Compact Cylinder

Standard	**ø12, ø16**
ISO Standards (21287)	**ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100**

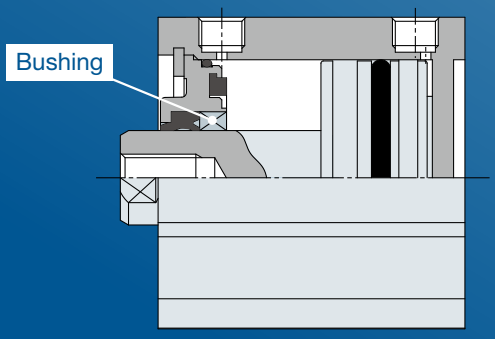
New **Bore sizes ø12 and ø16 have been added to the standard type.**

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

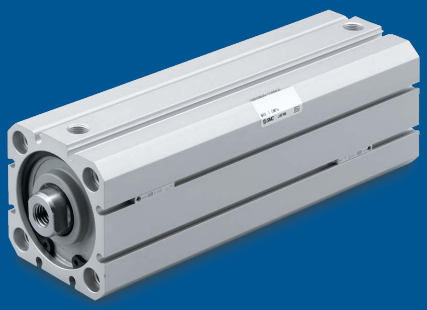
New **Smooth cylinder (C55Y) has been added.**
Made of stainless steel (-XC6) has been added.
With coil scraper (-XC35) has been added.
Auto switch mounting groove: T-slot type (-X1439) has been added.

1.8 times the anti-lateral load capacity

The allowable lateral load has been improved by changing the material of the bushing.
(For ø20)



Increased the standard product's maximum stroke limit (to 300 mm)



Standardization of the Double rod (C55W) type, New Smooth cylinder (C55Y), Simple specials, and Made-to-order options

- Change of rod end shape (-XA□)
- Heat-resistant cylinder (–10°C to 150°C) (-XB6)
- Low-speed cylinder (5 to 50 mm/s) (-XB13)
- New Made of stainless steel (-XC6)
- New With coil scraper (-XC35)
- New Auto switch mounting groove: T-slot type (-X1439)

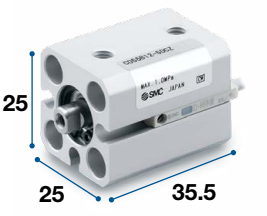
C55 Series

SMC

CAT.ES20-302A c

New Bore sizes ø12 and ø16 have been added. * These are not subject to ISO Standards (21287).

ø12, 5 mm stroke dimension



ø16, 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.

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

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				
New **Standard C55 Series** 	Double acting, Single rod	●	●	–	–	–	–	–	–	–	–	5 to 100	Through-hole/Both ends tapped common (Standard)		–
ISO standards (21287) Single rod C55 Series 	Double acting, Single rod	–	–	●	●	●	●	●	●	●	●	ø20 to ø63: 5 to 300 ø80, ø100: 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) Auto switch mounting groove: T-slot type (-X1439)
ISO standards (21287) Double rod C55W Series 	Double acting, Double rod	–	–	●	●	●	●	●	●	●	●	ø20 to ø63: 5 to 150 ø80, ø100: 10 to 125	Through-hole/Both ends tapped common (Standard) Foot bracket Flange		Heat-resistant cylinder (-10°C to 150°C) (-XB6) Made of stainless steel (-XC6)
New **ISO standards (21287) Single rod Smooth cylinder C55Y Series** 	Double acting, Single rod	–	–	●	●	●	●	●	●	●	●	ø20 to ø63: 5 to 150 ø80, ø100: 10 to 125	Through-hole/Both ends tapped common (Standard) Foot bracket Rod flange Head flange Single clevis		–

CONTENTS

Standard/C55 Double acting, Single rod (ø12, ø16)
How to Order ..... p. 0-2
Specifications ..... p. 0-3
Replacement Parts ..... p. 0-6
Dimensions ..... p. 0-7

ISO standards (21287)/C55 Double acting, Single rod (ø20 to ø100)
How to Order ..... p. 1
Specifications ..... p. 2
Construction ..... p. 5
Dimensions ..... p. 6
Mounting Bracket ..... p. 9

ISO standards (21287)/C55W Double acting, Double rod (ø20 to ø100)
How to Order ..... p. 10
Specifications ..... p. 11
Construction ..... p. 14
Dimensions ..... p. 15

ISO standards (21287)/C55Y Double acting, Single rod (ø25 to ø100)
How to Order ..... p. 17-1
Specifications ..... p. 17-1
Replacement Parts/Seal Kit ..... p. 17-1

Auto Switch Mounting ..... p. 18
Simple Specials ..... p. 20
Made to Order Common Specifications ..... p. 21
Safety Instructions ..... Back cover

Compact Cylinder
Double Acting, Single Rod
C55 Series
ø12, ø16

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

Nil	2
S	1
n	n

Auto switch

Nil	Without auto switch (Built-in magnet cylinder)

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

Rod end thread

Nil	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. 0-3

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

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load	
					DC		AC	Perpendicular	In-line	0.5 (Nil)	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		12 V		**M9BV**	**M9B**	●	●	●	○	–	○	–	
	Diagnostic indication (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	–	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	–	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	–	○	–	
	Water-resistant (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	–	○	IC circuit	
				3-wire (PNP)				**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**	●	●	●	●	–	–	–	Relay, PLC
			No			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.

