




Air Cylinder Series CS1

ø125, ø140, ø160, ø180, ø200, ø250, ø300

Variations

Series	Action	Style	Basic style	Standard variations		Bore size (mm)	Page
				Rod boot	Copper free		
Standard Series CS1  Series CS1  Series CS1W	Double acting	Single rod Series CS1	Lube	●	●	125 140 160 180 200 250 300	1.14-2
			Non-lube	●	●	(ø125 to ø160 Only)	
			Air-hydro	●	●		
		Double rod Series CS1W	Lube	●	●	125 140 160 180 200 250 300	1.14-21
			Non-lube	●	●		
			Air-hydro	●	●	125 140 160	
Low friction Series CS1□Q 	Double acting	Single rod Series CS1□Q	Non-lube	●	●	125 140 160	1.14-30

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

CA1

CS1

Applicable Auto Switch (Applicable bore size: ø125 to ø200 only)

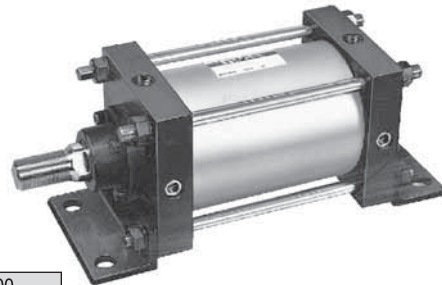
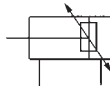
Reed switch	Band mounting	D-A3/A4
	Tie rod mounting	D-A5/A6, D-A59W
Solid state switch	Band mounting	D-G3/K3
	Tie rod mounting	D-F5□/J5□, D-F5NT, D-F5□W/J59W, D-F5BA, D-F5□F

Made to Order

Refer to p.5.4-1 for made to order specifications for series CS1.

Применяется в качестве привода с усилием до 68500 Н

- В стандартном исполнении предусмотрено воздушное демпфирование конечных положений
- Возможно исполнение с двусторонним штоком
- Прочная конструкция корпуса
- Потери на трение не более 5%
- Не требует смазки
- Пневмо- гидро исполнение



Технические характеристики

Диаметр поршня (мм)	125	140	160	180	200	250	300
Диаметр поршневого штока (мм)	36	36	40	45	50	60	70
Резьба поршневого штока	M30x1.5	M30x1.5	M36x1.5	M40x1.5	M45x1.5	M56x2	M64x2
Присоединительная резьба	1/2	1/2	3/4	3/4	3/4	1	1
Монтажное положение	произвольное						
Допуски по длине хода (мм)	до 250 +1.0/-0, до 1000 +1.4/-0, до 1500 +1.8/-0, до 2000 +2.2/-0, до 2400 +2.6/-0						
Среда	Очищенный сжатый воздух с содержанием масла или без него						
Диапазон рабочих давлений (МПа)	0.05~0.97						
Температура окружающей среды (°C)	От 0 до +70						
Скорость хода поршня (мм/с)	50~500						

Исполнение с максимальной температурой +150°C - по запросу

Максимально возможная длина хода цилиндра (мм)

Материал гильзы	Алюминиевый сплав		Сталь	
	В, G, C, D, T	L, F	В, G, C, D	L, F
∅125	1000	1400	1000	1600
∅140	1000	1400	1000	1600
∅160	1200	1400	1200	1600
∅180			1200	2000
∅200			1200	2000
∅250			1200	2400
∅300			1200	2400

* см. номер для заказа

Номер для заказа

C D S1 L N 160 TF - 300 -

-	Без магнитного кольца
D*	С магнитным кольцом

*Исполнение с магнитным кольцом возможно для цилиндров с диаметром поршня не более 200 мм.

* В исполнениях с магнитным кольцом материал гильзы - алюминий.

Тип крепления	
B	Базовый
L	На лапах
F	Передний фланец
G	Задний фланец
C	Одиная опора сзади
D	Двойная опора сзади
T	Центральная опора

Материал гильзы *		
-	∅125 - 160	Алюминий
-	∅180 - 300	Сталь
F	∅125 - 160	Сталь

Тип	
-	Требует смазки
N	Не требует смазки

∅ поршня (мм)	
125	200
140	250
160	300
180	

Присоед-резьба	
-	Rc
TF	G

Ход (мм)

Опции	
-	Односторонний шток (стандарт)
W	Двусторонний шток
XA...*	Модификации конца штока (по форме и размеру). См. стр. 5-15
XC6*	Нержавеющий шток
XC5*	Высокая температура 110°C
XB6*	Высокая температура -10 ~ 150°C
XC14*	Поворотная цапфа монтируется со смещением от центра
XC15*	Изменение вылета шпилек
XC10*	Сдвоенный двухштоковый пневмоцилиндр (4-позиционный)
XC11*	Сдвоенный пневмоцилиндр (3-позиционный)
XC35*	Дополнительный латунный скребок
XC4*	Усиленный скребок

* По запросу

Защита штока (гофр)	
-	Без защиты (стандарт)
J	Нейлоновая ткань 60°C
K	Термостойкая ткань 110°C

Датчики положения D-A54L и крепления датчиков заказывают отдельно.

Пневмо- и гидро- исполнения цилиндров CS1 на рабочее давление до 0.97 МПа поставляются по запросу.

Номер для заказа принадлежностей

Ремкомплект и крепления цилиндра

∅ поршня (мм)	Ремкомплект для исполнения:		Крепление цилиндра			
	требующего смазки	без смазки	На лапах	На фланце	Опора	Двойная опора
125	CS1-125A-PS	CS1N125A-PS	CS1-L12	CS1-F12	CS1-C12	CS1-D12
140	CS1-140A-PS	CS1N140A-PS	CS1-L14	CS1-F14	CS1-C14	CS1-D14
160	CS1-160A-PS	CS1N160A-PS	CS1-L16	CS1-F16	CS1-C16	CS1-D16
180	CS1-180A-PS	CS1N180A-PS	CS1-L18	CS1-F18	CS1-C18	CS1-D18
200	CS1-200A-PS	CS1N200A-PS	CS1-L20	CS1-F20	CS1-C20	CS1-D20
250	CS1-250A-PS	CS1N250A-PS	CS1-L25	CS1-F25	CS1-C25	CS1-D25
300	CS1-300A-PS	CS1N300A-PS	CS1-L30	CS1-F30	CS1-C30	CS1-D30

Шарнирный наконечник

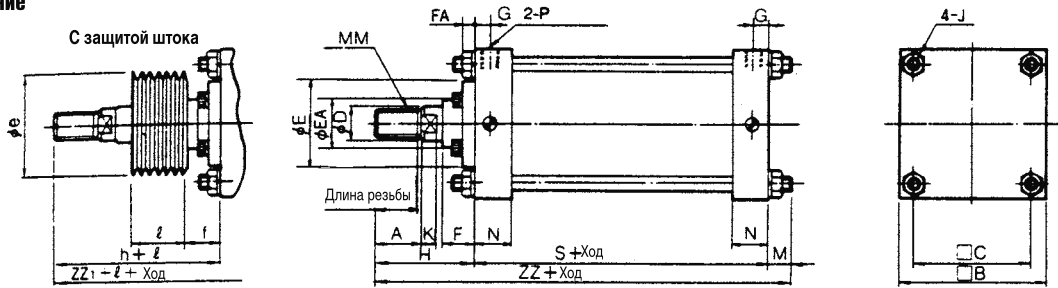
Номер для заказа	∅ порш. (мм)
I-12	125
I-14	140
I-16	160
I-18	180
I-20	200
I-25	250
I-30	300

Наконечник-вилка

Номер для заказа	∅ порш. (мм)
Y-12	125
Y-14	140
Y-16	160
Y-18	180
Y-20	200
Y-25	250
Y-30	300

Размеры

Базовое исполнение

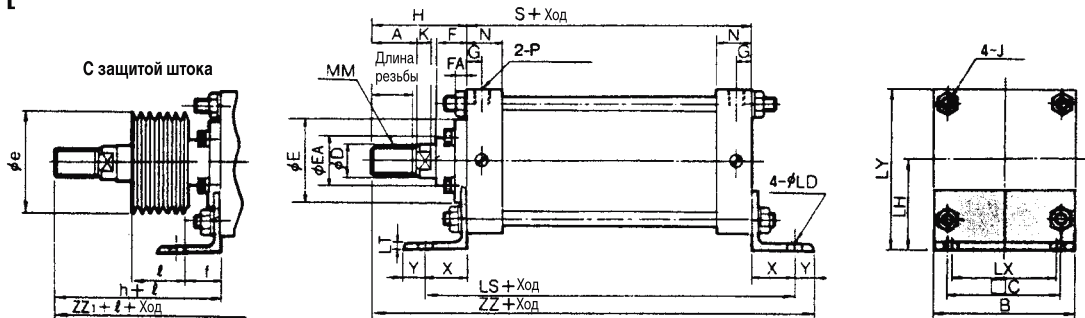


∅ порш. (мм)	*Ход (мм)	Длина резьбы	A	∅B	∅C	∅D	∅E	∅EA	F	FA	G	J	K	M	MM	N	P	S
125	~1000	47	50	145	115	36	90	59	43	14	16	M14x1.5	15	27	M30x1.5	35	1/2	98
140	~1000	47	50	161	128	36	90	59	43	14	16	M14x1.5	15	27	M30x1.5	35	1/2	98
160	~1200	53	56	182	144	40	90	59	43	14	18.5	M16x1.5	17	30.5	M36x1.5	39	3/4	106
180	~1200	60	63	204	162	45	115	70	48	17	18.5	M18x1.5	20	35	M40x1.5	39	3/4	111
200	~1200	60	63	226	182	50	115	74	48	17	18.5	M20x1.5	20	35	M45x1.5	39	3/4	111
250	~1200	67	71	277	225	60	140	86	60	20	23	M24x1.5	25	41.5	M56x2	49	1	141
300	~1200	76	80	330	270	70	140	96	60	20	23	M30x1.5	30	51.5	M64x2	49	1	146

* Минимальный ход с защитой штока 30 мм

∅ порш. (мм)	Без защиты штока		С защитой штока				
	H	ZZ	∅e	f	h	l	ZZ1
125	110	235	75	40	133	0.2 Хода	258
140	110	135	75	40	133		258
160	120	256.5	75	40	141		277.5
180	135	281	85	45	153	0.2 Хода	299
200	135	281	90	45	153		299
250	160	342.5	105	55	176	0.17 Хода	358.5
300	175	382.5	115	55	190		387.5

Тип крепления I



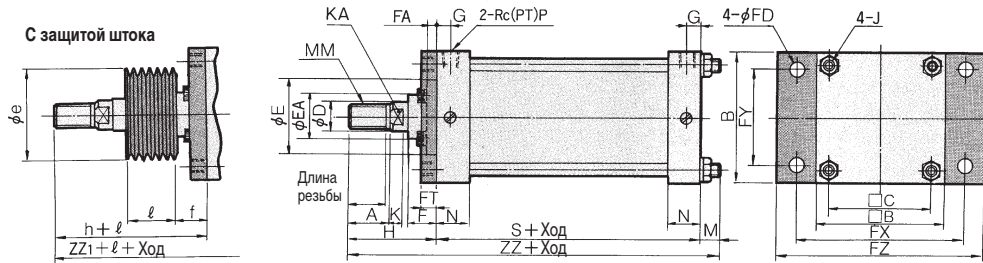
∅ порш. (мм)	*Ход (мм)	Длина резьбы	A	∅B	∅C	∅D	∅E	∅EA	F	FA	G	J	K	MM	N	P	S
125	~1400	47	50	145	115	36	90	59	43	14	16	M14x1.5	15	M30x1.5	35	1/2	98
140	~1400	47	50	161	128	36	90	59	43	14	16	M14x1.5	15	M30x1.5	35	1/2	98
160	~1400	53	56	182	144	40	90	59	43	14	18.5	M16x1.5	17	M36x1.5	39	3/4	106
180	~1800	60	63	204	162	45	115	70	48	17	18.5	M18x1.5	20	M40x1.5	39	3/4	111
200	~1800	60	63	226	182	50	115	74	48	17	18.5	M20x1.5	20	M45x1.5	39	3/4	111
250	~2000	67	71	277	225	60	140	86	60	20	23	M24x1.5	25	M56x2	49	1	141
300	~2000	76	80	330	270	70	140	96	60	20	23	M30x1.5	30	M64x2	49	1	146

