

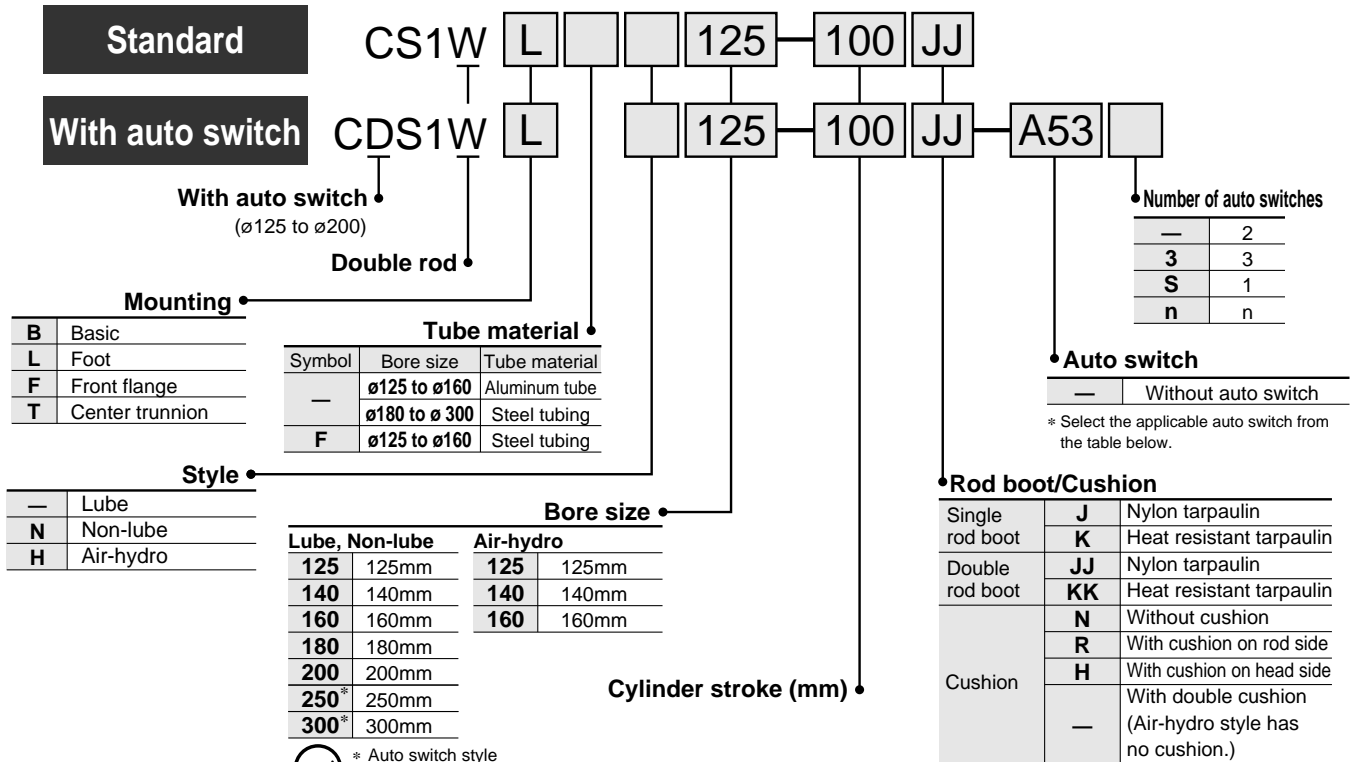
Air Cylinder/Double Rod

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
- CG1
- MB
- C95
- CA1
- CS1

* Auto switch style is not available.

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

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

Style	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model		Lead wire 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	PLC
						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	Relay PLC
				3 wire (PNP)				F5P	—	●	●	○	—		
				2 wire				J51	—	●	●	○	—		
				12V				J59	—	●	●	○	—		
				3 wire (NPN)				—	G39	—	—	—	●	IC	
				2 wire				—	K39	—	—	—	●	—	
				3 wire (NPN)				F59W	—	●	●	○	—	IC	
				3 wire (PNP)				F5PW	—	●	●	○	—	—	
				2 wire				J59W	—	●	●	○	—	—	
				3 wire (NPN)				F5BAL	—	●	●	○	—	—	
				3 wire (PNP)				F5NTL	—	●	●	○	—	IC	
				2 wire				F59F	—	●	●	○	—	—	
				4 wire (NPN)				F5LF	—	●	●	○	—	—	

* Lead wire length symbol 0.5m — (Example) A53
3m L A53L
5m Z A53Z

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

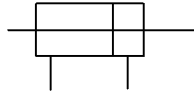
Part No. of Cylinder with Built-in Magnet

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.1.10-10 for auto switch specifications.

