molybdenum steel  
 Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
<b>CQP2B12-5D</b>	6.5	25	CQ-M3 x 25L
<b>-10D</b>		30	x 30L
<b>-15D</b>		35	x 35L
<b>-20D</b>		40	x 40L
<b>-25D</b>		45	x 45L
<b>-30D</b>		50	x 50L
<b>CQP2B16-5D</b>	5	25	CQ-M3 x 25L
<b>-10D</b>		30	x 30L
<b>-15D</b>		35	x 35L
<b>-20D</b>		40	x 40L
<b>-25D</b>		45	x 45L
<b>-30D</b>		50	x 50L
<b>CQP2B20-5D</b>	7.5	25	CQ-M5 x 25L
<b>-10D</b>		30	x 30L
<b>-15D</b>		35	x 35L
<b>-20D</b>		40	x 40L
<b>-25D</b>		45	x 45L
<b>-30D</b>		50	x 50L
<b>-35D</b>		55	x 55L
<b>-40D</b>		60	x 60L
<b>-45D</b>		65	x 65L
<b>-50D</b>		70	x 70L
<b>CQP2B25-5D</b>	9.5	30	CQ-M5 x 30L
<b>-10D</b>		35	x 35L
<b>-15D</b>		40	x 40L
<b>-20D</b>		45	x 45L
<b>-25D</b>		50	x 50L
<b>-30D</b>		55	x 55L
<b>-35D</b>		60	x 60L
<b>-40D</b>		65	x 65L
<b>-45D</b>		70	x 70L
<b>-50D</b>		75	x 75L

Cylinder model	C	D	Mounting bolt part no.
<b>CQP2B32-5D</b>	9	30	CQ-M5 x 30L
<b>-10D</b>		35	x 35L
<b>-15D</b>		40	x 40L
<b>-20D</b>		45	x 45L
<b>-25D</b>		50	x 50L
<b>-30D</b>		55	x 55L
<b>-35D</b>		60	x 60L
<b>-40D</b>		65	x 65L
<b>-45D</b>		70	x 70L
<b>-50D</b>		75	x 75L
<b>-75D</b>	110	x 110L	
<b>-100D</b>	135	x 135L	
<b>CQP2B40-5D</b>	7.5	35	CQ-M5 x 35L
<b>-10D</b>		40	x 40L
<b>-15D</b>		45	x 45L
<b>-20D</b>		50	x 50L
<b>-25D</b>		55	x 55L
<b>-30D</b>		60	x 60L
<b>-35D</b>		65	x 65L
<b>-40D</b>		70	x 70L
<b>-45D</b>		75	x 75L
<b>-50D</b>		80	x 80L
<b>-75D</b>	115	x 115L	
<b>-100D</b>	140	x 140L	
<b>CQP2B50-10D</b>	12.5	45	CQ-M6 x 45L
<b>-15D</b>		50	x 50L
<b>-20D</b>		55	x 55L
<b>-25D</b>		60	x 60L
<b>-30D</b>		65	x 65L
<b>-35D</b>		70	x 70L
<b>-40D</b>		75	x 75L
<b>-45D</b>		80	x 80L
<b>-50D</b>		85	x 85L
<b>-75D</b>		120	x 120L
<b>-100D</b>	145	x 145L	

Cylinder model	C	D	Mounting bolt part no.
<b>CQP2B63-10D</b>	14.5	50	CQ-M8 x 50L
<b>-15D</b>		55	x 55L
<b>-20D</b>		60	x 60L
<b>-25D</b>		65	x 65L
<b>-30D</b>		70	x 70L
<b>-35D</b>		75	x 75L
<b>-40D</b>		80	x 80L
<b>-45D</b>		85	x 85L
<b>-50D</b>		90	x 90L
<b>-75D</b>		125	x 125L
<b>-100D</b>	150	x 150L	
<b>CQP2B80-10D</b>	15	55	CQ-M10 x 55L
<b>-15D</b>		60	x 60L
<b>-20D</b>		65	x 65L
<b>-25D</b>		70	x 70L
<b>-30D</b>		75	x 75L
<b>-35D</b>		80	x 80L
<b>-40D</b>		85	x 85L
<b>-45D</b>		90	x 90L
<b>-50D</b>		95	x 95L
<b>-75D</b>		130	x 130L
<b>-100D</b>	155	x 155L	
<b>CQP2B100-10D</b>	15.5	65	CQ-M10 x 65L
<b>-15D</b>		70	x 70L
<b>-20D</b>		75	x 75L
<b>-25D</b>		80	x 80L
<b>-30D</b>		85	x 85L
<b>-35D</b>		90	x 90L
<b>-40D</b>		95	x 95L
<b>-45D</b>		100	x 100L
<b>-50D</b>		105	x 105L
<b>-75D</b>		140	x 140L
<b>-100D</b>	165	x 165L	

**CJU**

**CU**

**CQS**

**CQZ**

**RQ**

**CQM**

**CQU**

**MU**

**D-□**

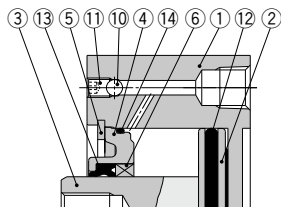
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Technical data

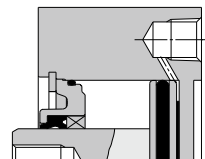
# Series CQP2

## Construction

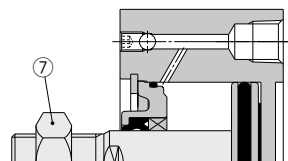
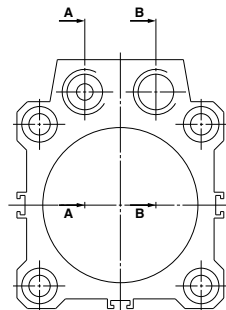
### Standard



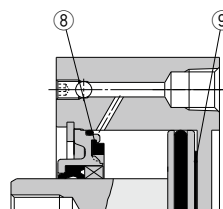
A-A section (Port on rod end)



B-B section (Port on head end)



Rod end male thread



With rubber bumper

### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø100, Chromated, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	ø50 to ø100
7	Rod end nut	Carbon steel	Zinc chromated
8	Bumper A	Urethane	
9	Bumper B	Urethane	
10	Steel ball	Carbon steel	
11	Hexagon socket set screw	Alloy steel	Zinc chromated
12	Piston seal	NBR	
13	Rod seal	NBR	
14	Gasket	NBR	

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.		Contents
	Pneumatic type (Non-lube)	Air-hydro type	
12	CQ2B12-PS	—	Kits include items 12, 13, 14 from the table.
16	CQ2B16-PS	—	
20	CQ2B20-PS	CQ2BH20-PS	
25	CQ2B25-PS	CQ2BH25-PS	
32	CQ2B32-PS	CQ2BH32-PS	
40	CQ2B40-PS	CQ2BH40-PS	
50	CQ2B50-PS	CQ2BH50-PS	
63	CQ2B63-PS	CQ2BH63-PS	
80	CQ2B80-PS	CQ2BH80-PS	
100	CQ2B100-PS	CQ2BH100-PS	

\* Seal kit includes 12, 13, 14. Order the seal kit based on each bore size.

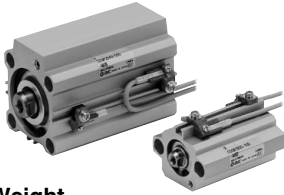
\* Since the seal kit does not include a grease pack, order it separately.

**Grease pack part no.: GR-S-010 (10 g)**

# Axial Piping: Double Acting, Single Rod

## Series **CDQP2**

### With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.908 to 912
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

## Weight

### Additional Weight (g)

Bore size (mm)	12	16	20	25	32
Rod end male thread	1.5	3	6	12	26
male thread Nut	1	2	4	8	17
With rubber bumper	0	-1	-2	-3	-3

Bore size (mm)	40	50	63	80	100
Rod end male thread	27	53	53	120	175
male thread Nut	17	32	32	49	116
With rubber bumper	-7	-9	-18	-31	-56

### Weight (g)

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	54	62	69	75	82	89	—	—	—	—	—	—
16	91	99	107	115	123	131	—	—	—	—	—	—
20	121	135	147	161	175	188	201	214	228	242	—	—
25	177	190	203	217	230	244	257	270	284	297	—	—
32	217	242	266	290	315	339	363	387	412	436	557	679
40	319	345	371	397	423	449	475	502	528	554	684	814
50	—	546	588	629	670	712	753	794	836	877	1084	1291
63	—	764	812	859	907	955	1002	1050	1098	1145	1384	1622
80	—	1377	1455	1534	1612	1691	1769	1848	1926	2005	2397	2790
100	—	2296	2394	2492	2590	2688	2786	2884	2982	3080	3570	4060

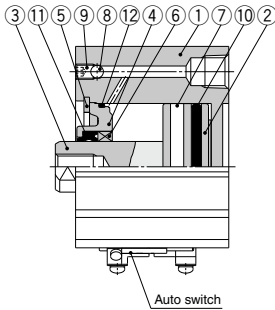
Calculation: (Example) **CDQP2B32-20DCM**  
 • Basic weight: CDQP2B32-20D ..... 290 g  
 • Additional weight: Rod end male thread ..... 43 g  
 With rubber bumper ..... 3 g  
 330 g

Add each weight of auto switches when auto switches are mounted.

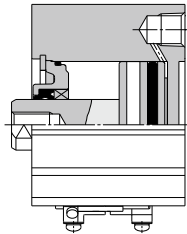
### Auto Switch Mounting Bracket/Weight

Mounting bracket part no.	Applicable bore size	Weight (g)
BQ-1	ø12 to ø25	1.5
BQ-2	ø32 to ø100	1.5
BQ2-012	ø12 to ø100	5

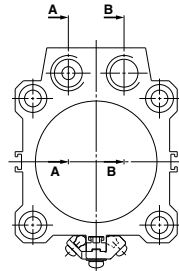
## Construction



A-A section (Port on rod end)



B-B section (Port on head end)



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø100, Chromated, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	ø50 to ø100
7	Magnet	—	—
8	Steel ball	Carbon steel	—
9	Hexagon socket set screw	Alloy steel	Zinc chromated
10	Piston seal	NBR	—
11	Rod seal	NBR	—
12	Gasket	NBR	—

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.		Contents
	Pneumatic type (Non-tube)	Air-hydro type	
12	CQ2B12-PS	—	Kits include items ⑩, ⑪, ⑫ from the table.
16	CQ2B16-PS	—	
20	CQ2B20-PS	CQ2BH20-PS	
25	CQ2B25-PS	CQ2BH25-PS	
32	CQ2B32-PS	CQ2BH32-PS	
40	CQ2B40-PS	CQ2BH40-PS	
50	CQ2B50-PS	CQ2BH50-PS	
63	CQ2B63-PS	CQ2BH63-PS	
80	CQ2B80-PS	CQ2BH80-PS	
100	CQ2B100-PS	CQ2BH100-PS	

\* Seal kit includes ⑩, ⑪, ⑫. Order the seal kit based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.

Grease pack part no.: GR-S-010 (10 g)

CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

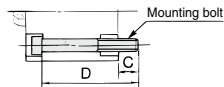


# Series CQP2

## Mounting Bolt for CDQP2B/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQP2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Example) CQ-M3 x 35L 2 pcs.

Cylinder model	C	D	Mounting bolt part no.
<b>CDQP2B12-5D</b>	5.5	35	CQ-M3 x 35L
-10D		40	x 40L
-15D		45	x 45L
-20D		50	x 50L
-25D		55	x 55L
-30D		60	x 60L
<b>CDQP2B16-5D</b>	8	40	CQ-M3 x 40L
-10D		45	x 45L
-15D		50	x 50L
-20D		55	x 55L
-25D		60	x 60L
-30D		65	x 65L
<b>CDQP2B20-5D</b>	10.5	40	CQ-M5 x 40L
-10D		45	x 45L
-15D		50	x 50L
-20D		55	x 55L
-25D		60	x 60L
-30D		65	x 65L
-35D	70	x 70L	
-40D	75	x 75L	
-45D	80	x 80L	
-50D	85	x 85L	
<b>CDQP2B25-5D</b>	9.5	40	CQ-M5 x 40L
-10D		45	x 45L
-15D		50	x 50L
-20D		55	x 55L
-25D		60	x 60L
-30D		65	x 65L
-35D	70	x 70L	
-40D	75	x 75L	
-45D	80	x 80L	
-50D	85	x 85L	

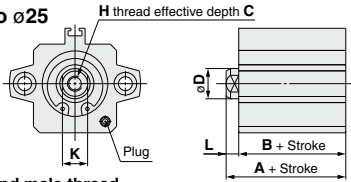
Cylinder model	C	D	Mounting bolt part no.
<b>CDQP2B32-5D</b>	9	40	CQ-M5 x 40L
-10D		45	x 45L
-15D		50	x 50L
-20D		55	x 55L
-25D		60	x 60L
-30D		65	x 65L
-35D		70	x 70L
-40D		75	x 75L
-45D		80	x 80L
-50D		85	x 85L
-75D	110	x 110L	
-100D	135	x 135L	
<b>CDQP2B40-5D</b>	7.5	45	CQ-M5 x 45L
-10D		50	x 50L
-15D		55	x 55L
-20D		60	x 60L
-25D		65	x 65L
-30D		70	x 70L
-35D		75	x 75L
-40D		80	x 80L
-45D		85	x 85L
-50D		90	x 90L
-75D	115	x 115L	
-100D	140	x 140L	
<b>CDQP2B50-10D</b>	12.5	55	CQ-M6 x 55L
-15D		60	x 60L
-20D		65	x 65L
-25D		70	x 70L
-30D		75	x 75L
-35D		80	x 80L
-40D		85	x 85L
-45D		90	x 90L
-50D		95	x 95L
-75D		120	x 120L
-100D	145	x 145L	

Cylinder model	C	D	Mounting bolt part no.
<b>CDQP2B63-10D</b>	14.5	60	CQ-M8 x 60L
-15D		65	x 65L
-20D		70	x 70L
-25D		75	x 75L
-30D		80	x 80L
-35D		85	x 85L
-40D		90	x 90L
-45D		95	x 95L
-50D		100	x 100L
-75D		125	x 125L
-100D	150	x 150L	
<b>CDQP2B80-10D</b>	15	65	CQ-M10 x 65L
-15D		70	x 70L
-20D		75	x 75L
-25D		80	x 80L
-30D		85	x 85L
-35D		90	x 90L
-40D		95	x 95L
-45D		100	x 100L
-50D		105	x 105L
-75D		130	x 130L
-100D	155	x 155L	
<b>CDQP2B100-10D</b>	15.5	75	CQ-M10 x 75L
-15D		80	x 80L
-20D		85	x 85L
-25D		90	x 90L
-30D		95	x 95L
-35D		100	x 100L
-40D		105	x 105L
-45D		110	x 110L
-50D		115	x 115L
-75D		140	x 140L
-100D	165	x 165L	

Dimensions

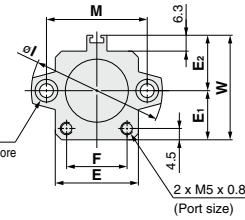
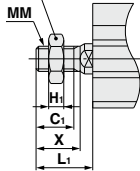
**ø12 to ø100/Without Auto Switch**

ø12 to ø25



Rod end male thread

Width across flat B<sub>1</sub>



**Rod End Male Thread**

(mm)

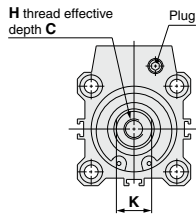
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

**Standard**

(mm)

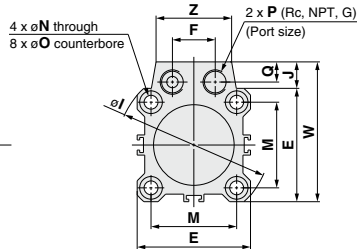
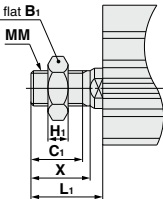
Bore size (mm)	Stroke range (mm)	A	B	C	D	E	E <sub>1</sub>	E <sub>2</sub>	F	H	I	K	L	M	N	O	W
12	5 to 30	20.5	17	6	6	23	13	14	14	M3 x 0.5	32	5	3.5	22	3.5	6.5 depth 3.5	27
16	5 to 30	22	18.5	8	8	26	15	17	17	M4 x 0.7	38	6	3.5	28	3.5	6.5 depth 3.5	32
20	5 to 50	24	19.5	7	10	30	17	19	21	M5 x 0.8	47	8	4.5	36	5.5	9 depth 7	36
25	5 to 50	27.5	22.5	12	12	33	19.5	22	24	M6 x 1.0	52	10	5	40	5.5	9 depth 7	41.5

ø32 to ø100



Rod end male thread

Width across flat B<sub>1</sub>



**Rod End Male Thread**

(mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5
63	27	26	11	33.5	M18 x 1.5	28.5
80	32	32.5	13	43.5	M22 x 1.5	35.5
100	41	32.5	16	43.5	M26 x 1.5	35.5

**Standard**

(mm)

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	H	I	J	K	L	M	N	O	P	Q	W	Z
32	5 to 50	30	23	13	16	45	17	M8 x 1.25	60	10.5	14	7	34	5.5	9 depth 7	1/8	8	55.5	30
	75, 100	40	33																
40	5 to 50	36.5	29.5	13	16	52	17	M8 x 1.25	69	10	14	7	40	5.5	9 depth 7	1/8	8	62	30
	75, 100	46.5	39.5																
50	10 to 50	38.5	30.5	15	20	64	22	M10 x 1.5	86	13	17	8	50	6.6	11 depth 8	1/4	10	77	39
	75, 100	48.5	40.5																
63	10 to 50	44	36	15	20	77	22	M10 x 1.5	103	13	17	8	60	9	14 depth 10.5	1/4	10	90	39
	75, 100	54	46																
80	10 to 50	53.5	43.5	21	25	98	26	M16 x 2.0	132	16	22	10	77	11	17.5 depth 13.5	3/8	12.5	114	48
	75, 100	63.5	53.5																
100	10 to 50	65	53	27	30	117	26	M20 x 2.5	156	17.5	27	12	94	11	17.5 depth 13.5	3/8	12.5	134.5	48
	75, 100	75	63																

Note) The external dimensions with rubber bumper are the same as those of the standard, as shown above.

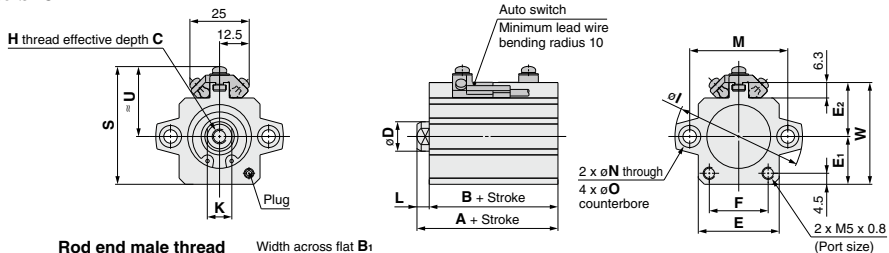
\* For details about the rod end nut and accessory brackets, refer to page 804.

# Series CQP2

## Dimensions

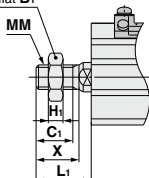
### Ø12 to Ø100/With Auto Switch

Ø12 to Ø25



Rod end male thread

Width across flat B<sub>1</sub>



#### Rod End Male Thread

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

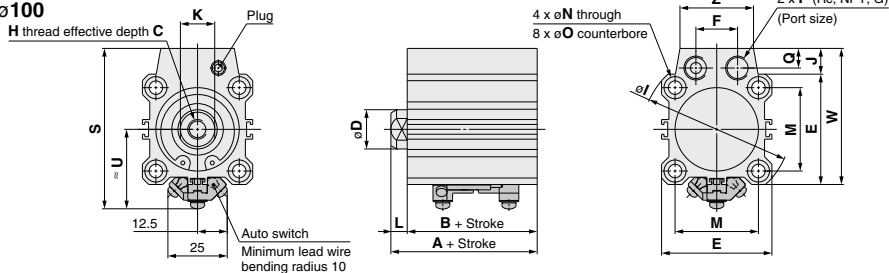
#### Standard

For auto switch proper mounting position and its mounting height, refer to pages 908 to 912.

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	E <sub>1</sub>	E <sub>2</sub>	F	H	I	K	L	M	N	O	S	U	W
12	5 to 30	31.5	28	6	6	23	13	14	14	M3 x 0.5	32	5	3.5	22	3.5	6.5 depth 3.5	33.5	20.5	27
16	5 to 30	34	30.5	8	8	26	15	17	17	M4 x 0.7	38	6	3.5	28	3.5	6.5 depth 3.5	38.5	23.5	32
20	5 to 50	36	31.5	7	10	30	17	19	21	M5 x 0.8	47	8	4.5	36	5.5	9 depth 7	42.5	25.5	36
25	5 to 50	37.5	32.5	12	12	33	19.5	22	24	M6 x 1.0	52	10	5	40	5.5	9 depth 7	48	28.5	41.5

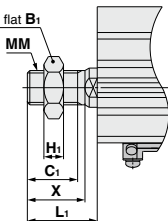
Note) The external dimensions with rubber bumper are the same as those of the standard, as shown above.

Ø32 to Ø100



Rod end male thread

Width across flat B<sub>1</sub>



#### Rod End Male Thread

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5
63	27	26	11	33.5	M18 x 1.5	28.5
80	32	32.5	13	43.5	M22 x 1.5	35.5
100	41	32.5	16	43.5	M26 x 1.5	35.5

#### Standard

For auto switch proper mounting position and its mounting height, refer to pages 908 to 912.

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	H	I	J	K	L	M	N	O	P	Q	S	U	W	Z
32	5 to 100	40	33	13	16	45	17	M8 x 1.25	60	10.5	14	7	34	5.5	9 depth 7	1/8	8	65.5	32.5	55.5	30
40	5 to 100	46.5	39.5	13	16	52	17	M8 x 1.25	69	10	14	7	40	5.5	9 depth 7	1/8	8	72	36	62	30
50	10 to 100	48.5	40.5	15	20	64	22	M10 x 1.5	86	13	17	8	50	6.6	11 depth 8	1/4	10	87	42	77	39
63	10 to 100	54	46	15	20	77	22	M10 x 1.5	103	13	17	8	60	9	14 depth 10.5	1/4	10	100	48.5	90	39
80	10 to 100	63.5	53.5	21	25	98	26	M16 x 2.0	132	16	22	10	77	11	17.5 depth 13.5	3/8	12.5	123.5	58.5	114	48
100	10 to 100	75	63	27	30	117	26	M20 x 2.5	156	17.5	27	12	94	11	17.5 depth 13.5	3/8	12.5	144.5	68.5	134.5	48

Note) The external dimensions with rubber bumper are the same as those of the standard, as shown above. \* For details about the rod end nut and accessory brackets, refer to page 804.

# Compact Cylinder: Axial Piping Single Acting, Single Rod Series **CQP2**

ø12, ø16, ø20, ø25, ø32, ø40, ø50

## How to Order

Without auto switch

**CQP2B50** - **10T** -

With auto switch

**CDQP2B50** - **10T** - **M9BW** -

With auto switch  
(Built-in magnet)

Axial piping

Mounting

**B** Through-hole

\* Cylinder mounting bolts are not included.  
Order them separately referring to  
"Mounting Bolt for CQP2" on pages 899  
and 902.

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQP2B32-10S

Port thread type

Nil	M thread	ø12 to ø25
	Rc	
TN	NPT	ø32 to ø50
TF	G	

Made to Order  
Refer to page 898  
for details.

Number of auto switches

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

Auto switch

Nil Without auto switch

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

Body option

Nil	Standard (Rod end female thread)
M	Rod end male thread

Action

S	Single acting, Spring return
T	Single acting, Spring extend

Cylinder stroke (mm)

Refer to page 898 for standard strokes.

### Applicable Auto Switches

Refer to pages 1559 to 1673 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load			
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch		Grommet		3-wire (NPN)	5 V, 12 V		M9NV	M9N	●	●	○	○	○	IC circuit	Relay, PLC			
				3-wire (PNP)			M9PV	M9P	●	●	○	○	○					
	Connector			2-wire	12 V		M9BV	M9B	●	●	○	○	○	—				
				J79C			—	●	●	●	●	—						
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NVV	M9NW	●	●	○	○	○	IC circuit				
				3-wire (PNP)			M9PWW	M9PW	●	●	○	○	○					
	Water resistant (2-color indication)	Grommet		2-wire	12 V		M9BWW	M9BW	●	●	○	○	○	—				
				3-wire (NPN)			M9NAV*1	M9NA*1	○	○	○	○	IC circuit					
				3-wire (PNP)			M9PAV*1	M9PA*1	○	○	○	○						
				2-wire			M9BAV*1	M9BA*1	○	○	○	○	○					
With diagnostic output (2-color indication)	Grommet	Yes	4-wire	5 V, 12 V		—	F79F	●	—	●	○	○	○	IC circuit				
—			—	A96V		A96	●	—	●	—	—	—	—	IC circuit				
Reed auto switch		Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A72	A72H	●	—	●	—	—	—			
								—	200 V	A93V*2	A93	●	●	●		—	—	
								12 V	100 V	A90V	A90	●	—	●		—	—	
		Connector		No	2-wire	24 V	5 V, 12 V	100 V or less	A90C	A90	●	—	●	●	—	IC circuit		
									12 V	—	A73C	—	●	—	●	●	—	IC circuit
									5 V, 12 V	24 V or less	A80C	—	●	—	●	●	—	IC circuit
Diagnostic indication (2-color indication)	Grommet	Yes						A79W	—	●	—	●	—	—	—			

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ  
None ..... N (Example) J79CN

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

\* There are other applicable auto switches other than the listed above. For details, refer to page 912.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

CUJ

CU

CQS

CQZ-Z

RQ

CQM

CQU

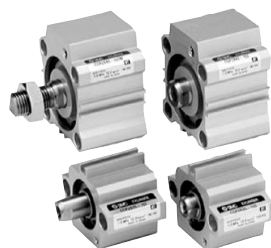
MU-Z

D-□

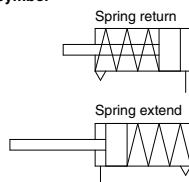
-X□

Technical data

# Series CQP2



## Symbol



## Made to Order: Individual Specifications (For details, refer to page 968.)

Symbol	Specifications
-X271	Fluororubber seals

## Made to Order

(For details, refer to pages 1675 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC36	With boss on rod end
-XC85	Grease for food processing equipment

Refer to pages 908 to 912 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

## Specifications

Bore size (mm)	12	16	20	25	32	40	50
<b>Action</b>	Double acting, Single rod						
<b>Fluid</b>	Air						
<b>Proof pressure</b>	1.5 MPa						
<b>Maximum operating pressure</b>	1.0 MPa						
<b>Minimum operating pressure (MPa)</b>	0.25	0.25	0.18	0.18	0.17	0.15	0.13
<b>Ambient and fluid temperature</b>	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)						
<b>Lubrication</b>	Not required (Non-lube)						
<b>Piston speed</b>	50 to 500 mm/s						
<b>Allowable kinetic energy (J)</b>	0.022	0.038	0.055	0.09	0.15	0.26	0.46
<b>Stroke length tolerance</b>	+1.0 mm 0						

## Standard Strokes

Bore size	Standard stroke
12, 16, 20, 25, 32, 40	5, 10
50	10, 20

## Manufacture of Intermediate Strokes

(Except single acting, spring return)

Type	A spacer is installed in the standard stroke body.	
Part no.	Refer to "How to Order" for the standard model number. (P. 897)	
Description	Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.	
Stroke range	Bore size	Stroke range
	12 to 40	1 to 9
	50	1 to 19
Example	Part no.: CQP2B20-3T CQP2B20-5T with 2 mm width spacer inside The B dimension is 24.5 mm.	

## Type

		Bore size (mm)		12	16	20	25	32	40	50
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	●
		Built-in magnet	●	●	●	●	●	●	●	●
	Piping	Pipe thread	M5 x 0.8	M5 x 0.8	M5 x 0.8	M5 x 0.8	Rc1/8	Rc1/8	Rc1/4	
							NPT1/8	NPT1/8	NPT1/4	
						G1/8	G1/8	G1/4		
		Rod end male thread	●	●	●	●	●	●	●	

## Retaining Ring Installation/Removal

### ⚠ Caution

1. For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
2. Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

## Mounting/Removal

1. Do not remove the hexagon socket set screw on the side of the rod.
  - Be aware that if the hexagon socket set screw is removed with compressed air supplied to the cylinder, an internal steel ball could fly out or the compressed air could be discharged, leading to injury to humans or damage to peripheral equipment.

## Theoretical Output

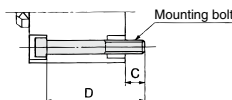
Action	Bore size (mm)	Operating pressure (MPa)		
		0.3	0.5	0.7
Spring return	12	21	44	66
	16	45	86	126
	20	79	142	205
	25	126	224	323
	32	211	372	533
	40	338	589	841
Spring extend	50	535	928	1316
	12	14	31	48
	16	24	54	85
	20	71	118	165
	25	113	189	264
	32	181	302	422
40	317	528	739	
50	495	825	1150	

## Mounting Bolt for CQP2B/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQP2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

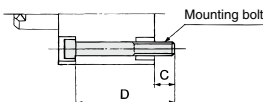
**Example) CQ-M3 x 25L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



## Spring Return

Cylinder model	C	D	Mounting bolt part no.
CQP2B12-5S	6.5	25	CQ-M3 x 25L
		30	x 30L
CQP2B16-5S	5	25	CQ-M3 x 25L
		30	x 30L
CQP2B20-5S	7.5	25	CQ-M5 x 25L
		30	x 30L
CQP2B25-5S	9.5	30	CQ-M5 x 30L
		35	x 35L
CQP2B32-5S	9	30	CQ-M5 x 30L
		35	x 35L
CQP2B40-5S	7.5	35	CQ-M5 x 35L
		40	x 40L
CQP2B50-10S	12.5	45	CQ-M6 x 45L
		55	x 55L



## Spring Extend

Cylinder model	C	D	Mounting bolt part no.
CQP2B12-5T	6.5	25	CQ-M3 x 25L
		30	x 30L
CQP2B16-5T	5	25	CQ-M3 x 25L
		30	x 30L
CQP2B20-5T	7.5	25	CQ-M5 x 25L
		30	x 30L
CQP2B25-5T	9.5	30	CQ-M5 x 30L
		35	x 35L
CQP2B32-5T	9	30	CQ-M5 x 30L
		35	x 35L
CQP2B40-5T	7.5	35	CQ-M5 x 35L
		40	x 40L
CQP2B50-10T	12.5	45	CQ-M6 x 45L
		55	x 55L

## Weight

Action	Bore size (mm)	Cylinder stroke (mm)			
		5	10	15	20
Spring return	12	33	40	—	—
	16	55	64	—	—
	20	68	83	—	—
	25	103	118	—	—
	32	149	173	—	—
	40	236	262	—	—
Spring extend	50	—	426	—	691
	12	33	40	—	—
	16	55	64	—	—
	20	73	87	—	—
	25	109	124	—	—
	32	160	180	—	—
40	262	284	—	—	
50	—	468	—	540	

## Additional Weight

Bore size (mm)		12	16	20	25	32	40	50
Rod end male thread	Male thread	1.5	3	6	12	26	27	53
	Nut	1	2	4	8	17	17	32

Calculation: (Example) CQP2B32-10SM

- Basic weight: CQP2B32-10S .....173 g
  - Additional weight: Rod end male thread ..... 43 g
- 216 g

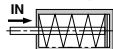
## Spring Force

### Single Acting, Spring Return (N)

Bore size (mm)	Stroke (mm)	Spring reaction force (N)	
		Second	First
12	5	13	8.6
	10	13	3.9
16	5	15	10.3
	10	15	5.9
20	5	15	10
	10	15	5.9
25	5	20	16
	10	20	11
32	5	30	23
	10	30	16
40	5	30	13
	10	39	21
50	10	50	30
	20	54	24

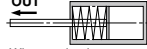
### Single acting, Spring Return

Spring state with first mounting load



When spring is set in cylinder

Spring state with second mounting load



When spring is compressed with air

### Single Acting, Spring Extend (N)

Bore size (mm)	Stroke (mm)	Spring reaction force (N)	
		Second	First
12	5	11	2.9
	10	9.7	2.8
16	5	20	3.9
	10	20	3.9
20	5	27	5.3
	10	27	5.9
25	5	29	9.8
	10	29	9.8
32	5	29	20
	10	29	20
40	5	29	20
	10	29	20
50	10	83	24
	20	83	24

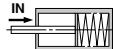
### Single acting, Spring extend

Spring state with first mounting load



When spring is set in cylinder

Spring state with second mounting load



When spring is compressed with air

CJU

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

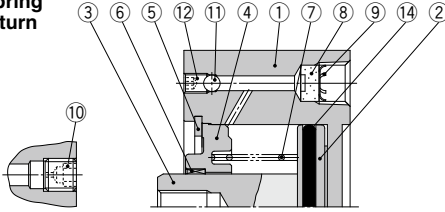
-X□

Technical data

# Series CQP2

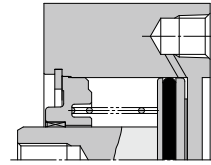
## Construction

### Spring return

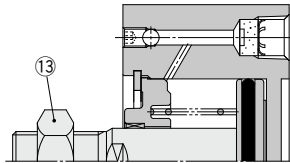
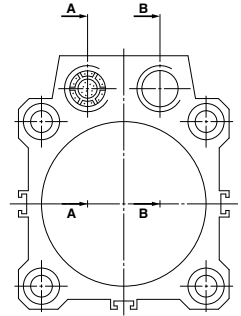


Port size  
M5 x 0.8

A-A section (Port on rod end)

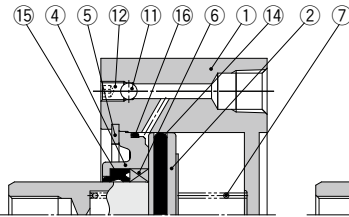


B-B section (Port on head end)

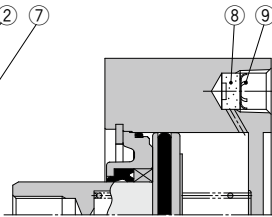


Rod end male thread

### Spring extend



A-A section (Port on rod end)



B-B section (Port on head end)

## Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2*	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø50, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50, Chromate, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	
7	Return spring	Piano wire	Zinc chromated
8	Bronze element	Sintered metallic BC	Port size Rc1/8, 1/4
9	Retaining ring	Carbon tool steel	
10	Plug with fixed orifice	Alloy steel	Port size M5 x 0.8
11	Steel ball	Carbon steel	
12	Hexagon socket head set screw	Alloy steel	Zinc chromated
13	Rod end nut	Carbon steel	Zinc chromated

\* On spring extend (Type T), piston and piston rod are integrated (stainless steel).

No.	Description	Material	Note
14	Piston seal	NBR	
15	Rod seal	NBR	
16	Gasket	NBR	

## Replacement Parts/Seal Kit

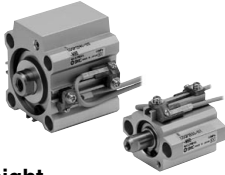
Bore size (mm)	Kit no. (Single acting/Spring return)	Kit no. (Single acting/Spring extend)
12	CQ2B12-S-PS	CQ2B12-T-PS
16	CQ2B16-S-PS	CQ2B16-T-PS
20	CQ2B20-S-PS	CQ2B20-T-PS
25	CQ2B25-S-PS	CQ2B25-T-PS
32	CQ2B32-S-PS	CQ2B32-T-PS
40	CQ2B40-S-PS	CQ2B40-T-PS
50	CQ2B50-S-PS	CQ2B50-T-PS
Contents	Kits include item 14 from the table.	Kits include items 14, 15, 16 from the table.
How to Order	* Seal kit includes 14. Order the seal kit, based on each bore size.	* Seal kit includes 14, 15, 16. Order the seal kit, based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.  
Grease pack part no.: GR-S-010 (10 g)

# Axial Piping: Single Acting, Single Rod

## Series **CDQP2**

### With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.908 to 912
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

## Weight

### Weight

Action	Bore size (mm)	Cylinder stroke (mm)			
		5	10	15	20
Spring return	12	55	63	—	—
	16	92	100	—	—
	20	121	135	—	—
	25	178	191	—	—
	32	217	242	—	—
	40	323	349	—	—
Spring extend	50	—	558	—	641
	12	61	69	—	—
	16	92	100	—	—
	20	126	140	—	—
	25	184	197	—	—
	32	228	253	—	—
40	349	375	—	—	
50	—	600	—	683	

### Additional Weight

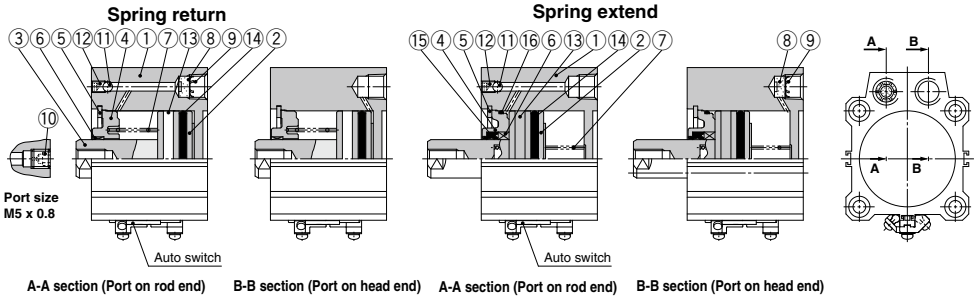
Bore size (mm)		12	16	20	25	32	40	50
Rod end	Male thread	1.5	3	6	12	26	27	53
	Nut	1	2	4	8	17	17	32

Calculation: (Example) **CDQP2B32-10SM**

- Basic weight: CDQP2B32-10S ..... 242 g
- Additional weight: Rod end male thread... 43 g  
285 g

Add each weight of auto switches when auto switches are mounted.

## Construction



Port size  
M5 x 0.8

### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston*	Aluminum alloy	Chromated
3	Piston rod*	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø50, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50, Chromate, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	
7	Return spring	Piano wire	Zinc chromated
8	Bronze element	Sintered metallic BC	Port size Rc1/8, 1/4
9	Retaining ring	Carbon tool steel	
10	Plug with fixed orifice	Alloy steel	Port size M5 x 0.8
11	Steel ball	Carbon steel	
12	Hexagon socket set screw	Alloy steel	Zinc chromated
13	Magnet	—	
14	Piston seal	NBR	
15	Rod seal	NBR	
16	Gasket	NBR	

\* On spring extend (Type T), piston and piston rod are integrated (stainless steel).

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no. (Single acting/Spring return)	Kit no. (Single acting/Spring extend)
12	CQ2B12-S-PS	CQ2B12-T-PS
16	CQ2B16-S-PS	CQ2B16-T-PS
20	CQ2B20-S-PS	CQ2B20-T-PS
25	CQ2B25-S-PS	CQ2B25-T-PS
32	CQ2B32-S-PS	CQ2B32-T-PS
40	CQ2B40-S-PS	CQ2B40-T-PS
50	CQ2B50-S-PS	CQ2B50-T-PS
Contents	Kits include item 14 from the table.	Kits include items 14, 15, 16 from the table.
How to Order	* Seal kit includes 14. Order the seal kit, based on each bore size.	* Seal kit includes 14, 15, 16. Order the seal kit, based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.  
Grease pack part no.: GR-S-010 (10 g)

CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data



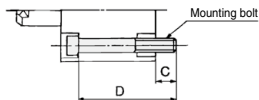
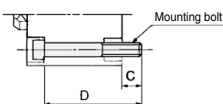
# Series CQP2

## Mounting Bolt for CDQP2B/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQP2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M3 x 35L 2 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



### Spring Return

Cylinder model	C	D	Mounting bolt part no.
CDQP2B12-5S	5.5	35	CQ-M3 x 35L
-10S		40	x 40L
CDQP2B16-5S	8	40	CQ-M3 x 40L
-10S		45	x 45L
CDQP2B20-5S	10.5	40	CQ-M5 x 40L
-10S		45	x 45L
CDQP2B25-5S	9.5	40	CQ-M5 x 40L
-10S		45	x 45L
CDQP2B32-5S	9	40	CQ-M5 x 40L
-10S		45	x 45L
CDQP2B40-5S	7.5	45	CQ-M5 x 45L
-10S		50	x 50L
CDQP2B50-10S	12.5	55	CQ-M6 x 55L
-20S		60	x 60L

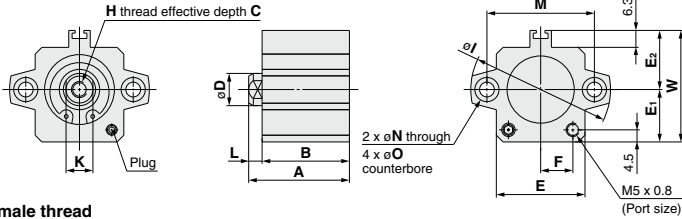
### Spring Extend

Cylinder model	C	D	Mounting bolt part no.
CDQP2B12-5T	6.1	40	CQ-M3 x 40L
-10T		45	x 45L
CDQP2B16-5T	8	40	CQ-M3 x 40L
-10T		45	x 45L
CDQP2B20-5T	10.5	40	CQ-M5 x 40L
-10T		45	x 45L
CDQP2B25-5T	9.5	40	CQ-M5 x 40L
-10T		45	x 45L
CDQP2B32-5T	9	40	CQ-M5 x 40L
-10T		45	x 45L
CDQP2B40-5T	7.5	45	CQ-M5 x 45L
-10T		50	x 50L
CDQP2B50-10T	12.5	55	CQ-M6 x 55L
-20T		65	x 65L

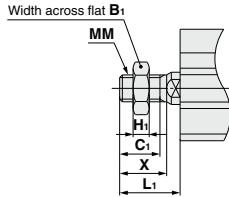
Dimensions

**ø12 to ø50/Spring Return Without Auto Switch**

ø12 to ø25



Rod end male thread

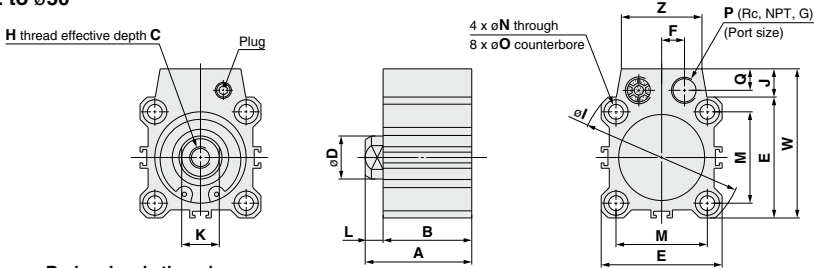


Rod End Male Thread							(mm)
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X	
12	8	9	4	14	M5 x 0.8	10.5	
16	10	10	5	15.5	M6 x 1.0	12	
20	13	12	5	18.5	M8 x 1.25	14	
25	17	15	6	22.5	M10 x 1.25	17.5	

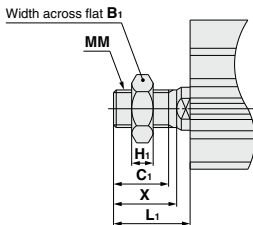
Standard

Bore size (mm)	A		B		C	D	E	E <sub>1</sub>	E <sub>2</sub>	F	H	I	K	L	M	N	O	W
	5st	10st	5st	10st														
12	25.5	30.5	22	27	6	6	23	13	14	7	M3 x 0.5	32	5	3.5	22	3.5	6.5 depth 3.5	27
16	27	32	23.5	28.5	8	8	26	15	17	8.5	M4 x 0.7	38	6	3.5	28	3.5	6.5 depth 3.5	32
20	29	34	24.5	29.5	7	10	30	17	19	10.5	M5 x 0.8	47	8	4.5	36	5.5	9 depth 7	36
25	32.5	37.5	27.5	32.5	12	12	33	19.5	22	12	M6 x 1.0	52	10	5	40	5.5	9 depth 7	41.5

ø32 to ø50



Rod end male thread



Rod End Male Thread							(mm)
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X	
32	22	20.5	8	28.5	M14 x 1.5	23.5	
40	22	20.5	8	28.5	M14 x 1.5	23.5	
50	27	26	11	33.5	M18 x 1.5	28.5	

Standard

Bore size (mm)	A			B			C	D	E	F	H	I	J	K	L	M	N	O	P	Q	W	Z
	5st	10st	20st	5st	10st	20st																
32	35	40	—	28	33	—	13	16	45	8.5	M8 x 1.25	60	10.5	14	7	34	5.5	9 depth 7	1/8	8	55.5	30
40	41.5	46.5	—	34.5	39.5	—	13	16	52	8.5	M8 x 1.25	69	10	14	7	40	5.5	9 depth 7	1/8	8	62	30
50	—	48.5	58.5	—	40.5	50.5	15	20	64	11	M10 x 1.5	86	13	17	8	50	6.6	11 depth 8	1/4	10	77	39

\* For details about the rod end nut and accessory brackets, refer to page 804.

