

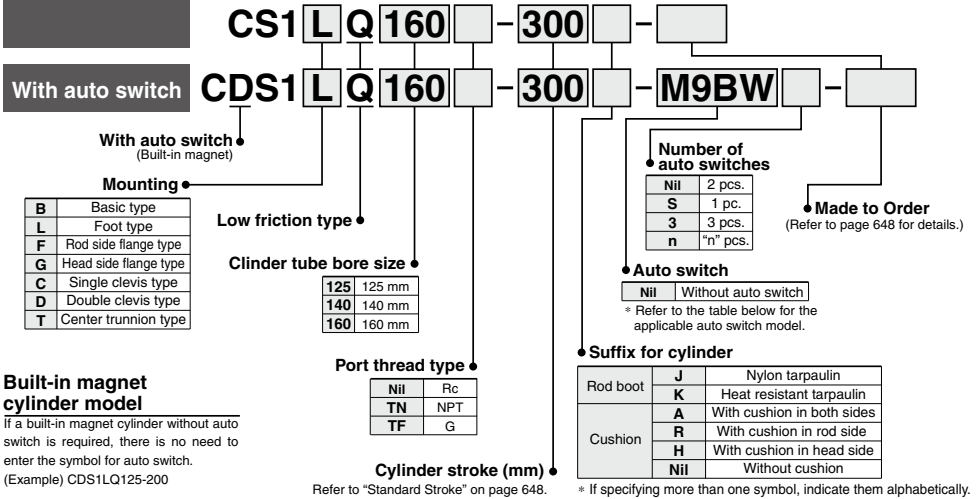
Air Cylinder: Low Friction Type Non-lube Type

CS1□Q Series

ø125, ø140, ø160

For the aluminum tubing of bore sizes 125, 140 and 160, a new "CS2 series"(P.655) model is now available with reduced weight and self weight deflection. Please consider using the CS2 series.

How to Order



Refer to "Standard Stroke" on page 648.

* If specifying more than one symbol, indicate them alphabetically.

Applicable Auto Switches

Refer to pages 1271 to 1365 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	Tie-rod mounting	Band mounting	0.5 (Nil)	1 (M)	3 (L)	5 (Z)							
Solid state auto switch	—	Grommet	No	3-wire (NPN)	24 V	5 V, 12 V	—	M9N	●	●	●	○	○	—	IC circuit				
				3-wire (PNP)				M9P	●	●	●	○	○						
		2-wire	M9B	●	●	●	○	○	—	—									
		3-wire (NPN)	24 V	5 V, 12 V	—	G39	—	—			—	—	—	—	—	IC circuit			
	2-wire	K39				—	—	—	—	—	—	—	—	—	—				
	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NW	●	●	●	○	○	—	IC circuit	Relay, PLC			
				3-wire (PNP)				M9PW	●	●	●	○	○						
	Water resistant (2-color indicator)	Grommet	Yes	2-wire	24 V	12 V	—	M9BW	●	●	●	○	○	—	—	—			
				3-wire (NPN)				24 V	5 V, 12 V	—	M9NA*1	—	○				○	○	○
	With diagnostic output (2-color indicator)	Grommet	Yes	3-wire (PNP)	24 V	12 V	—				M9PA*1	—	○	○	○	○	—	—	—
2-wire				M9BA*1				—	○	○	○	○	○	○	○	○			
Magnetic field resistant (2-color indicator)	Grommet	Yes	4-wire (NPN)	24 V	5 V, 12 V	—	F59F	●	●	●	○	○	—	IC circuit	—				
			2-wire (Non-polar)				P3DWA	—	●	●	●	○				○	○	○	—
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96	●	●	●	—	—	—	IC circuit	—			
				12 V				A93	—	●	●	●	—				—	—	—
				5 V, 12 V				A90	—	●	●	●	—				—		
				100 V or less				A94	—	●	●	●	—				—	—	—
				100 V, 200 V				A54	—	●	●	●	—				—		
		200 V or less	A64	—	●	●	●	—	—	—	—								
		Terminal conduit	Grommet	No	No	2-wire	24 V	12 V	—			A33	—	—	—	—	—	—	PLC
										A34	—	—	—	—	—	—			
										A44	—	—	—	—	—	—			
										A44	—	—	—	—	—	—			
A44	—									—	—	—	—	—					
DIN terminal	Grommet	Yes	Yes	2-wire	24 V	—	—	A59W	—	●	●	—	—	—	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.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW * Solid state auto switches marked with "○" are produced upon receipt of order.