Minimum Strokes for Auto Switch Mounting

Refer to "Min. Strokes for Auto Switch Mounting" on p.1.10-8 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)
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.1.10-4 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

CG1

MB

C95

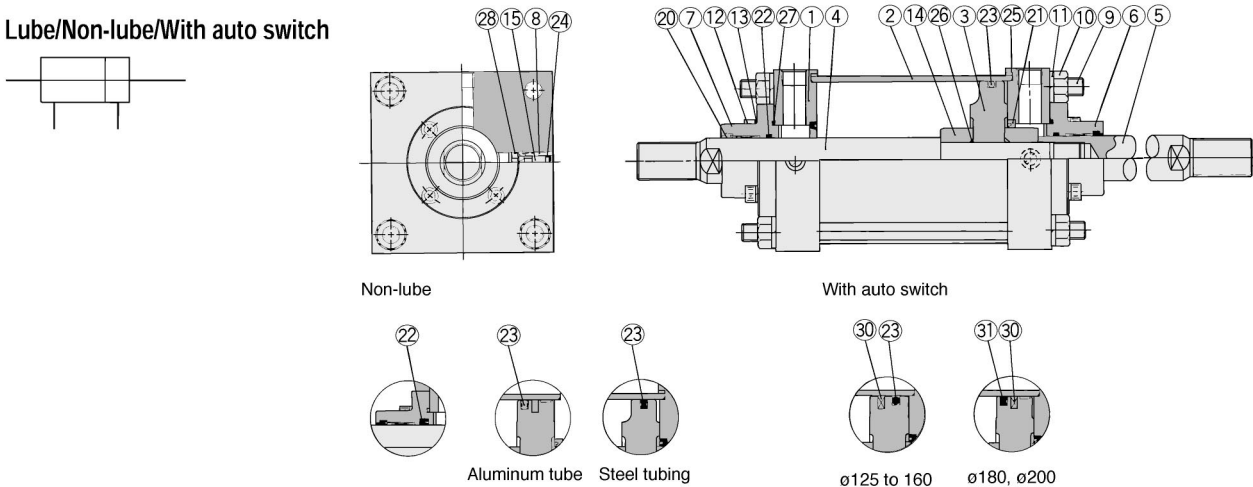
CA1

CS1

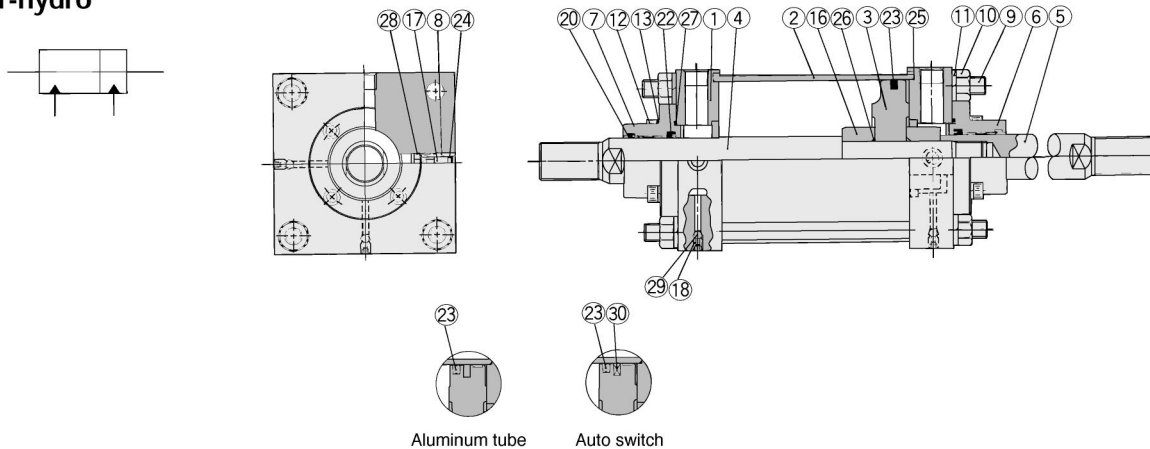
Series CS1W

Construction

Lube/Non-lube/With auto switch



Air-hydro



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 ㉑ are the same as lube style.