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

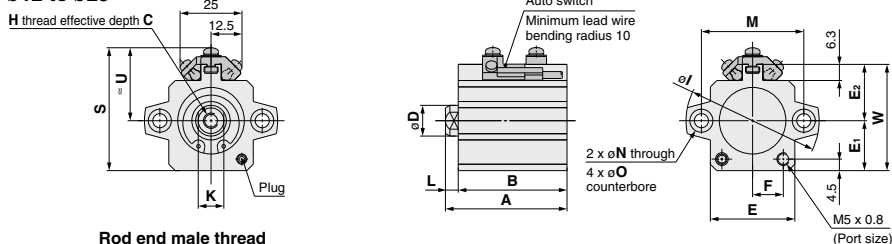
Technical data

# Series CQP2

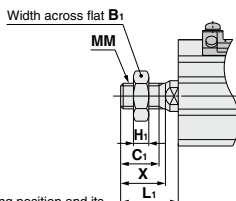
## Dimensions

### ø12 to ø50/Spring Return With Auto Switch

#### ø12 to ø25



#### Rod end male thread



#### Rod End Male Thread

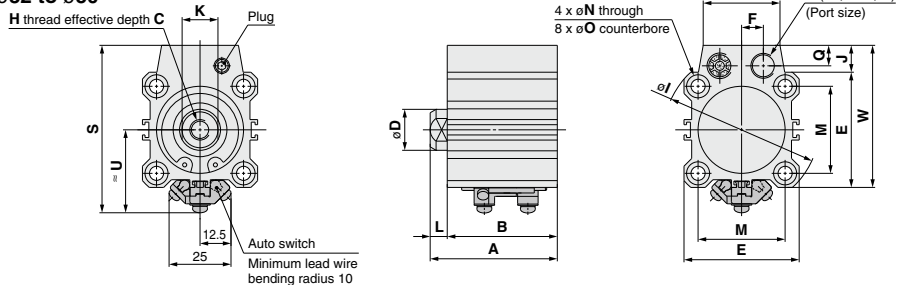
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

#### Standard

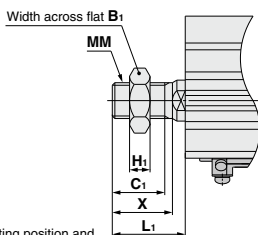
For auto switch proper mounting position and its mounting height, refer to pages 908 to 912.

Bore size (mm)	A		B		C	D	E	E <sub>1</sub>	E <sub>2</sub>	F	H	I	K	L	M	N	O	S	U	W
	5st	10st	5st	10st																
12	36.5	41.5	33	38	6	6	23	13	14	7	M3 x 0.5	32	5	3.5	22	3.5	6.5 depth 3.5	33.5	20.5	27
16	39	44	35.5	40.5	8	8	26	15	17	8.5	M4 x 0.7	38	6	3.5	28	3.5	6.5 depth 3.5	38.5	23.5	32
20	41	46	36.5	41.5	7	10	30	17	19	10.5	M5 x 0.8	47	8	4.5	36	5.5	9 depth 7	42.5	25.5	36
25	42.5	47.5	37.5	42.5	12	12	33	19.5	22	12	M6 x 1.0	52	10	5	40	5.5	9 depth 7	48	28.5	41.5

#### ø32 to ø50



#### Rod end male thread



#### Rod End Male Thread

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5

#### Standard

For auto switch proper mounting position and its mounting height, refer to pages 908 to 912.

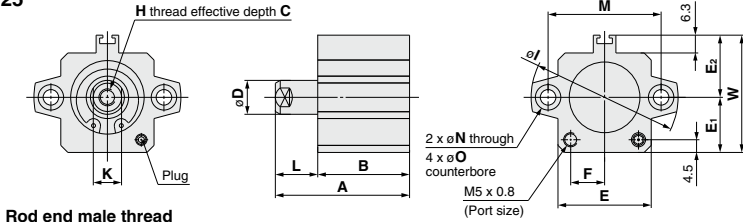
Bore size (mm)	A			B			C	D	E	F	H	I	J	K	L	M	N	O	P	Q	S	U	W	Z
	5st	10st	20st	5st	10st	20st																		
32	45	50	—	38	43	—	13	16	45	8.5	M8 x 1.25	60	10.5	14	7	34	5.5	9 depth 7	1/8	8	65.5	32.5	55.5	30
40	51.5	56.5	—	44.5	49.5	—	13	16	52	8.5	M8 x 1.25	69	10	14	7	40	5.5	9 depth 7	1/8	8	72	36	62	30
50	—	58.5	68.5	—	50.5	60.5	15	20	64	11	M10 x 1.5	86	13	17	8	50	6.6	11 depth 8	1/4	10	87	42	77	39

\* For details about the rod end nut and accessory brackets, refer to page 804.

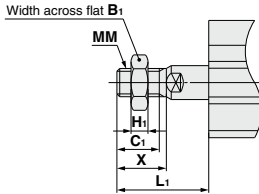
Dimensions

**ø12 to ø50/Spring Extend Without Auto Switch**

ø12 to ø25



Rod end male thread



**Rod End Male Thread**

(mm)

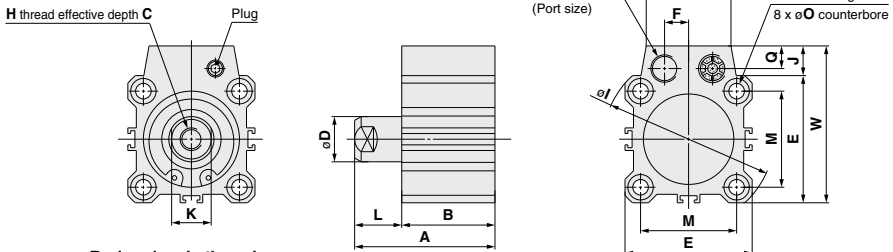
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>		MM	X
				5st	10st		
12	8	9	4	19	24	M5 x 0.8	10.5
16	10	10	5	20.5	25.5	M6 x 1.0	12
20	13	12	5	23.5	28.5	M8 x 1.25	14
25	17	15	6	27.5	32.5	M10 x 1.25	17.5

**Standard**

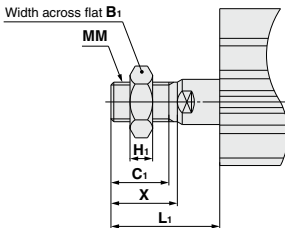
(mm)

Bore size (mm)	A		B		C	D	E	E <sub>1</sub>	E <sub>2</sub>	F	H	I	K	L		M	N	O	W	
	5st	10st	5st	10st										5st	10st					
12	30.5	40.5	22	27	6	6	23	13	14	7	M3 x 0.5	32	5	8.5	13.5	22	3.5	6.5 depth	3.5	27
16	32	42	23.5	28.5	8	8	26	15	17	8.5	M4 x 0.7	38	6	8.5	13.5	28	3.5	6.5 depth	3.5	32
20	34	44	24.5	29.5	7	10	30	17	19	10.5	M5 x 0.8	47	8	9.5	14.5	36	5.5	9 depth	7	36
25	37.5	47.5	27.5	32.5	12	12	33	19.5	22	12	M6 x 1.0	52	10	10	15	40	5.5	9 depth	7	41.5

ø32 to ø50



Rod end male thread



**Rod End Male Thread**

(mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>			MM	X
				5st	10st	20st		
32	22	20.5	8	33.5	38.5	—	M14 x 1.5	23.5
40	22	20.5	8	33.5	38.5	—	M14 x 1.5	23.5
50	27	26	11	—	43.5	53.5	M18 x 1.5	28.5

**Standard**

(mm)

Bore size (mm)	A			B			C	D	E	F	H	I	J	K	L			M	N	O	P	Q	W	Z	
	5st	10st	20st	5st	10st	20st									5st	10st	20st								
32	40	50	—	28	33	—	13	16	45	8.5	M8 x 1.25	60	10.5	14	12	17	—	34	5.5	9 depth	7	1/8	8	55.5	30
40	46.5	56.5	—	34.5	39.5	—	13	16	52	8.5	M8 x 1.25	69	10	14	12	17	—	40	5.5	9 depth	7	1/8	8	62	30
50	—	58.5	78.5	—	40.5	50.5	15	20	64	11	M10 x 1.5	86	13	17	—	18	28	50	6.6	11 depth	8	1/4	10	77	39

\* For details about the rod end nut and accessory brackets, refer to page 804.

CUJ

CU

CQS

CQZ-Z

RQ

CQM

CQU

MU-Z

-D-□

-X-□

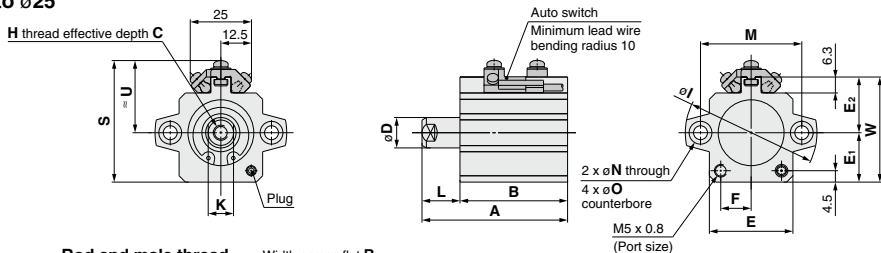
Technical data

# Series CQP2

## Dimensions

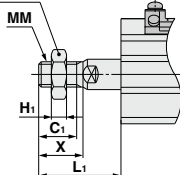
### ø12 to ø50/Spring Extend With Auto Switch

#### ø12 to ø25



#### Rod end male thread

Width across flat  $B_1$



#### Rod End Male Thread

(mm)

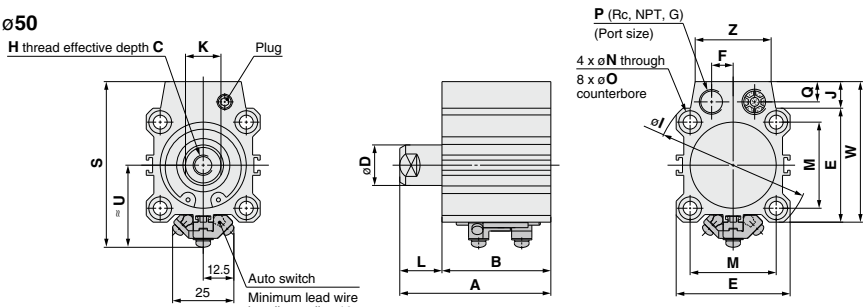
Bore size (mm)	$B_1$	$C_1$	$H_1$	$L_1$		MM	X
				5st	10st		
12	8	9	4	19	24	M5 x 0.8	10.5
16	10	10	5	20.5	25.5	M6 x 1.0	12
20	13	12	5	23.5	28.5	M8 x 1.25	14
25	17	15	6	27.5	32.5	M10 x 1.25	17.5

**Standard** For auto switch proper mounting position and its mounting height, refer to pages 908 to 912.

(mm)

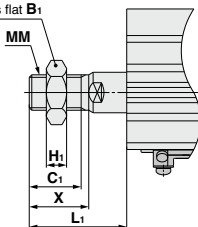
Bore size (mm)	A		B		C	D	E	$E_1$	$E_2$	F	H	I	K	L			M	N	O	S	U	W
	5st	10st	5st	10st										5st	10st							
12	45.9	55.9	37.4	42.4	6	6	23	13	14	7	M3 x 0.5	32	5	8.5	13.5	22	3.5	6.5 depth 3.5	33.5	20.5	27	
16	44	54	35.5	40.5	8	8	26	15	17	8.5	M4 x 0.7	38	6	8.5	13.5	28	3.5	6.5 depth 3.5	38.5	23.5	32	
20	46	56	36.5	41.5	7	10	30	17	19	10.5	M5 x 0.8	47	8	9.5	14.5	36	5.5	9 depth 7	42.5	25.5	36	
25	47.5	57.5	37.5	42.5	12	12	33	19.5	22	12	M6 x 1.0	52	10	10	15	40	5.5	9 depth 7	48	28.5	51.5	

#### ø32 to ø50



#### Rod end male thread

Width across flat  $B_1$



#### Rod End Male Thread

(mm)

Bore size (mm)	$B_1$	$C_1$	$H_1$	$L_1$			MM	X
				5st	10st	20st		
32	22	20.5	8	33.5	38.5	—	M14 x 1.5	23.5
40	22	20.5	8	33.5	38.5	—	M14 x 1.5	23.5
50	27	26	11	—	43.5	53.5	M18 x 1.5	28.5

**Standard** For auto switch proper mounting position and its mounting height, refer to pages 908 to 912.

(mm)

Bore size (mm)	A			B			C	D	E	F	H	I	J	K	L			M	N	O	P	Q	S	U	W	Z
	5st	10st	20st	5st	10st	20st									5st	10st	20st									
32	50	60	—	38	43	—	13	16	45	8.5	M8 x 1.25	60	10.5	14	12	17	—	34	5.5	9 depth 7	1/8	8	62	29	55.5	30
40	56.5	66.5	—	44.5	49.5	—	13	16	52	8.5	M8 x 1.25	69	10	14	12	17	—	40	5.5	9 depth 7	1/8	8	68.5	32.5	62	30
50	—	68.5	88.5	—	50.5	60.5	15	20	64	11	M10 x 1.5	86	13	17	—	18	28	50	6.6	11 depth 8	1/4	10	83.5	38.5	77	39

\* For details about the rod end nut and accessory brackets, refer to page 804.

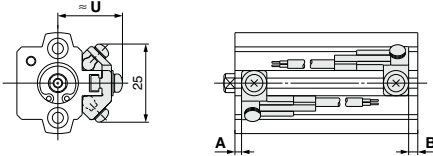
# Axial Piping Series **CDQP2** With Auto Switch 1

## 1 Auto Switch Proper Mounting Position (Detection at Stroke End) and its Mounting Height

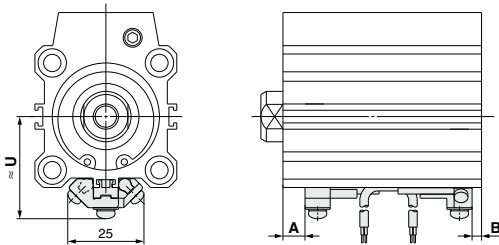
Applicable Cylinder Series: CDQP2, CDQP2□□□□□S/-□T (Axial piping)

- D-A9□
- D-M9□
- D-M9□W
- D-M9□A
- D-A9□V
- D-M9□V
- D-M9□WV
- D-M9□AV

ø12 to ø25

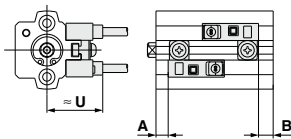


ø32 to ø100

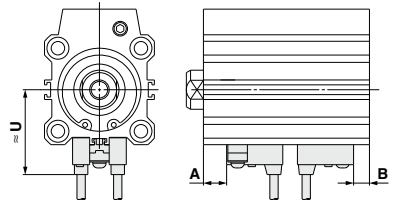


- D-A7□
- D-A80
- D-A7□H
- D-A80H
- D-F7□
- D-J79
- D-F7□W
- D-J79W
- D-F79F
- D-F7NT
- D-F7BA
- D-A73C
- D-A80C
- D-J79C
- D-A79W
- D-F7□WV
- D-F7□V
- D-F7BAV

ø12 to ø25

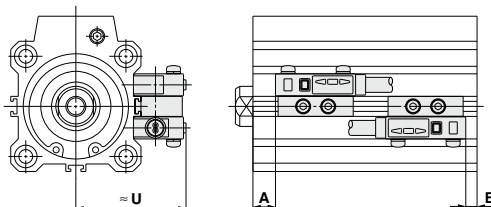


ø32 to ø100



D-P4DW

ø40 to ø100



**Auto Switch Proper Mounting Position**

**Applicable Cylinder Series: CDQP2 (Axial piping)**

(mm)

Auto switch model	D-A9□ D-A9□V		D-M9□ D-M9□V D-M9□WV D-M9□A D-M9□AV		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P4DW	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bore size														
12	2	3	6	7	4.5	5.5	5	6	10	11	2	3	—	—
16	5	2.5	9	6.5	7.5	5	8	5.5	13	10.5	5	2.5	—	—
20	5	3.5	9	7.5	7.5	6.5	8	7	13	12	5	4	—	—
25	5.5	4	9.5	8	7.5	7	8	7.5	13	12.5	5	4.5	—	—
32	6.5	3.5	10.5	7.5	9	6	9.5	6.5	14.5	11.5	6.5	3.5	—	—
40	10.5	6	14.5	10	13	8.5	13.5	9	18.5	14	10.5	6	9	4.5
50	8.5	9	12.5	13	11	11.5	11.5	12	16.5	17	8.5	9	7	7.5
63	11	12	15	16	13.5	14.5	14	15	19	20	11	12	9.5	10.5
80	14	16.5	18	20.5	17.5	18	18	18.5	23	23.5	15	15.5	13.5	14
100	18.5	21.5	22.5	25.5	21	24	21.5	24.5	26.5	29.5	18.5	21.5	17	20

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

**Applicable Cylinder Series: CDQP2□□□-□S/-□T (Axial piping, Single acting)**

(mm)

Auto switch model	D-A9□ D-A9□V		D-M9□ D-M9□V D-M9□WV D-M9□A D-M9□AV		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W	
	A	B	A	B	A	B	A	B	A	B	A	B
Bore size												
12	2	3	6	7	4.5	5.5	5	6	10	11	2	3
		(7)		(11)		(10)		(10.5)		(15.5)		(7.5)
16	5	2.5	9	6.5	7.5	5	8	5.5	13	10.5	5	2.5
	(3)	(4.5)	(7)	(8.5)	(5.5)	(7)	(6)	(7.5)	(11)	(12.5)	(3)	(4.5)
20	5	3.5	9	7.5	7.5	6.5	8	7	13	12	5	4
25	5.5	4	9.5	8	7.5	7	8	7.5	13	12.5	5	4.5
32	6.5	3.5	10.5	7.5	9	6	9.5	6.5	14.5	11.5	6.5	3.5
40	10.5	6	14.5	10	13	8.5	13.5	9	18.5	14	10.5	6
50	8.5	9	12.5	13	11	11.5	11.5	12	16.5	17	8.5	9

( ) : Spring extend type

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

**Applicable Cylinder Series: CDQP2, CDQP2□□□-□S/-□T (Axial piping)**

(mm)

Auto switch model	D-A9□ D-A9□V D-M9□ D-M9□V D-M9□WV D-M9□A D-M9□AV		D-A7□ D-A80		D-A7□H D-A80H D-F7□ D-J79 D-F7□W D-J79W D-F7BA D-F79F D-F7NT		D-A73C D-A80C		D-F7□V D-F7□WV D-F7BAV		D-J79C		D-A79W		D-P4DW	
	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Bore size																
12	20.5	19.5	20.5	26.5	23	26	22	—	—	—	—	—	—	—		
16	23.5	22.5	23.5	29.5	26	29	25	—	—	—	—	—	—	—		
20	25.5	24.5	25.5	31.5	28	31	27	—	—	—	—	—	—	—		
25	28.5	27.5	28.5	34.5	31	34	30	—	—	—	—	—	—	—		
32	32.5	31.5	32.5	38.5	35	38	34	—	—	—	—	—	—	—		
40	36	35	36	42	38.5	41.5	37.5	44	—	—	—	—	—	—		
50	42	41	42	48	44.5	47.5	43.5	50	—	—	—	—	—	—		
63	48.5	47.5	48.5	54.5	51	54	50	56.5	—	—	—	—	—	—		
80	58.5	57.5	58.5	64.5	61	64	60	66.5	—	—	—	—	—	—		
100	68.5	67.5	68.5	74.5	71	74	70	76.5	—	—	—	—	—	—		

Note) The applicable auto switches for the CDQP2□□□-□S/-□T (single acting) are those except for the D-P4DW type.

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

-Z

D-□

-X□

Technical data

# Axial Piping Series **CDQP2** With Auto Switch 2

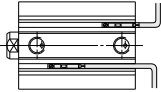
## 2 Minimum Stroke for Auto Switch Mounting

Applicable Cylinder Series: CDQP2, CDQP2□□□-□S/-□T (Axial piping)

(mm)

Number of auto switches	D-M9□V D-F7□V D-J79C	D-A9□V D-A7□ D-A80 D-A73C D-A80C	D-A9□	D-M9□WV D-M9□AV D-F7□WV D-F7BAV	D-M9□ D-F7□ D-J79	D-M9□W D-M9□A	D-A7□H D-A80H	D-A79W	D-F7□W D-J79W D-F7BA D-F79F D-F7NT	D-P4DW
With 1 pc.	5	5	10(5)	10	15(5)	15(10)	15(5)	15	20(10)	15
With 2 pcs.	5	10	10	15	15(5)	15	15(10)	20	20(15)	15

Note) The dimension stated in ( ) shows the minimum stroke for the auto switch mounting when the auto switch does not project from the end surface of the cylinder body and hinder the lead wire bending space. (Refer to the figure below.)  
The auto switch and auto switch mounting bracket are ordered separately.



Note) The applicable auto switches for the CDQP2□□□-□S/-□T (single acting) are those except for the D-P4DW type.

## 3 Operating Range

Applicable Cylinder Series: CDQP2, CDQP2□□□-□S/-□T (Axial piping)

(mm)

Auto switch model	Bore size									
	12	16	20	25	32	40	50	63	80	100
D-A9□(V)	7.5	9.5	9	9	9.5	9.5	8.5	11	10	10.5
D-M9□(V) D-M9□W(V) D-M9□A(V)	3.5	5	5	5	5.5	5.5	6	6.5	7	7
D-A7□(H)(C) D-A80□(H)(C)	10	12	12	12	12	11	10	12	12	13
D-A79W	13	13	13	13	13	14	14	16	15	17
D-F7□(V) D-J79(C) D-F7□W(V) D-F7BA(V) D-F7NT D-F79F	5.5	6	5.5	5	6	6	6	6.5	6.5	7
D-P4DW	—	—	—	—	—	5	5	5	5	5.5

\* Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

Note) The applicable auto switches for the CDQP2□□□-□S/-□T (single acting) are those except for the D-P4DW type.



**4 Auto Switch Mounting Brackets/Part No.**

Applicable Cylinder Series: CDQP2, CDQP2□□□□□□S/-□□ (Axial piping)

Auto switch mounting surface	Bore size (mm)	
	ø12, ø16, ø20, ø25	ø32 to ø100
Auto switch model	Auto switch mounting surface Auto switch mounting rail side only	Auto switch mounting surface A/B/C side
	① BQ-1 ② BQ2-012 Two kinds of auto switch brackets are used as a set.	① BQ-2 ② BQ2-012 Two kinds of auto switch brackets are used as a set.
D-A9□ D-A9□V D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		

Note 1) When shipping cylinders, auto switch mounting brackets and auto switches are shipped together.

Auto switch model	Bore size (mm)		
	ø12 to ø25	ø32	ø40 to ø100
D-A7□/A80 D-A73C/A80C D-A7□H/A80H D-A79W D-F7□/J79 D-F7□V D-J79C D-F7□W/J79W D-F7□WV D-F7BA/F7BAV D-F79F/F7NT	BQ-1		BQ-2
D-P4DW	—		BQP1-050

Note 2) When shipping cylinders, auto switch mounting brackets and auto switches are shipped together.

However, when the D-P4DW type with ø40 to ø100 is mounted, the auto switch is assembled at the time of shipment.

Note 3) Refer to pages 1658 to 1660 for further information on auto switch mounting method.

**[Stainless Steel Mounting Screw Kit]**

The following stainless steel mounting screw kit (with nuts) is available. Use it in accordance with the operating environment. (Since auto switch spacer (for BQ-2) is not included, order BQ-2 separately.)

BBA2: For D-A7/A8/F7/J7 types

The above stainless steel screws are used when a cylinder is shipped with the D-F7BA/F7BAV auto switches.

When only an auto switch is shipped independently, BBA2 is attached.

Note 4) Refer to page 1659 for details of BBA2.

Note 5) When the D-M9□(A)V type is mounted, order auto switch mounting brackets BQ2-012S, BQ-2 or the stainless steel mounting screw kit BBA2 separately.

**Auto Switch Mounting Bracket/Weight**

Mounting bracket part no.	Applicable bore size	Weight (g)
BQ-1	ø12 to ø25	1.5
BQ-2	ø32 to ø100	1.5
BQ2-012	ø12 to ø25	5
BQP1-050	ø40 to ø100	16

CUJ

CU

CQS

CQZ-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Axial Piping

## Series **CDQP2**

### With Auto Switch 3

Other than the applicable auto switches listed in “How to Order”, the following auto switches are mountable. Refer to pages 1559 to 1673 for detailed specifications.

**Applicable Cylinder Series: CDQP2□□□-□S/-□T (Axial piping)**

Auto switch type	Model	Electrical entry	Features	Applicable bore size
<b>Reed</b>	D-A73	Grommet (Perpendicular)	—	ø12 to ø100
	D-A80		Without indicator light	
	D-A73H, A76H	Grommet (In-line)	—	
	D-A80H		Without indicator light	
<b>Solid state</b>	D-F7NV, F7PV, F7BV	Grommet (Perpendicular)	—	ø12 to ø100
	D-F7NWV, F7BWW		Diagnostic indication (2-color indication)	
	D-F7BAV	Water resistant (2-color indication)		
	D-F79, F7P, J79	Grommet (In-line)	—	
	D-F79W, F7PW, J79W		Diagnostic indication (2-color indication)	
	D-F7BA		Water resistant (2-color indication)	
	D-F7NT		With timer	
	D-P5DW	Grommet (In-line)	Magnetic field resistant (2-color indication)	

\* With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1626 and 1627.

\* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to page 1577.

\* The applicable auto switches for the CDQP2□□□-□S/-□T (single acting) are those except for the D-P4DW type.

\* When using a magnetic field resistant solid state auto switch D-P3DW type, please contact SMC separately. (Applicable bore size: ø32 to ø100)

\* Heat resistant solid state auto switch (D-F7NJ) is not applicable.

\* Regarding the D-P5DW, please contact SMC separately.

# Compact Cylinder: Anti-lateral Load

## Series CQ2

ø32, ø40, ø50, ø63, ø80, ø100

### How to Order

Without auto switch

CQ2 **B** **S** 32  - 30  **C**  **Z** -

With auto switch

CDQ2 **B** **S** 32  - 30  **C**  **Z** - **M9BW**  -

With auto switch  
(Built-in magnet)

Mounting

<b>B</b>	Through-hole (Standard)
<b>A</b>	Both ends tapped
<b>L</b>	Foot
<b>LC</b>	Compact foot
<b>F</b>	Rod flange
<b>G</b>	Head flange
<b>D</b>	Double clevis

\* Mounting brackets are shipped together (but not assembled).

\* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQ2BS" on pages 918 and 919.

Type

**S** Anti-lateral load

Bore size

<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

Port thread type

<b>Nil</b>	Rc
<b>TN</b>	NPT
<b>TF</b>	G
<b>F</b>	Built-in One-touch Fittings (Note 1)

Note 1) Bore sizes available with One-touch fittings are ø32 to ø63. Besides, it is not possible to use for air-hydro type.

Cylinder stroke (mm)

Refer to page 914 for standard strokes.

Action

**D** Double acting

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2LS40-30DCZ

Made to Order  
Refer to page 914 for details.

Number of auto switches

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

Auto switch

**Nil** Without auto switch

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

Auto switch mounting groove

**Z** 4 surfaces

Body option 2

<b>Nil</b>	Standard (Rod end female thread)
<b>M</b>	Rod end male thread

Cushion

**C** Rubber bumper

Body option 1

<b>Nil</b>	Standard
<b>F</b>	With boss on head end

### Applicable Auto Switches

Refer to pages 1559 to 1673 for further information on auto switches.  
Refer to pages 1614 and 1615 for the D-P3DW type.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)					Pre-wired connector	Applicable load				
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)						
Solid state auto switch	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	○	○	○	○	Relay, PLC			
				3-wire (PNP)				M9PV	M9P	●	●	○	○	○	○				
				2-wire				M9BV	M9B	●	●	○	○	○	○				
				3-wire (NPN)				M9NWV	M9NW	●	●	○	○	○	○				
	Water resistant (2-color indication)			3-wire (PNP)				M9PWV	M9PW	●	●	○	○	○	○		○	○	IC circuit
				2-wire				M9BWW	M9BW	●	●	○	○	○	○		○		
				3-wire (NPN)				M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	●	○	○	○		○	IC circuit	
				3-wire (PNP)				M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	●	○	○	○				
Magnetic field resistant (2-color indication)	2-wire	M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	●	○	○	○	○	—								
	2-wire (Non-polar)	—	P3DWA	●	—	●	●	—	—	—									
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V, 12 V	100 V	A96V	A96	●	—	●	—	—	—	IC circuit	—		
				12 V				A93V <sup>*2</sup>	A93	●	●	●	—	—	—	Relay, PLC			
				5 V, 12 V, 100 V or less				A90V	A90	●	—	●	—	—	—	IC circuit			

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWX

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

\* There are other applicable auto switches other than the listed above. For details, refer to page 960.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

For the D-P3DWA, refer to the WEB catalog.



CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

-Z

D-□

-X□

Technical data



Symbol

Rubber bumper



**Made to Order: Individual Specifications**  
(For details, refer to page 968.)

Symbol	Specifications
-X271	Fluororubber seals

### Made to Order

(For details, refer to pages 1699 to 1818.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB10	Intermediate stroke (Exclusive body type)
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-XC27	Double clevis pin/Double knuckle joint pin material: Stainless steel 304
-XC85	Grease for food processing equipment

### Retaining Ring Installation/Removal

#### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

## Specifications

Bore size (mm)	32	40	50	63	80	100
<b>Action</b>	Double acting, Single rod					
<b>Fluid</b>	Air					
<b>Proof pressure</b>	1.5 MPa					
<b>Maximum operating pressure</b>	1.0 MPa					
<b>Minimum operating pressure</b>	0.05 MPa					
<b>Ambient and fluid temperature</b>	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)					
<b>Lubrication</b>	Not required (Non-lube)					
<b>Piston speed</b>	50 to 500 mm/s					
<b>Allowable kinetic energy (J)</b>	0.29	0.52	0.91	1.54	2.71	4.54
<b>Stroke length tolerance</b>	+1.0 mm (Note) 0					

Note) Stroke length tolerance does not include the amount of dumper change.

## Standard Strokes

Bore size	Standard stroke (mm)
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	Exclusive body (-XB10)
<b>Part no.</b>	Refer to "How to Order" for the standard model number. (P. 913)	Suffix "-XB10" to the end of standard model number. (P. 913)
<b>Description</b>	Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.	Strokes in 1 mm intervals are available by using an exclusive body with the specified stroke.
<b>Stroke range</b>	Bore size	Bore size
	Stroke range	Stroke range
<b>Example</b>	Part no.: CQ2BS50-57DCZ CQ2BS50-75DCZ with 18 mm width spacer inside The B dimension is 125.5 mm.	Part no.: CQ2BS50-57DCZ-XB10 Makes 57 stroke tube. The B dimension is 107.5 mm.

- In the case of exclusive body type with  $\phi 32$  to  $\phi 100$  (-XB10) with the stroke length exceeding 50 mm, reference values of the longitudinal dimension will be changed. Calculate length dimensions by deducting from those of 75 or 100 mm stroke models.

## Type

Bore size (mm)		32	40	50	63	80	100	
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	
		Both ends tapped	●	●	●	●	●	
	Built-in magnet	●	●	●	●	●	●	
	Piping	Pipe thread	TN	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8
			TF	G1/8	G1/8	G1/4	G1/4	G3/8
		Built-in One-touch Fittings (100.2)	$\phi 6$ (Note 1)	$\phi 6$	$\phi 8$	$\phi 8$	—	—
		Rod end male thread	●	●	●	●	●	●
	With rubber bumper (Standard)	●	●	●	●	●	●	
	With boss on head end	●	●	●	●	●	●	

Note 1) The dimension of the  $\phi 32$ -5 mm stroke with built-in One-touch fittings is the same as that of the 10 mm stroke cylinder tube.

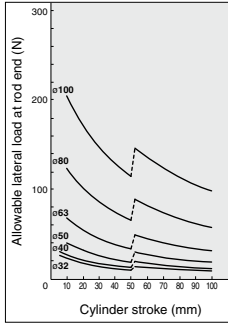
Note 2) One-touch fittings cannot be replaced.

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

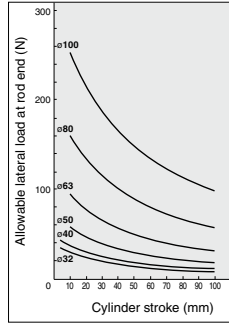
- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Allowable Lateral Load at Rod End

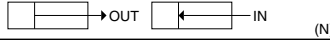
### Without Auto Switch



### With Auto Switch



## Theoretical Output



Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1155
	OUT	589	982	1374
63	IN	841	1402	1962
	OUT	935	1559	2182
80	IN	1361	2268	3175
	OUT	1508	2513	3519
100	IN	2144	3574	5003
	OUT	2356	3927	5498

## Weight

### Weight

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
32	134	154	174	193	213	233	252	272	291	311	457	556
40	211	232	254	275	297	318	340	361	383	404	577	689
50	—	369	402	435	467	500	533	566	598	632	902	1073
63	—	557	595	633	671	709	747	786	824	862	1189	1386
80	—	983	1043	1104	1164	1224	1284	1345	1405	1465	1985	2281
100	—	1711	1792	1872	1952	2033	2113	2194	2274	2354	3086	3494

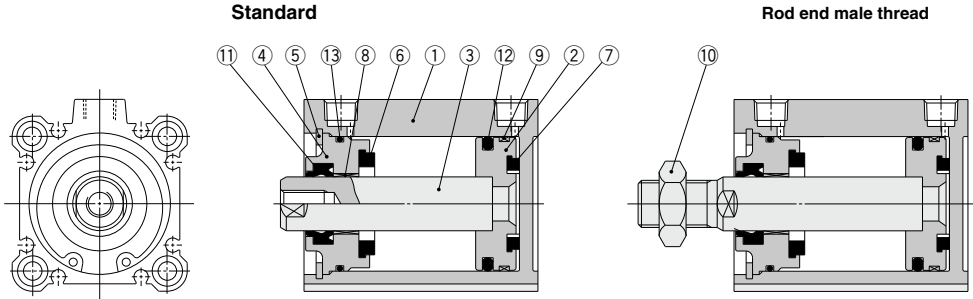
### Additional Weight

Bore size (mm)		32	40	50	63	80	100
Both ends tapped		6	6	6	19	45	45
Rod end male thread	Male thread	26	27	53	53	120	175
	Nut	17	17	32	32	49	116
Foot (Including mounting bolts)		142	154	243	320	690	1057
Compact foot (Including mounting bolts)		99	114	177	241	501	770
Rod flange (Including mounting bolts)		180	214	373	559	1056	1365
Head flange (Including mounting bolts)		165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)		151	196	393	554	1109	1887

Calculation: (Example) **CQ2DS32-20DCMZ**

- Basic weight: CQ2BS32-20DCZ ..... 193 g
  - Additional weight: Both ends tapped ..... 6 g
  - Rod end male thread ..... 43 g
  - Double clevis ..... 151 g
- 393 g

## Construction



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Carbon steel	Hard chrome plated
4	Collar	Aluminum alloy	Anodized
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bumper A	Urethane	
7	Bumper B	Urethane	
8	Bushing	Bearing alloy	
9	Wear ring	Resin	
10	Rod end nut	Carbon steel	Zinc chromated
11	Rod seal	NBR	
12	Piston seal	NBR	
13	Tube gasket	NBR	

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
32	CQ2B32-PS	Kits include items ①, ②, ③ from the table.
40	CQ2B40-PS	
50	CQ2B50-PS	
63	CQ2B63-PS	
80	CQ2B80-PS	
100	CQ2B100-PS	

- \* Seal kit includes ①, ②, ③. Order the seal kit based on each bore size.
- \* Since the seal kit does not include a grease pack, order it separately.
- Grease pack part no.: GR-S-010 (10 g)**

### Mounting Brackets/Part No.

Bore size (mm)	Foot <sup>Note 1)</sup>	Compact foot <sup>Note 1)</sup>	Flange	Double clevis
32	CQ-L032	CQ-LC032	CQ-F032	CQ-D032
40	CQ-L040	CQ-LC040	CQ-F040	CQ-D040
50	CQ-L050	CQ-LC050	CQ-F050	CQ-D050
63	CQ-L063	CQ-LC063	CQ-F063	CQ-D063
80	CQ-L080	CQ-LC080	CQ-F080	CQ-D080
100	CQ-L100	CQ-LC100	CQ-F100	CQ-D100

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows.

Foot, Compact foot, Flange: Body mounting bolts  
 Double clevis: Clevis pin, Type C retaining rings for axis, Body mounting bolts



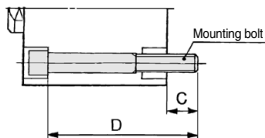
# Series CQ2

## Mounting Bolt for CQ2BS/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQ2BS is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M5 x 40L 4 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
<b>CQ2BS32-5DCZ</b>	9	40	CQ-M5 x 40L
<b>-10DCZ</b>		45	x 45L
<b>-15DCZ</b>		50	x 50L
<b>-20DCZ</b>		55	x 55L
<b>-25DCZ</b>		60	x 60L
<b>-30DCZ</b>		65	x 65L
<b>-35DCZ</b>		70	x 70L
<b>-40DCZ</b>		75	x 75L
<b>-45DCZ</b>		80	x 80L
<b>-50DCZ</b>		85	x 85L
<b>-75DCZ</b>		120	x 120L
<b>-100DCZ</b>		145	x 145L
<b>CQ2BS40-5DCZ</b>		7.5	45
<b>-10DCZ</b>	50		x 50L
<b>-15DCZ</b>	55		x 55L
<b>-20DCZ</b>	60		x 60L
<b>-25DCZ</b>	65		x 65L
<b>-30DCZ</b>	70		x 70L
<b>-35DCZ</b>	75		x 75L
<b>-40DCZ</b>	80		x 80L
<b>-45DCZ</b>	85		x 85L
<b>-50DCZ</b>	90		x 90L
<b>-75DCZ</b>	125		x 125L
<b>-100DCZ</b>	150		x 150L
<b>CQ2BS50-10DCZ</b>	12.5		55
<b>-15DCZ</b>		60	x 60L
<b>-20DCZ</b>		65	x 65L
<b>-25DCZ</b>		70	x 70L
<b>-30DCZ</b>		75	x 75L
<b>-35DCZ</b>		80	x 80L
<b>-40DCZ</b>		85	x 85L
<b>-45DCZ</b>		90	x 90L
<b>-50DCZ</b>		95	x 95L
<b>-75DCZ</b>		130	x 130L
<b>-100DCZ</b>		155	x 155L

Cylinder model	C	D	Mounting bolt part no.	
<b>CQ2BS63-10DCZ</b>	14.5	60	CQ-M8 x 60L	
<b>-15DCZ</b>		65	x 65L	
<b>-20DCZ</b>		70	x 70L	
<b>-25DCZ</b>		75	x 75L	
<b>-30DCZ</b>		80	x 80L	
<b>-35DCZ</b>		85	x 85L	
<b>-40DCZ</b>		90	x 90L	
<b>-45DCZ</b>		95	x 95L	
<b>-50DCZ</b>		100	x 100L	
<b>-75DCZ</b>		135	x 135L	
<b>-100DCZ</b>		160	x 160L	
<b>CQ2BS80-10DCZ</b>		15	65	CQ-M10 x 65L
<b>-15DCZ</b>			70	x 70L
<b>-20DCZ</b>	75		x 75L	
<b>-25DCZ</b>	80		x 80L	
<b>-30DCZ</b>	85		x 85L	
<b>-35DCZ</b>	90		x 90L	
<b>-40DCZ</b>	95		x 95L	
<b>-45DCZ</b>	100		x 100L	
<b>-50DCZ</b>	105		x 105L	
<b>-75DCZ</b>	140		x 140L	
<b>-100DCZ</b>	165		x 165L	
<b>CQ2BS100-10DCZ</b>	15.5		75	CQ-M10 x 75L
<b>-15DCZ</b>			80	x 80L
<b>-20DCZ</b>		85	x 85L	
<b>-25DCZ</b>		90	x 90L	
<b>-30DCZ</b>		95	x 95L	
<b>-35DCZ</b>		100	x 100L	
<b>-40DCZ</b>		105	x 105L	
<b>-45DCZ</b>		110	x 110L	
<b>-50DCZ</b>		115	x 115L	
<b>-75DCZ</b>		150	x 150L	
<b>-100DCZ</b>		175	x 175L	

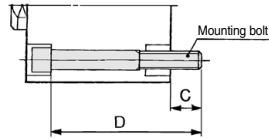


### Mounting Bolt for CDQ2BS/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQ2BS is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M5 x 50L 4 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2BS32-5DCZ</b>	9	50	CQ-M5 x 50L
<b>-10DCZ</b>		55	x 55L
<b>-15DCZ</b>		60	x 60L
<b>-20DCZ</b>		65	x 65L
<b>-25DCZ</b>		70	x 70L
<b>-30DCZ</b>		75	x 75L
<b>-35DCZ</b>		80	x 80L
<b>-40DCZ</b>		85	x 85L
<b>-45DCZ</b>		90	x 90L
<b>-50DCZ</b>		95	x 95L
<b>-75DCZ</b>		120	x 120L
<b>-100DCZ</b>		145	x 145L
<b>CDQ2BS40-5DCZ</b>	7.5	55	CQ-M5 x 55L
<b>-10DCZ</b>		60	x 60L
<b>-15DCZ</b>		65	x 65L
<b>-20DCZ</b>		70	x 70L
<b>-25DCZ</b>		75	x 75L
<b>-30DCZ</b>		80	x 80L
<b>-35DCZ</b>		85	x 85L
<b>-40DCZ</b>		90	x 90L
<b>-45DCZ</b>		95	x 95L
<b>-50DCZ</b>		100	x 100L
<b>-75DCZ</b>		125	x 125L
<b>-100DCZ</b>		150	x 150L
<b>CDQ2BS50-10DCZ</b>	12.5	65	CQ-M6 x 65L
<b>-15DCZ</b>		70	x 70L
<b>-20DCZ</b>		75	x 75L
<b>-25DCZ</b>		80	x 80L
<b>-30DCZ</b>		85	x 85L
<b>-35DCZ</b>		90	x 90L
<b>-40DCZ</b>		95	x 95L
<b>-45DCZ</b>		100	x 100L
<b>-50DCZ</b>		105	x 105L
<b>-75DCZ</b>		130	x 130L
<b>-100DCZ</b>		155	x 155L

Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2BS63-10DCZ</b>	14.5	70	CQ-M8 x 70L
<b>-15DCZ</b>		75	x 75L
<b>-20DCZ</b>		80	x 80L
<b>-25DCZ</b>		85	x 85L
<b>-30DCZ</b>		90	x 90L
<b>-35DCZ</b>		95	x 95L
<b>-40DCZ</b>		100	x 100L
<b>-45DCZ</b>		105	x 105L
<b>-50DCZ</b>		110	x 110L
<b>-75DCZ</b>		135	x 135L
<b>-100DCZ</b>		160	x 160L
<b>CDQ2BS80-10DCZ</b>		15	75
<b>-15DCZ</b>	80		x 80L
<b>-20DCZ</b>	85		x 85L
<b>-25DCZ</b>	90		x 90L
<b>-30DCZ</b>	95		x 95L
<b>-35DCZ</b>	100		x 100L
<b>-40DCZ</b>	105		x 105L
<b>-45DCZ</b>	110		x 110L
<b>-50DCZ</b>	115		x 115L
<b>-75DCZ</b>	140		x 140L
<b>-100DCZ</b>	165		x 165L
<b>CDQ2BS100-10DCZ</b>	15.5		85
<b>-15DCZ</b>		90	x 90L
<b>-20DCZ</b>		95	x 95L
<b>-25DCZ</b>		100	x 100L
<b>-30DCZ</b>		105	x 105L
<b>-35DCZ</b>		110	x 110L
<b>-40DCZ</b>		115	x 115L
<b>-45DCZ</b>		120	x 120L
<b>-50DCZ</b>		125	x 125L
<b>-75DCZ</b>		150	x 150L
<b>-100DCZ</b>		175	x 175L

**CJ**

**CU**

**CQS**

**CQ2**  
**-Z**

**RQ**

**CQM**

**CQU**

**MU**  
**-Z**

**D-□**

**-X□**

Technical  
data

# Series CQ2

## Dimensions

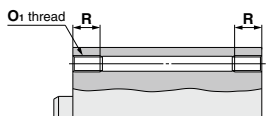
### Ø32 to Ø50/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

Standard (Through-hole): CQ2BS/CDQ2BS

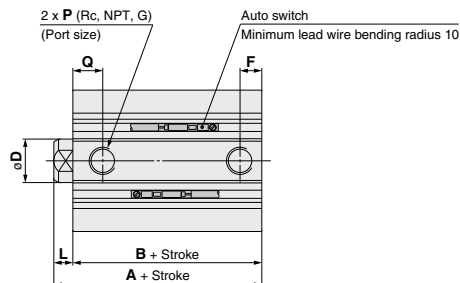
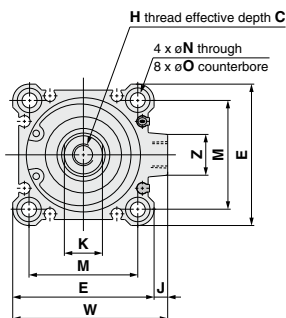
Both ends tapped: CQ2AS/CDQ2AS

#### CDQ2AS

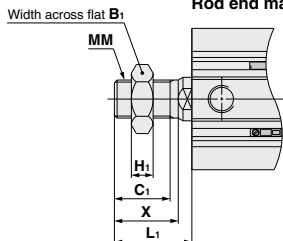


#### Both Ends Tapped

Bore size (mm)	O <sub>1</sub>	R
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14



#### Rod end male thread



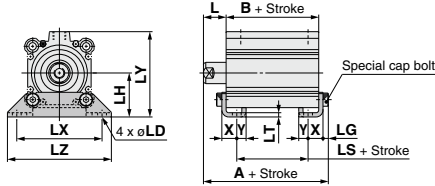
The dimensions with boss on head end are equivalent to those of the CQ2 series, double acting, single rod. Refer to page 800.