1 m M (Example) M9NWM

3 m L (Example) M9NWL

5 m Z (Example) M9NWZ

* Since there are other applicable auto switches than listed above, refer to page 653 for details.

* For details about auto switches with pre-wired connector, refer to pages 1340 and 1341.

* D-A9□/M9□/M9□W/M9□A/P3DWA□ auto switches are shipped together (not assembled). (Only auto switch mounting brackets are assembled before shipped.)

CS1□Q Series

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

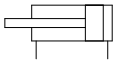
Min. operating pressure –0.005 MPa

Auto switch mounting is possible.



Symbol

Double acting, Without cushion

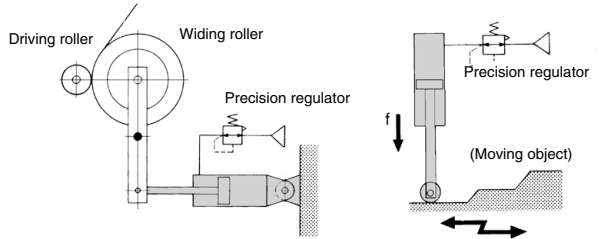


Made to Order Specifications

Symbol	Specifications
-XA□	Change of rod end shape
-XC3	Special port location
-XC14	Change of trunnion bracket mounting position
-XC15	Change of tie-rod length
-XC26	Clevis pins with flat washer
-XC27	Double clevis pins made of stainless steel (Stainless steel 304)
-XC30	Rod side trunnion

Application Example

Low friction cylinder is used in combination with precision regulator (IR series).



Specifications

Action	Double acting, Single rod
Direction of low friction	Both directions
Fluid	Air
Proof pressure	1.05 MPa
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.005 MPa *
Ambient and fluid temperature	Without auto switch: 0 to 70°C (No freezing) With auto switch: 0 to 60°C (No freezing)
Allowable leakage	0.5 L/min (ANR) or less
Cushion	None (With cushion is available.)
Lubrication	Not required (Non-lube)
Bore size (mm)	125, 140, 160
Mounting	Basic type, Foot type, Rod side flange type, Head side flange type, Single clevis type, Double clevis type, Center trunnion type

* In the case of w/ cushion, pressure inside cushion stroke is not included.

Maximum Stroke

(mm)

Tubing material Mounting bracket	Aluminum tube (with auto switch)		Iron tube (without auto switch)	
	Basic type, Head side flange type Single clevis type, Double clevis type Center trunnion type Rod side flange type	Basic type, Head side flange type Single clevis type Double clevis type Center trunnion type	Foot type Rod side flange type	
Bore size (mm)				
125	1000 or less	1000 or less	1600 or less	
140	1000 or less	1000 or less	1600 or less	
160	1200 or less	1200 or less	1600 or less	

Refer to pages 651 to 653 for auto switch specifications.

- Proper auto switch mounting position (detection at stroke end) and mounting height
- Minimum auto switch mounting stroke
- Operating range
- Switch mounting bracket: Part no.

Mounting Bracket Part No.

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

* Order two foot brackets per cylinder.

Rod Boot Material

Symbol	Material	Max. ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C *

* Maximum ambient temperature for the rod boot itself.

Accessory

Mounting type		Basic type	Foot type	Rod side flange type	Head side flange type	Single clevis type	Double clevis type	Center trunnion type
Standard equipment	Clevis pin	—	—	—	—	—	●	—
Option	Rod end nut	●	●	●	●	●	●	●
	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint (Knuckle pin, Cotter pin)	●	●	●	●	●	●	●
	Rod boot	●	●	●	●	●	●	●

Principal Parts Material and Surface Treatment

Description	Material	Note
Cover	Rolled steel plate	Black painted
Tube	Aluminum alloy (with auto switch)	Hard anodized
	Carbon steel tube (without auto switch)	Inside: Hard chrome plated
Sliding part seal	NBR	
Piston rod	Carbon steel	Hard chrome plated
Piston	Aluminum alloy casted	Chromated