∅ порш. (мм)	Без защиты штока		С защитой штока												
	X	Y	∅LD	LH	LS	LT	LX	LY	H	ZZ	∅e	f	h	l	ZZ1
125	45	20	19	85	188	8	100	157.5	110	273	75	40	133	0.2 Хода	296
140	45	30	19	100	188	9	112	180.5	110	283	75	40	133		306
160	50	25	19	106	206	9	118	197	120	301	75	40	141		322
180	60	30	24	125	231	10	132	227	135	336	85	45	153	0.2 Хода	354
200	60	30	24	132	231	10	150	245	135	336	90	45	153		354
250	80	40	29	160	301	12	180	298.5	160	421	105	55	176	0.17 Хода	427
300	90	40	33	200	326	15	212	365	175	451	115	55	190		466

Пневматический цилиндр CS1

Размеры

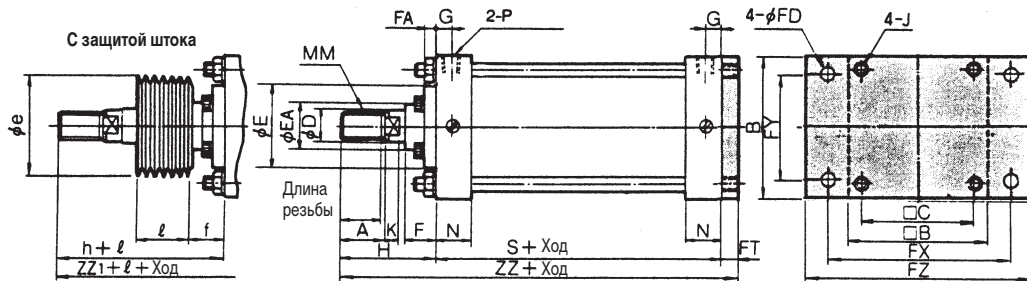
Тип крепления F



∅ порш. (мм)	*Ход (мм)	Длина резьбы	A	B	∅B	∅C	∅D	∅E	∅EA	F	FA	G	J	K	M1	M2	MM	N	P (Rc)	S
125	~1000	47	50	145	145	115	36	90	59	43	14	16	M14x1.5	15	22	22	M30x1.5	35	1/2	98
140	~1000	47	50	160	161	128	36	90	59	43	14	16	M14x1.5	15	19	19	M30x1.5	35	1/2	98
160	~1200	53	56	180	182	144	40	90	59	43	14	18.5	M16x1.5	17	22	22	M36x1.5	39	3/4	106
180	~1200	60	63	200	204	162	45	115	70	48	17	18.5	M18x1.5	20	26	26	M40x1.5	39	3/4	111
200	~1200	60	63	225	226	182	50	115	74	48	17	18.5	M20x1.5	20	26	26	M45x1.5	39	3/4	111
250	~1200	67	71	275	277	225	60	140	86	60	20	23	M24x1.5	25	30	30	M56x2	49	1	141
300	~1200	76	80	330	330	270	70	140	96	60	20	23	M30x1.5	30	36	36	M64x2	49	1	146

∅ порш. (мм)	∅FD	FT	FX	FY	FZ	Без защиты штока			С защитой штока			
						H	ZZ	∅e	f	h	l	ZZ1
125	19	14	190	100	230	110	230	75	40	133	0.2 Хода	253
140	19	20	212	112	255	110	227	75	40	133		250
160	19	20	236	118	275	120	248	75	40	141		269
180	24	25	265	132	320	135	272	85	45	153	0.2 Хода	290
200	24	25	280	150	335	135	272	90	45	153		290
250	29	30	355	180	420	160	331	105	55	176	0.17 Хода	347
300	33	30	400	212	475	175	357	115	55	190		372

Тип крепления G

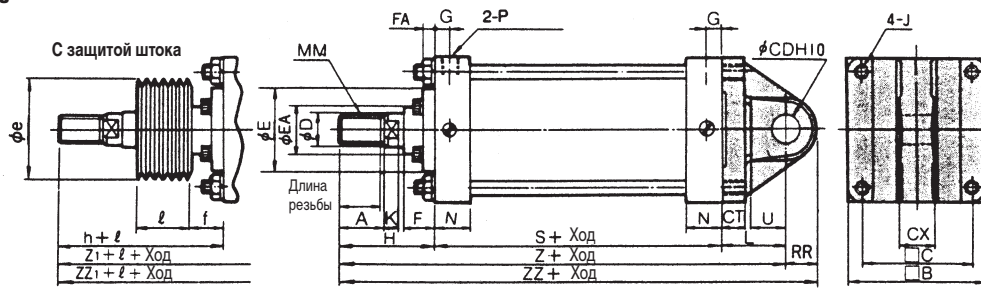


∅ порш. (мм)	*Ход (мм)	Длина резьбы	A	B	∅B	∅C	∅D	∅E	∅EA	F	FA	G	J	K	MM	N	P (Rc)	S
125	~1000	47	50	145	145	115	36	90	59	43	14	16	M14x1.5	15	M30x1.5	35	1/2	98
140	~1000	47	50	160	161	128	36	90	59	43	14	16	M14x1.5	15	M30x1.5	35	1/2	98
160	~1200	53	56	180	182	144	40	90	59	43	14	18.5	M16x1.5	17	M36x1.5	39	3/4	106
180	~1200	60	63	200	204	162	45	115	70	48	17	18.5	M18x1.5	20	M40x1.5	39	3/4	111
200	~1200	60	63	225	226	182	50	115	74	48	17	18.5	M20x1.5	20	M45x1.5	39	3/4	111
250	~1200	67	71	275	277	225	60	140	86	60	20	23	M24x1.5	25	M56x2	49	1	141
300	~1200	76	80	330	330	270	70	140	96	60	20	23	M30x1.5	30	M64x2	49	1	146

∅ порш. (мм)	∅FD	FT	FX	FY	FZ	Без защиты штока			С защитой штока			
						H	ZZ	∅e	f	h	l	ZZ1
125	19	14	190	100	230	110	222	75	40	133	0.2 Хода	245
140	19	20	212	112	255	110	228	75	40	133		251
160	19	20	236	118	275	120	246	75	40	141		267
180	24	25	265	132	320	135	271	85	45	153	0.2 Хода	289
200	24	25	280	150	335	135	271	90	45	153		289
250	29	30	355	180	420	160	331	105	55	176	0.17 Хода	347
300	33	30	400	212	475	175	351	115	55	190		366

Размеры

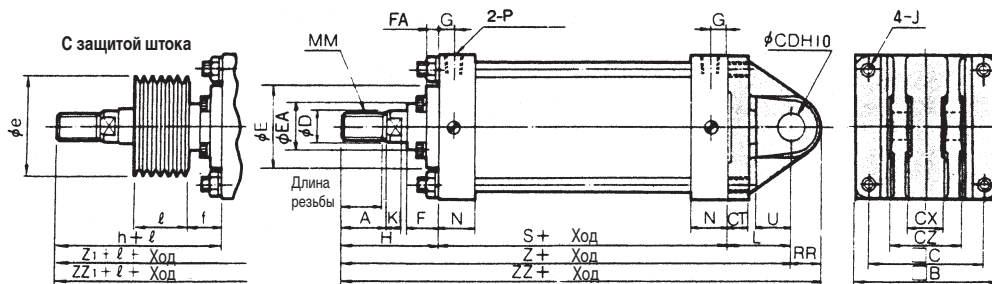
Тип крепления С



∅ порш. (мм)	*Ход (мм)	Длина резьбы	A	B	C	∅D	∅E	∅EA	F	FA	G	J	K	MM	N	P (Rc)	RR	S
125	~1000	47	50	145	115	36	90	59	43	14	16	M14x1.5	15	M30x1.5	35	1/2	29	98
140	~1000	47	50	161	128	36	90	59	43	14	16	M14x1.5	15	M30x1.5	35	1/2	32	98
160	~1200	53	56	182	144	40	90	59	43	14	18.5	M16x1.5	17	M36x1.5	39	3/4	36	106
180	~1200	60	63	204	162	45	115	70	48	17	18.5	M18x1.5	20	M40x1.5	39	3/4	44	111
200	~1200	60	63	226	182	50	115	74	48	17	18.5	M20x1.5	20	M45x1.5	39	3/4	44	111
250	~1200	67	71	277	225	60	140	86	60	20	23	M24x1.5	25	M56x2	49	1	55	141
300	~1200	76	80	330	270	70	140	96	60	20	23	M30x1.5	30	M64x2	49	1	68	146

∅ порш. (мм)	U	∅CDH10	CT	CX	Без защиты штока			С защитой штока				Z1	ZZ1
					H	Z	ZZ	∅e	f	h	l		
125	35	25 ^{+0.084} ₀	17	32 ^{-0.1} _{-0.3}	110	273	302	75	40	133	0.2 Хода	296	325
140	40	28 ^{+0.084} ₀	17	36 ^{-0.1} _{-0.3}	110	283	315	75	40	133		306	338
160	45	32 ^{+0.100} ₀	20	40 ^{-0.1} _{-0.3}	120	306	342	75	40	141		327	363
180	50	40 ^{+0.100} ₀	23	50 ^{-0.1} _{-0.3}	135	336	380	85	45	153	0.2 Хода	354	398
200	50	40 ^{+0.100} ₀	25	50 ^{-0.1} _{-0.3}	135	336	380	90	45	153		354	398
250	65	50 ^{+0.100} ₀	30	63 ^{-0.1} _{-0.3}	160	411	466	105	55	176	0.17 Хода	427	482
300	80	63 ^{+0.120} ₀	37	80 ^{-0.1} _{-0.3}	175	451	519	115	55	190		466	534

Тип крепления D



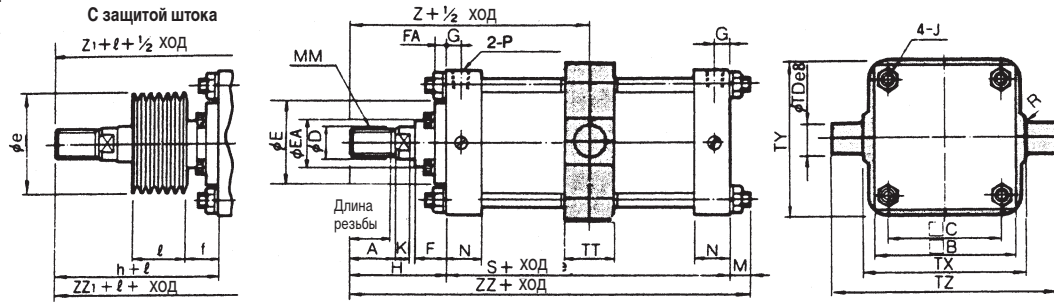
∅ порш. (мм)	*Ход (мм)	Длина резьбы	A	B	C	∅D	∅E	∅EA	F	FA	G	J	K	L	MM	N	P (Rc)	RR	S
125	~1000	47	50	145	115	36	90	59	43	14	16	M14x1.5	15	65	M30x1.5	35	1/2	29	98
140	~1000	47	50	161	128	36	90	59	43	14	16	M14x1.5	15	75	M30x1.5	35	1/2	32	98
160	~1200	53	56	182	144	40	90	59	43	14	18.5	M16x1.5	17	80	M36x1.5	39	3/4	36	106
180	~1200	60	63	204	162	45	115	70	48	17	18.5	M18x1.5	20	90	M40x1.5	39	3/4	44	111
200	~1200	60	63	226	182	50	115	74	48	17	18.5	M20x1.5	20	90	M45x1.5	39	3/4	44	111
250	~1200	67	71	277	225	60	140	86	60	20	23	M24x1.5	25	110	M56x2	49	1	55	141
300	~1200	76	80	330	270	70	140	96	60	20	23	M30x1.5	30	130	M64x2	49	1	68	146

