ISO/VDMA Cylinder: Large Bore Size Type
Double Acting, Single Rod
Series C95
ø125, ø160, ø200, ø250

How to Order

Without auto switch **C95S** **B** **125** – **100**

With auto switch **C95SD** **B** **125** – **100** – **A53** **S**

Built-in magnet

Mounting style

B	Basic/without bracket style
L	Axial foot style
F	Rod side flange style
G	Head side flange style
C	Single clevis style
D	Double clevis style
T	Center trunnion style

Bore size

125	125 mm
160	160 mm
200	200 mm
250	250 mm

Stroke (mm)
Refer to "Standard Stroke" on page 6-12-35.

Auto switch

Nil	Without auto switch

∗ For the applicable auto switch model, refer to the table below.

Number of auto switches

Nil	2 pcs.
S	1 pc.
3	3 pcs.
n	"n" pcs.

Applicable Auto Switch/Tie-rod Mounting

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage DC	Load voltage AC	Auto switch model: Tie-rod mounting	Auto switch model: Band mounting	Lead wire length (m): 0.5 (Nil)	3 (L)	5 (Z)	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (Equiv. to NPN)	—	5 V	—	**A56**	—	●	●	—	IC	—
				2-wire	24 V	12 V	—	**A53**	—	●	●	●	—	Relay, PLC
							100 V, 200 V	**A54**	—	●	●	●		
			No			5 V, 12 V	—	**A67**	—	●	●	—	IC	
						12 V	200 V or less	**A64**	—	●	●	—	—	
	Diagnostic indication (2-color)		Yes			—	—	**A59W**	—	●	●	—		
	—		Yes	3-wire	—	5 V	—	**Z76**	—	●	●	—	IC	— Note)
				2-wire	24 V	12 V	AC 100	**Z73**	—	●	●	●	—	Relay, PLC Note)
			No			5 V, 12 V	100 V or less	**Z80**	—	●	●	—	IC	
		Terminal conduit	Yes			12 V	—	—	**A33**	—	—	—	—	PLC Note)
							100 V, 200 V	—	**A34**	—	—	—		Relay, PLC Note)
		DIN terminal						—	**A44**	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**F59**	—	●	●	○	IC	Relay, PLC
				3-wire (PNP)				**F5P**	—	●	●	○		
				2-wire	—	—	100 V, 200 V	**J51**	—	●	●	○	—	
					24 V	12 V	—	**J59**	—	●	●	○		
	Diagnostic indication (2-color)			3-wire (NPN)		5 V, 12 V		**F59W**	—	●	●	○	IC	
				3-wire (PNP)				**F5PW**	—	●	●	○		
				2-wire		12 V		**J59W**	—	●	●	○	—	
	Water resistant (2-color)							**F5BAL**	—	—	●	○		
	With timer			3-wire (NPN)		5 V, 12 V		**F5NTL**	—	—	●	○	IC	
	Diagnostic output (2-color)			4-wire (NPN)				**F59F**	—	●	●	○		
	—			3-wire (NPN)	24 V	5 V, 12 V	—	**Y59A**	—	●	●	○	IC	Relay, PLC Note)
				2-wire		12 V		**Y59B**	—	●	●	○	—	
	Diagnostic indication (2-color)			3-wire (PNP)		5 V, 12 V		**Y7P**	—	●	●	○	IC	
				3-wire (NPN)				**Y7NW**	—	●	●	○		
				3-wire (PNP)				**Y7PW**	—	●	●	○		
				2-wire		12 V		**Y7BW**	—	●	●	○	—	
	Water resistant (2-color)							**Y7BAL**	—	—	●	○		
	—	Terminal conduit		3-wire (NPN)		5 V, 12 V		—	**G39**	—	—	—	IC	
				2-wire		12 V		—	**K39**	—	—	—	—	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) A53
3 m ····· L (Example) A53L
5 m ····· Z (Example) A53Z

○: Manufactured upon receipt of order.
Note) Switch can not be mounted on ø250
Refer to page 6-16-1 for details of applicable auto switches in addition to those listed above.