#### Rod End Male Thread

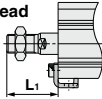
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	W	Z
		A	B	A	B															
32	5 to 50	40	33	50	43	13	16	45	7.5	M8 x 1.25	4.5	14	7	34	5.5	9 depth 7	1/8	10	49.5	14
	75, 100	50	43																	
40	5 to 50	46.5	39.5	56.5	49.5	13	16	52	7.5	M8 x 1.25	5	14	7	40	5.5	9 depth 7	1/8	12.5	57	15
	75, 100	56.5	49.5																	
50	10 to 50	48.5	40.5	58.5	50.5	15	20	64	10.5	M10 x 1.5	7	17	8	50	6.6	11 depth 8	1/4	10.5	71	19
	75, 100	58.5	50.5																	

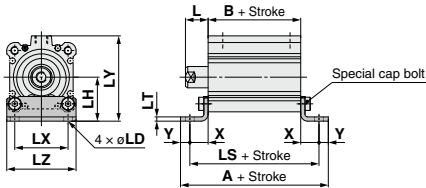
## Foot: CQ2LS/CDQ2LS



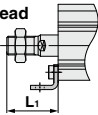
Rod end male thread



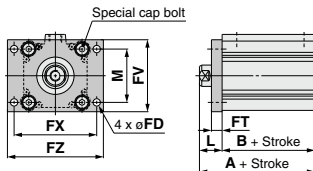
## Compact foot: CQ2LCS/CDQ2LCS



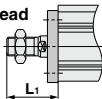
Rod end male thread



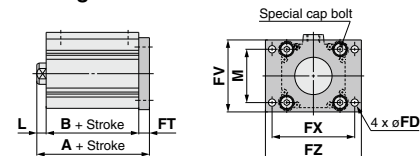
## Rod flange: CQ2FS/CDQ2FS



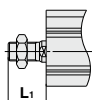
Rod end male thread



## Head flange: CQ2GS/CDQ2GS



Rod end male thread



## Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
32	5 to 50	57.2	33	17	67.2	43	27	17	38.5	6.6
	75, 100	67.2	43	27						
40	5 to 50	63.7	39.5	23.5	73.7	49.5	33.5	17	38.5	6.6
	75, 100	73.7	49.5	33.5						
50	10 to 50	66.7	40.5	17.5	76.7	50.5	27.5	18	43.5	9
	75, 100	76.7	50.5	27.5						

Foot bracket material: Carbon steel

Surface treatment: Nickel plated

## Compact Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
32	5 to 50	72	33	60.4	82	43	70.4	17	38.5	6.6
	75, 100	82	43	70.4						
40	5 to 50	80.9	39.5	66.9	90.9	49.5	76.9	17	38.5	6.6
	75, 100	90.9	49.5	76.9						
50	10 to 50	89.9	40.5	73.9	99.9	50.5	83.9	18	43.5	9
	75, 100	99.9	50.5	83.9						

Compact foot bracket material: Carbon steel

Surface treatment: Zinc chromated

## Rod Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ
		A	B	A	B					
32	5 to 50	50	33	60	43	5.5	8	48	56	65
	75, 100	60	43							
40	5 to 50	56.5	39.5	66.5	49.5	5.5	8	54	62	72
	75, 100	66.5	49.5							
50	10 to 50	58.5	40.5	68.5	50.5	6.6	9	67	76	89
	75, 100	68.5	50.5							

Flange bracket material: Carbon steel

Surface treatment: Nickel plated

## Head Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		L	L <sub>1</sub>
		A	A	A	A		
32	5 to 50	48	58	58	7	28.5	
	75, 100	58					
40	5 to 50	54.5	64.5	64.5	7	28.5	
	75, 100	64.5					
50	10 to 50	57.5	67.5	67.5	8	33.5	
	75, 100	67.5					

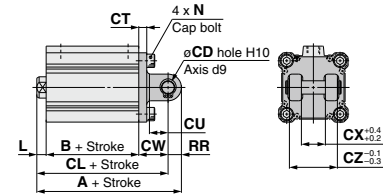
\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.

Flange bracket material: Carbon steel

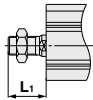
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to page 804.

**Double clevis: CQ2DS/CDQ2DS**



**Rod end male thread**



**Double Clevis**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU
		A	B	CL	A	B	CL			
32	5 to 50	70	33	60	80	43	70	10	5	14
	75, 100	80	43	70						
40	5 to 50	78.5	39.5	68.5	88.5	49.5	78.5	10	6	14
	75, 100	88.5	49.5	78.5						
50	10 to 50	90.5	40.5	76.5	100.5	50.5	86.5	14	7	20
	75, 100	100.5	50.5	86.5						

Bore size (mm)	Stroke range (mm)	CW	CX	CZ	L	L <sub>1</sub>	N	RR
32	5 to 50	20	18	36	7	28.5	M6 x 1.0	10
	75, 100							
40	5 to 50	22	18	36	7	28.5	M6 x 1.0	10
	75, 100							
50	10 to 50	28	22	44	8	33.5	M8 x 1.25	14
	75, 100							

Double clevis bracket material: Cast iron  
Surface treatment: Painted

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

**CJ**

**CU**

**CQS**

**CQ2**  
**-Z**

**RQ**

**CQM**

**CQU**

**MU**  
**-Z**

**D**-□

**-X**□

Technical  
data

# Series CQ2

## Dimensions

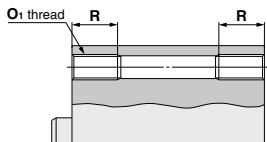
### Ø63 to Ø100/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

Standard (Through-hole): CQ2BS/CDQ2BS

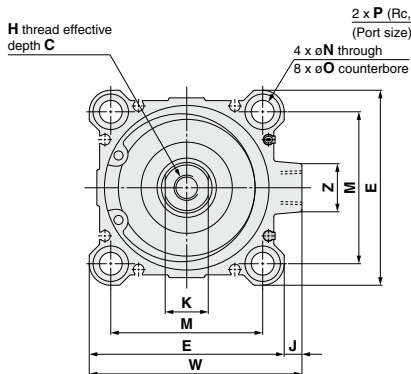
Both ends tapped: CQ2AS/CDQ2AS

The dimensions with boss on head end are equivalent to those of the CQ2 series, double acting, single rod. Refer to page 802.



#### Both Ends Tapped

Bore size (mm)	O1	R
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22

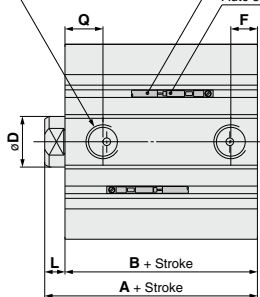


2 x P (Rc, NPT, G)  
(Port size)

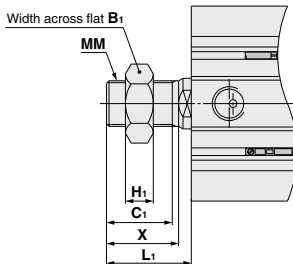
4 x øN through  
8 x øO counterbore

Minimum lead wire bending radius 10

Auto switch



#### Rod end male thread



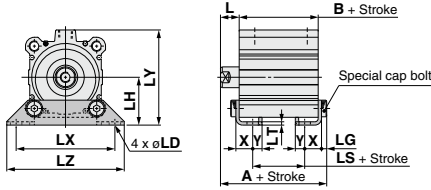
#### Rod End Male Thread

(mm)

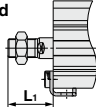
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
63	27	26	11	33.5	M18 x 1.5	28.5
80	32	32.5	13	43.5	M22 x 1.5	35.5
100	41	32.5	16	43.5	M26 x 1.5	35.5

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	W	Z	
		A	B	A	B																
63	10 to 50	54	46	64	56	15	20	77	10.5	M10 x 1.5	7	17	8	60	9	14 depth	10.5	1/4	15	84	19
	75, 100	64	56																		
80	10 to 50	63.5	53.5	73.5	63.5	21	25	98	12.5	M16 x 2.0	6	22	10	77	11	17.5 depth	13.5	3/8	16	104	25
	75, 100	73.5	63.5																		
100	10 to 50	75	63	85	73	27	30	117	13	M20 x 2.5	6.5	27	12	94	11	17.5 depth	13.5	3/8	23	123.5	25
	75, 100	85	73																		

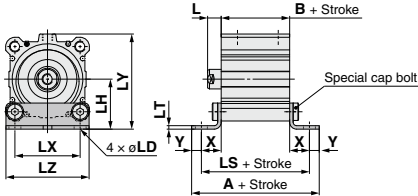
**Foot: CQ2LS/CDQ2LS**



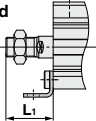
Rod end male thread



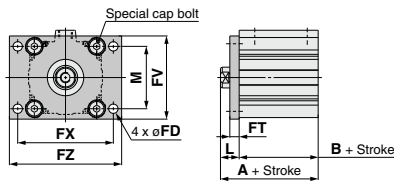
**Compact foot: CQ2LCS/CDQ2LCS**



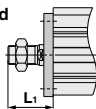
Rod end male thread



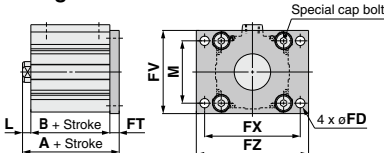
**Rod flange: CQ2FS/CDQ2FS**



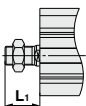
Rod end male thread



**Head flange: CQ2GS/CDQ2GS**



Rod end male thread



**Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
63	10 to 50	72.2	46	20	82.2	56	30	18	43.5	11
	75, 100	82.2	56	30						
80	10 to 50	85	53.5	23.5	95	63.5	33.5	20	53.5	13
	75, 100	95	63.5	33.5						
100	10 to 50	98	63	29	108	73	39	22	53.5	13
	75, 100	108	73	39						

Bore size (mm)	Stroke range (mm)	LG	LH	LT	LX	LY	LZ	X	Y
63	10 to 50								
	75, 100	5	46	3.2	95	91.5	113	16.2	9
80	10 to 50								
	75, 100	7	59	4.5	118	114	140	19.5	11
100	10 to 50								
	75, 100	7	71	6	137	136	162	23	12.5

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
63	10 to 50	100.4	46	82.4						
	75, 100	110.4	56	92.4	110.4	56	92.4	18	43.5	11
80	10 to 50	120.5	53.5	98.5						
	75, 100	130.5	63.5	108.5	130.5	63.5	108.5	20	53.5	13
100	10 to 50	136	63	111						
	75, 100	146	73	121	146	73	121	22	53.5	13

Bore size (mm)	Stroke range (mm)	LH	LT	LX	LY	LZ	X	Y
63	10 to 50							
	75, 100	46	3.2	60	91.5	77	18.2	9
80	10 to 50							
	75, 100	59	4.5	77	114	98	22.5	11
100	10 to 50							
	75, 100	71	6	94	136	117	24	12.5

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod Flange**

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ
		A	B	A	B					
63	10 to 50	64	46							
	75, 100	74	56	74	56	9	9	80	92	108
80	10 to 50	73.5	53.5							
	75, 100	83.5	63.5	83.5	63.5	11	11	99	116	134
100	10 to 50	85	63							
	75, 100	95	73	95	73	11	11	117	136	154

Bore size (mm)	Stroke range (mm)	L	L <sub>1</sub>	M
63	10 to 50			
	75, 100	18	43.5	60
80	10 to 50			
	75, 100	20	53.5	77
100	10 to 50			
	75, 100	22	53.5	94

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L	L <sub>1</sub>
		A	A		
63	10 to 50	63	73	8	33.5
	75, 100	73			
80	10 to 50	74.5	84.5	10	43.5
	75, 100	84.5			
100	10 to 50	86	96	12	43.5
	75, 100	96			

(\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.)  
Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to page 804.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

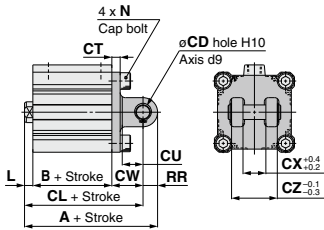
MU-Z

D-□

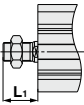
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Technical data

## Double clevis: CQ2DS/CDQ2DS



### Rod end male thread



## Double Clevis

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			(mm)		
		A	B	CL	A	B	CL	CD	CT	CU
63	10 to 50	98	46	84						
	75, 100	108	56	94	108	56	94	14	8	20
80	10 to 50	119.5	53.5	101.5						
	75, 100	129.5	63.5	111.5	129.5	63.5	111.5	18	10	27
100	10 to 50	142	63	120						
	75, 100	152	73	130	152	73	130	22	13	31

Bore size (mm)	Stroke range (mm)	CW	CX	CZ	L	L <sub>1</sub>	N	RR
63	10 to 50							
	75, 100	30	22	44	8	33.5	M10 x 1.5	14
80	10 to 50							
	75, 100	38	28	56	10	43.5	M12 x 1.75	18
100	10 to 50							
	75, 100	45	32	64	12	43.5	M12 x 1.75	22

Double clevis bracket material: Cast iron

Surface treatment: Painted

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

CJU

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

MU  
-Z

D-□

-X□

Technical  
data

# Compact Cylinder: With End Lock

## Series CBQ2

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

### How to Order

Without auto switch

CBQ2 B 40 [ ] - 30 DC [ ] - H N - [ ]

With auto switch

CDBQ2 B 40 [ ] - 30 DC [ ] - H N - M9BW [ ] - [ ]

With auto switch  
(Built-in magnet)

Mounting

ø20, ø25

ø32 to ø100

<b>B</b>	Through-hole/Both ends tapped common (Standard)	<b>B</b>	Through-hole (Standard) <sup>Note 2</sup>
<b>L</b>	Foot	<b>A</b>	Both ends tapped
<b>LC</b>	Compact foot	<b>L</b>	Foot
<b>F</b>	Rod flange	<b>LC</b>	Compact foot
<b>G</b>	Head flange	<b>F</b>	Rod flange
<b>D</b>	Double clevis	<b>G</b>	Head flange
		<b>D</b>	Double clevis

Note 1) Mounting brackets are shipped together (but not assembled).  
 Note 2) At the 75 and 100 mm strokes with ø80, ø100, both ends tapped (A) is the standard. Through-hole (B) is not available.  
 Note 3) Mounting brackets are shipped together (but not assembled).

Bore size

<b>20</b>	20 mm	<b>50</b>	50 mm
<b>25</b>	25 mm	<b>63</b>	63 mm
<b>32</b>	32 mm	<b>80</b>	80 mm
<b>40</b>	40 mm	<b>100</b>	100 mm

Port thread type

<b>Nil</b>	M thread	ø20, ø25
<b>Rc</b>	Rc	
<b>TN</b>	NPT	ø32 to ø100
<b>TF</b>	G	

Cylinder stroke (mm)

Refer to page 926 for standard strokes and intermediate strokes.

Number of auto switches

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

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

Manual release type

<b>N</b>	Non-lock type
<b>L</b>	Lock type

Lock position

<b>H</b>	Head end lock
<b>R</b>	Rod end lock

Body option

<b>Nil</b>	Rod end female thread
<b>M</b>	Rod end male thread

Made to Order

Refer to page 926 for details.

Cushion

<b>C</b>	Rubber bumper
----------	---------------

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDBQ2L32-30DC-RL

Action

<b>D</b>	Double acting
----------	---------------

Applicable Auto Switches (Refer to pages 1559 to 1673 for further information on auto switches.)

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model				Lead wire length (m)					Pre-wired connector	Applicable load	
					DC	AC	Perpendicular ø20, ø25 ø32 to ø100	In-line ø20, ø25 ø32 ø40 to ø100	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	(None)					
Solid state auto switch	—	Grommet	—	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	○	IC circuit		
				3-wire (PNP)				M9PV	M9P	●	●	●	○	○				
				2-wire				M9BV	M9B	●	●	●	○	○				
	Diagnostic indication (2-color indication)	Connector	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NVW	M9NW	●	●	●	○	○	IC circuit			
				3-wire (PNP)				M9PVW	M9PW	●	●	●	○	○				
				2-wire				M9BWW	M9BW	●	●	●	○	○				
	Water resistant (2-color indication)	Grommet	—	3-wire (NPN)	24 V	5 V, 12 V	—	M9NAV*1	M9NA*1	○	○	●	○	○	IC circuit			
				3-wire (PNP)				M9PAV*1	M9PA*1	○	○	●	○	○				
	With diagnostic output (2-color indication) Magnetic field resistant (2-color indication)	—	Grommet	—	4-wire	24 V	5 V, 12 V	—	—	F79F	●	●	●	○	○	IC circuit		
					2-wire (Non-polar)				—	P4DW	●	●	●	○	○			
—					—				—	—	—	—	—	—	—		—	—
—					—				—	—	—	—	—	—	—		—	—
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	—	●	—	—	IC circuit			
				—				—	—	—	—	—	—	—		—	—	
				12 V				100 V	A93V*2	A93	●	●	●	—		—		
	Diagnostic indication (2-color indication)	Connector	No	2-wire	24 V	5 V, 12 V	24 V or less	—	A90V	A90	●	●	●	—	—	IC circuit		
									—	—	—	—	—	—	—		—	—
									12 V	—	A73C	—	●	—	●		●	—
									5 V, 12 V	24 V or less	A80C	—	●	—	●		●	—
—	—	—	—	—	—	—	—	A79W	—	●	—	●	—	—				

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
 1 m ..... M (Example) M9NVW  
 3 m ..... L (Example) M9NVWL  
 5 m ..... Z (Example) M9NVWZ  
 None ..... N (Example) J79CN

\* Solid state auto switches marked with "C" are produced upon receipt of order.

\* The D-P4DW type is available from ø40 to ø100 only.

\* Only for the D-P4DW type, an auto switch is assembled and shipped with the cylinder.

\* There are other applicable auto switches other than the listed above. For details, refer to page 940.

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627.

\* When the D-A9C(V)/M9C(V)/M9C□(V)/M9C□A(V) types with ø32 to ø50 are mounted on a surface other than the port side, order auto switch mounting brackets separately. Refer to page 939 for details.

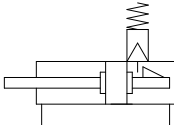


# Series CBQ2



## Symbol

Rubber bumper



## Made to Order

(For details, refer to pages 1699 to 1818.)

Symbol	Specifications
-XB10	Intermediate stroke (Using exclusive body)
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-XC85	Grease for food processing equipment

Refer to pages 936 to 940 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

## Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting, Single rod							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.15 MPa (Note)							
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)							
Lubrication	Not required (Non-lube)							
Piston speed	50 to 500 mm/s							
Allowable kinetic energy (J)	0.055	0.09	0.15	0.26	0.46	0.77	1.36	2.27
Stroke length tolerance	+1.0 mm 0							
Lock position	Head end, Rod end							
Holding force (Max.) (N)	215	330	550	860	1340	2140	3450	5390
Backlash	2 mm or less							
Manual release	Non-lock type, Lock type							

Note) 0.05 MPa except for the end lock unit

## Standard Strokes

Bore size	Standard stroke (mm)
20, 25, 32, 40, 50, 63	10, 15, 20, 25, 50, 75, 100
80, 100	25, 50, 75, 100

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	Exclusive body (-XB10)
Part no.	Refer to "How to Order" for the standard model number. (P. 925)	Suffix "-XB10" to the end of standard model no. on page 925.
Description	Strokes in 5 mm intervals are available by installing a spacer in the standard stroke cylinder.	Dealing with the stroke by the 1 mm interval by using an exclusive body with the specified stroke.
Stroke range	Bore size 20 to 100	Stroke range 5 to 95
Example	Part no.: CBQ2B40-45DC-HL CBQ2B40-50DC-HL with 5 mm width spacer inside. B dimension is 125 mm.	Part no.: CBQ2B40-45DC-HL-XB10 Makes 45 stroke tube. B dimension is 120 mm.

In the case of an exclusive body type for ø20, ø25, ø80 and ø100 (-XB10) with the stroke length exceeding 25 mm, the reference values of the longitudinal dimension will be changed. Subtract from 50, 75 and 100 stroke dimensions and figure it out.

## Type

Bore size (mm)		20	25	32	40	50	63	80	100	
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	
		Both ends tapped style	●	●	●	●	●	●	●	
	Built-in magnet		●	●	●	●	●	●	●	
	Piping	Screw-in type	—	M5 x 0.8	M5 x 0.8	Rc 1/8	Rc 1/8	Rc 1/4	Rc 3/8	Rc 3/8
			TN	—	—	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8
			TF	—	—	G1/8	G1/8	G1/4	G1/4	G3/8
	Rod end male thread		●	●	●	●	●	●	●	
	With rubber bumper (Standard)		●	●	●	●	●	●	●	

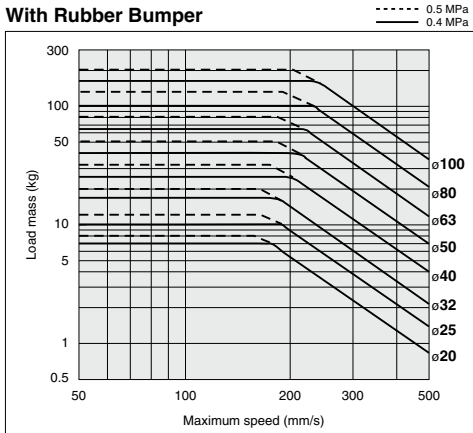
## Mounting Brackets/Part No.

Bore size (mm)	Foot <sup>Note 1)</sup>	Compact foot <sup>Note 1)</sup>	Flange	Double clevis <sup>Note 2)</sup>
<b>20</b>	CQS-L020	CQS-LC020	CQS-F020	CQS-D020
<b>25</b>	CQS-L025	CQS-LC025	CQS-F025	CQS-D025
<b>32</b>	CQ-L032	CQ-LC032	CQ-F032	CQ-D032
<b>40</b>	CQ-L040	CQ-LC040	CQ-F040	CQ-D040
<b>50</b>	CQ-L050	CQ-LC050	CQ-F050	CQ-D050
<b>63</b>	CQ-L063	CQ-LC063	CQ-F063	CQ-D063
<b>80</b>	CQ-L080	CQ-LC080	CQ-F080	CQ-D080
<b>100</b>	CQ-L100	CQ-LC100	CQ-F100	CQ-D100

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.  
 Note 2) Parts belonging to each bracket are as follows. Foot, Compact foot, Flange: Body mounting bolts  
 Double clevis: Clevis pin, Type C retaining rings for axis, Body mounting bolts  
 Note 3) Clevis pin and retaining rings are included with double clevis.

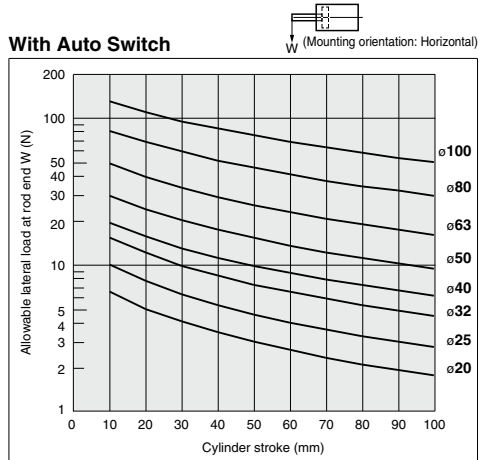
## Allowable Kinetic Energy

### With Rubber Bumper



## Allowable Lateral Load at Rod End

### With Auto Switch



## Weight

### Without Auto Switch, Non-lock Type (-□N)

Bore size (mm)	Cylinder stroke (mm)						
	10	15	20	25	50	75	100
<b>20</b>	211	224	237	249	313	416	480
<b>25</b>	278	294	310	325	405	534	613
<b>32</b>	378	399	419	440	544	649	754
<b>40</b>	540	563	586	610	725	845	965
<b>50</b>	868	904	940	976	1158	1346	1534
<b>63</b>	—	—	—	1220	1424	1636	1847
<b>80</b>	—	—	—	2821	3160	3495	3829
<b>100</b>	—	—	—	4306	4760	5220	5680

### Additional Weight

Bore size (mm)		20	25	32	40	50	63	80	100
Lock type (-□L)		10	10	10	20	20	20	30	30
With auto switch		5	6	11	13	18	22	24	35
Both ends tapped		—	—	6	6	6	19	45	45
Rod end male thread	Male thread	6	12	26	27	53	53	120	175
	Nut	4	8	17	17	32	32	49	116
Foot (Including mounting bolts)		159(153)	181(172)	143	155	243	324	696	1062
Rod flange (Including mounting bolts)		143(137)	180(171)	180	214	373	559	1056	1365
Head flange (Including mounting bolts)		137	171	165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)		92	127	151	196	393	554	1109	1887

( ) : 50 stroke or more

Calculation: (Example) **CBQ2B32-50DCM-HN**

●Basic weight : CBQ2B32-50DC-HN ..... 544 g

●Additional weight: Rod end male thread ..... 43 g (26 g+17 g)

Total 587 g

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

-Z

D-□

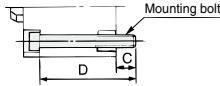
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Technical data

# Series CBQ2

## Mounting Bolt for CBQ2

Mounting method: Mounting bolt for through-hole mounting of the C(D)BQ2 is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.



**Example) CQ-M5 x 75L 4 pcs.**

Note) Be sure to use the attached flat washers when mounting ø20 and ø25 cylinders with through-holes.

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated

### With Head End Lock (H□)

Cylinder model	C	D	Mounting bolt part no.
C□BQ2B20-10DC-H□	10	75	CQ-M5 x 75L
-15DC-H□		80	x 80L
-20DC-H□		85	x 85L
-25DC-H□		90	x 90L
-50DC-H□		120	x 120L
-75DC-H□		145	x 145L
-100DC-H□	170	x 170L	
C□BQ2B25-10DC-H□	7	75	CQ-M5 x 75L
-15DC-H□		80	x 80L
-20DC-H□		85	x 85L
-25DC-H□		90	x 90L
-50DC-H□		120	x 120L
-75DC-H□		145	x 145L
-100DC-H□	170	x 170L	
C□BQ2B32-10DC-H□	6.5	75	CQ-M5 x 75L
-15DC-H□		80	x 80L
-20DC-H□		85	x 85L
-25DC-H□		90	x 90L
-50DC-H□		115	x 115L
-75DC-H□		140	x 140L
-100DC-H□	165	x 165L	
C□BQ2B40-10DC-H□	7	85	CQ-M5 x 85L
-15DC-H□		90	x 90L
-20DC-H□		95	x 95L
-25DC-H□		100	x 100L
-50DC-H□		125	x 125L
-75DC-H□		150	x 150L
-100DC-H□	175	x 175L	

Cylinder model	C	D	Mounting bolt part no.
C□BQ2B50-10DC-H□	12.5	90	CQ-M6 x 90L
-15DC-H□		95	x 95L
-20DC-H□		100	x 100L
-25DC-H□		105	x 105L
-50DC-H□		130	x 130L
-75DC-H□		155	x 155L
-100DC-H□	180	x 180L	
C□BQ2B63-10DC-H□	13.5	90	CQ-M8 x 90L
-15DC-H□		95	x 95L
-20DC-H□		100	x 100L
-25DC-H□		105	x 105L
-50DC-H□		130	x 130L
-75DC-H□		155	x 155L
-100DC-H□	180	x 180L	
C□BQ2B80-25DC-H□	12.5	135	CQ-M10 x 135L
-50DC-H□		160	x 160L
C□BQ2B100-25DC-H□	13	145	CQ-M10 x 145L
-50DC-H□		170	x 170L

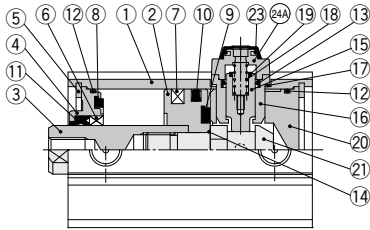
### With Rod End Lock (R□)

Cylinder model	C	D	Mounting bolt part no.
C□BQ2B20-10DC-R□	6.5	65	CQ-M5 x 65L
-15DC-R□		70	x 70L
-20DC-R□		75	x 75L
-25DC-R□		80	x 80L
-50DC-R□		120	x 120L
-75DC-R□		145	x 145L
-100DC-R□	170	x 170L	
C□BQ2B25-10DC-R□	8.5	70	CQ-M5 x 70L
-15DC-R□		75	x 75L
-20DC-R□		80	x 80L
-25DC-R□		85	x 85L
-50DC-R□		120	x 120L
-75DC-R□		145	x 145L
-100DC-R□	170	x 170L	
C□BQ2B32-10DC-R□	9	70	CQ-M5 x 70L
-15DC-R□		75	x 75L
-20DC-R□		80	x 80L
-25DC-R□		85	x 85L
-50DC-R□		110	x 110L
-75DC-R□		135	x 135L
-100DC-R□	160	x 160L	
C□BQ2B40-10DC-R□	7.5	75	CQ-M5 x 75L
-15DC-R□		80	x 80L
-20DC-R□		85	x 85L
-25DC-R□		90	x 90L
-50DC-R□		115	x 115L
-75DC-R□		140	x 140L
-100DC-R□	165	x 165L	

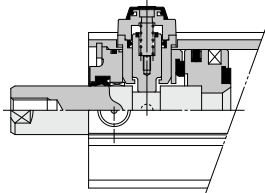
Cylinder model	C	D	Mounting bolt part no.
C□BQ2B50-10DC-R□	12.5	80	CQ-M6 x 80L
-15DC-R□		85	x 85L
-20DC-R□		90	x 90L
-25DC-R□		95	x 95L
-50DC-R□		120	x 120L
-75DC-R□		145	x 145L
-100DC-R□	170	x 170L	
C□BQ2B63-10DC-R□	14.5	85	CQ-M8 x 85L
-15DC-R□		90	x 90L
-20DC-R□		95	x 95L
-25DC-R□		100	x 100L
-50DC-R□		125	x 125L
-75DC-R□		150	x 150L
-100DC-R□	175	x 175L	
C□BQ2B80-25DC-R□	15	130	CQ-M10 x 130L
-50DC-R□		155	x 155L
C□BQ2B100-25DC-R□	15.5	140	CQ-M10 x 140L
-50DC-R□		165	x 165L

## Construction

ø32 to ø63

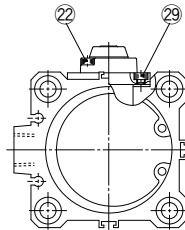
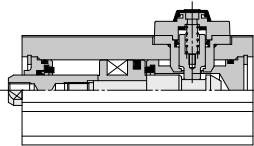


Head end lock

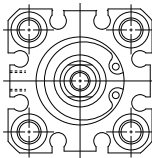


Rod end lock

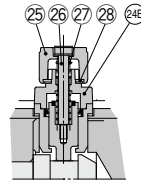
ø20, 25



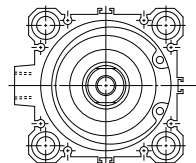
Cylinder tube form  
ø32 to ø63



Cylinder tube form  
ø25 or less

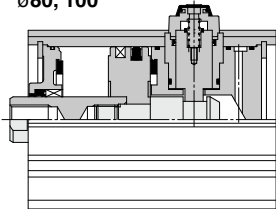


Manual release (Lock type): Suffix L



Cylinder tube form  
ø80 or more

ø80, 100



## Component Parts

No.	Description	Material	Qty.	Note
1	Cylinder tube	Aluminum alloy	1	Hard anodized
2	Piston	Aluminum alloy	1	Chromated
3	Piston rod	Carbon steel	1	Hard chrome plated
4	Collar	Aluminum bearing alloy	1	ø40 or less, Anodized
		Aluminum alloy casted	1	ø50 or more, Painted after chromated
5	Retaining ring	Carbon tool steel	2	Phosphate coated
6	Bushing	Lead-bronze casted	1	For ø50 or larger only
7	Magnet	—	1	With auto switch
8	Bumper A	Urethane	1	
9	Bumper B	Urethane	1	
10	Piston seal	NBR	1	
11	Rod seal	NBR	1	
12	Tube gasket	NBR	2	Using 4 pcs. for ø80, ø100
13	Lock piston seal	NBR	1	
14	Piston gasket	NBR	1	
15	Lock piston	Carbon steel	1	Quenched, Electroless nickel plated
16	Lock holder	Brass	1	Electroless nickel plated
17	Gasket	NBR	1	
18	Lock spring	Stainless steel	1	
19	Bumper	Urethane	1	
20	Head cover	Aluminum alloy	1	Anodized
21	Lock bolt	Carbon steel	1	Quenched, Electroless nickel plated
22	Hexagon socket head cap screw	Alloy steel	2	Black zinc chromated
23	Rubber cap	Synthetic rubber	1	
24A	Cap A	Aluminum casted	1	Black painted
24B	Cap B	Carbon steel	1	Black painted
25	M/O knob	Zinc die-casted	1	Black painted

No.	Description	Material	Qty.	Note
26	M/O bolt	Alloy steel	1	Black zinc chromated
27	M/O spring	Steel wire	1	Zinc chromated
28	Stopper ring	Rolled steel	1	Zinc chromated
29	Hexagon socket head cap screw	Alloy steel	2	Zinc chromated

## Replacement Parts/Seal Kit (End lock type)

Bore size (mm)	Kit no.	Contents
20	CBQ2B20-PS	Kits include items 10, 11, 12, 13, 17, 22, 29 from the table and a grease pack.
25	CBQ2B25-PS	
32	CBQ2B32-PS	
40	CBQ2B40-PS	
50	CBQ2B50-PS	
63	CBQ2B63-PS	
80	CBQ2B80-PS	
100	CBQ2B100-PS	

\* Seal kit includes 10, 11, 12, 13, 17, 22, 29. Order the seal kit based on each bore size.

\* Since the seal kit does not include a grease pack, order it separately.  
Grease pack part no.: GR-S-010 (10 g)

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU

-Z

D-□

-X□

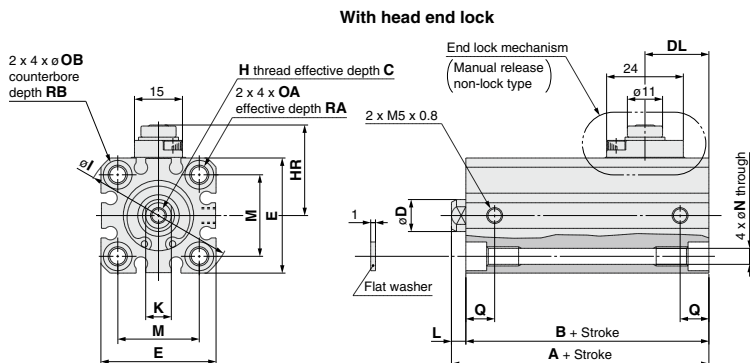
Technical data

# Series CBQ2

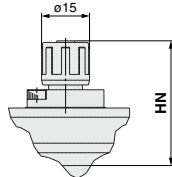
## Dimensions

### Ø20, Ø25

Standard (Through-hole/Both ends tapped common):  
CBQ2B/CDBQ2B



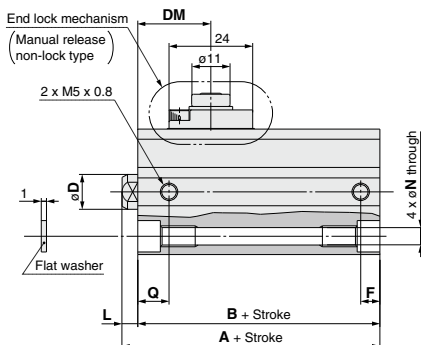
**End lock mechanism**  
(Manual release lock type)



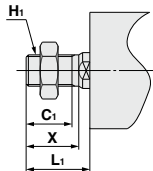
**End Lock Mechanism Dimensions** (mm)

Bore size (mm)	DL	DM	HR	HN (Max.)
20	20	21	28.5	40
25	21	21	29.5	41

**With rod end lock**



**Rod end male thread**



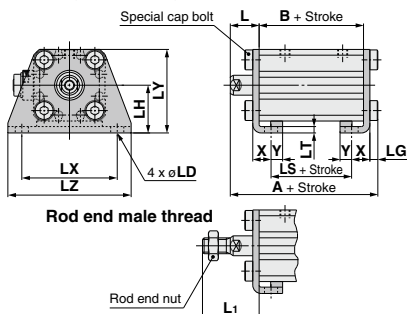
**Rod End Male Thread** (mm)

Bore size (mm)	Standard stroke	C <sub>1</sub>	X	H <sub>1</sub>	L <sub>1</sub>
20	10, 15, 20, 25	12	14	M8 x 1.25	18.5
	50, 75, 100				28.5
25	10, 15, 20, 25	15	17.5	M10 x 1.25	22.5
	50, 75, 100				32.5

(mm)

Bore size (mm)	Standard stroke	With head end lock				With rod end lock				C	D	E	H	I	K	M	N	OA	OB	Q	RA	RB
		A	B	L	A	B	F	L														
20	10, 15, 20, 25	65.5	61	4.5	59	54.5	5.5	4.5	7	10	36	M5 x 0.8	47	8	25.5	5.4	M6 x 1.0	9	9	10	7	
	50, 75, 100	80.5	66	14.5	80.5	66	9	14.5														
25	10, 15, 20, 25	69	64	5	62.5	57.5	5.5	5	12	12	40	M6 x 1.0	52	10	28	5.4	M6 x 1.0	9	11	10	7	
	50, 75, 100	84	69	15	84	69	11	15														

## Foot: CBQ2L/CDBQ2L



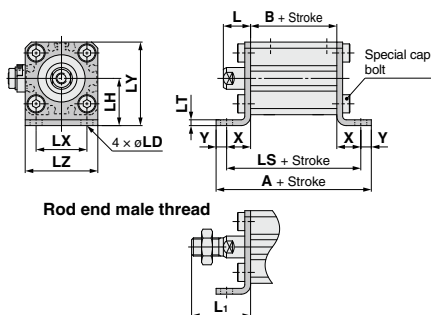
## Foot

Bore size (mm)	Standard stroke	With head end lock			With rod end lock		
		A	B	LS	A	B	LS
20	10, 15, 20, 25	82.7	61	49	76.2	54.5	42.5
	50, 75, 100	87.7	66	54	87.7	66	54
25	10, 15, 20, 25	86.2	64	49	79.7	57.5	42.5
	50, 75, 100	91.2	69	54	91.2	69	54

Bore size (mm)	Standard stroke	L	L <sub>1</sub>	LD	LH	LG	LT	LX	LY	LZ	X	Y
20	10, 15, 20, 25	14.5	28.5	6.6	4	24	3.2	48	42	62	9.2	5.8
25	50, 75, 100	15	32.5	6.6	4	26	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

## Compact foot: CBQ2LC/CDBQ2LC



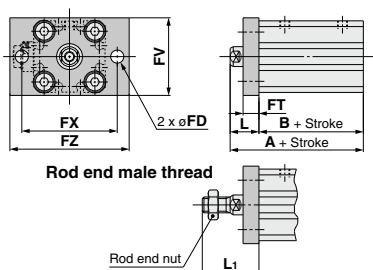
## Compact Foot

Bore size (mm)	Standard stroke	With head end lock			With rod end lock		
		A	B	LS	A	B	LS
20	10, 15, 20, 25	99	61	87.4	92.5	54.5	80.9
	50, 75, 100	104	66	92.4	104	66	92.4
25	10, 15, 20, 25	102	64	90.4	95.5	57.5	83.9
	50, 75, 100	107	69	95.4	107	69	95.4

Bore size (mm)	Standard stroke	L	L <sub>1</sub>	LD	LH	LT	LX	LY	LZ	X	Y
20	10, 15, 20, 25	14.5	28.5	6.6	24	3.2	25.5	42	36	13.2	5.8
25	50, 75, 100	15	32.5	6.6	26	3.2	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

## Rod flange: CBQ2F/CDBQ2F



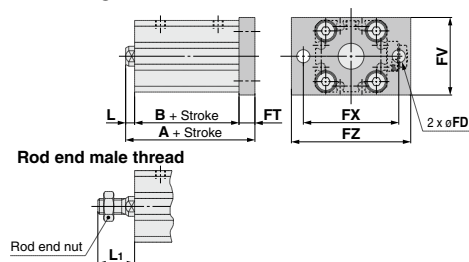
## Rod Flange

Bore size (mm)	Standard stroke	With head end lock		With rod end lock	
		A	B	A	B
20	10, 15, 20, 25	75.5	61	69	54.5
	50, 75, 100	80.5	66	80.5	66
25	10, 15, 20, 25	79	64	72.5	57.5
	50, 75, 100	84	69	84	69

Bore size (mm)	Standard stroke	FD	FT	FV	FX	FZ	L	L <sub>1</sub>
20	10, 15, 20, 25	6.6	8	39	48	60	14.5	28.5
25	50, 75, 100	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

## Head flange: CBQ2G/CDBQ2G



## Head Flange

Bore size (mm)	Standard stroke	With head end lock				With rod end lock			
		A	B	L	L <sub>1</sub>	A	B	L	L <sub>1</sub>
20	10, 15, 20, 25	73.5	61	4.5	18.5	67	54.5	4.5	18.5
	50, 75, 100	88.5	66	14.5	28.5	88.5	66	14.5	28.5
25	10, 15, 20, 25	77	64	5	22.5	70.5	57.5	5	22.5
	50, 75, 100	92	69	15	32.5	92	69	15	32.5

Bore size (mm)	Standard stroke	FD	FT	FV	FX	FZ
20	10, 15, 20, 25	6.6	8	39	48	60
25	50, 75, 100	6.6	8	42	52	64

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

CUJ

CU

CQS

CBQ2-Z

RQ

CQM

CQU

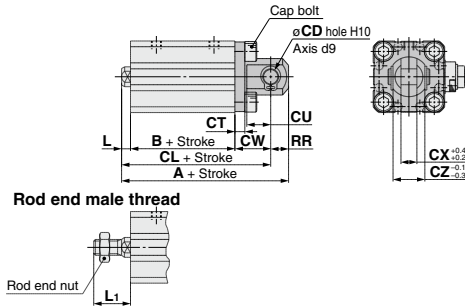
MU-Z

D-□

-X□

Technical data

Double clevis: **CBQ2D/CDBQ2D**



Double Clevis

Bore size (mm)	Standard stroke	With head end lock					With rod end lock				
		A	B	CL	L	L <sub>1</sub>	A	B	CL	L	L <sub>1</sub>
20	10, 15, 20, 25	92.5	61	83.5	4.5	18.5	86	54.5	77	4.5	18.5
	50, 75, 100	107.5	66	98.5	14.5	28.5	107.5	66	98.5	14.5	28.5
25	10, 15, 20, 25	99	64	89	5	22.5	92.5	57.5	82.5	5	22.5
	50, 75, 100	114	69	104	15	32.5	114	69	104	15	32.5

Bore size (mm)	Standard stroke	CD	CT	CU	CW	CX	CZ	RR
20	10, 15, 20, 25	8	5	12	18	8	16	9
25	50, 75, 100	10	5	14	20	10	20	10

Double clevis bracket material: Carbon steel  
Surface treatment: Nickel plated

CUJ

CU

CQS

CBQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Series CBQ2

## Dimensions

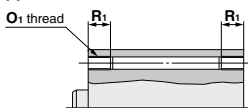
### Ø32 to Ø100

Standard (Through-hole):

CBQ2B/CDBQ2B

Both ends tapped: CBQ2A/CDBQ2A

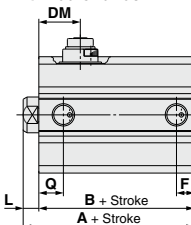
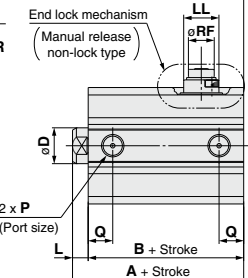
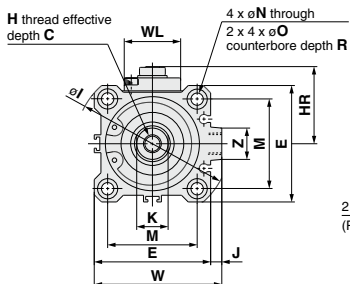
Both Ends Tapped (mm)



Bore size (mm)	O <sub>1</sub>	R <sub>1</sub>
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22

With head end lock

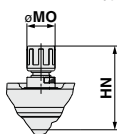
With rod end lock



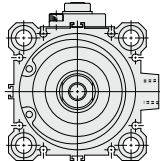
End Lock Mechanism Dimensions (mm)

Bore size (mm)	DL	DM	HR	HN (Max.)	LL	MO	WL	RF
32	25	22	33.5	45	15	15	24	11
40	29	26	38.5	52.5	21	19	24	11
50	29.5	24	45	59	21	19	24	11
63	28.5	25	50	64	21	19	24	11
80	45	45.5	62	76.5	30	23	40	21
100	48	49	71.5	86	30	23	40	21

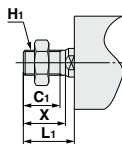
End lock mechanism (Manual release lock type)



Cylinder tube form  
ø63, ø80, ø100



Rod end male thread



Rod End Male Thread (mm)

Bore size (mm)	Standard stroke	C <sub>1</sub>	X	H <sub>1</sub>	L <sub>1</sub>
32	10, 15, 20, 25 50, 75, 100	20.5	23.5	M14 x 1.5	28.5
40		20.5	23.5	M14 x 1.5	28.5
50		26	28.5	M18 x 1.5	33.5
63		26	28.5	M18 x 1.5	33.5
80	25, 50	32.5	35.5	M22 x 1.5	43.5
	75, 100				53.5
100	25, 50	32.5	35.5	M26 x 1.5	43.5
	75, 100				53.5

Bore size (mm)	Standard stroke	C	D	E	H	I	J	K	M	N	O	P	R	W	Z
32	10, 15, 20, 25 50, 75, 100	13	16	45	M8 x 1.25	60	4.5	14	34	5.5	9	Rc1/8	7	49.5	14
40		13	16	52	M8 x 1.25	69	5	14	40	5.5	9	Rc1/8	7	57	14
50		15	20	64	M10 x 1.5	86	7	17	50	6.6	11	Rc1/4	8	71	19
63		15	20	77	M10 x 1.5	103	7	17	60	9	14	Rc1/4	10.5	84	19
80	25, 50, 75, 100	21	25	98	M16 x 2.0	132	6	22	77	11	17.5*	Rc3/8	13.5*	104	26
		27	30	117	M20 x 2.5	156	6.5	27	94	11	17.5*	Rc3/8	13.5*	123.5	26

\* At the 75 and 100 mm strokes with ø80, ø100, both ends tapped (A) is the standard. Through-hole (B) is not available.