∅ порш. (мм)	U	∅CDH10	CT	CX	CZ	Без защиты штока			С защитой штока				Z1	ZZ1
						H	Z	ZZ	∅e	f	h	l		
125	35	25 ^{+0.084} ₀	17	32 ^{-0.1} _{-0.3}	64 ⁻⁰ _{-0.2}	110	273	302	75	40	133	0.2 Хода	296	325
140	40	28 ^{+0.084} ₀	17	36 ^{-0.1} _{-0.3}	72 ⁻⁰ _{-0.2}	110	283	315	75	40	133		306	338
160	45	32 ^{+0.100} ₀	20	40 ^{-0.1} _{-0.3}	80 ⁻⁰ _{-0.2}	120	306	342	75	40	141		327	363
180	50	40 ^{+0.100} ₀	23	50 ^{-0.1} _{-0.3}	100 ⁻⁰ _{-0.3}	135	336	380	85	45	153	0.2 Хода	354	398
200	50	40 ^{+0.100} ₀	25	50 ^{-0.1} _{-0.3}	100 ⁻⁰ _{-0.3}	135	336	380	90	45	153		354	398
250	65	50 ^{+0.100} ₀	30	63 ^{-0.1} _{-0.3}	126 ^{-0.1} _{-0.3}	160	411	466	105	55	176	0.17 Хода	427	482
300	80	63 ^{+0.120} ₀	37	80 ^{-0.1} _{-0.3}	160 ^{-0.1} _{-0.3}	175	451	519	115	55	190		466	534

Пневматический цилиндр CS1

Размеры

Тип крепления Т

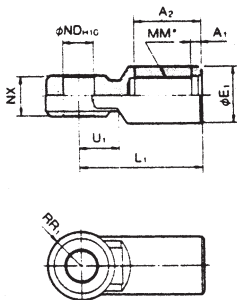


Ø порш. (мм)	*Ход (мм)	Длина резьбы	A	ПВ	ПС	φD	φE	φEA	F	FA	G	J	K	M	MM	N	P (Rc)	R	S
125	25~1000	47	50	145	115	36	90	59	43	14	16	M14x1.5	15	19	M30x1.5	35	1/2	1	98
140	30~1000	47	50	161	128	36	90	59	43	14	16	M14x1.5	15	19	M30x1.5	35	1/2	1.5	98
160	35~1200	53	56	182	144	40	90	59	43	14	18.5	M16x1.5	17	22	M36x1.5	39	3/4	1.5	106
180	30~1200	60	63	204	162	45	115	70	48	17	18.5	M18x1.5	20	26	M40x1.5	39	3/4	2	111
200	30~1200	60	63	226	182	50	115	74	48	17	18.5	M20x1.5	20	26	M45x1.5	39	3/4	2	111
250	30~1200	67	71	277	225	60	140	86	60	20	23	M24x1.5	25	30	M56x2	49	1	3	141
300	35~1200	76	80	330	270	70	140	96	60	20	23	M30x1.5	30	36	M64x2	49	1	4	146

Ø порш. (мм)	φTDе8	ТТ	ТХ	ТУ	ТЗ	Без защиты штока			С защитой штока					
						H	Z	ZZ	φe	f	h	l	Z1	ZZ1
125	32 ^{-0.050} _{-0.089}	50	170	164	234	110	159	227	75	40	133	0.2 Хода	182	250
140	36 ^{-0.050} _{-0.089}	55	190	184	262	110	159	227	75	40	133		182	250
160	40 ^{-0.050} _{-0.089}	60	212	204	292	120	173	248	75	40	141		194	269
180	45 ^{-0.050} _{-0.089}	59	236	228	326	135	490.5	272	85	45	153	0.2 Хода	208.5	290
200	45 ^{-0.050} _{-0.089}	59	265	257	355	135	190.5	272	90	45	153		208.5	290
250	56 ^{-0.060} _{-0.106}	69	335	325	447	160	230.5	331	105	55	176	0.17 Хода	246.5	347
300	67 ^{-0.060} _{-0.106}	79	400	390	534	175	248	357	115	55	190		263	372

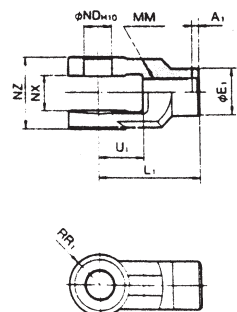
Размеры и номер для заказа принадлежностей

Шарнирный наконечник



Номер для заказа	Ø порш. (мм)	A1	A2	φE1	L1	MM	φNDH10	NX	RR1	U1
I-12	125	8	54	46	100	M30x1.5	25 ^{+0.084} ₀	32 ^{-0.1} _{-0.3}	27	33
I-14	140	8	54	48	105	M30x1.5	28 ^{+0.084} ₀	36 ^{-0.1} _{-0.3}	30	39
I-16	160	8	60	55	110	M36x1.5	32 ^{+0.1} ₀	40 ^{-0.1} _{-0.3}	34	39
I-18	180	8	67	70	125	M40x1.5	40 ^{+0.1} ₀	50 ^{-0.1} _{-0.3}	42.5	44
I-20	200	8	67	70	125	M45x1.5	40 ^{+0.1} ₀	50 ^{-0.1} _{-0.3}	42.5	44
I-25	250	9	75.5	86	160	M56x2	50 ^{+0.1} ₀	63 ^{-0.1} _{-0.3}	53	66
I-30	300	9	84.5	105	175	M64x2	63 ^{+0.12} ₀	80 ^{-0.1} _{-0.3}	66	71

Наконечник-вилка

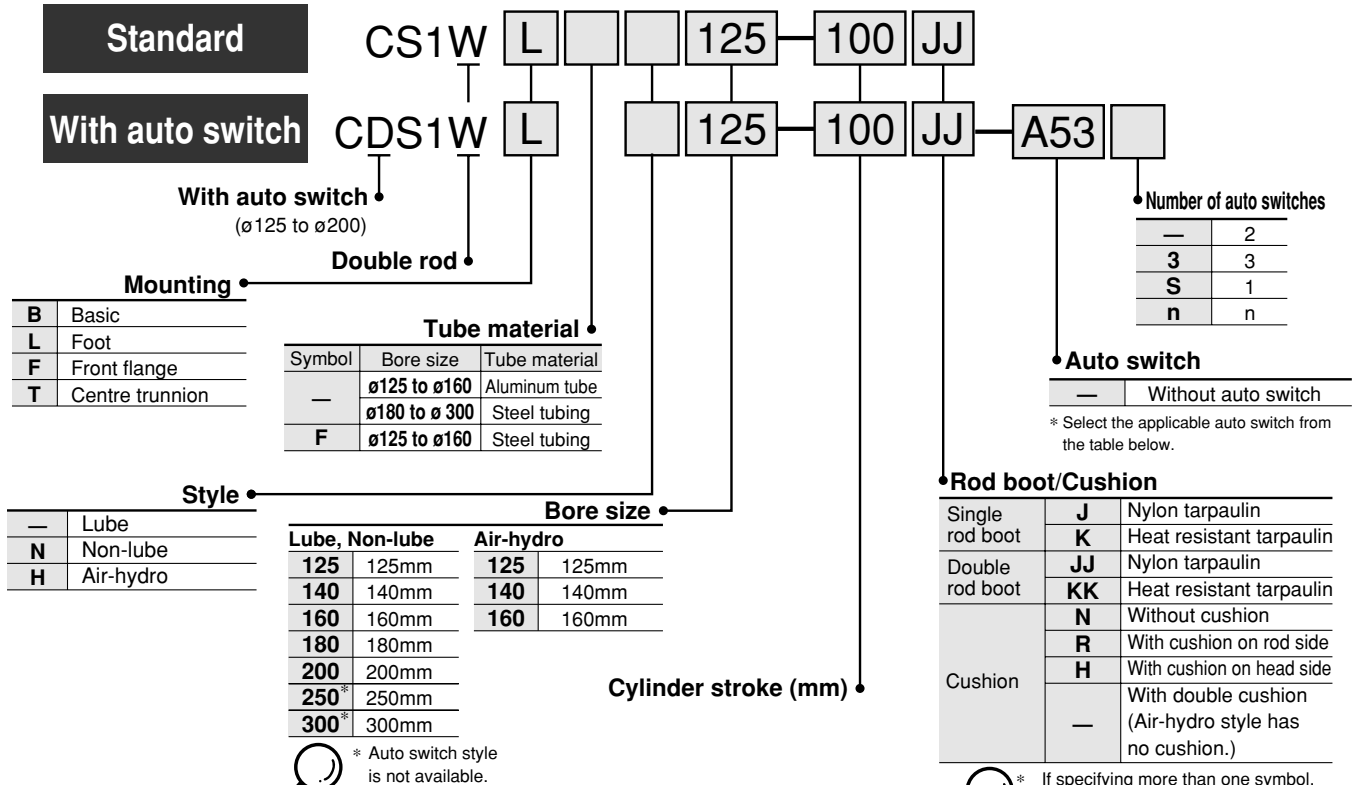


Номер для заказа	Ø порш. (мм)	A1	φE1	L1	MM	φNDH10	NX	NZ	RR1	U1
Y-12	125	8	46	100	M30x1.5	25 ^{+0.084} ₀	32 ^{-0.3} _{-0.1}	64 ^{-0.1} _{-0.3}	27	42
Y-14	140	8	48	105	M30x1.5	28 ^{+0.084} ₀	36 ^{-0.3} _{-0.1}	72 ^{-0.1} _{-0.3}	30	47
Y-16	160	8	55	110	M36x1.5	32 ^{+0.1} ₀	40 ^{-0.3} _{-0.1}	80 ^{-0.1} _{-0.3}	34	46
Y-18	180	8	70	125	M40x1.5	40 ^{+0.1} ₀	50 ^{-0.3} _{-0.1}	100 ^{-0.1} _{-0.3}	42.5	54
Y-20	200	8	70	125	M45x1.5	40 ^{+0.1} ₀	50 ^{-0.3} _{-0.1}	100 ^{-0.1} _{-0.3}	42.5	54
Y-25	250	9	86	160	M56x2	50 ^{+0.1} ₀	63 ^{-0.3} _{-0.1}	126 ^{-0.1} _{-0.3}	53	81
Y-30	300	9	105	175	M64x2	63 ^{+0.12} ₀	80 ^{-0.3} _{-0.1}	160 ^{-0.1} _{-0.3}	66	87

Air Cylinder/Double Rod Series CS1W

Lube, Non-lube/ø125, ø140, ø160, ø180, ø200, ø250, ø300
Air-hydro/ø125, ø140, ø160

How to Order



- CJ1
- CJP
- CJ2
- CM2
- C85
- C76
- CG1
- MB
- MB1
- CP95
- C95
- C92
- CA1
- CS1

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

Style	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model		Lead wire length				Applicable load					
					DC	AC	Tie rod	Band	0.5 (—)	3 (L)	5 (Z)	None						
Reed switch	—	Grommet	Yes	3 wire (NPN) (Equiv. to NPN)	24V	5V	—	A56	—	●	●	—	—	IC				
						12V	—	A53	—	●	●	●	—	—	PLC			
						12V	100V, 200V	A54	—	●	●	●	—	—	Relay, PLC			
						5V, 12V	—	A67	—	●	●	—	—	—	IC			
						12V	≤ 200V	A64	—	●	●	—	—	—	Relay, PLC			
						—	—	A33	—	—	—	—	●	—	—	PLC		
						12V	100V, 200V	A34	—	—	—	—	●	—	—	Relay PLC		
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	F59	—	●	●	○	—	IC				
						3 wire (PNP)	—	F5P	—	●	●	○	—	—				
						2 wire	100V, 200V	J51	—	●	●	○	—	—				
						12V	—	J59	—	●	●	○	—	—				
						3 wire (NPN)	5V, 12V	—	G39	—	—	—	●	—	IC			
						2 wire	12V	—	K39	—	—	—	●	—	—			
						3 wire (NPN)	5V, 12V	F59W	—	●	●	○	—	—	IC			
		Grommet	Yes	3 wire (PNP)	24V	5V, 12V	—	12V	—	F5PW	—	●	●	○	—	IC		
										J59W	—	●	●	○	—	—		
										F5BAL	—	●	●	○	—	—		
										F5NTL	—	●	●	○	—	—	IC	
										F59F	—	●	●	○	—	—	IC	
										4 wire (NPN)	5V, 12V	F5LF	—	●	●	○	—	—
										—	—	—	—	●	●	○	—	—

* Lead wire length symbol 0.5m — (Example)
3m L
5m Z

* Solid state auto switch marked "○" is manufactured upon receipt of order.

* If specifying more than one symbol, please indicate them in alphabetical order.
** The Air-hydro style has no cushion.
No symbol indicates no cushion.

