

ISO Standards

Air Cylinder: Standard Double Acting, Single Rod **C85 Series** ø8, ø10, ø12, ø16, ø20, ø25

RoHS

How to Order

Double acting, Single rod **C D 85 N 20 - 40 C J L V - B - M9BW S -**

Head cover type

N	Basic (Integrated clevis)
E	Double end boss-cut
F	Boss-cut/Basic
Y	Head cover axial port

Bore size

8	8 mm
10	10 mm
12	12 mm
16	16 mm
20	20 mm
25	25 mm

Applicable head cover

Action	N	E	F	Y
Rubber bumper	●	●	●	●
Air cushion	●*1	—	—	—

*1 Excluding ø8

Built-in magnet

Nil	None
D	Built-in magnet

Cushion

Nil	Rubber bumper (Standard)
C	Air cushion

Rod boot (ø20, ø25 only)

Nil	Without rod boot
J	Nylon tarpaulin (One end)
K	Heat-resistant tarpaulin (One end)

Accessory*1

Nil	None
V	Rod end
W	Double knuckle joint

*1 Refer to Mounting Brackets/Accessories on page 8 for details of accessories.
* Accessory is shipped together with the product.

Auto switch mounting type*1

A	Rail mounting
B	Band mounting

*1 The symbol is "Nil" for no magnet.

Number of auto switches

Nil	2
S	1
n	n

Auto switch

Nil	Without auto switch
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* For applicable auto switches, refer to the table below.
* Auto switches are shipped together with the product.

Mounting bracket*1

Nil	None
L	Single foot
M	Double foot
G	Flange
U	Trunnion
N	Clevis

*1 Refer to Mounting Brackets/Accessories on page 8 for details of mounting brackets.
* Mounting bracket is shipped together with the product.

Applicable mounting bracket

Action	Head cover type	L	M	G	U	N
Rubber bumper	N	●	●	●	●	●
	E	●	●	●	●	—
	F	●	—	●	●	—
	Y	●	—	●	●	—
Air cushion	N*1	●	●	●	●	●

*1 Excluding ø8

Made to order
For details, refer to page 7.

Applicable Auto Switches/Refer to the Web Catalog or Best Pneumatics 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	Band mounting		Rail mounting		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)								
							Perpendicular	In-line	Perpendicular	In-line													
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	—	○	IC circuit						
		3-wire (PNP)		M9PV			M9P	M9PV	M9P	●	●	●	○	—	○								
	Connector	2-wire		12 V	M9BV		M9B	M9BV	M9B	●	●	●	○	—	○	—							
	Diagnostic indication (2-color indicator)	Grommet		3-wire (NPN)	5 V, 12 V		M9NVV	M9NW	M9NVV	M9NW	●	●	●	○	—		○	IC circuit					
				3-wire (PNP)			M9PWV	M9PW	M9PWV	M9PW	●	●	●	○	—	○							
				2-wire	12 V		M9BWV	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—						
				3-wire (NPN)	5 V, 12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	○	○	●	○	—	○		IC circuit					
				3-wire (PNP)			M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	○	○	●	○	—	○							
			2-wire	12 V	M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	○	○	●	○	—	○	—								
	With diagnostic output (2-color indicator)	4-wire (NPN)	5 V, 12 V	—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit									
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit	—				
								24 V	12 V	—	200 V	—	—	A72	A72H	●	—	●		—	—	—	—
										100 V	A93V*2	A93	A93V*2	A93	●	●	●	●		—	—	—	
										100 V or less	A90V	A90	A90V	A90	●	—	●	—		—	—	—	IC circuit
	—	—	C73C	A73C	—	●	—			●	●	●	—	—	—								
	Diagnostic indication (2-color indicator)	Grommet	No	2-wire	24 V or less	—	—	C80C	A80C	—	●	—	●	●	●	—	—	IC circuit					
						—	—	—	A79W	—	●	—	●	—	—	—	—						
						—	—	—	—	—	—	—	—	—	—	—	—	—					
—						—	—	—	—	—	—	—	—	—	—	—	—						

*1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the above model numbers.

*2 1 m lead wire is only applicable to the D-A93.

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW 3 m..... L (Example) M9NWL None..... N (Example) H7CN
1 m..... M (Example) M9NWM 5 m..... Z (Example) M9NWX

* Since there are other applicable auto switches than listed above, refer to page 115 for details.

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

* D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only the auto switch mounting brackets are assembled before shipment.)

* When mounting a band on bore size ø8, ø10, or ø12, the D-A9□(V) cannot be mounted.

* When mounting a rail on bore size ø8, ø10, or ø12, the D-A9□(V) and A79W cannot be mounted.

* When mounting a rail on bore size ø20 or ø25, the D-M9□(V), M9□W(V), and M9□A(V) cannot be mounted.

