

Series 10-/11- 21-/22-CA2

Air cylinder ø40, ø50, ø63

How to Order



Clean series

10	Relief type
11	Vacuum suction type

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
G	Head side flange style

Bore size (mm)

Port thread type

Nil	Rc
TN	NPT
TF	G

Modeling Example 1: 10 - C D A 2 B 40 [] - 150 - Y59B []

Modeling Example 2: 21 - C D A 2 B 40 [] - 150 - Y59B []

Built-in magnet

Nil	No
D	With auto switch (Built-in magnet)

Copper, fluorine and silicon-free + Low particle generation

21	Relief type
22	Vacuum suction type

Cylinder stroke (mm)

Number of auto switches

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

Type of auto switch

Reed switch	Z7□, A54/A59W
Solid state switch	J51/F5□, Y5□/Y7□

Model

Model		Bore size (mm)	Port size	Lubrication	Action	Standard stroke (mm)	Auto switch mounting	Cushion
Relief type	10-/21-CA2□40	40	1/4	Non-lube	Double acting, single rod	50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500	Available	Air cushion
	10-/21-CA2□50	50	3/8					
	10-/21-CA2□63	63						
Vacuum suction type	11-/22-CA2□40	40	1/4					
	11-/22-CA2□50	50	3/8					
	11-/22-CA2□63	63						

Note) Consult SMC for long stroke.

Specifications

Item	Bore size (mm)
	40/50/63
Proof pressure	1.5MPa
Maximum operating pressure	1.0MPa
Minimum operating pressure	0.05MPa
Ambient and fluid temperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)
Piston speed	50 to 400 mm/s
Stroke length tolerance	Up to 250st ^{+1.0} mm 251 to 1000st ^{+1.4} mm
Mounting style	Basic style / Axial foot style / Rod side flange style / Head side flange style
Grease	10-/11-: Fluorine grease 21-/22-: Lithium soap based grease
Particle generation grade (Refer to front matter pages 13 to 22 for details.)	10-: Grade 2, 21-: Grade 3 11-/22-: Grade 1

Suction flow rate of vacuum suction type (Reference values)

Bore size	Suction flow rate ℓ /min (ANR)
40	10
50/63	20

Applicable auto switch (Refer to Best Pneumatics catalog 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-wire connector	Applicable load		
					DC	AC		Tie-rod mount	0.5 (Nil)	3 (L)				5 (Z)
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5V	—	Z76	●	●	—	—	IC circuit	—
				2-wire	24V	12V	100V	Z73	●	●	●	—	—	Relay, PLC
		100V, 200V				A54	●	●	●	—				
	Diagnostic indication (2-color indication)	Grommet		—	—	A59W	●	●	—	—				
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24V	5V, 12V	—	Y59A	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			Y7P	●	●	○	○			
				2-wire	—	—	100V, 200V	J51	●	●	○	—	—	
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	24V	5V, 12V	—	Y59B	●	●	○	○	IC circuit	
				3-wire (PNP)			Y7NW	●	●	○	○			
				Y7PW			●	●	○	○	—			
				2-wire			12V	Y7BW	●	●		○	○	
				Water resistant (2-color indication)			—	Y7BA	—	●	○	○		
				With diagnostic output (2-color indication)			4-wire (NPN)	5V, 12V	F59F	●	●	○	○	

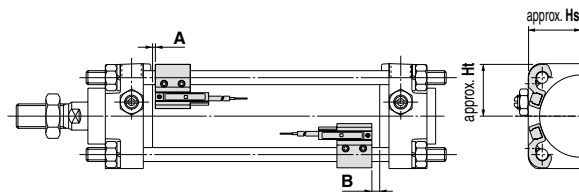
* Lead wire length symbols: 0.5m.....Nil (Example) A54
 3 m.....L (Example) A54L
 5 m.....Z (Example) A54Z

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

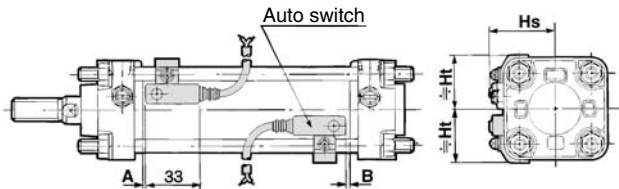
Refer to page 182 for a list of applicable auto switches.

