

Compact Cylinder

RoHS

Standard Type

Ø 12, Ø 16

ISO Standards (21287)

Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

New

- **Auto air cushion**

- **Standard type Ø 12, Ø 16**

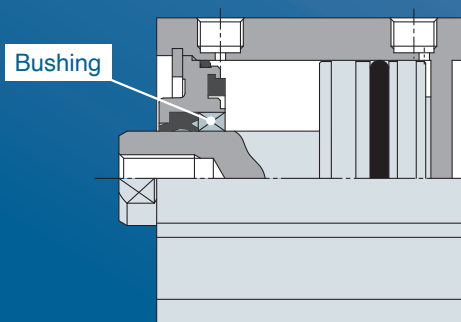
* These are not subject to ISO Standards (21287).

- Smooth cylinder (C55Y)
- Made of stainless steel (-XC6)
- With coil scraper (-XC35)
- Auto switch mounting groove: T-slot type (-X1439)

1.8 times the anti-lateral load capacity

The allowable lateral load has been improved by changing the material of the bushing.

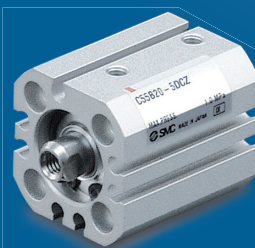
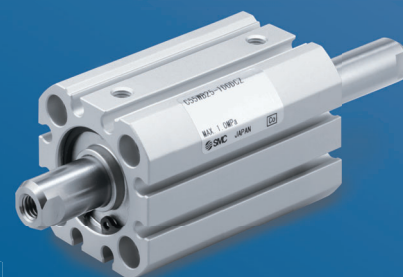
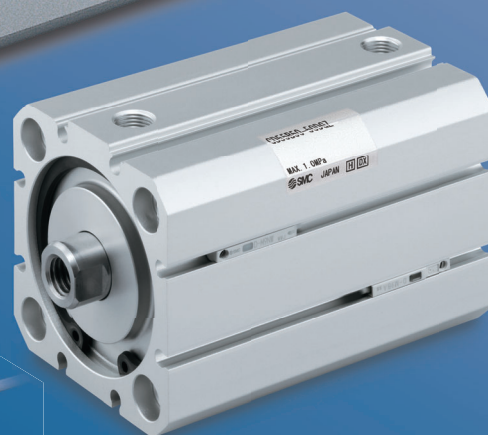
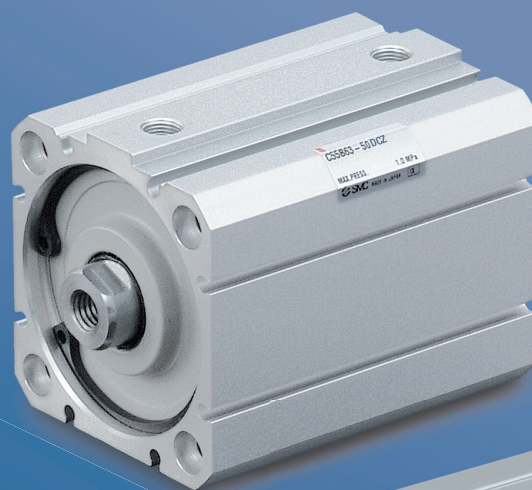
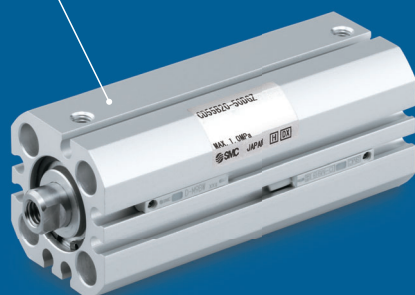
(For Ø 20)



Auto air cushion Allowable kinetic energy increased by approx. 3 times

(By combining an air cushion and a rubber bumper)

Shape without cushion needle groove (indentation)



C55 Series



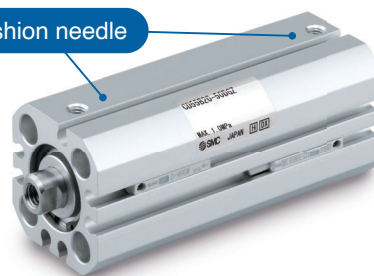
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Compact Cylinder C55 Series

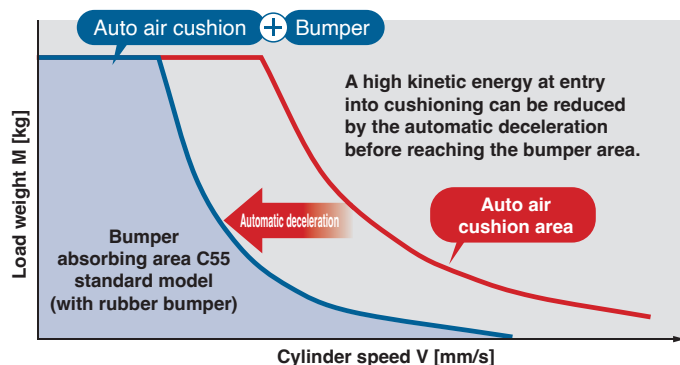
New An auto air cushion type has been added.

- Smooth stopping with less impact compared to the type that only has a rubber bumper
- Reduced impact noise
- No need to adjust the cushion needle

Without cushion needle



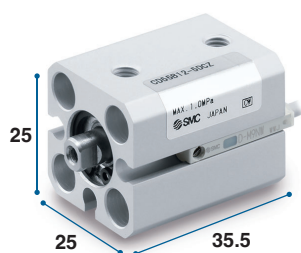
Approx. 3 times the allowable kinetic energy (Compared with the C55 model with a rubber bumper only)



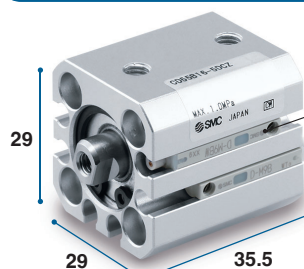
Bore size [mm]	20	25	32	40	50	63	80	100
Allowable kinetic energy [J] (at cushion entry)	0.4	0.8	1.1	1.9	3.1	5.3	8.8	13.2
Increase of percentage compared with standard models	3.6 times	4.4 times	3.8 times	3.6 times	3.4 times	3.4 times	3.3 times	2.9 times

New Bore sizes Ø 12 and Ø 16 have been added. * These are not subject to ISO Standards (21287).

Ø 12, 5 mm stroke dimension



Ø 16, 5 mm stroke dimension



Small auto switches capable
Solid state auto switch: D-M9□
Reed auto switch: D-A9□

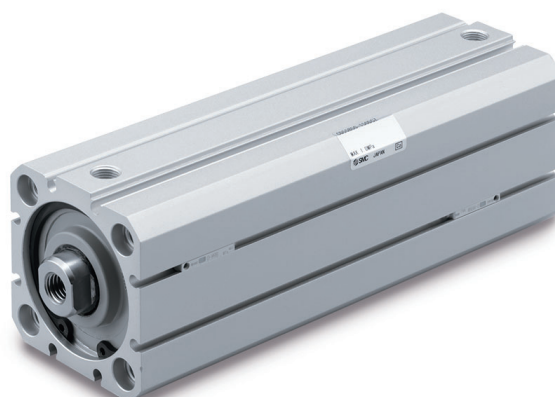


New ISO Standards (21287) compliant Smooth Cylinder (C55Y Series) has been added.

- Min. operating pressure: 0.02 MPa
- Stable operation possible even at a low speed of 5 mm/s



Increased the maximum stroke limit (to 300 mm)



Series Variations

Series	Action	Bore size [mm]										Stroke [mm]	Mounting bracket	Cushion	Simple specials/ Made to Order
		12	16	20	25	32	40	50	63	80	100				
Standard Type C55 Series 	Double acting, Single rod	●	●	—	—	—	—	—	—	—	—	5 to 100	Through-hole/Both ends tapped common (Standard)	Rubber bumper on both ends	—
ISO Standards (21287) Single rod C55 Series 	Double acting, Single rod	—	—	●	●	●	●	●	●	●	●	Ø 20 to Ø 63: 5 to 300 Ø 80, Ø 100: 10 to 300	Through-hole/Both ends tapped common (Standard) Foot bracket Rod flange Head flange Single clevis	Rubber bumper on both ends	Change of rod end shape (-XA) Heat-resistant cylinder (-10 °C to 150 °C) (-XB6) Low-speed cylinder (5 to 50 mm/s) (-XB13) Made of stainless steel (-XC6) With coil scraper (-XC35)*1 Auto switch mounting groove: T-slot type (-X1439)
ISO Standards (21287) Double rod C55 Series 	Double acting, Double rod	—	—	●	●	●	●	●	●	●	●	Ø 20 to Ø 63: 5 to 150 Ø 80, Ø 100: 10 to 125	Through-hole/Both ends tapped common (Standard) Foot bracket Flange	Rubber bumper on both ends	Heat-resistant cylinder (-10 °C to 150 °C) (-XB6) Made of stainless steel (-XC6)
New ISO Standards (21287) Single rod, Auto air cushion C55 Series 	Double acting, Single rod	—	—	●	●	●	●	●	●	●	●	Ø 20 to Ø 63: 5 to 300 Ø 80, Ø 100: 10 to 300	Through-hole/Both ends tapped common (Standard) Foot bracket Rod flange Head flange Single clevis	Auto air cushion	—
ISO Standards (21287) Single rod, Smooth cylinder C55Y Series 	Double acting, Single rod	—	—	●	●	●	●	●	●	●	●	Ø 20 to Ø 63: 5 to 150 Ø 80, Ø 100: 10 to 125	Through-hole/Both ends tapped common (Standard) Foot bracket Rod flange Head flange Single clevis	Rubber bumper on both ends	—

*1 Available for Ø 32 to Ø 100. Refer to page 43 for details.

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Double Acting, Single Rod (Ø 12, Ø 16)

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■ ISO Standards (21287)/C55

Double Acting, Single Rod (Ø 20 to Ø 100)

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■ ISO Standards (21287)/C55W

Double Acting, Double Rod (Ø 20 to Ø 100)

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■ ISO Standards (21287)/C55

Double Acting, Single Rod (Ø 20 to Ø 100) Auto Air Cushion

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■ ISO Standards (21287)/C55Y

Smooth Cylinder (Ø 20 to Ø 100)

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Compact Cylinder

Double Acting, Single Rod

C55 Series

Ø 12, Ø 16

How to Order

C55 B 12 - 30 D C Z

With auto switch **CD55 B 12 - 30 D C M Z - M9B**

• **With auto switch (Built-in magnet)**

• **Mounting**

B Through-hole/Both ends tapped common (Standard)

• **Bore size**

12	12 mm
16	16 mm

• **Number of auto switches**

—	2
S	1
n	n

• **Auto switch**

— Without auto switch (Built-in magnet cylinder)

* For applicable auto switches, refer to the table below.

• **Rod end thread**

—	Standard (Rod end female thread)
M	Rod end male thread

• **Cushion**

C With rubber bumper

• **Action**

D Double acting

• **Cylinder stroke** [mm]

Bore size	Standard stroke
12, 16	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100

* Intermediate strokes are available in 1 mm increments by using an exclusive body. ➔ p. 4

Applicable Auto Switches / Refer to the Web Catalogue 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	Perpendicular	In-line	0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○		
				2-wire				M9BV	M9B	●	●	●	○	—	○		
	Diagnostic indication (2-colour indicator)			3-wire (NPN)				M9NVV	M9NW	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)				M9PWV	M9PW	●	●	●	○	—	○		
				2-wire				M9BWV	M9BW	●	●	●	○	—	○		
	Water-resistant (2-colour indicator)			3-wire (NPN)				M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)				M9PAV*1	M9PA*1	○	○	●	○	—	○		
2-wire		M9BAV*1	M9BA*1	○	○	●	○	—	○								
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	●	●	●	—	○	IC circuit	—
			No	2-wire	24 V	12 V	100 V	A93V	A93	●	●	●	●	—	○*2	—	Relay, PLC
								5 V, 12 V	100 V or less	A90V	A90	●	●	●	●	—	○*2

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

*2 The load voltage used is 24 VDC.

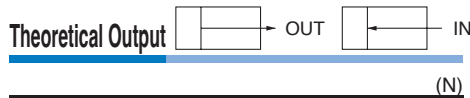
Lead wire length symbols: 0.5 m..... — (Example) M9NV
 1 m..... M (Example) M9NWM
 3 m..... L (Example) M9NWL
 5 m..... Z (Example) M9NWZ

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

* Since there are applicable auto switches other than those listed above, refer to the Web Catalogue for details.

* Auto switches are shipped together with the product but do not come assembled.

Compact Cylinder Double Acting, Single Rod **C55 Series**



Bore size [mm]	Operating direction	Operating pressure [MPa]		
		0.3	0.5	0.7
12	IN	25	42	59
	OUT	34	57	79
16	IN	45	75	106
	OUT	60	101	141

Moisture Control Tube IDK Series



When operating an actuator with a small bore size and a short stroke at a high frequency, dew condensation (water droplets) may occur inside the piping depending on the conditions. Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the **Web Catalogue**.

⚠ Precautions

Be sure to read this before handling the products. For safety instructions as well as actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smc.eu>

Specifications

Type	Pneumatic (Non-lube)
Action	Double acting, Single rod
Fluid	Air
Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Minimum operating pressure	0.07 MPa
Ambient and fluid temperatures	Without an auto switch magnet: -10 to 70 °C (No freezing) With an auto switch magnet: -10 to 60 °C (No freezing)
Lubrication	Not required (Non-lube)
Piston speed	50 to 500 mm/s
Cushion	Rubber bumper on both ends
Stroke length tolerance*1	0 to +1.0 mm

*1 The stroke length tolerance does not include the tolerance of the bumper.

Manufacturing of Intermediate Strokes

Description	Dealing with the stroke in 1 mm increments by using an exclusive body with the specified stroke
Part no.	Refer to “How to Order” for the standard model no. (page 3)
Stroke range	6 to 99 mm
Example	Part no.: C55B16-47DCZ Makes 47 mm stroke tube

Weight

Without an Auto Switch Magnet

[g]

Bore size [mm]	Stroke [mm]												
	5	10	15	20	25	30	35	40	45	50	60	80	100
12	43	50	57	63	70	77	83	90	97	103	117	143	170
16	55	64	72	80	89	97	105	114	122	131	147	181	214

With an Auto Switch Magnet

[g]

Bore size [mm]	Stroke [mm]												
	5	10	15	20	25	30	35	40	45	50	60	80	100
12	44	51	57	64	71	77	84	91	97	104	117	144	171
16	56	65	73	82	90	98	107	115	123	132	148	182	215

Additional Weight

[g]

Bore size [mm]		12	16
Rod end male thread	Male thread	2	4
	Nut	1	2

Calculation: Example) CD55B12-20DCMZ

● Basic weight : CD55B12-20DCZ 64 g

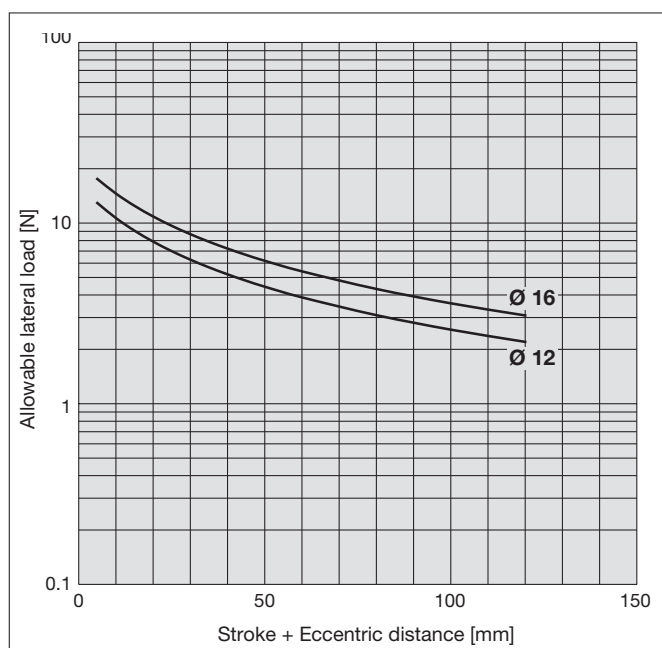
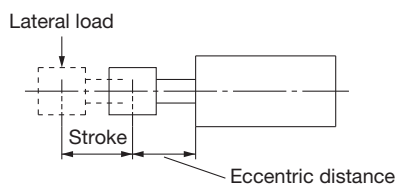
● Additional weight: Rod end male thread 3 g

67 g

Allowable Lateral Load

Make sure to operate strictly within the allowable lateral load range to the rod end.

Operation outside of this range may result in shorter service life or damage to the device.

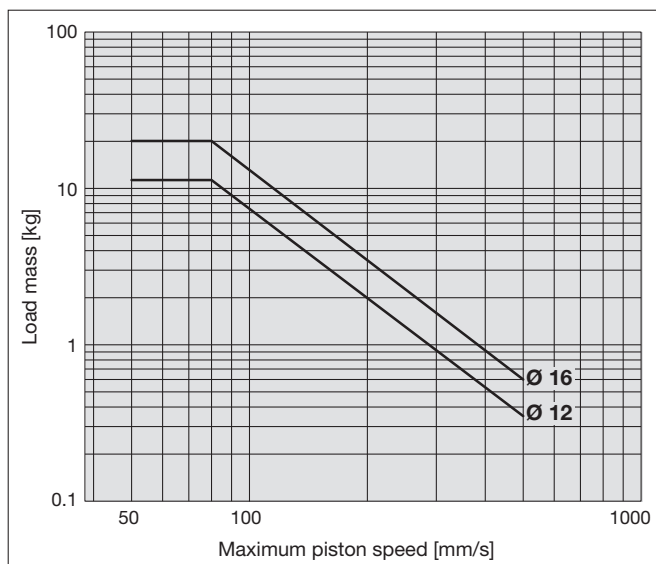


Allowable Kinetic Energy

Make sure to operate strictly within the allowable range of the load mass and maximum speed.

Operation outside of this range may cause excessive impact, which may result in the damage to the device.

Operating pressure: 1 MPa



* For details about model selection, refer to "Model Selection" in the **Web Catalogue**.

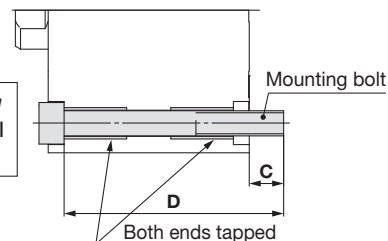
Mounting Bolt

Through hole type mounting bolts are available.
Refer to the following for ordering procedures.
Order the actual number of bolts that will be used.

Example) CQ-M4 x 45L 4 pcs.

- * When using the through-hole mounting bolts for bore sizes 12 and 16 mm, be sure to use the supplied flat washers.
- * Mounting bolts are not available when the stroke is over 30 mm. Secure the cylinder with both ends of the cylinder tube tapped or prepare mounting bolts separately.