Mounting Bracket Part No.

Bore size (mm)	125	160	200	250
Foot (1)	L5125	L5160	L5200	L5250
Flange	F5125	F5160	F5200	F5250
Single clevis	C5125	C5160	C5200	C5250
Double clevis	D5125	D5160	D5200	D5250

Note 1) Two foot brackets and mounting bolts (4 pieces) are included in this no. (ø125 to ø250)
Note 2) Accessories for mounting brackets are as follows
Foot, Flange, Single clevis: Mounting bolts
Double clevis : Clevis pin, Retaining rings, Mounting bolts

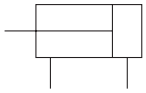
Auto Switch Mounting Bracket Part No.

Bore size (mm)	125	160	200	250
D-A3/A4/K3/G3	BS1-125	BS1-160	BS1-200	—
D-A5/A6/F5/J5	BT-08	BT-16	BT-16	BT-20
D-Z□/Y□	BA4-080	BS4-160	BS4-160	—

Specifications

Bore size (mm)	125	160	200	250
Action	Double acting			
Fluid	Air			
Proof pressure	1.5 MPa			
Max. operating pressure	1.0 MPa			
Min. operating pressure	0.05 MPa			
Ambient and fluid temperature	Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)			
Lubrication	Not required (Non-lube)			
Operating piston speed	50 to 700 mm/sec	50 to 500 mm/sec		
Allowable stroke tolerance	Up to 250: $^{+1.0}_{0}$, 251 to 1000: $^{+1.4}_{0}$, 1001 to 1500: $^{+1.8}_{0}$			
Cushion	Both ends (Air cushion)			
Thread tolerance	JIS Class 2			
Port size	G 1/2	G 3/4		G 1
Mounting	Basic style, Axial foot style, Rod side flange style, Head side flange style, Single clevis style, Double clevis style, Center trunnion style			

JIS Symbol
Double acting



Minimum Stroke for Auto Switch Mounting

Refer to page 6-12-40 for "Minimum Stroke for Auto Switch Mounting".

Standard Stroke

Bore size (mm)	Max. * stroke
125	1600
160	1600
200	2000
250	2400

Intermediate strokes are available.
* Please consult with SMC for longer strokes.

Theoretical Output

(N) ► OUT ◄ IN

Bore size (mm)	Rod diameter (mm)	Operating direction	Piston area (mm^2)	Operating pressure (MPa)								
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
125	32	OUT	12272	2454	3682	4909	6136	7363	8590	9818	11045	12272
		IN	11468	2294	3440	4587	5734	6881	8028	9174	10321	11468
160	40	OUT	20106	4021	6032	8042	10053	12064	14074	16085	18095	20106
		IN	18850	3770	5655	7540	9425	11310	13195	15080	16965	18850
200	40	OUT	31416	6283	9425	12566	15708	18850	21991	25133	28274	31416
		IN	30159	6032	9048	12064	15080	18095	21111	24127	27143	30159
250	50	OUT	49087	9817	14726	19635	24544	29452	34361	39270	44178	49087
		IN	47124	9425	14137	18850	23562	28274	32987	37699	42412	47124

Note) Theoretical force (N) = Pressure (MPa) x Piston area (mm^2)

Weight/Aluminum Tube

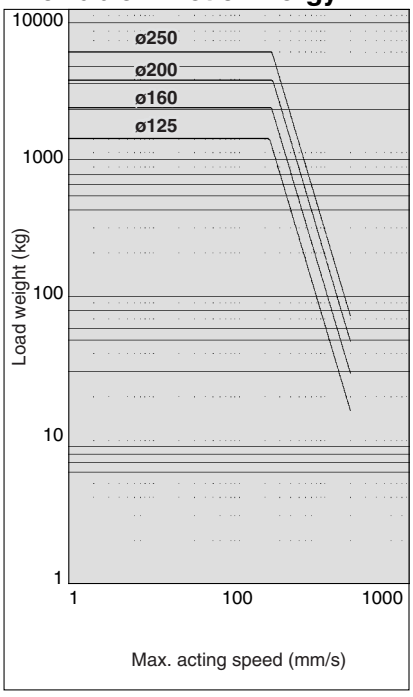
(kg)