Proper auto switch mounting position (Detection at stroke end) and its mounting height

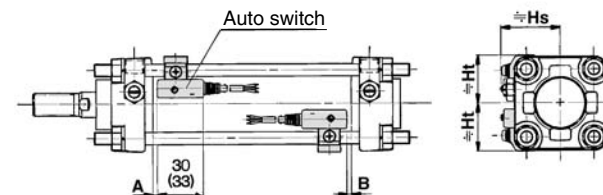
D-Z7□
 D-Y59□/Y69□/Y7P/Y7PV
 D-Y7□W/Y7□WV
 D-Y7BAL



D-A5□
 D-A59W



D-F5□/J5□



Values inside () are for D-F5LF.

Proper auto switch mounting position (mm)

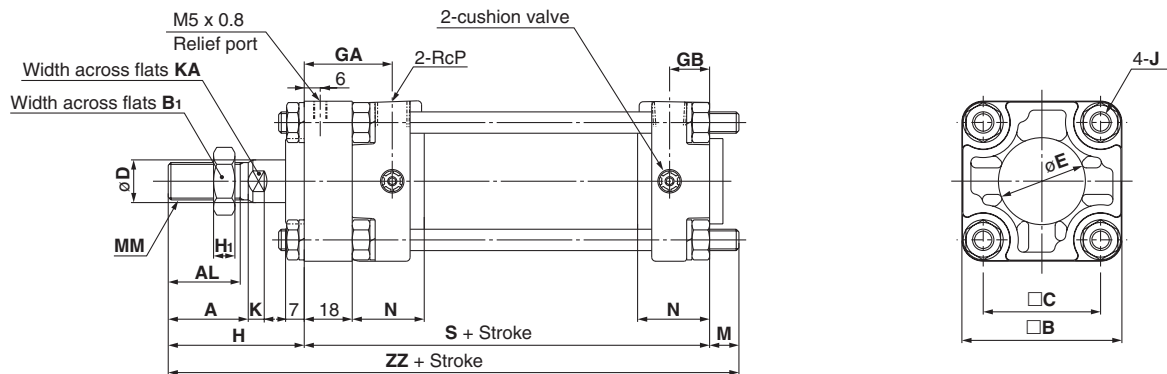
Auto switch model	D-Z7□ D-Y59□ D-Y7P D-Y7□W D-Y7BAL		D-A54		D-A59W		D-J51 D-F59F	
	A	B	A	B	A	B	A	B
Bore size (mm)								
40	3.5	1.5	0	0	4	2	7	4
50	3.5	1.5	0	0	4	2	6.5	4.5
63	6	5	2.5	1.5	6.5	5.5	12.5	8

Note) The above values should be used as a guide for detection at stroke end. When actually mounting the auto switch, adjust the position after confirming the operating conditions of the auto switch.

Auto switch mounting height (mm)