Type: Hexagon socket head cap screw
Material: Chromium molybdenum steel
Surface treatment: Zinc chromated

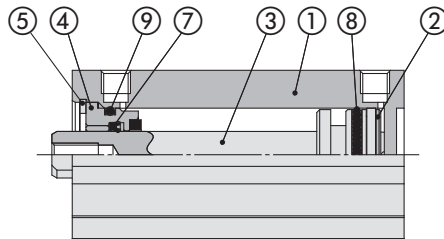


Mounting Bolt for C55

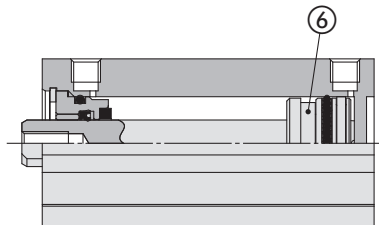
Model	C	D	Mounting bolt part no.
C□55B12-5DCZ	6.5	35	CQ-M3 x 35L
-10DCZ		40	x 40L
-15DCZ		45	x 45L
-20DCZ		50	x 50L
-25DCZ		55	x 55L
-30DCZ		60	x 60L
-35DCZ	Use the both ends tapped provided on the cylinder tube to secure the cylinder.		
-40DCZ			
-45DCZ			
-50DCZ			
-60DCZ			
-80DCZ			
-100DCZ			
C□55B16-5DCZ	6.5	35	CQ-M3 x 35L
-10DCZ		40	x 40L
-15DCZ		45	x 45L
-20DCZ		50	x 50L
-25DCZ		55	x 55L
-30DCZ		60	x 60L
-35DCZ	Use the OA thread provided on the cylinder tube to secure the cylinder.		
-40DCZ			
-45DCZ			
-50DCZ			
-60DCZ			
-80DCZ			
-100DCZ			

Replacement Parts

Ø 12, Ø 16



With auto switch (Built in magnet)



Component Parts

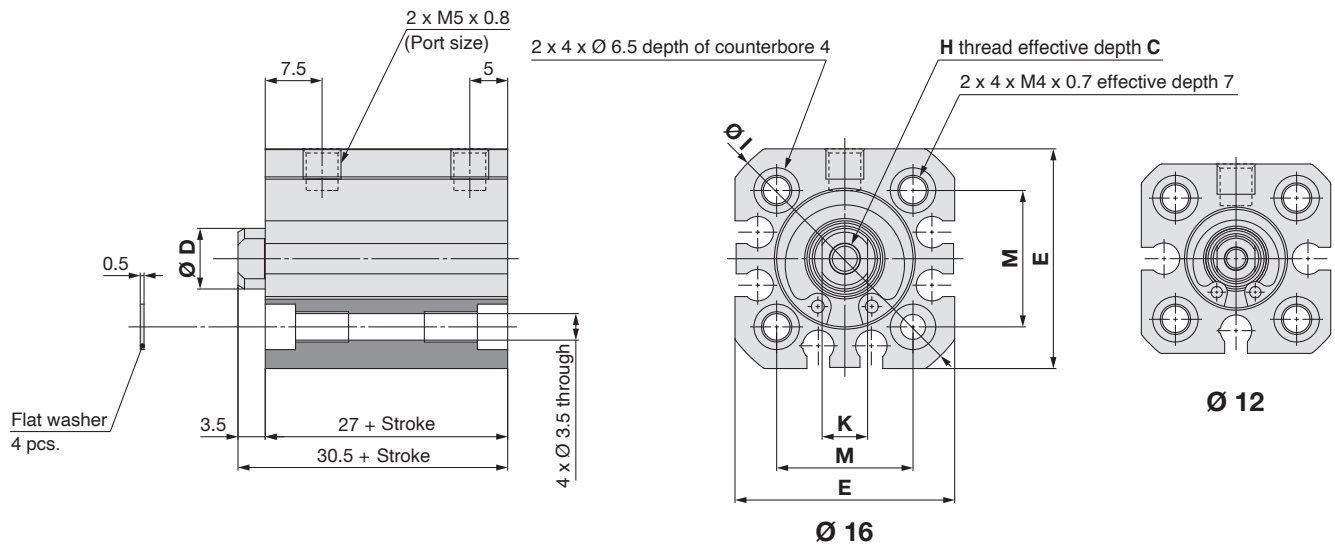
No.	Description	Material	Note
1	Cylinder tube	Aluminium alloy	Hard anodised
2	Piston	Aluminium alloy	
3	Piston rod	Stainless steel	Hard chrome plating
4	Collar	Aluminium alloy	Anodised
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Magnet	—	
7	Rod seal	NBR	
8	Piston seal	NBR	
9	Tube gasket	NBR	

Replacement Parts/Seal Kit

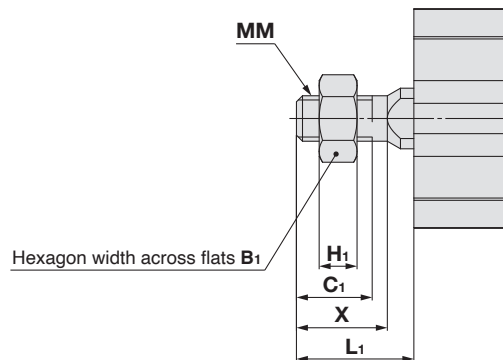
Bore size [mm]	Kit no.	Contents
12	CQSB12-PS	Kits include items ⑦, ⑧, ⑨ from the table.
16	CQSB16-PS	

* Seal kits consist of items ⑦, ⑧ and ⑨, and can be ordered by using the seal kit number corresponding to each bore size.

Dimensions (With and without auto switch are the same size)



M: Male rod end



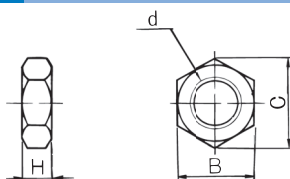
Standard [mm]

Bore size	C	D	E	H	I	K	M
12	6	6	25	M3 x 0.5	32	5	16
16	8	8	29	M4 x 0.7	36	6	18

Rod End Male Thread [mm]

Bore size	B ₁	C ₁	H ₁	L ₁	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1	12

Rod End Nut



Bore size	Part no.	d	H	B	C	Weight [g]
12	NTJ-015C	M5 x 0.8	4	8	9.2	1
16	NT-015A	M6 x 1	5	10	11.5	2

Compact Cylinder Double Acting, Single Rod **C55 Series**

Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

How to Order

C55 B 20 - 30 D C Z -

With auto switch **CD55 B 20 - 30 D C Z - M9B -**

With auto switch (Built-in magnet)

Mounting

B	Through-hole/Both ends tapped common (Standard)
L	Foot bracket
F	Rod flange
G	Head flange
C	Single clevis

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Number of auto switches

—	2
S	1
n	n

Auto switch

—	Without auto switch (Built-in magnet cylinder)
---	--

* For applicable auto switches, refer to the table below.
* Auto switches are shipped together with the product but do not come assembled.

Rod end thread

—	Standard (Rod end female thread)
M	Rod end male thread

Cushion

C	Rubber bumper
---	---------------

Refer to page 26 for the auto air cushion.

Action

D	Double acting
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Cylinder stroke [mm]
Refer to page 10 for standard and intermediate strokes.

Made to Order
For details, refer to the next page.

Applicable Auto Switches / Refer to the **Web Catalogue** 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	Perpendicular	In-line	0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC	
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○			
				2-wire				M9BV	M9B	●	●	●	○	—	○			
	Diagnostic indication (2-colour indicator)			3-wire (NPN)				M9NV	M9N	●	●	●	○	—	○	IC circuit		
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○			
				Water-resistant (2-colour indicator)				2-wire	M9BV	M9B	●	●	●	○	—	○		—
								3-wire (NPN)	M9NV	M9N	○	○	●	○	—	○		IC circuit
	3-wire (PNP)							M9PV	M9P	○	○	●	○	—	○			
	2-wire							M9BV	M9B	○	○	●	○	—	○	—		
	Reed auto switch			—				Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●		●
No		2-wire	24 V		12 V	100 V	A93V		A93	●	●	●	●	—	○*2	—	Relay, PLC	
	5 V, 12 V				100 V or less	A90V	A90		●	●	●	●	—	○*2	IC circuit			

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

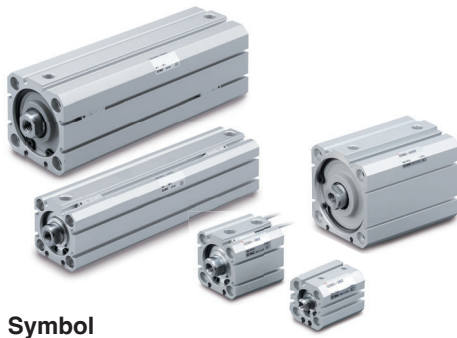
*2 The load voltage used is 24 VDC.

Lead wire length symbols: 0.5 m..... — (Example) M9NV
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NWL
5 m..... Z (Example) M9NWZ

* Auto switches marked with a "○" are produced upon receipt of order.

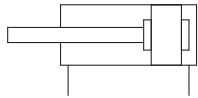
* Since there are applicable auto switches other than those listed above, refer to the **Web Catalogue** for details.

* Auto switches are shipped together with the product but do not come assembled.



Symbol

Rubber bumper



Made to Order

(For details, refer to pages 41 and 42.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat-resistant cylinder (-10 to 150 °C)
-XB13	Low-speed cylinder (5 to 50 mm/s)
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC35	With coil scraper
-X1439	Auto switch mounting groove: T-slot type

Mounting Bracket Part No.

Bore size [mm]	Foot bracket	Flange	Single clevis
20	C55-L020	C55-F020	C55-C020
25	C55-L025	C55-F025	C55-C025
32	C55-L032	C55-F032	C55-C032
40	C55-L040	C55-F040	C55-C040
50	C55-L050	C55-F050	C55-C050
63	C55-L063	C55-F063	C55-C063
80	C55-L080	C55-F080	C55-C080
100	C55-L100	C55-F100	C55-C100

* Foot bracket part number contains two foot brackets.

* Mounting bolts are also included with bracket.

Theoretical Output



Bore size [mm]	Operating direction	Operating pressure [MPa]		
		0.3	0.5	0.7
20	IN	71	118	165
	OUT	94	157	220
25	IN	113	189	264
	OUT	147	245	344
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1150
	OUT	589	982	1370
63	IN	841	1400	1960
	OUT	935	1560	2180
80	IN	1360	2270	3180
	OUT	1510	2520	3520
100	IN	2208	3682	5154
	OUT	2360	3930	5500

Specifications

Type	Pneumatic (Non-lube)
Action	Double acting, Single rod
Fluid	Air
Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Minimum operating pressure	0.05 MPa (Ø 20 to Ø 63), 0.03 MPa (Ø 80, Ø 100)
Ambient and fluid temperatures	Without auto switch: -10 to 70 °C (No freezing) With auto switch: -10 to 60 °C (No freezing)
Cushion	Rubber bumper on both ends
Stroke length tolerance*1	+1.0 mm (+1.4 mm) 0 mm (0 mm)
Piston speed	Ø 20 to Ø 63 50 to 500 mm/s
	Ø 80, Ø 100 50 to 300 mm/s

*1 The stroke length tolerance does not include the tolerance of the bumper.

The value in parentheses applies for over 150 mm stroke with Ø 25 to Ø 63, and over 125 mm stroke with Ø 100.

Standard Strokes

Bore size [mm]	Standard stroke [mm]
20 to 63	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125, 150, 175, 200, 250, 300
80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125, 150, 175, 200, 250, 300

Manufacturing of Intermediate Strokes

Description	Dealing with the stroke in 1 mm increments by using an exclusive body with the specified stroke
Part no.	Refer to "How to Order" for the standard model no. (page 9)
Stroke range	6 to 299 mm
Example	Part no.: C55B32-47DCZ Makes 47 mm stroke tube

Weight

Without an Auto Switch Magnet

Unit: g

Bore size [mm]	Stroke [mm]																			
	5	10	15	20	25	30	35	40	45	50	60	80	100	125	150	175	200	250	300	
20	111	124	137	149	162	175	188	201	214	227	252	304	355	419	484	561	626	755	884	
25	151	166	181	197	212	228	243	259	274	290	321	382	444	521	599	697	774	929	1085	
32	250	272	294	317	339	361	383	405	427	449	493	581	670	780	890	1031	1141	1362	1582	
40	309	333	357	381	405	429	453	477	501	525	574	670	766	886	1006	1169	1289	1530	1770	
50	483	519	556	593	629	666	702	739	776	812	885	1032	1178	1362	1545	1797	1999	2366	2732	
63	655	695	735	775	814	854	894	934	973	1013	1093	1251	1410	1609	1808	2064	2262	2660	3057	
80	—	1178	1240	1298	1357	1415	1474	1533	1591	1650	1767	2001	2236	2529	2929	3219	3511	4095	4679	
100	—	1993	2067	2140	2214	2288	2362	2435	2509	2583	2730	3025	3320	3688	4109	4478	4846	5584	6321	

With an Auto Switch Magnet

Unit: g

Bore size [mm]	Stroke [mm]																			
	5	10	15	20	25	30	35	40	45	50	60	80	100	125	150	175	200	250	300	
20	116	129	142	155	167	180	193	206	219	232	257	309	360	425	489	567	631	760	889	
25	157	172	188	203	219	234	250	265	280	296	327	389	450	528	605	703	781	936	1091	
32	262	284	306	328	350	372	394	416	438	461	505	593	681	791	902	1042	1152	1373	1594	
40	321	345	369	393	418	442	466	490	514	538	586	682	778	899	1019	1182	1302	1558	1798	
50	497	533	570	607	643	680	717	753	790	826	900	1046	1193	1376	1559	1811	2013	2380	2746	
63	678	718	757	797	837	877	916	956	996	1036	1115	1274	1433	1632	1830	2086	2285	2682	3080	
80	—	1202	1263	1322	1381	1439	1498	1556	1615	1674	1791	2025	2260	2553	2953	3243	3535	4119	4703	
100	—	2028	2102	2176	2249	2323	2397	2471	2544	2618	2765	3060	3355	3724	4144	4513	4882	5619	6357	

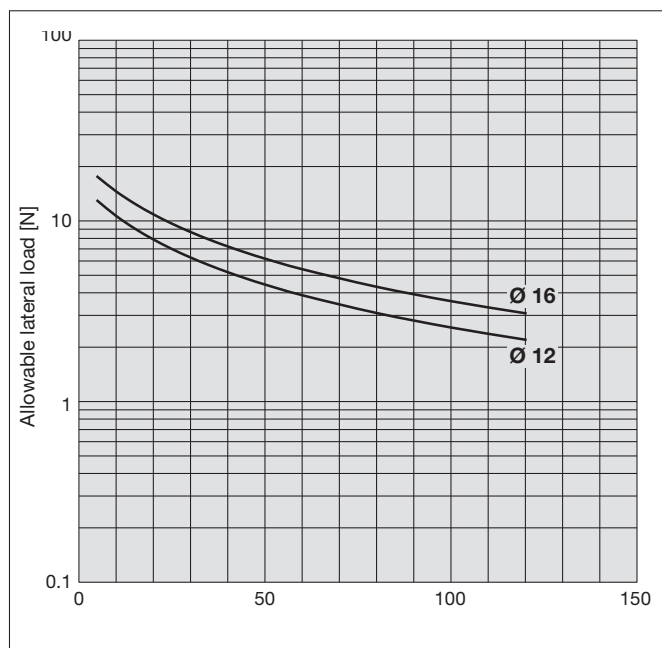
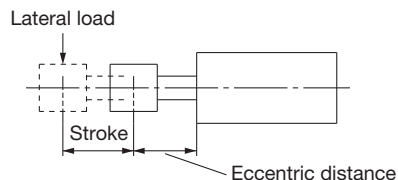
⚠ Precautions

Be sure to read this before handling the products. Refer to the back cover 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: <https://www.smc.eu>

Allowable Lateral Load

Make sure to operate strictly within the allowable lateral load range to the rod end.

Operation outside of this range may result in shorter service life or damage to the device.

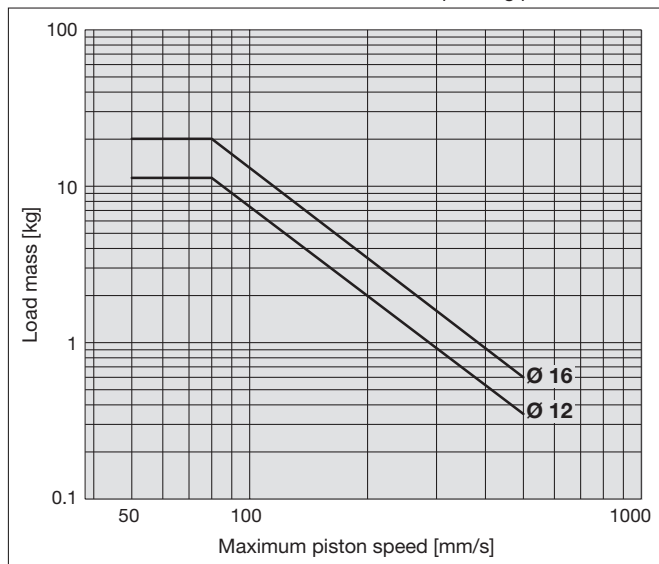


Allowable Kinetic Energy

Make sure to operate strictly within the allowable range of the load mass and maximum speed.

Operation outside of this range may cause excessive impact, which may result in the damage to the device.

Operating pressure: 1 MPa



* For details about model selection, refer to "Model Selection" in the **Web Catalogue**.

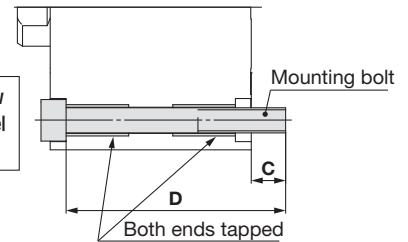
Mounting Bolt

Through hole type mounting bolts are available.
Refer to the following for ordering procedures.
Order the actual number of bolts that will be used.

Example) CQ-M4 x 45L 4 pcs.

- * When using the through-hole mounting bolts for bore sizes 20 to 63 mm, be sure to use the supplied flat washers.
- * Mounting bolts are not available when the stroke is over 100 mm (or 50 mm with bore sizes $\varnothing 20$ and $\varnothing 25$). Secure the cylinder with both ends of the cylinder tube tapped or prepare mounting bolts separately.