With Head End Lock (mm)

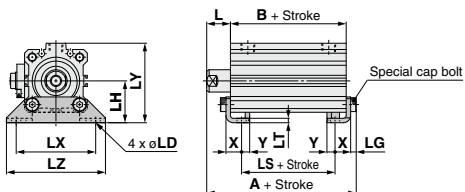
Bore size (mm)	Standard stroke	A	B	L	Q
32	10, 15, 20, 25 50, 75, 100	72.5	65.5	7	12.5
40		82	75	7	14
50		83.5	75.5	8	14
63		85	77	8	15.5
80	25, 50	121	111	10	18
	75, 100	136	116	20	19
100	25, 50	132.5	120.5	12	22
	75, 100	147.5	125.5	22	23

With Rod End Lock (mm)

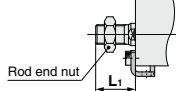
Bore size (mm)	Standard stroke	A	B	F	L	Q
32	10, 15, 20, 25 50, 75, 100	65	58	7.5	7	10.5
40		71.5	64.5	8	7	11
50		73.5	65.5	10.5	8	10.5
63		79	71	10.5	8	15
80	25, 50	113.5	103.5	12.5	10	16
	75, 100	136	116	19	20	19
100	25, 50	125	113	13	12	23
	75, 100	147.5	125.5	23	22	23



## Foot: CBQ2L/CDBQ2L



### Rod end male thread



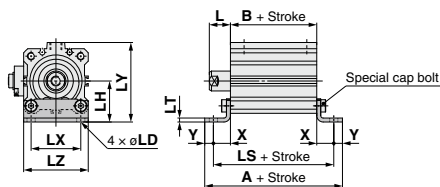
## Foot

Bore size (mm)	Standard stroke	With head end lock			With rod end lock			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
		32	10, 15, 20, 25	89.7	65.5	49.5	82.2			
40	50, 75, 100	99.2	75	59	88.7	64.5	48.5	17	38.5	6.6
50		101.7	75.5	52.5	91.7	65.5	42.5	18	43.5	9
63		103.2	77	51	97.2	71	45	18	43.5	11
80	25, 50	142.5	111	81	135	103.5	73.5			
	75, 100	147.5	116	86	147.5	116	86	20	53.5	13
100	25, 50	155.5	120.5	86.5	148	113	79			
	75, 100	160.5	125.5	91.5	160.5	125.5	91.5	22	53.5	13

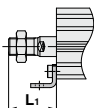
Bore size (mm)	Standard stroke	LG	LH	LT	LX	LY	LZ	X	Y
32		4	30	3.2	57	57	71	11.2	5.8
40	10, 15, 20, 25	4	33	3.2	64	64	78	11.2	7
50	50, 75, 100	5	39	3.2	79	78	95	14.7	8
63		5	46	3.2	95	91.5	113	16.2	9
80		7	59	4.5	118	114	140	19.5	11
100	25, 50, 75, 100	7	71	6	137	136	162	23	12.5

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

## Compact foot: CBQ2LC/CDBQ2LC



### Rod end male thread



## Compact Foot

Bore size (mm)	Standard stroke	With head end lock			With rod end lock			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
		32	10, 15, 20, 25	104.5	65.5	92.9	97			
40	50, 75, 100	116.4	75	102.4	105.9	64.5	91.9	17	38.5	6.6
50		124.9	75.5	108.9	114.9	65.5	98.9	18	43.5	9
63		131.4	77	113.4	125.4	71	107.4	18	43.5	11
80	25, 50	178	111	156	170.5	103.5	148.5			
	75, 100	183	116	161	183	116	161	20	53.5	13
100	25, 50	193.5	120.5	168.5	186	113	161			
	75, 100	198.5	125.5	173.5	198.5	125.5	173.5	22	53.5	13

Bore size (mm)	Standard stroke	LH	LT	LX	LY	LZ	X	Y
32		30	3.2	34	57	45	13.7	5.8
40	10, 15, 20, 25	33	3.2	40	64	52	13.7	7
50	50, 75, 100	39	3.2	50	78	64	16.7	8
63		46	3.2	60	91.5	77	18.2	9
80		59	4.5	77	114	98	22.5	11
100	25, 50, 75, 100	71	6	94	136	117	24	12.5

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

CUJ

CU

CQS

CQZ  
-Z

RQ

CQM

CQU

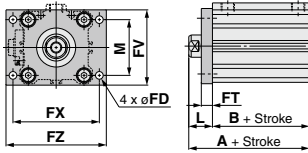
MU  
-Z

D-□

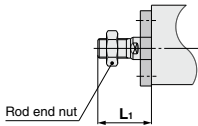
-X□

Technical data

Rod flange: CBQ2F/CDBQ2F



Rod end male thread



Rod Flange

(mm)

Bore size (mm)	Standard stroke	With head end lock		With rod end lock		FD	FT	FV	FX	FZ
		A	B	A	B					
32		82.5	65.5	75	58	5.5	8	48	56	65
40	10, 15, 20, 25	92	75	81.5	64.5	5.5	8	54	62	72
50	50, 75, 100	93.5	75.5	83.5	65.5	6.6	9	67	76	89
63		95	77	89	71	9	9	80	92	108
80	25, 50	131	111	123.5	103.5	11	11	99	116	134
	75, 100	136	116	136	116					
100	25, 50	142.5	120.5	135	113	11	11	117	136	154
	75, 100	147.5	125.5	147.5	125.5					

Bore size (mm)	Standard stroke	L	L1	M
32		17	38.5	34
40	10, 15, 20, 25	17	38.5	40
50	50, 75, 100	18	43.5	50
63		18	43.5	60
80	25, 50, 75, 100	20	53.5	77
100		22	53.5	94

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

CUJ

CU

CQS

CBQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

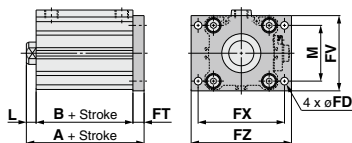
Technical data

# Series CBQ2

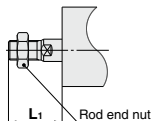
## Dimensions

### Ø32 to Ø100

#### Head flange: CBQ2G/CDBQ2G



#### Rod end male thread



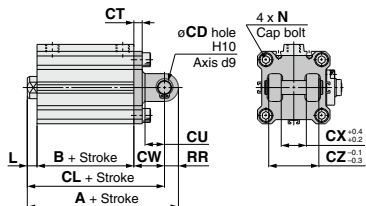
#### Head Flange

Bore size (mm)	Standard stroke	With head end lock				With rod end lock			
		A	B	L	L <sub>1</sub>	A	B	L	L <sub>1</sub>
32	10, 15, 20, 25	80.5	65.5	7	28.5	73	58	7	28.5
40		90	75	7	28.5	79.5	64.5	7	28.5
50	50, 75, 100	92.5	75.5	8	33.5	82.5	65.5	8	33.5
63	25, 50	94	77	8	33.5	88	71	8	33.5
80		132	111	10	43.5	124.5	103.5	10	43.5
100	75, 100	147	116	20	53.5	147	116	20	53.5
	25, 50	143.5	120.5	12	43.5	136	113	12	43.5
100	75, 100	158.5	125.5	22	53.5	158.5	125.5	22	53.5

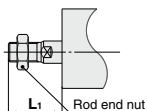
Bore size (mm)	Standard stroke	M	FD	FT	FV	FX	FZ
32	10, 15, 20, 25	34	5.5	8	48	56	65
40		40	5.5	8	54	62	72
50	50, 75, 100	50	6.6	9	67	76	89
63	25, 50	60	9	9	80	92	108
80		77	11	11	99	116	134
100	75, 100	94	11	11	117	136	154

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

#### Double clevis: CBQ2D/CDBQ2D



#### Rod end male thread



#### Double Clevis

Bore size (mm)	Standard stroke	With head end lock			With rod end lock			CD	CT	CU	L	L <sub>1</sub>
		A	B	CL	A	B	CL					
32	10, 15, 20, 25	102.5	65.5	92.5	95	58	85	10	5	14	7	28.5
40		114	75	104	103.5	64.5	93.5	10	6	14	7	28.5
50	50, 75, 100	125.5	75.5	111.5	115.5	65.5	101.5	14	7	20	8	33.5
63	25, 50	129	77	115	123	71	109	14	8	20	8	33.5
80		177	111	159	169.5	103.5	151.5	18	10	27	10	43.5
100	75, 100	192	116	174	192	116	174				20	53.5
	25, 50	199.5	120.5	177.5	192	113	170				12	43.5
100	75, 100	214.5	125.5	192.5	214.5	125.5	192.5	22	13	31	22	53.5

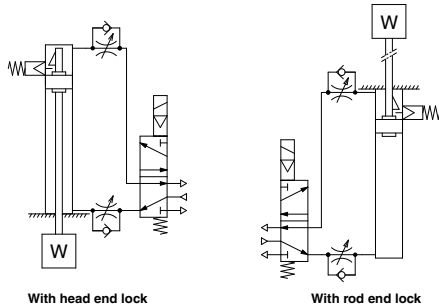
Bore size (mm)	Standard stroke	CW	CX	CZ	N	RR
32	10, 15, 20, 25	20	18	36	M6 x 1.0	10
40		22	18	36	M6 x 1.0	10
50	50, 75, 100	28	22	44	M8 x 1.25	14
63	25, 50, 75, 100	30	22	44	M10 x 1.5	14
80		38	28	56	M12 x 1.75	18
100		45	32	64	M12 x 1.75	22

Double clevis bracket material: Cast iron  
Surface treatment: Painted

**Use the Recommended Pneumatic Circuit**

**⚠ Caution**

• This is necessary for the correct locking and unlocking actions.



**Operating Precautions**

**⚠ Caution**

- Do not use 3-position solenoid valves.**  
Avoid use in combination with 3-position solenoid valves (especially closed center metal seal types). If pressure is trapped in the port on the lock mechanism side, the cylinder cannot be locked. Furthermore, even after being locked, the lock may be released after some time, due to air leaking from the solenoid valve and entering the cylinder.
- Back pressure is required for releasing the lock.**  
Before starting operation, be sure to control the system so that air is supplied to the side without the lock mechanism as shown in the above figure. There is a possibility that the lock may not be released. (Refer to the section on releasing the lock.)
- Release the lock for mounting or adjusting the cylinder.**  
If mounting or other work is performed when the cylinder is locked, the lock unit may be damaged.
- Operate with a load ratio of 50% or less.**  
If the load ratio exceeds 50%, this may cause problems such as failure of the lock to release, or damage to the lock unit.
- Do not operate multiple cylinders in synchronization.**  
Avoid applications in which two or more end lock cylinders are synchronized to move one work piece, as one of the cylinder locks may not be able to release when required.
- Use a speed controller with meter-out control.**  
Lock cannot be released occasionally by meter-in control.
- Be sure to operate completely to the cylinder stroke end on the side with the lock.**  
If the cylinder piston does not reach the end of stroke, locking and unlocking may not be possible.
- Adjust the position of an auto switch, so that it could work at the both positions where it is distanced from the stroke and a backlash (2 mm).**  
When a 2-color indication switch is adjusted for green indication at the stroke end, it may change to red for the backlash return, but this is not abnormal.

**Operating Pressure**

**⚠ Caution**

- Supply air pressure of 0.15 MPa or higher to the port on the side that has the lock mechanism, as it is necessary for releasing the lock.

**Exhaust Speed**

**⚠ Caution**

- When the pressure on the side with the lock mechanism drops to 0.05 MPa or below, the lock engages automatically. If the piping on the side with the lock mechanism is thin and long, or if the speed controller is away from the cylinder port, the lock engagement may take some time due to decline of the exhaust speed. The same result will be caused by clogging of the silencer installed at the EXH port of the solenoid valve.

**Releasing the Lock**

**⚠ Warning**

- Before releasing the lock, be sure to supply air to the side without the lock mechanism, so that there is no load applied to the lock mechanism when it is released. (Refer to the recommended pneumatic circuits.) If the lock is released when the port on the other side is in an exhaust state, and with a load applied to the lock unit, the lock unit may be subjected to an excessive force and be damaged. Also, it is very dangerous because the piston rod will be rushed to move.

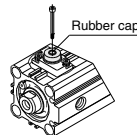
**Manual Release**

**⚠ Caution**

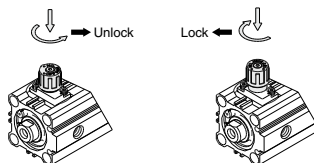
- Manual release (Non-lock type)**  
Insert the accessory bolt from the top of the rubber cap (it is not necessary to remove the rubber cap), and after screwing it into the lock piston, pull it to release the lock. If you stop pulling the bolt, the lock will return to an operational state.  
Thread sizes, pulling forces and strokes are as shown below.

Bore size (mm)	Thread size	Pulling force (N)	Stroke (mm)
20, 25, 32	M2.5 x 0.45 x 25 L or more	4.9	2
40, 50, 63	M3 x 0.5 x 30 L or more	10	3
80, 100	M5 x 0.8 x 40 L or more	24.5	3

Remove the bolt for normal operation.  
It can cause lock malfunction or faulty release.



- Manual release (Lock type)**  
While pushing the M/O knob, turn it 90° counterclockwise. The lock is released (and remains in a released state) by aligning the ▲ mark on the cap with the ▼ OFF mark on the M/O knob. When locking is desired, turn the M/O knob clockwise 90° while pushing fully, correspond ▲ on cap and ▼ ON mark on the M/O knob. The correct position is confirmed by a click sound "click". If not confirmed, locking is not done.



Manually locked state

Manually unlocked state

CUJ

CU

CQS

CBQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# With End Lock

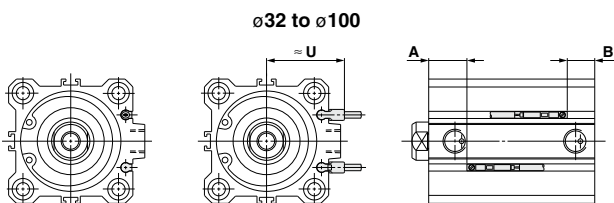
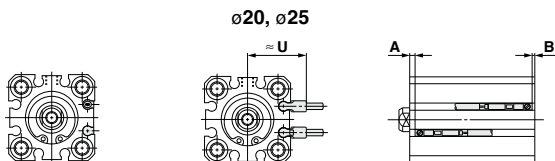
## Series **CDBQ2**

# With Auto Switch 1

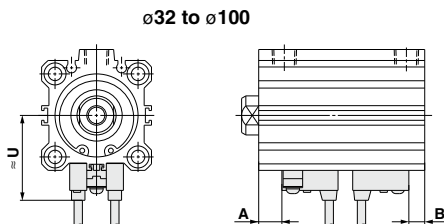
### 1 Auto Switch Proper Mounting Position (Detection at Stroke End) and its Mounting Height

Applicable Cylinder Series: CDBQ2 (With end lock)

- D-A9□
- D-M9□
- D-M9□W
- D-M9□A
- D-A9□V
- D-M9□V
- D-M9□WV
- D-M9□AV

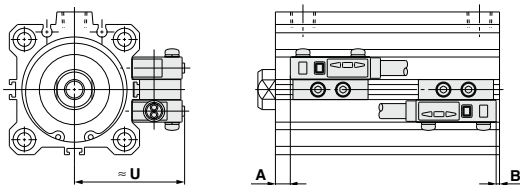


- D-A7□
- D-A80
- D-A7□H
- D-A80H
- D-F7□
- D-J79
- D-F7□W
- D-J79W
- D-F79F
- D-F7NT
- D-F7BA
- D-A73C
- D-A80C
- D-J79C
- D-A79W
- D-F7□WV
- D-F7□V
- D-F7BAV



D-P4DW

ø40 to ø100



### Auto Switch Mounting Height

#### Applicable Cylinder Series: CDBQ2 (With end lock)

(mm)

Auto switch model Bore size	D-A7□ D-A80		D-A7□H/A80H D-A73C/A80C D-F7□V/J79W D-F7□V/J79C D-F7□W/F7□WV D-F7BA/F7BAV D-F79F/F7NT		D-A79W		D-A9□ D-A9□V		D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-P4DW	
	A	B	A	B	A	B	A	B	A	B	A	B
20 (Head end lock)	—	—	—	—	—	—	6 (11)	35 (35)	10 (15)	39 (39)	—	—
20 (Rod end lock)	—	—	—	—	—	—	31.5 (34)	3 (12)	35.5 (38)	7 (16)	—	—
25 (Head end lock)	—	—	—	—	—	—	8 (10)	37 (39)	12 (14)	41 (43)	—	—
25 (Rod end lock)	—	—	—	—	—	—	32 (35)	5.5 (14)	36 (39)	9.5 (18)	—	—
32 (Head end lock)	9	38.5	9.5	39	6.5	36	8	37.5	12	41.5	—	—
32 (Rod end lock)	36	4	36.5	4.5	33.5	1.5	35	3	39	7	—	—
40 (Head end lock)	13	44	13.5	44.5	10.5	41.5	12	43	16	47	9	40
40 (Rod end lock)	42	4.5	42.5	5	39.5	2	41	3.5	45	7.5	38	0.5
50 (Head end lock)	11	46.5	11.5	47	8.5	44	10	45.5	14	49.5	7	42.5
50 (Rod end lock)	41.5	6	42	6.5	39	3.5	40.5	5	44.5	9	37.5	2
63 (Head end lock)	13.5	45.5	14	46	11	43	12.5	44.5	16.5	48.5	9.5	41.5
63 (Rod end lock)	45.5	7.5	46	8	43	5	44.5	6.5	48.5	10.5	41.5	3.5
80 (Head end lock)	16.5 (21.5)	76.5 (76.5)	17 (22)	77 (77)	14 (19)	74 (74)	15.5 (20.5)	75.5 (75.5)	19.5 (24.5)	79.5 (79.5)	12.5 (17.5)	72.5 (72.5)
80 (Rod end lock)	66.5 (66.5)	19 (31.5)	67 (67)	19.5 (32)	64 (64)	16.5 (29)	65.5 (65.5)	18 (30.5)	69.5 (69.5)	22 (34.5)	62.5 (62.5)	15 (27.5)
100 (Head end lock)	21 (26)	81.5 (81.5)	21.5 (26.5)	82 (82)	18.5 (23.5)	79 (79)	20 (25)	80.5 (80.5)	24 (29)	84.5 (84.5)	17 (22)	77.5 (77.5)
100 (Rod end lock)	71 (69.5)	24 (38)	71.5 (70)	24.5 (38.5)	68.5 (67)	21.5 (35.5)	70 (68.5)	23 (37)	74 (72.5)	27 (41)	67 (65.5)	20 (34)

Note) The dimensions in parentheses for ø20 and ø25 are for 50, 75 and 100 mm strokes, and the dimensions in parentheses for ø80 and ø100 are for 75 and 100 mm strokes. Adjust the auto switch after confirming the operating conditions in the actual setting.

#### Applicable Cylinder Series: CDBQ2 (With end lock)

(mm)

Auto switch model Bore size	D-A7□ D-A80	D-A7□H D-A80H/J79W D-F7□V/F7BA D-J79F79F D-F7□W/F7NT	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAV	D-J79C	D-A79W	D-A9□V	D-M9□V D-M9□WV D-M9□AV	D-P4DW
	U	U	U	U	U	U	U	U	U
20	—	—	—	—	—	—	22.5	24.5	—
25	—	—	—	—	—	—	24.5	26.5	—
32	31.5	32.5	38.5	35	38	34	27	29	—
40	35	36	42	38.5	41.5	37.5	30.5	32.5	44
50	41	42	48	44.5	47.5	43.5	36.5	38.5	50
63	47.5	48.5	54.5	51	54	50	40	42	56.5
80	57.5	58.5	64.5	61	64	60	50	52	66.5
100	67.5	68.5	74.5	71	74	70	60	62	76.5

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU  
-Z

D-□

-X□

Technical data

# With End Lock Series **CDBQ2** With Auto Switch 2

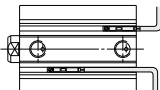
## 2 Minimum Stroke for Auto Switch Mounting

Applicable Cylinder Series: CDBQ2 (With end lock)

(mm)

Number of auto switches	D-M9□V D-F7□V D-J79C	D-A9□V D-A7□ D-A80 D-A73C D-A80C	D-A9□	D-M9□WV D-M9□AV D-F7□WV D-F7BAV	D-M9□ D-F7□ D-J79	D-M9□W D-M9□A	D-A7□H D-A80H	D-A79W	D-F7□W D-J79W D-F7BA D-F79F D-F7NT	D-P4DW
With 1 pc.	5	5	10(5)	10	15(5)	15(10)	15(5)	15	20(10)	15
With 2 pcs.	5	10	10	15	15(5)	15(5)	15(10)	20	20(15)	15

Note) The dimension stated in ( ) shows the minimum stroke for the auto switch mounting when the auto switch does not project from the end surface of the cylinder body and hinder the lead wire bending space. (Refer to the figure below.)  
The auto switch and auto switch mounting bracket are ordered separately.



## 3 Operating Range

Applicable Cylinder Series: CDBQ2 (With end lock)

(mm)

Auto switch model	Bore size								
	20	25	32	40	50	63	80	100	
D-A9□(V)	10	10	9.5 (9.5)	9.5 (9.5)	9.5 (8.5)	11.5 (11)	9 (10)	11.5 (10.5)	
D-M9□(V) D-M9□W(V) D-M9□A(V)	5.5	5.5	6 (5.5)	6 (5.5)	7 (6)	7.5 (6.5)	8 (7)	8.5 (7)	
D-A7□(H)(C) D-A80□(H)(C)	—	—	12	11	10	12	12	13	
D-A79W	—	—	13	14	14	16	15	17	
D-F7□(V) D-J79(C) D-F7□W(V) D-F7BA(V) D-F7NT D-F79F	—	—	6	6	6	6.5	6.5	7	
D-P4DW	—	—	—	5	5	5	5	5.5	

\* Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

\* The values for ø32 or more of the D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V) types indicate the operating range when the conventional switch installation groove is attached without using the auto switch mounting bracket BQ2-012.

\* The values in parentheses for ø32 or more of the D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V) types indicate the operating range when the auto switch mounting bracket BQ2-012 is used.

**4 Auto Switch Mounting Brackets/Part No.**

**Applicable Cylinder Series: CDBQ2 (With end lock)**

Auto switch mounting surface	Bore size (mm)		
	ø20, ø25	ø32, ø40, ø50	ø63, ø80, ø100
Auto switch model	Auto switch mounting surface	Auto switch mounting surface	Auto switch mounting surface
	Port/A/B/C side	Port side	A/B/C side
<b>D-A9□</b> <b>D-A9□V</b> <b>D-M9□</b> <b>D-M9□V</b> <b>D-M9□W</b> <b>D-M9□WV</b> <b>D-M9□A</b> <b>D-M9□AV</b>	Auto switch mounting brackets are not required.	Auto switch mounting brackets are not required.	<ol style="list-style-type: none"> <li>① BQ-2</li> <li>② BQ2-012</li> </ol> Two kinds of auto switch brackets are used as a set.

Note 1) When a compact auto switch is mounted on the three sides (A, B and C above) other than the port side of ø32 to ø50 cylinders, auto switch mounting brackets shown above are required. Order them separately from cylinders. (The above is also applicable when a compact auto switch is mounted using an auto switch mounting rail, but not using a compact auto switch installation groove for ø63 to ø100 cylinders.)

Ordering example  
 CDBQ2B32-50D-M9BW.....1 pc.  
 BQ-2.....2 pcs.  
 BQ2-012.....2 pcs.

Note 2) When shipping cylinders, auto switch mounting brackets and auto switches are shipped together.

Auto switch model	Bore size (mm)					
	32	40	50	63	80	100
<b>D-A7□/A80</b> <b>D-A73C/A80C</b> <b>D-A7□H/A80H</b> <b>D-A79W</b> <b>D-F7□/J79</b> <b>D-F7□V</b> <b>D-J79C</b> <b>D-F7□W/J79W</b> <b>D-F7□WV</b> <b>D-F7BA/F7BAV</b> <b>D-F79F/F7NT</b>				BQ-2		
<b>D-P4DW</b>	—			BQP1-050		

Note 3) When shipping cylinders, auto switch mounting brackets and auto switches are shipped together.

Note 4) Refer to pages 1658 to 1660 for further information on auto switch mounting method.

**[Stainless Steel Mounting Screw Kit]**

The following stainless steel mounting screw kit (with nuts) is available. Use it in accordance with the operating environment. (Since auto switch spacer (for BQ-2) is not included, order BQ-2 separately.)

BBA2: For D-A7/A8/F7/J7 types

The above stainless steel mounting screws are used when a cylinder is shipped with the D-F7BA/F7BAV auto switches.

When only an auto switch is shipped independently, BBA2 is attached.

Note 5) Refer to page 1659 for details of BBA2.

Note 6) When the D-M9□A(V) type is mounted on a port side other than ø32, ø40 or ø50, order auto switch mounting brackets BQ2-012S, BQ-2 or the stainless steel mounting screw kit BBA2 separately.

**Auto Switch Mounting Bracket/Weight**

Mounting bracket part no.	Weight (g)
BQ-2	1.5
BQ2-012	5
BQP1-050	16

**CUJ**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

Technical data



# With End Lock

## Series **CDBQ2**

# With Auto Switch 3

Other than the applicable auto switches listed in “How to Order”, the following auto switches are mountable. Refer to page 1559 to 1673 for detailed specifications.

**Applicable Cylinder Series: CDBQ2 (With end lock)**

Auto switch type	Model	Electrical entry	Features	Applicable bore size
<b>Reed</b>	D-A73	Grommet (Perpendicular)	—	ø32 to ø100
	D-A80		Without indicator light	
	D-A73H, A76H	Grommet (In-line)	—	
D-A80H	Without indicator light			
<b>Solid state</b>	D-F7NV, F7PV, F7BV	Grommet (Perpendicular)	—	ø32 to ø100
	D-F7NWX, F7BWX		Diagnostic indication (2-color indication)	
	D-F7BAV		Water resistant (2-color indication)	
	D-F79, F7P, J79	Grommet (In-line)	—	
	D-F79W, F7PW, J79W		Diagnostic indication (2-color indication)	
	D-F7BA		Water resistant (2-color indication)	
	D-F7NT		With timer	
D-P5DW	Grommet (In-line)	Magnetic field resistant (2-color indication)	ø40 to ø100	

\* With pre-wired connector is also available for solid state auto switches. For details, refer to page 1626 and 1627.

\* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to page 1577.

\* When using a magnetic field resistant solid state auto switch D-P3DW type, please contact SMC separately. (Applicable bore size: ø32 to ø100)

\* Heat resistant solid state auto switch (D-F7NJ) is not applicable.

\* Regarding the D-P5DW, please contact SMC separately.

# Compact Cylinder: Water Resistant Double Acting, Single Rod Series CQ2

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

## How to Order

Without auto switch  
ø20, ø25

CQ2 B 20 R - 30 D

Without auto switch  
ø32 to ø100

CQ2 B 32 R - 30 D Z

With auto switch

CDQ2 B 32 R - 30 D Z - M9BA

With auto switch  
(Built-in magnet)

Mounting

<b>B</b>	Through-hole (Standard)	(ø20 to ø100)
<b>A</b>	Both ends tapped	
<b>L</b>	Foot	
<b>LC</b>	Compact foot	(ø40 to ø100)
<b>F</b>	Rod flange	
<b>G</b>	Head flange	
<b>D</b>	Double clevis	

- \* Mounting brackets are shipped together (but not assembled).
- \* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolts for CQ2" on page 943 and "Mounting Bolts for CDQ2" on page 945.

Bore size

<b>20</b>	20mm	<b>50</b>	50mm
<b>25</b>	25mm	<b>63</b>	63mm
<b>32</b>	32mm	<b>80</b>	80mm
<b>40</b>	40mm	<b>100</b>	100mm

Port thread type

<b>Nil</b>	M thread
	Rc
<b>TN</b>	NPT
<b>TF</b>	G

### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2B32R-25DMZ

### Applicable Auto Switches

Refer to pages 1559 to 1673 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)				Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)		IC circuit	Relay, PLC	
																5 V, 12 V
Solid state auto switch	Water resistant (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9PAV	M9PA	○	○	●	○	○	—	
				3-wire (PNP)				M9BAV	M9BA	○	○	●	○	○		
				2-wire						○	○	●	○	○		

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9BA  
1 m ..... M (Example) M9BAL  
3 m ..... L (Example) M9BAL  
5 m ..... Z (Example) M9BAZ

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

\* For details about auto switches with pre-wired connector, refer to pages 1626 and 1627 in Best Pneumatics No. 2.

Number of auto switches

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

Made to Order

Refer to the next page for details.

Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

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

Auto switch mounting groove

<b>Z</b>	ø20 to ø25	2 surfaces
	ø32 to ø100	4 surfaces

Body option

<b>Nil</b>	Standard (Rod end female thread)
<b>M</b>	Rod end male thread

Action

<b>D</b>	Double acting
----------	---------------

Cylinder stroke (mm)

For "Standard Strokes", refer to page 942.

Water resistant cylinder

<b>R</b>	NBR seal (Nitrile rubber)
<b>V</b>	FKM seal (Fluororubber)

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

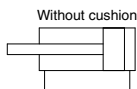
D-□

-X□

Technical data



## Symbol



## Made to Order

(For details, refer to pages 1699 to 1818.)

Symbol	Specifications
-XC6(A)	Piston rod/Retaining ring/Rod end nut material: Stainless steel

Refer to pages 954 to 960 for the specifications of cylinders with autoswitches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Moisture Control Tube Series IDK



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [Series IDK in the WEB catalog](#).

## Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting, Single rod							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.08 MPa							
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)							
Lubrication	Not required (Non-lube)							
Piston speed	50 to 500 mm/s							
Allowable kinetic energy (J)	0.055	0.09	0.15	0.26	0.46	0.77	1.36	2.27
Stroke length tolerance	+1.0 mm 0							

## Standard Strokes

Bore size	Standard stroke (mm)
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	
Part no.	Refer to "How to Order" for the standard model number. (P. 941)	
Description	Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.	
Stroke range	Bore size	Stroke range
	20, 25	1 to 49
	32 to 100	1 to 99
Example	Part no.: CQ2B50R-57DZ CQ2B50R-75DZ with 18 mm width spacer inside The B dimension is 115.5 mm.	

## Type

		Bore size (mm)	20	25	32	40	50	63	80	100	
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	●	
		Both ends tapped	—	—	—	●	●	●	●	●	
	Built-in magnet		●	●	●	●	●	●	●	●	
	Piping	Pipe thread	—	M5 x 0.8	M5 x 0.8	M5 x 0.8 Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8	Rc3/8
			TN	—	—	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8	NPT3/8
			TF	—	—	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
	Rod end male thread		●	●	●	●	●	●	●	●	

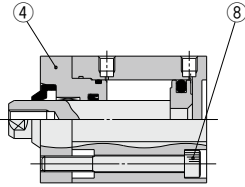
Note) ø32 without auto switch: M5 x 0.8 is used for 5 mm strokekeeping dimension.

Thus, do not enter a symbol for the port thread type.

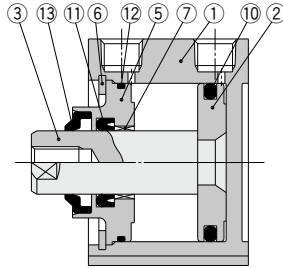


## Construction

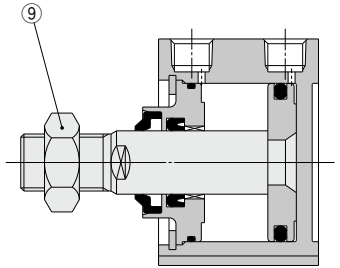
Standard (ø20 to ø32)



Standard (ø40 to ø100)



Rod end male thread



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø20 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Rod cover	Aluminum alloy	ø20 to ø32, Anodized
5	Collar	Aluminum alloy	ø40 to ø100, Anodized
6	Retaining ring	Carbon tool steel	ø40 to ø100, Phosphate coated
7	Bushing	Oil-impregnated sintered alloy	ø20, ø25
		Bearing alloy	ø32 to ø100
8	Hexagon socket head cap screw	Chromium molybdenum steel	ø20 to ø32, Zinc chromated
9	Rod end nut	Carbon steel	Zinc chromated
10	Piston seal	R: NBR	
		V: FKM	
11	Rod seal	R: NBR	
		V: FKM	
12	Tube gasket	R: NBR	
		V: FKM	
13	Rod scraper	R: NBR	
		V: FKM	

\* R: NBR seal (Nitrile rubber) V: FKM seal (Fluororubber)

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.		Contents
	R: NBR	V: FKM	
20	CQ2B20R-PS	CQ2B20V-PS	Kits include items 10, 11, 12 from the table.
25	CQ2B25R-PS	CQ2B25V-PS	
32	CQ2B32R-PS	CQ2B32V-PS	
40	CQ2B40R-PS	CQ2B40V-PS	
50	CQ2B50R-PS	CQ2B50V-PS	
63	CQ2B63R-PS	CQ2B63V-PS	
80	CQ2B80R-PS	CQ2B80V-PS	
100	CQ2B100R-PS	CQ2B100V-PS	

\* Seal kit includes 10, 11, 12. Order the seal kit, based on each bore size.

\* A rod scraper cannot be replaced independently. It is press-fitted, so replace it not only with a rod cover and collar, but also with a rod cover assembly and collar assembly. Contact SMC separately for how to order them.

\* Since the seal kit does not include a grease pack, order it separately.

**Grease pack part no.:** GR-S-010 (10 g)

### Retaining Ring Installation/Removal

#### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

### Handling Precautions

#### ⚠ Caution

- Before installing a cylinder, thoroughly flush out the piping to prevent dust or cutting chips from entering the cylinder. For hydraulic cylinders, use the air bleed valve to release the air inside the cylinder.
- Eccentric loads applied to the piston rod dramatically shorten the service life. Use the piston rod by always applying a load in an axial direction.
- Make sure not to scratch or gouge the sliding portion of the piston rod, as this could damage the seals and lead to leakage.

### Handling Precautions

#### ⚠ Caution

- When the cylinder is exposed to dust or sand, or is used in a place where liquid from the piston rod splashes, use the heavy-duty scraper (-XC4) type.
- If there is a possibility of liquid splashing on cylinder fittings when using an air cylinder, use insert fittings, self-align fittings, steel piping, etc. Consider the compatibility of liquid components and piping materials before using.
- When selecting seals, generally use NBR (nitrile rubber) seals with liquids that do not contain chlorine and sulfur, and use FKM (fluoro rubber) seals with liquids that contain chlorine and sulfur. However, depending on the type and the brand of liquid (such as coolant liquid) that splashes on the cylinder, the operating life of seals may be reduced dramatically.

#### Examples of coolant liquid

Shimiron, PA-O-5 (Daido Chemical Industry Co., Ltd.) (NBR seals)  
 Noritake Cool, AFG-S (Noritake Co., Ltd.) (NBR seals)  
 Yushiroken, S-46S (Yushiro Chemical Industry Co., Ltd.) (NBR seals)  
 Yushiroken, EC-50-T3 (Yushiro Chemical Industry Co., Ltd.) (NBR seals)  
 Yushiron Oil, No.23 (Yushiro Chemical Industry Co., Ltd.) (FKM seals)  
 Daphne Cut, Hs-1 (Idemitsu Kosan Co., Ltd.) (FKM seals)

# Water Resistant: Double Acting, Single Rod Series **CDQ2** With Auto Switch



## Weight

### Weight (g)

Stroke Bore size	Stroke											
	5	10	15	20	25	30	35	40	45	50	75	100
ø20	130	142	155	167	179	191	204	216	228	240	—	—
ø25	182	197	213	228	244	259	275	290	306	320	—	—
ø32	263	284	305	327	348	369	390	412	433	454	561	668
ø40	293	315	336	358	379	401	422	444	465	487	598	710
ø50	—	489	522	555	588	620	653	687	720	753	925	1097
ø63	—	700	738	776	814	852	890	928	966	1004	1201	1397
ø80	—	1219	1279	1340	1400	1460	1520	1581	1641	1701	1998	2295
ø100	—	2061	2142	2222	2302	2383	2463	2543	2624	2704	3112	3520

### Additional Weight (g)

Bore size (mm)		20	25	32	40	50	63	80	100
Both ends tapped		—	—	—	6	6	19	45	45
Rod end male thread	Male thread	6	12	26	27	53	53	120	175
	Nut	4	8	17	17	32	32	49	116
Foot (Including mounting bolts)		—	—	—	154	243	320	690	1057
Rod flange (Including mounting bolts)		—	—	—	214	373	559	1056	1365
Head flange (Including mounting bolts)		—	—	—	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)		—	—	—	196	393	554	1109	1887

Calculation: (Example) **CDQ2D40R-20DMZ**  
 • Basic weight: CDQ2B40R-20DZ ..... 358 g  
 • Additional weight: Both ends tapped ..... 6 g  
 Rod end male thread ... 44 g  
 Double clevis ..... 196 g  
 604 g

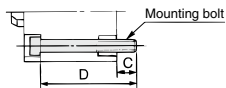
Add each weight of auto switches when auto switches are mounted.

## Mounting Bolt for CDQ2B/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQ2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Example) CQ-M5 x 50L 2 pcs.

Material: Chromium molybdenum steel  
 Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
CDQ2B20 <sup>ø</sup> -5DZ	10.5	50	CQ-M5 x 50L
		-10DZ	55 x 55L
		-15DZ	60 x 60L
		-20DZ	65 x 65L
		-25DZ	70 x 70L
		-30DZ	75 x 75L
		-35DZ	80 x 80L
		-40DZ	85 x 85L
		-45DZ	90 x 90L
-50DZ	95 x 95L		
CDQ2B25 <sup>ø</sup> -5DZ	9.5	50	CQ-M5 x 50L
		-10DZ	55 x 55L
		-15DZ	60 x 60L
		-20DZ	65 x 65L
		-25DZ	70 x 70L
		-30DZ	75 x 75L
		-35DZ	80 x 80L
		-40DZ	85 x 85L
		-45DZ	90 x 90L
-50DZ	95 x 95L		
CDQ2B32 <sup>ø</sup> -5DZ	9	50	CQ-M5 x 50L
		-10DZ	55 x 55L
		-15DZ	60 x 60L
		-20DZ	65 x 65L
		-25DZ	70 x 70L
		-30DZ	75 x 75L
		-35DZ	80 x 80L
		-40DZ	85 x 85L
		-45DZ	90 x 90L
-50DZ	95 x 95L		
-75DZ	120 x 120L		
-100DZ	145 x 145L		

Cylinder model	C	D	Mounting bolt part no.
CDQ2B40 <sup>ø</sup> -5DZ	7.5	45	CQ-M5 x 45L
		-10DZ	50 x 50L
		-15DZ	55 x 55L
		-20DZ	60 x 60L
		-25DZ	65 x 65L
		-30DZ	70 x 70L
		-35DZ	75 x 75L
		-40DZ	80 x 80L
		-45DZ	85 x 85L
-50DZ	90 x 90L		
-75DZ	115 x 115L		
-100DZ	140 x 140L		
CDQ2B50 <sup>ø</sup> -10DZ	12.5	55	CQ-M6 x 55L
		-15DZ	60 x 60L
		-20DZ	65 x 65L
		-25DZ	70 x 70L
		-30DZ	75 x 75L
		-35DZ	80 x 80L
		-40DZ	85 x 85L
		-45DZ	90 x 90L
		-50DZ	95 x 95L
-75DZ	120 x 120L		
-100DZ	145 x 145L		
CDQ2B63 <sup>ø</sup> -10DZ	14.5	60	CQ-M8 x 60L
		-15DZ	65 x 65L
		-20DZ	70 x 70L
		-25DZ	75 x 75L
		-30DZ	80 x 80L
		-35DZ	85 x 85L
		-40DZ	90 x 90L
		-45DZ	95 x 95L
		-50DZ	100 x 100L
-75DZ	125 x 125L		
-100DZ	150 x 150L		

Cylinder model	C	D	Mounting bolt part no.
CDQ2B80 <sup>ø</sup> -10DZ	15	65	CQ-M10 x 65L
		-15DZ	70 x 70L
		-20DZ	75 x 75L
		-25DZ	80 x 80L
		-30DZ	85 x 85L
		-35DZ	90 x 90L
		-40DZ	95 x 95L
		-45DZ	100 x 100L
		-50DZ	105 x 105L
-75DZ	130 x 130L		
-100DZ	155 x 155L		
CDQ2B100 <sup>ø</sup> -10DZ	15.5	75	CQ-M10 x 75L
		-15DZ	80 x 80L
		-20DZ	85 x 85L
		-25DZ	90 x 90L
		-30DZ	95 x 95L
		-35DZ	100 x 100L
		-40DZ	105 x 105L
		-45DZ	110 x 110L
		-50DZ	115 x 115L
-75DZ	140 x 140L		
-100DZ	165 x 165L		

CUJ

CU

CQS

CQZ-Z

RQ

CQM

CQU

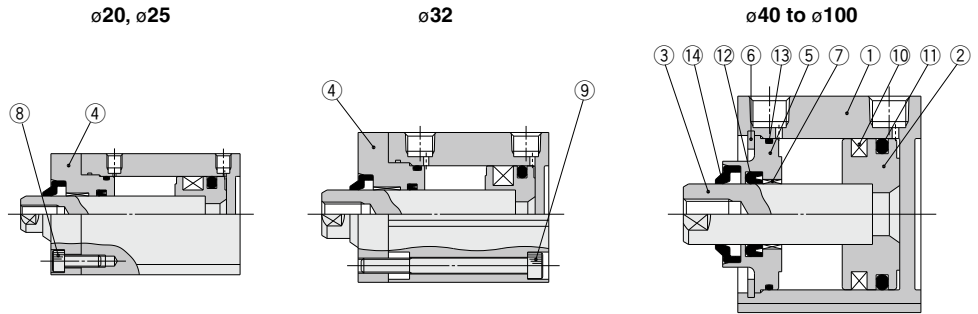
MU-Z

D-□

-X□

Technical data

## Construction



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø20 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Rod cover	Aluminum alloy	ø20 to ø32, Anodized
5	Collar	Aluminum alloy	ø40 to ø100, Anodized
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bushing	Oil-impregnated sintered alloy	ø20, ø25
		Bearing alloy	ø32 to ø100
8	Hexagon socket head cap screw	Chromium molybdenum steel	ø20 to ø25, Zinc chromated
9	Hexagon socket head cap screw	Chromium molybdenum steel	ø32, Zinc chromated
10	Magnet	—	—
11	Piston seal	R: NBR	
		V: FKM	
12	Rod seal	R: NBR	
		V: FKM	
13	Tube gasket	R: NBR	
		V: FKM	
14	Rod scraper	R: NBR	
		V: FKM	

\* R: NBR seal (Nitrile rubber)

V: FKM seal (Fluororubber)

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.		Contents
	R: NBR	V: FKM	
20	CQ2B20R-PS	CQ2B20V-PS	Kits include items ①, ②, ⑬ from the table.
25	CQ2B25R-PS	CQ2B25V-PS	
32	CQ2B32R-PS	CQ2B32V-PS	
40	CQ2B40R-PS	CQ2B40V-PS	
50	CQ2B50R-PS	CQ2B50V-PS	
63	CQ2B63R-PS	CQ2B63V-PS	
80	CQ2B80R-PS	CQ2B80V-PS	
100	CQ2B100R-PS	CQ2B100V-PS	

\* Seal kit includes ①, ②, ⑬. Order the seal kit, based on each bore size.

