

ISO/VDMA Cylinder: Standard Type Double Acting with End of Stroke Cushioning

Series CP95

ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Without auto switch

CP95S B 32 100 W

With auto switch

CP95SD B 32 100 W Z76 S

Built-in magnet

Mounting style

B	Basic/without bracket
L	Axial foot
F	Head side flange
G	Rod side flange
C	Single rear clevis
D	Double rear clevis

Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Stroke (mm)
(Refer to "Standard Stroke" on page 6-13-6.)

Auto switch

Nil	Without auto switch
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* 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.

Rod

Nil	Single rod
W	Double rod

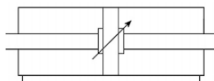
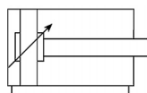
Applicable Auto Switch/Tie-rod Mounting Type

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m) ^{Note}			Applicable load	Mounting bracket		
					DC	AC	Electrical entry direction	0.5 (Nil)	3 (L)	5 (Z)						
											Vertical	Lateral				
Reed switch	—	Grommet	Yes	3-wire	—	5 V	—	—	Z76	●	●	—	IC circuit	—	Relay, PLC	
				2-wire	24 V	—	100 V	—	Z73	●	●	●	—			
			No			5 V, 12 V	100 V or less	—	Z80	●	●	—	IC circuit			
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y69A	Y59A	●	●	○	IC circuit	Relay, PLC	BMP1-032	
				3-wire (PNP)		12 V		Y7PV	Y7P	●	●	○	—			
				2-wire				Y69B	Y59B	●	●	○	—			
	Diagnostic indication (2-color indication)			3-wire (NPN)		5 V, 12 V		Y7NWV	Y7NW	●	●	○	IC circuit			
				3-wire (PNP)				Y7PWV	Y7PW	●	●	○	—			
				2-wire				12 V	Y7BWV	Y7BW	●	●	○			—
									—	Y7BA	—	●	—			—
Water resistant (2-color indication)																

* 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.

Series CP95



Minimum Stroke for Auto Switch Mounting

Refer to page 6-13-20 for "Minimum Stroke for Auto Switch Mounting".



Made to Order Specifications (For details, refer to page 6-17-19.)

Symbol	Specifications
-XB6	Heat resistant cylinder (150°C)
-XB13	Low speed cylinder (5 to 50 mm/s)
-XC22	Fluoro rubber seals

Specifications

Bore size (mm)	32	40	50	63	80	100
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 1000 mm/s					
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 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
Mounting	Basic style, Axial foot style, Rod side flange style, Head side flange style, Single clevis style, Double clevis style					

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Max. * stroke
32	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	700
40	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	800
50	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1200
63	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1200
80	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	1400
100	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	1500

Intermediate strokes are available.

* Please consult with SMC for longer strokes.

Accessory

Mounting		Basic style	Foot style	Rod side flange style	Head side flange style	Single clevis style	Double clevis style
Standard	Rod end nut	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	●
Option	Single clevis	●	●	●	●	●	●
	Double clevis (With pin)	●	●	●	●	●	●
	Rod boot	●	●	●	●	●	●

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Theoretical Output



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
32	12	OUT	804	161	241	322	402	482	563	643	724	804
		IN	691	138	207	276	346	415	484	553	622	691
40	16	OUT	1257	251	377	503	629	754	880	1006	1131	1257
		IN	1056	211	317	422	528	634	739	845	950	1056
50	20	OUT	1963	393	589	785	982	1178	1374	1570	1767	1963
		IN	1649	330	495	660	825	989	1154	1319	1484	1649
63	20	OUT	3117	623	935	1247	1559	1870	2182	2494	2805	3117
		IN	2803	561	841	1121	1402	1682	1962	2242	2523	2803
80	25	OUT	5027	1005	1508	2011	2514	3016	3519	4022	4524	5027
		IN	4536	907	1361	1814	2268	2722	3175	3629	4082	4536
100	30	OUT	7854	1571	2356	3142	3927	4712	5498	6283	7068	7854
		IN	7147	1429	2144	2859	3574	4288	5003	5718	6432	7147