Type: Hexagon socket head cap screw
Material: Chromium molybdenum steel
Surface treatment: Zinc chromated



Mounting Bolt for C55

Model	C	D	Mounting bolt part no.
C□55B20-5DCZ		45	CQ-M4 x 45L
-10DCZ		50	x 50L
-15DCZ		55	x 55L
-20DCZ		60	x 60L
-25DCZ	7.2	65	x 65L
-30DCZ		70	x 70L
-35DCZ		75	x 75L
-40DCZ		80	x 80L
-45DCZ		85	x 85L
-50DCZ		90	x 90L
C□55B25-5DCZ		50	CQ-M4 x 50L
-10DCZ		55	x 55L
-15DCZ		60	x 60L
-20DCZ	10.2	65	x 65L
-25DCZ		70	x 70L
-30DCZ		75	x 75L
-35DCZ		80	x 80L
-40DCZ		85	x 85L
-45DCZ		90	x 90L
-50DCZ		95	x 95L
C□55B32-5DCZ		55	CQ-M5 x 55L
-10DCZ		60	x 60L
-15DCZ		65	x 65L
-20DCZ		70	x 70L
-25DCZ		75	x 75L
-30DCZ	10	80	x 80L
-35DCZ		85	x 85L
-40DCZ		90	x 90L
-45DCZ		95	x 95L
-50DCZ		100	x 100L
-60DCZ		110	x 110L
-80DCZ		130	x 130L
-100DCZ		150	x 150L

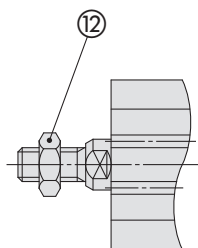
Model	C	D	Mounting bolt part no.
C□55B40-5DCZ		55	CQ-M5 x 55L
-10DCZ		60	x 60L
-15DCZ		65	x 65L
-20DCZ		70	x 70L
-25DCZ		75	x 75L
-30DCZ	9	80	x 80L
-35DCZ		85	x 85L
-40DCZ		90	x 90L
-45DCZ		95	x 95L
-50DCZ		100	x 100L
-60DCZ		110	x 110L
-80DCZ		130	x 130L
-100DCZ		150	x 150L
C□55B50-5DCZ		55	CQ-M6 x 55L
-10DCZ		60	x 60L
-15DCZ		65	x 65L
-20DCZ		70	x 70L
-25DCZ		75	x 75L
-30DCZ	8.4	80	x 80L
-35DCZ		85	x 85L
-40DCZ		90	x 90L
-45DCZ		95	x 95L
-50DCZ		100	x 100L
-60DCZ		110	x 110L
-80DCZ		130	x 130L
-100DCZ		150	x 150L
C□55B63-5DCZ		60	CQ-M6 x 60L
-10DCZ		65	x 65L
-15DCZ		70	x 70L
-20DCZ		75	x 75L
-25DCZ		80	x 80L
-30DCZ	9.4	85	x 85L
-35DCZ		90	x 90L
-40DCZ		95	x 95L
-45DCZ		100	x 100L
-50DCZ		105	x 105L
-60DCZ		115	x 115L
-80DCZ		135	x 135L
-100DCZ		155	x 155L

Model	C	D	Mounting bolt part no.
C□55B80-10DCZ		70	CQ-M8 x 70L
-15DCZ		75	x 75L
-20DCZ		80	x 80L
-25DCZ		85	x 85L
-30DCZ	11	90	x 90L
-35DCZ		95	x 95L
-40DCZ		100	x 100L
-45DCZ		105	x 105L
-50DCZ		110	x 110L
-60DCZ		120	x 120L
-80DCZ		140	x 140L
-100DCZ		160	x 160L
C□55B100-10DCZ		85	CQ-M8 x 85L
-15DCZ		90	x 90L
-20DCZ		95	x 95L
-25DCZ		100	x 100L
-30DCZ	13	105	x 105L
-35DCZ		110	x 110L
-40DCZ		115	x 115L
-45DCZ		120	x 120L
-50DCZ		125	x 125L
-60DCZ		135	x 135L
-80DCZ		155	x 155L
-100DCZ		175	x 175L

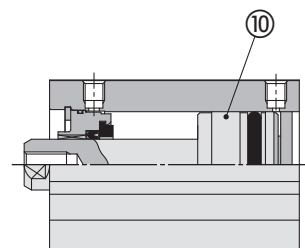
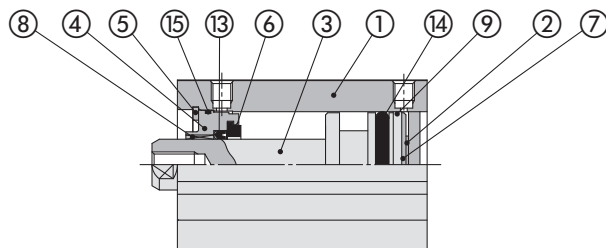
Construction

Ø 20, Ø 25

With auto switch (Built-in magnet)

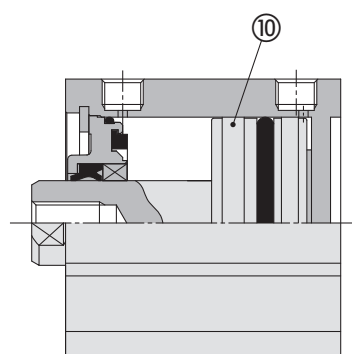
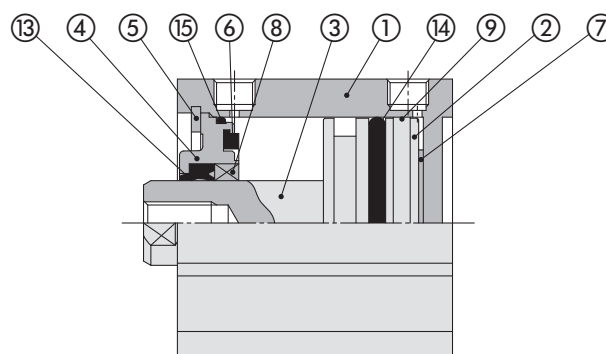


M: Male rod end

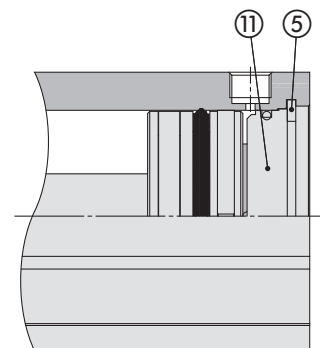


Ø 32 to Ø 100

With auto switch (Built-in magnet)



175 mm stroke or more
(150 mm stroke or more for Ø 80 and Ø 100)



Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminium alloy	Hard anodised
2	Piston	Aluminium alloy	
3	Piston rod	Stainless steel	Ø 20, Ø 25 Hard chrome plating
		Carbon steel	Ø 32 to Ø 100 Hard chrome plating
4	Collar	Aluminium alloy	Ø 20 to Ø 40 Anodised
		Aluminium alloy casted	Ø 50 to Ø 100 Painted after chromated
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bumper A	Urethane	
7	Bumper B	Urethane	
8	Bushing	Bearing alloy	
9	Wear ring	Resin	
10	Magnet	—	
11	Bottom plate	Aluminium alloy	Anodised
12	Rod end nut	Carbon steel	Zinc chromated
13	Rod seal	NBR	
14	Piston seal	NBR	
15	Tube gasket	NBR	

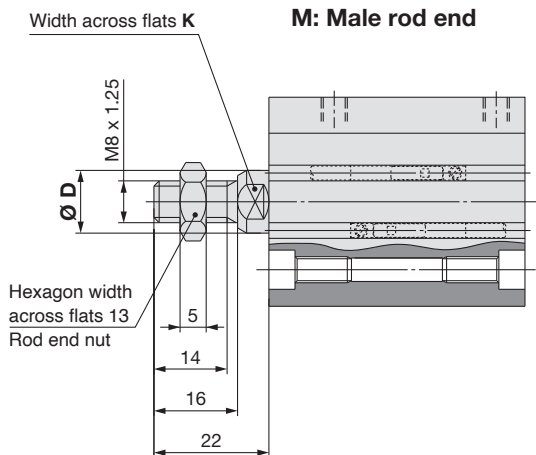
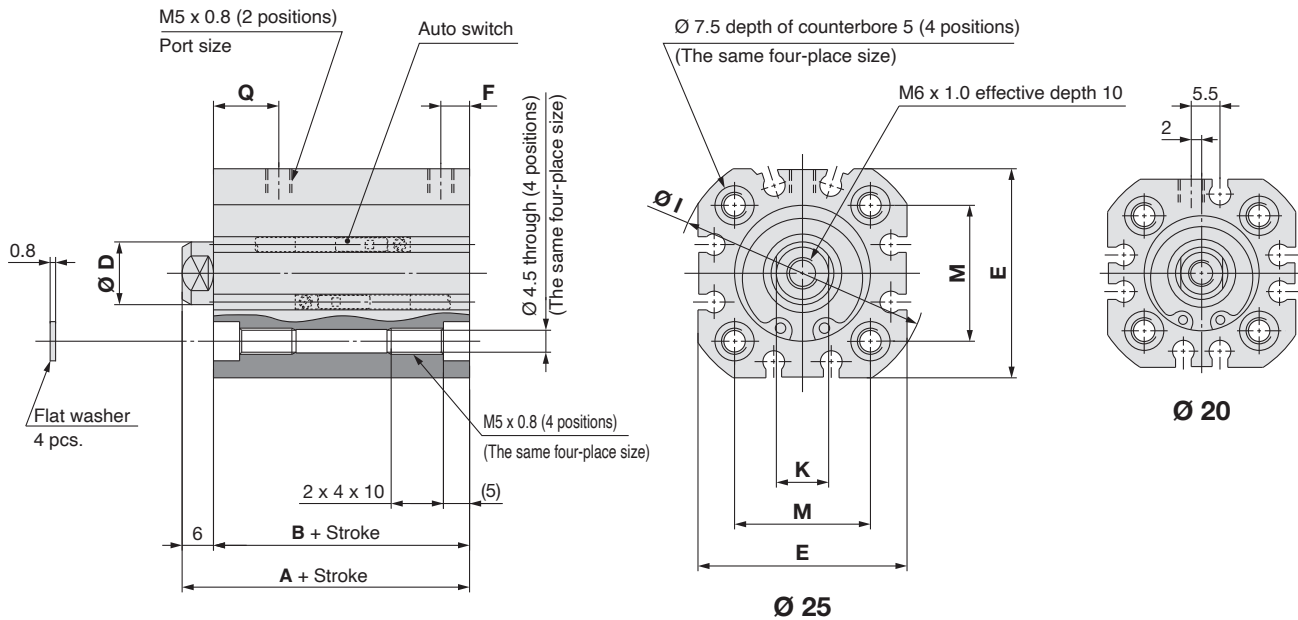
Replacement Parts/Seal Kit

Bore size [mm]	Kit no.	Contents
20	CQ2B20-PS	Kits include items ⑬, ⑭, ⑮ from the table.
25	CQ2B25-PS	
32	CQ2B32-PS	
40	CQ2B40-PS	
50	CQ2B50-PS	
63	CQ2B63-PS	
80	CQ2B80-PS	
100	C55B100-PS	

* Seal kits consist of items ⑬, ⑭ and ⑮, and can be ordered by using the seal kit number corresponding to each bore size.

Dimensions (With and without auto switch are the same size)

Ø 20, Ø 25



Standard

Bore size [mm]	150 mm stroke or less				Over 150 mm stroke				[mm]				
	A	B	F	Q	A	B	F	Q	D	E	I	K	M
20	43	37	5.5	10.5	47	41	8	8	10	36	43	8	22
25	45	39	5.5	10.5	50	44	9	9	12	40	48	10	26

* Be sure to use the supplied flat washer when installing the cylinder with a through hole.

* Cylinder housing dimensions (B + stroke) for over 150 mm stroke differ from those dictated by ISO 21287.

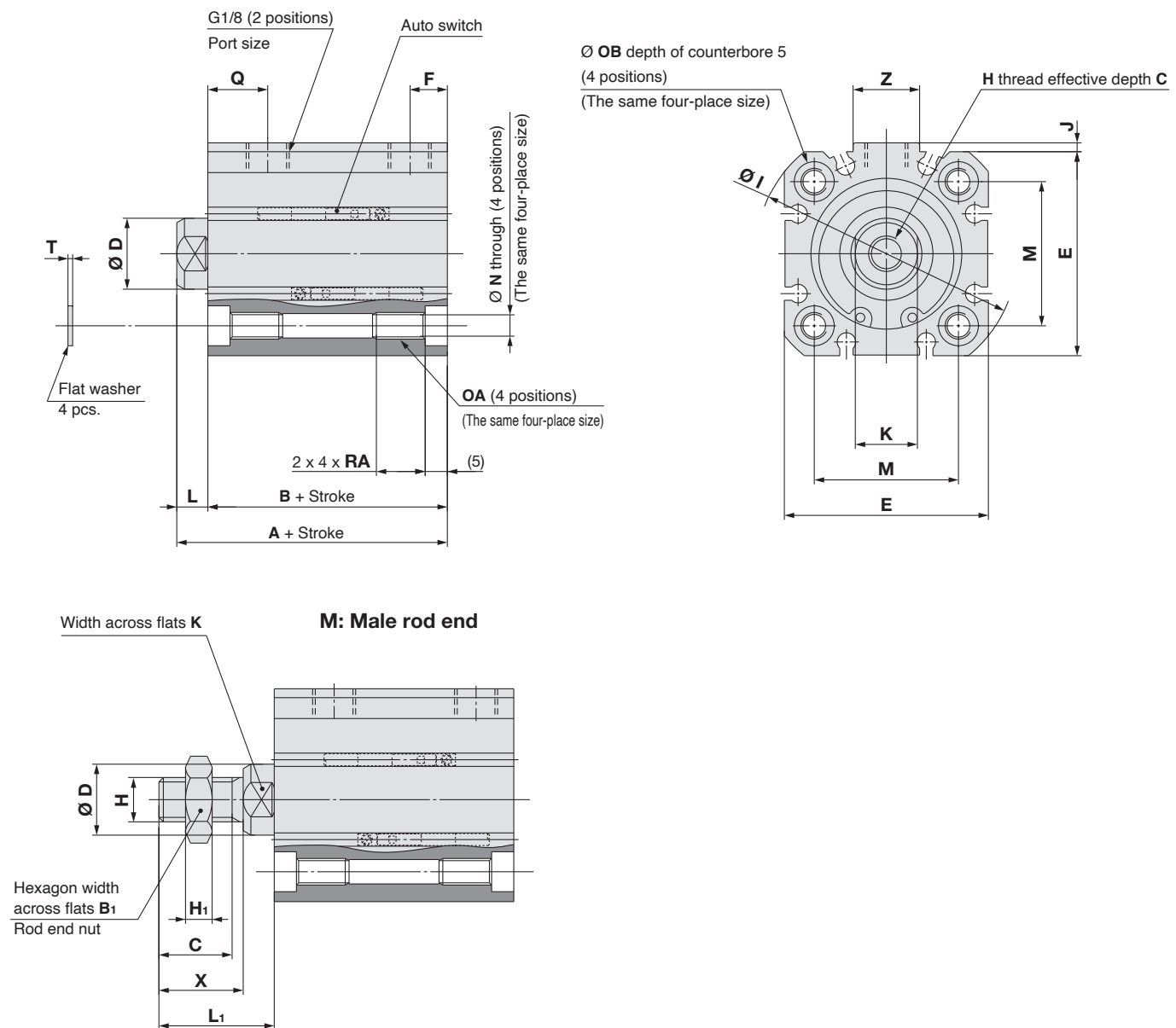
Rod End

Male Thread

Bore size [mm]	[mm]	
	D	K
20	10	8
25	12	10

Dimensions (With and without auto switch are the same size)

Ø 32 to Ø 63



Rod End Male Thread

Bore size [mm]	B ₁	C ₁	D	MM	H ₁	K	L ₁	X
32	17	16.5	16	M10 x 1.25	6	14	26	19
40	17	16.5	16	M10 x 1.25	6	14	26	19
50	19	19.5	20	M12 x 1.25	7	17	30	22
63	19	19.5	20	M12 x 1.25	7	17	30	22

Standard

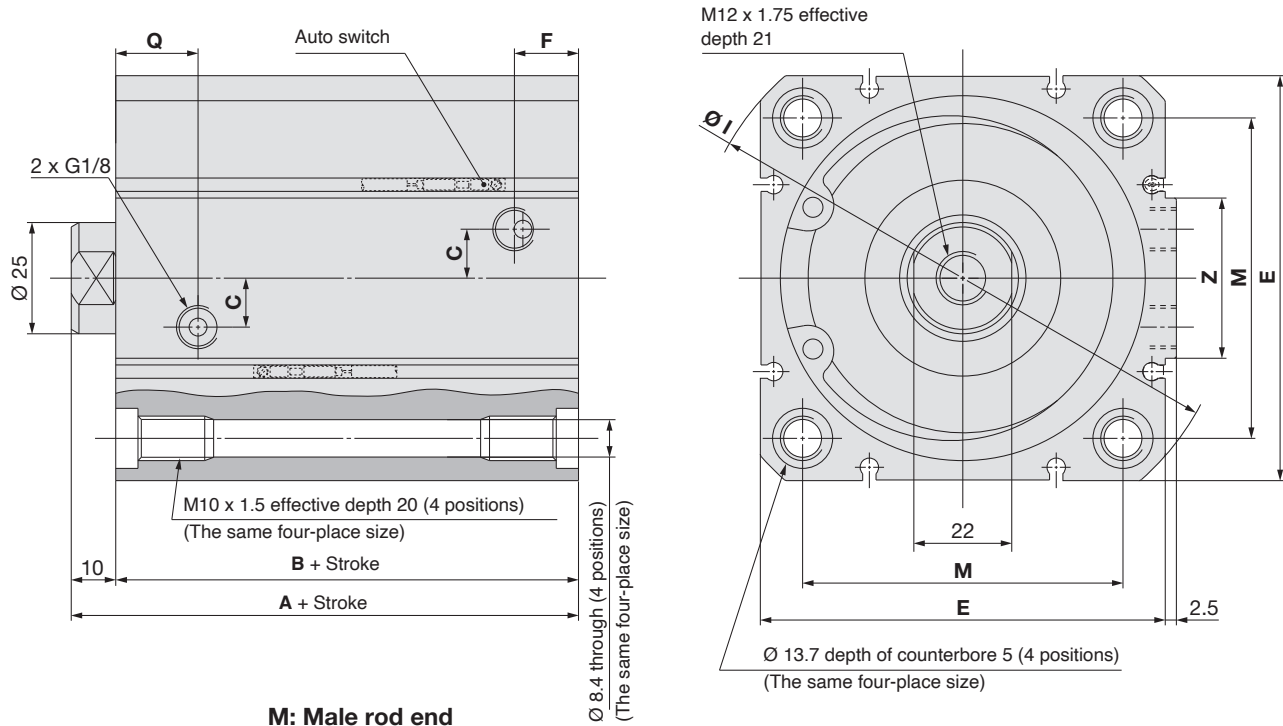
Bore size [mm]	150 mm stroke or less				Over 150 mm stroke				C	D	E	H	I	J	K	L	M	N	OA	OB	RA	T	Z
	A	B	F	Q	A	B	F	Q															
32	51	44	8.5	11	57.5	50.5	10	10	12	16	46	M8 x 1.25	59	2	14	7	32.5	5.5	M6 x 1.0	9	11	1	15
40	52	45	9.5	14.5	60	53	12.5	12.5	12	16	52	M8 x 1.25	67	3	14	7	38	5.5	M6 x 1.0	9	11	1	17
50	53	45	10.5	13.5	61	53	14	14	16	20	64	M10 x 1.5	82	2	17	8	46.5	6.6	M8 x 1.25	10.5	15	1.6	17
63	57	49	14.5	15.5	63	55	16.5	16.5	16	20	74	M10 x 1.5	96	3	17	8	56.5	6.6	M8 x 1.25	10.5	15	1.6	17

* Be sure to use the supplied flat washer when installing the cylinder with a through hole.

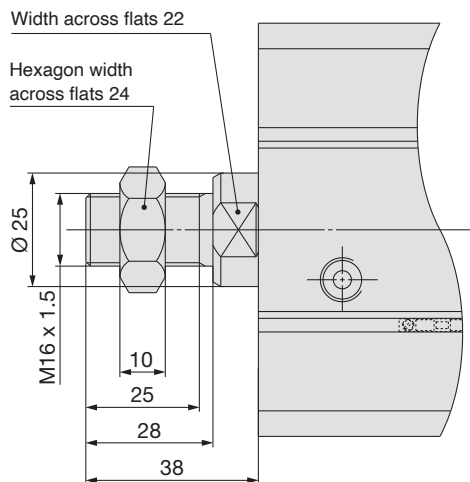
* Cylinder housing dimensions (B + stroke) for over 150 mm stroke differ from those dictated by ISO 21287.

Dimensions (With and without auto switch are the same size)

Ø 80, Ø 100



M: Male rod end



Standard

[mm]

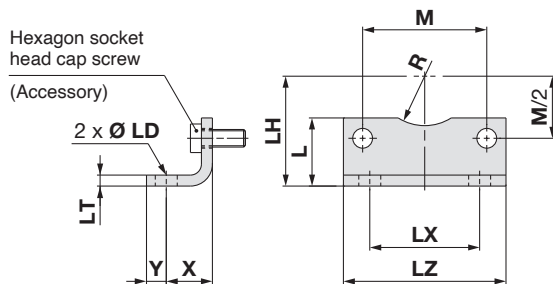
Bore size [mm]	125 mm stroke or less				Over 125 mm stroke				C	E	I	M	Z
	A	B	F	Q	A	B	F	Q					
80	64	54	15	19	71.5	61.5	19	19	11	91	121	72	36
100	77	67	18	26	80.5	70.5	23	23	14	111	145	89	42

* Be sure to use the supplied flat washer when installing the cylinder with a through hole.

* Cylinder housing dimensions (B + stroke) for over 125 mm stroke differ from those dictated by ISO 21287.