Part No. of Cylinder with Built-in Magnet

In case of magnet built-in without auto switch, there is NO symbol used. (Example)
CDS1WB125-100

Series CS1W



JIS symbol



⚠ Precautions

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

Made to Order

Refer to p.5.4-1 for made to order specifications for series CS1W.

Second Class Pressure Vessel

In case of exceeding the following strokes, use the second class pressure vessel.

Bore size (mm)	Cylinder stroke (mm)
200	998
250	813
300	564

Auto Switch Specifications

Refer to p.1.14-10 for auto switch specifications.

Minimum Strokes for Auto Switch Mounting

Refer to "Min. Strokes for Auto Switch Mounting" on p.1.14-8 for auto switch min. mountable stroke.

Major Material and Surface Treatments

Description	Material	Note
Cover	Rolled steel plate	Black coated
Tube*	Aluminum alloy	Hard anodized
	Carbon steel tube	Hard chrome plated
	Carbon steel tube	Hard chrome plated
Sliding seals	Lube	NBR JIS B2401 O ring*
	Non-lube	NBR PNY, NLP
	Air-hydro	NBR SKY, RPS
Piston rod	Carbon steel	Hard chrome plated
Piston	Lube	Cast iron (With auto switch, aluminum alloy casting) Chromated (In case of aluminum alloy cast)
	Non-lube	Aluminum alloy cast (Steel tubing: Cast iron) Chromated (In case of aluminum alloy cast)
	Air-hydro	Aluminum alloy cast (Steel tubing: Cast iron) Chromated (In case of aluminum alloy cast)



* In case of an auto switch with bore sizes of $\phi 180$ and $\phi 200$, tube material is aluminum alloy (hard anodized). Piston seal is NLP.

Specifications

Style	Lube/Non-lube	Air-hydro
Fluid	Air	Turbine oil
Proof pressure	1.57MPa	
Max. operating pressure	0.97MPa	0.97MPa
Min. operating pressure	0.05MPa	0.06MPa
Piston speed	50 to 500mm/s	0.5 to 200mm/s
Cushion	With	Without
Ambient and fluid temperature	No switch	0 to 70°C (No condensation)
	With switch	0 to 60°C (No condensation)
Air-hydro:	5 to 60°C	
Thread tolerance	JIS 2 class	
Stroke length tolerance	250 or less: $^{+1.0}_0$ 251 to 1,000: $^{+1.4}_0$ 1,001 to 1,200: $^{+1.8}_0$	
Mounting	Basic, Foot, Front flange, Center trunnion	

Weight/Aluminum tube: Lube style (Non-lube, Air-hydro style) (kg)

Bore size (mm)		$\phi 125$	$\phi 140$	$\phi 160$
Basic weight	Basic	16.51 (15.28)	19.62 (18.12)	26.65 (24.79)
	Foot	18.14 (16.91)	22.14 (20.64)	29.45 (27.59)
	Front flange	19.19 (17.96)	24.62 (23.12)	33.04 (31.18)
	Trunnion	20.64 (19.41)	25.35 (23.85)	34.05 (32.19)
Additional weight per 100stroke		2.57	2.76	3.38
Accessory	Single knuckle joint	0.91	1.16	1.56
	Double knuckle joint (Knuckle pin, Cotter pin)	1.37	1.81	2.48
	Rod end nut	0.16	0.16	0.23

* () shows non-lube and air-hydro style.

Calculation method: (Example) **CS1WL125-500**

- Basic weight 18.14 (Foot style, $\phi 125$)
- Additional weight 2.57/100Stroke
- Cylinder stroke 500Stroke
18.14+2.57 X 500/100=30.99kg

Weight/Steel tubing (kg)

Bore size (mm)		$\phi 125$	$\phi 140$	$\phi 160$	$\phi 180$	$\phi 200$	$\phi 250$	$\phi 300$
Basic weight	Basic	16.85	20.03	27.12	36.90	45.79	85.36	122.39
	Foot	18.48	22.55	29.92	41.10	50.67	94.86	139.67
	Front flange	19.53	25.03	33.51	46.73	57.70	107.20	152.59
	Trunnion	20.98	25.76	34.52	47.52	59.78	113.20	162.82
Additional weight per 100stroke		3.46	3.81	4.57	6.20	7.29	11.30	15.17
Accessory	Single knuckle joint	0.91	1.16	1.56	3.07	2.90	5.38	10.82
	Double knuckle joint (Knuckle pin, Cotter pin)	1.37	1.81	2.48	4.74	4.59	9.22	17.17
	Rod end nut	0.16	0.16	0.23	0.32	0.85	1.26	1.43

Precautions



Refer to p.1.14-4 for precautions.

Air Cylinder/Double Rod *Series CS1W*

Rod Boot Materials

Symbol	Material	Max. ambient temp
J	Nylon tarpaulin	60°C
K	Heat resistant tarpanlin	110°C*

* Max. ambient temperature for the rod boot itself

Accessories

Mounting		Basic	Foot	Front flange	Center trunnion
Accessory	Rod end nut	●	●	●	●
	Single knuckle joint	●	●	●	●
	Double knuckle joint (With knuckle pin/ cotter pin)	●	●	●	●
	Rod boot	●	●	●	●

Mounting Bracket

Bore size (mm)	125	140	160	180	200	250	300
Foot*	CS1W-L12	CS1W-L14	CS1W-L16	CS1W-L18	CS1W-L20	CS1W-L25	CS1W-L30
Flange	CS1-F12	CS1-F12	CS1-F16	CS1-F18	CS1-F20	CS1-F25	CS1-F30

* Order 2 foot brackets for one cylinder.

Auto Switch Mounting Bracket

Auto switch model	Bore size (mm)				
	125	140	160	180	200
D-A5/A59W/F5□/J5□/F5NT D-F5□W/J59W/F5BA/F5□F	BT-12	BT-12	BT-16	BT-18A	BT-20
D-A3/A44/G39/K39	BS1-125	BS1-140	BS1-160	BS1-180	BS1-200



* Stainless mounting screw set

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

BBA1: D-A5/A6/F5/J5

"D-F5BA" switch is set on the cylinder with the screws above when shipped.

When a switch only is shipped, "BBA1" screw is attached.

Double Acting Double Rod Style/Replacement Parts (Seal kits)

When ordering the replacement parts (seal kits) for Series CS1W double rod style cylinder, indicate the order number listed in the table on the right.

Each set of replacement parts contains the following: wiper ring, rod seal, piston seal, valve seal, tube gasket, and push plate gasket (for 1 cylinder).

Lube style

Bore (mm)	Kit No.	Wiper ring	Rod seal	Piston seal	Valve seal	Tube gasket	Holder plate gasket
125	CS1W-125A-PS	SDR-36	P36	P115	P7	C120	G55
140	CS1W-140A-PS	SDR-36	P36	P130	P7	C135	G55
160	CS1W-160A-PS	SDR-40	P40	P150	P7	C155	G55
180	CS1W-180A-PS	SDR-45	P45	P165	P7	C175	G65
200	CS1W-200A-PS	SDR-50	P50A	P185	P7	C195	G65
250	CS1W-250A-PS	SDR-60	P60	P235	P7	CS160-1618-G4	G80
300	CS1W-300A-PS	SDR-70	P70	P285	P7	CS160-1618-G5	G90

Non-lube style/Non-lube style with auto switch

Bore (mm)	Kit No.	Wiper ring	Rod seal	Piston seal	Valve seal	Tube gasket	Holder plate gasket
125	CS1WN125A-PS	SDR-36	PNY-36	NLP-125A	P7	C120	G55
140	CS1WN140A-PS	SDR-36	PNY-36	NLP-140A	P7	C135	G55
160	CS1WN160A-PS	SDR-40	PNY-40	NLP-160A	P7	C155	G55
180	CS1WN180A-PS	SDR-45	PNY-45	NLP-180A	P7	C175	G65
200	CS1WN200A-PS	SDR-50	PNY-50	NLP-200A	P7	C195	G65
250*	CS1WN250A-PS	SDR-60	PNY-60	NLP-250A	P7	CS160-1618-G4	G80
300*	CS1WN300A-PS	SDR-70	PNY-70	NLP-300A	P7	CS160-1618-G5	G90

* Auto switch type is not available.

Lube style with auto switch

Bore (mm)	Kit No.	Wiper ring	Rod seal	Piston seal	Valve seal	Tube gasket	Holder plate gasket
125	CS1W125A-PS	SDR-36	P36	P115	P7	C120	G55
140	CS1W140A-PS	SDR-36	P36	P130	P7	C135	G55
160	CS1W160A-PS	SDR-40	P40	P150	P7	C155	G55
180	CDS1W180A-PS	SDR-45	P45	NLP-180A	P7	C175	G65
200	CDS1W200A-PS	SDR-50	P50A	NLP-200A	P7	C195	G65

Air-hydro style

Bore (mm)	Kit No.	Wiper ring	Rod seal	Piston seal	Valve seal	Tube gasket	Holder plate gasket
125	CS1WH125A-PS	SDR-36	SKY-36	RPS-125	P7	C120	G55
140	CS1WH140A-PS	SDR-36	SKY-36	RPS-140	P7	C135	G55
160	CS1WH160A-PS	SDR-40	SKY-40	RPS-160	P7	C155	G55

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

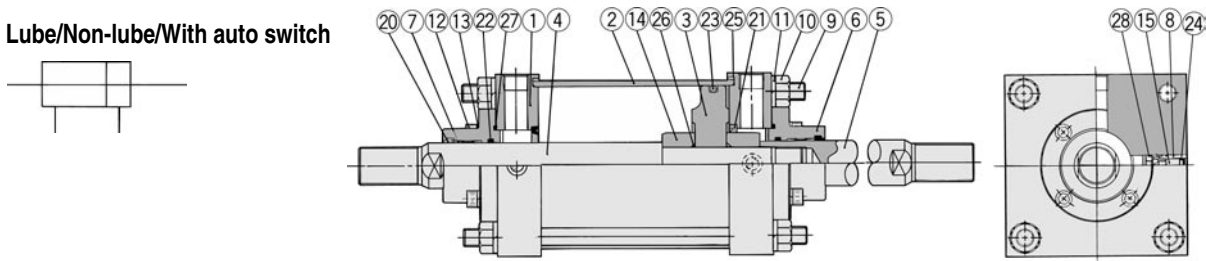
CA1

CS1

Series CS1W

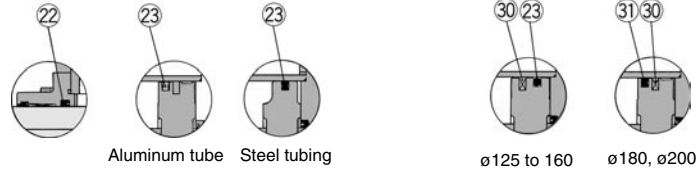
Construction

Lube/Non-lube/With auto switch



Non-lube

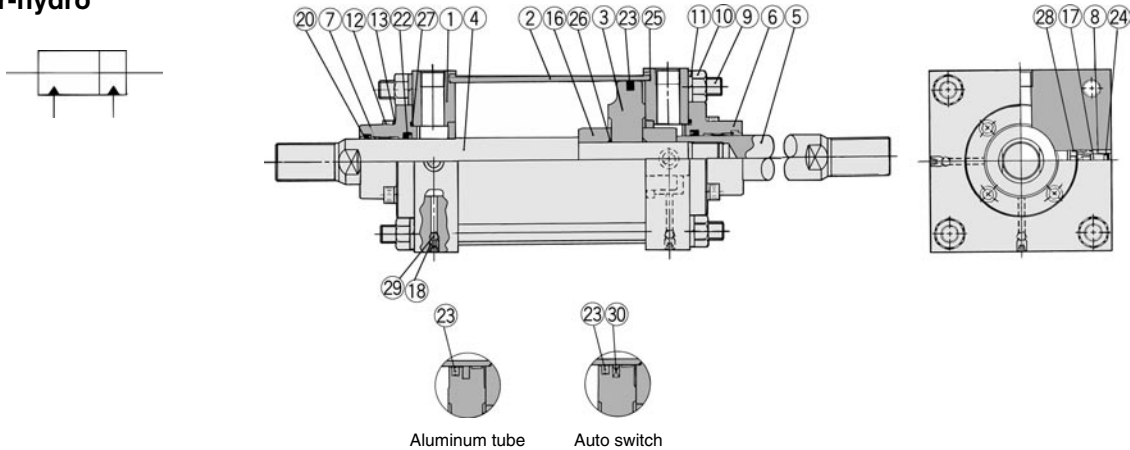
With auto switch



Aluminum tube Steel tubing

ø125 to 160 ø180, ø200

Air-hydro



Aluminum tube Auto switch

Component Parts

No.	Description	Material	Note
①	Rod cover	Rolled steel	Black coated
②	Cylinder tube	ø125 to ø160 Aluminum alloy	Hard anodized
		ø125 to ø300** Carbon steel tube	Inside: Hard chrome plated
③	Piston	Cast iron**	
④	Piston rod A	Carbon steel	Hard chrome plated
⑤	Piston rod B	Carbon steel	Hard chrome plated
⑥	Holder plate	Cast iron	Black coated
⑦	Bushing	Lead bronze casting	
⑧	Valve guide	Brass	
⑨	Tie rod	Carbon steel	Chromed
⑩	Tie rod nut	Rolled steel	Black zinc chromated
⑪	Spring washer	Steel wire	Black zinc chromated
⑫	Holder plate bolt	Chrome-molybdenum steel	Black zinc chromated
⑬	Spring washer	Steel wire	Black zinc chromated
⑭	Cushion ring A	Rolled steel	Zinc chromated
⑮	Cushion valve	Rolled steel	Electroless nickel plated
⑯	Spacer A	Rolled steel	
⑰	Air releasing valve B	Rolled steel	Zinc chromated
⑱	Air releasing valve A	Chrome-molybdenum steel	
⑲	Check ball	Chrome bearing steel	
⑳	Magnet	—	

** In case of the aluminum tube of non-lube and air-hydro style, piston material is an aluminum alloy casting.
In case of auto switch bore size ø180 and ø200, piston material is aluminum alloy casting and tube material is aluminum alloy (hard alumite).