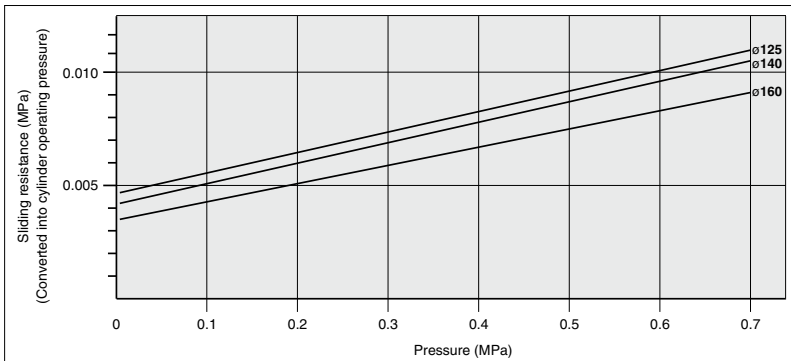
Weight/Steel Tube (For aluminum tube [with auto switch], refer to page 627.) (kg)

Bore size (mm)		125	140	160
Basic weight	Basic type	15.20	18.38	25.24
	Foot type	16.83	20.90	28.04
	Rod side flange type	17.88	23.38	31.63
	Head side flange type	17.88	23.38	31.63
	Single clevis type	18.27	22.67	30.73
	Double clevis type	18.73	23.42	31.58
	Trunnion type	19.33	24.11	32.64
Additional weight per each 100 mm of stroke		2.66	3.01	3.58
Accessory bracket	Single knuckle	0.91	1.16	1.56
	Double knuckle (With pin)	1.37	1.81	2.48

Calculation: (Example) **CS1LQ160, 500**

- Basic weight:..... 28.04 (Foot type, ø160)
- Additional weight:..... 3.58/100 stroke
- Cylinder stroke:..... 500 stroke, 28.04 + 3.58 x 500/100 = 45.94 kg

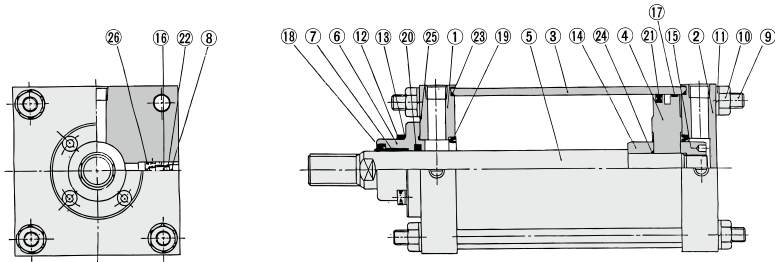
Sliding Resistance



CS1□Q Series

Construction

Non-lube



Component Parts

No.	Description	Material	Note
1	Rod cover	Rolled steel plate	Black painted
2	Head cover	Rolled steel plate	Black painted
3	Cylinder tube	Aluminum alloy*	Hard anodized
		Carbon steel tube	Hard chrome plated
4	Piston	Aluminum alloy casted	Chromated
5	Piston rod	Carbon steel	Hard chrome plated
6	Retaining plate	Cast iron	Black painted
7	Bushing	Bearing alloy	
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	Retaining plate bolt	Chromium 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	Electroless nickel plated
17	Wear ring	Resin	

* With auto switch

Seal List

No.	Description	Material	Note
18	Wiper ring	NBR	
19	Cushion seal*		
20	Rod seal		
21	Piston seal		
22	Valve seal		
23	Tube gasket		
24	Piston gasket		
25	Retaining plate gasket		
26	Guide gasket		

* It is used only in the case of w/ cushion type.

Low Friction Type

Bore size (mm)	Kit no.	Description
125	CS1Q125A-PS	Component part numbers: 18, 20, 21, 22, 23, 25
140	CS1Q140A-PS	
160	CS1Q160A-PS	

* Since the seal kit does not include a grease pack, order it separately.

Grease pack part no.: GR-L-005(5g), GR-L-010(10g), GR-L-150(150g)

** Seal kits does not include cushion seal, piston gasket and guide gasket

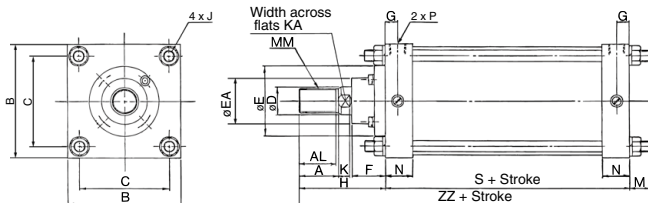
because those are not replaceable parts.

*** Trunnion type should not be disassembled. (Refer to page 654.)

Dimensions: According to Mounting Brackets

External dimensions for each mounting bracket other than basic type are the same as standard type. Refer to pages 630 to 636.