Mounting Bracket

Foot bracket

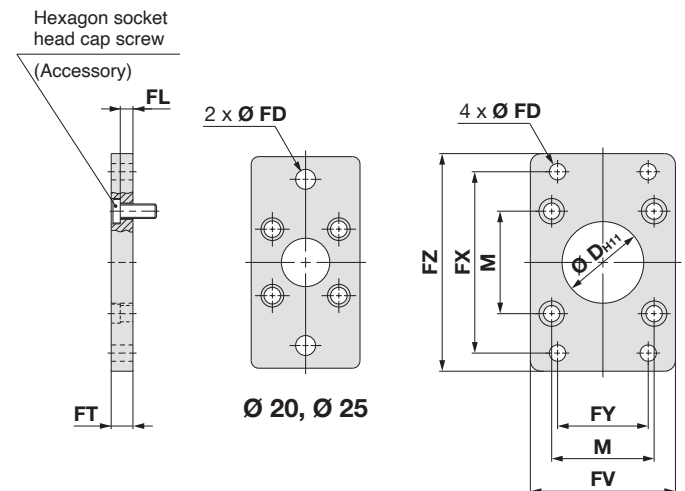


Material: Rolled steel
Surface treatment: Nickel plating

Bore size [mm]	L	LD	LH	LT	LX	LZ	M	R	X	Y	Hexagon socket head cap screw	Weight [g]
20	22	7	27	4	22	36	22	8	16	7	M5	48
25	22	7	29	4	26	40	26	10	16	7	M5	52
32	24.5	7	33.5	4	32	46	32.5	15	16	7	M6	64
40	26	10	38	4	36	52	38	17.5	18	9	M6	78
50	31	10	45	5	45	64	46.5	20	21	9	M8	149
63	31	10	50	5	50	74	56.5	22.5	21	9	M8	173
80	38.5	12	63	6	63	96	72	—	26	11	M10	340
100	45	14.5	74	6	75	116	89	—	27	13	M10	442

* The weight is the sum of the bracket and two hexagon socket head cap screws.

Flange

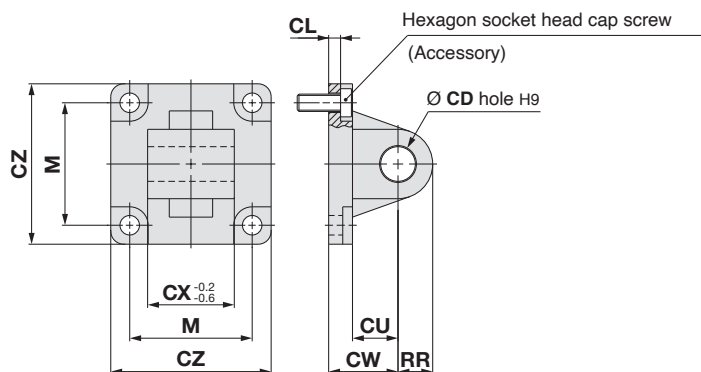


Material: Carbon steel
Surface treatment: Nickel plating

Bore size [mm]	D	M	FD	FL	FT	FV	FX	FY	FZ	Hexagon socket head cap screw	Weight [g]
20	16	22	6.6	2.8	8	38	55	—	68	M5	151
25	16	26	6.6	2.8	8	38	60	—	73	M5	163
32	30	32.5	7	5	10	50	64	32	79	M6	202
40	35	38	9	5	10	55	72	36	90	M6	236
50	40	46.5	9	6	12	70	90	45	110	M8	475
63	45	56.5	9	6	12	80	100	50	120	M8	585
80	45	72	12	8	16	100	126	63	153	M10	1290
100	55	89	14	8	16	120	150	75	178	M10	1769

* The weight is the sum of the bracket and four hexagon socket head cap screws.

Single clevis

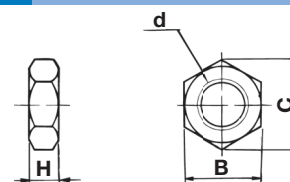


Material: Rolled steel
Surface treatment: Nickel plating

Bore size [mm]	CDH9	CL	CU	CW	CX	CZ	M	RR	Hexagon socket head cap screw	Weight [g]
20	8	3	12	20	16	35	22	9	M5	114
25	8	3	12	20	16	40	26	9	M5	138
32	10	5.5	12	22	26	45	32.5	9.5	M6	145
40	12	5.5	15	25	28	51	38	12	M6	215
50	12	6.5	15	27	32	64	46.5	12	M8	380
63	16	6.5	20	32	40	74	56.5	16	M8	580
80	16	10	20	36	50	94	72	16	M10	1086
100	20	10	25	41	60	113	89	20	M10	1746

* The weight is the sum of the bracket and four hexagon socket head cap screws.

Rod End Nut



Material: Rolled steel
Surface treatment: Zinc chromated

Bore size [mm]	Part no.	d	H	B	C	Weight [g]
20, 25	DA00040	M8 x 1.25	5	13	15.0	4
32, 40	DA00010	M10 x 1.25	6	17	19.6	8
50, 63	DA00014	M12 x 1.25	7	19	21.9	11
80, 100	DA00019	M16 x 1.5	10	24	27.7	24

Compact Cylinder Double Acting, Double Rod C55W Series

Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

How to Order

C55 W B 20 - 30 D C [] Z - []

With auto switch CD55 W B 20 - 30 D C [] Z - M9B [] - []

With auto switch (Built-in magnet)

Mounting

B	Through-hole/Both ends tapped common (Standard)
L	Foot bracket
F	Flange

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Auto switch

—	Without auto switch (Built-in magnet cylinder)
---	--

* For applicable auto switches, refer to the table below.
* Auto switches are shipped together with the product but do not come assembled.

Number of auto switches

—	2
S	1
n	n

Made to Order
For details, refer to the next page.

Rod end thread

—	Standard (Rod end female thread)
M	Rod end male thread

Cushion

C	Rubber bumper
---	---------------

Action

D	Double acting
---	---------------

Cylinder stroke [mm]
Refer to page 19 for standard and intermediate strokes.

Applicable Auto Switches / Refer to the Web Catalogue 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	Perpendicular	In-line	0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)						
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC		
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○				
				2-wire				M9BV	M9B	●	●	●	○	—	○				
	Diagnostic indication (2-colour indicator)			3-wire (NPN)				M9NWV	M9NW	●	●	●	○	—	○	IC circuit			
				3-wire (PNP)				M9PWV	M9PW	●	●	●	○	—	○				
				2-wire				M9BWW	M9BW	●	●	●	○	—	○				
	Water-resistant (2-colour indicator)			3-wire (NPN)				M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit			
				3-wire (PNP)				M9PAV*1	M9PA*1	○	○	●	○	—	○				
				2-wire				M9BAV*1	M9BA*1	○	○	●	○	—	○				
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	●	●	●	—	○	IC circuit	Relay, PLC		
				2-wire				12 V	100 V	A93V	A93	●	●	●	●	—		○*2	—
								5 V, 12 V	100 V or less	A90V	A90	●	●	●	●	—		○*2	IC circuit

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

*2 The load voltage used is 24 VDC.

Lead wire length symbols: 0.5 m..... — (Example) M9NV
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NWL
5 m..... Z (Example) M9NWZ

* Auto switches marked with a "○" are produced upon receipt of order.

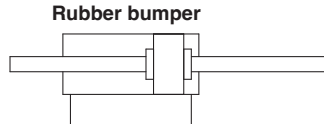
* Since there are applicable auto switches other than those listed above, refer to the Web Catalogue for details.

* Auto switches are shipped together with the product but do not come assembled.

C55W Series



Symbol



Made to Order
(For details, refer to page 42.)

Symbol	Specifications
-XB6	Heat-resistant cylinder (−10 to 150 °C)
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel

Mounting Bracket Part No.

Bore size [mm]	Foot bracket	Flange
20	C55-L020	C55-F020
25	C55-L025	C55-F025
32	C55-L032	C55-F032
40	C55-L040	C55-F040
50	C55-L050	C55-F050
63	C55-L063	C55-F063
80	C55-L080	C55-F080
100	C55-L100	C55-F100

- * Foot bracket part number contains two foot brackets.
- * Mounting bolts are also included with bracket.

Theoretical Output

Bore size [mm]	Operating pressure [MPa]			[N]
	0.3	0.5	0.7	
20	71	118	165	
25	113	189	264	
32	181	302	422	
40	317	528	739	
50	495	825	1150	
63	841	1400	1960	
80	1360	2270	3180	
100	2208	3682	5154	

⚠ Precautions

Be sure to read this before handling the products. Refer to the back cover 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: <https://www.smc.eu>

Specifications

Type		Pneumatic (Non-lube)
Action		Double acting, Double rod
Fluid		Air
Proof pressure		1.5 MPa
Maximum operating pressure		1.0 MPa
Minimum operating pressure		0.05 MPa (Ø 20 to Ø 63), 0.03 MPa (Ø 80, Ø 100)
Ambient and fluid temperatures		Without auto switch: −10 to 70 °C (No freezing) With auto switch: −10 to 60 °C (No freezing)
Cushion		Rubber bumper on both ends
Stroke length tolerance*1		+1.0 0 mm
Piston speed	Ø 20 to Ø 63	50 to 500 mm/s
	Ø 80, Ø 100	50 to 300 mm/s

*1 The stroke length tolerance does not include the tolerance of the bumper.

Standard Strokes

Bore size [mm]	Standard stroke [mm]
20 to 63	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125, 150
80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125

Manufacturing of Intermediate Strokes

Description	Dealing with the stroke in 1 mm increments by using an exclusive body with the specified stroke
Part no.	Refer to “How to Order” for the standard model no. (page 18)
Stroke range	6 to 149 mm
Example	Part no.: C55WB32-78DCZ Makes 78 mm stroke tube

Weight

Without an Auto Switch Magnet

Unit: g

Bore size [mm]	Stroke [mm]														
	5	10	15	20	25	30	35	40	45	50	60	80	100	125	150
20	120	135	151	167	183	199	215	231	247	263	295	359	423	503	583
25	162	181	200	220	240	260	280	300	320	340	380	460	540	640	740
32	267	296	326	356	386	416	446	476	505	535	595	715	834	984	1133
40	327	358	390	422	454	486	518	550	582	614	677	805	933	1092	1252
50	526	573	622	671	720	769	817	866	915	964	1062	1257	1453	1697	1942
63	686	736	788	840	892	944	996	1048	1100	1152	1256	1464	1623	1932	2192
80	—	1267	1341	1420	1498	1576	1653	1731	1808	1886	2041	2351	2661	3049	—
100	—	2103	2198	2291	2383	2476	2569	2662	2755	2848	3034	3405	3796	4261	—

With an Auto Switch Magnet

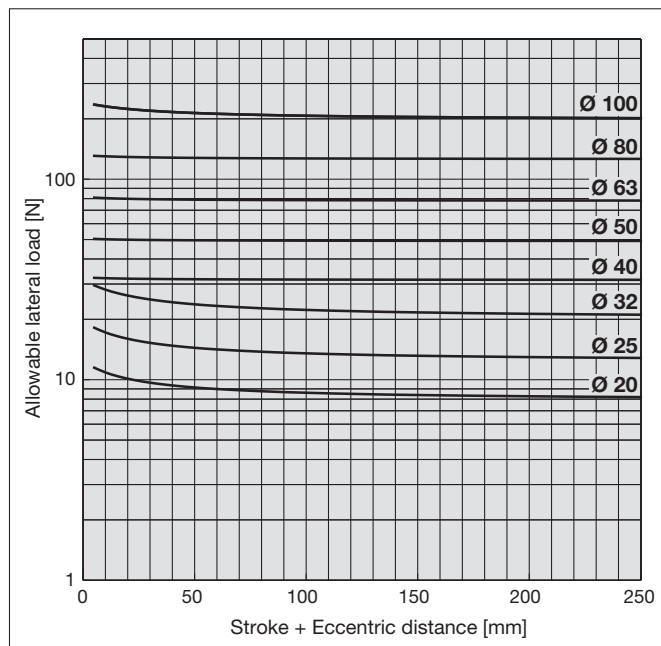
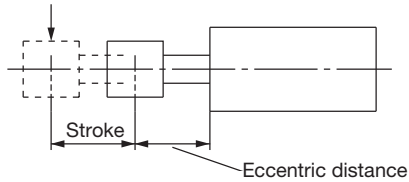
Unit: g

Bore size [mm]	Stroke [mm]														
	5	10	15	20	25	30	35	40	45	50	60	80	100	125	150
20	125	141	156	172	188	204	220	236	252	268	300	364	428	509	589
25	168	187	206	226	246	266	286	306	326	346	386	466	547	647	747
32	279	307	338	368	397	427	457	487	517	547	607	726	846	996	1145
40	340	370	403	435	467	498	530	562	594	626	690	817	945	1104	1264
50	541	587	636	685	734	783	832	880	929	978	1076	1271	1467	1711	1956
63	709	758	810	862	914	966	1018	1070	1122	1174	1278	1486	1645	1954	2214
80	—	1291	1365	1444	1522	1599	1677	1755	1832	1910	2065	2375	2685	3073	—
100	—	2138	2233	2326	2419	2512	2604	2697	2790	2883	3069	3441	3831	4296	—

Allowable Lateral Load

Make sure to operate strictly within the allowable lateral load range to the rod end.

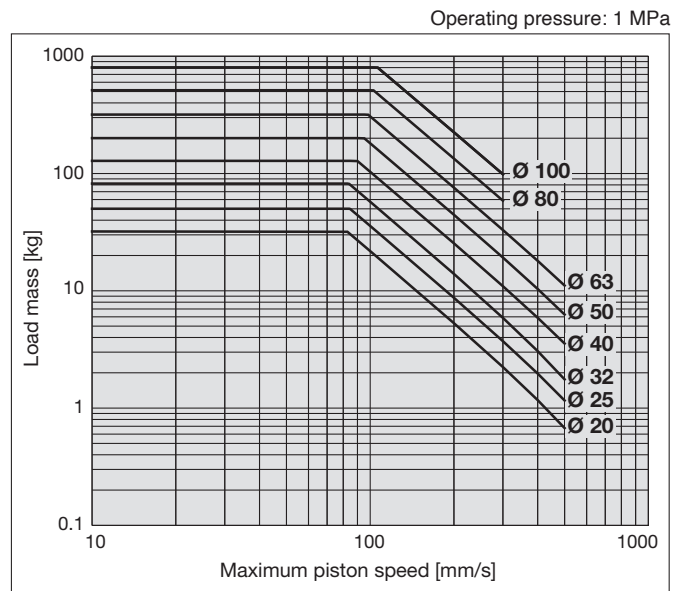
Operation outside of this range may result in shorter service life or damage to the device.



Allowable Kinetic Energy

Make sure to operate strictly within the allowable range of the load mass and maximum speed.

Operation outside of this range may cause excessive impact, which may result in the damage to the device.



* For details about model selection, refer to "Model Selection" in the **Web Catalogue**.

C55W Series

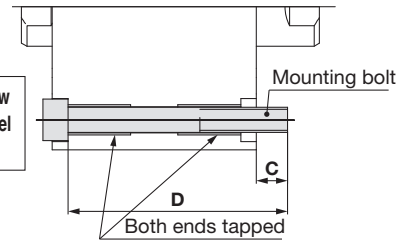
Mounting Bolt

Through hole type mounting bolts are available.
Refer to the following for ordering procedures.
Order the actual number of bolts that will be used.

Example) CQ-M4 x 45L 4 pcs.

- * When using the through-hole mounting bolts for bore sizes 20 to 63 mm, be sure to use the supplied flat washers.
- * Mounting bolts are not available when the stroke is over 100 mm (or 50 mm with bore sizes $\varnothing 20$ and $\varnothing 25$). Secure the cylinder with both ends of the cylinder tube tapped or prepare mounting bolts separately.

Type: Hexagon socket head cap screw
Material: Chromium molybdenum steel
Surface treatment: Zinc chromated



Mounting Bolt for C55

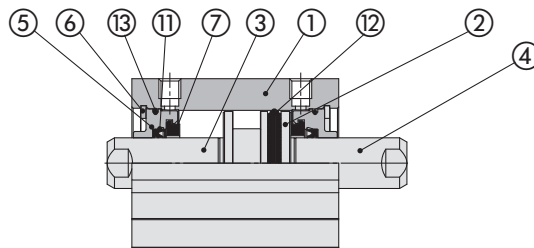
Model	C	D	Mounting bolt part no.
C□55WB20-5DCZ	7.2	45	CQ-M4 x 45L
-10DCZ		50	x 50L
-15DCZ		55	x 55L
-20DCZ		60	x 60L
-25DCZ		65	x 65L
-30DCZ		70	x 70L
-35DCZ		75	x 75L
-40DCZ		80	x 80L
-45DCZ		85	x 85L
-50DCZ		90	x 90L
C□55WB25-5DCZ	10.2	50	CQ-M4 x 50L
-10DCZ		55	x 55L
-15DCZ		60	x 60L
-20DCZ		65	x 65L
-25DCZ		70	x 70L
-30DCZ		75	x 75L
-35DCZ		80	x 80L
-40DCZ		85	x 85L
-45DCZ		90	x 90L
-50DCZ		95	x 95L
C□55WB32-5DCZ	10	55	CQ-M5 x 55L
-10DCZ		60	x 60L
-15DCZ		65	x 65L
-20DCZ		70	x 70L
-25DCZ		75	x 75L
-30DCZ		80	x 80L
-35DCZ		85	x 85L
-40DCZ		90	x 90L
-45DCZ		95	x 95L
-50DCZ		100	x 100L
-60DCZ		110	x 110L
-80DCZ		130	x 130L
-100DCZ		150	x 150L

Model	C	D	Mounting bolt part no.
C□55WB40-5DCZ	9	55	CQ-M5 x 55L
-10DCZ		60	x 60L
-15DCZ		65	x 65L
-20DCZ		70	x 70L
-25DCZ		75	x 75L
-30DCZ		80	x 80L
-35DCZ		85	x 85L
-40DCZ		90	x 90L
-45DCZ		95	x 95L
-50DCZ		100	x 100L
-60DCZ	8.4	110	x 110L
-80DCZ		130	x 130L
-100DCZ		150	x 150L
C□55WB50-5DCZ		55	CQ-M6 x 55L
-10DCZ		60	x 60L
-15DCZ		65	x 65L
-20DCZ		70	x 70L
-25DCZ		75	x 75L
-30DCZ		80	x 80L
-35DCZ		85	x 85L
-40DCZ		90	x 90L
-45DCZ	9.4	95	x 95L
-50DCZ		100	x 100L
-60DCZ		110	x 110L
-80DCZ		130	x 130L
-100DCZ		150	x 150L
C□55WB63-5DCZ		60	CQ-M6 x 60L
-10DCZ		65	x 65L
-15DCZ		70	x 70L
-20DCZ		75	x 75L
-25DCZ		80	x 80L
-30DCZ		85	x 85L
-35DCZ		90	x 90L
-40DCZ		95	x 95L
-45DCZ		100	x 100L
-50DCZ		105	x 105L
-60DCZ		115	x 115L
-80DCZ		135	x 135L
-100DCZ		155	x 155L

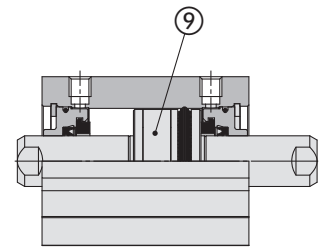
Model	C	D	Mounting bolt part no.
C□55WB80-10DCZ	10	70	CQ-M8 x 70L
-15DCZ		75	x 75L
-20DCZ		80	x 80L
-25DCZ		85	x 85L
-30DCZ		90	x 90L
-35DCZ		95	x 95L
-40DCZ		100	x 100L
-45DCZ		105	x 105L
-50DCZ		110	x 110L
-60DCZ		120	x 120L
-80DCZ	13	140	x 140L
-100DCZ		160	x 160L
C□55WB100-10DCZ		85	CQ-M8 x 85L
-15DCZ		90	x 90L
-20DCZ		95	x 95L
-25DCZ		100	x 100L
-30DCZ		105	x 105L
-35DCZ		110	x 110L
-40DCZ		115	x 115L
-45DCZ		120	x 120L
-50DCZ		125	x 125L
-60DCZ		135	x 135L
-80DCZ		155	x 155L
-100DCZ		175	x 175L