No.	Description	Mat'l	Part No.	
			180	200
㉑	Piston seal	NBR	NLP-180A	NLP-200A

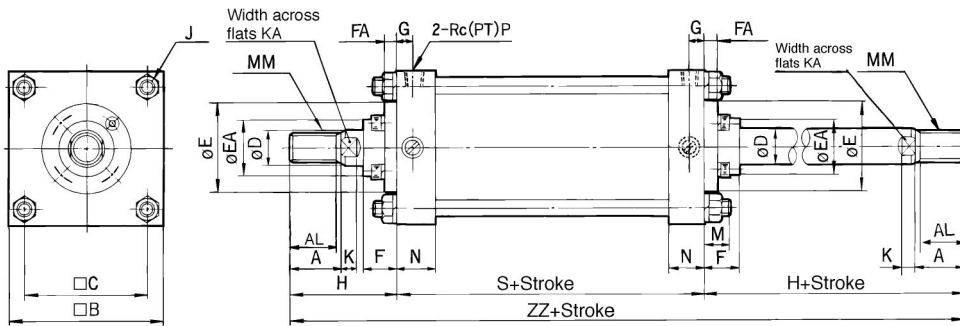
Replacement Part (Seal kits)

- Refer to p.1.10-23 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.

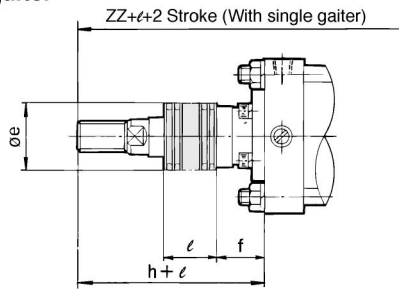
Air Cylinder/Double Rod *Series CS1W*



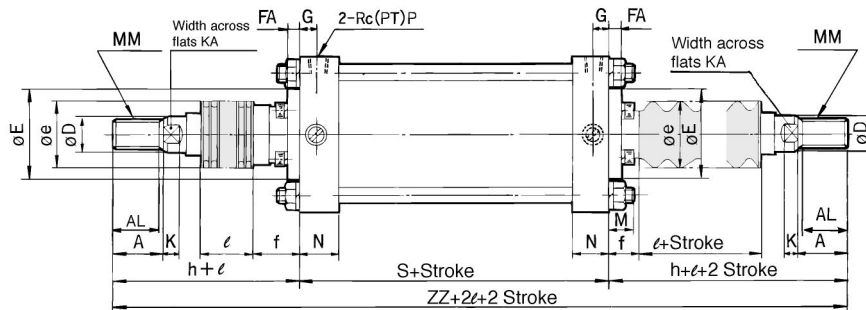
Lube (CS1WB), Non-lube (CS1WBN), Air-hydro (CS1WBH)



With single gaiter



With double gaiter



Style	Bore (mm)	Stroke range (mm)		A	AL	□B	□C	D	E	EA	F	FA	G	J	K	KA	M	MM	N	P	S
		W/o rod boot	W/ rod boot																		
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	1/2	98
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
Non-lube	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)	W/o rod boot		W/ rod boot (Single side)				W/ rod boot (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
Non-lube	300	175	496	115	55	190	0.17 Stroke	511	526

Style	Bore (mm)	Stroke range (mm)		S	W/ Rod boot (Both sides)		
		W/o rod boot	W/ rod boot		W/o rod boot	W/ Rod boot (Single side)	W/ Rod boot (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
Non-lube	200	to 998	30 to 998	120	390	408	426

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

- CS1WB125SCS1125, #8
- CS1WB140SCS1140, #8
- CS1WB160SCS1160, #8
- CS1WB180SCS1180, #8
- CS1WB200SCS1200, #8
- CS1WB250SCS1250, #8
- CS1WB300SCS1300, #8