Seal List

No.	Description	Mat'l	Part No.							
			125	140	160	180	200	250	300	
⑳	Wiper ring	NBR	SDR-36	SDR-36	SDR-40	SDR-45	SDR-50	SDR-60	SDR-70	
㉑*	Cushion seal		DSM-50S	DSM-50S	DSM-50S	DSM-60S	DSM-60S	DSM-75S	PCS-85	
㉒	Rod seal		P36	P36	P40	P45	P50A	P60	P70	
㉓	Piston seal		P115	P130	P150	P165	P185	P235	P285	
㉔	Valve seal		P7	P7	P7	P7	P7	P7	P7	
㉕	Tube gasket		C120	C135	C155	C175	C195	CS160-1618-G4	CS160-1618-G5	
㉖*	Piston gasket		G25	G25	G25	G35	G35	G45	G45	
㉗	Holder plate gasket		G55	G55	G55	G65	G65	G80	G90	
㉘*	Guide gasket	N-12.5-1.5	N-12.5-1.5	N-12.5-1.5	N-12.5-1.5	N-12.5-1.5	N-12.5-1.5	N-12.5-1.5		

Non-lube Style Seals except ㉒ and ㉓ are the same as lube style.

㉒	Rod seal	NBR	PNY-36	PNY-36	PNY-40	PNY-45	PNY-50	PNY-60	PNY-70
㉓	Piston seal	NBR	NLP-125A	NLP-140A	NLP-160A	NLP-180A	NLP-200A	NLP-250A	NLP-300A

Air-hydro Style Seals except ㉒ and ㉓ are the same as lube style.

㉒	Rod seal	NBR	SKY-36	SKY-36	SKY-40
㉓	Piston seal	NBR	RPS-125	RPS-140	RPS-160

Lube Style (With switch) Seals except ㉓ are the same as lube style.

No.	Description	Mat'l	Part No.	
			180	200
㉓	Piston seal	NBR	NLP-180A	NLP-200A

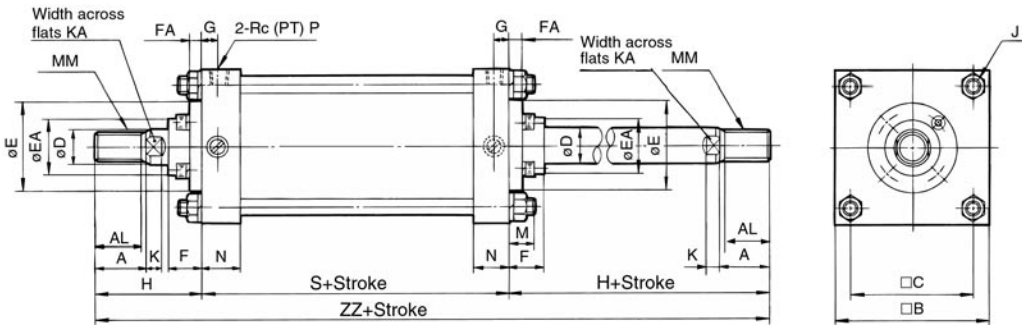
Replacement Part (Seal kits)

- Refer to p.1.14-23 for replacement part no.(seal kits) of double rod style cylinder series CS1W.
- * Seal set does not include cushion seal, piston seal and guide gasket because they are not replacement parts.

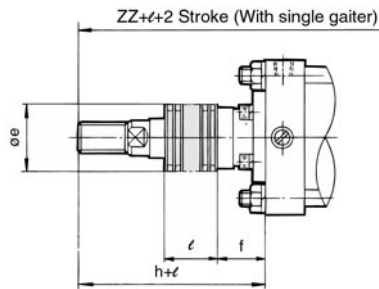
Air Cylinder/Double Rod **Series CS1W**

Basic/CS1WB

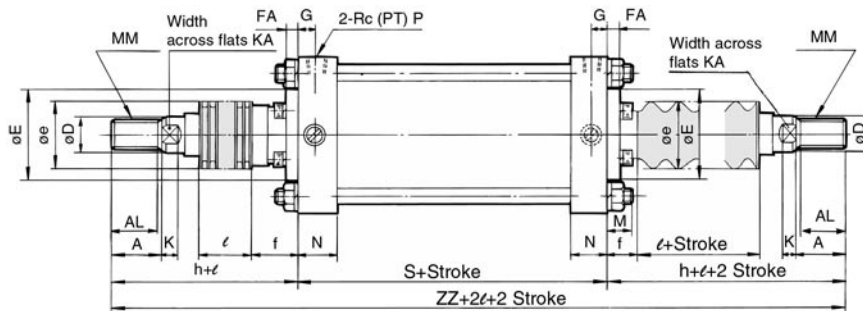
Lube (CS1WB), Non-lube (CS1WBN), Air-hydro (CS1WBH)



With single rod boot



With double rod boot



Style	Bore (mm)	Stroke range (mm)		(mm)																	
		W/o rod boot	W/ rod boot	A	AL	□B	□C	D	E	EA	F	FA	G	J	K	KA	M	MM	N	P	S
		Lube	125	to 1000	30 to 1000	50	47	145	115	36	90	59	43	14	16	M14 X 1.5	15	31	27	M30 X 1.5	35
Non-lube	140	to 1000	30 to 1000	50	47	161	128	36	90	59	43	14	16	M14 X 1.5	15	31	27	M30 X 1.5	35	1/2	98
Air-hydro	160	to 1200	30 to 1200	56	53	182	144	40	90	59	43	14	18.5	M16 X 1.5	17	36	30.5	M36 X 1.5	39	3/4	106
Lube	180	to 1200	30 to 1200	63	60	204	162	45	115	70	48	17	18.5	M18 X 1.5	20	41	35	M40 X 1.5	39	3/4	111
	200	to 1200	30 to 1200	63	60	226	182	50	115	74	48	17	18.5	M20 X 1.5	20	46	35	M45 X 1.5	39	3/4	111
	250	to 1200	30 to 1200	71	67	277	225	60	140	86	60	20	23	M24 X 1.5	25	56	41.5	M56 X 2	49	1	141
	300	to 1200	30 to 1200	80	76	330	270	70	140	96	60	20	23	M30 X 1.5	30	65	51.5	M64 X 2	49	1	146

Style	Bore (mm)	(mm)									
		W/o rod boot		W/ rod boot (Single side)					(Both sides)		
		H	ZZ	e	f	h	ℓ	ZZ	ZZ		
Lube	125	110	318	75	40	133	0.2 Stroke	341	364		
Non-lube	140	110	318	75	40	133	0.2 Stroke	341	364		
Air-hydro	160	120	346	75	40	141	0.2 Stroke	367	388		
Lube	180	135	381	85	45	153	0.2 Stroke	399	417		
	200	135	381	90	45	153	0.2 Stroke	399	417		
	250	160	461	105	55	176	0.17 Stroke	477	493		
	300	175	496	115	55	190	0.17 Stroke	511	526		

With auto switch/ø125 to ø200 only

Style	Bore (mm)	Stroke range (mm)		(mm)			
		W/o rod boot	W/ rod boot	S	W/o rod boot	W/ Rod boot	
		ZZ	ZZ	ZZ	(Single side)	(Both sides)	
Lube	125	to 1000	30 to 1000	98	318	341	364
Non-lube	140	to 1000	30 to 1000	98	318	341	364
Air-hydro	160	to 1200	30 to 1200	106	346	367	388
Lube	180	to 1200	30 to 1200	115	385	403	421
	200	to 998	30 to 998	120	390	408	426

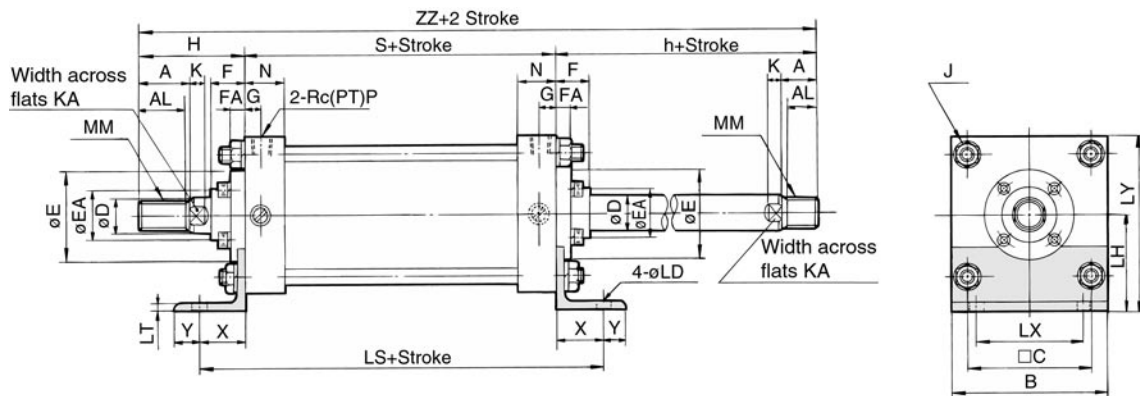
*** Refer to p.1.10-8 for auto switch min. mountable stroke.