Note) Theoretical out put (N) = Pressure (MPa) x Piston area (mm²)

Weight/Aluminum Tube

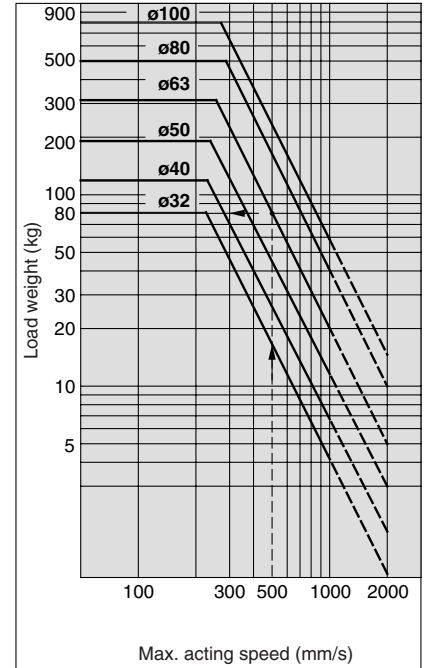
Bore size (mm)		32	40	50	63	80	100
Basic weight	Basic style	0.59	0.87	1.44	2.00	3.37	4.45
	Foot style	0.16	0.20	0.38	0.46	0.89	1.09
	Flange style	0.20	0.23	0.47	0.58	1.30	1.81
	Single clevis style	0.16	0.23	0.37	0.60	1.07	1.73
	Double clevis style	0.20	0.32	0.45	0.71	1.28	2.11
Additional weight per each 50 mm of stroke	All mounting brackets	0.11	0.16	0.26	0.27	0.42	0.56
Accessory	Single rod clevis	0.07	0.11	0.22	0.22	0.40	0.40
	Double clevis (With pin)	0.09	0.15	0.34	0.34	0.69	0.69

Calculation: (Example) CP95SD40-100

- Basic weight 0.87 (kg) (Basic, ø40) • Mounting 0.32 (kg) (Double clevis)
- Additional weight ... 0.16 (kg/50 st)
- Cylinder stroke 100 (st)

$$0.87 + 0.16 \times 100 \div 50 + 0.32 = 1.51 \text{ kg}$$

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.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

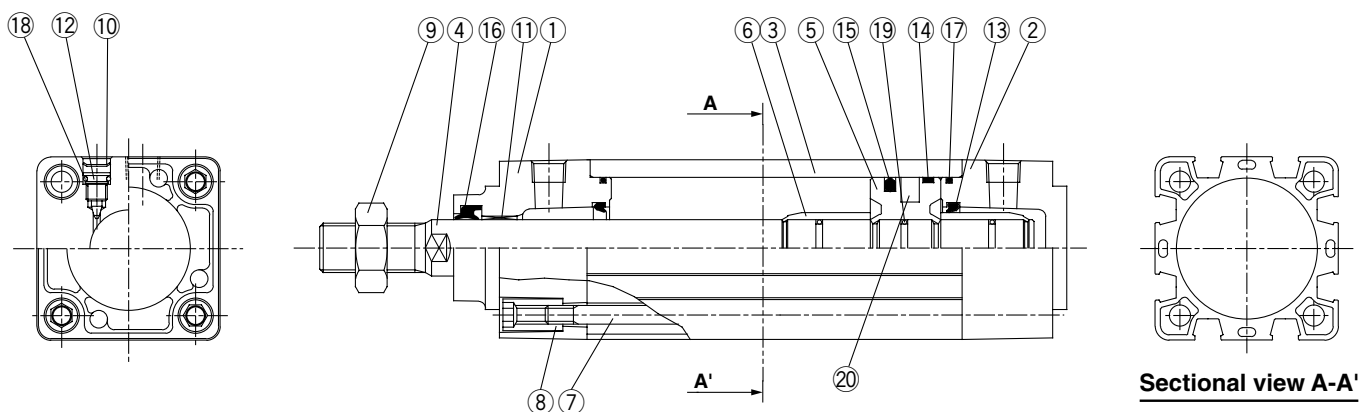
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Data