\* A rod scraper cannot be replaced independently. It is press-fitted, so replace it not only with a rod cover and collar, but also with a rod cover assembly and collar assembly. Contact SMC separately for how to order them.

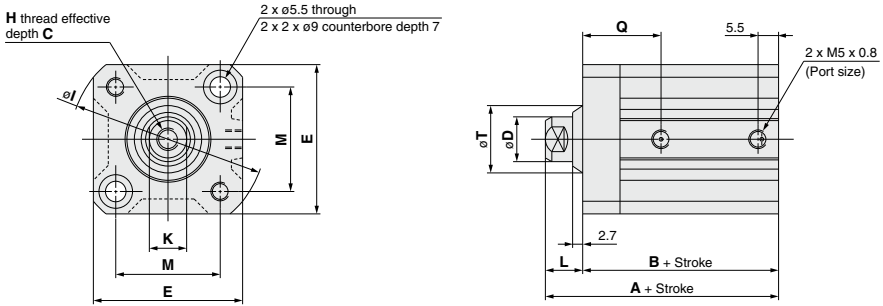
\* Since the seal kit does not include a grease pack, order it separately.

**Grease pack part no.: GR-S-010 (10 g)**

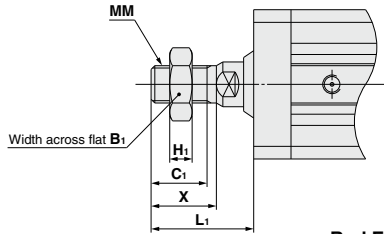
Dimensions

**Ø20, Ø25/Without Auto Switch**

Standard (Through-hole): CQ2B



Rod end male thread



Rod End Male Thread

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
20	13	12	5	23.5	M8 x 1.25	14
25	17	15	6	27.5	M10 x 1.25	17.5

Standard

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	H	I	K	L	M	Q	T
20	5 to 50	39	29.5	7	10	36	M5 x 0.8	47	8	9.5	25.5	18	16.1
25	5 to 50	42.5	32.5	12	12	40	M6 x 1.0	52	10	10	28	19	18.1

\* For details about the rod end nut and accessory brackets, refer to page 804.  
\* Refer to page 942 for the calculation on the longitudinal dimension of intermediate strokes.

CJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

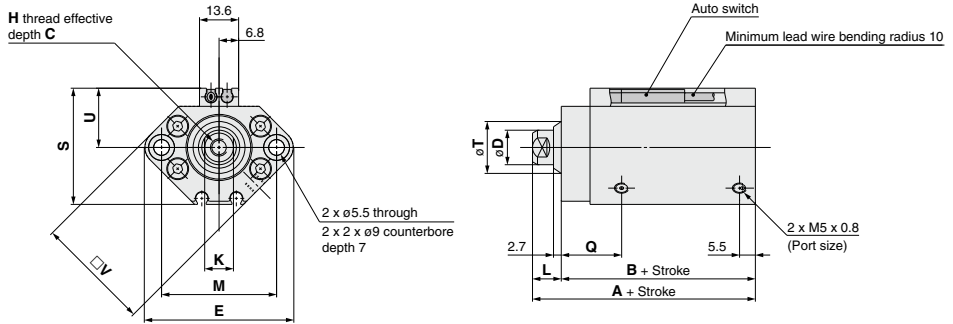


# Series CQ2

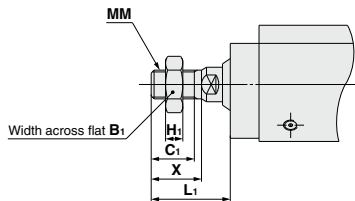
## Dimensions

### Ø20, Ø25/With Auto Switch

Standard (Through-hole): CDQ2B



#### Rod end male thread



#### Rod End Male Thread (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
20	13	12	5	23.5	M8 x 1.25	14
25	17	15	6	27.5	M10 x 1.25	17.5

**Standard** For auto switch proper mounting position and its mounting height, refer to pages 954 to 960. (mm)

Bore size (mm)	Stroke range (mm)	A	B	C	D	E	H	K	L	M	Q	S	T	U	V
20	5 to 50	51	41.5	7	10	47	M5 x 0.8	8	9.5	36	18	35.5	16.1	18	36
25	5 to 50	52.5	42.5	12	12	52	M6 x 1.0	10	10	40	19	40.5	18.1	21	40

\* For details about the rod end nut and accessory brackets, refer to page 804.

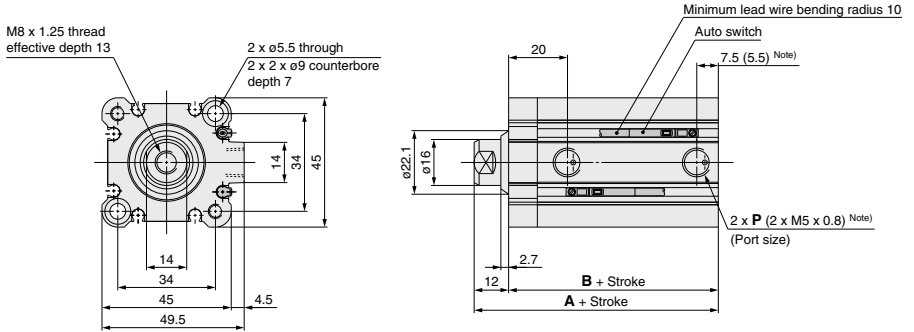
\* Refer to page 942 for the calculation on the longitudinal dimension of intermediate strokes.

# Compact Cylinder: Water Resistant Double Acting, Single Rod *Series CQ2*

## Dimensions

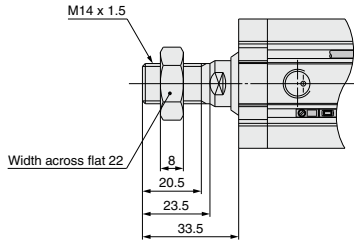
**Ø32/With Auto Switch**

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)



### Rod end male thread

Note ( ) : Without auto switch, 5 mm strokes



(mm)

Stroke range (mm)	Without auto switch		With auto switch		P		
	A	B	A	B	—	TN	TF
5 to 50	45	33	55	43	Rc1/8	NPT1/8	G1/8
75, 100	55	43					

\* For details about the rod end nut and accessory brackets, refer to page 804.

\* Refer to page 942 for the calculation on the longitudinal dimension of intermediate strokes.

CUJ

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

MU  
-Z

D-□

-X□

Technical data

# Series CQ2

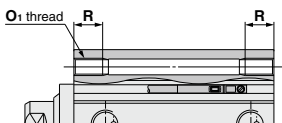
## Dimensions

### Ø40, Ø50/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

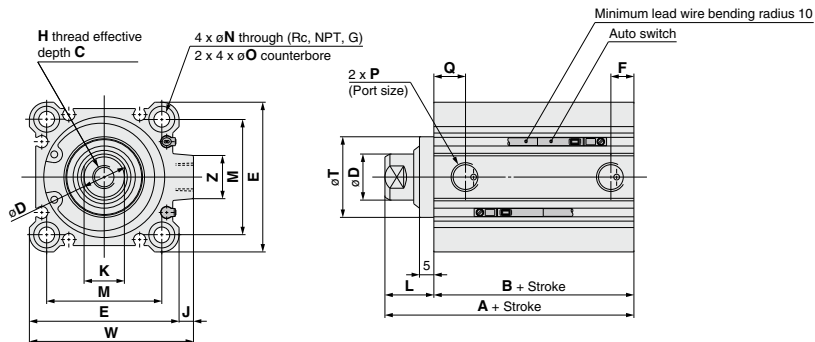
#### Both ends tapped: CQ2A/CDQ2A

#### Standard (Through-hole): CQ2B/CDQ2B

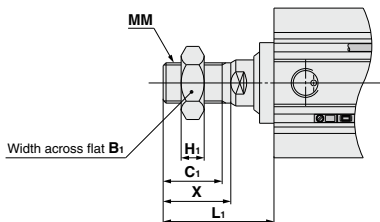


#### Both Ends Tapped

(mm)		
Bore size (mm)	O <sub>1</sub>	R
40	M6 x 1.0	10
50	M8 x 1.25	14



#### Rod end male thread



#### Rod End Male Thread

(mm)						
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
40	22	20.5	8	38.5	M14 x 1.5	23.5
50	27	26	11	43.5	M18 x 1.5	28.5

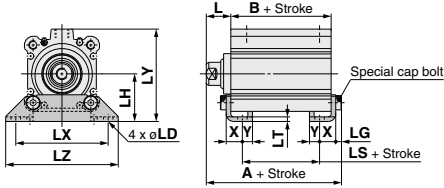
#### Standard For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	T	W	Z
		A	B	A	B																
40	5 to 50	46.5	29.5	56.5	39.5	13	16	52	7.5	M8 x 1.25	5	14	17	40	5.5	9 depth 7	1/8	12.5	28	57	15
	75, 100	56.5	39.5																		
50	10 to 50	48.5	30.5	58.5	40.5	15	20	64	10.5	M10 x 1.5	7	17	18	50	6.6	11 depth 8	1/4	10.5	35	71	19
	75, 100	58.5	40.5																		

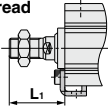
Note 1) For details about the rod end nut and accessory brackets, refer to page 804.

Note 2) Refer to page 942 for the calculation on the longitudinal dimension of intermediate strokes.

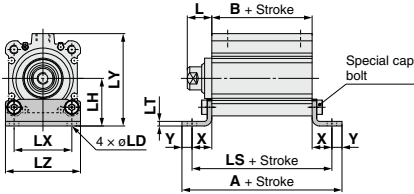
**Foot: CQ2L/CDQ2L**



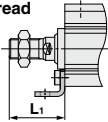
Rod end male thread



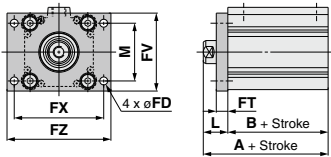
**Compact foot: CQ2LC/CDQ2LC**



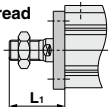
Rod end male thread



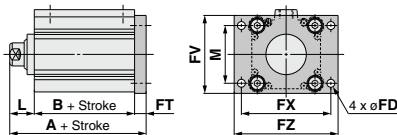
**Rod flange: CQ2F/CDQ2F**



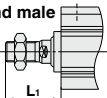
Rod end male thread



**Head flange: CQ2G/CDQ2G**



Rod end male thread



**Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
40	5 to 50	53.7	29.5	13.5	63.7	39.5	23.5	17	38.5	6.6
	75, 100	63.7	39.5	23.5						
	10 to 50	56.7	30.5	7.5	66.7	40.5	17.5	18	43.5	9
50	75, 100	66.7	40.5	17.5						

Bore size (mm)	LG	LH	LT	LX	LY	LZ	X	Y
40	4	33	3.2	64	64	78	11.2	7
50	5	39	3.2	79	78	95	14.7	8

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
40	5 to 50	70.9	29.5	56.9	80.9	39.5	66.9	17	38.5	6.6
	75, 100	80.9	39.5	66.9						
	10 to 50	79.9	30.5	63.9	89.9	40.5	73.9	18	43.5	9
50	75, 100	89.9	40.5	73.9						

Bore size (mm)	LH	LT	LX	LY	LZ	X	Y
40	33	3.2	40	64	52	13.7	7
50	39	3.2	50	78	64	16.7	8

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

**Rod Flange**

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ
		A	B	A	B					
40	5 to 50	46.5	29.5	56.5	39.5	5.5	8	54	62	72
	75, 100	56.5	39.5							
	10 to 50	48.5	30.5	58.5	40.5	6.6	9	67	76	89
50	75, 100	58.5	40.5							

Bore size (mm)	L	L <sub>1</sub>	M
40	17	38.5	40
50	18	43.5	50

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch
		A	A
40	5 to 50	54.5	64.5
	75, 100	64.5	
	10 to 50	57.5	67.5
50	75, 100	67.5	

\* The dimensions except A are the same as those of the rod flange.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to page 804.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

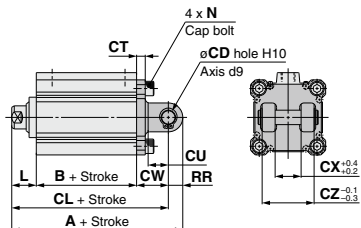
MU-Z

D-□

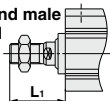
-X□

Technical data

Double clevis: CQ2D/CDQ2D



Rod end male thread



Double Clevis

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU
		A	B	CL	A	B	CL			
40	5 to 50	78.5	29.5	68.5	88.5	39.5	78.5	10	6	14
	75, 100	88.5	39.5	78.5						
50	10 to 50	90.5	30.5	76.5	100.5	40.5	86.5	14	7	20
	75, 100	100.5	40.5	86.5						

Bore size (mm)	CW	CX	CZ	L	L <sub>1</sub>	N	RR
40	22	18	36	17	38.5	M6 x 1.0	10
50	28	22	44	18	43.5	M8 x 1.25	14

Double clevis bracket material: Cast iron  
Surface treatment: Painted

- \* For details about the rod end nut and accessory brackets, refer to page 804.
- \* Double clevis pin and retaining rings are included.

CUJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

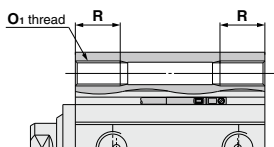
# Series CQ2

## Dimensions

### Ø63 to Ø100/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

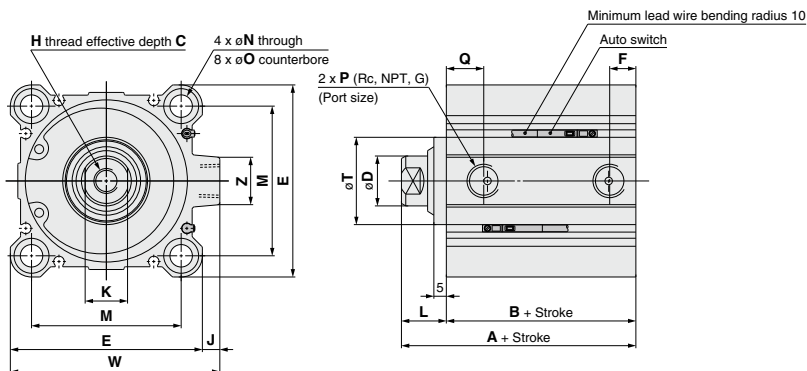
#### Both ends tapped: CQ2A/CDQ2A



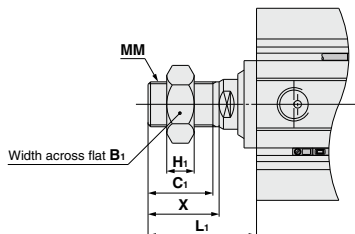
#### Both Ends Tapped (mm)

Bore size (mm)	O <sub>1</sub>	R
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22

#### Standard (Through-hole): CQ2B/CDQ2B



#### Rod end male thread



#### Rod End Male Thread (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
63	27	26	11	43.5	M18 x 1.5	28.5
80	32	32.5	13	53.5	M22 x 1.5	35.5
100	41	32.5	16	53.5	M26 x 1.5	35.5

#### Standard For auto switch proper mounting position and its mounting height, refer to pages 954 to 960.

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	T	
		A	B	A	B															
63	10 to 50	54	36	64	46	15	20	77	10.5	M10 x 1.5	7	17	18	60	9	14 depth	10.5	1/4	15	35
	75, 100	64	46																	
80	10 to 50	63.5	43.5	73.5	53.5	21	25	98	12.5	M16 x 2.0	6	22	20	77	11	17.5 depth	13.5	3/8	16	43
	75, 100	73.5	53.5																	
100	10 to 50	75	53	85	63	27	30	117	13	M20 x 2.5	6.5	27	22	94	11	17.5 depth	13.5	3/8	23	59
	75, 100	85	63																	

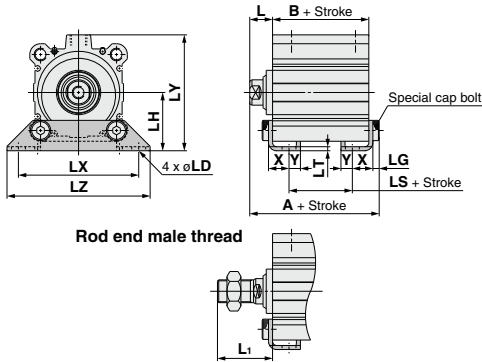
(mm)

\* For details about the rod end nut and accessory brackets, refer to page 804.  
Note) Refer to page 942 for the calculation on the longitudinal dimension of intermediate strokes.

Bore size (mm)	W	Z
63	84	19
80	104	25
100	123.5	25

# Compact Cylinder: Water Resistant Double Acting, Single Rod *Series CQ2*

## Foot: CQ2L/CDQ2L



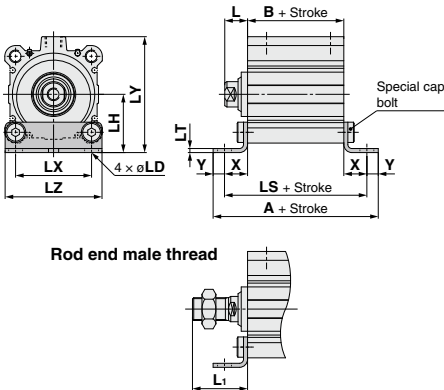
## Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD	LG	LH	LT
		A	B	LS	A	B	LS						
63	10 to 50	82.2	36	10	72.2	46	20	18	43.5	11	5	46	3.2
	75, 100	72.2	46	20									
80	10 to 50	75	43.5	13.5	85	53.5	23.5	20	53.5	13	7	59	4.5
	75, 100	85	53.5	23.5									
100	10 to 50	88	53	19	98	63	29	22	53.5	13	7	71	6
	75, 100	98	63	29									

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

Bore size (mm)	Stroke range (mm)	LX	LY	LZ	X	Y
63	10 to 50	95	91.5	113	16.2	9
	75, 100					
80	10 to 50	118	114	140	19.5	11
	75, 100					
100	10 to 50	137	136	162	23	12.5
	75, 100					

## Compact foot: CQ2LC/CDQ2LC



## Compact Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD	LH	LT	LX
		A	B	LS	A	B	LS						
63	10 to 50	90.4	36	72.4	100.4	46	82.4	18	43.5	11	46	3.2	60
	75, 100	100.4	46	82.4									
80	10 to 50	110.5	43.5	88.5	120.5	53.5	98.5	20	53.5	13	59	4.5	77
	75, 100	120.5	53.5	98.5									
100	10 to 50	126	53	101	136	63	111	22	53.5	13	71	6	94
	75, 100	136	63	111									

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

Bore size (mm)	Stroke range (mm)	LY	LZ	X	Y
63	10 to 50	91.5	77	18.2	9
	75, 100				
80	10 to 50	114	98	22.5	11
	75, 100				
100	10 to 50	136	117	24	12.5
	75, 100				

\* For details about the rod end nut and accessory brackets, refer to page 804.

CJ

CU

CQS

CQ2-Z

RQ

CQM

CQU

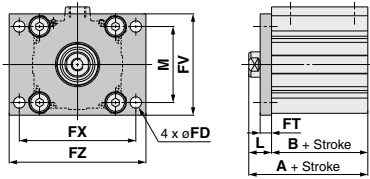
MU-Z

D-□

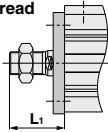
-X□

Technical data

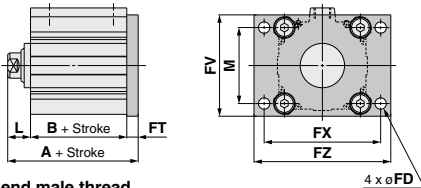
**Rod flange: CQ2F/CDQ2F**



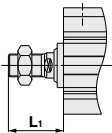
**Rod end male thread**



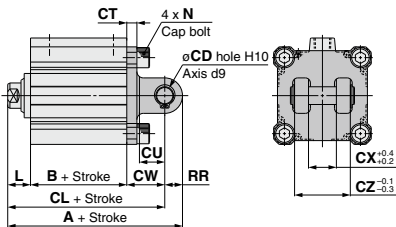
**Head flange: CQ2G/CDQ2G**



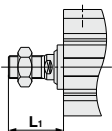
**Rod end male thread**



**Double clevis: CQ2D/CDQ2D**



**Rod end male thread**



**Rod Flange**

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ	L	L <sub>1</sub>	M
		A	B	A	B								
63	10 to 50	54	36	64	46	9	9	80	92	108	18	43.5	60
	75, 100	64	46										
80	10 to 50	63.5	43.5	73.5	53.5	11	11	99	116	134	20	53.5	77
	75, 100	73.5	53.5										
100	10 to 50	75	53	85	63	11	11	117	136	154	22	53.5	94
	75, 100	85	63										

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch	
		A	B	A	B
63	10 to 50	63		73	
	75, 100	73			
80	10 to 50	74.5		84.5	
	75, 100	84.5			
100	10 to 50	86		96	
	75, 100	96			

\* The dimensions except A are the same as those of the rod flange.

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Double Clevis**

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU	CW	CX
		A	B	CL	A	B	CL					
63	10 to 50	98	36	84	108	46	94	14	8	20	30	22
	75, 100	108	46	94								
80	10 to 50	119.5	43.5	101.5	129.5	53.5	111.5	18	10	27	38	28
	75, 100	129.5	53.5	111.5								
100	10 to 50	142	53	120	152	63	130	22	13	31	45	32
	75, 100	152	63	130								

Double clevis bracket material: Cast iron  
Surface treatment: Painted

Bore size (mm)	Stroke range (mm)	CZ	L	L <sub>1</sub>	N	RR
63	10 to 50	44	18	43.5	M10 x 1.5	14
	75, 100					
80	10 to 50	56	20	53.5	M12 x 1.75	18
	75, 100					
100	10 to 50	64	22	53.5	M12 x 1.75	22
	75, 100					

\* For details about the rod end nut and accessory brackets, refer to page 804.  
\* Double clevis pin and retaining rings are included.

**CJ**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

Technical data



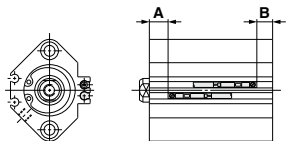
# Compact Cylinder Series **CDQ2** With Auto Switch 1

## 1 Auto Switch Proper Mounting Position (Detection at Stroke End) and its Mounting Height

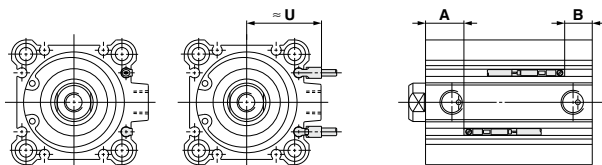
Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□□-□S/-□T (Single acting), CDQ2, CDQ2W (Large bore size), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)

D-M9□  
D-M9□W  
D-M9□A  
D-A9□V  
D-M9□V  
D-M9□WV  
D-M9□AV  
D-A9□

ø12 to ø25



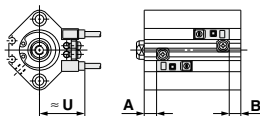
ø32 to ø200



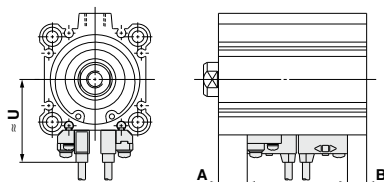
D-A7□  
D-A80  
D-A7□H  
D-A80H  
D-F7□  
D-J79  
D-F7□W  
D-J79W  
D-F79F

D-F7NT  
D-F7BA  
D-A73C  
D-A80C  
D-J79C  
D-A79W  
D-F7□WV  
D-F7□V  
D-F7BAV

ø12 to ø25

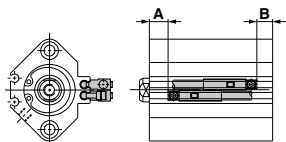


ø32 to ø160

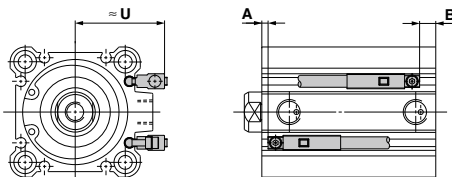


D-P3DWA

ø25



ø32 to ø100



### Auto Switch Proper Mounting Position

#### Applicable Cylinder Series: CDQ2 (Double acting, Single rod)

(mm)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
12	7.5	8.5	3.5	4.5	4.5	5.5	5	6	10	11	2	3	—	—
16	10.5	8	6.5	4	7.5	5	8	5.5	13	10.5	5	2.5	—	—
20	10.5	9	6.5	5	7.5	6	8	6.5	13	11.5	5	3.5	—	—
25	11	9.5	7	5.5	8	6.5	8.5	7	13.5	12	5.5	4	5	3.5
32	12	9	8	5	9	6	9.5	6.5	14.5	11.5	6.5	3.5	7.5	4.5
40	16	11.5	12	7.5	13	8.5	13.5	9	18.5	14	10.5	6	11.5	7
50	14	14.5	10	10.5	11	11.5	11.5	12	16.5	17	8.5	9	9.5	10
63	16.5	17.5	12.5	13.5	13.5	14.5	14	15	19	20	11	12	12	13
80	19.5	22	15.5	18	16.5	19	17	19.5	22	24.5	14	16.5	15	17.5
100	24	27	20	23	21	24	21.5	24.5	26.5	29.5	18.5	21.5	19.5	22.5

#### Applicable Cylinder Series: CDQ2W (Double acting, Double rod)

(mm)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
12	7.5	13	3.5	9	4.5	10	5	10.5	10	15.5	2	7.5	—	—
16	10.5	13.5	6.5	9.5	7.5	10.5	8	11	13	16	5	8	—	—
20	10.5	15.5	6.5	11.5	7.5	12.5	8	13	13	18	5	10	—	—
25	11	16	7	12	8	13	8.5	13.5	13.5	18.5	5.5	10.5	5	10
32	12	16.5	8	12.5	9	13.5	9.5	14	14.5	19	6.5	11	7.5	12
40	16	22	12	18	13	19	13.5	19.5	18.5	24.5	10.5	16.5	11.5	17.5
50	14	24.5	10	20.5	11	21.5	11.5	22	16.5	27	8.5	19	9.5	20
63	16.5	23.5	12.5	19.5	13.5	20.5	14	21	19	26	11	18	12	19
80	19.5	29.5	15.5	25.5	16.5	26.5	17	27	22	32	14	24	15	25
100	24	34.5	20	30.5	21	31.5	21.5	32	26.5	37	18.5	29	19.5	30

#### Applicable Cylinder Series: CDQ2□□□-□S/-□T (Single acting)

(mm)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W	
	A	B	A	B	A	B	A	B	A	B	A	B
12	7.5	8.5 (13)	3.5	4.5 (9)	4.5	5.5 (10)	5	6 (10.5)	10	11 (15.5)	2	3 (7.5)
16	10.5 (8.5)	8 (10)	6.5 (4.5)	4 (6)	7.5 (5.5)	5 (7)	8 (6)	5.5 (7.5)	13 (11)	10.5 (12.5)	5 (3)	2.5 (4.5)
20	10.5	9	6.5	5	7.5	6	8	6.5	13	11.5	5	3.5
25	11	9.5	7	5.5	8	6.5	8.5	7	13.5	12	5.5	4
32	12	9	8	5	9	6	9.5	6.5	14.5	11.5	6.5	3.5
40	16	11.5	12	7.5	13	8.5	13.5	9	18.5	14	10.5	6
50	14	14.5	10	10.5	11	11.5	11.5	12	16.5	17	8.5	9

( ) : Spring extend type

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

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CDQ-Z

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Technical data

# Compact Cylinder Series **CDQ2** With Auto Switch 2

## 1 Auto Switch Proper Mounting Position (Detection at Stroke End) and its Mounting Height

### Auto Switch Proper Mounting Position

#### Applicable Cylinder Series: CDQ2, CDQ2W (Large bore size)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C D-F7□/F7□V D-F79F/F7□W D-F7□WV/J79 D-J79W/J79C D-F7BA D-F7BAV		D-A79W		D-F7NT	
	A	B	A	B	A	B	A	B	A	B	A	B
Bore size	A	B	A	B	A	B	A	B	A	B	A	B
125	34	34	30	30	32.5	32.5	33	33	30	30	38	38
140	34	34	30	30	32.5	32.5	33	33	30	30	38	38
160	38	38	34	34	36.5	36.5	37	37	34	34	42	42
180	44.5	44.5	40.5	40.5	—	—	—	—	—	—	—	—
200	47.5	47.5	43.5	43.5	—	—	—	—	—	—	—	—

#### Applicable Cylinder Series: CDQ2 (Long stroke)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bore size	A	B	A	B	A	B	A	B	A	B	A	B	A	B
32	12.5	20.5	8.5	16.5	9.5	17.5	10	18	15	23	7	15	8	16
40	16	26.5	12	22.5	13	23.5	13.5	24	18.5	29	10.5	21	11.5	22
50	14	29.5	10	25.5	11	26.5	11.5	27	16.5	32	8.5	24	9.5	25
63	16.5	28.5	12.5	24.5	13.5	25.5	14	26	19	31	11	23	12	24
80	19.5	34.5	15.5	30.5	16.5	31.5	17	32	22	37	14	29	15	30
100	22.5	41	18.5	37	19.5	38	20	38.5	25	43.5	17	35.5	18	36.5

#### Applicable Cylinder Series: CDQ2K (Non-rotating rod)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bore size	A	B	A	B	A	B	A	B	A	B	A	B	A	B
12	12.5	8.5	8.5	4.5	9.5	5.5	10	6	15	11	7	3	—	—
16	15.5	8	11.5	4	12.5	5	13	5.5	18	10.5	10	2.5	—	—
20	18.5	9	14.5	5	15.5	6	16	6.5	21	11.5	13	3.5	—	—
25	19	9.5	15	5.5	16	6.5	16.5	7	21.5	12	13	4	13	3.5
32	21	9	17	5	18	6	18.5	6.5	23.5	11.5	15.5	3.5	16.5	4.5
40	16	11.5	12	7.5	13	8.5	13.5	9	18.5	14	10.5	6	11.5	7
50	14	14.5	10	10.5	11	11.5	11.5	12	16.5	17	8.5	9	9.5	10
63	16.5	17.5	12.5	13.5	13.5	14.5	14	15	19	20	11	12	12	13

#### Applicable Cylinder Series: CDQ2KW

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bore size	A	B	A	B	A	B	A	B	A	B	A	B	A	B
12	13	13	9	9	9.5	10	10	10.5	15	15.5	7.5	7.5	—	—
16	15.5	13.5	11.5	9.5	12.5	10.5	13	11	18	16	10	8	—	—
20	18.5	15.5	14.5	11.5	15.5	12.5	16	13	21	18	13	10	—	—
25	19	16	15	12	16	13	16.5	13.5	21.5	18.5	13.5	10.5	13	10
32	21	16.5	17	12.5	18	13.5	18.5	14	23.5	19	15.5	11	16.5	12
40	16	22	12	18	13	19	13.5	19.5	18.5	24.5	10.5	16.5	11.5	17.5
50	14	24.5	10	20.5	11	21.5	11.5	22	16.5	27	8.5	19	9.5	20
63	16.5	23.5	12.5	19.5	13.5	20.5	14	21	19	26	11	18	12	19

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

**Applicable Cylinder Series: CDQ2□S (Anti-lateral load)**

(mm)

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-A73 D-A80		D-A72/A7□H/A80H D-A73C/A80C/F7□ D-F79F/J79/F7□V D-J79C/F7□W D-J79W/F7□WV D-F7BAV/F7BA		D-F7NT		D-A79W		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
32	18	13	14	9	15	10	15.5	10.5	20.5	15.5	12.5	7.5	13.5	8.5
40	21.5	16	17.5	12	18.5	13	19	13.5	24	18.5	16	10.5	17	11.5
50	19	19.5	15	15.5	16	16.5	16.5	17	21.5	22	13.5	14	14.5	15
63	21.5	22.5	17.5	18.5	18.5	19.5	19	20	24	25	16	17	17	18
80	24.5	27	20.5	23	21.5	24	22	24.5	27	29.5	19	21.5	20	22.5
100	27.5	33.5	23.5	29.5	24.5	30.5	25	31	30	36	22	28	23	29

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

**Applicable Cylinder Series: CDQ2□R/□V (Water resistant)**

(mm)

Auto switch model	D-M9□A D-M9□AV		D-F7BA D-F7BAV	
	A	B	A	B
20	19	7.5	18	6.5
25	19.5	8	18	7
32	22	9	19.5	6.5
40	16	11.5	13.5	9
50	14	14.5	11.5	12
63	16.5	17.5	14	15
80	19.5	22	17	19.5
100	24	27	21.5	24.5

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

**Auto Switch Mounting Height**

**Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□-□S/□T (Single acting), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)**

(mm)

Auto switch model	D-M9□V	D-A9□V	D-F7□J79 D-F7□W/J79W D-F7BA D-F79F/F7NT D-A7□H/A80H	D-F7□V D-F7□WV	D-J79C	D-A7□ D-A80	D-A73C D-A80C	D-A79W	D-P3DWA
	U	U	U	U	U	U	U	U	U
12	21.5	19	21.5	23.5	26.5	21	27.5	24.5	—
16	22.5	20	22.5	24.5	27.5	22	28.5	25.5	—
20	25	23	25.5	27.5	30	24.5	31	28	—
25	28	26	28	30.5	32.5	27.5	34	31	33.5
32	30	27.5	36	36.5	39.5	34	40.5	37.5	35.5
40	32	30	38	40	42.5	37.5	43.5	40.5	38
50	37.5	35	43.5	45	48	43	49	46	43
63	42.5	40.5	48.5	50.5	53.5	48	54.5	51.5	48
80	51	49	57	59	61.5	56.5	62.5	59.5	56.5
100	59	57	65.5	67	70	64.5	71	68	65

\* The applicable auto switches for the CDQ2□R/□V (water resistant) are the D-M9□A(V) type.

\* The applicable auto switches for the CDQ2□□□-□S/□T (single acting) are those except for the D-P3DW type.

\* The D-P3DW type is available from ø32 to ø100.

**Applicable Cylinder Series: CDQ2, CDQ2W (Large bore size)**

(mm)

Auto switch model	D-M9□V D-M9□WV D-M9□AV		D-A9□V	D-A7□ D-A80	D-A7□H/A80H D-F7□J79 D-F7□W/J79W D-F7BA D-F79F/F7NT	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAV	D-J79C	D-A79W
	U		U	U	U	U	U	U	U
125	69.5		67.5	75.5	76.5	82.5	79	81	78
140	76.5		74.5	82.5	83.5	89.5	86	88	85
160	85.5		83.5	91.5	92.5	98.5	95	97	94
180	105.5		103.5	—	—	—	—	—	—
200	112.5		110.5	—	—	—	—	—	—

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Technical data

# Compact Cylinder Series **CDQ2** With Auto Switch 3

## 2 Minimum Stroke for Auto Switch Mounting

Applicable Cylinder Series: **CDQ2, CDQ2W, CDQ2□□□-□S/□T (Single acting), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)**

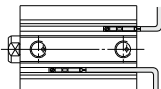
Number of auto switches	D-M9□V D-F7□V D-J79C	D-A9□V D-A7□ D-A80 D-A73C D-A80C	D-A9□	D-M9□WV D-M9□AV* D-F7□WV D-F7BAV	D-M9□ D-F7□ D-J79	D-M9□W D-M9□A*	D-A7□H D-A80H	D-A79W	D-F7□W D-J79W D-F7BA D-F79F D-F7NT	D-P3DWA
	With 1 pc.	5	5	10(5)	10	15(5)	15(10)	15(5)	15	20(10)
With 2 pcs.	5	10	10	15	15(5)	15	15(10)	20	20(15)	15

\* The applicable auto switches for the CDQ2□R/□V (water resistant) are the D-M9□A(V) type.

Applicable Cylinder Series: **CDQ2, CDQ2W (Large bore size)**

Number of auto switches	D-M9□ D-M9□V D-F7□ D-F7□V D-J79 D-J79C	D-A9□ D-A9□V D-A7□ D-A80 D-A73C D-A80C D-A7□H D-A80H	D-M9□W D-M9□WV D-M9□A D-M9□AV	D-F7□W D-F7□WV D-J79W D-F7BA D-F7BAV D-F7NT D-F79F	D-A79W
	With 1 pc.	5	5	10	15
With 2 pcs.	5	10	15	20	20

Note) The dimension stated in ( ) shows the minimum stroke for the auto switch mounting when the auto switch does not project from the end surface of the cylinder body and hinder the lead wire bending space. (Refer to the figure below.)  
The auto switch and auto switch mounting bracket are ordered separately.



## 3 Operating Range

Applicable Cylinder Series: **CDQ2, CDQ2W, CDQ2□□□-□S/□T (Single acting), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)**

Auto switch model	Bore size														
	12	16	20	25	32	40	50	63	80	100	125	140	160	180	200
D-M9□(V) D-M9□W(V) D-M9□A(V)*	3	5	5.5	5.5	5	5	6	6.5	7	7.5	7.5	8	7.5	7.5	8.5
D-A9□(V)	7.5	9.5	10	9	9	9.5	9.5	11	10.5	10.5	13.5	12.5	12	13	12.5
D-A7□(H)(C) D-A80□(H)(C)	9.5	12	12	11	10.5	11.5	11	13	11.5	11.5	16.5	15	14.5	—	—
D-A79W	13	14.5	15.5	14	14	15.5	14.5	17	15	15.5	19.5	18	17.5	—	—
D-F7□(V) D-J79(C) D-F7□W(V) D-F7BA(V) D-F7NT D-F79F	4.5	5.5	5	5	5	5	5	6	7	8	7.5	7.5	7.5	—	—
D-P3DWA	—	—	—	5.5	6	6	7	7.5	7.5	7.5	—	—	—	—	—



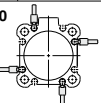

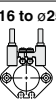
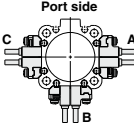

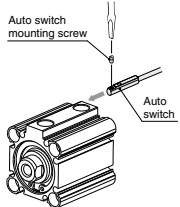
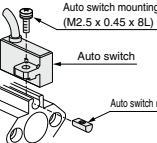
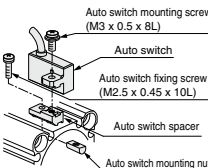
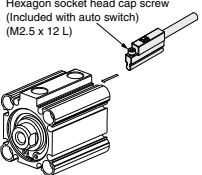
\* Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

\* The applicable auto switches for the CDQ2□R/□V (water resistant) are the D-M9□A(V) type.

\* The applicable auto switches for the CDQ2□□□-□S/□T (single acting) are those except for the D-P3DW type.

**4 Auto Switch Mounting Brackets/Part No.**

Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□-□S/□T (Single acting), CDQ2, CDQ2W (Large bore size), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)

Applicable auto switch	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V	D-F7□/F7□V/J79/J79C/F7□W/J79W/F7□WV D-F7BA/F7BAV/F79F/F7NT D-A7□/A80/A7□H/A80H/A73C/A80C/A79W	D-P3DWA									
Bore size (mm)	φ12 to φ200	φ12 to φ25	φ32 to φ160	φ32 to φ100								
Auto switch mounting bracket part no.	—	BQ4-012	BQ5-032	—								
Auto switch mounting bracket fitting parts lineup/Weight	—	<ul style="list-style-type: none"> <li>Auto switch mounting screw (M2.5 x 8L)</li> <li>Auto switch mounting nut Weight: 1.5 g</li> </ul>	<ul style="list-style-type: none"> <li>Auto switch fixing screw (M2.5 x 10L)</li> <li>Auto switch mounting screw (M3 x 8L)</li> <li>Auto switch spacer</li> <li>Auto switch mounting nut Weight: 3.5 g</li> </ul>	—								
When requesting the enclosure of the auto switch mounting brackets (2 pcs.) with the cylinder for shipment, add "BQ" to the end of the cylinder model number. Standard model no. +BQ Example) CDQ2B32-30DZ-BQ/CDQ2B32-30DZ-BQ-XC4 (Made to Order)												
Auto switch mounting surface	Surfaces with auto switch mounting slot φ12  φ16 to φ25  φ32 to φ200 	Auto switch mounting rail side only φ12  φ16 to φ25 	A/B/C side except port side 	Surfaces with auto switch mounting slot 								
Mounting of auto switch	 <p>Auto switch mounting screw</p> <p>Auto switch</p> <p>When tightening the auto switch mounting screw, use a watchmakers' screwdriver with a handle 5 to 6 mm in diameter.</p> <p><b>Tightening torque for auto switch mounting screw (N·m)</b></p> <table border="1"> <thead> <tr> <th>Auto switch model</th> <th>Tightening torque</th> </tr> </thead> <tbody> <tr> <td>D-M9□(V)</td> <td rowspan="2">0.05 to 0.15</td> </tr> <tr> <td>D-M9□W(V)</td> </tr> <tr> <td>D-M9□A(V)</td> <td rowspan="2">0.10 to 0.20</td> </tr> <tr> <td>D-A9□(V)</td> </tr> </tbody> </table>	Auto switch model	Tightening torque	D-M9□(V)	0.05 to 0.15	D-M9□W(V)	D-M9□A(V)	0.10 to 0.20	D-A9□(V)	<ol style="list-style-type: none"> <li>Insert the nut into the auto switch mounting slot on the cylinder tube, and place it in the roughly estimated setting position.</li> <li>Engage the ridge on the auto switch mounting nut through the recess in the cylinder tube rail, and slide it to the position of the nut.</li> <li>Gently screw the auto switch mounting screw into the thread of the auto switch mounting nut through the mounting hole on the auto switch mounting arm.</li> <li>Confirm where the mounting position is, and tighten the auto switch mounting screw to fix the auto switch. The tightening torque of the M2.5 screw must be 0.25 to 0.35 N·m.</li> <li>The detection position can be changed under the conditions in step ③.</li> </ol>  <p>Auto switch mounting screw (M2.5 x 0.45 x 8L)</p> <p>Auto switch</p> <p>Auto switch mounting nut</p>	<ol style="list-style-type: none"> <li>Insert the nut into the auto switch mounting slot on the cylinder tube, and place it in the roughly estimated setting position.</li> <li>With the lower tapered part of the auto switch spacer facing the outside of the cylinder tube, line up the M2.5 through hole with the M2.5 female thread of the auto switch mounting nut.</li> <li>Gently screw the auto switch mounting nut fixing screw (M2.5) into the thread of the auto switch mounting nut through the mounting hole.</li> <li>Engage the ridge on the auto switch mounting arm with the recess in the auto switch spacer.</li> <li>Tighten the auto switch mounting screw (M3) to fix the auto switch. The tightening torque of the M3 screw must be 0.35 to 0.45 N·m.</li> <li>Confirm where the mounting position is, and tighten the auto switch fixing screw (M2.5) to fix the auto switch mounting nut. The tightening torque of the M2.5 screw must be 0.25 to 0.35 N·m.</li> <li>The detection position can be changed under the conditions in step ⑤.</li> </ol>  <p>Auto switch mounting screw (M3 x 0.5 x 8L)</p> <p>Auto switch</p> <p>Auto switch fixing screw (M2.5 x 0.45 x 10L)</p> <p>Auto switch spacer</p> <p>Auto switch mounting nut</p>	<ol style="list-style-type: none"> <li>Insert the mounting bracket into the mating groove of the cylinder tube.</li> <li>Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (M2.5 x 12 L).*</li> <li>If the detecting position is changed, go back to step ①.</li> </ol> <p>Note 1) Ensure that the auto switch is covered with the mating groove to protect the auto switch.</p> <p>Note 2) The tightening torque for the hexagon socket head cap screw (M2.5 x 12 L) is 0.2 to 0.3 N·m.</p>  <p>Hexagon socket head cap screw (Included with auto switch) (M2.5 x 12 L)</p>
Auto switch model	Tightening torque											
D-M9□(V)	0.05 to 0.15											
D-M9□W(V)												
D-M9□A(V)	0.10 to 0.20											
D-A9□(V)												

Note) Auto switch mounting bracket and auto switch are enclosed with the cylinder for shipment. For an environment that needs the water resistant auto switch, select the D-M9□A(V) type.  
 \* Auto switch mounting bracket for the D-F7BA(V) type uses BQ4-012 and BQ5-032 normal specifications (metal screw).  
 \* The auto switches applicable to the CDQ2□R/□V (water resistant) is the D-M9□A(V) type.  
 \* The applicable auto switches for the CDQ2□□□-S/□T (single acting) are those except for the D-P3DW type.