Bore size (mm)		125	160	200	250
Basic weight	Basic style	7.45	14.54	20.20	37.17
	Foot style	2.60	4.90	7.76	15.00
	Flange style	4.10	2.45	11.75	20.29
	Single clevis style	4.15	6.90	9.10	18.60
	Double clevis style	4.25	6.30	9.25	18.46
	Trunnion style	2.98	4.50	7.23	14.40
Additional weight per each 50 mm of stroke	All mounting brackets	0.54	0.83	0.90	1.60
Accessory	Single rod clevis	1.20	1.62	1.62	2.76
	Double clevis (With pin)	1.84	3.92	3.92	6.69

Calculation: (Example) CP95SD160-100
- Basic weight ····· 14.54 (kg) (Basic, ø160)
- Mounting ····· 6.30 (kg) (Double clevis)
- Additional weight ··· 0.83 (kg/50 st)
- Cylinder stroke ····· 100 (st)

14.54 + 0.83 x 100 ÷ 50 + 6.30 = 22.50 kg

Allowable Kinetic Energy

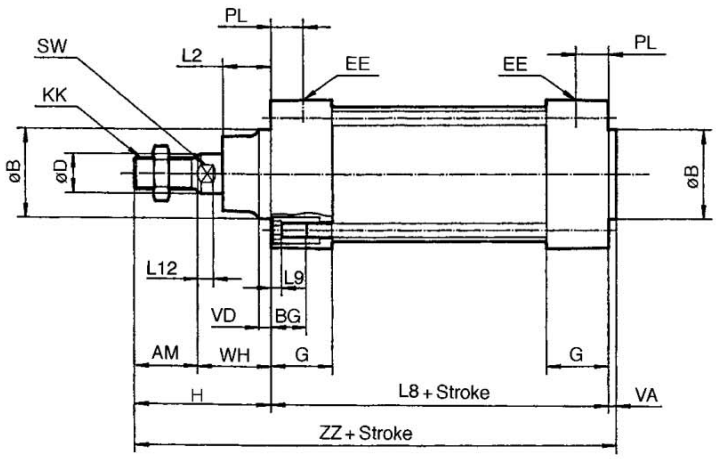


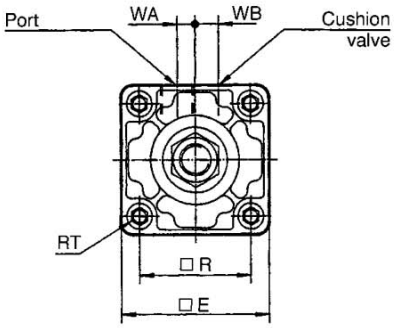
Example: Load limit at rod end when air cylinder ø63 is actuated with max. actuating speed 500 mm/s. See the intersection of lateral axis 500 mm/s and ø63 line, and extend the intersection to left.
Thus the allowable load is 80 kg.

Dimensions: Without Mounting Bracket

[First angle projection]

C95SB Bore size - Stroke





Bore size (mm)	AM	øB e11	øD	EE	PL	RT	L12	KK	SW	G	BG (Min.)	L8	VD	VA	WA	WB	WH	ZZ	□E	□R	L2	L9
125	54	60	32	G 1/2	19	M12 x 1.75	13	M27 x 2	27	38	20	160	10	6	17	15	65	285	136	110	40	6
160	72	65	40	G 3/4	30	M16 x 2	15	M36 x 2	36	55	27	180	8	6	15	25	80	338	180	140	50	0
200	72	75	40	G 3/4	35	M16 x 2	15	M36 x 2	36	57	27	180	15	6	18	25	95	353	220	175	55	0
250	84	90	50	G 1	31	M20 x 2.5	20	M42 x 2	46	59	29	200	20	10	20	28	105	399	270	220	65	0