Series CP95

Construction

[First angle projection]



Component Parts

No.	Description	Material
①	Rod cover	Aluminum die-casted
②	Head cover	Aluminum die-casted
③	Cylinder tube	Aluminum alloy
④	Piston rod	Carbon steel
⑤	Piston	Aluminum alloy
⑥	Cushion ring	Brass
⑦	Tie-rod	Steel
⑧	Tie-rod nut	Steel
⑨	Rod end nut	Steel
⑩	Snap ring	Steel for spring
⑪	Bushing	Lead-bronze casted
⑫	Cushion valve	Steel
⑬	Cushion seal	Urethan rubber
⑭	Wear ring	Resin
⑮	Piston seal	NBR
⑯	Rod seal	NBR
⑰	Cylinder tube gasket	NBR
⑱	Cushioning valve seal	NBR
⑲	Piston/rod gasket	NBR
⑳	Magnet	

Replacement Parts: Seal Kit

Bore size (mm)	Part no.	Contents
32	CS95-32	Kits include items ⑬ to ⑰.
40	CS95-40	
50	CS95-50	
63	CS95-63	
80	CS95-80	
100	CS95-100	

* Seal kits consist of items ⑬ to ⑰ contained in one kit, and can be ordered using the order number for each respective tube bore size.

ISO/VDMA Cylinder: Standard Type

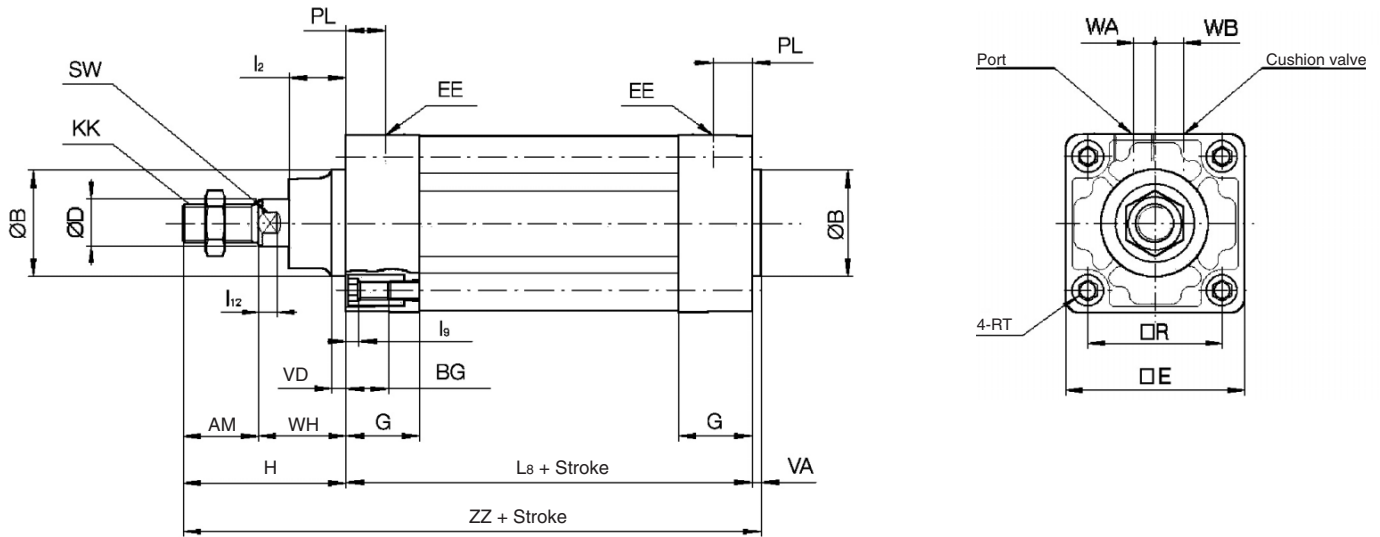
Double Acting w/ End of Stroke Cushioning