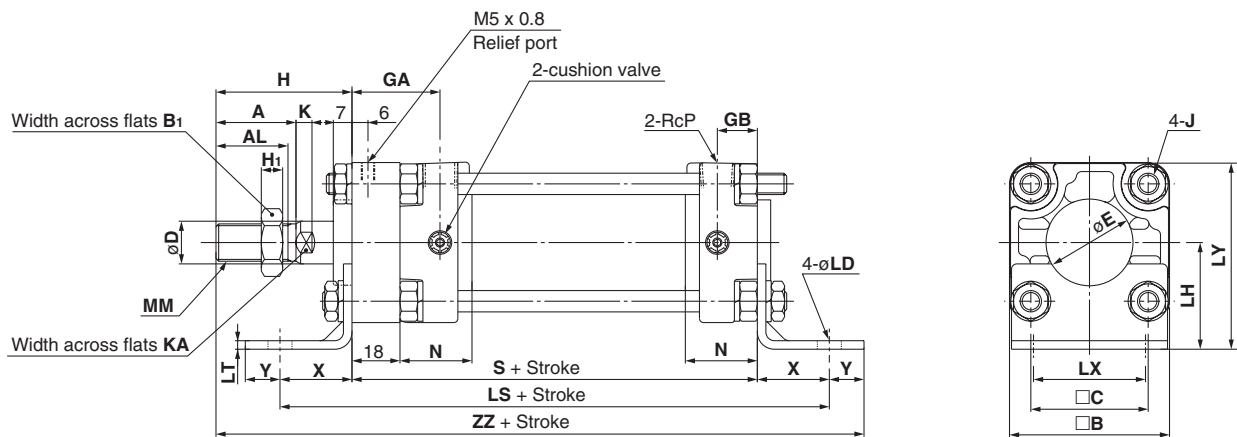
Auto switch model	D-Z7□ D-Y59□ D-Y7P D-Y7□W D-Y7BAL		D-A54 D-A59W		D-J51 D-F59F	
	Hs	Ht	Hs	Ht	Hs	Ht
Bore size (mm)						
40	30	30	38.5	31.5	38	31.5
50	34	34	42	35.5	42	35.5
63	41	41	46.5	43	47	43

Basic style (B) / 10-11-CA2B, 21-22-CA2B



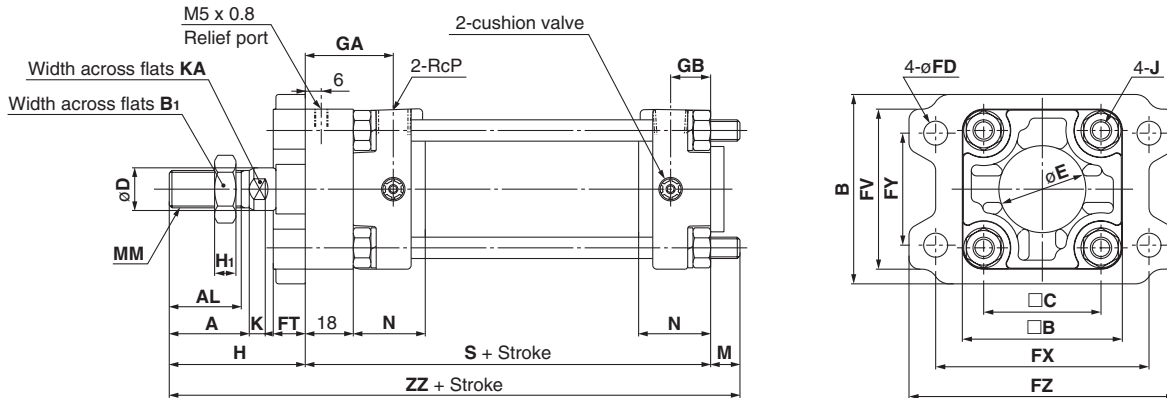
		(mm)																			
Symbol	Stroke range	A	AL	B	B ₁	C	D	E	GA	GB	H	H ₁	J	K	KA	M	MM	N	P	S	ZZ
Bore size																					
40	Up to 1000	30	27	60	22	44	16	32	33	15	51	8	M8 x 1.25	6	14	11	M14 x 1.5	27	1/4	102	164
50	Up to 1000	35	32	70	27	52	20	40	35	17	58	11	M8 x 1.25	7	18	11	M18 x 1.5	30	3/8	108	177
63	Up to 1000	35	32	85	27	64	20	40	35	17	58	11	M10 x 1.25	7	18	14	M18 x 1.5	31	3/8	116	188