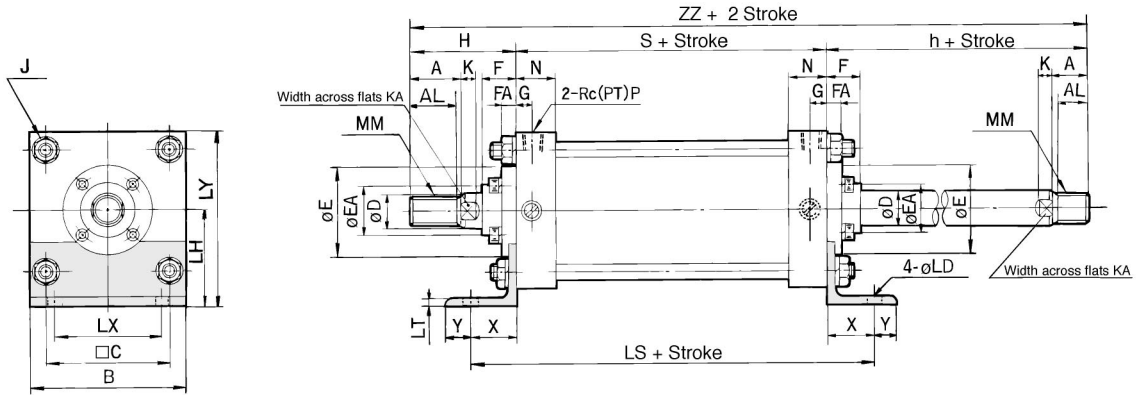
* The drawing shows with an auto switch. Eliminate the unnecessary parts.

Series CS1W

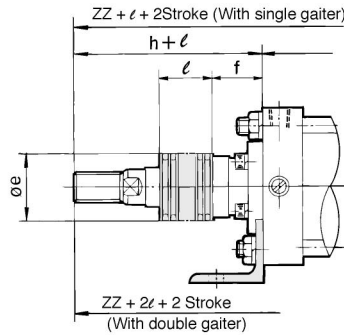
Foot/CS1WL



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



With gaiter



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	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
Non-lube	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
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	19	106	206	9
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
Non-lube	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	125	100	157.5	M30 X 1.5	35	1/2	98	45	20	110	318	75	40	133	0.2 Stroke	341	364
Non-lube	140	112	180.5	M30 X 1.5	35	1/2	98	45	30	110	318	75	40	133	0.2 Stroke	341	364
Air-hydro	160	118	197	M36 X 1.5	39	3/4	106	50	25	120	346	75	40	141	0.2 Stroke	367	388
	180	132	227	M40 X 1.5	39	3/4	111	60	30	135	381	85	45	153	0.2 Stroke	399	417
Lube	200	150	245	M45 X 1.5	39	3/4	111	60	30	135	381	90	45	153	0.2 Stroke	399	417
Non-lube	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	W/o rod boot	W/ rod boot (Single side)	W/ rod boot (Both sides)
		W/o rod boot	W/rod boot					
						ZZ	ZZ	ZZ
Lube	125	to 1000	30 to 1000	98	188	318	341	364
Non-lube	140	to 1000	30 to 1000	98	188	318	341	364
Air-hydro	160	to 1200	30 to 1200	106	206	346	367	388
Lube	180	to 1200	30 to 1200	115	235	385	403	421
Non-lube	200	to 998	30 to 998	120	240	390	408	426

Basic style
 CS1WL 125.....SCS1125, #8
 CS1WL 140.....SCS1140, #8
 CS1WL 160.....SCS1160, #8
 CS1WL 200.....SCS1200, #8
 CS1WL 250.....SCS1250, #8
 CS1WL 300.....SCS1300, #8

Foot style
 Add #2 to the left

* The drawing shows with an auto switch.
 Eliminate the unnecessary parts.

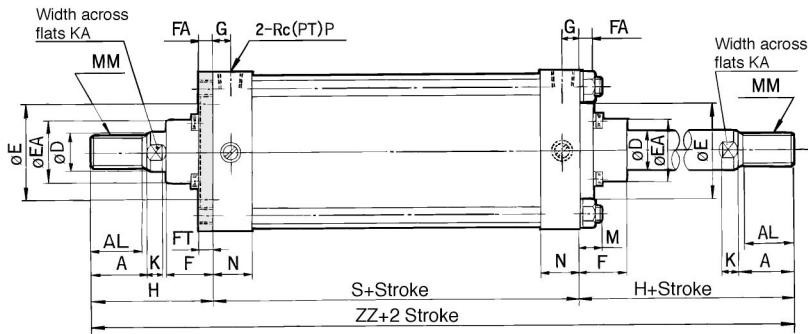
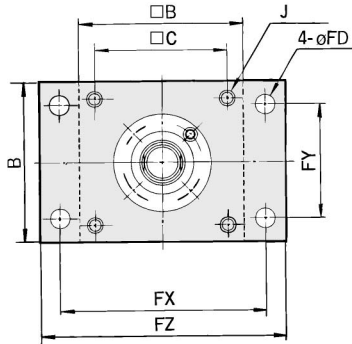
*** Refer to p.1.10-8 for auto switch min. mountable stroke.