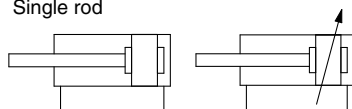
C85 Series



Symbol

Double acting,
Single rod

Air cushion



Refer to pages 105 to 115 for cylinders with auto switches.

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part No.



Made to Order

(For details, refer to pages 119 to 124.)

Symbol	Specifications
-XA	Change of rod end shape*1
-XB6	Heat-resistant cylinder (−10 to 150°C)*2, *3
-XB7	Cold-resistant cylinder (−40 to 70°C)*3, *4
-XB9	Low speed cylinder (10 to 50 mm/s)*4
-XC4	With heavy duty scraper*4
-XC6□	Made of stainless steel

*1 Excludes the ø8 air cushion

*2 Rubber bumper ø10 to ø25 only

*3 Excludes with rod end (Accessory)

*4 Rubber bumper ø20 and ø25 only

Specifications

Bore size [mm]		8	10	12	16	20	25
Type		Pneumatic					
Action		Double acting, Single rod					
Fluid		Air					
Proof pressure		1.5 MPa					
Max. operating pressure		1.0 MPa					
Min. operating pressure	Rubber bumper	0.1 MPa	0.08 MPa		0.05 MPa		
	Air cushion	—	0.08 MPa		0.05 MPa		
Ambient and fluid temperature		Without auto switch: −20°C to 80°C (No freezing)					
		With auto switch: −10°C to 60°C (No freezing)					
Lubricant		Not required (Non-lube)					
Stroke length tolerance		^{+1.0} ₀ mm				^{+1.4} ₀ mm	
Piston speed		50 to 1500 mm/s					
Cushion		Rubber bumper					
		—	Air cushion				
Allowable kinetic energy	Rubber bumper	0.02 J	0.03 J	0.04 J	0.09 J	0.27 J	0.4 J
	Air cushion	—	0.17 J	0.19 J	0.4 J	0.66 J	0.97 J

Standard Strokes

Bore size [mm]	Standard stroke [mm]*2*4	Max. stroke*3 [mm]
8*1	10, 25, 40, 50, 80, 100	200
10		
12	10, 25, 40, 50, 80, 100, 125, 160, 200	400
16		
20	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300	1000
25		

*1 Not available with air cushion.

*2 Other strokes are available on request.

*3 For exceeding the standard stroke range, it will be available as a special order (-X2018).

*4 The minimum stroke with air cushion is 25 mm.

Option: Ordering Example of Cylinder Assembly

Cylinder model: CD85N20-50CNW-B-M9BW

Head cover N: Basic (Integrated clevis)
Mounting bracket N: Clevis
Rod end bracket W: Double knuckle joint
Auto switch D-M9BW: Band mounting, 2 pcs.

* Mounting bracket, double knuckle joint, and auto switch are shipped together with the product.

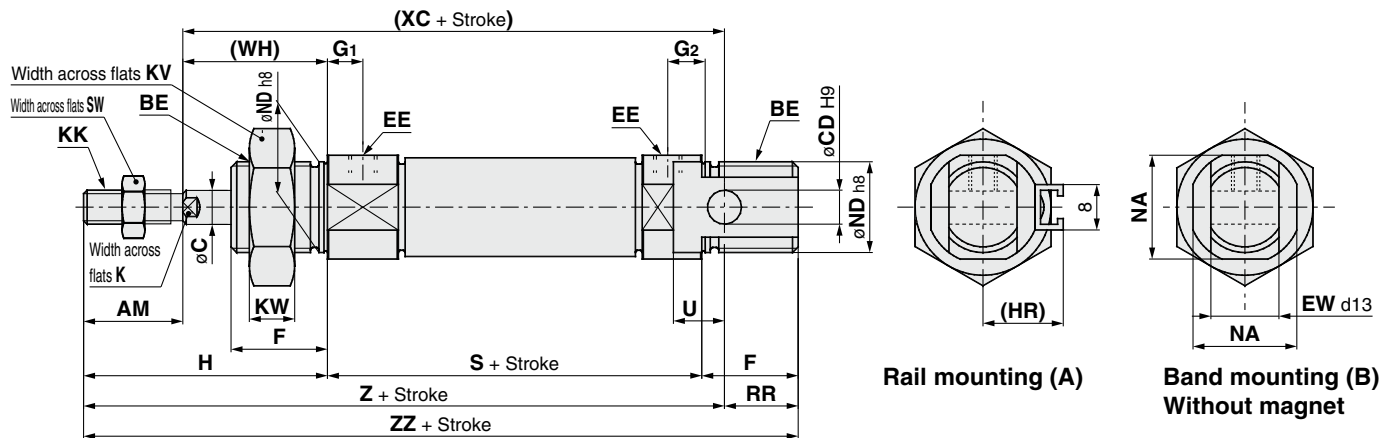
⚠ Precautions

Be sure to read this before handling the products. Refer to page 219 for safety instructions. For actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <http://www.smcworld.com>