Axial Foot Style (L) / 10-11-CA2L, 21-22-CA2L



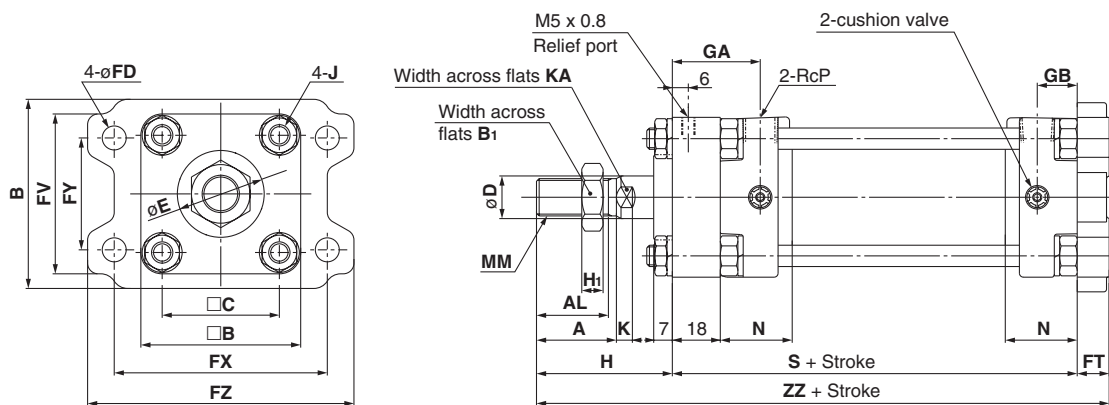
Symbol Bore size		(mm)																											
		Stroke range	A	AL	B	B ₁	C	D	E	GA	GB	H	H ₁	J	K	KA	LD	LH	LS	LT	LX	LY	MM	N	P	S	X	Y	ZZ
40	Up to 1000	30	27	60	22	44	16	32	33	15	51	8	M8 x 1.25	6	14	9	40	156	3.2	42	70	M14 x 1.5	27	1/4	102	27	13	193	
50	Up to 1000	35	32	70	27	52	20	40	35	17	58	11	M8 x 1.25	7	18	9	45	162	3.2	50	80	M18 x 1.5	30	3/8	108	27	13	206	
63	Up to 1000	35	32	85	27	64	20	40	35	17	58	11	M10 x 1.25	7	18	11.5	50	184	3.2	59	93	M18 x 1.5	31	3/8	116	34	16	224	

Rod side flange style (F) / ¹⁰⁻₁₁₋CA2F, ²¹⁻₂₂₋CA2F



(mm)																												
Symbol	Stroke range	A	AL	B	□B	B ₁	□C	D	E	FV	FD	FT	FX	FY	FZ	GAG	B	H	H ₁	J	K	KA	M	MM	N	P	S	ZZ
Bore size																												
40	Up to 1000	30	27	71	60	22	44	16	32	60	9	12	80	42	100	33	15	51	8	M8 x 1.25	6	14	11	M14 x 1.5	27	1/4	102	164
50	Up to 1000	35	32	81	70	27	52	20	40	70	9	12	90	50	110	35	17	58	11	M8 x 1.25	7	18	11	M18 x 1.5	30	3/8	108	177
63	Up to 1000	35	32	101	85	27	64	20	40	86	11.5	15	105	59	130	35	17	58	11	M10 x 1.25	7	18	14	M18 x 1.5	31	3/8	116	188

Head side flange style (G) / ¹⁰⁻₁₁₋CA2G, ²¹⁻₂₂₋CA2G



(mm)																												
Symbol	Stroke range	A	AL	B	□B	B ₁	□C	D	E	FV	FD	FT	FX	FY	FZ	GAG	B	H	H ₁	J	K	KA	M	MM	N	P	S	ZZ
Bore size																												
40	Up to 1000	30	27	71	60	22	44	16	32	60	9	12	80	42	100	33	15	51	8	M8 x 1.25	6	14	11	M14 x 1.5	27	1/4	102	165
50	Up to 1000	35	32	81	70	27	52	20	40	70	9	12	90	50	110	35	17	58	11	M8 x 1.25	7	18	11	M18 x 1.5	30	3/8	108	178
63	Up to 1000	35	32	101	85	27	64	20	40	86	11.5	15	105	59	130	35	17	58	11	M10 x 1.25	7	18	14	M18 x 1.5	31	3/8	116	189