Series CP95

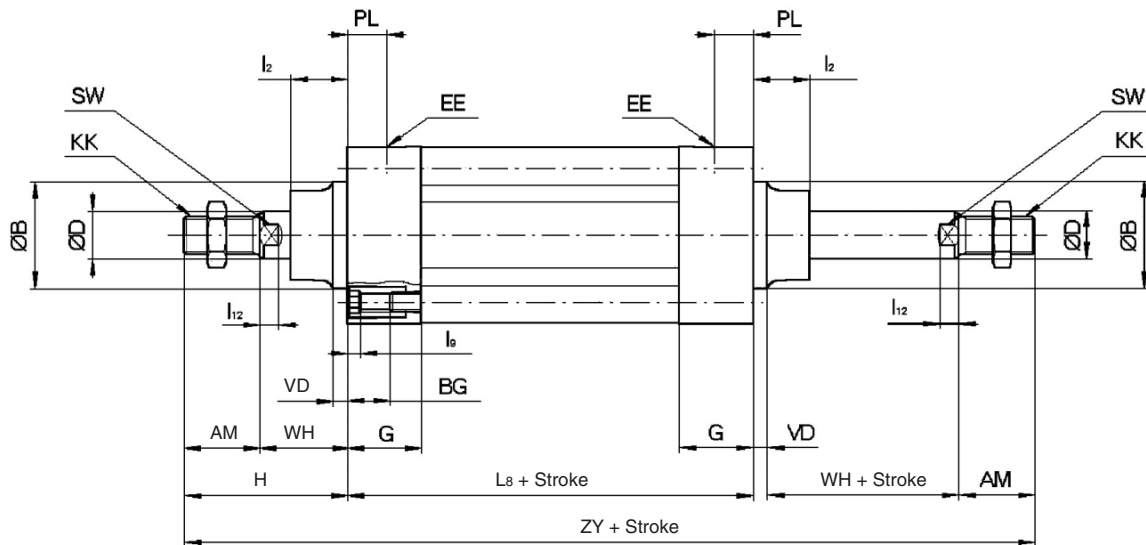
Dimensions: Without Mounting Bracket

[First angle projection]

CP95S□B Bore size Stroke



CP95S□B Bore size Stroke W



Bore size (mm)	AM	ϕB	ϕD	EE	PL	RT	l_{12}	KK	SW	G	BG (MIN)	L_8	VD	VA	WA	WB	WH	ZZ	ZY	$\square E$	$\square R$	l_2	l_9
32	22	30	12	G 1/8	13	M6 x 1	6	M10 x 1.25	10	27	16	94	4	4	4	6.5	26	146	190	46	32.5	15	4
40	24	35	16	G 1/4	14	M6 x 1	6.5	M12 x 1.25	13	27	16	105	4	4	4	9	30	163	213	52	38	17	4
50	32	40	20	G 1/4	15.5	M8 x 1.25	8	M16 x 1.5	16	31.5	16	106	6	4	5	10.5	37	179	244	65	46.5	24	5
63	32	45	20	G 3/8	16.5	M8 x 1.25	8	M16 x 1.5	16	31.5	16	121	6	4	9	12	37	194	259	75	56.5	24	5
80	40	45	25	G 3/8	19	M10 x 1.5	10	M20 x 1.5	21	38	16	128	8	4	11.5	14	46	218	300	95	72	30	5
100	40	55	30	G 1/2	19	M10 x 1.5	10	M20 x 1.5	21	38	16	138	8	4	17	15	51	233	320	114	89	32	5

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data