Air Cylinder/Double Rod Series CS1W

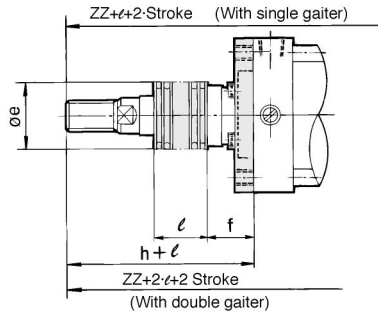
Front Flange/CS1WF



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



With gaiter



- CJ1
- CJP
- CJ2
- CM2
- C85
- CG1
- MB
- C95
- CA1
- CS1**

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
	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
	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
	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		
	200	20	46	31	M45 X 1.5	39	3/4	111	135	381	90	45	153	0.2 Stroke	399	417		
	250	25	56	35	M56 X 2	49	1	141	160	461	105	55	176	0.17 Stroke	477	493		
	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 (mm)

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		ZZ	ZZ	ZZ
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



Basic style
 CS1WL 125.....SCS1125, #8
 CS1WL 140.....SCS1140, #8
 CS1WL 160.....SCS1160, #8
 CS1WL 180.....SCS1180, #8
 CS1WL 200.....SCS1200, #8
 CS1WL 250.....SCS1250, #8
 CS1WL 250.....SCS1250, #8

Front flange style
 Add #2 to the left

* The drawing shows with an auto switch style. Eliminate the unnecessary parts.

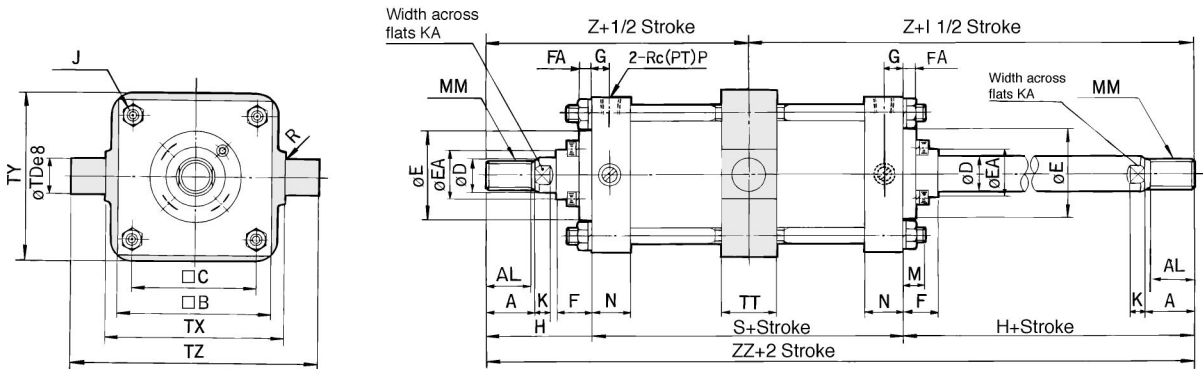
*** Refer to p.1.10-8 for auto switch min. mountable stroke.

Series CS1W

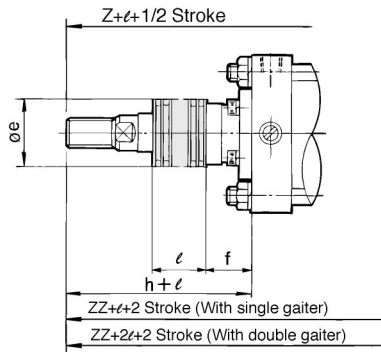


Center Trunnion/CS1WT

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



With gaiter



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 ^{-0.060} _{-0.106}	69	335	325	447	160	230.5	461	105	55	176	0.17 Stroke	246.5	477	246.5	493		
	300	67 ^{-0.060} _{-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)		W/ rod boot (Both sides)	
					Z	ZZ	Z	ZZ	Z	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	

Basic style
 CS1WL 125.....SCS1125, #8
 CS1WL 140.....SCS1140, #8
 CS1WL 160.....SCS1160, #8
 CS1WL 180.....SCS1180, #8
 CS1WL 200.....SCS1200, #8
 CS1WL 250.....SCS1250, #8
 CS1WL 300.....SCS1300, #8