- CJ1
- CJP
- CJ2
- CM2
- C85
- C76
- CG1
- MB
- MB1
- CP95
- C95
- C92
- CA1
- CS1**

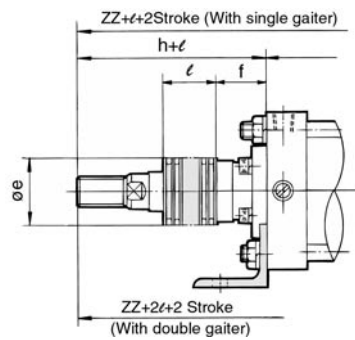
Series CS1W

Foot/CS1WL

Lube (CS1WL), Non-lube (CS1WLN), Air-hydro (CS1WLH)



With rod boot



Style	Bore (mm)	Stroke range (mm)		A	AL	B	□C	D	E	EA	F	FA	G	J	K	KA	LD	LH	LS	LT
		W/o rod boot	W/ rod boot																	
Lube Non-lube Air-hydro	125	to 1000	30 to 1000	50	47	145	115	36	90	59	43	14	16	M14 X 1.5	15	31	19	85	188	8
	140	to 1000	30 to 1000	50	47	161	128	36	90	59	43	14	16	M14 X 1.5	15	31	19	100	188	9
	160	to 1200	30 to 1200	56	53	182	144	40	90	59	43	14	18.5	M16 X 1.5	17	36	19	106	206	9
Lube Non-lube	180	to 1200	30 to 1200	63	60	204	162	45	115	70	48	17	18.5	M18 X 1.5	20	41	24	125	231	10
	200	to 1200	30 to 1200	63	60	226	182	50	115	74	48	17	18.5	M20 X 1.5	20	46	24	132	231	10
	250	to 1200	30 to 1200	71	67	277	225	60	140	86	60	20	23	M24 X 1.5	25	56	29	160	301	12
	300	to 1200	30 to 1200	80	76	330	270	70	140	96	60	20	23	M30 X 1.5	30	65	33	200	326	15

Style	Bore (mm)	LX	LY	MM	N	P	S	X	Y	(mm)							
										W/o rod boot		W/ rod boot (Single side)					(Both sides)
										H	ZZ	e	f	h	ℓ	ZZ	ZZ
Lube Non-lube Air-hydro	125	100	157.5	M30 X 1.5	35	1/2	98	45	20	110	318	75	40	133	0.2 Stroke	341	364
	140	112	180.5	M30 X 1.5	35	1/2	98	45	30	110	318	75	40	133	0.2 Stroke	341	364
	160	118	197	M36 X 1.5	39	3/4	106	50	25	120	346	75	40	141	0.2 Stroke	367	388
Lube Non-lube	180	132	227	M40 X 1.5	39	3/4	111	60	30	135	381	85	45	153	0.2 Stroke	399	417
	200	150	245	M45 X 1.5	39	3/4	111	60	30	135	381	90	45	153	0.2 Stroke	399	417
	250	180	298.5	M56 X 2	49	1	141	80	40	160	461	105	55	176	0.17 Stroke	477	493
	300	212	365	M64 X 2	49	1	146	90	40	175	496	115	55	190	0.17 Stroke	511	526

With auto switch/ø125 to ø200 only

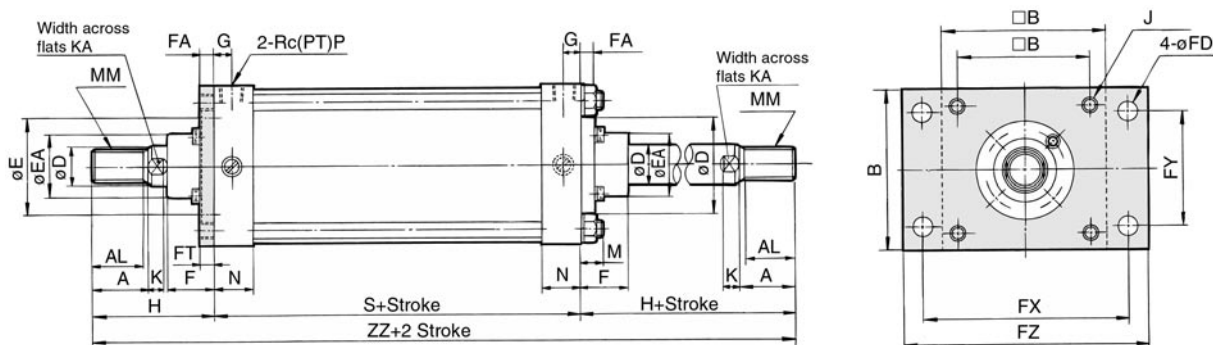
Style	Bore (mm)	Stroke range (mm)		S	LS	(mm)		
		W/o rod boot	W/ rod boot (Single side)			W/ rod boot (Both sides)		
							ZZ	ZZ
Lube Non-lube Air-hydro	125	to 1000	30 to 1000	98	188	318	341	364
	140	to 1000	30 to 1000	98	188	318	341	364
	160	to 1200	30 to 1200	106	206	346	367	388
Lube Non-lube	180	to 1200	30 to 1200	115	235	385	403	421
	200	to 998	30 to 998	120	240	390	408	426

*** Refer to p.1.10-8 for auto switch min. mountable stroke.

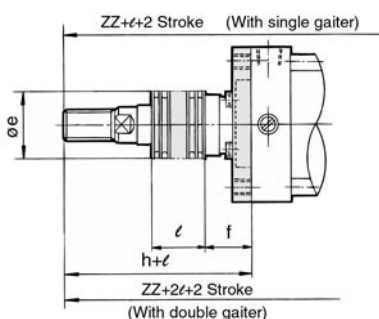
Air Cylinder/Double Rod **Series CS1W**

Front Flange/CS1WF

Lube (CS1WF), Non-lube (CS1WFN), Air-hydro (CS1WFH)



With rod boot



Style	Bore (mm)	Stroke range (mm)		A	AL	B	□B	□C	D	E	EA	F	FA	FD	FT	FX	FY	FZ	G	J
		W/o rod boot	W/ rod boot																	
Lube	125	to 1000	30 to 1000	50	47	145	145	115	36	90	59	43	14	19	14	190	100	230	16	M14 X 1.5
Non-lube	140	to 1000	30 to 1000	50	47	160	161	128	36	90	59	43	14	19	20	212	112	255	16	M14 X 1.5
Air-hydro	160	to 1200	30 to 1200	56	53	180	182	144	40	90	59	43	14	19	20	236	118	275	18.5	M16 X 1.5
Lube	180	to 1200	30 to 1200	63	60	200	204	162	45	115	70	48	17	24	25	265	132	320	18.5	M18 X 1.5
Non-lube	200	to 1200	30 to 1200	63	60	225	226	182	50	115	74	48	17	24	25	280	150	335	18.5	M20 X 1.5
Non-lube	250	to 1200	30 to 1200	71	67	275	277	225	60	140	86	60	20	29	30	355	180	420	23	M24 X 1.5
Non-lube	300	to 1200	30 to 1200	80	76	330	330	270	70	140	96	60	20	33	30	400	212	475	23	M30 X 1.5

Style	Bore (mm)	K	KA	M	MM	N	P	S	W/o rod boot		W/ rod boot (Single side)					Both sides	
									H	ZZ	e	f	h	ℓ	ZZ	ZZ	
Lube	125	15	31	30	M30 X 1.5	35	1/2	98	110	318	75	40	133	0.2 Stroke	341	364	
Non-lube	140	15	31	24	M30 X 1.5	35	1/2	98	110	318	75	40	133	0.2 Stroke	341	364	
Air-hydro	160	17	36	26	M36 X 1.5	39	3/4	106	120	346	75	40	141	0.2 Stroke	367	388	
Lube	180	20	41	31	M40 X 1.5	39	3/4	111	135	381	85	45	153	0.2 Stroke	399	417	
Non-lube	200	20	46	31	M45 X 1.5	39	3/4	111	135	381	90	45	153	0.2 Stroke	399	417	
Non-lube	250	25	56	35	M56 X 2	49	1	141	160	461	105	55	176	0.17 Stroke	477	493	
Non-lube	300	30	65	48	M64 X 2	49	1	146	175	496	115	55	190	0.17 Stroke	511	526	

With auto switch/ø125 to ø200 only

Style	Bore (mm)	Stroke range (mm)		S	W/o rod boot	W/ rod boot (Single side)	W/ rod boot (Both sides)
		W/o rod boot	W/ rod boot				
Lube	125	to 1000	30 to 1000	98	318	341	364
Non-lube	140	to 1000	30 to 1000	98	318	341	364
Air-lube	160	to 1200	30 to 1200	106	346	367	388
Lube	180	to 1200	30 to 1200	115	385	403	421
Non-lube	200	to 998	30 to 998	120	390	408	426

*** Refer to p.1.10-8 for auto switch min. mountable stroke.

CJ1

CJP

CJ2

CM2

C85

C76

CG1

MB

MB1

CP95

C95

C92

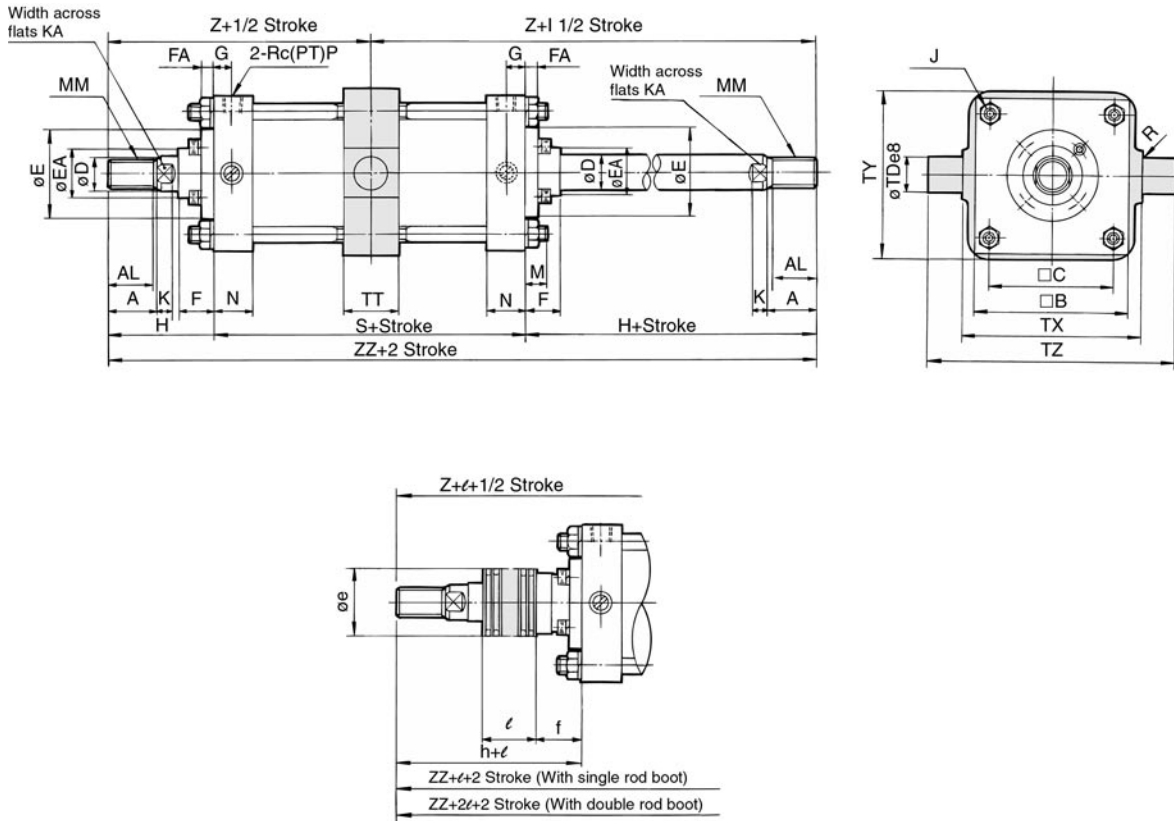
CA1

CS1

Series CS1W

Center Trunnion/CS1WT

Lube (CS1WT), Non-lube (CS1WTN), Air-hydro (CS1WTH)



Style	Bore (mm)	Stroke range (mm)		A	AL	□B	□C	D	E	EA	F	FA	G	J	K	KA	M	MM	N	P	R	S
		W/o rod boot	W/ rod boot																			
Lube Non-lube Air-hydro	125	25 to 1000	30 to 1000	50	47	145	115	36	90	59	43	14	16	M14 X 1.5	15	31	19	M30 X 1.5	35	1/2	1	98
	140	30 to 1000	30 to 1000	50	47	161	128	36	90	59	43	14	16	M14 X 1.5	15	31	19	M30 X 1.5	35	1/2	1.5	98
	160	35 to 1200	35 to 1200	56	53	182	144	40	90	59	43	14	18.5	M16 X 1.5	17	36	22	M36 X 1.5	39	3/4	1.5	106
Lube Non-lube	180	30 to 1200	30 to 1200	63	60	204	162	45	115	70	48	17	18.5	M18 X 1.5	20	41	26	M40 X 1.5	39	3/4	2	111
	200	30 to 1200	30 to 1200	63	60	226	182	50	115	74	48	17	18.5	M20 X 1.5	20	46	26	M45 X 1.5	39	3/4	2	111
	250	30 to 1200	30 to 1200	71	67	277	225	60	140	86	60	20	23	M24 X 1.5	25	56	30	M56 X 2	49	1	3	141
	300	35 to 1200	35 to 1200	80	76	330	270	70	140	96	60	20	23	M30 X 1.5	30	65	36	M64 X 2	49	1	4	146