Basic Type: CS1BQ



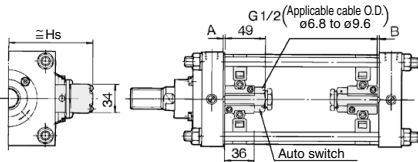
Bore size (mm)	Stroke range (mm)	A	AL	B	C	D	E	EA	F	G	J	K	KA	M	MM	N	P	S	H	ZZ
125	Up to 1000	50	47	145	115	36	90	59	43	16	M14 x 1.5	15	31	27	M30 x 1.5	35	1/2	98	110	235
140	Up to 1000	50	47	161	128	36	90	59	43	16	M14 x 1.5	15	31	27	M30 x 1.5	35	1/2	98	110	235
160	Up to 1200	56	53	182	144	40	90	59	43	18.5	M16 x 1.5	17	36	30.5	M36 x 1.5	39	3/4	106	120	256.5

Auto Switch Mounting 1

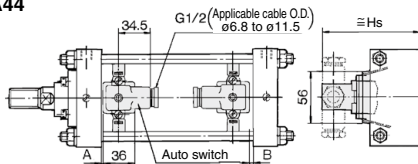
Proper Auto Switch Mounting Position (Detection at stroke end) and Mounting Height

Band mounting type

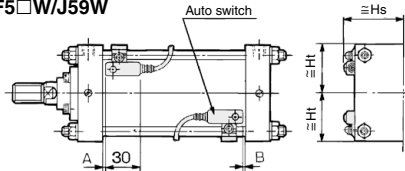
D-A3□
D-G3/K3



D-A44

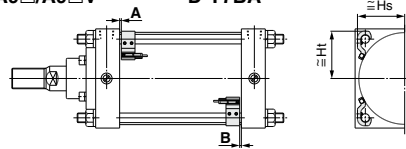


D-F5□/J59/D-F5NT
D-F5BA/F59F
D-F5□W/J59W

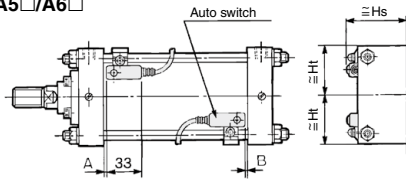


Tie-rod mounting type

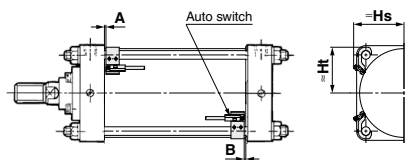
D-M9□/M9□V D-Z7□/Z80
D-M9□W/M9□WV D-Y59□/Y69□/Y7P/Y7PV
D-M9□A/M9□AV D-Y7□W/Y7□WV
D-A9□/A9□V D-Y7BA



D-A5□/A6□



D-P3DWA



Proper Auto Switch 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-Z7□/Z80 D-Y5□/Y6□ D-Y7P/Y7PV D-Y7□W D-Y7□WV D-Y7BA		D-A5□ D-A6□ D-A3□ D-A44 D-G39 D-K39		D-A59W		D-F5□W D-J59W D-F5BA D-F5□ D-J59 D-F59F		D-F5NT		D-P3DWA	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bore size 125	8	8	4	4	1.5	1.5	0	0	2	2	4.5	4.5	9.5	9.5	3.5	3.5
140	8	8	4	4	1.5	1.5	0	0	2	2	4.5	4.5	9.5	9.5	3.5	3.5
160	8	8	4	4	1.5	1.5	0	0	2	2	4.5	4.5	9.5	9.5	3.5	3.5
180	13.5	12.5	9.5	7.5	7	5	3.5	1.5	7.5	5.5	10	8	15	13	9	7
200	16	14	12	10	9.5	7.5	6	4	10	8	12.5	10.5	17.5	15.5	11.5	9.5

* The mounting position should be referred for reference only for the auto switch mounting position at the stroke end detection.

* Adjust the auto switch after confirming the operation to set actually.