Construction

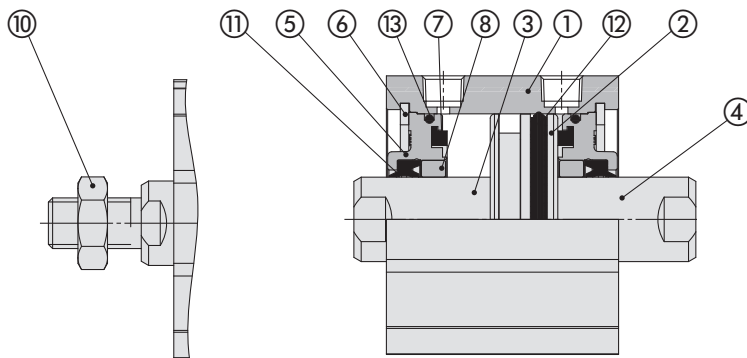
Ø 20, Ø 25



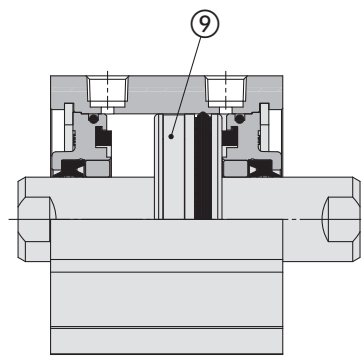
With auto switch (Built-in magnet)



Ø 32 to Ø 100



With auto switch (Built-in magnet)



M: Male rod end

Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminium alloy	Hard anodised
2	Piston	Aluminium alloy	
3	Piston rod A	Stainless steel	Ø 20, Ø 25 Hard chrome plating
		Carbon steel	Ø 32 to Ø 100 Hard chrome plating
4	Piston rod B	Stainless steel	Ø 20, Ø 25 Hard chrome plating
		Carbon steel	Ø 32 to Ø 100 Hard chrome plating
5	Collar	Aluminium alloy	Ø 20 to Ø 40 Anodised
		Aluminium alloy casted	Ø 50 to Ø 100 Painted after chromated
6	Retaining ring	Carbon tool steel	
7	Bumper A	Urethane	
8	Bushing	Bearing alloy	Ø 50 to Ø 100
9	Magnet	—	
10	Rod end nut	Carbon steel	
11	Rod seal	NBR	
12	Piston seal	NBR	
13	Tube gasket	NBR	

Replacement Parts/Seal Kit

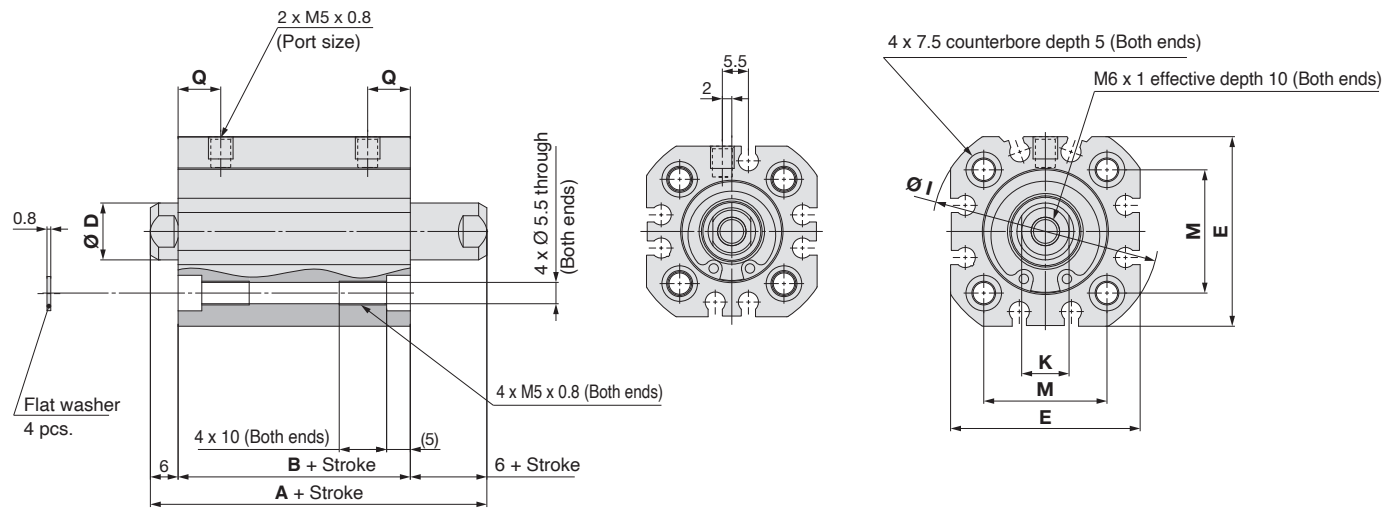
Bore size [mm]	Kit no.	Contents
20	CQ2WB20-PS	Kits include items ⑪, ⑫, ⑬ from the table.
25	CQ2WB25-PS	
32	CQ2WB32-PS	
40	CQ2WB40-PS	
50	CQ2WB50-PS	
63	CQ2WB63-PS	
80	CQ2WB80-PS	
100	C55WB100-PS	

* Seal kits consist of items ⑪, ⑫ and ⑬, and can be ordered by using the seal kit number corresponding to each bore size.

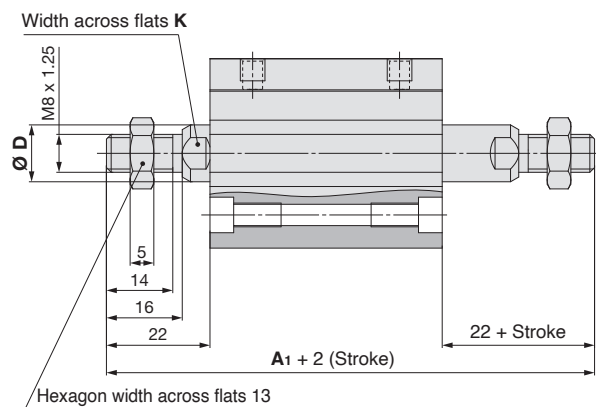
C55W Series

Dimensions (With and without auto switch are the same size)

Ø 20, Ø 25



M: Male rod end



Standard

[mm]

Bore size [mm]	A	B	D	E	I	K	M	Q
20	49	37	10	36	43	8	22	8
25	51	39	12	40	48	10	26	9

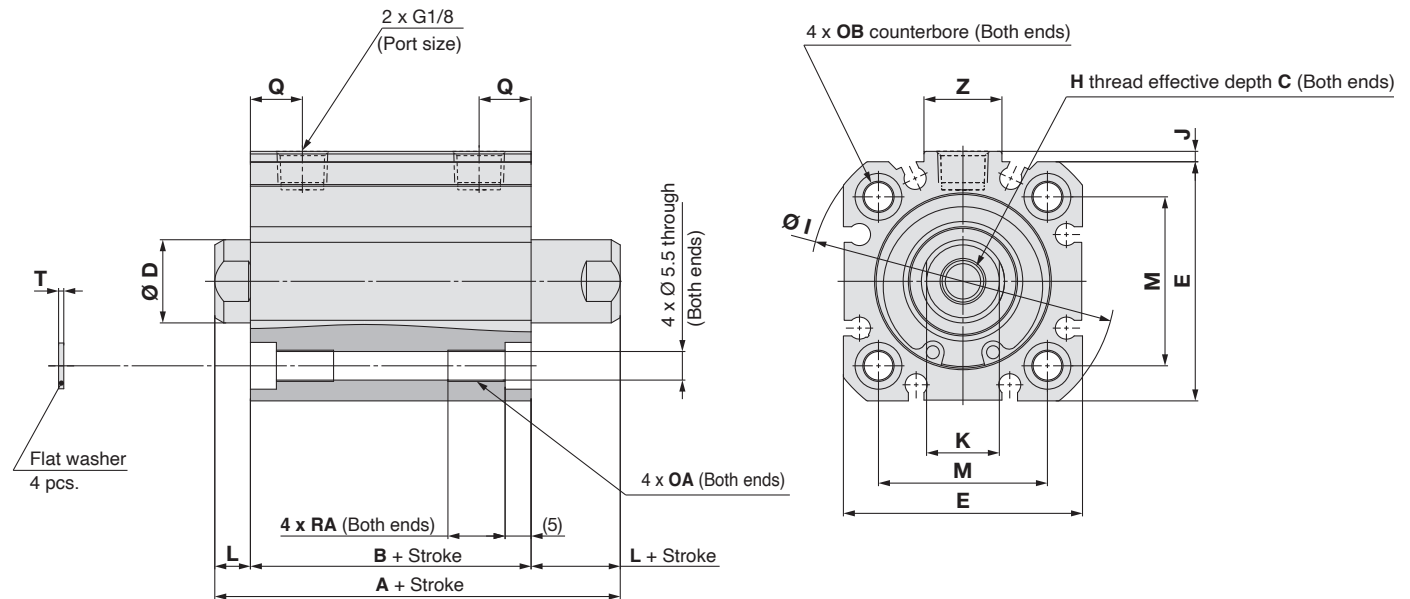
Rod End Male Thread [mm]

Bore size [mm]	A1	D	K
20	81	10	8
25	83	12	10

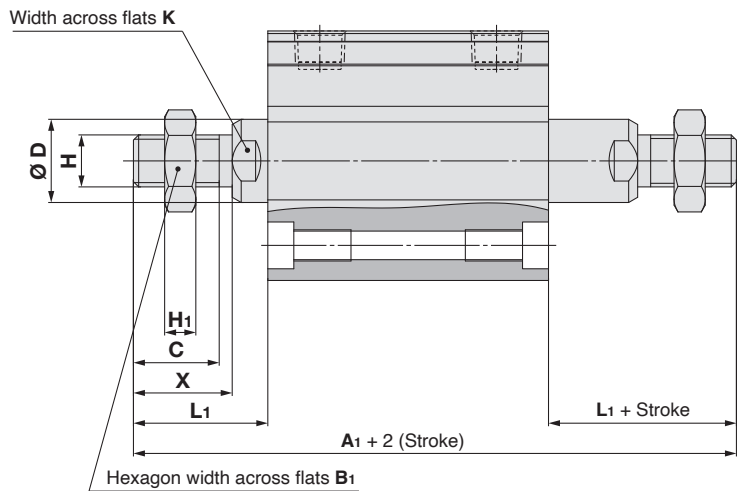
- * For details on the rod end nut and accessory brackets ⇨ p. 17
- * The positions of left and right width across flats are not constant.
- * Be sure to use the supplied flat washer when installing the cylinder with a through hole.

Dimensions (With and without auto switch are the same size)

Ø 32 to Ø 63



M: Male rod end



Rod End Male Thread

Bore size [mm]	A ₁	B ₁	C ₁	D	MM	H ₁	K	L ₁	X
32	96	17	16.5	16	M10 x 1.25	6	14	26	19
40	97	17	16.5	16	M10 x 1.25	6	14	26	19
50	105	19	19.5	20	M12 x 1.25	7	17	30	22
63	109	19	19.5	20	M12 x 1.25	7	17	30	22

Standard

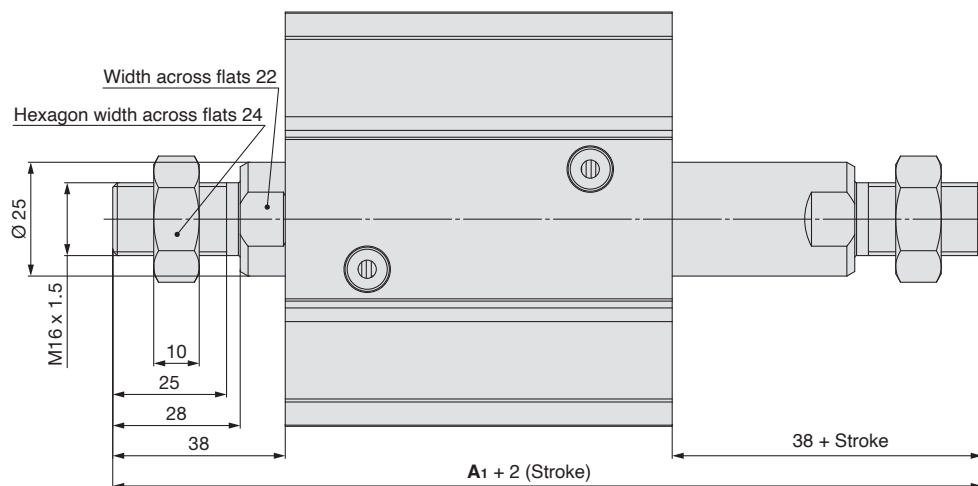
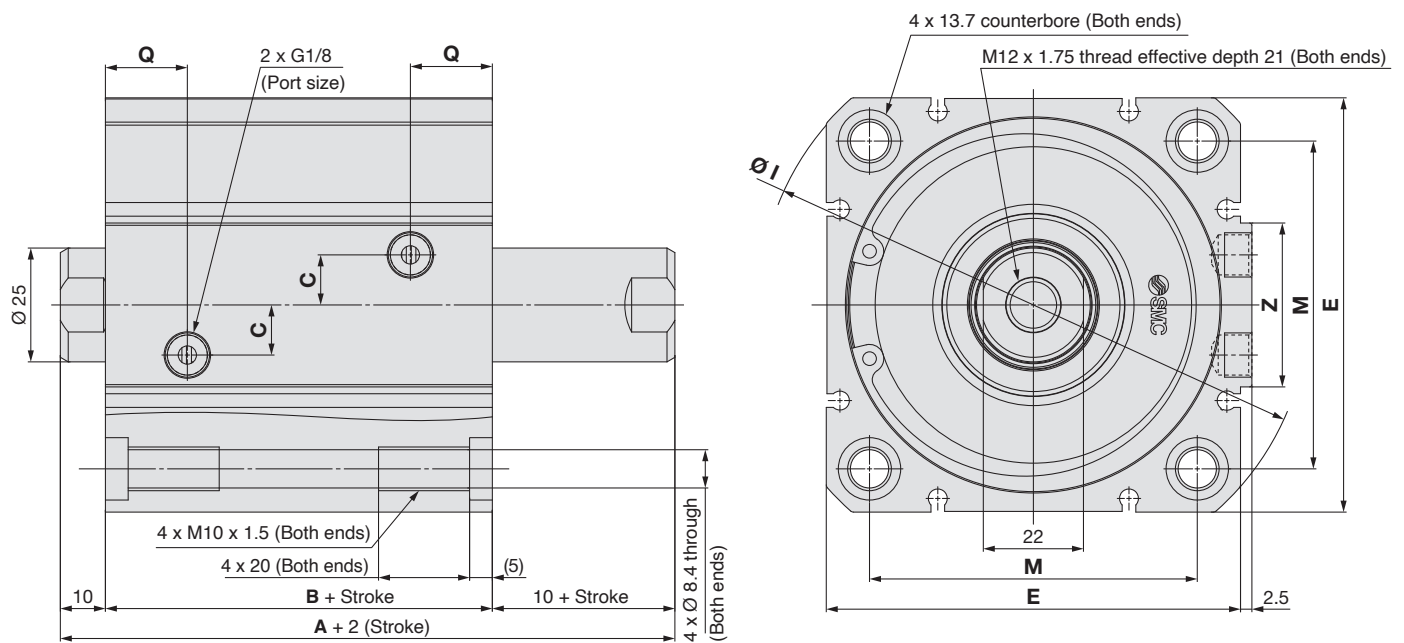
Bore size [mm]	A	B	C	D	E	H	I	J	K	L	M	N	OA	OB	Q	RA	T	Z
32	58	44	12	16	46	M8 x 1.25	59	2	14	7	32.5	5.5	M6 x 1.0	9	10	11	1	15
40	59	45	12	16	52	M8 x 1.25	67	3	14	7	38	5.5	M6 x 1.0	9	12.5	11	1	17
50	61	45	16	20	64	M10 x 1.5	82	2	17	8	46.5	6.6	M8 x 1.25	10.5	13.5	15	1.6	17
63	65	49	16	20	74	M10 x 1.5	96	3	17	8	56.5	6.6	M8 x 1.25	10.5	15.5	15	1.6	17

- * For details on the rod end nut, and accessory brackets ⇨ p. 17
- * The positions of left and right width across flats are not constant.
- * Be sure to use the supplied flat washer when installing the cylinder with a through hole.

C55W Series

Dimensions (With and without auto switch are the same size)

Ø 80, Ø 100



Standard

Bore size [mm]	A	B	C	E	I	M	Q	Z
80	75	55	11	91	121	72	18	36
100	87	67	14	111	145	89	22	42

Rod End

Male Thread [mm]

Bore size [mm]	A ₁
80	131
100	143

* For details on the rod end nut, and accessory brackets ⇨ p. 17

* The positions of left and right width across flats are not constant.

* Cylinder housing dimensions (B + stroke) for Ø 80 bore cylinders differ from those dictated by ISO 21287.

ISO Standards Compact Cylinder

Double Acting, Single Rod

Auto Air Cushion

C55 Series

Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

How to Order

With auto switch

CD55 B 32 - 30 D G Z - M9B S

With auto switch
(Built-in magnet)

Mounting

B	Through-hole/Both ends tapped common (Standard)
L	Foot bracket
F	Rod flange
G	Head flange
C	Single clevis

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Number of auto switches

—	2
S	1
n	n

Auto switch

—	Without auto switch (Built-in magnet cylinder)
---	--

* For applicable auto switches, refer to the table below.

* Auto switches are shipped together with the product but do not come assembled.

Rod end thread

—	Standard (Rod end female thread)
M	Rod end male thread

Cushion

G	Auto air cushion + Rubber bumper
---	----------------------------------

Action

D	Double acting
---	---------------

Cylinder stroke [mm]

Refer to page 27 for standard and intermediate strokes.

Applicable Auto Switches / Refer to the Web Catalogue for further information on auto switches.

Applicable load reference																	
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	Perpendicular	In-line	0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V,	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				12 V		M9PV		M9P	●	●	●	○	—	○			
				12 V		M9BV		M9B	●	●	●	○	—	○			
	Diagnostic indication (2-colour indicator)			3-wire (NPN)		5 V,		M9NWV	M9NW	●	●	●	○	—	○	IC circuit	
				12 V		M9PWV		M9PW	●	●	●	○	—	○			
				12 V		M9BWV		M9BW	●	●	●	○	—	○			
	Water-resistant (2-colour indicator)			3-wire (NPN)		5 V,		M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit	
				12 V		M9PAV*1		M9PA*1	○	○	●	○	—	○			
				12 V		M9BAV*1		M9BA*1	○	○	●	○	—	○			
		12 V	M9BAV*1	M9BA*1	○	○	●	○	—	○							
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	●	●	●	—	○	IC circuit	—
			No	2-wire	24 V	12 V	100 V	A93V	A93	●	●	●	●	—	○*2	—	Relay, PLC
					5 V, 12 V	100 V or less	A90V	A90	●	●	●	●	—	○*2	IC circuit		

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

*2 The load voltage used is 24 VDC.

Lead wire length symbols: 0.5 m..... — (Example) M9NV
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NWL
5 m..... Z (Example) M9NWZ

* Auto switches marked with a "○" are produced upon receipt of order.

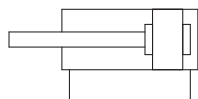
* Since there are applicable auto switches other than those listed above, refer to the Web Catalogue for details.

* Auto switches are shipped together with the product but do not come assembled.

C55 Series



Symbol



Mounting Bracket Part No.

Bore size [mm]	Foot bracket	Flange	Single clevis
20	C55-L020	C55-F020	C55-C020
25	C55-L025	C55-F025	C55-C025
32	C55-L032	C55-F032	C55-C032
40	C55-L040	C55-F040	C55-C040
50	C55-L050	C55-F050	C55-C050
63	C55-L063	C55-F063	C55-C063
80	C55-L080	C55-F080	C55-C080
100	C55-L100	C55-F100	C55-C100

* Foot bracket part number contains two foot brackets.

* Mounting bolts are also included with bracket.

Theoretical Output



Bore size [mm]	Operating direction	Operating pressure [MPa]		
		0.3	0.5	0.7
20	IN	71	118	165
	OUT	94	157	220
25	IN	124	206	289
	OUT	147	245	344
32	IN	207	346	484
	OUT	241	402	563
40	IN	343	572	800
	OUT	377	628	880
50	IN	529	881	1230
	OUT	589	982	1370
63	IN	875	1460	2040
	OUT	935	1560	2180
80	IN	1410	2360	3300
	OUT	1510	2510	3520
100	IN	2260	3770	5280
	OUT	2360	3930	5500

Specifications

Type	Pneumatic (Non-lube)	
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1.5 MPa	
Maximum operating pressure	1.0 MPa	
Minimum operating pressure	0.15 MPa (Ø 20 to Ø 32), 0.10 MPa (Ø 40 to Ø 100)	
Ambient and fluid temperatures	With auto switch: -10 to 60 °C (No freezing)	
Cushion	Auto air cushion + Rubber bumper	
Stroke length tolerance*1	+1.0 0 mm	
Piston speed	Ø 20 to Ø 63	50 to 500 mm/s
	Ø 80, Ø 100	50 to 300 mm/s

*1 The stroke length tolerance does not include the tolerance of the bumper.