Style	Bore (mm)	TDe8	TT	TX	TY	TZ	H	(mm)										
								W/o rod boot		W/ rod boot (Single side)						(Both sides)		
								Z	ZZ	e	f	h	ℓ	Z	ZZ	Z	ZZ	
Lube Non-lube Air-hydro	125	32 ^{-0.050} _{-0.089}	50	170	164	234	110	159	318	75	40	133	0.2 Stroke	182	341	182	364	
	140	36 ^{-0.050} _{-0.089}	55	190	184	262	110	159	318	75	40	133	0.2 Stroke	182	341	182	364	
	160	40 ^{-0.050} _{-0.089}	60	212	204	292	120	173	346	75	40	141	0.2 Stroke	194	367	194	388	
Lube Non-lube	180	45 ^{-0.050} _{-0.089}	59	236	228	326	135	190.5	381	85	45	153	0.2 Stroke	208.5	399	208.5	417	
	200	45 ^{-0.050} _{-0.089}	59	265	257	355	135	190.5	381	90	45	153	0.2 Stroke	208.5	399	208.5	417	
	250	56 ^{-0.090} _{-0.106}	69	335	325	447	160	230.5	461	105	55	176	0.17 Stroke	246.5	477	246.5	493	
	300	67 ^{-0.080} _{-0.106}	79	400	390	534	175	248	496	115	55	190	0.17 Stroke	263	511	263	526	

Auto switch style/ø125 to ø200 only

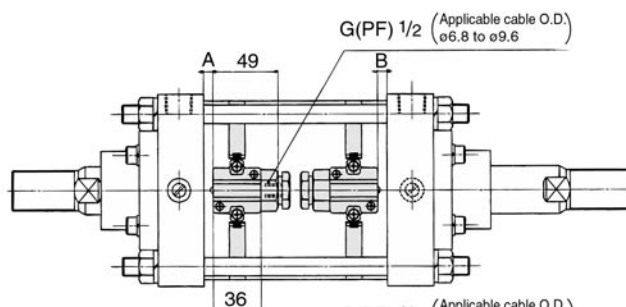
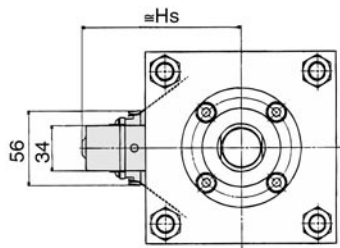
Style	Bore (mm)	Stroke range (mm)		S	(mm)				
		W/o rod boot	W/rod boot		W/o rod boot		W/ rod boot (Single side)		
					Z	ZZ	Z	ZZ	ZZ
Lube Non-lube Air-lube	125	25 to 1000	30 to 1000	98	159	318	182	341	364
	140	30 to 1000	30 to 1000	98	159	318	182	341	364
	160	35 to 1200	35 to 1200	106	173	346	194	367	388
Lube Non-lube	180	30 to 1200	30 to 1200	115	192.5	385	210.5	403	421
	200	30 to 998	30 to 998	120	195	390	213	408	426

*** Refer to p.1.10-8 for auto switch min. mountable stroke.

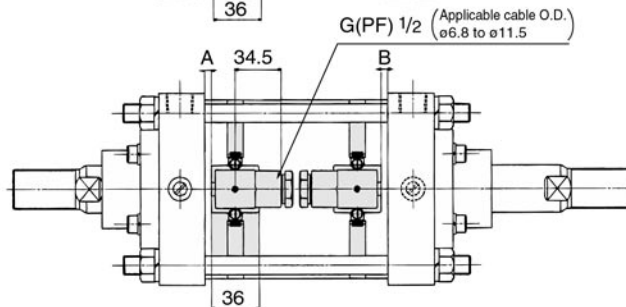
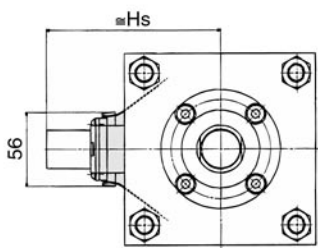
Auto Switch Mounting Position and Mounting Height

<Band mounting>

**D-A3
D-G39/K39**

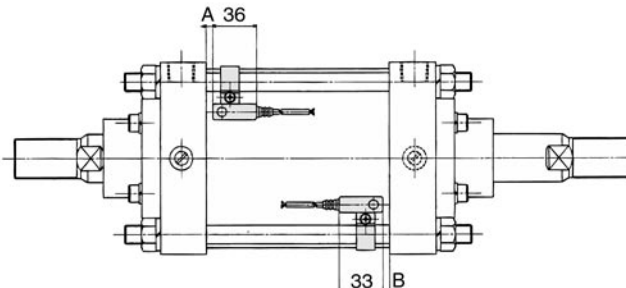
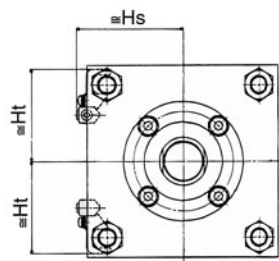


D-A4

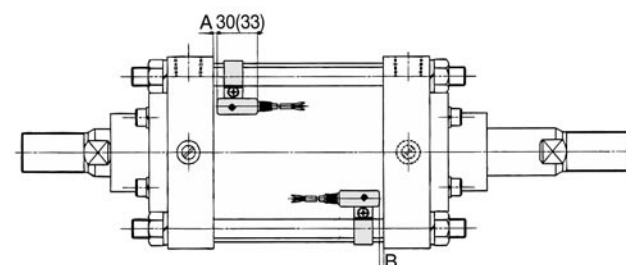
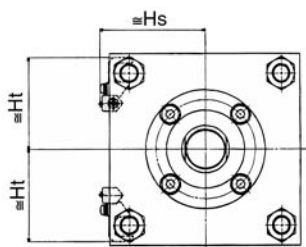


<Tie rod>

D-A5/A6



**D-F5□/J5□/F5NTL
D-F5BAL/F5□F
D-F5□W/J59W**



() shows D-F5LF

- CJ1
- CJP
- CJ2
- CM2
- C85
- C76
- CG1
- MB
- MB1
- CP95
- C95
- C92
- CA1
- CS1**

Auto Switch Mounting Height

Auto switch model	D-A5 D-A6 D-A3 D-A44 D-G39 D-K39		D-A59W		D-F5□ D-J5□		D-F5□W D-J59W D-F5BAL D-F5□F		D-F5NTL	
	A	B	A	B	A	B	A	B	A	B
ø125	0	0	2	2	4.5	4.5	8.5	8.5	9.5	9.5
ø140	0	0	2	2	4.5	4.5	8.5	8.5	9.5	9.5
ø160	0	0	2	2	4.5	4.5	8.5	8.5	9.5	9.5
ø180	3.5	1.5	7.5	5.5	10	8	14	12	15	13
ø200	6	4	10	8	12.5	10.5	16.5	14.5	17.5	15.5

(mm) Auto Switch Mounting Height

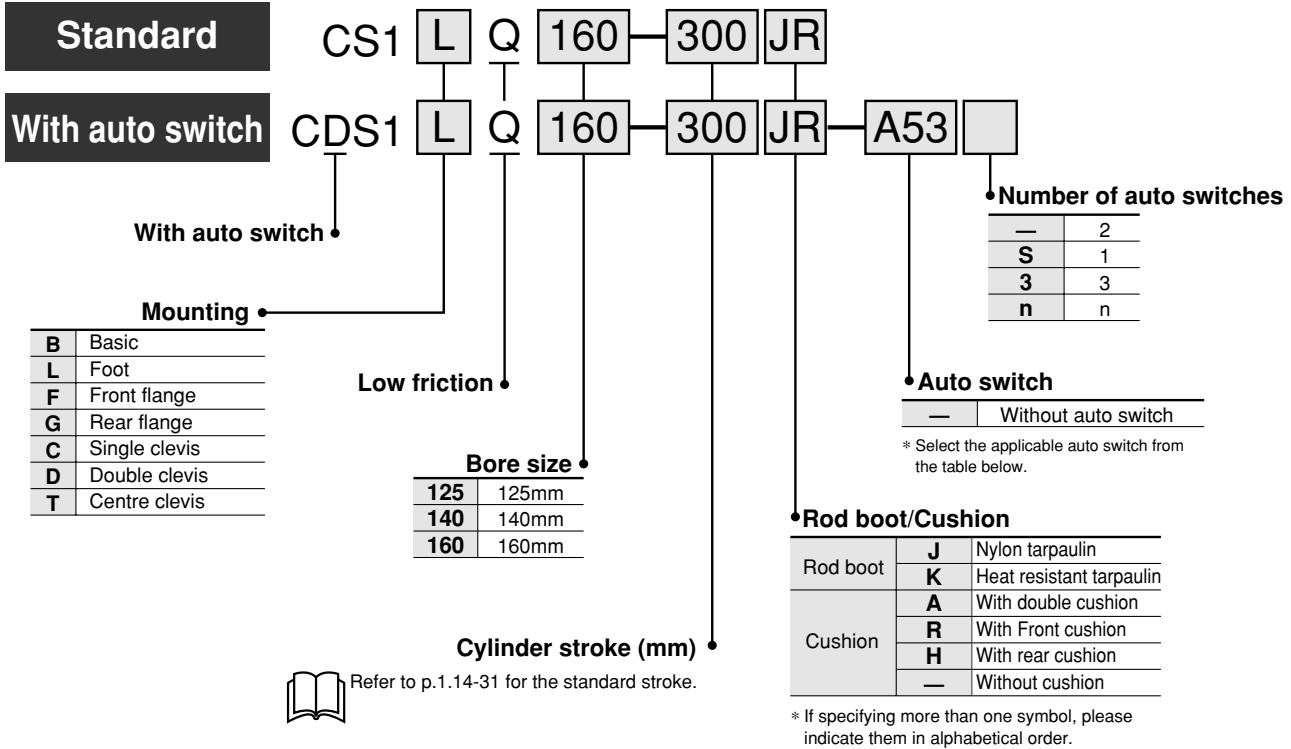
D-A3 D-G39 D-K39		D-A44	D-A5 D-A6 D-A59W		D-F5□ D-J5□ D-F5□W D-J59W D-F5BAL D-F5□F D-F5NTL	
Hs	Hs	Hs	Ht	Hs	Ht	
116	126	75.5	69.5	74.5	70.0	
124	134	81	76.5	80	76.5	
134.5	144.5	89	87.5	88	87.5	
144	154	97.0	97.5	96	97.5	
154	164	107.0	108.0	107.5	108.0	

Air Cylinder/Low Friction

Series CS1□Q

Non-lube/ø125, ø140, ø160

How to Order



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

Style	Special function	Electrical entry	Indicator	Wiring (output)	Load voltage		Auto switch model		Lead wire (m)*				Applicable load			
					DC	AC	Tie rod	Band	0.5 (-)	3 (L)	5 (Z)	None				
Reed switch	—	Grommet	Yes	3 wire (Equiv. to NPN)	24V	5V	—	A56	—	●	●	—	—	IC	—	
						12V	—	A53	—	●	●	—	—	—	PLC	
						12V	100V, 200V	A54	—	●	●	●	—	—	Relay, PLC	
						5V, 12V	—	A67	—	●	●	—	—	—	IC	PLC
						12V	≤ 200V	A64	—	●	●	—	—	—	Relay, PLC	PLC
						—	—	A33	—	—	—	—	●	—	—	PLC
						12V	100V, 200V	A34	—	—	—	—	●	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	F59	—	●	●	○	—	IC	Relay, PLC	
						3 wire (PNP)	—	F5P	—	●	●	○	—	—		
						2 wire	—	100V, 200V	J51	—	●	●	○	—		—
							12V	—	J59	—	●	●	○	—		—
						3 wire (NPN)	5V, 12V	—	G39	—	—	—	●	—		IC
							12V	—	K39	—	—	—	●	—		—
						3 wire (NPN)	5V, 12V	—	F59W	—	●	●	○	—		IC
							3 wire (PNP)	24V	—	F5PW	—	●	●	○		—
						2 wire	12V	—	J59W	—	●	●	○	—		—
							—	—	F5BA	—	●	●	○	—		—
						3 wire (NPN)	5V, 12V	—	F5NT	—	●	●	○	—		IC
							4 wire (PNP)	—	F59F	—	●	●	○	—		—
						F5LF	—	—	F5LF	—	●	●	○	—		—

* Lead wire length

0.5m — (Example) A53
 3m L A53L
 5m Z A53Z
 None N A33N

* Solid state auto switch marked "○" is manufactured upon receipt of order..