Lead wire length symbols: 0.5 m·····Nil (Example) M9NW
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 other applicable auto switches than listed above, refer to the **Web Catalog** for details.
∗ Auto switches are shipped together with the product but do not come assembled.

Theoretical Output

(N)

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 Catalog**.

⚠ 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.smcworld.com

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 temperature	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	$^{+1.0}_{0}$ mm

∗1 Stroke length tolerance does not include the amount of bumper change.

Manufacture of Intermediate Stroke

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 0-2)
Stroke range	6 to 99 mm
Example	Part no.: C55B16-47DCZ Makes 47 stroke tube

Weights

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

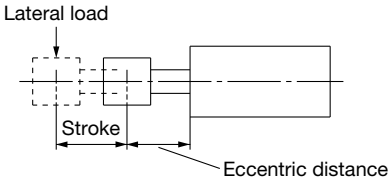
[g]

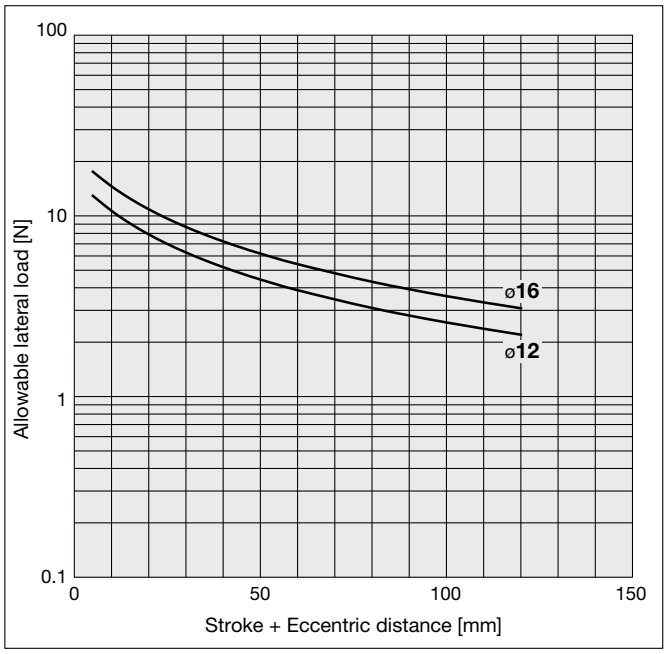
Bore size [mm]		12	16
Rod end male thread	Male thread	2	4
	Nut	1	2

Calculation: Example) CD55B12-20DCMZ
●Basic mass : CD55B12-20DCZ 64 g
●Additional mass: 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.

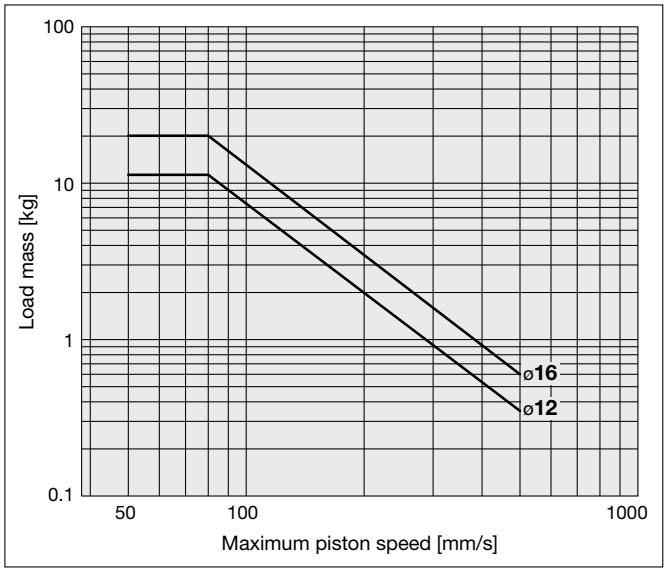




Allowable Kinetic Energy

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 Catalog**.

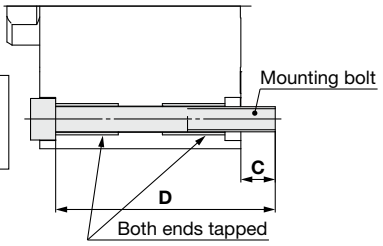
Mounting Bolt

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-M4X45L 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