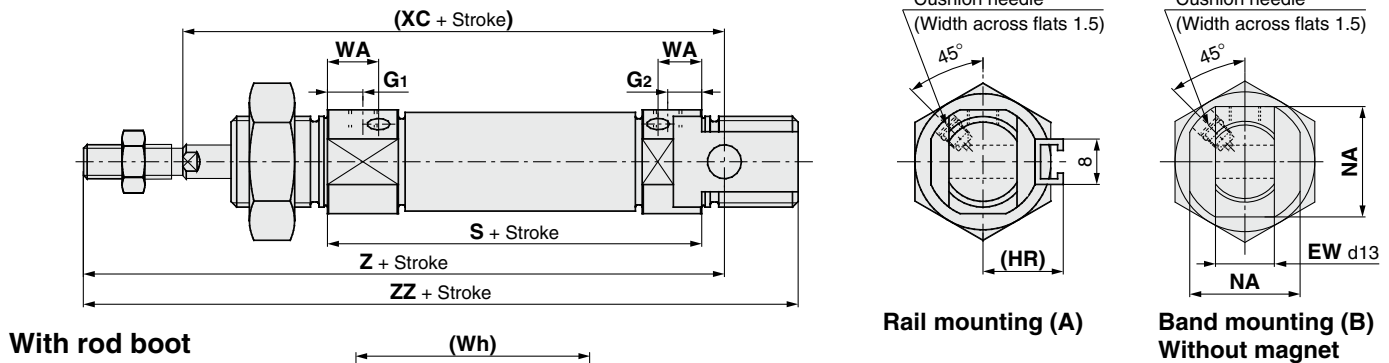
Dimensions

Basic (Integrated clevis)

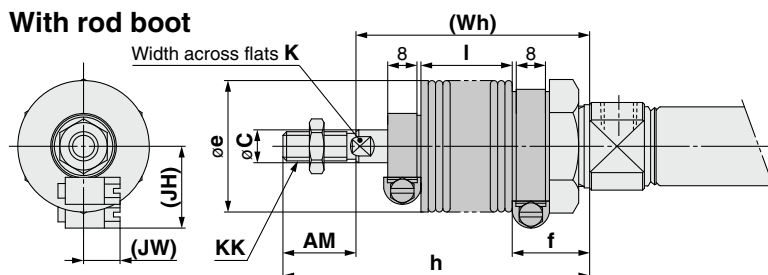
Rubber bumper: C85N Bore size – Stroke –



Air cushion: C85N **Bore size** – **Stroke** C –



With rod boot



Dimensions

Bore size	AM	BE	C	CD	EE	EW	F	G ₁	G ₂	H	(HR)	K	KK	KV	KW	NA	ND	RR	S	SW	U	WA	(WH)	(XC)	Z	ZZ
8	12	M12 x 1.25	4	4	M5 x 0.8	8	12	7	5	28	13.4	—	M4 x 0.7	19	6	15	12	10	46	7	6	—	16	64	76	86
10	12	M12 x 1.25	4	4	M5 x 0.8	8	12	7 (5.5)	5 (5.5)	28	14.2	—	M4 x 0.7	19	6	15	12	10	46 (53)	7	6	10.5	16	64 (71)	76 (83)	86 (93)
12	16	M16 x 1.5	6	6	M5 x 0.8	12	17	8 (5.5)	6 (5.5)	38	14.2	5	M6 x 1	24	8	18.3	16	14	50 (54)	10	9	9.5	22	75 (79)	91 (95)	105 (109)
16	16	M16 x 1.5	6	6	M5 x 0.8	12	17	8 (5.5)	6 (5.5)	38	14.2	5	M6 x 1	24	8	18.3	16	13	56	10	9	9.5	22	82	98	111
20	20	M22 x 1.5	8	8	G1/8	16	20	8	8	44	17	6	M8 x 1.25	32	11	24	22	11	62	13	12	13	24	95	115	126
25	22	M22 x 1.5	10	8	G1/8	16	22	8	8	50	20	8	M10 x 1.25	32	11	30	22	11	65	17	12	13	28	104	126	137

(): For air cushion

With Rod Boot

Bore size \ Item Stroke	AM	C	e	f	K	KK	h						
							1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	20	8	36	22	6	M8 x 1.25	71	84	96	109	134	159	—
25	22	10	36	22	8	M10 x 1.25	74	87	99	112	137	162	187

Item		I							(JH)	(JW)	(Wh)						
Bore size	Stroke	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	Reference	Reference	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20		12.5	25	37.5	50	75	100	—	23.5	10.5	51	64	76	89	114	139	—
25		12.5	25	37.5	50	75	100	125	23.5	10.5	52	65	77	90	115	140	165

Refer to page 16 of Standard Type Single Rod for details of accessories (rod end, double knuckle joint, floating joint).