* Low friction type (CDS1□Q): ø125, ø140, ø160

Auto Switch Mounting Height

(mm)

Auto switch model	D-M9□ D-M9□W D-M9□A D-A9□ D-A9□V		D-M9□WV D-M9□AV D-M9□V		D-Z7□/Z80 D-Y5□/Y6□ D-Y7P D-Y7PV D-Y7□W D-Y7□WV D-Y7BA		D-A3□ D-G39 D-K39		D-A44		D-A5□ D-A6□ D-A59W		D-F5□ D-J59 D-F5□W D-J59W D-F5BA D-F59F D-F5NT		D-P3DWA	
	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht	Hs	Ht
Bore size 125	69	69.5	71.5	69.5	69	69.5	116	116	126	75.5	69.5	74.5	70	76	69.5	69.5
140	76	76	77.5	76	76	76	124	124	134	81	76.5	80	76.5	82	76	76
160	85	85	86	85	85	85	134.5	134.5	144.5	89	87.5	88	87.5	91	85	85
180	95	95	95.5	95	95	95	144	144	154	97	97.5	96	97.5	100	95	95
200	106	106	106	106	106	106	154	154	164	107	108	107.5	108	111	106	106

* Low friction type (CDS1□Q): ø125, ø140, ø160

CS1 Series Auto Switch Mounting 2

Minimum Stroke for Auto Switch Mounting

n: No. of auto switch (mm)

Auto switch model No.	No. of auto switch mounted	Bracket other than center trunnion	Center trunnion type				
			φ125	φ140	φ160	φ180	φ200
D-M9□ D-M9□W	2 (Different surfaces, Same surface)	15	105	110		115	
	n	$15 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$105 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$110 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$115 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-M9□V D-M9□WV	2 (Different surfaces, Same surface)	10	80	85		90	
	n	$10 + 30 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$80 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$85 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$90 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-M9□A	2 (Different surfaces, Same surface)	20	115		120		
	n	$20 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$115 + 40 \frac{(n-2)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$120 + 40 \frac{(n-2)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		
D-M9□AV	2 (Different surfaces, Same surface)	15	90		95		
	n	$15 + 30 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$90 + 30 \frac{(n-2)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$95 + 30 \frac{(n-2)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		
D-A9□	2 (Different surfaces, Same surface)	15	100	105		110	
	n	$15 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$100 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$105 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$110 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-A9□V	2 (Different surfaces, Same surface)	10	75	80		85	
	n	$10 + 30 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$75 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$80 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$85 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-A5□/A6□ D-A59W D-F5□/J59 D-F5□W D-F59W D-F5BA D-F59F	2 (Different surfaces, Same surface)	25	125	135		150	
	n (Same surface)	$25 + 55 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$125 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$135 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$150 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-F5NT	2 (Different surfaces, Same surface)	35	145	155		170	
	n (Same surface)	$35 + 55 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$145 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$155 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$170 + 55 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-A3□ D-G39 D-K39	2	Different surfaces	35		110		150
		Same surface	100				
	n	Different surfaces	$35 + 30(n-2)$ (n = 2, 3, 4, 5...)		$110 + 30(n-2)$ (n = 2, 4, 6, 8...) ^{Note 1}		$150 + 100(n-2)$ (n = 2, 4, 6, 8...) ^{Note 1}
		Same surface	$100 + 100(n-2)$ (n = 2, 3, 4, 5...)		$110 + 100(n-2)$ (n = 2, 4, 6, 8...) ^{Note 1}		$150 + 30(n-2)$ (n = 2, 4, 6, 8...) ^{Note 1}
D-A44	2	Different surfaces	35		110		150
		Same surface	55				
	n	Different surfaces	$35 + 30(n-2)$ (n = 2, 3, 4, 5...)		$110 + 30(n-2)$ (n = 2, 4, 6, 8...) ^{Note 1}		$150 + 30(n-2)$ (n = 2, 4, 6, 8...) ^{Note 1}
		Same surface	$55 + 55(n-2)$ (n = 2, 3, 4, 5...)		$110 + 50(n-2)$ (n = 2, 4, 6, 8...) ^{Note 1}		$150 + 50(n-2)$ (n = 2, 4, 6, 8...) ^{Note 1}
1	15		110		150		
D-Z7□ D-Z80 D-Y59□ D-Y7P D-Y7□W	2 (Different surfaces, Same surface)	15	105	110		115	
	n	$15 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$105 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$110 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$115 + 40 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-Y69□ D-Y7PV D-Y7□WV	2 (Different surfaces, Same surface)	10	90	95		100	
	n	$10 + 30 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$90 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$95 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$100 + 30 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-Y7BA	2 (Different surfaces, Same surface)	20	115	120	125	130	
	n	$20 + 45 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$115 + 45 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$120 + 45 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$125 + 45 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$130 + 45 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	
D-P3DWA	2 (Different surfaces, Same surface)	20	110	115		120	
	n	$20 + 50 \frac{(n-2)}{2}$ (n = 2, 4, 6, 8...) ^{Note 1}	$110 + 50 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	$115 + 50 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}		$120 + 50 \frac{(n-4)}{2}$ (n = 4, 8, 12, 16...) ^{Note 2}	

* Low friction type (CDS□□): φ125, φ140, φ160

Note 1) When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.
Note 2) When "n" is an odd number, a multiple of 4 that is larger than this odd number is used for the calculation.