Standard Strokes

Bore size [mm]	Standard stroke [mm]
20 to 63	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125, 150, 175, 200, 250, 300
80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125, 150, 175, 200, 250, 300

* Using a stroke of a length which is smaller than the effective cushion length may result in reduced air cushion performance.

Effective Cushion Length

Bore size [mm]	20	25	32	40	50	63	80	100
Cushion length [mm]	4.0	4.5	4.5	6.5	6.5	8.0	8.0	11.0

Manufacturing of Intermediate Strokes

Description	Dealing with the stroke in 1 mm increments by using an exclusive body with the specified stroke
Part no.	Refer to "How to Order" for the standard model no. (page 26)
Stroke range	6 to 299 mm
Example	Part no.: C55B32-47DCZ Makes 47 mm stroke tube

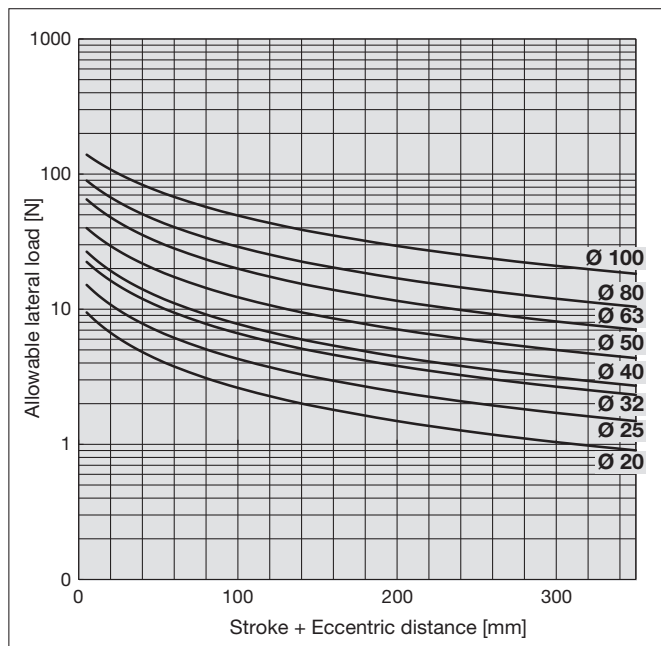
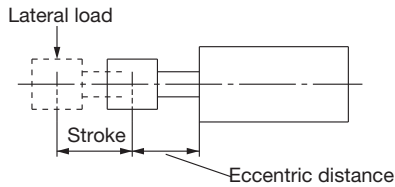
Weight

Bore size [mm]	Stroke [mm]																		
	5	10	15	20	25	30	35	40	45	50	60	80	100	125	150	175	200	250	300
20	116	129	142	155	168	181	194	206	219	232	258	310	361	426	490	555	619	748	877
25	147	161	175	190	204	218	232	246	260	274	303	359	416	487	557	628	699	840	982
32	236	254	273	292	311	329	348	367	385	404	441	516	591	685	778	872	965	1152	1339
40	295	316	337	357	378	399	420	440	461	482	523	606	689	793	896	1000	1104	1311	1518
50	459	491	523	555	587	620	652	684	716	748	813	942	1070	1231	1392	1553	1714	2036	2358
63	650	686	721	756	792	827	862	898	933	968	1039	1180	1322	1498	1675	1852	2028	2382	2735
80	—	1145	1196	1248	1299	1351	1402	1454	1505	1557	1660	1866	2072	2329	2587	2844	3102	3617	4132
100	—	2072	2139	2206	2273	2340	2407	2474	2541	2608	2742	3010	3278	3613	3948	4283	4618	5288	5958

Allowable Lateral Load

Make sure to operate strictly within the allowable lateral load range to the rod end.

Operation outside of this range may result in shorter service life or damage to the device.



Allowable Kinetic Energy

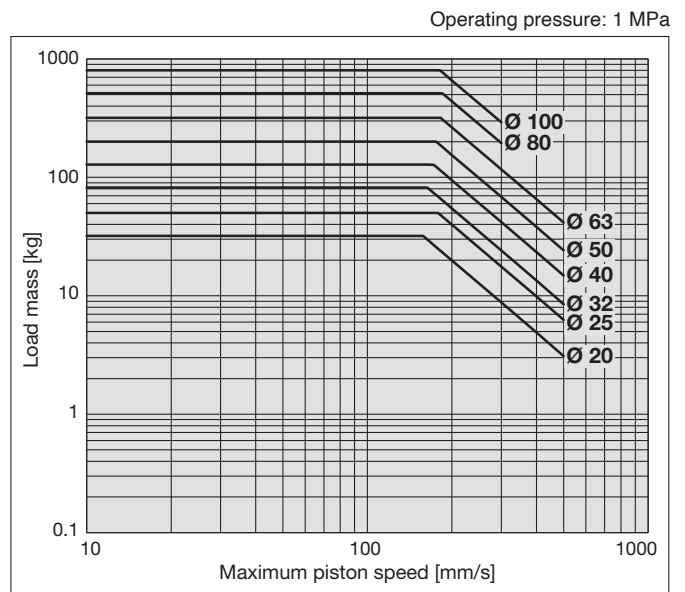
Make sure to operate strictly within the allowable range of the load mass and maximum speed.

Operation outside of this range may cause excessive impact, which may result in the damage to the device.

Table (1) Allowable kinetic energy

Unit: [J]

Bore size [mm]	20	25	32	40	50	63	80	100
Piston speed	50 to 500 mm/s (Ø 20 to Ø 63) 50 to 300 mm/s (Ø 80 to Ø 100)							
Allowable energy [J] (at cushion entry)	0.4	0.8	1.1	1.9	3.1	5.3	8.8	13.2



* For details about model selection, refer to "Model Selection" in the **Web Catalogue**.

⚠ Precautions

Be sure to read this before handling the products. Refer to the back cover 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: <https://www.smc.eu>

Handling

1. Use a meter-out circuit to control the speed of the cylinder. Do not use a quick exhaust valve as this will reduce the effectiveness of the air cushion.
2. Use the product with a load ratio of 50 % or less.
3. When the product is used properly and within the allowable kinetic energy as shown on Table 1, the piston reaches the end of stroke, within the limits shown on Table 2, after being automatically decelerated by the air cushion.

Table (2) Allowable collision energy at the end of stroke

Unit: [J]

Bore size [mm]	20	25	32	40	50	63	80	100
Allowable collision energy	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54

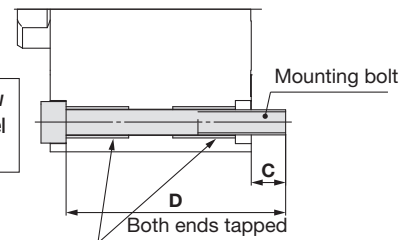
Mounting Bolt

Through hole type mounting bolts are available.
Refer to the following for ordering procedures.
Order the actual number of bolts that will be used.

Example) CQ-M4 x 45L 4 pcs.

- * When using the through-hole mounting bolts for bore sizes 20 to 63 mm, be sure to use the supplied flat washers.
- * Mounting bolts are not available when the stroke is over 100 mm (or 50 mm with bore sizes $\varnothing 20$ and $\varnothing 25$). Secure the cylinder with both ends of the cylinder tube tapped or prepare mounting bolts separately.

Type: Hexagon socket head cap screw
Material: Chromium molybdenum steel
Surface treatment: Zinc chromated



Mounting Bolt for C55

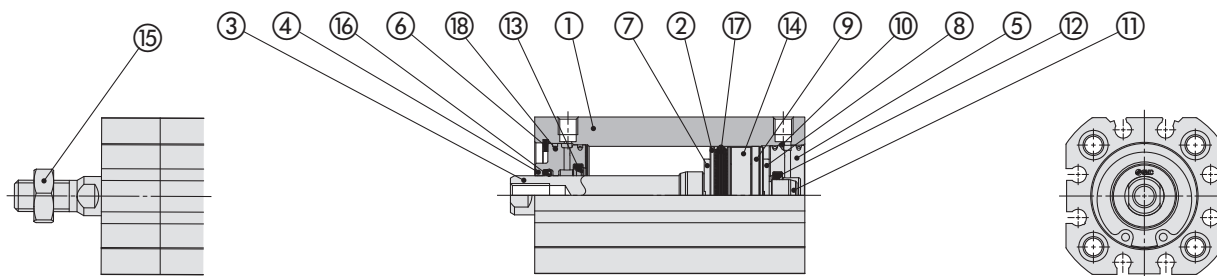
Model	C	D	Mounting bolt part no.
C□55B20-5DGZ		45	CQ-M4 x 45L
-10DGZ		50	x 50L
-15DGZ		55	x 55L
-20DGZ		60	x 60L
-25DGZ	7.2	65	x 65L
-30DGZ		70	x 70L
-35DGZ		75	x 75L
-40DGZ		80	x 80L
-45DGZ		85	x 85L
-50DGZ		90	x 90L
C□55B25-5DGZ		50	CQ-M4 x 50L
-10DGZ		55	x 55L
-15DGZ		60	x 60L
-20DGZ		65	x 65L
-25DGZ	10.2	70	x 70L
-30DGZ		75	x 75L
-35DGZ		80	x 80L
-40DGZ		85	x 85L
-45DGZ		90	x 90L
-50DGZ		95	x 95L
C□55B32-5DGZ		55	CQ-M5 x 55L
-10DGZ		60	x 60L
-15DGZ		65	x 65L
-20DGZ		70	x 70L
-25DGZ		75	x 75L
-30DGZ		80	x 80L
-35DGZ	10	85	x 85L
-40DGZ		90	x 90L
-45DGZ		95	x 95L
-50DGZ		100	x 100L
-60DGZ		110	x 110L
-80DGZ		130	x 130L
-100DGZ		150	x 150L

Model	C	D	Mounting bolt part no.
C□55B40-5DGZ		55	CQ-M5 x 55L
-10DGZ		60	x 60L
-15DGZ		65	x 65L
-20DGZ		70	x 70L
-25DGZ		75	x 75L
-30DGZ	9	80	x 80L
-35DGZ		85	x 85L
-40DGZ		90	x 90L
-45DGZ		95	x 95L
-50DGZ		100	x 100L
-60DGZ		110	x 110L
-80DGZ		130	x 130L
-100DGZ		150	x 150L
C□55B50-5DGZ		55	CQ-M6 x 55L
-10DGZ		60	x 60L
-15DGZ		65	x 65L
-20DGZ		70	x 70L
-25DGZ		75	x 75L
-30DGZ		80	x 80L
-35DGZ	8.4	85	x 85L
-40DGZ		90	x 90L
-45DGZ		95	x 95L
-50DGZ		100	x 100L
-60DGZ		110	x 110L
-80DGZ		130	x 130L
-100DGZ		150	x 150L
C□55B63-5DGZ		60	CQ-M6 x 60L
-10DGZ		65	x 65L
-15DGZ		70	x 70L
-20DGZ		75	x 75L
-25DGZ		80	x 80L
-30DGZ		85	x 85L
-35DGZ	9.4	90	x 90L
-40DGZ		95	x 95L
-45DGZ		100	x 100L
-50DGZ		105	x 105L
-60DGZ		115	x 115L
-80DGZ		135	x 135L
-100DGZ		155	x 155L

Model	C	D	Mounting bolt part no.
C□55B80-10DGZ		70	CQ-M8 x 70L
-15DGZ		75	x 75L
-20DGZ		80	x 80L
-25DGZ		85	x 85L
-30DGZ		90	x 90L
-35DGZ	11	95	x 95L
-40DGZ		100	x 100L
-45DGZ		105	x 105L
-50DGZ		110	x 110L
-60DGZ		120	x 120L
-80DGZ		140	x 140L
-100DGZ		160	x 160L
C□55B100-10DGZ		85	CQ-M8 x 85L
-15DGZ		90	x 90L
-20DGZ		95	x 95L
-25DGZ		100	x 100L
-30DGZ		105	x 105L
-35DGZ	13	110	x 110L
-40DGZ		115	x 115L
-45DGZ		120	x 120L
-50DGZ		125	x 125L
-60DGZ		135	x 135L
-80DGZ		155	x 155L
-100DGZ		175	x 175L

Construction

Ø 20, Ø 25



M: Rod end male thread

Component Parts

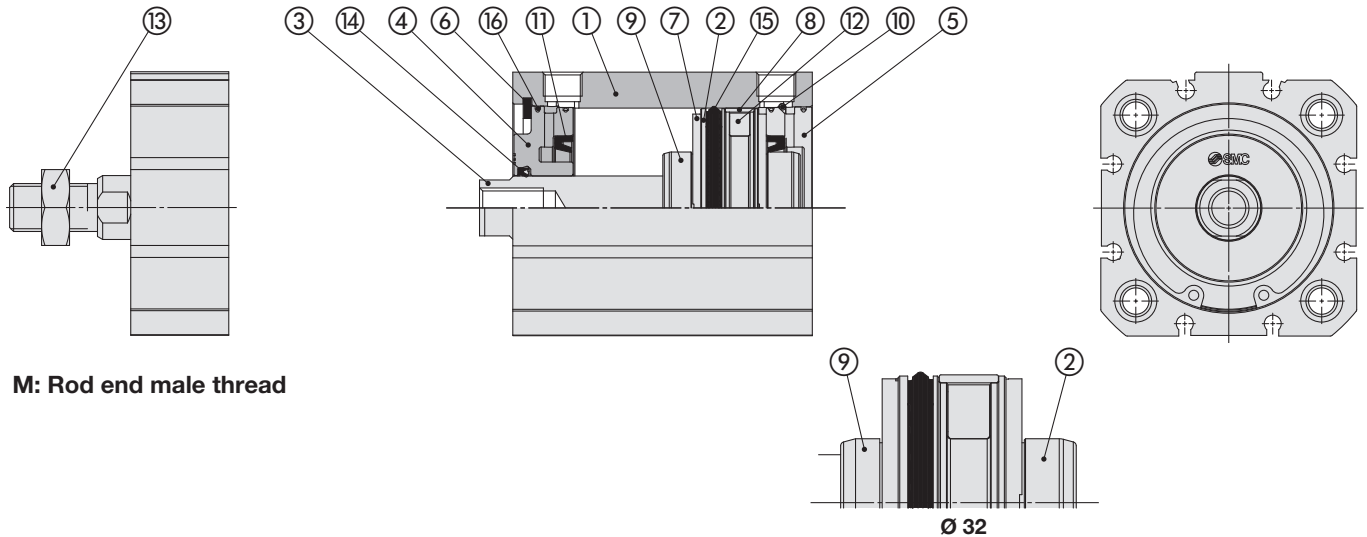
No.	Description	Material	Note
1	Cylinder tube	Aluminium alloy	Hard anodised
2	Piston	Aluminium alloy	Hard anodised
3	Piston rod	Stainless steel	Hard chrome plating
4	Collar	Aluminium alloy	Hard anodised
5	Bottom plate	Aluminium alloy	Hard anodised
6	Retaining ring	Carbon tool steel	Phosphate treatment
7	Bumper A	Urethane	
8	Bumper B	Urethane	
9	Wear ring	Resin	
10	Stop ring	Stainless steel	
11	Cushion ring	Stainless steel	
12	Cushion seal	Urethane	
13	Cushion seal	Urethane	
14	Magnet		
15	Rod end nut	Carbon steel	Zinc chromated
16	Rod seal	NBR	
17	Piston seal	NBR	
18	Tube gasket	NBR	

Replacement Parts/Seal Kit

Bore size	Kit no.	Contents
20	C55B20-DGZ-PS	Set of nos. 16, 17, 18 (18: 2 pcs.)
25	C55B25-DGZ-PS	

Construction

Ø 32 to Ø 50



M: Rod end male thread

Component Parts

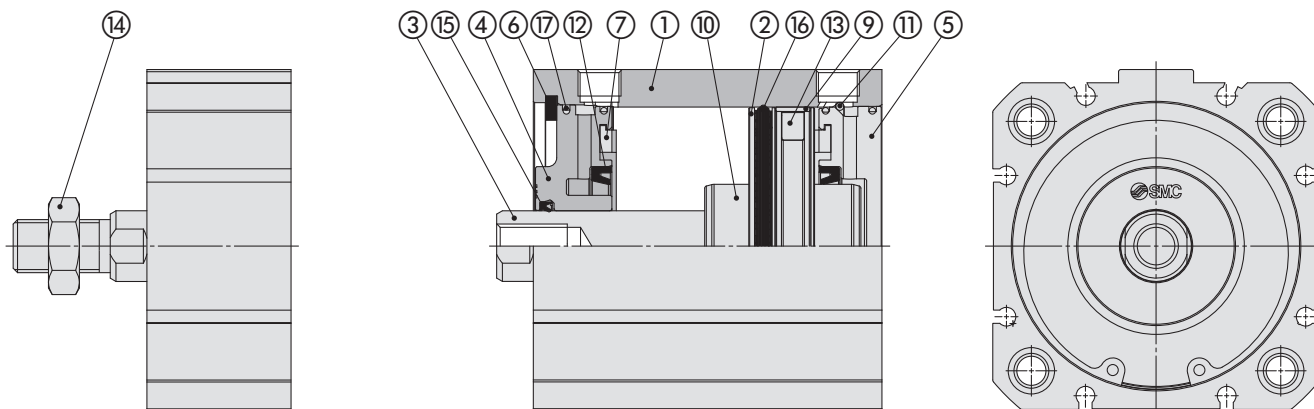
No.	Description	Material	Note
1	Cylinder tube	Aluminium alloy	Hard anodised
2	Piston	Aluminium alloy	Hard anodised
3	Piston rod	Stainless steel (Carbon steel for Ø 50)	Hard chrome plating
4	Collar	Aluminium alloy	Hard anodised
5	Bottom plate	Aluminium alloy	Hard anodised
6	Retaining ring	Carbon tool steel	Phosphate treatment
7	Bumper	Urethane	
8	Wear ring	Resin	
9	Cushion ring	Aluminium alloy	Anodised
10	Stop ring	Stainless steel	
11	Cushion seal	NBR	
12	Magnet		
13	Rod end nut	Carbon steel	Zinc chromated
14	Rod seal	NBR	
15	Piston seal	NBR	
16	Tube gasket	NBR	

Replacement Parts/Seal Kit

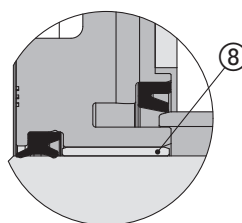
Bore size	Kit no.	Contents
32	C55B32-DGZ-PS	Set of nos. 14, 15, 16 (16: 2 pcs.)
40	C55B40-DGZ-PS	
50	C55B50-DGZ-PS	