CUJ  
CU  
CQS  
CDQ2-Z  
RQ  
CQM  
CQU  
MU-Z

D-□  
-X□  
Technical data

# Compact Cylinder Series **CDQ2** With Auto Switch 4

Other than the applicable auto switches listed in “How to Order”, the following auto switches are mountable. Refer to pages 1559 to 1673 for detailed specifications.

Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□□-□S/-□T (Single acting), CDQ2, CDQ2W (Large bore size), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load)

Auto switch type	Model	Electrical entry	Features	Applicable bore size
Reed	D-A72	Grommet (Perpendicular)	—	ø12 to ø100 ø125 to ø160
	D-A73		—	
	D-A80		Without indicator light	
	D-A79W	Connector (Perpendicular)	Diagnostic indication (2-color indication)	
	D-A73C		—	
	D-A80C		Without indicator light	
	D-A72H	Grommet (In-line)	—	
	D-A73H, A76H		—	
	D-A80H		Without indicator light	
Solid state	D-F7NV, F7PV, F7BV	Grommet (Perpendicular)	—	
	D-F7NWW, F7BWW		Diagnostic indication (2-color indication)	
	D-F7BAV		Water resistant (2-color indication)	
	D-J79C	Connector (Perpendicular)	—	
	D-F79, F7P, J79		—	
	D-F79W, F7PW, J79W		Diagnostic indication (2-color indication)	
	D-F7BA	Grommet (In-line)	Water resistant (2-color indication)	
	D-F79F		Diagnostic indication (2-color indication)	
	D-F7NT		With timer	

\* With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1626 and 1627.

\* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to page 1577.

\* Trimmer auto switch (D-F7K) and heat resistant solid state auto switch (D-F7NJ) are not available.

### 1 Special Port Location

This style is available for changing port location. (Only for auto switches  $\phi 12$  to  $\phi 25$ )

#### How to Order

CDQ2 Standard model no. — X144 B

Special port location

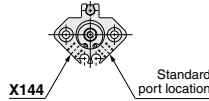
In the case of CDQ2□20, 25,  
specify the port location with  
B, C and D.

\* Specifications: Same as standard

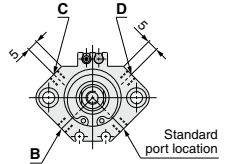
#### Applicable model

Action	Note
Double acting, Single rod	Applicable to $\phi 12$ to $\phi 25$
Double acting, Double rod	
Single acting (Spring return/extend)	

$\phi 12, \phi 16$



$\phi 20, \phi 25$





**2 Full Length Dimension is the Same as the CQ1 Series.**

C□Q2 [Mounting] [Bore size] — [Stroke] [Action] [Option] (Z) — X202

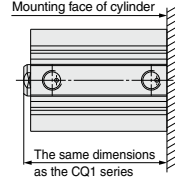
In a single rod cylinder of the CQ2 series, the A dimension (from the head face to the rod end) and the rod end female thread size are the same as those of the CQ1 series (former model).

\* Specifications: Same as standard

**Applicable Model**

Action		Note
Single rod	Double acting (Rubber bumper)	Applicable to ø12, ø20, ø32, ø40, ø50, ø63, ø80, ø100
	Single acting (Spring return/ Spring extend)	Applicable to ø12, ø20, ø32, ø40, ø50

Note 1) ø16 and ø25 are the new models so that they are not applicable.  
Note 2) Strokes except mentioned below are available as standard products.

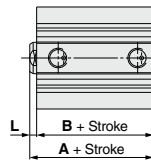
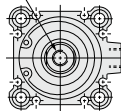


**Dimensions (Without auto switch)**

**Double acting,**

**Single rod: Female thread**

H thread effective depth C



Symbol	Bore size		ø12		ø20		ø32		ø40		ø50		ø63		ø80		ø100		
	Stroke (mm)																		
<b>A</b>	25.5	23(25)	28	31.5	33	38	34	30.5	35.5	36	41	43.5	48.5	53	58				
<b>B</b>	22	19.5	24.5	23	28	29.5	34.5	30.5	35.5	36	41	43.5	48.5	53	58				
<b>L</b>	3.5	3.5 (5.5)	3.5	3.5 (5.5)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5				
<b>H</b>	M3 x 0.5	M5 x 0.8	M6 x 1.0*	M6 x 1.0*	M8 x 1.25*	M10 x 1.5	M16 x 2.0	M20 x 2.5											
<b>C</b>	6	7	9*	11*	13*	15	21	27											

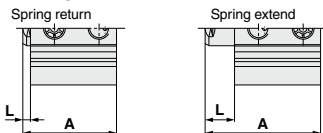
Note) ( ): Stroke 10 mm \* The H/C dimensions of ø32, ø40 and ø50 are different from those of the new CQ2 series model.

**75 st, 100 st**

Symbol	Bore size		ø32		ø40		ø50		ø63		ø80		ø100	
	Stroke													
<b>A</b>	36.5	43	44	49.5	57	66.5								
<b>B</b>	33	39.5	40.5	46	53.5	63								
<b>L</b>	3.5	3.5	3.5	3.5	3.5	3.5								

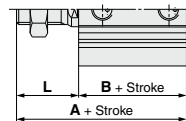
Note) The H/C dimensions are the same as above.

**Single acting**



Action	Bore size		ø20		ø32		ø40		ø50	
	Stroke									
Single acting	<b>A</b>	28	35	31.5	38.5	38	43	44	54	
Spring return	<b>L</b>	3.5	5.5	3.5	5.5	3.5			3.5	
Single acting	<b>A</b>	33	45	36.5	48.5	43	53	54	74	
Spring extend	<b>L</b>	8.5	15.5	8.5	15.5	8.5	13.5	13.5	23.5	

**Double acting: Rod end male thread**



Symbol	Bore size		ø12		ø20		ø32		ø40		ø50		ø63		ø80		ø100	
	Stroke																	
<b>A</b>	36	40	43	53.5	56.5	63	69	74.5	92	101.5								
<b>B</b>	22	19.5	24.5	23	28	34.5	35.5	41	48.5	58								
<b>L</b>	14	20.5	18.5	30.5	28.5	28.5	33.5	33.5	43.5	43.5								

CJU

CU

CQS

CQ2-Z

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Series CQ2

## Made to Order: Individual Specifications 2

Please contact SMC for detailed dimensions, specifications, and lead times.

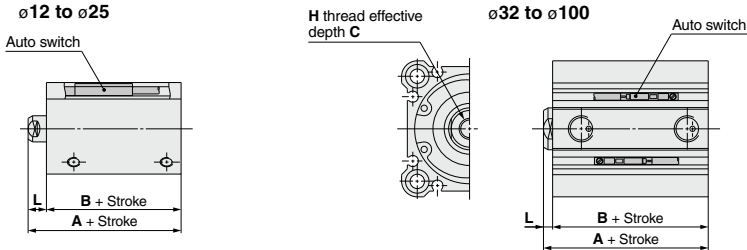


### 2 Full Length Dimension is the Same as the CQ1 Series.

Symbol  
-X202

#### Dimensions (With auto switch)

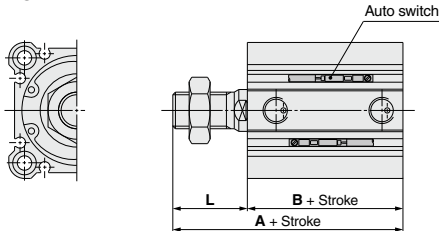
Double acting, Single rod: Female thread



Symbol	Bore size		ø12		ø20		ø32		ø40		ø50		ø63		ø80		ø100	
	Stroke (mm)		15, 25	5, 10, 20, 30, 40, 50	15, 25, 35, 45	10, 20, 30, 40, 50, 75, 100	5, 15, 25, 35, 45	10, 20, 30, 40, 50, 75, 100	5, 15, 25, 35, 45	10, 20, 30, 40, 50, 75, 100	15, 25, 35, 45	10, 20, 30, 40, 50, 75, 100	15, 25, 35, 45	10, 20, 30, 40, 50, 75, 100	15, 25, 35, 45	10, 20, 30, 40, 50, 75, 100	15, 25, 35, 45	10, 20, 30, 40, 50, 75, 100
<b>A</b>	36.5	38.5	43.5	36.5	41.5	43	48	44	49	49.5	54.5	57	62	66.5	71.5			
<b>B</b>	33	31.5	36.5	33	38	39.5	44.5	40.5	45.5	46	51	53.5	58.5	63	68			
<b>L</b>	3.5	7	7	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5			
<b>H</b>	M3 x 0.5	M5 x 0.8	M6 x 1.0*	M6 x 1.0*	M6 x 1.0*	M8 x 1.25*	M10 x 1.5	M16 x 2.0	M20 x 2.5									
<b>C</b>	6	7	9*	11*	13*													

\* The H/C dimensions of ø32, ø40 and ø50 are different from those of the new CQ2 series model.

Double acting: Rod end male thread



Symbol	Bore size		ø12		ø20		ø32		ø40		ø50		ø63		ø80		ø100	
	Stroke (mm)		15, 25	5, 10, 20, 30, 40, 50	15, 25, 35, 45	5, 15, 25, 35, 45	5, 15, 25, 35, 45	15, 25, 35, 45	15, 25, 35, 45	15, 25, 35, 45	15, 25, 35, 45	15, 25, 35, 45	15, 25, 35, 45	15, 25, 35, 45	15, 25, 35, 45	15, 25, 35, 45		
<b>A</b>	47	53.5	58.5	66.5	73	79	84.5	102	111.5									
<b>B</b>	33	31.5	36.5	38	44.5	45.5	51	58.5	68									
<b>L</b>	14	22	22	28.5	28.5	33.5	33.5	43.5	43.5									

**3** L Dimension from Rod Cover is the Same as the CQ1 Series.

Symbol  
**-X203**

C□Q2 **Mounting** **Bore size** — 10 **Action** **Option** **Z** — X203

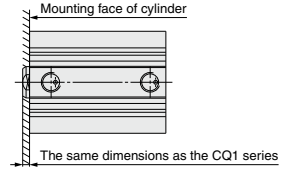
In a single rod cylinder of the CQ2 series, the L dimension (from the rod face to the rod end) and the rod end female thread size are the same as the CQ1 series (former model).

\* **Specifications: Same as standard**

**Applicable Model**

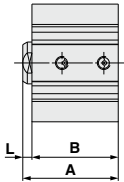
Action		Note
Single rod	Female thread	Double acting Rubber bumper Applicable to ø20, ø32, (ø40), (ø50), (ø63), (ø80), (ø100)
	Male thread	Single acting (Spring return, Spring extend) Applicable to ø20, ø32, (ø40), (ø50)
Male thread		Available as the standard, CQ2 series

Note 1) ø16 and ø25 are the new models so that they are not applicable.  
Note 2) ( ): Same dimensions as for those of -X202



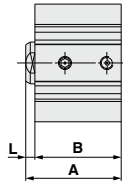
**Dimensions: Applicable to CQ2B<sup>20</sup><sub>32</sub>-10D(C)Z Only**

**Double acting, Single rod**



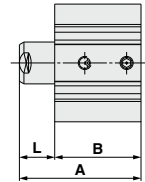
Symbol	Bore size	
	ø20	ø32
<b>A</b>	33	36.5
<b>B</b>	29.5	33
<b>L</b>	3.5	3.5

**Single acting, Spring return**



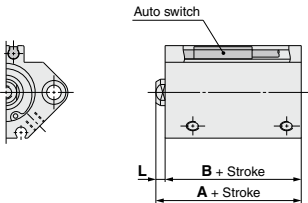
Symbol	Bore size	
	ø20	ø32
<b>A</b>	33	36.5
<b>B</b>	29.5	33
<b>L</b>	3.5	3.5

**Single acting, Spring extend**



Symbol	Bore size	
	ø20	ø32
<b>A</b>	43	46.5
<b>B</b>	29.5	33
<b>L</b>	13.5	13.5

**With Auto Switch: Applicable to CDQ2B-□D(C)Z Only**



Symbol	Bore size	
	ø20	
<b>A</b>	Stroke 5, 10	15, 25
	Stroke 20, 30	35, 45
<b>B</b>	Stroke 40, 50	35, 45
	Stroke 5, 10	15, 25
<b>L</b>	Stroke 20, 30	35, 45
	Stroke 40, 50	35, 45

**CUJ**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

Technical data

# Series CQ2

## Made to Order: Individual Specifications 3

Please contact SMC for detailed dimensions, specifications, and lead times.



Symbol

### 4 Special Rod End for Double Rod Cylinder

-X235

Male thread is used at one piston rod end of double rod cylinder and female thread is used at the other end.

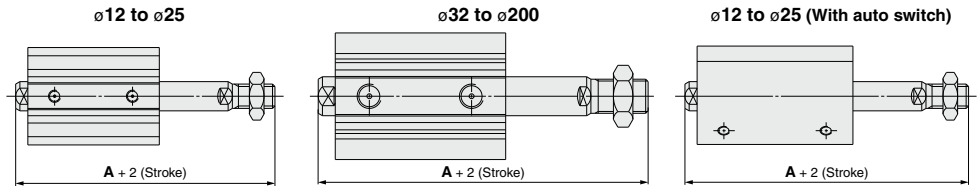
C□Q2W Standard model no. — X235

↓ Piston rod end  
Male thread, Female thread

Note 1) For mounting a bracket, please contact SMC.

Note 2) The body option symbol "M" (Rod end male thread) is excluded from the model number.

\* Specifications: Same as standard



Bore size (mm)	A	
	50 stroke or less	75 stroke or more
12	42.7 (49.9)	—
16	45 (55)	—
20	49 (61)	—
25	56.5 (66.5)	—
32	66 (76)	76 (76)
40	75.5 (85.5)	85.5 (85.5)
50	82 (92)	92 (92)
63	83.5 (93.5)	93.5 (93.5)
80	104.5 (114.5)	114.5 (114.5)
100	116 (126)	126 (126)
125	157	
140	157	
160	172	
180	183	
200	190	

Note ( ): Dimensions with auto switch

Symbol

### 5 Fluororubber Seals

-X271

Material for seals has been changed to fluororubber.

C□Q2 Standard model no. — X271

↓ Fluororubber seals

\* Specifications: Same as standard

\* All variations except non-rotating rod is available.

Only ø125 to ø160 is available for the large bore size type.

Note) With rubber bumper: There is no change of the bumper material.

Symbol

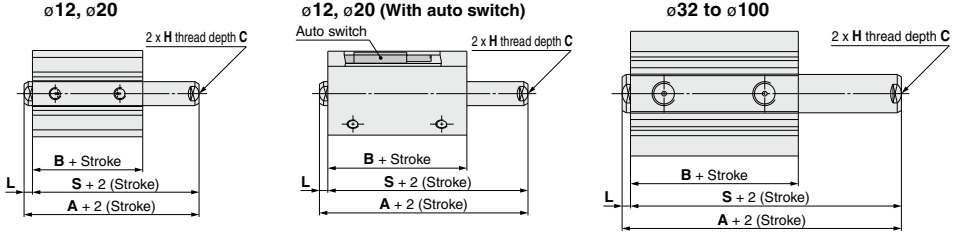
**6** Full Length Dimension is the Same as the CQ1W Series.

**-X293**

C□Q2W Standard model no. — X293

The same dimensions as the CQ1W ↓

\* Specifications: Same as standard



**Without Auto Switch**

Stroke (mm)	12		20		32			40		50		63		80		100			
	5	10	5	15	10, 20	30, 40	15	25	5, 10	20, 30	15	25	10, 20	30, 40	15	25	10, 20	30, 40	15
<b>A</b>	33	33	38	37	38	43	46.5	51.5	47.5	52.5	53	58	60.5	65.5	70	75			
<b>B</b>	25.2	26	31	30.5	30.5	35.5	40	45	40.5	45.5	42	47	51	56	60.5	65.5			
<b>L</b>	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5			
<b>S</b>	29.5	29.5	34.5	33.5	34.5	39.5	43	48	44	49	49.5	54.5	57	62	66.5	71.5			
<b>H</b>	M3 x 0.5	M5 x 0.8	M5 x 0.8	M6 x 1	M6 x 1	M6 x 1	M6 x 1	M6 x 1	M8 x 1.25	M8 x 1.25	M10 x 1.5	M10 x 1.5	M16 x 2	M16 x 2	M20 x 2.5	M20 x 2.5			
<b>C</b>	6	7	7	9	9	9	9	9	13	13	15	15	21	21	27	27			

**With Auto Switch**

Stroke (mm)	12		20		32		40		50		63		80		100	
	5	10	5	15	10	20	10	20	10	15	10	15	10	15	10	15
<b>A</b>	40	47	52	48	53	56.5	61.5	57.5	62.5	63	68	70.5	75.5	80	85	
<b>B</b>	32.4	38	43	40.5	45.5	50	55	50.5	55.5	52	57	61	66	70.5	75.5	
<b>L</b>	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
<b>S</b>	36	43.5	48.5	44.5	49.5	53	58	54	59	59.5	64.5	67	72	76.5	81.5	
<b>H</b>	M3 x 0.5	M5 x 0.8	M5 x 0.8	M6 x 1	M6 x 1	M6 x 1	M6 x 1	M8 x 1.25	M8 x 1.25	M10 x 1.5	M10 x 1.5	M16 x 2	M16 x 2	M20 x 2.5	M20 x 2.5	
<b>C</b>	6	7	7	9	9	9	9	13	13	15	15	21	21	27	27	

**CJU**

**CU**

**CQS**

**CQ2-Z**

**RQ**

**CQM**

**CQU**

**MU-Z**

**D-□**

**-X□**

Technical data

# Series CQ2

## Made to Order: Individual Specifications 4

Please contact SMC for detailed dimensions, specifications, and lead times.



### 7 Long Stroke of Adjustable Extension Stroke Cylinder (-XC8)

Symbol  
-X525

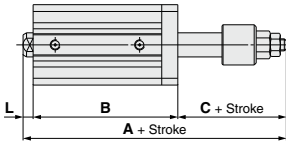
C□Q2 [Mounting] [Bore size] — [Stroke] D(M)(Z) — X525

↓ Long stroke of -XC8

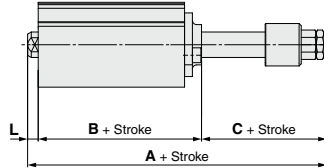
\* Specifications: Same as standard

(Note) For tap mounting (ø12 to ø25—without switch) and bracket mounting, please contact SMC.

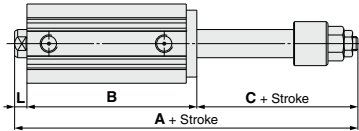
ø12 to ø25 (Without auto switch)



ø12 to ø25 (With auto switch)



ø32 to ø100



ø12, ø16

Bore size	A				B				C	L	Applicable stroke
	35st	40st	45st	50st	35st	40st	45st	50st			
12	99.9	104.9	109.9	114.9	72.4	77.4	82.4	87.4	24	3.5	35, 40
16	104.5	109.9	114.9	119.5	77	82	87	92	24	3.5	45, 50

ø20 to ø100

Bore size	A						B						C	L	Applicable stroke
	55 to 75st	80 to 100st	105 to 125st	130 to 150st	155 to 175st	180 to 200st	55 to 75st	80 to 100st	105 to 125st	130 to 150st	155 to 175st	180 to 200st			
20	155.5	180.5	—	—	—	—	122	147	—	—	—	—	29	4.5	55 to 100
25	156	181	—	—	—	—	122	147	—	—	—	—	29	5	
32	—	—	213.5	238.5	263.5	288.5	—	—	171.5	196.5	221.5	246.5	35	7	105 to 200
40	—	—	223	248	273	298	—	—	181	206	231	256	35	7	
50	—	—	235.5	260.5	285.5	310.5	—	—	183.5	208.5	233.5	258.5	44	8	
63	—	—	237	262	287	312	—	—	187	212	237	262	42	8	
80	—	—	260	285	310	335	—	—	198	223	248	273	52	10	
100	—	—	273.5	298.5	323.5	348.5	—	—	209.5	234.5	259.5	284.5	52	12	

Note 1) The dimensions are the same with or without auto switch.  
Note 2) Applicable stroke: Available in 5 mm intervals

**8 Long Stroke of Adjustable Retraction Stroke Cylinder (-XC9)**

Symbol  
**-X526**

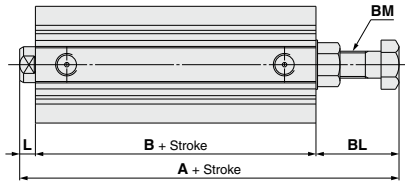
C□Q2 [Mounting] [Bore size] — [Stroke] D(M)(Z) — X526

Long stroke of -XC9 ↓

Note) For models with a bracket, please contact SMC.

\* Specifications: Same as standard

**Dimensions**



Bore size	Symbol	A	B	L	BL	BM	Applicable stroke
12	59.2 (56.4)	32.4	3.5	23.3 (20.5)	M5 x 0.8	35, 40, 45, 50	
16	64	37	3.5	23.5	M6 x 1.0		
20	74	39	4.5	30.5	M8 x 1.25		
25	73.5	39	5	29.5	M8 x 1.25	75, 100	
32	75.5	40.5	7	28	M8 x 1.25		
40	94	50	7	37	M12 x 1.5		
50	94.5	50.5	8	36	M12 x 1.5	125, 150	
63	98.5	52	8	38.5	M16 x 1.5	175, 200	
80	119.5	91	10	48.5	M20 x 1.5		
100	135	70.5	12	52.5	M24 x 1.5		

Note 1) ( ): Dimensions with auto switch

Note 2) Intermediate strokes (available in 5 mm intervals) are available with a spacer.

The dimensions are the same as those of 75, 100, 125, 150, 175, 200 mm strokes.

**9 Intermediate Stroke of Double Rod Cylinder**

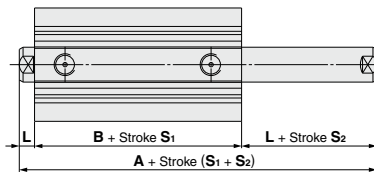
Symbol  
**-X633**

C□Q2W [Standard model no.] — X633

Note) For models with a bracket, please contact SMC.

\* Specifications: Same as standard

**Dimensions**



Bore size	Symbol	A	B	L	Stroke S <sub>1</sub>	Stroke S <sub>2</sub>
12	32.2 (39.4)	25.2 (32.4)	3.5	3.5	In the case of 5 to 30 stroke, 5 mm intervals	In the case of 5 to 30 stroke, 1 mm intervals
16	33 (43)	26 (36)	3.5	3.5		
20	35 (47)	26 (38)	4.5	4.5	In the case of 5 to 50 stroke, 5 mm intervals	In the case of 5 to 50 stroke, 1 mm intervals
25	39 (49)	29 (39)	5	5		
32	44.5 (54.5)	30.5 (40.5)	7	7	In the case of 5 to 50 stroke, 5 mm intervals In the case of 50 to 100 stroke, 25 mm intervals	In the case of 5 to 100 stroke, 1 mm intervals
40	54 (64)	40 (50)	7	7		
50	56.5 (66.5)	40.5 (50.5)	8	8	In the case of 10 to 50 stroke, 5 mm intervals	
63	58 (68)	42 (52)	8	8	In the case of 50 to 100 stroke, 25 mm intervals	In the case of 10 to 100 stroke, 1 mm intervals
80	71 (81)	51 (61)	10	10		
100	84.5 (94.5)	60.5 (70.5)	12	12		
125	115	83	16	16	In the case of 10 to 50 stroke, 10 mm intervals	
140	115	83	16	16		
160	125	91	17	17	In the case of 50 to 200 stroke, 25 mm intervals	In the case of 10 to 300 stroke, 1 mm intervals
180	136	102	17	17		
200	143	109	17	17	In the case of 200 to 300 stroke, 50 mm intervals	

Note 1) ( ): Dimensions with auto switch

Note 2) Installing a spacer inside the standard cylinder tube, stroke S<sub>1</sub> has 5 mm intervals for controlling intermediate strokes in 1 mm intervals.

Example) In the case of CDQ2WB40-18DZ, stroke S<sub>1</sub> is 20 mm and stroke S<sub>2</sub> is 18 mm.

Note 3) For ø40 to ø100 cylinders with bumper, please consult with SMC.

CUJ

CU

CQS

CQZ

RQ

CQM

CQU

MU-Z

D-□

-X□

Technical data

# Series CQ2

## Made to Order: Individual Specifications 5

Please contact SMC for detailed dimensions, specifications, and lead times.



### 10 Long Stroke of Dual Stroke Single Rod Cylinder

Symbol  
**-X636**

C□Q2B Bore size - Stroke S<sub>1</sub> + Stroke S<sub>2</sub>-S<sub>1</sub> D (C)(M)(Z) - X636

\* Specifications: Same as standard

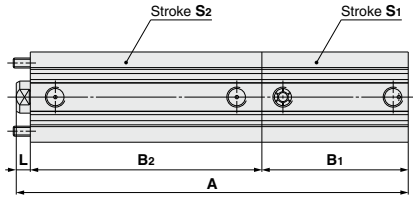
Long stroke of -XC11

#### Applicable Stroke (mm)

Bore size	Stroke
ø12, ø16	Stroke S <sub>2</sub> : Up to 50 mm
ø20 to ø100	Stroke S <sub>2</sub> : Up to 100 mm

Note) For tap mounting and bracket mounting, please contact SMC.

### Series CQ2



#### Bore Size: ø12, ø16 (mm)

Symbol Bore size	A	B <sub>1</sub>	B <sub>2</sub>	L	Stroke range	
					S <sub>1</sub>	S <sub>2</sub>
ø12	52.9 (63.9) + Stroke (S <sub>1</sub> + S <sub>2</sub> )	17 (28) + Stroke S <sub>1</sub>	32.4 + Stroke S <sub>2</sub>	3.5	5 to 30	35 to 50
ø16	58 (70) + Stroke (S <sub>1</sub> + S <sub>2</sub> )	18.5 (30.5) + Stroke S <sub>1</sub>	36 + Stroke S <sub>2</sub>	3.5	5 to 30	35 to 50

#### Bore Size: ø20, ø25 (mm)

Symbol Bore size Stroke	A		B <sub>1</sub>	B <sub>2</sub>		L	Stroke range	
	Stroke S <sub>2</sub>			Stroke S <sub>2</sub>			S <sub>1</sub>	S <sub>2</sub>
	≤ 55	80 to 100		55 to 75	80 to 100			
ø20	137 (149) + Stroke S <sub>1</sub>	162 (174) + Stroke S <sub>1</sub>	19.5 (31.5) + Stroke S <sub>1</sub>	113	138	4.5	5 to 50	55 to 100
ø25	141.5 (151.5) + Stroke S <sub>1</sub>	166.5 (176.5) + Stroke S <sub>1</sub>	22.5 (32.5) + Stroke S <sub>1</sub>	114	139	5	5 to 50	55 to 100

#### Bore Size: ø32 to ø100 (mm)

Symbol Bore size Stroke	A				B <sub>1</sub>			B <sub>2</sub>		L	Stroke range		
	Stroke S <sub>2</sub> 55 to 75		Stroke S <sub>2</sub> 80 to 100		Stroke S <sub>1</sub>			Stroke S <sub>2</sub>			S <sub>1</sub>	S <sub>2</sub>	
	Stroke S <sub>1</sub>	Stroke S <sub>1</sub>	Stroke S <sub>1</sub>	Stroke S <sub>1</sub>	Stroke S <sub>1</sub>	Stroke S <sub>1</sub>	Stroke S <sub>1</sub>	Stroke S <sub>2</sub>	Stroke S <sub>2</sub>				
ø32	≤ 55	55 to 75	≤ 50	55 to 75	80 to 100	≤ 50	55 to 75	80 to 100	55 to 75	80 to 100	7	5 to 100	55 to 100
ø32	145.4 (155.5) + Stroke S <sub>1</sub>	230.5	170.5 (180.5) + Stroke S <sub>1</sub>	255.5	280.5	23 (33) + Stroke S <sub>1</sub>	108	133	115.5	140.5	7	5 to 100	55 to 100
ø40	161.5 (171.5) + Stroke S <sub>1</sub>	246.5	186.5 (196.5) + Stroke S <sub>1</sub>	271.5	296.5	29.5 (39.5) + Stroke S <sub>1</sub>	114.5	139.5	125	150	7	5 to 100	55 to 100
ø50	164 (174) + Stroke S <sub>1</sub>	249	189 (199) + Stroke S <sub>1</sub>	274	299	30.5 (40.5) + Stroke S <sub>1</sub>	115.5	140.5	125.5	150.5	8	10 to 100	55 to 100
ø63	171 (181) + Stroke S <sub>1</sub>	256	196 (206) + Stroke S <sub>1</sub>	281	306	36 (46) + Stroke S <sub>1</sub>	121	146	127	152	8	10 to 100	55 to 100
ø80	189.5 (199.5) + Stroke S <sub>1</sub>	274.5	214.5 (224.5) + Stroke S <sub>1</sub>	299.5	324.5	43.5 (53.5) + Stroke S <sub>1</sub>	128.5	153.5	136	161	10	10 to 100	55 to 100
ø100	210.5 (220.5) + Stroke S <sub>1</sub>	295.5	235.5 (245.5) + Stroke S <sub>1</sub>	320.5	345.5	53 (63) + Stroke S <sub>1</sub>	138	163	145.5	170.5	12	10 to 100	55 to 100

Note 1) ( ): Dimensions with auto switch

Note 2) Applicable stroke: Available in 5 mm intervals



**11** Cylinder Tube: With Concave Boss on Head End

Symbol

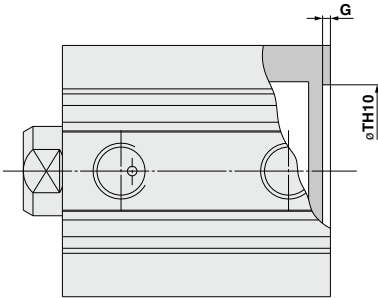
**-X1876**

C□Q2  
 C□Q2K Mounting Bore size — Stroke D(C)(M)(Z)  
 C□Q2□S S(M)(Z) — X1876  
 T(M)(Z)

↓ With concave boss on head end

\* Specifications: Same as standard

Note) Except ø12, ø16 and ø125 to ø200



Bore size (mm)	TH10	G
20	19.3 <sup>+0.084</sup> <sub>0</sub>	1.4
25	23.8 <sup>+0.084</sup> <sub>0</sub>	1.4
32	30.9 <sup>+0.100</sup> <sub>0</sub>	1.4
40	39.3 <sup>+0.100</sup> <sub>0</sub>	1.3
50	48.7 <sup>+0.100</sup> <sub>0</sub>	2.1
63	61.5 <sup>+0.120</sup> <sub>0</sub>	2.4
80	78.3 <sup>+0.120</sup> <sub>0</sub>	2.7
100	98.9 <sup>+0.140</sup> <sub>0</sub>	2.8

CUJ

CU

CQS

CQ2  
-Z

RQ

CQM

CQU

MU  
-Z

D-□

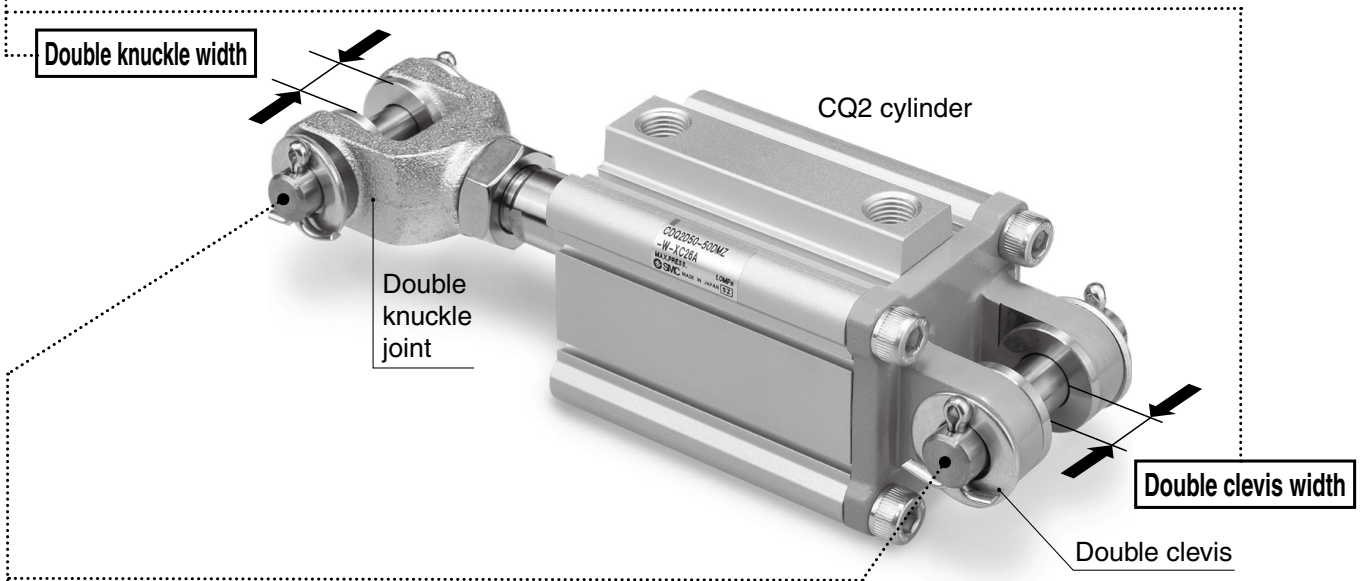
-X□

Technical  
data

Double Clevis Width **12.5 mm** **16.5 mm** **19.5 mm**  
 Double Knuckle Width

# Compact Cylinder With Double Clevis, Double Knuckle Joint

- **3 types of** <sup>double clevis width</sup> <sup>double knuckle width</sup> **12.5 mm, 16.5 mm, 19.5 mm**  
 Lighter installation, reduction in design labor and design in a suitable size  
 A product lineup similar to the clamp cylinder CK□1 and CLK2 series



- **Split pins adopted for pin fixing**
- **The part number with double knuckle joint is available.**  
 Not necessary to order a bracket for the applicable cylinder separately

Ordering Example of Cylinder Assembly <Standard>

**CDQ2D40-30DMZ-W-M9BW-XC26A**

┆ Double clevis
┆ With double knuckle joint
┆ Double clevis width  
 Double knuckle width 16.5 mm

## Applicable Series

Type	Series	Action	Bore size [mm]	Made to Order		
				With coil scraper XC35	Spatter resistant specification for arc welding XC88/XC89	Spatter resistant specification for arc welding XC91
Standard	<b>CQ2</b>	Double acting, Single rod	<b>32, 40, 50, 63</b>	○	○	○
Long stroke	<b>CQ2</b>			○	○	—
Anti-lateral load	<b>CQ2□S</b>			—	○	—

**CQ2D-XC26□**



Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis, Double Knuckle Joint  
 Double Knuckle Width

# Compact Cylinder: Standard

# CQ2D-XC26

∅32, ∅40, ∅50, ∅63



## How to Order

**CQ2D 40 - 30 DMZ - W - XC26A**  
**CDQ2D 40 - 30 DMZ - W - M9BW - XC26A**

- Bore size**

32	32 mm
40	40 mm
50	50 mm
63	63 mm
- Port thread type**

Nil	Rc	∅32 to ∅63
TN	NPT	
TF	G	
- Mounting**

D	Double clevis
---	---------------

\* Mounting brackets are shipped together, (but not assembled).
- Cylinder stroke [mm]**

Bore size	Standard stroke
32	5, 10, 15, 20, 25, 30, 35
40	40, 45, 50, 75, 100
50	10, 15, 20, 25, 30, 35
63	40, 45, 50, 75, 100
- Action**

D	Double acting
---	---------------
- Rod end bracket**

Nil	None
W	Double knuckle joint

\* Double knuckle joint cannot be mounted for the rod end female thread.  
 \* Rod end bracket is shipped together.
- Auto switch mounting groove**

Z	4 surfaces
---	------------
- Body option**

Nil	Standard (Rod end female thread)
C	With rubber bumper
M	Rod end male thread

\* Double knuckle joint cannot be mounted for the rod end female thread.  
 \* Combination of body options (CM) is available.
- Number of auto switches**

Nil	2 pcs.
S	1 pc.
n	n pcs.
- Auto switch**

Nil	Without auto switch
-----	---------------------

\* For applicable auto switches, refer to the table below.
- Made to Order 1**

Symbol	Double clevis width	Double knuckle width
XC26A*	16.5 mm	
XC26B*	19.5 mm	
XC26C	12.5 mm	

\* Not available for bore size 32 mm

## Ordering Example of Cylinder Assembly

**When arranging Made to Order 1 and 2 at the same time**  
**Cylinder model: CDQ2D40-30DMZ-W-M9BW-XC26AC35**

With coil scraper      Double clevis  
 Double knuckle joint

**Mounting D: Double clevis**  
**Rod end bracket W: Double knuckle joint**  
**Made to Order 1 : XC26A**  
**(Double clevis/knuckle width: 16.5 mm)**  
**Made to Order 2 : XC35**  
**(With coil scraper)**  
**Auto switch D-M9BW: 2 pcs.**

Symbol	Specification	Piston rod material (Hard chrome plated)		Coil scraper	Lube-retainer	Grease for welding
		S45C	Stainless steel 304			
Nil	None	—	—	—	—	—
XC35	With coil scraper	●	—	●	—	—
XC88*	Spatter resistant spec. for arc welding	—	●	●	●	●
XC89*	Spatter resistant spec. for arc welding	●	—	●	●	●
XC91*	Spatter resistant spec. for arc welding	●	—	●	—	●

\* Only available for cylinders with built-in magnet for auto switch

## Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	●	●	●	○	—	○		
				2-wire			M9BV	M9B	●	●	●	○	—	○		
				3-wire (NPN)			M9NVV	M9NW	●	●	●	○	—	○		
	Diagnostic indication (2-color indication)			3-wire (PNP)	M9PWW	M9PW	●	●	●	○	—	○	IC circuit			
				2-wire	M9BWW	M9BW	●	●	●	○	—	○				
	Water resistant (2-color indication)			3-wire (NPN)	M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit			
				3-wire (PNP)	M9PAV*1	M9PA*1	○	○	●	○	—	○				
	Magnetic field resistant (2-color indication)			2-wire	M9BAV*1	M9BA*1	○	○	●	○	—	○	—			
				2-wire (Non-polar)	—	P3DWA	●	—	●	●	—	●				
—		—	P4DW	—	—	●	●	—	●							
—		—	—	—	—	—	—	—	—							
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	Relay, PLC
				2-wire			A93V*2	A93	●	●	●	—	—	—		
				—			A90V	A90	●	—	●	—	—	—		

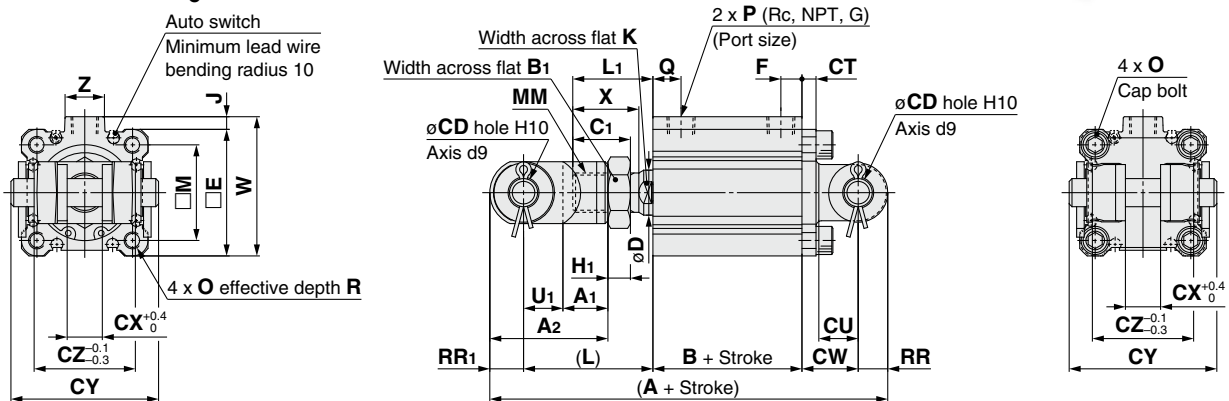
\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.  
 A water-resistant type cylinder is recommended for use in an environment which requires water resistance. (Refer to the WEB catalog or the Best Pneumatics No. 2.)  
 \*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW  
 1 m..... M (Example) M9NWM  
 3 m..... L (Example) M9NWL  
 5 m..... Z (Example) M9NWZ  
 \* Solid state auto switches marked with "○" are produced upon receipt of order.

**Bore Size**  
**∅32 to ∅63 Standard**



**C(D)Q2D-XC26** <sup>A</sup><sub>B</sub><sub>C</sub>



- Note 1) Intermediate strokes (1 to 99 mm) are available in 1 mm increments.  
 For intermediate strokes, the dimensions are the same as a standard stroke one size larger than this intermediate stroke.
- Note 2) For 5 mm stroke with bore size 32 and without magnet for auto switch, F dimension is 5.5 and P dimension is M5 x 0.8.
- Note 3) For models with a rubber bumper, the stroke length tolerance does not include the deflection of the bumper.
- Note 4) Flat washers and split pins are included with the double clevis and double knuckle joint of this cylinder.
- Note 5) Double clevis and double knuckle joint are shipped together with the product.

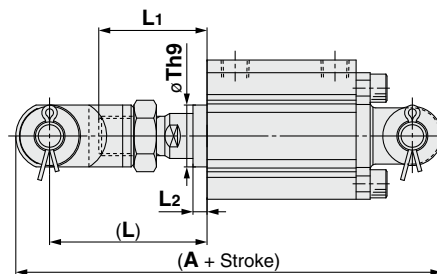
Bore size	Stroke range	Without magnet for auto switch		Built-in magnet for auto switch		CD	CT	CU	CW	CX			CY	CZ	D	E	F	J
		A	B	A	B					XC26A	XC26B	XC26C						
		[mm]																
32	50 or less	111	23	121	33	10	5	14	20	—	—	12.5	52.5	36	16	45	7.5	4.5
	75, 100	121	33															
40	50 or less	119.5	29.5	129.5	39.5	10	6	14	22	16.5	19.5	12.5	52.5	36	16	52	7.5	5
	75, 100	129.5	39.5															
50	50 or less	147.5	30.5	157.5	40.5	14	7	20	28	16.5	19.5	12.5	66	44	20	64	10.5	7
	75, 100	157.5	40.5															
63	50 or less	155	36	165	46	14	8	20	30	16.5	19.5	12.5	66	44	20	77	10.5	7
	75, 100	165	46															

Bore size	K	L	M	O	P	Q	R	RR	RR1	U1	W	Z	A1	A2	B1	C1	H1	L1	MM	X
32	14	46	34	M6 x 1.0	1/8	10	10	10	12	14	49.5	14	16	42	22	20.5	8	28.5	M14 x 1.5	23.5
40	14	46	40	M6 x 1.0	1/8	12.5	10	10	12	14	57	15	16	42	22	20.5	8	28.5	M14 x 1.5	23.5
50	17	59	50	M8 x 1.25	1/4	10.5	14	14	16	20	71	19	20	56	27	26	11	33.5	M18 x 1.5	28.5
63	17	59	60	M10 x 1.5	1/4	15	18	14	16	20	84	19	20	56	27	26	11	33.5	M18 x 1.5	28.5

**Made to Order** (Dimensions other than those shown below are the same as those shown above.)

- With coil scraper: C(D)Q2D-XC26-C35
- Spatter resistant specification for arc welding: CDQ2D-XC26-C88/C89/C91



Bore size	Stroke range	XC35/XC91							XC88/XC89				
		A		L	L1	L2	Th9	A					
		Without magnet for auto switch	Built-in magnet for auto switch					Without magnet for auto switch	L	L1	L2	Th9	
32	50 or less	116	126	51	33.5	5	23 <sup>0</sup> <sub>-0.052</sub>	131	56	38.5	10	23 <sup>0</sup> <sub>-0.052</sub>	
	75, 100	126											
40	50 or less	124.5	134.5	51	33.5	5	28 <sup>0</sup> <sub>-0.052</sub>	139.5	56	38.5	10	28 <sup>0</sup> <sub>-0.052</sub>	
	75, 100	134.5											
50	50 or less	152.5	162.5	64	38.5	5	35 <sup>0</sup> <sub>-0.062</sub>	167.5	69	43.5	10	35 <sup>0</sup> <sub>-0.062</sub>	
	75, 100	162.5											
63	50 or less	160	170	64	38.5	5	35 <sup>0</sup> <sub>-0.062</sub>	175	69	43.5	10	35 <sup>0</sup> <sub>-0.062</sub>	
	75, 100	170											

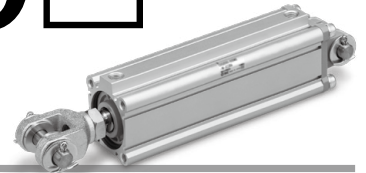
\* XC91 is only available for cylinders with built-in magnet for auto switch.

Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis, Double Knuckle Joint  
 Double Knuckle Width

# Compact Cylinder: Long Stroke

# CQ2D-XC26

∅32, ∅40, ∅50, ∅63



## How to Order

**CQ2D 40 - 200 DCMZ - W - XC26A**

**CDQ2D 40 - 200 DCMZ - W - M9BW - XC26A**

**Built-in magnet for auto switch**

**Mounting**

<b>D</b>	Double clevis
----------	---------------

\* Mounting brackets are shipped together, (but not assembled).

**Bore size**

32	32 mm
40	40 mm
50	50 mm
63	63 mm

**Port thread type**

<b>Nil</b>	Rc
<b>TN</b>	NPT
<b>TF</b>	G

**Cylinder stroke [mm]**

Bore size	Standard stroke
32	
40	125, 150, 175,
50	200, 250, 300
63	

**Action**

<b>D</b>	Double acting
----------	---------------

**Rod end bracket**

<b>Nil</b>	None
<b>W</b>	Double knuckle joint

\* Double knuckle joint cannot be mounted for the rod end female thread.

**Auto switch mounting groove**

<b>Z</b>	4 surfaces
----------	------------

**Body option**

<b>Nil</b>	Standard (Rod end female thread)
<b>M</b>	Rod end male thread

**Cushion**

<b>C</b>	Rubber bumper
----------	---------------

**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	n pcs.

**Auto switch**

<b>Nil</b>	Without auto switch
------------	---------------------

\* For applicable auto switches, refer to the table below.

**Made to Order 1**

Symbol	Double clevis width	Double knuckle width
<b>XC26A*</b>	16.5 mm	
<b>XC26B*</b>	19.5 mm	
<b>XC26C</b>	12.5 mm	

\* Not available for bore size 32 mm

## Ordering Example of Cylinder Assembly

**When arranging Made to Order 1 and 2 at the same time**  
**Cylinder model: CDQ2D40-200DCMZ-W-M9BW-XC26AC35**

**Mounting** **D**: Double clevis  
**Rod end bracket** **W**: Double knuckle joint  
**Made to Order 1** : XC26A  
 (Double clevis/knuckle width: 16.5 mm)  
**Made to Order 2** : XC35  
 (With coil scraper)  
**Auto switch D-M9BW**: 2 pcs.

**Made to Order 2**

Symbol	Specification	Piston rod material (Hard chrome plated)		Coil scraper	Lube-retainer	Grease for welding
		S45C	Stainless steel 304			
<b>Nil</b>	None	—	—	—	—	—
<b>XC35</b>	With coil scraper	●	—	●	—	—
<b>XC88*</b>	Spatter resistant spec. for arc welding	—	●	●	●	●
<b>XC89*</b>	Spatter resistant spec. for arc welding	●	—	●	●	●

\* Only available for cylinders with built-in magnet for auto switch

## Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load			
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	<b>M9NV</b>	<b>M9N</b>	●	●	●	○	—	○	IC circuit		
				3-wire (PNP)				<b>M9PV</b>	<b>M9P</b>	●	●	●	○	—	○			
				2-wire				<b>M9BV</b>	<b>M9B</b>	●	●	●	○	—	○		—	
				3-wire (NPN)				<b>M9NVV</b>	<b>M9NW</b>	●	●	●	○	—	○			
	Diagnostic indication (2-color indication)			3-wire (PNP)	<b>M9PVV</b>	<b>M9PW</b>	●	●	●	○	—	○	IC circuit					
				2-wire	<b>M9BWW</b>	<b>M9BW</b>	●	●	●	○	—	○						
	Water resistant (2-color indication)			3-wire (NPN)	<b>M9NAV</b> *1	<b>M9NA</b> *1	○	○	●	○	—	○	IC circuit					
				3-wire (PNP)	<b>M9PAV</b> *1	<b>M9PA</b> *1	○	○	●	○	—	○						
	Magnetic field resistant (2-color indication)			2-wire	<b>M9BAV</b> *1	<b>M9BA</b> *1	○	○	●	○	—	○	—					
				2-wire (Non-polar)	—	<b>P3DWA</b>	●	—	●	●	—	●						
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V, 12 V	100 V or less	<b>A96V</b>	<b>A96</b>	●	—	●	—	—	—	IC circuit	—	
				2-wire				<b>A93V</b> *2	<b>A93</b>	●	●	●	●	—	—	—		Relay, PLC
				—				<b>A90V</b>	<b>A90</b>	●	—	●	—	—	—	—		IC circuit
				—				—	—	—	—	—	—	—	—	—		—

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

A water-resistant type cylinder is recommended for use in an environment which requires water resistance. (Refer to the WEB catalog or the Best Pneumatics No. 2.)

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m..... Nil

1 m.....M

3 m.....L

5 m.....Z

(Example) M9NW

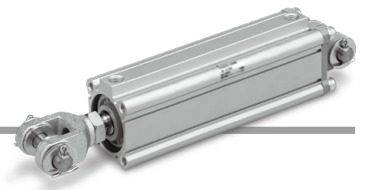
(Example) M9NWM

(Example) M9NWL

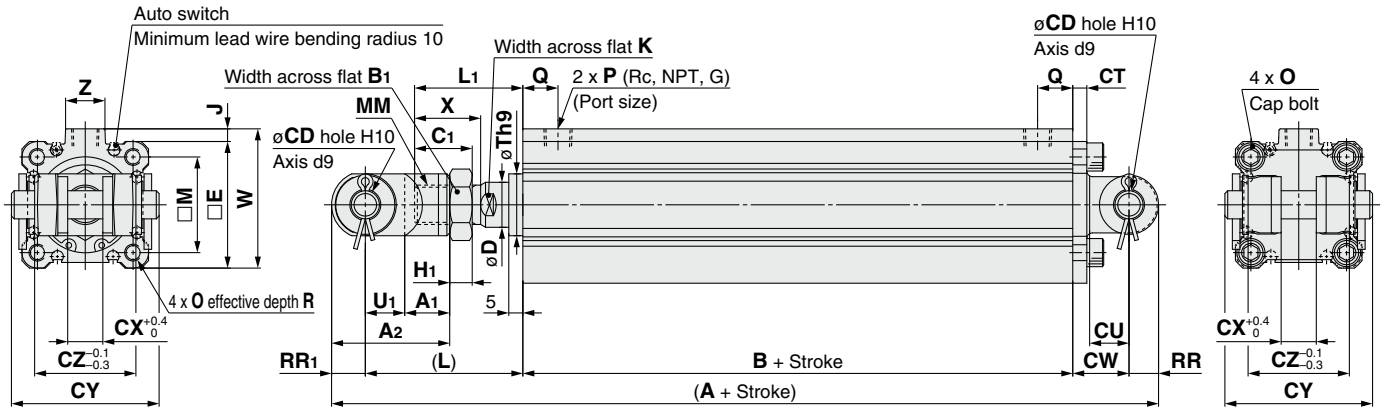
(Example) M9NWZ

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

Bore Size  
**Ø32 to Ø63** Long Stroke



C(D)Q2D<sup>A</sup><sub>B</sub>-XC26<sup>C</sup>



- Note 1) Intermediate strokes (1 to 99 mm) are available in 1 mm increments.  
 For intermediate strokes, the dimensions are the same as a standard stroke one size larger than this intermediate stroke.
- Note 2) Stroke length tolerance does not include the deflection of the bumper.
- Note 3) Flat washers and split pins are included with the double clevis and double knuckle joint of this cylinder.
- Note 4) Double clevis and double knuckle joint are shipped together with the product.

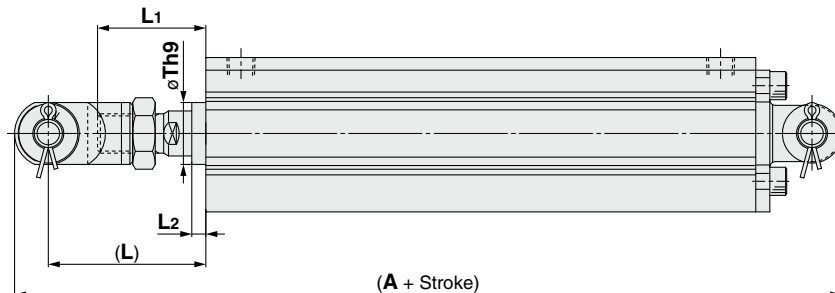
Bore size	Stroke range	A	B	CD	CT	CU	CW	CX			CY	CZ	D	E	J	K	L	M
								XC26A	XC26B	XC26C								
32	125, 150, 175, 200, 250, 300	143.5	45.5	10	5	14	20	—	—	12.5	52.5	36	16	45	4.5	14	56	34
40		155	55	10	6	14	22	16.5	19.5	12.5	52.5	36	16	52	5	14	56	40
50		182.5	55.5	14	7	20	28	16.5	19.5	12.5	66	44	20	64	7	17	69	50
63		186	57	14	8	20	30	16.5	19.5	12.5	66	44	20	77	7	17	69	60

Bore size	O	P	Q	R	RR	RR1	Th9	U1	W	Z	A1	A2	B1	C1	H1	L1	MM	X
32	M6 x 1.0	1/8	10	10	10	12	22 <sup>0</sup> <sub>-0.052</sub>	14	49.5	14	16	42	22	20.5	8	38.5	M14 x 1.5	23.5
40	M6 x 1.0	1/8	12.5	10	10	12	28 <sup>0</sup> <sub>-0.052</sub>	14	57	15	16	42	22	20.5	8	38.5	M14 x 1.5	23.5
50	M8 x 1.25	1/4	14	14	14	16	35 <sup>0</sup> <sub>-0.062</sub>	20	71	19	20	56	27	26	11	43.5	M18 x 1.5	28.5
63	M10 x 1.5	1/4	16.5	18	14	16	35 <sup>0</sup> <sub>-0.062</sub>	20	84	19	20	56	27	26	11	43.5	M18 x 1.5	28.5

**Made to Order** (Dimensions other than those shown below are the same as those shown above.)

- With coil scraper: C(D)Q2D<sup>A</sup><sub>B</sub>-XC26<sup>C</sup>C35
- Spatter resistant specification for arc welding: CDQ2D<sup>A</sup><sub>B</sub>-XC26<sup>C</sup>C88/C89



Bore size	Stroke range	XC35					XC88/XC89				
		A	L	L1	L2	Th9	A	L	L1	L2	Th9
32	125, 150, 175, 200, 250, 300	143.5	56	38.5	5	23 <sup>0</sup> <sub>-0.052</sub>	148.5	56	38.5	10	23 <sup>0</sup> <sub>-0.052</sub>
40		155	56	38.5	5	28 <sup>0</sup> <sub>-0.052</sub>	160	56	38.5	10	28 <sup>0</sup> <sub>-0.052</sub>
50		182.5	69	43.5	5	35 <sup>0</sup> <sub>-0.062</sub>	187.5	69	43.5	10	35 <sup>0</sup> <sub>-0.062</sub>
63		186	69	43.5	5	35 <sup>0</sup> <sub>-0.062</sub>	191	69	43.5	10	35 <sup>0</sup> <sub>-0.062</sub>

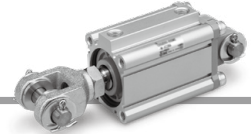


Double Clevis Width 12.5 mm, 16.5 mm, 19.5 mm: With Double Clevis, Double Knuckle Joint  
 Double Knuckle Width

# Compact Cylinder: Anti-lateral Load

# CQ2DS-XC26

∅32, ∅40, ∅50, ∅63



## How to Order

**CQ2DS40-30DCMZ-W-XC26A**

**CDQ2DS40-30DCMZ-W-M9BW-XC26A**

- Built-in magnet for auto switch**
- Type**
  - S Anti-lateral load
- Bore size**

32	32 mm
40	40 mm
50	50 mm
63	63 mm
- Port thread type**

Nil	Rc
TN	NPT
TF	G
- Cylinder stroke [mm]**

Bore size	Standard stroke
32	5, 10, 15, 20, 25, 30, 35
40	40, 45, 50, 75, 100
50	10, 15, 20, 25, 30, 35
63	40, 45, 50, 75, 100
- Mounting**
  - D Double clevis

\* Mounting brackets are shipped together, (but not assembled).
- Rod end bracket**

Nil	None
W	Double knuckle joint

\* Double knuckle joint cannot be mounted for the rod end female thread.
- Auto switch mounting groove**

Z	4 surfaces
---	------------
- Body option**

Nil	Standard (Rod end female thread)
M	Rod end male thread
- Cushion**

C	Rubber bumper
---	---------------
- Action**

D	Double acting
---	---------------
- Number of auto switches**

Nil	2 pcs.
S	1 pc.
n	n pcs.
- Auto switch**

Nil	Without auto switch
-----	---------------------

\* For applicable auto switches, refer to the table below.
- Made to Order 1**

Symbol	Double clevis width Double knuckle width
XC26A*	16.5 mm
XC26B*	19.5 mm
XC26C	12.5 mm

\* Not available for bore size 32 mm

## Ordering Example of Cylinder Assembly

**When arranging Made to Order 1 and 2 at the same time**  
**Cylinder model: CDQ2DS40-30DCMZ-W-M9BW-XC26AC89**

Piston rod material: S45C  
 Double clevis  
 Double knuckle joint

**Mounting D: Double clevis**  
**Rod end bracket W: Double knuckle joint**  
**Made to Order 1 : XC26A**  
**(Double clevis/knuckle width: 16.5 mm)**  
**Made to Order 2 : XC89**  
**(Piston rod material: S45C)**  
**Auto switch D-M9BW: 2 pcs.**

Symbol	Specification	Piston rod material (Hard chrome plated)		Coil scraper	Lube-retainer	Grease for welding
		S45C	Stainless steel 304			
Nil	None	—	—	—	—	—
XC88*	Spatter resistant spec. for arc welding	—	●	●	●	●
XC89*	Spatter resistant spec. for arc welding	●	—	●	●	●

\* Only available for cylinders with built-in magnet for auto switch

## Applicable Auto Switches/Refer to the WEB catalog or the Best Pneumatics No. 2 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○		
				2-wire				M9BV	M9B	●	●	●	○	—	○		
				3-wire (NPN)				M9NVV	M9NW	●	●	●	○	—	○		
	Diagnostic indication (2-color indication)			3-wire (PNP)	M9PVV	M9PW	●	●	●	○	—	○	IC circuit				
				2-wire	M9BWW	M9BW	●	●	●	○	—	○					
	Water resistant (2-color indication)			3-wire (NPN)	M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit				
				3-wire (PNP)	M9PAV*1	M9PA*1	○	○	●	○	—	○					
Magnetic field resistant (2-color indication)	2-wire	M9BAV*1	M9BA*1	○	○	●	○	—	○	—							
	2-wire (Non-polar)	—	P3DWA	●	—	●	●	—	●								
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V, 12 V	100 V or less	A96V	A96	●	—	●	—	—	—	IC circuit	
				2-wire				A93V*2	A93	●	●	●	●	—	—	—	Relay, PLC
				2-wire				A90V	A90	●	—	●	—	—	—	—	IC circuit

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

A water-resistant type cylinder is recommended for use in an environment which requires water resistance. (Refer to the WEB catalog or the Best Pneumatics No. 2.)

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m..... Nil

1 m.....M

3 m.....L

5 m.....Z

(Example) M9NW

(Example) M9NWM

(Example) M9NWL

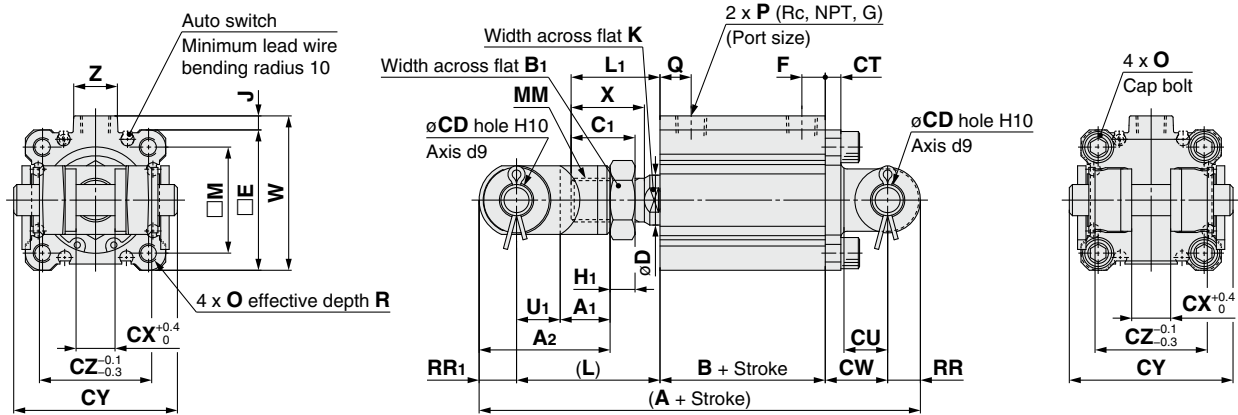
(Example) M9NWZ

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

**Bore Size**  
**∅32 to ∅63** Anti-lateral Load



**C(D)Q2DS-XC26** <sup>A</sup>/<sub>B</sub>/<sub>C</sub>



- Note 1) Intermediate strokes (1 to 99 mm) are available in 1 mm increments.  
For intermediate strokes, the dimensions are the same as a standard stroke one size larger than this intermediate stroke.
- Note 2) Stroke length tolerance does not include the deflection of the bumper.
- Note 3) Flat washers and split pins are included with the double clevis and double knuckle joint of this cylinder.
- Note 4) Double clevis and double knuckle joint are shipped together with the product.

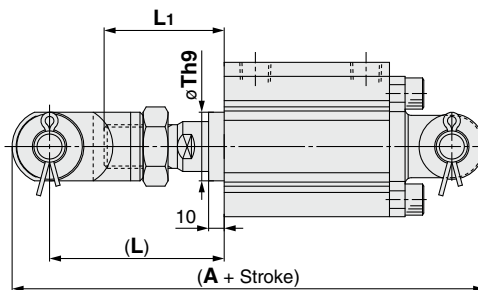
Bore size	Stroke range	Without magnet for auto switch		Built-in magnet for auto switch		CD	CT	CU	CW	CX			CY	CZ	D	E	F	J
		A	B	A	B					XC26A	XC26B	XC26C						
32	50 or less	121	33	131	43	10	5	14	20	—	—	12.5	52.5	36	16	45	7.5	4.5
	75, 100	131	43															
40	50 or less	129.5	39.5	139.5	49.5	10	6	14	22	16.5	19.5	12.5	52.5	36	16	52	7.5	5
	75, 100	139.5	49.5															
50	50 or less	157.5	40.5	167.5	50.5	14	7	20	28	16.5	19.5	12.5	66	44	20	64	10.5	7
	75, 100	167.5	50.5															
63	50 or less	165	46	175	56	14	8	20	30	16.5	19.5	12.5	66	44	20	77	10.5	7
	75, 100	175	56															

Bore size	K	L	M	O	P	Q	R	RR	RR1	U <sub>1</sub>	W	Z	A <sub>1</sub>	A <sub>2</sub>	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X	
32	14	46	34	M6 x 1.0	1/8	10	10	10	10	12	14	49.5	14	16	42	22	20.5	8	28.5	M14 x 1.5	23.5
40	14	46	40	M6 x 1.0	1/8	12.5	10	10	10	12	14	57	15	16	42	22	20.5	8	28.5	M14 x 1.5	23.5
50	17	59	50	M8 x 1.25	1/4	10.5	14	14	14	16	20	71	19	20	56	27	26	11	33.5	M18 x 1.5	28.5
63	17	59	60	M10 x 1.5	1/4	15	18	14	16	20	84	19	20	56	27	26	11	33.5	M18 x 1.5	28.5	

**Made to Order** (Dimensions other than those shown below are the same as those shown above.)

**Spatter resistant specification for arc welding: CDQ2DS-XC26-C88/C89**

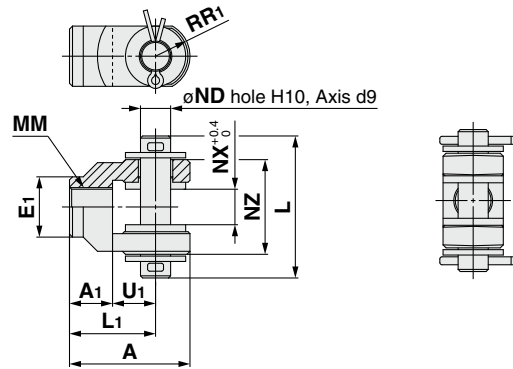


Bore size	Stroke range	XC88/XC89			
		A	L	L <sub>1</sub>	Th9
32	5, 10, 15, 20, 25, 30,	141	56	38.5	23 <sup>0</sup> / <sub>-0.052</sub>
40	35, 40, 45, 50, 75, 100	149.5	56	38.5	28 <sup>0</sup> / <sub>-0.052</sub>
50	10, 15, 20, 25, 30, 35,	177.5	69	43.5	35 <sup>0</sup> / <sub>-0.062</sub>
63	40, 45, 50, 75, 100	185	69	43.5	35 <sup>0</sup> / <sub>-0.062</sub>



## Accessories

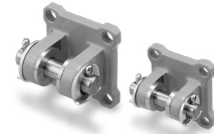
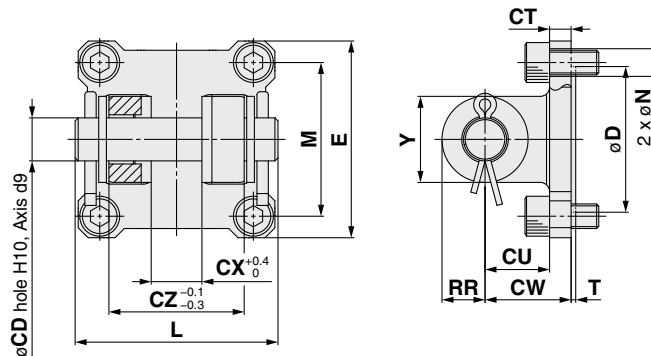
### Double knuckle joint



Part no.	Applicable bore size	A	A1	E1	L1	MM	RR1	U1	ND	NX	NZ	L	[mm]
Y-G04-XC26A	32, 40	42	16	ø22	30	M14 x 1.5	12	14	10	16.5	36	52.5	
Y-G04-XC26B										19.5			
Y-G04-XC26C										12.5			
Y-G05-XC26A	50, 63	56	20	ø28	40	M18 x 1.5	16	20	14	16.5	44	66	
Y-G05-XC26B										19.5			
Y-G05-XC26C										12.5			

Note) A knuckle joint pin, 2 flat washers and 2 split pins are included.

### Double clevis



Part no.	Applicable bore size	D	E	M	N	T	CD	CT	CU	CW	CX	CZ	RR	L	Y	[mm]
CQ-D032-XC26C	32	30.7	45	34	6.6	1	10	5	14	20	12.5	36	10	52.5	20	
CQ-D040-XC26A	40	39.1	52	40	6.6	1	10	6	14	22	16.5	36	10	52.5	20	
CQ-D040-XC26B											19.5					
CQ-D040-XC26C											12.5					
CQ-D050-XC26A	50	48.5	64	50	9	1.5	14	7	20	28	16.5	44	14	66	28	
CQ-D050-XC26B											19.5					
CQ-D050-XC26C											12.5					
CQ-D063-XC26A	63	61.3	77	60	11	2	14	8	20	30	16.5	44	14	66	28	
CQ-D063-XC26B											19.5					
CQ-D063-XC26C											12.5					

Note) A clevis pin, 2 flat washers, 2 split pins and 4 hexagon socket head cap screws are included.

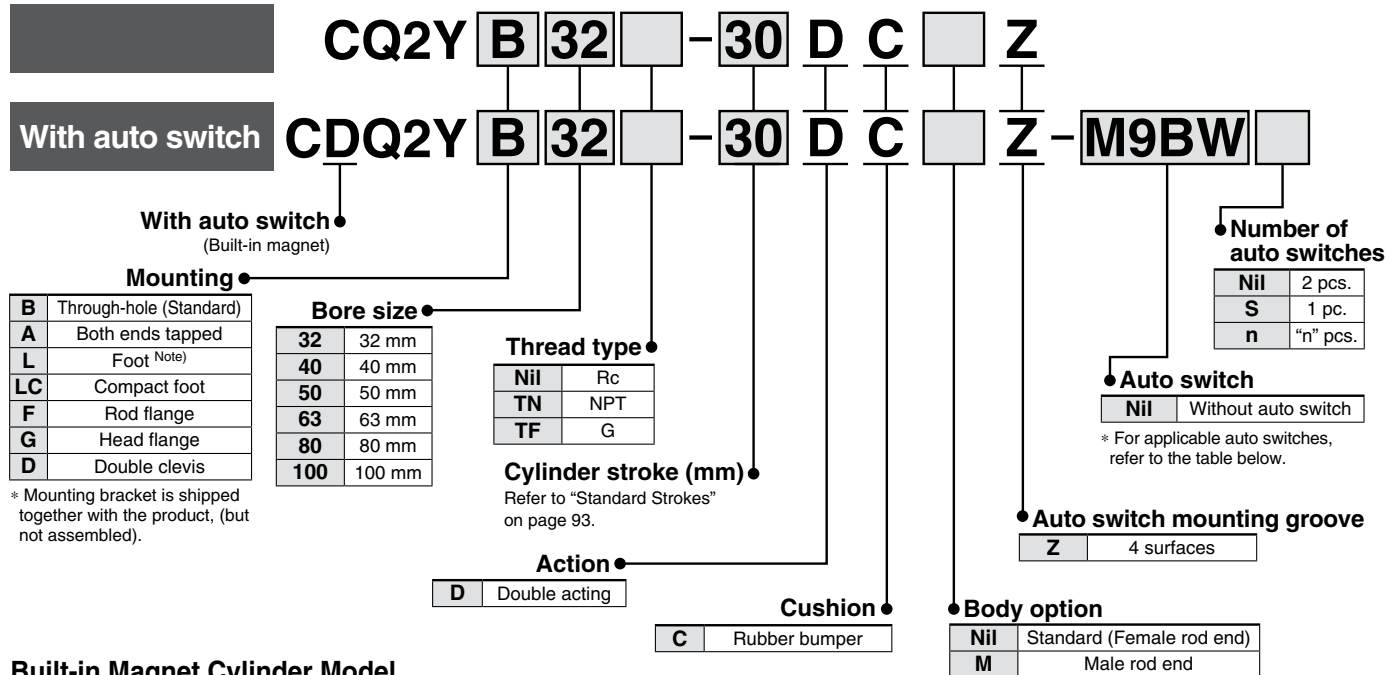
**⚠ Safety Instructions** Be sure to read "Handling Precautions for SMC Products" (M-E03-3) before using.

# Smooth Cylinder

## Series CQ2Y

ø32, ø40, ø50, ø63, ø80, ø100

### How to Order



### Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2YL40-50DCZ

### Applicable Auto Switches/Refer to the WEB catalog or Best Pneumatics No. 3 for further information on auto switches.

Type	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model		Lead wire (m)					Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)		IC circuit	Relay, PLC	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—			○
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○		
				2-wire				M9BV	M9B	●	●	●	○	—	○		
	Diagnostic indication (2-color indication)			3-wire (NPN)	24 V	5 V, 12 V	—	M9NWV	M9NW	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9PWV	M9PW	●	●	●	○	—	○		
				2-wire				M9BWV	M9BW	●	●	●	○	—	○		
	Water resistant (2-color indication)			3-wire (NPN)	24 V	5 V, 12 V	—	M9NAV**	M9NA**	○	○	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9PAV**	M9PA**	○	○	●	○	—	○		
				2-wire				M9BAV**	M9BA**	○	○	●	○	—	○		
	Magnetic field resistant (2-color indication)			—	24 V	—	—	—	P3DW	●	—	●	●	—	○	—	—
3-wire (NPN equivalent)		24 V	5 V					—	A96V	A96	●	—	●	—	—	—	—
Reed auto switch	—			Grommet	No	2-wire	24 V		5 V, 12 V	100 V or less	A93V	A93	●	—	●	●	—
		A90V	A90					●			—	●	—	—	—	—	—

\*\* Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please consult with SMC regarding water resistant types with the above model numbers.

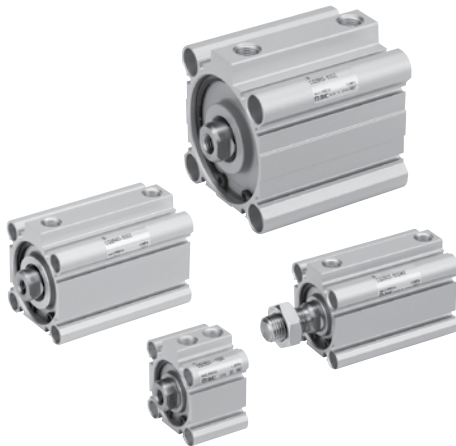
\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

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

\* Since there are other applicable auto switches than listed, refer to page 108 for details.

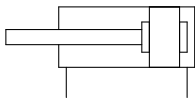
\* For details about auto switches with pre-wired connector, refer to the WEB catalog or Best Pneumatics No. 3.

## Specifications



### Symbol

Rubber bumper



Bore size (mm)	32	40	50	63	80	100
Type	Pneumatic (Non-lube)					
Fluid	Air					
Proof pressure	152 psi (1.05 MPa)					
Maximum operating pressure	102 psi (0.7 MPa)					
Ambient and fluid temperature	Without auto switch: 14 to 158°F (-10 to 70°C) With auto switch: 14 to 140°F (-10 to 60°C) (No freezing)					
Cushion	Rubber bumper (Standard)					
Stroke length tolerance	+1.0 mm Note) 0					
Piston speed range	5 to 500 mm/s					
Allowable leakage rate	0.02 scfm (0.5 L/min) (ANR) or less					

Note) Stroke length tolerance does not include the amount of bumper change.

## Minimum Operating Pressure

Unit: psi ( MPa)

Bore size (mm)	32	40	50	63	80	100
Minimum operating pressure	2.9 (0.02)		1.45 (0.01)			

## Standard Strokes

Bore size (mm)	Standard stroke (mm)
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

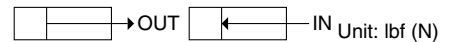
## Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
32	CQ2Y32-PS	
40	CQ2Y40-PS	
50	CQ2Y50-PS	Piston seal 1 pc. Rod seal 1 pc.
63	CQ2Y63-PS	Tube gasket 1 pc.
80	CQ2Y80-PS	Grease pack (10 g) 1 pc.
100	CQ2Y100-PS	

When maintenance requires only grease, use the following part numbers to order.

Grease pack part number: **GR-L-005** (5 g)  
**GR-L-010** (10 g)  
**GR-L-150** (150 g)

## Theoretical Output



Bore size (mm)	Operating direction	Operating pressure psi (MPa)		
		44 (0.3)	73 (0.5)	102 (0.7)
32	IN	40.7 (181)	67.9 (302)	94.9 (422)
	OUT	54.2 (241)	90.4 (402)	127 (563)
40	IN	71.3 (317)	119 (528)	166 (739)
	OUT	84.8 (377)	141 (628)	198 (880)
50	IN	111 (495)	185 (825)	260 (1155)
	OUT	132 (589)	221 (982)	309 (1374)
63	IN	189 (841)	315 (1402)	441 (1962)
	OUT	210 (935)	350 (1559)	491 (2182)
80	IN	306 (1361)	510 (2268)	714 (3175)
	OUT	339 (1508)	565 (2513)	791 (3519)
100	IN	482 (2144)	803 (3574)	1124 (5003)
	OUT	530 (2356)	883 (3927)	1236 (5498)

## Intermediate Stroke

Method	Installation of spacer on standard stroke body.				
Model no.	Refer to page 92 for standard model no.				
Standard stroke	Method	Intermediate strokes at 1 mm intervals are available by using spacers with standard stroke cylinders.			
	Stroke range	<table border="1"> <thead> <tr> <th>Bore size (mm)</th> <th>Stroke range (mm)</th> </tr> </thead> <tbody> <tr> <td>32 to 100</td> <td>1 to 99</td> </tr> </tbody> </table>	Bore size (mm)	Stroke range (mm)	32 to 100
Bore size (mm)	Stroke range (mm)				
32 to 100	1 to 99				
Example	Part no.: CQ2YB50-57DCZ CQ2YB50-75DCZ with 18 mm width spacer inside. B dimension is 125.5 mm. Calculation: $\phi 50$ , B dimension 50.5 mm (without switch) $50.5 \text{ (B dimension)} + 75 \text{ (st)} = 125.5 \text{ (mm)}$				

Smooth Cylinders  
 CJ2Y-Z  
 CM2Y-Z  
 CG1Y-Z  
 MBY-Z  
 CA2Y-Z  
 CS2Y  
 CQSY  
 CQ2Y-Z  
 Low Speed Cylinders  
 CJ2X-Z  
 CM2X-Z  
 CQSX  
 CQ2X  
 CUX  
 Auto Switch  
 Made to Order

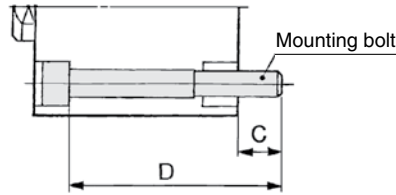
# Series CQ2Y

## Mounting Bolt

Mounting method: Mounting bolt for through-hole mounting style of the CQ2YB is available as an option.

Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M5X40L 2 pcs.**



## Mounting Bolt for CQ2YB without Auto Switch

Cylinder model	C	D	Mounting bolt part no.
<b>CQ2YB32- 5DC</b>	9	40	CQ-M5X40L
- 10DC		45	X45L
- 15DC		50	X50L
- 20DC		55	X55L
- 25DC		60	X60L
- 30DC		65	X65L
- 35DC		70	X70L
- 40DC		75	X75L
- 45DC		80	X80L
- 50DC		85	X85L
- 75DC		120	X120L
-100DC	145	X145L	
<b>CQ2YB40- 5DC</b>	7.5	45	CQ-M5X45L
- 10DC		50	X50L
- 15DC		55	X55L
- 20DC		60	X60L
- 25DC		65	X65L
- 30DC		70	X70L
- 35DC		75	X75L
- 40DC		80	X80L
- 45DC		85	X85L
- 50DC		90	X90L
- 75DC		125	X125L
-100DC	150	X150L	
<b>CQ2YB50- 10DC</b>	12.5	55	CQ-M6X55L
- 15DC		60	X60L
- 20DC		65	X65L
- 25DC		70	X70L
- 30DC		75	X75L
- 35DC		80	X80L
- 40DC		85	X85L
- 45DC		90	X90L
- 50DC		95	X95L
- 75DC		130	X130L
-100DC		155	X155L

Cylinder model	C	D	Mounting bolt part no.
<b>CQ2YB63- 10DC</b>	14.5	60	CQ-M8X60L
- 15DC		65	X65L
- 20DC		70	X70L
- 25DC		75	X75L
- 30DC		80	X80L
- 35DC		85	X85L
- 40DC		90	X90L
- 45DC		95	X95L
- 50DC		100	X100L
- 75DC		135	X135L
-100DC		160	X160L
<b>CQ2YB80- 10DC</b>	15	65	CQ-M10X65L
- 15DC		70	X70L
- 20DC		75	X75L
- 25DC		80	X80L
- 30DC		85	X85L
- 35DC		90	X90L
- 40DC		95	X95L
- 45DC		100	X100L
- 50DC		105	X105L
- 75DC		140	X140L
-100DC		165	X165L
<b>CQ2YB100- 10DC</b>	15.5	75	CQ-M10X75L
- 15DC		80	X80L
- 20DC		85	X85L
- 25DC		90	X90L
- 30DC		95	X95L
- 35DC		100	X100L
- 40DC		105	X105L
- 45DC		110	X110L
- 50DC		115	X115L
- 75DC		150	X150L
-100DC		175	X175L

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated

**Mounting Bolt for CDQ2YB with Auto Switch (Built-in magnet)**

Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2YB32-</b>	5	50	CQ-M5X50L
- 10		55	X55L
- 15		60	X60L
- 20		65	X65L
- 25		70	X70L
- 30		75	X75L
- 35		80	X80L
- 40		85	X85L
- 45		90	X90L
- 50		95	X95L
- 75		120	X120L
-100		145	X145L
<b>CDQ2YB40-</b>	5	55	CQ-M5X55L
- 10		60	X60L
- 15		65	X65L
- 20		70	X70L
- 25		75	X75L
- 30		80	X80L
- 35		85	X85L
- 40		90	X90L
- 45		95	X95L
- 50		100	X100L
- 75		125	X125L
-100		150	X150L
<b>CDQ2YB50-</b>	10	65	CQ-M6X65L
- 15		70	X70L
- 20		75	X75L
- 25		80	X80L
- 30		85	X85L
- 35		90	X90L
- 40		95	X95L
- 45		100	X100L
- 50		105	X105L
- 75		130	X130L
-100		155	X155L

Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2YB63-</b>	10	70	CQ-M8X70L
- 15		75	X75L
- 20		80	X80L
- 25		85	X85L
- 30		90	X90L
- 35		95	X95L
- 40		100	X100L
- 45		105	X105L
- 50		110	X110L
- 75		135	X135L
-100		160	X160L
<b>CDQ2YB80-</b>		15	75
- 15	80		X80L
- 20	85		X85L
- 25	90		X90L
- 30	95		X95L
- 35	100		X100L
- 40	105		X105L
- 45	110		X110L
- 50	115		X115L
- 75	140		X140L
-100	165		X165L
<b>CDQ2YB100-</b>	15.5		85
- 15		90	X90L
- 20		95	X95L
- 25		100	X100L
- 30		105	X105L
- 35		110	X110L
- 40		115	X115L
- 45		120	X120L
- 50		125	X125L
- 75		150	X150L
-100		175	X175L

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated

Smooth Cylinders

Low Speed Cylinders

Auto Switch

Made to Order

CJ2Y-Z

CM2Y-Z

CG1Y-Z

MBY-Z

CA2Y-Z

CS2Y

CQSY

CQ2Y-Z

CJ2X-Z

CM2X-Z

CQSX

CQ2X

CUX

# Series CQ2Y

Bore Size

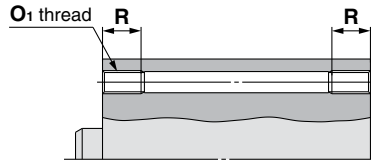
## ø32 to ø50

(Types with auto switch and without auto switch only differ in the A and B dimensions. Refer to the table below.)

Through-hole: CQ2YB/CDQ2YB

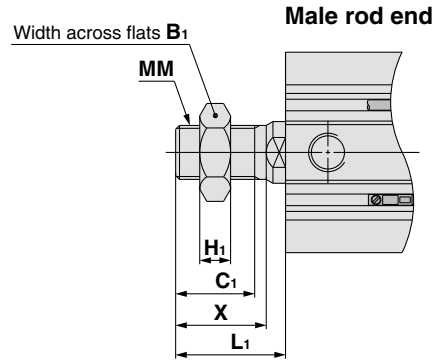
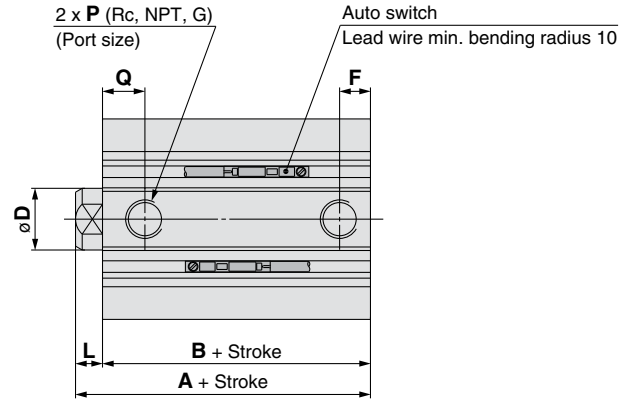
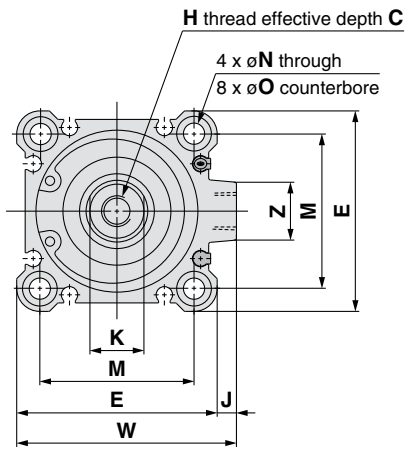
Both ends tapped: CQ2YA/CDQ2YA

### CDQ2YA



### Both Ends Tapped (mm)

Bore size (mm)	O <sub>1</sub>	R
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14



### Male Rod End (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5

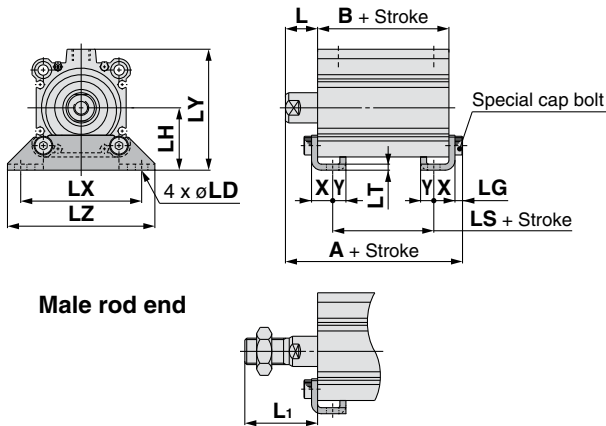
Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		(mm)														
		A	B	A	B	C	D	E	F	H	J	K	L	M	N	O	P	Q	W	Z
32	5 to 50	40	33	50	43	13	16	45	7.5	M8 x 1.25	4.5	14	7	34	5.5	9 depth 7	1/8	10	49.5	14
	75, 100	50	43																	
40	5 to 50	46.5	39.5	56.5	49.5	13	16	52	7.5	M8 x 1.25	5	14	7	40	5.5	9 depth 7	1/8	12.5	57	14
	75, 100	56.5	49.5																	
50	10 to 50	48.5	40.5	58.5	50.5	15	20	64	10.5	M10 x 1.5	7	17	8	50	6.6	11 depth 8	1/4	10.5	71	19
	75, 100	58.5	50.5																	

Bore Size

**∅32 to ∅50**

(Types with auto switch and without auto switch only differ in the A and B dimensions. Refer to the table below.)

Foot: CQ2YL/CDQ2YL



Male rod end

Foot

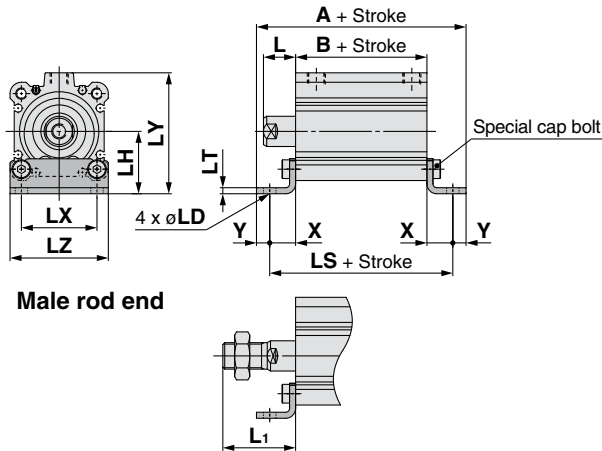
Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
		32	5 to 50	57.2	33	17	67.2			
	75, 100	67.2	43	27						
40	5 to 50	63.7	39.5	23.5	73.7	49.5	33.5	17	38.5	6.6
	75, 100	73.7	49.5	33.5						
50	10 to 50	66.7	40.5	17.5	76.7	50.5	27.5	18	43.5	9
	75, 100	76.7	50.5	27.5						

Bore size (mm)	Stroke range (mm)	LG	LH	LT	LX	LY	LZ	X	Y
32	5 to 50	4	30	3.2	57	57	71	11.2	5.8
	75, 100								
40	5 to 50	4	33	3.2	64	64	78	11.2	7
	75, 100								
50	10 to 50	5	39	3.2	79	78	95	14.7	8
	75, 100								

Foot bracket material: Carbon steel  
Surface treatment: Nickel plating

Compact foot: CQ2YLC/CDQ2YLC



Male rod end

Compact Foot

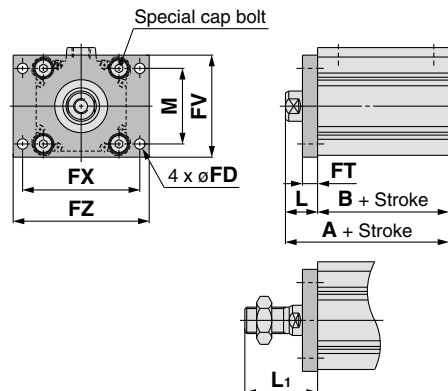
Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
		32	5 to 50	72	33	60.4	82			
75, 100	82		43	70.4						
40	5 to 50	80.9	39.5	66.9	90.9	49.5	76.9	17	38.5	6.6
	75, 100	90.9	49.5	76.9						
50	10 to 50	89.9	40.5	73.9	99.9	50.5	83.9	18	43.5	9
	75, 100	99.9	50.5	83.9						

Bore size (mm)	Stroke range (mm)	LH	LT	LX	LY	LZ	X	Y
32	5 to 50	30	3.2	34	57	45	13.7	5.8
	75, 100							
40	5 to 50	33	3.2	40	64	52	13.7	7
	75, 100							
50	10 to 50	39	3.2	50	78	64	16.7	8
	75, 100							

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

Rod flange: CQ2YF/CDQ2YF



Rod Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ
		A	B	A	B					
		32	5 to 50	50	33					
75, 100	60		43							
40	5 to 50	56.5	39.5	66.5	49.5	5.5	8	54	62	72
	75, 100	66.5	49.5							
50	10 to 50	58.5	40.5	68.5	50.5	6.6	9	67	76	89
	75, 100	68.5	50.5							

Bore size (mm)	Stroke range (mm)	L	L <sub>1</sub>	M
32	5 to 50	17	38.5	34
	75, 100			
40	5 to 50	17	38.5	40
	75, 100			
50	10 to 50	18	43.5	50
	75, 100			

Flange bracket material: Carbon steel  
Surface treatment: Nickel plating

\* For details about the rod end nut and accessory brackets, refer to page 103.