Operating range

Auto switch model	Bore size (mm)				
	125	140	160	180	200
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	6	6.5	6.5	6.5	7
D-A9□/A9□V	12	12.5	11.5	12	12.5
D-Z7□/Z80	14	14.5	13	14	14.5
D-A3□/A44 D-A5□/A6□	10	10	10	10	10
D-A59W	17	17	17	17	17
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV D-Y7BA	12	13	7	7.5	8
D-F5□/J59/F5□W D-J59W/F5BA D-F5NT/F59F	5	5	5.5	6	6
D-G39/K39	11	11	10	10	10
D-P3DWA	6	6.5	6.5	6.5	7

- * Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion.)
There may be the case it will vary substantially depending on an ambient environment.
- * Low friction type (CDS1□Q): ø125, ø140, ø160

Auto Switch Mounting Bracket: Part No.

Auto switch model	Bore size (mm)				
	ø125	ø140	ø160	ø180	ø200
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V	BS5-125	BS5-125	BS5-160	BS5-180	BS5-200
D-A5□/A6□ D-A59W D-F5□/J59 D-F5NT D-F5□W/J59W D-F5BA/F59F	BT-12	BT-12	BT-16	BT-18A	BT-20
D-A3□/A44 D-G39/K39	BS1-125	BS1-140	BS1-160	BS1-180	BS1-200
D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV D-Y7BA	BS4-125	BS4-125	BS4-160	BS4-180	BS4-200
D-P3DWA	BS7-125S	BS7-125S	BS7-160S	BS7-180S	BS7-200S

[Stainless Steel Mounting Screw Kit]

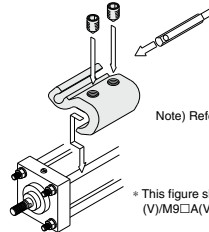
The following set of stainless steel mounting screws is available. Use them in accordance with the operating environment. (Since auto switch brackets are not included, order them separately.)

BBA1: For D-A5/A6/F5/J5 types

The above stainless steel screws are used when a cylinder is shipped with D-F5BA-type auto switches.

When only a switch is shipped independently, BBA1 screws are attached.

Note) When D-M9□A/M9□AV/Y7BA auto switches are used, do not use steel set screws included in the auto switch mounting brackets above (BS5-□□□ and BS4-□□□). Order the stainless steel screw set BBA1 separately, and use M4 x 8L stainless steel set screws included in BBA1 instead.



Note) Refer to page 1377 for the details of BBA1 screws.

* This figure shows how to mount D-A9□(V)/M9□(V)/M9□V(V)/M9□A(V).

Besides the models listed in How to Order, the following auto switches are applicable. Refer to pages 1271 to 1365 for the detailed specifications.

Auto switch type	Part no.	Electrical entry (Fetching direction)	Features
Reed	D-A90V	Grommet (perpendicular)	Without indicator light
	D-A93V, A96V		
	D-Z73, Z76		—
	D-A53, A56	Grommet (in-line)	Without indicator light
	D-A67		
	D-Z80		
Solid state	D-F59, F5P, J59	Grommet (in-line)	—
	D-Y59A, Y59B, Y7P		
	D-F59W, F5PW, J59W		2-color display
	D-Y7NW, Y7PW, Y7BW		Water resistant (2 colors)
	D-F5BA, Y7BA		With timer
	D-F5NT		—
	D-M9NV, M9PV, M9BV	Grommet (perpendicular)	—
	D-Y69A, Y69B, Y7PV		
	D-M9NWV, M9PWV, M9BWW		2-color display
	D-Y7NWV, Y7PWV, Y7BWW		
	D-M9NAV, M9PAV, M9BAV		Water resistant (2 colors)

* For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to pages 1340 and 1341 for details.

* Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)/Y7G/Y7H) are also available. Refer to pages 1290 and 1292 for details.