Construction

Ø 63 to Ø 100



M: Rod end male thread



Ø 100

Component Parts

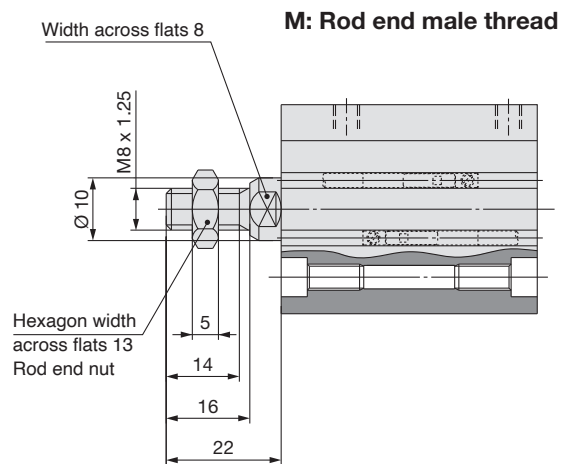
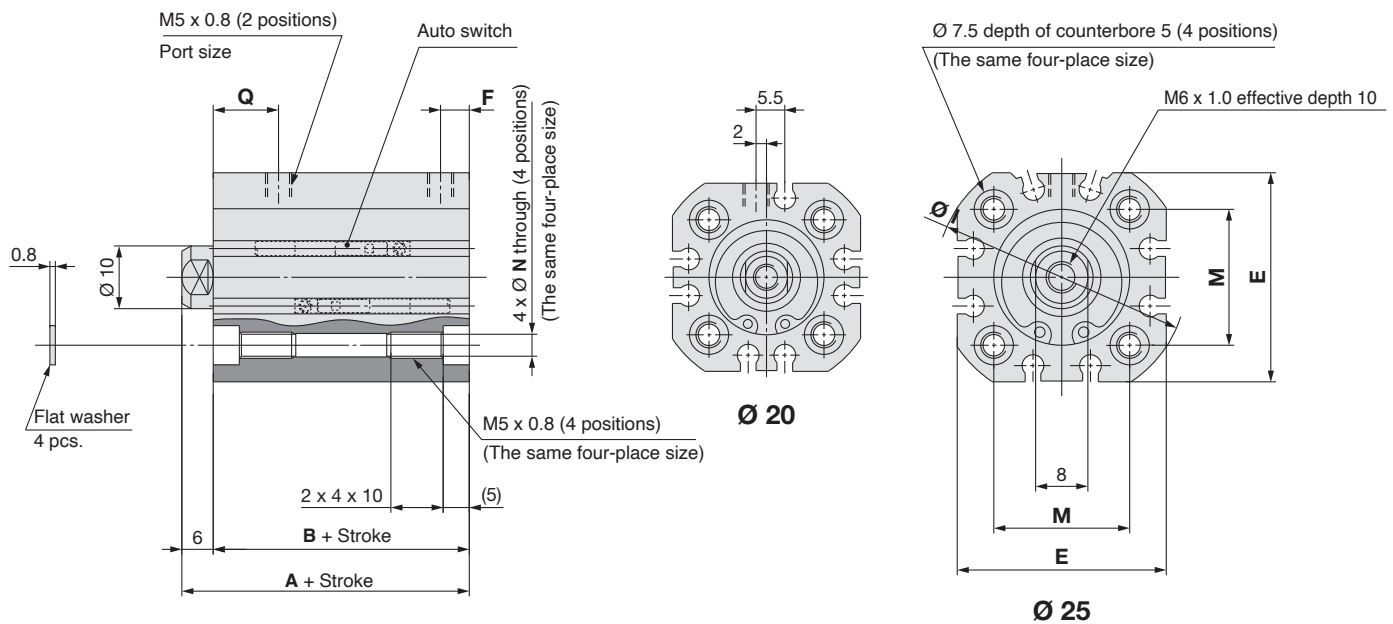
No.	Description	Material	Note
1	Cylinder tube	Aluminium alloy	Hard anodised
2	Piston	Aluminium alloy	Hard anodised
3	Piston rod	Carbon steel	Hard chrome plating
4	Collar	Aluminium alloy	Hard anodised
5	Bottom plate	Aluminium alloy	Hard anodised
6	Retaining ring	Carbon tool steel	Phosphate treatment
7	Bumper	Urethane	
8	Bushing	Bearing alloy	(For Ø 100)
9	Wear ring	Resin	
10	Cushion ring	Aluminium alloy	Anodised
11	Stop ring	Stainless steel	
12	Cushion seal	NBR	
13	Magnet		
14	Rod end nut	Carbon steel	Zinc chromated
15	Rod seal	NBR	
16	Piston seal	NBR	
17	Tube gasket	NBR	

Replacement Parts/Seal Kit

Bore size	Kit no.	Contents
63	C55B63-DGZ-PS	Set of nos. 15, 16, 17 (17: 2 pcs.)
80	C55B80-DGZ-PS	
100	C55B100-DGZ-PS	

Dimensions (With Auto Switch)

Ø 20, Ø 25



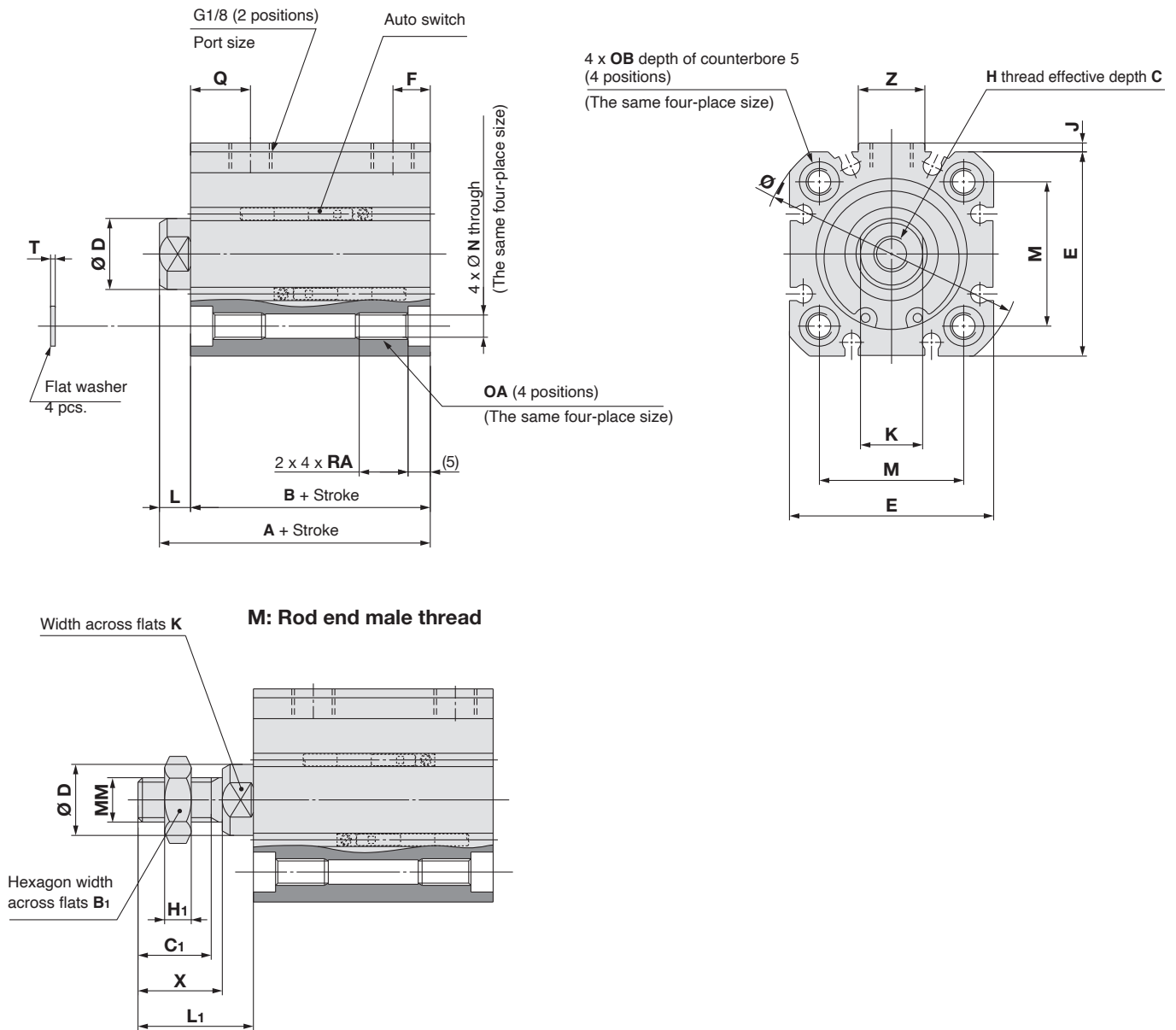
[mm]

Symbol	Standard stroke	A	B	E	F	I	M	Q
Bore size								
20	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100,	43	37	36	5.5	43	22	8
25	125, 150, 175, 200, 250, 300	45	39	40	5.5	48	26	8.5

* Be sure to use the supplied flat washer when installing the cylinder with a through hole.

Dimensions (With Auto Switch)

Ø 32 to Ø 63



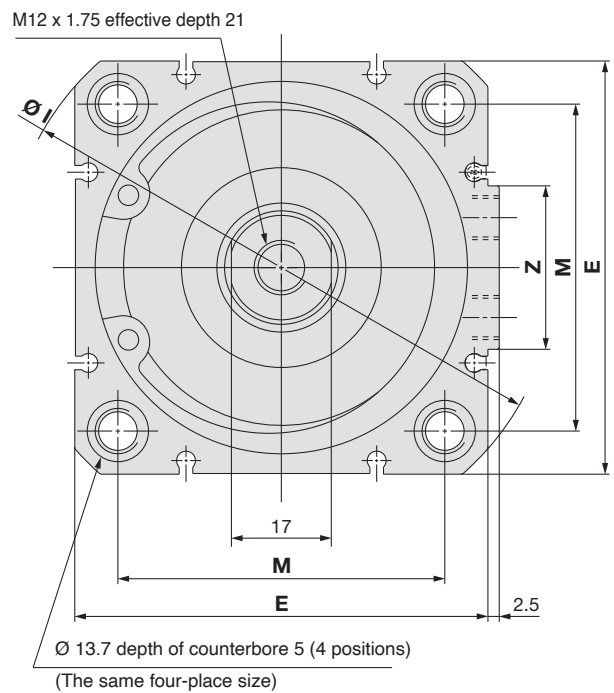
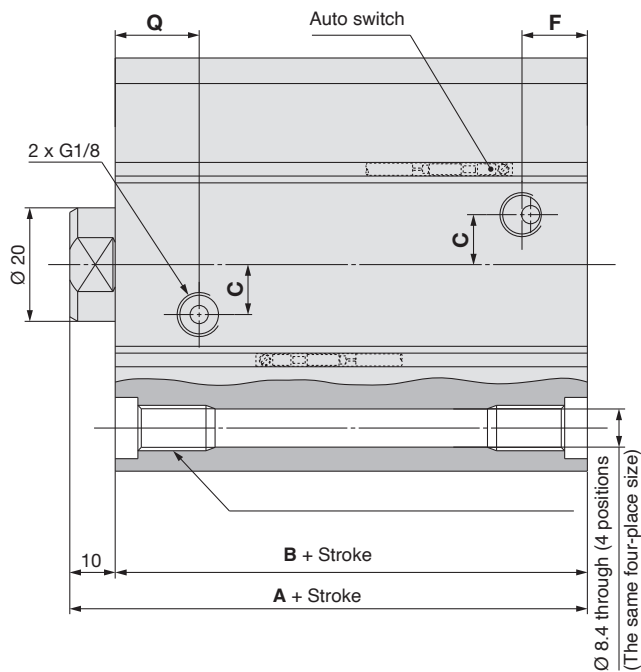
[mm]

Symbol Bore size	Standard stroke	A	B	C	D	E	F	H	I	J	K	L	M	N	OA	OB	Q	RA	T	Z	B ₁	C ₁	MM	H ₁	L ₁	X
32	5, 10, 15, 20, 25, 30,	51	44	12	12	46	7.5	M8 x 1.25	59	2	10	7	32.5	5.5	M6 x 1.0	9	14	11	1	15	17	16.5	M10 x 1.25	6	26	19
40	35, 40, 45, 50, 60, 80,	52	45	12	12	52	8.5	M8 x 1.25	67	3	10	7	38	5.5	M6 x 1.0	9	13.5	11	1	17	17	16.5	M10 x 1.25	6	26	19
50	100, 125, 150, 175,	53	45	16	16	64	9	M10 x 1.5	82	2	14	8	46.5	6.6	M8 x 1.25	10.5	12.5	15	1.6	17	19	19.5	M12 x 1.25	7	30	22
63	200, 250, 300	57	49	16	16	74	10	M10 x 1.5	96	3	14	8	56.5	6.6	M8 x 1.25	10.5	15	15	1.6	17	19	19.5	M12 x 1.25	7	30	22

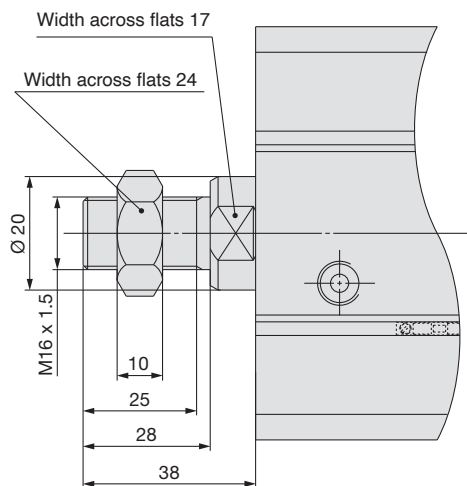
* Be sure to use the supplied flat washer when installing the cylinder with a through hole.

Dimensions (With Auto Switch)

Ø 80, Ø 100



M: Rod end male thread



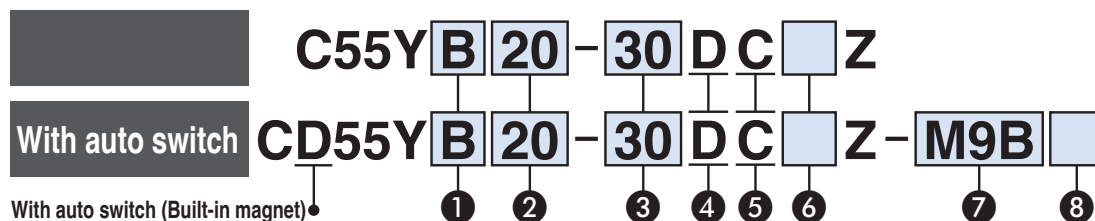
[mm]										
Symbol Bore size	Standard stroke	A	B	C	E	F	I	M	Q	Z
80	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100,	64	54	11	91	9	121	72	18	36
100	125, 150, 175, 200, 250, 300	77	67	14	111	10.5	145	89	19.5	42

* Be sure to use the supplied flat washer when installing the cylinder with a through hole.

C55Y Series

Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

How to Order



① Mounting

B	Through-hole/Both ends tapped common (Standard)
L	Foot bracket
F	Rod flange
G	Head flange
C	Single clevis

② Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

③ Cylinder stroke [mm]

Bore size	Standard stroke	Intermediate stroke
20, 25, 32	5, 10, 15, 20, 25, 30, 35, 40, 45	6 to 149
40, 50, 63	50, 60, 80, 100, 125, 150	
80, 100	10, 15, 20, 25, 30, 35, 40, 45 50, 60, 80, 100, 125	11 to 124

④ Action

D	Double acting
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⑤ Cushion

C	Rubber bumper
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⑥ Rod end thread

—	Standard (Rod end female thread)
M	Rod end male thread

⑦ Auto switch

—	Without auto switch (Built-in magnet cylinder)
* For applicable auto switches, refer to the table below.	
* Auto switches are shipped together with the product but do not come assembled.	

⑧ Number of auto switches

—	2
S	1
n	n

Applicable Auto Switches / Refer to the Web Catalogue 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	Perpendicular	In-line	0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
	3-wire (PNP)			12 V		M9PV		M9P	●	●	●	○	—	○	—		
	2-wire			12 V		M9BV		M9B	●	●	●	○	—	○	—		
	3-wire (NPN)			5 V, 12 V		M9NWV		M9NW	●	●	●	○	—	○	IC circuit		
	3-wire (PNP)			12 V		M9PWV		M9PW	●	●	●	○	—	○	—		
	2-wire			12 V		M9BWV		M9BW	●	●	●	○	—	○	—		
	3-wire (NPN)			5 V, 12 V		M9NAV*1		M9NA*1	○	○	●	○	—	○	IC circuit		
	3-wire (PNP)			12 V		M9PAV*1		M9PA*1	○	○	●	○	—	○	—		
	2-wire			12 V		M9BAV*1		M9BA*1	○	○	●	○	—	○	—		
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	A93V*2	A93	●	●	●	●	—	—	—	—
			No	2-wire	24 V	5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	—	IC circuit

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

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

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

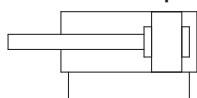
Lead wire length symbols: 0.5 m..... — (Example) M9NW
 1 m..... M (Example) M9NWM
 3 m..... L (Example) M9NWL
 5 m..... Z (Example) M9NWZ

* Since there are applicable auto switches other than those listed above, refer to the **Web Catalogue** for details.
 * Auto switches are shipped together with the product but do not come assembled.
 * **The external dimensions are the same as those of the ISO standards compliant compact cylinder, double acting, single rod.**

Specifications

Proof pressure		1.05 MPa
Maximum operating pressure		0.7 MPa
Minimum operating pressure		0.02 MPa
Piston speed	Ø 20 to Ø 63	5 to 500 mm/s
	Ø 80, Ø 100	5 to 300 mm/s
Allowable leakage rate		0.5 l/min (ANR) or less
Specifications other than the above		Same as the standard type

Symbol Rubber bumper



Replacement Parts/Seal Kit

Bore size	Kit no.	Contents
20	CQSY20-PS	Piston seal 1 pc. Rod seal 1 pc. Gasket 1 pc. Grease pack (10 g) 1 pc.
25	CQSY25-PS	
32	CQ2Y32-PS	
40	CQ2Y40-PS	
50	CQ2Y50-PS	
63	CQ2Y63-PS	
80	CQ2Y80-PS	
100	C55Y100-PS	

When maintenance requires only grease, use the following part numbers to order.

Grease pack part number GR-L-005 (5 g)
 GR-L-010 (10 g)
 GR-L-150 (150 g)



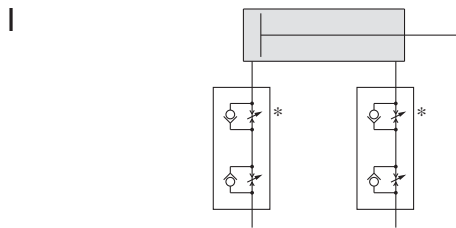
Smooth Cylinders Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the back cover 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: <https://www.smc.eu>

Recommended Pneumatic Circuit

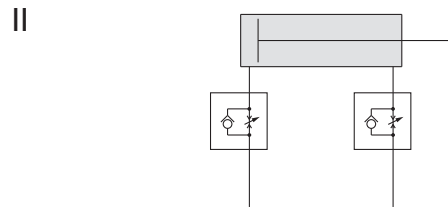
Warning

Horizontal Operation



Dual speed controller

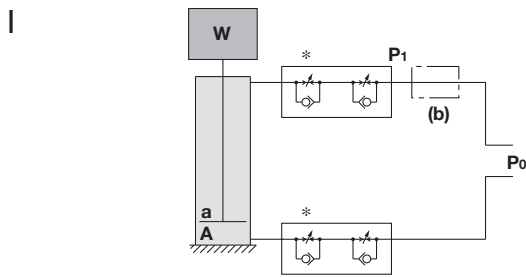
Speed is controlled by meter-out circuit. Using concurrently the meter-in circuit can alleviate the stick-slip. More stable low speed operation can be achieved than meter-in circuit alone.



Meter-in speed controller

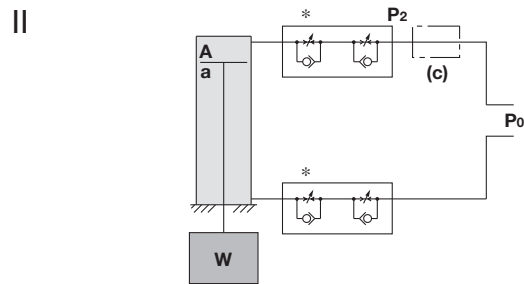
Meter-in speed controllers can reduce lurching while controlling the speed. The two adjustment needles facilitate adjustment.

Vertical Operation



- (1) Speed is controlled by meter-out circuit. Using concurrently the meter-in circuit can alleviate the stick-slip.*
- (2) Depending on the size of the load, installing a regulator with check valve at position (b) can reduce lurching during descent and operation delay during ascent.

As a guide,
when $W + P_0a > P_0A$,
adjust P_1 to make $W + P_1a = P_0A$.



- (1) Speed is controlled by meter-out circuit. Using concurrently the meter-in circuit can alleviate the stick-slip.*
- (2) Installing a regulator with check valve at position (c) can reduce lurching during descent and operation delay during ascent.