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

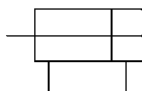
Low sliding resistance
Min. operating pressure – 0.005MPa

Auto switch mounting is possible.



JIS symbol

Double acting



Order Made Made to Order

Refer to p.5.4-1 for made to order specifications for series CS1□Q.

⚠ Precautions

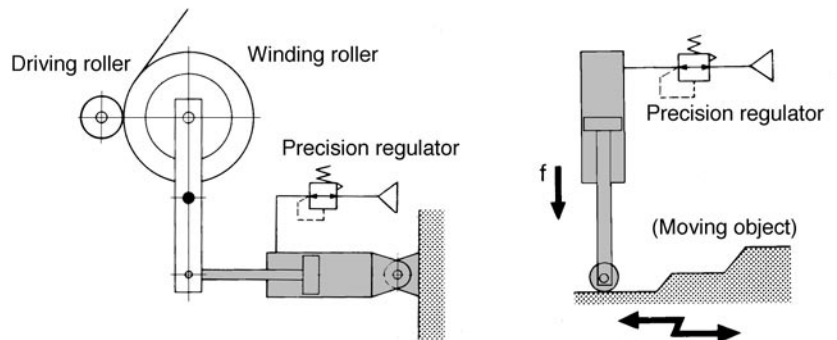
Be sure to read before handling. Refer to p.0-39 to 0-43 for Safety Instructions and common precautions.

Cylinder with auto switch

Refer to the standard style double acting single rod (Series CS1) on p.1.14-7 for auto switch specifications of low friction style.

Application Example

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



Specifications

Action	Double acting single rod
Direction of low friction	Both directions
Fluid	Air
Proof pressure	1.05MPa
Max. operating pressure	0.7MPa
Min. operating pressure	0.005MPa*
Ambient and fluid temperature	Without auto switch: 0 to 70°C (No condensation), With auto switch: 0 to 60°C (No condensation)
Allowable leakage rate	0.5 ℓ/min(ANR) or less
Cushion	None (Cushion style is available.)
Thread tolerance	JIS 2 class
Lube	Not required (Non-lube)
Bore size (mm)	ø125, ø140, ø160
Mounting	Basic, Foot, Front flange, Rear flange, Single clevis, Double clevis, Centre trunnion

* In case of cushion style, pressure inside cushion stroke is not included.

Max. Stroke

Tube material	Aluminum alloy		Carbon steel	
	Mounting bracket	Front flange	Basic, Rear flange, Single clevis, Double clevis, Centre trunnion	Foot, Front flange
Bore size (mm)				
125	1000 or less	1400 or less	1000 or less	1600 or less
140	1000 or less	1400 or less	1000 or less	1600 or less
160	1200 or less	1400 or less	1200 or less	1600 or less

Mounting Bracket Part No.

Bore size (mm)	125	140	160
Foot*	CS1-L12	CS1-L14	CS1-L16
Flange	CS1-F12	CS1-F14	CS1-F16
Single clevis	CS1-C12	CS1-C14	CS1-C16
Double clevis	CS1-D12	CS1-D14	CS1-D16

* Order 2 foot brackets for one cylinder.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)		
	125	140	160
D-A5/A6/A59W/F5□/J5□/F5NTL D-F5□W/J59W/F5BAL/D-F5□F	BT-12	BT-12	BT-16
D-A3/A44/G39/K39	BS1-125	BS1-140	BS1-160



* Stainless mounting screw set

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

BBA1: D-A5/A6/F5/J5

"D-F5BAL" switch is set on the cylinder with the screws above when shipped.

When a switch only is shipped, "BBA1" screw is attached.

Series CS1□Q

Accessories

Mounting		Basic	Foot	Front flange	Rear flange	Single clevis	Double clevis	Center trunnion
Std. equipment	Clevis pin	—	—	—	—	—	●	—
Accessory	Rod end nut	●	●	●	●	●	●	●
	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint (Knuckle pin, Cotter pin)	●	●	●	●	●	●	●
	Rod boot	●	●	●	●	●	●	●

Rod Boot Materials

Symbol	Material	Max. ambient temp
J	Nylon tarpaulin	60°C
K	Heat resistant tarpaulin	110°C*

* Max. ambient temperature for the rod boot itself.

Major Material and Surface Treatments

Description	Material	Note
Cover	Rolled steel	Coated black
Tube	Aluminum alloy *	Hard anodized
	Carbon steel pipe	Inside: Hard chrome plated
Sliding part seal	NBR	PNY, NLP
Piston rod	Carbon steel	Hard chrome plated
Piston	Aluminum alloy cast	Chromated

* With auto switch

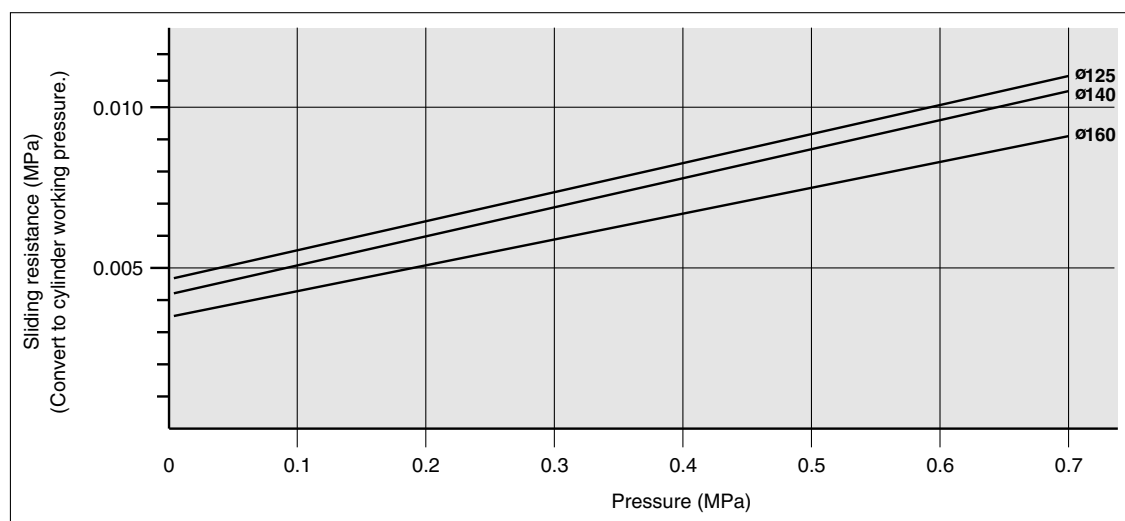
Weight/Steel tube (Refer to p.1.14-4 for aluminum tube [With auto switch].) (kg)

Bore size (mm)		ø125	ø140	ø160
Basic weight	Basic	15.20	18.38	25.24
	Foot	16.83	20.90	28.04
	Front flange	17.88	23.38	31.63
	Rear flange	17.88	23.38	31.63
	Single clevis	18.27	22.67	30.73
	Double clevis	18.73	23.42	31.58
	Trunnion	19.33	24.11	32.64
Additional weight per 100 stroke		2.66	3.01	3.58
Accessory	Single knuckle joint	0.91	1.16	1.56
	Double knuckle joint (with pin)	1.37	1.81	2.48

Calculation example: CS1LQ160, 500(Foot, ø160)

- Basic weight 28.04
 - Additional weight 3.58/100 stroke
 - Cylinder stroke 500 stroke
- 28.04+3.58 X 500/100=45.94kg

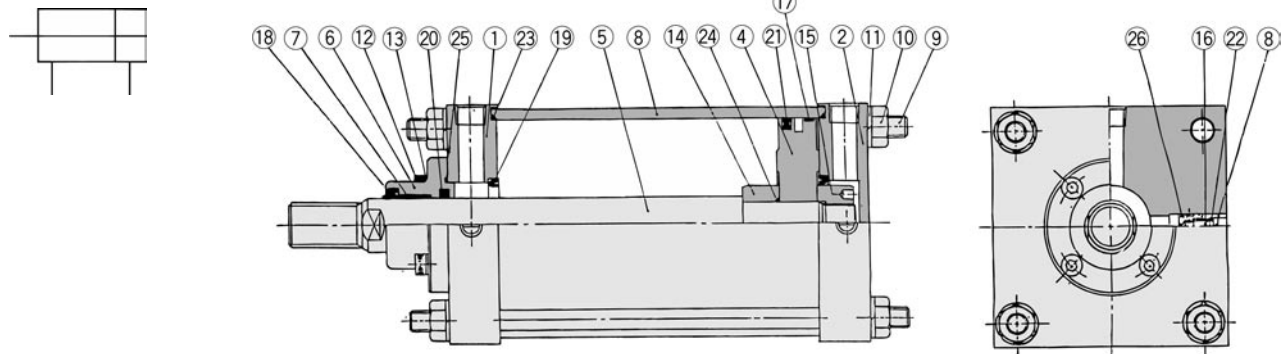
Sliding Resistance



Air Cylinder/Low Friction Series CS1□Q

Construction

Non-lube



Component Parts

No.	Description	Material	Note
①	Rod cover	Rolled steel plate	Black coated
②	Head cover	Rolled steel plate	Black coated
③	Cylinder tube	Aluminum alloy*	Hard anodized
		Carbon steel pipe	Hard chrome plated
④	Piston	Aluminum alloy die cast	Chromated
⑤	Piston rod	Carbon steel	Hard chrome plated
⑥	Holder plate	Cast iron	Black coated
⑦	Bushing	Lead bronze casting	
⑧	Valve guide	Brass	
⑨	Tie rod	Carbon steel	Chromated
⑩	Tie rod nut	Rolled steel	Black zinc chromated
⑪	Spring washer	Steel wire	Black zinc chromated
⑫	Holder plate bolt	Chrome-molybdenum steel	Black zinc chromated
⑬	Spring washer	Steel wire	Black zinc chromated
⑭	Cushion ring A	Rolled steel	Zinc chromated
⑮	Cushion ring B	Rolled steel	Zinc chromated
⑯	Cushion valve	Rolled steel	Nickel plated
⑰	Wear ring	Resin	

* With auto switch

Seal List

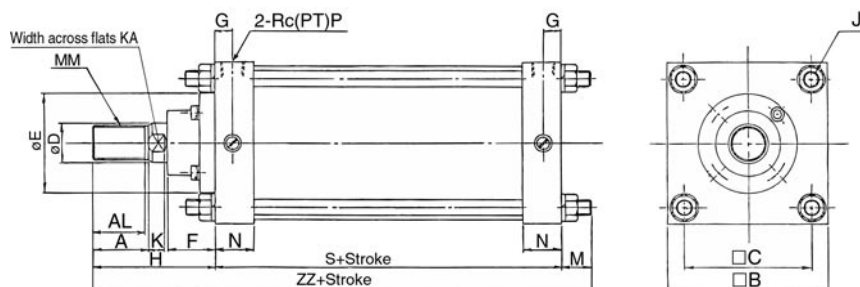
No.	Description	Mat'l	Part No.		
			125	140	160
⑱	Wiper ring	NBR	SFR-36K	SFR-36K	SFR-40K
⑲	Cushion seal*		DSM-50S	DSM-50S	DSM-50S
⑳	Rod seal		PNY-36	PNY-36	PNY-40
㉑	Piston seal		NLP-125A	NLP-140A	NLP-160A
㉒	Valve seal		P7	P7	P7
㉓	Tube gasket		C120	C135	C155
㉔	Piston gasket		G25		
㉕	Holder plate gasket		G55		
㉖	Guide gasket		N-12.5-1.5		

*It is used in case of cushion style only.

According to Mounting Brackets/Dimensions

Refer to dimensions of the standard style on p.1.10-12 to 1.10-18 for those with mounting brackets except the basic style.

Basic/CS1BQ



Bore (mm)	Stroke range (mm)	(mm)																	
		A	AL	□B	□C	D	E	F	G	J	K	KA	M	MM	N	P	S	H	ZZ
125	to 1000	50	47	145	115	36	90	43	16	M14 X 1.5	15	31	27	M30 X 1.5	35	1/2	98	110	235
140	to 1000	50	47	161	128	36	90	43	16	M14 X 1.5	15	31	27	M30 X 1.5	35	1/2	98	110	235
160	to 1200	56	53	182	144	40	90	43	18.5	M16 X 1.5	17	36	30.5	M36 X 1.5	39	3/4	106	120	256.5