Center trunnion style
 Add #7 to the left

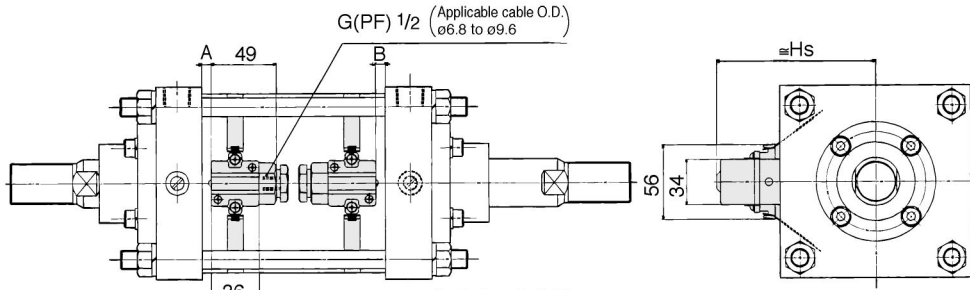
* The drawing shows with an auto switch style.
 Eliminate the unnecessary parts.

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

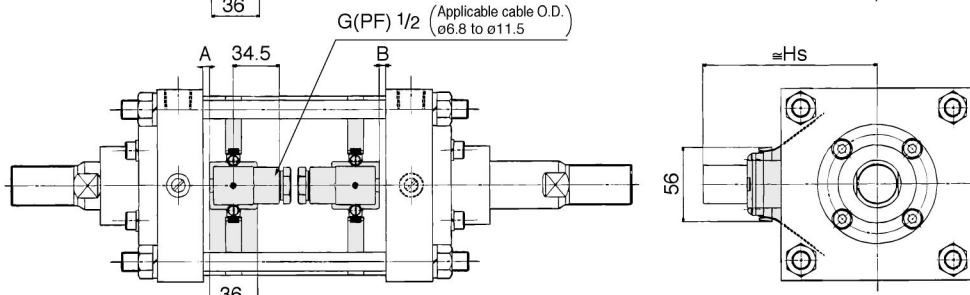
Auto Switch Mounting Position and Mounting Height

<Band mounting>

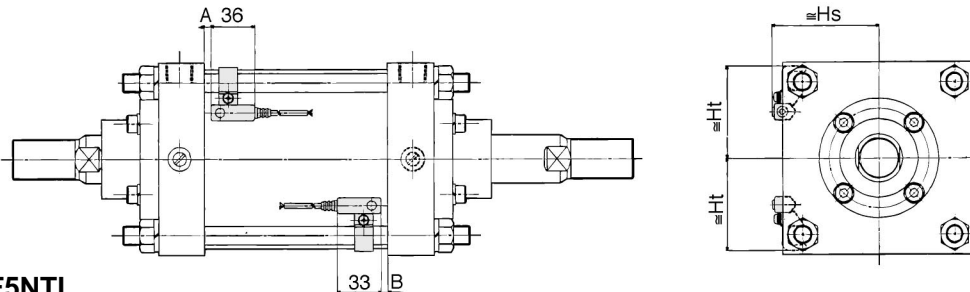
**D-A3
D-G39/K39**



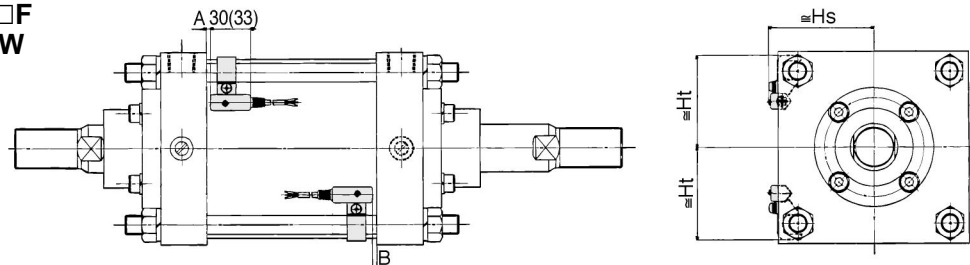
D-A4



<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
- CG1
- MB
- C95
- CA1
- CS1

Auto Switch Mounting Height

Auto switch model	D-A5		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
	Bore									
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	

(mm)