As a guide,
adjust P_2 to make $W + P_2A = P_0a$.

W: Load [N] P_0 : Operating pressure [MPa] P_1, P_2 : Reduced pressure [MPa] a: Rod side piston area [mm²] A: Head side piston area [mm²]

Design

Caution

1. For cylinders with long strokes, sliding resistance will increase due to the deflection of the piston rod and other factors. Take measures such as the installation of a guide.

2. Do not apply excessive lateral load to the piston rod.*1

*1 Easy checking method

Minimum operating pressure [MPa] after the cylinder is mounted to the equipment = Minimum operating pressure [MPa] of cylinder + {Load mass [kg] x Friction coefficient of guide/Sectional area of cylinder [mm²]}.
If smooth operation is confirmed within the above value, the load on the cylinder is the resistance of the thrust only and it can be judged as having no lateral load.

3. Design the system to prevent vibration from being applied to the cylinder.

A malfunction may occur due to the vibration.

4. Avoid using a guide with obvious variations in operating resistance.

Operation may become unstable when using a guide that manifests variations in operating resistance, or when the external load changes.

5. Avoid a system structure in which the mounting orientation changes.

Operation may become unstable if the mounting orientation changes.

6. Avoid operation where the temperature fluctuates greatly. Also, when using at low temperatures, make sure that frost does not form inside the cylinder and on the piston rod.

Operation may become unstable.

7. Do not use the product at a high frequency.

Use it at 30 cpm or less as a guideline.

8. Adjust the speed in accordance with the operating environment.

When the operating environment changes, the speed adjustment will be off unless it is reset to reflect operation in the new environment.



Smooth Cylinders

Specific Product Precautions 2

Be sure to read this before handling the products. Refer to the back cover 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: <https://www.smc.eu>

Pneumatic Circuit

Caution

1. **The piping length between the speed controller and the cylinder port must be kept as short as possible.**

If the speed controller and the cylinder port are far apart, speed adjustment may be unstable.

2. **Use a speed controller for low speed operation to easily adjust for low speed operation or a dual speed controller (ASD series) to prevent cylinders from popping out.**

(When the speed controller for low speed operation is used, the maximum speed may be limited.)

Refer to “Recommended Pneumatic Circuit” on page 37.

Mounting

Caution

1. **Do not apply excessive lateral load to the piston rod.*1**

*1 Easy checking method

Minimum operating pressure [MPa] after the cylinder is mounted to the equipment = Minimum operating pressure [MPa] of cylinder + {Load mass [kg] x Friction coefficient of guide/Sectional area of cylinder [mm²]}

If smooth operation is confirmed within the above value, the load on the cylinder is the resistance of the thrust only and it can be judged as having no lateral load.

Lubrication

Caution

1. **Operate without lubrication from a pneumatic system lubricator.**

A malfunction may occur when lubricated in this fashion.

2. **Only use the grease recommended by SMC.**

The use of grease other than the specified type can cause a malfunction and particulate generation.

- Order using the part numbers on page 36 when only maintenance grease is needed.

3. **Do not wipe out the grease in the sliding part of the air cylinder.**

Doing so may cause a malfunction.

Air Supply

Caution

1. **Take measures to prevent pressure fluctuation.**

A malfunction may occur with the fluctuation of pressure.

Auto Switch Mounting



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

**Solid state
auto switch**

D-M9

D-M9 W

D-M9 A

D-M9 V

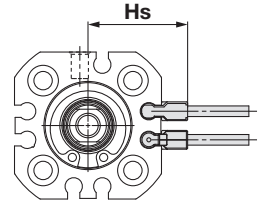
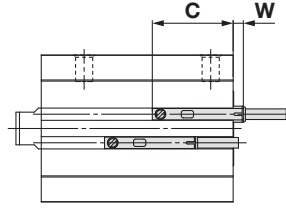
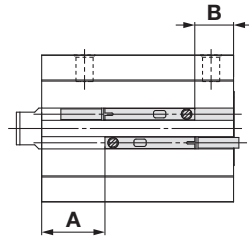
D-M9 WV

D-M9 AV

**Reed
auto switch**

D-A9

D-A9 V



* Figures in the table below are used as a reference when mounting the auto switches for stroke end detection.

Adjust the auto switch after confirming the operating condition in the actual setting.

* The value of "W" in the table means the amount of auto switch protrusion from the body end surface.

* The value of "Hs" in the table is for the relevant auto switch (D-M9 (W) (A) V/A9 V).

For $\varnothing 12, \varnothing 16$

The dimensions inside () is for D-A90 and D-A93. [mm]

Auto switch model	D-M9□/M9□V D-M9□W/M9□WV M9□AV					D-M9□A				D-A9□/A9□V				
	A	B	C	W	Hs	A	B	C	W	A	B	C	W	Hs
12	10	5	17	5	19.5	10	5	17	7	6	1	21	1 (3.5)	17
16	9.5	5.5	17.5	4.5	21.5	9.5	5.5	17.5	6.5	5.5	1.5	21.5	0.5 (3)	19

Double Acting, Single Rod 150 mm stroke or less

[mm]

Auto switch model	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV					D-A9□/A9□V				
	A	B	C	W	Hs	A	B	C	W	Hs
20	15.5	9.5	21.5	2.5	24.5	11.5	5.5	25.5	—	22
25	15.5	11.5	23.5	0.5	26.5	11.5	7.5	27.5	—	24
32	19	13.5	25.5	—	29.5	15	9.5	29.5	—	27
40	20	13	25	—	32.5	16	9	29	—	30
50	13.5	19.5	31.5	—	38.5	9.5	15.5	35.5	—	36
63	15.5	21.5	35.5	—	43.5	11.5	17.5	39.5	—	41
80	17.5	24.5	36.5	—	52	13.5	20.5	40.5	—	49.5
100	24.5	30.5	42.5	—	62	20.5	26.5	46.5	—	59.5

Double Acting, Single Rod Over 150 mm stroke

[mm]

Auto switch model	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV					D-A9□/A9□V				
	A	B	C	W	Hs	A	B	C	W	Hs
20	13	16	28	—	24.5	9	12	32	—	22
25	14	18	30	—	26.5	10	14	34	—	24
32	18	20.5	32.5	—	29.5	14	16.5	36.5	—	27
40	20	21	33	—	32.5	16	17	37	—	30
50	13.5	27	39	—	38.5	9.5	23	43	—	36
63	15.5	27	39	—	43.5	11.5	23	43	—	41
80	17.5	32	44	—	52	13.5	28	48	—	49.5
100	20.5	38	50	—	62	16.5	34	54	—	59.5

Double Acting, Double Rod

[mm]

Auto switch model	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV					D-A9□/A9□V				
	A	B	C	W	Hs	A	B	C	W	Hs
20	10	14.5	26.5	—	24.5	6	10.5	30.5	—	22
25	11	16	28	—	26.5	7	12	32	—	24
32	12	20	32	—	29.5	8	16	36	—	27
40	14.5	18	30	—	32.5	10.5	14	34	—	30
50	13	20	32	—	38.5	9	16	36	—	36
63	15.5	21.5	33.5	—	43.5	11.5	17.5	37.5	—	41
80	17.5	25.5	37.5	—	52	13.5	21.5	41.5	—	49.5
100	23.5	31.5	43.5	—	62	19.5	27.5	47.5	—	59.5

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

Double Acting, Single Rod Auto Air Cushion

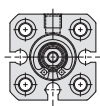
[mm]

Auto switch model Bore size	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV					D-A9□/A9□V				
	A	B	C	W	Hs	A	B	C	W	Hs
20	15.5	9.5	21.5	2.5	24.5	11.5	5.5	25.5	—	24.5
25	16.5	10.5	22.5	1.5	26.5	12.5	6.5	26.5	—	26.5
32	22	10	22	—	29.5	18	6	26	—	29.5
40	21	12	24	—	32.5	17	8	28	—	32.5
50	21	12	24	—	38.5	17	8	28	—	38.5
63	23	14	26	—	43.5	19	10	30	—	43.5
80	28.5	13.5	25.5	—	52	24.5	9.5	29.5	—	52
100	35	20.5	32.5	—	62	31	16.5	36.5	—	62

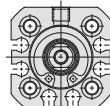
The Number of Surfaces and Grooves Where an Auto Switch Can Be Mounted

For Ø 12, Ø 16

Auto switches can be mounted on any of the three sides, there are two round grooves on each side. However, for Ø 12 bore, there is only one round groove.



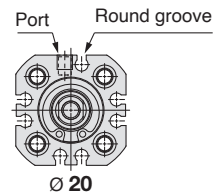
Ø 12



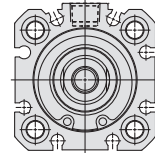
Ø 16

For Ø 20 to Ø 100

Auto switches can be mounted on any of the four sides, there are two round grooves on each side. However, for Ø 20 bore, there is only one round groove on the ported side.



Ø 20



Operating Range

Auto switch model	Bore size									
	12	16	20	25	32	40	50	63	80	100
D-M9□(V) D-M9□W(V) D-M9□A(V)	3	4	5	4.5	5	4	4.5	5	7	8
D-A9□(V)	6	7.5	9	9	9	9	9	10.5	10.5	10.5

* Values which include hysteresis are for reference purposes only. They are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

Minimum Stroke for Auto Switch Mounting

[mm]

Number of auto switches	D-M9□(V)	D-M9□W(V) D-M9□A(V) D-A9□(V)
1	5	5
2	5	10

* If the stroke is short, be careful to ensure sufficient space for a lead wire.

Auto Switch Mounting

When tightening an auto switch mounting screw, use a precision screwdriver with a handle diameter of 5 to 6 mm.

[N·m]

Auto switch model	Tightening torque
D-M9□(V) D-M9□W(V) D-A9□(V)	0.05 to 0.15
D-M9□A(V)	0.05 to 0.10

Other than the applicable auto switches listed in “How to Order,” the following auto switches are also mountable.

- * Normally closed (NC = b contact) solid state auto switches (D-M9 E(V)) and solid state auto switch D-F8 type are also available. For details, refer to the **Web Catalogue**.
- * With pre-wired connector is also available for solid state auto switches. For details, refer to the **Web Catalogue**.

C55 Series Simple Specials

The following changes are dealt with through the Simple Specials System.

For details, refer to the Simple Specials
in the Web Catalogue.

<https://www.smc.eu>

Symbol

1 Change of Rod End Shape

-XA1 to 23, -XA26 to 30

Applicable Series

Series	Description	Action	Bore size	Symbol for change of rod end shape
C55	Standard	Double acting, Single rod	20, 25	XA1, XA2, XA6 XA7, XA11, XA17 XA18
			32 to 100	XA1 to 23, XA26 to 30

⚠ Precautions

- SMC will make appropriate arrangements if no dimension, tolerance, or finish instructions are given in the diagram.
- Standard dimensions marked with "*" will be as follows to the rod diameter (D).
Enter any special dimension you require.
 $D \leq 6 \rightarrow D-1 \text{ mm}$ $6 < D \leq 25 \rightarrow D-2 \text{ mm}$
- For the XA17 and XA18, the male thread diameter cannot be the same as the piston rod external diameter.
- Please contact SMC separately for piston rod end pattern part numbers other than those in the table to the left or for other manufacturing requirements.
- If MM on the male thread is changed from the standard dimension, the rod end nut will not be included.

Symbol: A1 	Symbol: A2 	Symbol: A3 	Symbol: A4 	Symbol: A5
Symbol: A6 	Symbol: A7 	Symbol: A8 	Symbol: A9 	Symbol: A10
Symbol: A11 	Symbol: A12 	Symbol: A13 	Symbol: A14 	Symbol: A15
Symbol: A16 	Symbol: A17 	Symbol: A18 	Symbol: A19 	Symbol: A20
Symbol: A21 	Symbol: A22 	Symbol: A23 	Symbol: A26 	Symbol: A27
Symbol: A28 	Symbol: A29 	Symbol: A30 		

1 Heat-resistant Cylinder (−10 to 150 °C)

Symbol
-XB6

The seal material and grease used in this air cylinder have been changed so that it can be used at temperatures between −10 up to 150 °C.

Description	Model	Action	Note
Compact cylinder	C55	Double acting, Single rod	Excluding a cylinder with an auto switch magnet
	C55W	Double acting, Double rod	

- * Operate without lubrication from a pneumatic system lubricator.
- * The maintenance period of this cylinder differs depending on the operating temperature, but the guideline for replacement is 1 million operating cycles.
- * Models with a rubber bumper will be dealt with as a special order.

How to Order

Standard model no.

D(M)Z - XB6

Heat-resistant cylinder ●

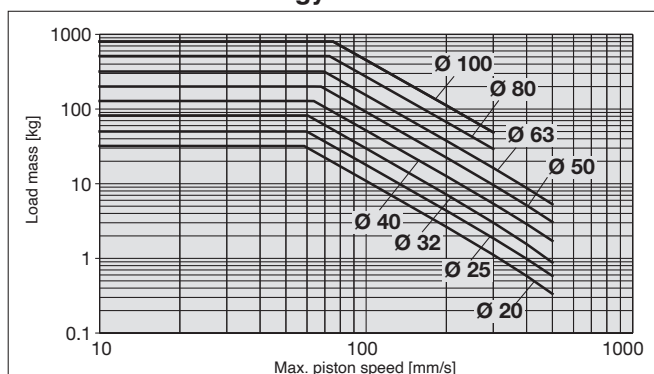
Warning Precautions

Be aware that smoking cigarettes, etc., after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.
This cylinder does not come with a built in rubber bumper.
Strictly adhere to the allowable load mass and the maximum piston speed.

Specifications

Ambient temperature range	−10 °C to 150 °C
Seal material	Fluororubber
Grease	Heat-resistant grease
Rubber bumper	None
Allowable kinetic energy	Refer to the graph below.
Specifications other than the above and dimensions	Same as the standard type

Allowable Kinetic Energy



2 Low-speed Cylinder (5 to 50 mm/s)

Symbol
-XB13

Stick-slip phenomenon can be prevented, and smooth operation can be achieved even at lower driving speeds between 5 to 50 mm/s.

Description	Model	Action	Note
Compact cylinder	C55	Double acting, Single rod	Available for Ø 20 to Ø 63 with a stroke of 150 mm or less (or 125 mm or less for Ø 80 and Ø 100)

- * Operate without lubrication from a pneumatic system lubricator.
- * For the speed adjustment, use speed controllers for controlling at lower speeds. (AS-FM/AS-M series)

How to Order

Standard model no.

-XB13

Low-speed cylinder ●

Specifications

Piston speed	5 to 50 mm/s
Dimensions	Same as the standard type
Specifications other than the above	Same as the standard type

Warning Precautions

Be aware that smoking cigarettes, etc., after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

3 Made of Stainless Steel

Symbol
-XC6

Suitable for the cases it is likely to generate rust by being immersed in the water and corrosion.

Description	Model	Action	Note
Compact cylinder	C55	Double acting, Single rod	
	C55W	Double acting, Double rod	

How to Order

Standard model no.

-XC6

Made of stainless steel ●

Specifications

Parts changed to stainless steel	Piston rod, Retaining ring, Rod end nut (Male thread only)
Specifications other than above	Same as the standard type

4 With Coil Scraper * This made-to-order option is not compliant with ISO Standards (21287).

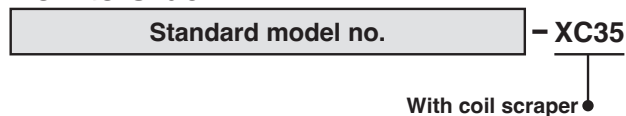
Symbol
-XC35

Removes frost, ice, weld spatter, cutting chips, etc. adhered to the piston rod, protecting the seals.

Description	Model	Action	Note
Compact cylinder	C55	Double acting, Single rod	Available for Ø 32 to Ø 63 with a stroke of 150 mm or less (or 125 mm or less for Ø 80 and Ø 100)

- * Operate without lubrication from a pneumatic system lubricator.
- * For the speed adjustment, use speed controllers for controlling at lower speeds. (AS-FM/AS-M series)

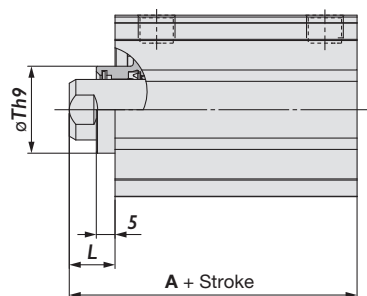
How to Order



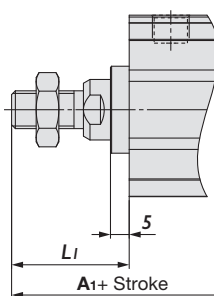
Specifications: Same as those of the standard type

Dimensions (Dimensions other than those below are the same as those of the standard type.)

Double acting, Single rod



Rod end male thread



Bore size [mm]	A	A1	L	L1	T
32	56	75	12	31	23 ⁺⁰ _{-0.052}
40	57	76	12	31	28 ⁺⁰ _{-0.052}
50	58	80	13	35	35 ⁺⁰ _{-0.062}
63	62	84	13	35	35 ⁺⁰ _{-0.062}
80	69	97	15	43	43 ⁺⁰ _{-0.062}
100	82	110	15	43	59 ⁺⁰ _{-0.074}

5 Auto Switch Mounting Groove: T-slot Type

Symbol
-X1439

Description	Model	Action	Note
Compact cylinder	C55	Double acting, Single rod	Available for Ø 20 to Ø 63 with a stroke of 150 mm or less

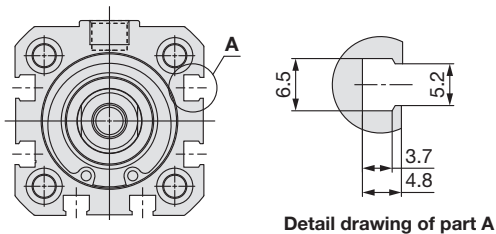
How to Order

Standard model no.	- X1439
Auto switch mounting groove: T-slot type ●	

Specifications: Same as those of the standard type

Dimensions (Dimensions other than those below are the same as those of the standard type.)

Double acting, Single rod Ø 20 to Ø 63



Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m)*1			Pre-wired connector	Applicable load	
					DC		AC	Perpendicular	In-line	0.5 (—)	3 (L)	5 (Z)			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y69A	Y59A	●	●	○	○	IC circuit	Relay, PLC
	3-wire (PNP)			Y7PV				Y7P	●	●	○	○			
	2-wire			12 V				Y69B	Y59B	●	●	○	○		
	Diagnostic indication (2-colour indicator)			3-wire (NPN)	5 V, 12 V	Y7NWV		Y7NW	●	●	○	○	IC circuit		
	3-wire (PNP)			Y7PWV		Y7PW		●	●	○	○				
	2-wire			12 V		Y7BWV		Y7BW	●	●	○	○			
	Water resistant (2-colour indicator)			—	—	Y7BA		—	●	●	○	○	—		
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	Z76	●	●	—	—	IC circuit	—	
				2-wire	24 V	12 V	100 V	—	Z73	●	●	●	—	—	Relay, PLC

*1 Lead wire length symbols: 0.5 m — (Example) Y7BW
 3 m L (Example) Y7BWL
 5 m Z (Example) Y7BWZ

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

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)¹⁾, and other safety regulations.

-  **Danger:** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
-  **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
-  **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

- 1) ISO 4414: Pneumatic fluid power – General rules and safety requirements for systems and their components.
ISO 4413: Hydraulic fluid power – General rules and safety requirements for systems and their components.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.
etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. SMC products cannot be used beyond their specifications. They are not developed, designed, and manufactured to be used under the following conditions or environments.

Use under such conditions or environments is not allowed.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, combustion equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Caution

SMC develops, designs, and manufactures products to be used for automatic control equipment, and provides them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not allowed.

Products SMC manufactures and sells cannot be used for the purpose of transactions or certification specified in the Measurement Act of each country.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.²⁾ Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

2) Suction cups (Vacuum pads) are excluded from this 1 year warranty.

A suction cup (vacuum pad) is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the suction cup (vacuum pad) or failure due to the deterioration of rubber material are not allowed by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

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