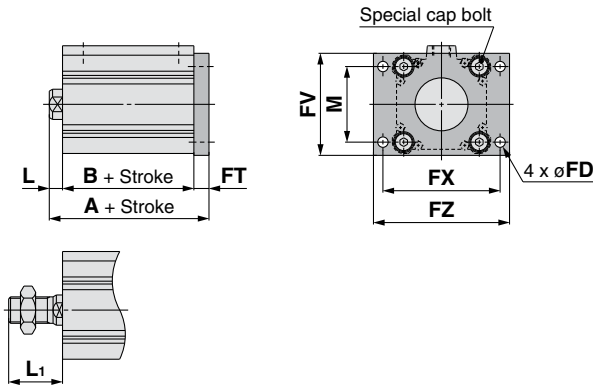
# Series CQ2Y

Bore Size

## ∅32 to ∅50

(Types with auto switch and without auto switch only differ in the A and B dimensions. Refer to the table below.)

### Head flange: CQ2YG/CDQ2YG



### Head Flange

(mm)

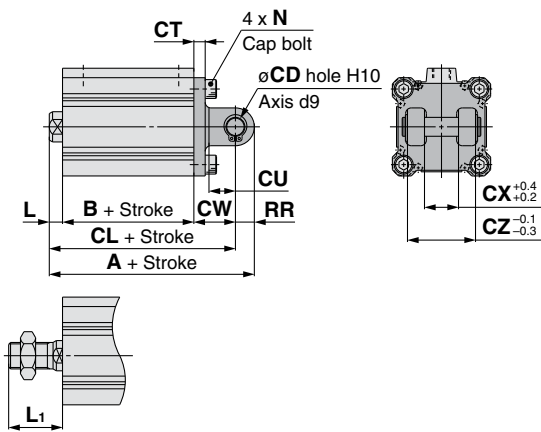
Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L	L <sub>1</sub>
		A	A		
32	5 to 50	48	58	7	28.5
	75, 100	58			
40	5 to 50	54.5	64.5	7	28.5
	75, 100	64.5			
50	10 to 50	57.5	67.5	8	33.5
	75, 100	67.5			

Flange bracket material: Carbon steel

Surface treatment: Nickel plating

(\* Dimensions except A, L and L<sub>1</sub> are the same as rod flange type.)

### Double clevis: CQ2YD/CDQ2YD



### Double Clevis

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU
		A	B	CL	A	B	CL			
32	5 to 50	70	33	60	80	43	70	10	5	14
	75, 100	80	43	70						
40	5 to 50	78.5	39.5	68.5	88.5	49.5	78.5	10	6	14
	75, 100	88.5	49.5	78.5						
50	10 to 50	90.5	40.5	76.5	100.5	50.5	86.5	14	7	20
	75, 100	100.5	50.5	86.5						

Bore size (mm)	Stroke range (mm)	CW	CX	CZ	L	L <sub>1</sub>	N	RR
32	5 to 50	20	18	36	7	28.5	M6 x 1.0	10
	75, 100							
40	5 to 50	22	18	36	7	28.5	M6 x 1.0	10
	75, 100							
50	10 to 50	28	22	44	8	33.5	M8 x 1.25	14
	75, 100							

Double clevis bracket material: Cast iron

Surface treatment: Painted

\* For details about the rod end nut and accessory brackets, refer to page 103.

\* A double clevis pin and retaining rings are included.



Bore Size

**∅63 to ∅100**

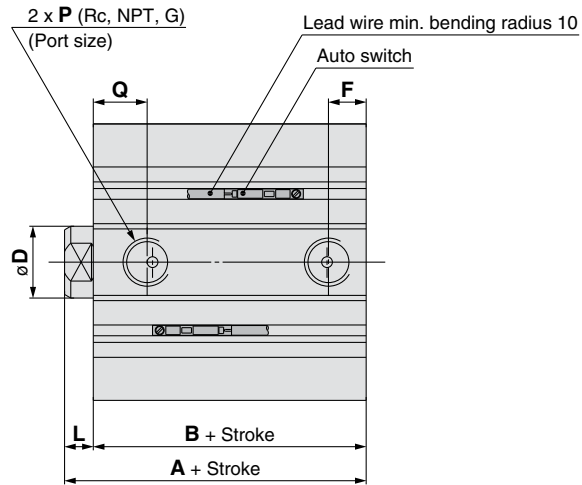
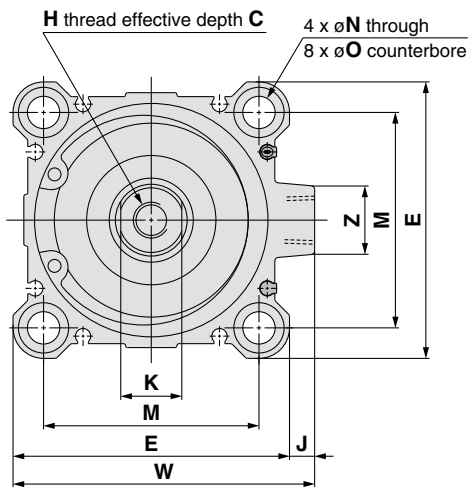
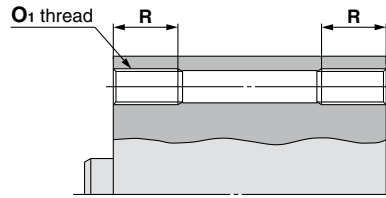
(Types with auto switch and without auto switch only differ in the A and B dimensions. Refer to the table below.)

Through-hole: CQ2YB/CDQ2YB

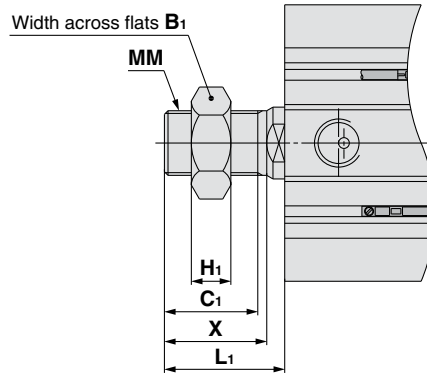
Both ends tapped: CQ2YA/CDQ2YA

Both Ends Tapped (mm)

Bore size (mm)	O <sub>1</sub>	R
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22



Male rod end



Male Rod End (mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
63	27	26	11	33.5	M18 x 1.5	28.5
80	32	32.5	13	43.5	M22 x 1.5	35.5
100	41	32.5	16	43.5	M26 x 1.5	35.5

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	W	Z
		A	B	A	B															
63	10 to 50	54	46	64	56	15	20	77	10.5	M10 x 1.5	7	17	8	60	9	14 depth 10.5	1/4	15	84	19
	75, 100	64	56																	
80	10 to 50	63.5	53.5	73.5	63.5	21	25	98	12.5	M16 x 2.0	6	22	10	77	11	17.5 depth 13.5	3/8	16	104	25
	75, 100	73.5	63.5																	
100	10 to 50	75	63	85	73	27	30	117	13	M20 x 2.5	6.5	27	12	94	11	17.5 depth 13.5	3/8	23	123.5	25
	75, 100	85	73																	

Smooth Cylinders

Low Speed Cylinders

CJ2Y-Z

CM2Y-Z

CG1Y-Z

MBY-Z

CA2Y-Z

CS2Y

CQS

CQ2Y-Z

CJ2X-Z

CM2X-Z

CQSX

CQ2X

CUX

Auto Switch

Made to Order

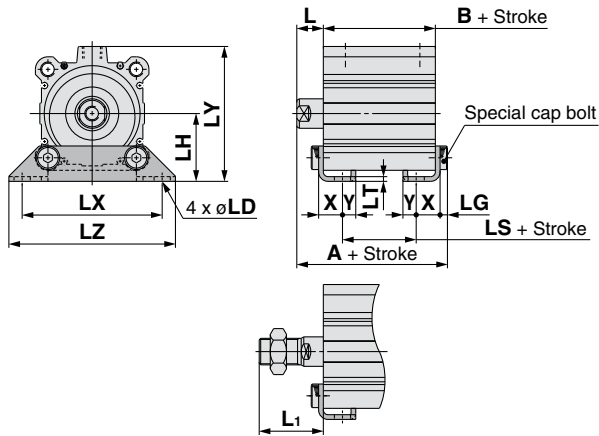
# Series CQ2Y

Bore Size

## Ø63 to Ø100

(Types with auto switch and without auto switch only differ in the A and B dimensions. Refer to the table below.)

### Foot: CQ2YL/CDQ2YL



### Foot

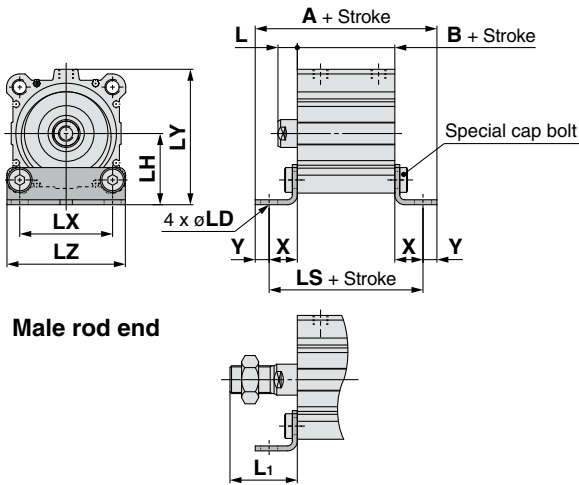
Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
63	10 to 50	72.2	46	20	82.2	56	30	18	43.5	11
	75, 100	82.2	56	30						
80	10 to 50	85	53.5	23.5	95	63.5	33.5	20	53.5	13
	75, 100	95	63.5	33.5						
100	10 to 50	98	63	29	108	73	39	22	53.5	13
	75, 100	108	73	39						

Bore size (mm)	Stroke range (mm)	LG	LH	LT	LX	LY	LZ	X	Y
63	10 to 50	5	46	3.2	95	91.5	113	16.2	9
	75, 100								
80	10 to 50	7	59	4.5	118	114	140	19.5	11
	75, 100								
100	10 to 50	7	71	6	137	136	162	23	12.5
	75, 100								

Foot bracket material: Carbon steel  
Surface treatment: Nickel plating

### Compact foot: CQ2YLC/CDQ2YLC



### Compact Foot

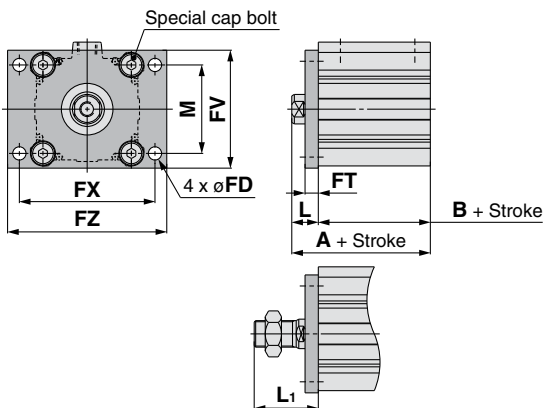
Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
63	10 to 50	100.4	46	82.4	110.4	56	92.4	18	43.5	11
	75, 100	110.4	56	92.4						
80	10 to 50	120.5	53.5	98.5	130.5	63.5	108.5	20	53.5	13
	75, 100	130.5	63.5	108.5						
100	10 to 50	136	63	111	146	73	121	22	53.5	13
	75, 100	146	73	121						

Bore size (mm)	Stroke range (mm)	LH	LT	LX	LY	LZ	X	Y
63	10 to 50	46	3.2	60	91.5	77	18.2	9
	75, 100							
80	10 to 50	59	4.5	77	114	98	22.5	11
	75, 100							
100	10 to 50	71	6	94	136	117	24	12.5
	75, 100							

Compact foot bracket material: Carbon steel  
Surface treatment: Zinc chromated

### Rod flange: CQ2YF/CDQ2YF



### Rod Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ
		A	B	A	B					
63	10 to 50	64	46	74	56	9	9	80	92	108
	75, 100	74	56							
80	10 to 50	73.5	53.5	83.5	63.5	11	11	99	116	134
	75, 100	83.5	63.5							
100	10 to 50	85	63	95	73	11	11	117	136	154
	75, 100	95	73							

Bore size (mm)	Stroke range (mm)	L	L <sub>1</sub>	M
63	10 to 50	18	43.5	60
	75, 100			
80	10 to 50	20	53.5	77
	75, 100			
100	10 to 50	22	53.5	94
	75, 100			

Flange bracket material: Carbon steel  
Surface treatment: Nickel plating

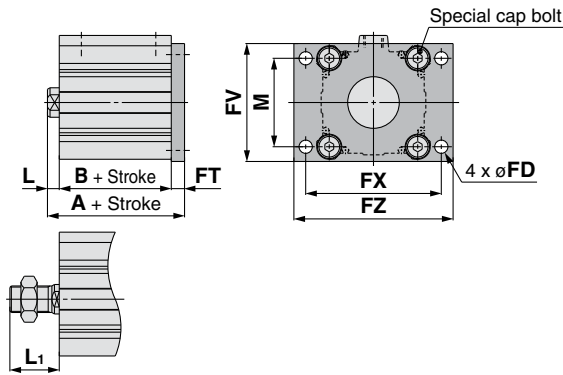
\* For details about the rod end nut and accessory brackets, refer to page 103.

Bore Size

**ø63 to ø100**

(Types with auto switch and without auto switch only differ in the A and B dimensions. Refer to the table below.)

Head flange: CQ2YG/CDQ2YG



Head Flange

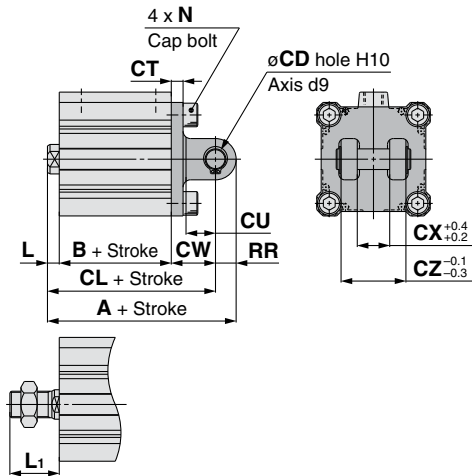
(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L	L <sub>1</sub>
		A	A		
63	10 to 50	63	73	8	33.5
	75, 100	73			
80	10 to 50	74.5	84.5	10	43.5
	75, 100	84.5			
100	10 to 50	86	96	12	43.5
	75, 100	96			

Flange bracket material: Carbon steel  
Surface treatment: Nickel plating

(\* Dimensions except A, L and L<sub>1</sub> are the same as rod flange type.)

Double clevis: CQ2YD/CDQ2YD



Double Clevis

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU
		A	B	CL	A	B	CL			
63	10 to 50	98	46	84	108	56	94	14	8	20
	75, 100	108	56	94						
80	10 to 50	119.5	53.5	101.5	129.5	63.5	111.5	18	10	27
	75, 100	129.5	63.5	111.5						
100	10 to 50	142	63	120	152	73	130	22	13	31
	75, 100	152	73	130						

Bore size (mm)	Stroke range (mm)	CW	CX	CZ	L	L <sub>1</sub>	N	RR
63	10 to 50	30	22	44	8	33.5	M10 x 1.5	14
	75, 100							
80	10 to 50	38	28	56	10	43.5	M12 x 1.75	18
	75, 100							
100	10 to 50	45	32	64	12	43.5	M12 x 1.75	22
	75, 100							

Double clevis bracket material: Cast iron  
Surface treatment: Painted

\* For details about the rod end nut and accessory brackets, refer to page 103.  
\* A double clevis pin and retaining rings are included.

Smooth Cylinders	CJ2Y-Z
	CM2Y-Z
	CG1Y-Z
	MBY-Z
	CA2Y-Z
Low Speed Cylinders	CS2Y
	CQS
	CQ2Y-Z
	CJ2X-Z
	CM2X-Z
Auto Switch	CQS
	CQ2X
	CUX
Made to Order	

## Weights

### Weights/Without Auto Switch

(g)

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
32	134	154	174	193	213	233	252	272	291	311	457	556
40	211	232	254	275	297	318	340	361	383	404	577	689
50	—	369	402	435	467	500	533	566	598	632	902	1073
63	—	557	595	633	671	709	747	786	824	862	1189	1386
80	—	983	1043	1104	1164	1224	1284	1345	1405	1465	1985	2281
100	—	1711	1792	1872	1952	2033	2113	2194	2274	2354	3086	3494

### Additional Weights

(g)

Bore size (mm)		32	40	50	63	80	100
Both ends tapped		6	6	6	19	45	45
Male rod end	Male thread	26	27	53	53	120	175
	Nut	17	17	32	32	49	116
Foot (Including mounting bolt)		142	154	243	320	690	1057
Compact foot (Including mounting bolt)		99	114	177	241	501	770
Rod flange (Including mounting bolt)		180	214	373	559	1056	1365
Head flange (Including mounting bolt)		165	198	348	534	1017	1309
Double clevis (Including pin, retaining ring, mounting bolt)		151	196	393	554	1109	1887

#### Calculation (Example) CQ2DS32-20DCMZ

- Basic weight: CQ2BS32-20DCZ.....193 g
  - Additional weight: Both ends tapped..... 6 g
  - Male rod end..... 43 g
  - Double clevis .....151 g
- Total **393 g**

### Weights/With Auto Switch (Built-in magnet)

(g)

Bore size (mm)	Cylinder stroke											
	5	10	15	20	25	30	35	40	45	50	75	100
32	191	211	230	250	270	289	309	329	348	368	468	567
40	284	305	327	348	369	391	412	434	455	477	589	701
50	—	480	513	546	579	611	644	677	710	743	915	1087
63	—	710	748	787	825	863	901	939	977	1015	1211	1408
80	—	1229	1289	1350	1410	1470	1530	1591	1651	1711	2008	2305
100	—	2070	2150	2231	2311	2391	2472	2552	2633	2713	3121	3529

### Additional Weights

(g)

Bore size (mm)		32	40	50	63	80	100
Both ends tapped		6	6	6	19	45	45
Male rod end	Male thread	26	27	53	53	120	175
	Nut	17	17	32	32	49	116
Foot (Including mounting bolt)		142	154	243	320	690	1057
Compact foot (Including mounting bolt)		84	98	152	216	462	714
Rod flange (Including mounting bolt)		180	214	373	559	1056	1365
Head flange (Including mounting bolt)		165	198	348	534	1017	1309
Double clevis (Including pin, retaining ring, mounting bolt)		151	196	393	554	1109	1887

#### Calculation (Example) CDQ2DS32-20DCMZ

- Basic weight: CDQ2BS32-20DCZ.....250 g
  - Additional weight: Both ends tapped..... 6 g
  - Male rod end..... 43 g
  - Double clevis .....151 g
- Total **450 g**

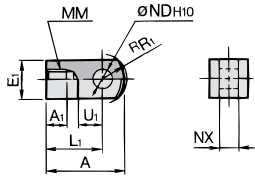
Add each weight of auto switches when auto switches are mounted.

# Dimensions of Accessories

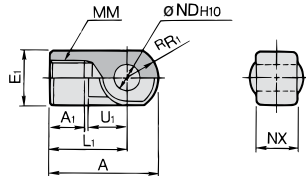
## Single Knuckle Joint

For I-G012, I-Z015A  
I-G02, I-G03

For I-G04, I-G05  
I-G08, I-G10



Material: Carbon steel  
Surface treatment: Nickel plating



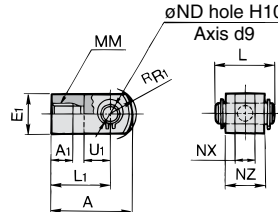
Material: Cast iron  
Surface treatment: Nickel plating  
(mm)

Part no.	Applicable bore size (mm)	A	A <sub>1</sub>	E <sub>1</sub>	L <sub>1</sub>	MM	R <sub>r1</sub>	U <sub>1</sub>	ND <sub>H10</sub>	NX
I-G04	32, 40	42	14	ø22	30	M14 x 1.5	12	14	10 <sup>+0.058</sup> <sub>0</sub>	18 <sup>-0.3</sup> <sub>-0.5</sub>
I-G05	50, 63	56	18	ø28	40	M18 x 1.5	16	20	14 <sup>+0.070</sup> <sub>0</sub>	22 <sup>-0.3</sup> <sub>-0.5</sub>
I-G08	80	71	21	ø38	50	M22 x 1.5	21	27	18 <sup>+0.070</sup> <sub>0</sub>	28 <sup>-0.3</sup> <sub>-0.5</sub>
I-G10	100	79	21	ø44	55	M26 x 1.5	24	31	22 <sup>+0.084</sup> <sub>0</sub>	32 <sup>-0.3</sup> <sub>-0.5</sub>

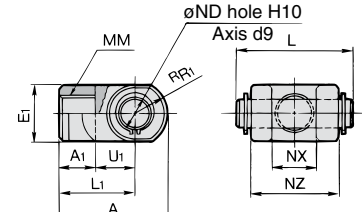
## Double Knuckle Joint

For Y-G012, Y-Z015A  
Y-G02, Y-G03

For Y-G04, Y-G05  
Y-G08, Y-G10



Material: Carbon steel  
Surface treatment: Nickel plating

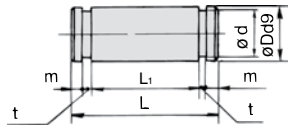


Material: Cast iron  
Surface treatment: Nickel plating  
(mm)

Part no.	Applicable bore size (mm)	A	A <sub>1</sub>	E <sub>1</sub>	L <sub>1</sub>	MM	R <sub>r1</sub>	U <sub>1</sub>	ND <sub>H10</sub>	NX	NZ	L	Applicable pin part no.
Y-G04	32, 40	42	16	ø22	30	M14 x 1.5	12	14	10 <sup>+0.058</sup> <sub>0</sub>	18 <sup>-0.5</sup> <sub>-0.3</sub>	36	41.6	IY-G04
Y-G05	50, 63	56	20	ø28	40	M18 x 1.5	16	20	14 <sup>+0.070</sup> <sub>0</sub>	22 <sup>-0.3</sup> <sub>-0.5</sub>	44	50.6	IY-G05
Y-G08	80	71	23	ø38	50	M22 x 1.5	21	27	18 <sup>+0.070</sup> <sub>0</sub>	28 <sup>-0.3</sup> <sub>-0.5</sub>	56	64	IY-G08
Y-G10	100	79	24	ø44	55	M26 x 1.5	24	31	22 <sup>+0.084</sup> <sub>0</sub>	32 <sup>-0.3</sup> <sub>-0.5</sub>	64	72	IY-G10

\* A knuckle pin and retaining rings are included.

## Knuckle Pin (Common with double clevis pin)

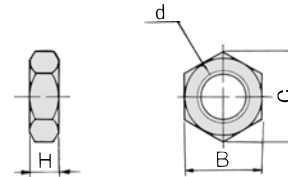


Material: Carbon steel  
(mm)

Part no.	Applicable bore size (mm)	Dd9	L	d	L <sub>1</sub>	m	t	Applicable retaining ring
IY-G04	32, 40	10 <sup>-0.040</sup> <sub>-0.076</sub>	41.6	9.6	36.2	1.55	1.15	Type C 10 for axis
IY-G05	50, 63	14 <sup>-0.050</sup> <sub>-0.093</sub>	50.6	13.4	44.2	2.05	1.15	Type C 14 for axis
IY-G08	80	18 <sup>-0.050</sup> <sub>-0.093</sub>	64	17	56.2	2.55	1.35	Type C 18 for axis
IY-G10	100	22 <sup>-0.065</sup> <sub>-0.117</sub>	72	21	64.2	2.55	1.35	Type C 22 for axis

\* Type C retaining rings for axis are included.

## Rod End Nut

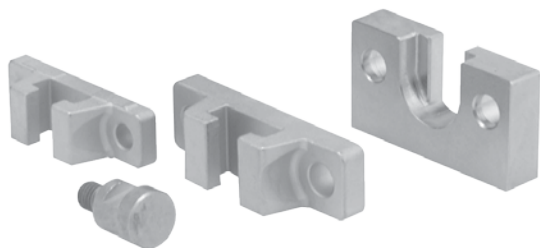


Material: Carbon steel  
Surface material: Nickel plating  
(mm)

Part no.	Applicable bore size (mm)	d	H	B	C
NT-04	32, 40	M14 x 1.5	8	22	25.4
NT-05	50, 63	M18 x 1.5	11	27	31.2
NT-08	80	M22 x 1.5	13	32	37.0
NT-10	100	M26 x 1.5	16	41	47.3

- Smooth Cylinders
- Low Speed Cylinders
- Auto Switch
- Made to Order

## Simple Joint: $\phi 32$ to $\phi 100$



### Joint and Mounting Bracket (Type A, Type B) Part No.

YA — 03

#### ● Mounting bracket

YA	Type A mounting bracket
YB	Type B mounting bracket
YU	Joint

#### ● Applicable air cylinder bore

03	For $\phi 32$ , $\phi 40$
05	For $\phi 50$ , $\phi 63$
08	For $\phi 80$
10	For $\phi 100$

### Allowable Eccentricity

(mm)

Bore size	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
Eccentricity tolerance	$\pm 1$			$\pm 1.5$		$\pm 2$
Backlash	0.5					

<Ordering>

- Joints are not included with the A or B type mounting brackets. Order them separately.

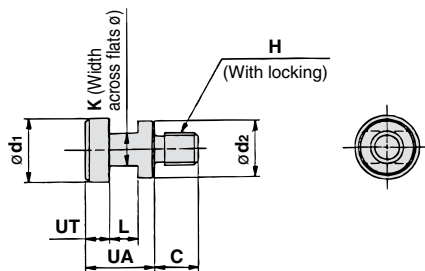
(Example)

Bore size  $\phi 40$  Part no. ....

- Type A mounting bracket part no. ....YA-03
- Joint .....YU-03

### Joint and Mounting Bracket (Type A, Type B) Part No.

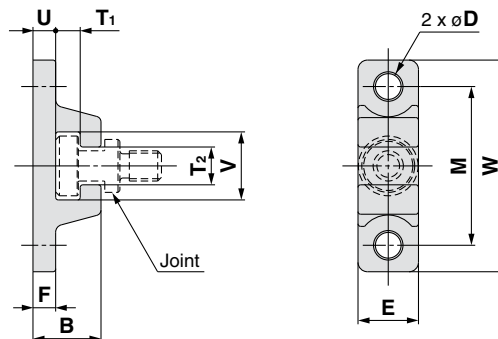
Bore size (mm)	Joint part no.	Applicable mounting bracket	
		Type A mounting bracket	Type B mounting bracket
32, 40	YU-03	YA-03	YB-03
50, 63	YU-05	YA-05	YB-05
80	YU-08	YA-08	YB-08
100	YU-10	YA-10	YB-10



Material: Chromium molybdenum steel (Nickel plating)

Part no.	Applicable bore size (mm)	UA	C	d <sub>1</sub>	d <sub>2</sub>	H	K	L	UT	Weight (g)
YU-03	32, 40	17	11	15.8	14	M8 x 1.25	8	7	6	25
YU-05	50, 63	17	13	19.8	18	M10 x 1.5	10	7	6	40
YU-08	80	22	20	24.8	23	M16 x 2	13	9	8	90
YU-10	100	26	26	29.8	28	M20 x 2.5	14	11	10	160

### Type A Mounting Bracket

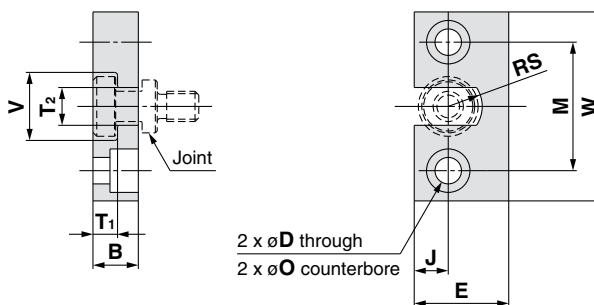


Material: Chromium molybdenum steel (Nickel plating)  
(mm)

Part no.	Bore size (mm)	B	D	E	F	M	T <sub>1</sub>	T <sub>2</sub>
YA-03	32, 40	18	6.8	16	6	42	6.5	10
YA-05	50, 63	20	9	20	8	50	6.5	12
YA-08	80	26	11	25	10	62	8.5	16
YA-10	100	31	14	30	12	76	10.5	18

Part no.	Bore size (mm)	U	V	W	Weight (g)
YA-03	32, 40	6	18	56	55
YA-05	50, 63	8	22	67	100
YA-08	80	10	28	83	195
YA-10	100	12	36	100	340

### Type B Mounting Bracket



Material: Stainless steel  
(mm)

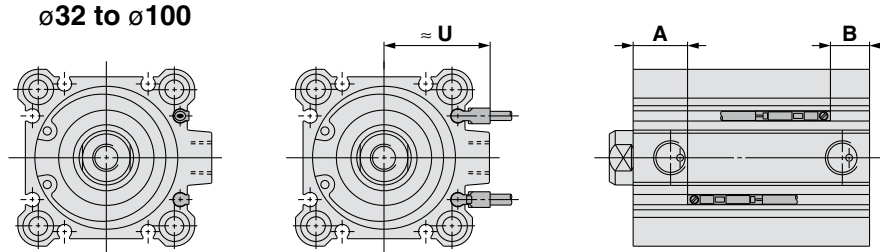
Part no.	Bore size (mm)	B	D	E	J	M	$\phi O$
YB-03	32, 40	12	7	25	9	34	11.5 depth 7.5
YB-05	50, 63	12	9	32	11	42	14.5 depth 8.5
YB-08	80	16	11	38	13	52	18 depth 12
YB-10	100	19	14	50	17	62	21 depth 14

Part no.	Bore size (mm)	T <sub>1</sub>	T <sub>2</sub>	V	W	RS	Weight (g)
YB-03	32, 40	6.5	10	18	50	9	80
YB-05	50, 63	6.5	12	22	60	11	120
YB-08	80	8.5	16	28	75	14	230
YB-10	100	10.5	18	36	90	18	455

# Auto Switch Mounting

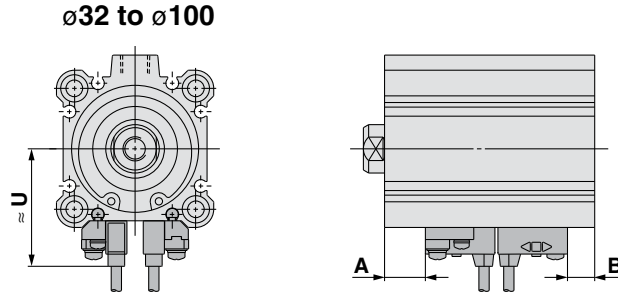
## Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

- D-M9□
- D-M9□W
- D-M9□A
- D-A9□V
- D-M9□V
- D-M9□WV
- D-M9□AV
- D-A9□



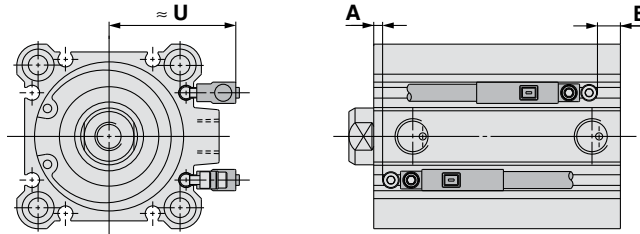
- D-A7□
- D-A80
- D-A7□H
- D-A80H
- D-F7□
- D-J79
- D-F7□W
- D-J79W
- D-F79F

- D-F7NT
- D-A73C
- D-A80C
- D-J79C
- D-A79W
- D-F7□WV
- D-F7□V



- D-P3DW

ø32 to ø100



### Auto Switch Proper Mounting Position

(mm)

Auto switch model	D-M9□/D-M9□V		D-M9□W		D-M9□WV		D-M9□A		D-M9□AV		D-A9□		D-A9□V		D-A73		D-A80		D-A72/A7□H/A80H		D-A73C/A80C/F7□		D-F79F/J79/F7□V		D-J79C/F7□W		D-J79W/F7□WV		D-F7NT		D-A79W		D-P3DW					
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B						
32	18	13	14	9	15	10	15.5	10.5	20.5	15.5	12.5	7.5	8	3.5																								
40	21.5	16	17.5	12	18.5	13	19	13.5	24	18.5	16	10.5	11.5	6.5																								
50	19	19.5	15	15.5	16	16.5	16.5	17	21.5	22	13.5	14	9.5	9.5																								
63	21.5	22.5	17.5	18.5	18.5	19.5	19	20	24	25	16	17	12	12.5																								
80	24.5	27	20.5	23	21.5	24	22	24.5	27	29.5	19	21.5	15	17																								
100	27.5	33.5	23.5	29.5	24.5	30.5	25	31	30	36	22	28	18	24																								

Note) Adjust the auto switch after confirming the operating condition in the actual setting.

### Auto Switch Mounting Height

(mm)

Auto switch model	D-M9□V		D-A9□V		D-F7□/J79		D-F7□W/J79W		D-F7BA		D-F79F/F7NT		D-A7□H/A80H		D-F7□V		D-F7□WV		D-J79C		D-A7□		D-A80		D-A73C		D-A80C		D-A79W		D-P3DW						
	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U						
32	30	27.5	36	36.5	39.5	34	40.5	37.5	33																												
40	32	30	38	40	42.5	37.5	43.5	40.5	36.5																												
50	37.5	35	43.5	45	48	43	49	46	42																												
63	42.5	40.5	48.5	50.5	53.5	48	54.5	51.5	47																												
80	51	49	57	59	61.5	56.5	62.5	59.5	55.5																												
100	59	57	65.5	67	70	64.5	71	68	65.5																												

Smooth Cylinders

- CJ2Y-Z
- CM2Y-Z
- CG1Y-Z
- MBY-Z
- CA2Y-Z
- CS2Y
- CQS
- CQ2Y-Z

Low Speed Cylinders

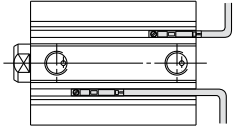
- CJ2X-Z
- CM2X-Z
- CQS
- CQ2X
- CUX
- Auto Switch
- Made to Order

## Minimum Stroke for Auto Switch Mounting

(mm)

Number of auto switches	D-M9□V D-F7□V D-J79C	D-A9□V D-A7□ D-A80 D-A73C D-A80C	D-A9□	D-M9□WV D-M9□AV D-F7□WV	D-M9□ D-F7□ D-J79	D-M9□W D-M9□A	D-A7□H D-A80H	D-A79W	D-F7□W D-J79W D-F79F D-F7NT	D-P3DW
With 1 pc.	5	5	10(5)	10	15(5)	15(10)	15(5)	15	20(10)	15
With 2 pcs.	5	10	10	15	15(5)	15	15(10)	20	20(15)	15

Note) The dimensions stated in ( ) shows the minimum stroke for the auto switch mounting when the auto switch does not project from the end surface of the cylinder body and hinder the lead wire bending space. (Refer to the figure below.)  
Order auto switches and auto switch mounting brackets separately.



## Operating Range

(mm)

Auto switch model	Bore size					
	32	40	50	63	80	100
D-M9□(V) D-M9□W(V) D-M9□A(V)	5	5	6	6.5	7	7.5
D-A9□(V)	9	9.5	9.5	11	10.5	10.5
D-A7□(H)(C) D-A80□(H)(C)	10.5	11.5	11	13	11.5	11.5
D-A79W	14	15.5	14.5	17	15	15.5
D-F7□(V) D-J79(C) D-F7□W(V) D-F7NT D-F79F	5	5	5	6	7	8
D-P3DW	3	4.5	4.5	6	5.5	6.5

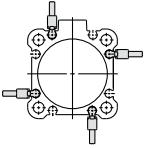
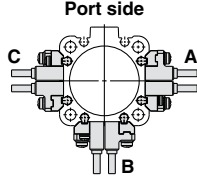
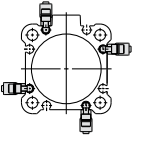
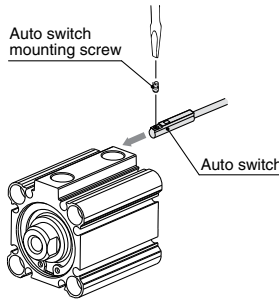
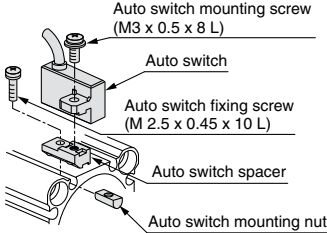
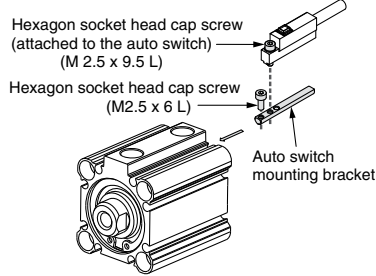
\* Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

\* The auto switch mounting bracket BQ2-012 is not used for ø32 or more with the D-M9□(V)/M9□W(V)/M9□A(V)/A9□(V) types. The above values indicate the operating range when mounted with the conventional auto switch installation groove.



**Auto Switch Mounting Brackets/Part No.**

**Applicable Cylinder Series: CDQ2**

Applicable auto switch	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V	D-F7□/F7□V/J79/J79C/F7□W J79W/F7□WV/D-F7BA/F7BAV F79F/F7NT/D-A7□/A80/A7□H A80H/A73C/A80C/A79W	D-P3DW										
Bore size (mm)	ø32 to ø100												
Auto switch mounting bracket part no.		BQ5-032	BQ6-032S										
Auto switch mounting bracket fitting parts lineup/Weight		<ul style="list-style-type: none"> <li>• Auto switch fixing screw (M2.5 x 10 L)</li> <li>• Auto switch mounting screw (M3 x 8 L)</li> <li>• Auto switch spacer</li> <li>• Auto switch mounting nut</li> </ul> Weight: 3.5 g	<ul style="list-style-type: none"> <li>• Hexagon socket head cap screw (M 2.5 x 6 L)</li> <li>• Auto switch mounting bracket (nut)</li> </ul> Weight: 5 g										
Auto switch mounting surface	Surfaces with auto switch mounting slot 	A/B/C side except port side 	Surfaces with auto switch mounting slot 										
Mounting of auto switch	 <ul style="list-style-type: none"> <li>• When tightening the auto switch mounting screw, use a watchmakers' screwdriver with a handle 5 to 6 mm in diameter.</li> </ul> <p><b>Tightening torque for auto switch mounting screw</b> lbf-ft (N-m)</p> <table border="1"> <thead> <tr> <th>Auto switch model</th> <th>Tightening torque</th> </tr> </thead> <tbody> <tr> <td>D-M9□(V)</td> <td>0.04 to 0.11 (0.05 to 0.15)</td> </tr> <tr> <td>D-M9□W(V)</td> <td>0.04 to 0.11 (0.05 to 0.15)</td> </tr> <tr> <td>D-M9□A(V)</td> <td>0.04 to 0.11 (0.05 to 0.15)</td> </tr> <tr> <td>D-A9□(V)</td> <td>0.07 to 0.15 (0.10 to 0.20)</td> </tr> </tbody> </table>	Auto switch model	Tightening torque	D-M9□(V)	0.04 to 0.11 (0.05 to 0.15)	D-M9□W(V)	0.04 to 0.11 (0.05 to 0.15)	D-M9□A(V)	0.04 to 0.11 (0.05 to 0.15)	D-A9□(V)	0.07 to 0.15 (0.10 to 0.20)	<ol style="list-style-type: none"> <li>Insert the nut into the auto switch mounting slot on the cylinder tube, and place it in the roughly estimated setting position.</li> <li>With the lower tapered part of the auto switch spacer facing the outside of the cylinder tube, line up the M2.5 through hole with the M2.5 female thread of the auto switch mounting nut.</li> <li>Gently screw the auto switch mounting nut fixing screw (M2.5) into the thread of the auto switch mounting nut through the mounting hole.</li> <li>Engage the ridge on the auto switch mounting arm with the recess in the auto switch spacer.</li> <li>Tighten the auto switch mounting screw (M3) to fix the auto switch. The tightening torque of the M3 screw must be 0.26 to 0.33 lbf-ft (0.35 to 0.45 N-m).</li> <li>Confirm where the mounting position is, and tighten the auto switch fixing screw (M2.5) to fix the auto switch mounting nut. The tightening torque of the M2.5 screw must be 0.18 to 0.26 lbf-ft (0.25 to 0.35 N-m).</li> <li>The detection position can be changed under the conditions in step ⑤.</li> </ol> 	<ol style="list-style-type: none"> <li>Fix the auto switch and the auto switch mounting bracket temporarily by tightening the hexagon socket head cap screw (M2.5 x 9.5 L) attached to the auto switch 1 to 2 turns.</li> <li>Insert the temporarily tightened mounting bracket into the mating groove of the cylinder tube, and slide the auto switch onto the cylinder tube through the groove.</li> <li>To insert the auto switch onto the cylinder/actuator through the groove, first hold the back of the auto switch (lead wire side) and the back of the auto switch mounting bracket together.</li> <li>Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (M2.5 x 6 L, M2.5 x 9.5 L).*</li> <li>If the detecting position is changed, go back to step ②.</li> </ol> <p>* The hexagon socket head cap screw (M2.5 x 6 L) is used to fix the mounting bracket and cylinder tube. This enables the replacement of the auto switch without adjusting the auto switch position.</p> <p>Note 1) Ensure that the auto switch is covered with the mating groove to protect the auto switch.</p> <p>Note 2) The tightening torque of the hexagon socket head cap screw (M2.5 x 6 L, M2.5 x 9.5 L) must be 0.15 to 0.22 lbf-ft (0.2 to 0.3 N-m).</p> <p>Note 3) Tighten the hexagon socket head cap screws evenly.</p> 
Auto switch model	Tightening torque												
D-M9□(V)	0.04 to 0.11 (0.05 to 0.15)												
D-M9□W(V)	0.04 to 0.11 (0.05 to 0.15)												
D-M9□A(V)	0.04 to 0.11 (0.05 to 0.15)												
D-A9□(V)	0.07 to 0.15 (0.10 to 0.20)												

Note) Auto switch mounting bracket and auto switch are enclosed with the cylinder for shipment. The auto switch mounting bracket for the D-F7BA(V) type uses the BQ5-032 with the normal specifications (iron screw).

Smooth Cylinders	CJ2Y-Z
	CM2Y-Z
	CG1Y-Z
	MBY-Z
	CA2Y-Z
	CS2Y
	CQS
	CQ2Y-Z
Low Speed Cylinders	CJ2X-Z
	CM2X-Z
	CQS
	CQ2X
	CUX
	Auto Switch
	Made to Order

**Other than the applicable auto switches listed in “How to Order”, the following auto switches are mountable.**

Refer to **the WEB catalog** or Best Pneumatics No. 3 for the detailed specifications.

Type	Model	Electrical entry	Features	Applicable bore size
Reed	D-A72	Grommet (Perpendicular)	—	ø32 to ø100
	D-A73		—	
	D-A80		Without indicator light	
	D-A79W		Diagnostic indication (2-color indication)	
	D-A73C	Connector (Perpendicular)	—	
	D-A80C		Without indicator light	
	D-A72H	Grommet (In-line)	—	
	D-A73H/A76H		—	
	D-A80H		Without indicator light	
Solid state	D-F7NV/F7PV/F7BV	Grommet (Perpendicular)	—	
	D-F7NWV/F7BWV		Diagnostic indication (2-color indication)	
	D-F7BAV		Water resistant (2-color indication)	
	D-J79C	Connector (Perpendicular)	—	
	D-F79/F7P/J79	Grommet (In-line)	—	
	D-F79W/F7PW/J79W		Diagnostic indication (2-color indication)	
	D-F7BA		Water resistant (2-color indication)	
	D-F79F		With diagnostic output (2-color indication)	
	D-F7NT		With timer	

\* With pre-wired connector is also available for solid state auto switches. For details, refer to **the WEB catalog** or Best Pneumatics No. 3.

\* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to **the WEB catalog** or Best Pneumatics No. 3.

\* Trimmer auto switch (D-F7K) and heat resistant solid state auto switch (D-F7NJ) are not available.