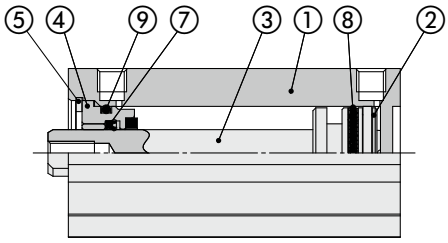


Mounting Bolt for C55

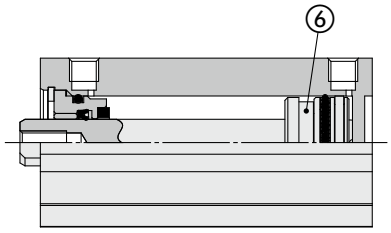
Model	C	D	Mounting bolt part no.
C□55B12-5DCZ	6.5	35	CQ-M3 x 35L
-10DCZ		40	x 40L
-15DCZ		45	x 45L
-20DCZ		50	x 50L
-25DCZ		55	x 55L
-30DCZ		60	x 60L
-35DCZ	Use the both ends tapped provided on the cylinder tube to secure the cylinder.		
-40DCZ			
-45DCZ			
-50DCZ			
-60DCZ			
-80DCZ			
-100DCZ			
C□55B16-5DCZ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

Replacement Parts

ø12, ø16



With auto switch (Built-in magnet)



Component Parts

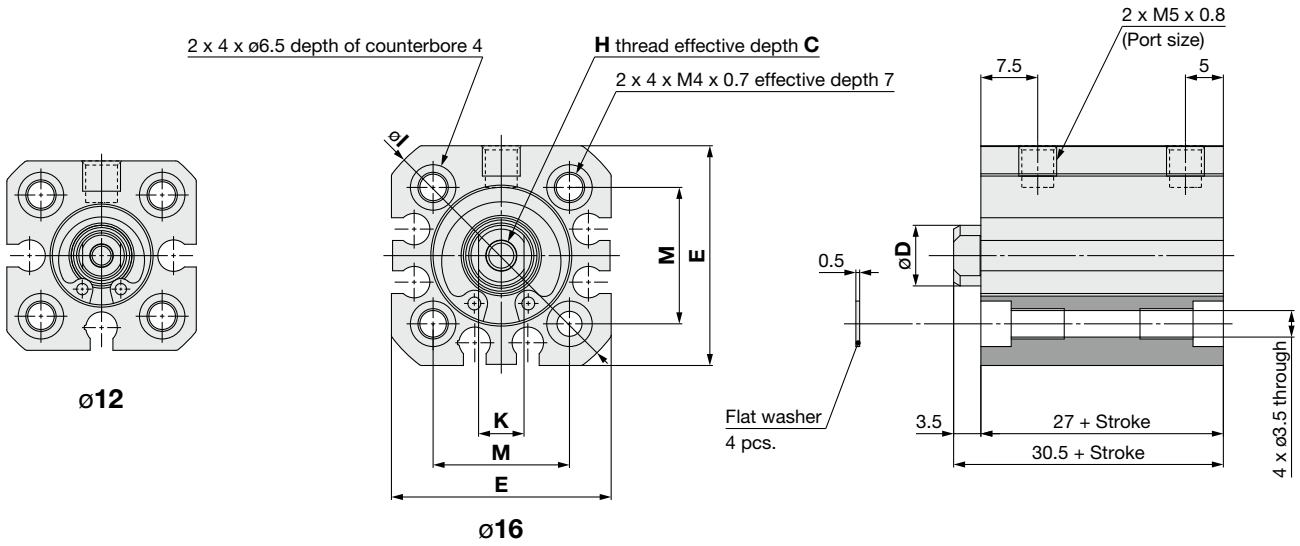
No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Piston**	Aluminum alloy	
3	**Piston rod**	Stainless steel	Hard chrome plating
4	**Collar**	Aluminum alloy	Anodized
5	**Retaining ring**	Carbon tool steel	Phosphate coated
6	**Magnet**	—	
7	**Rod seal**	NBR	
8	**Piston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

Replacement Parts/Seal Kit

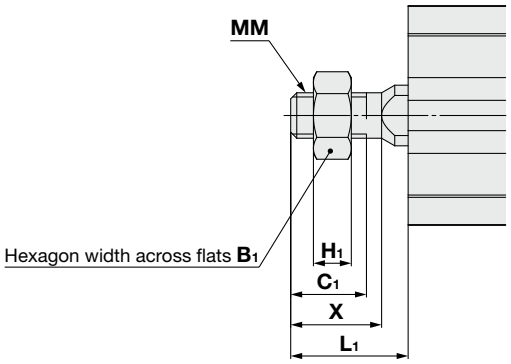
Bore size [mm]	Kit no.	Contents
12	CQSB12-PS	Kits include items ⑦, ⑧, ⑨ from the table.
16	CQSB16-PS	

* 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



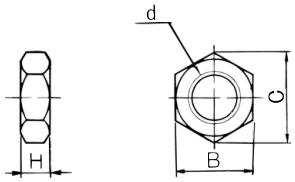
Standard Type [mm]

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

Male Rod End [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



[mm]

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

ISO Standards

Compact Cylinder
Double Acting, Single Rod
C55 Series
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

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

Rod end thread

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

Cushion

C	Rubber bumper

Action

D	Double acting

Cylinder stroke [mm]
Refer to page 2 for standard and intermediate strokes.

Auto switch

Nil	Without auto switch (Built-in magnet cylinder)

∗ For applicable auto switches, refer to the table below.
∗ Auto switches are shipped together, but not assembled.

Number of auto switches

Nil	2
S	1
n	n

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

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

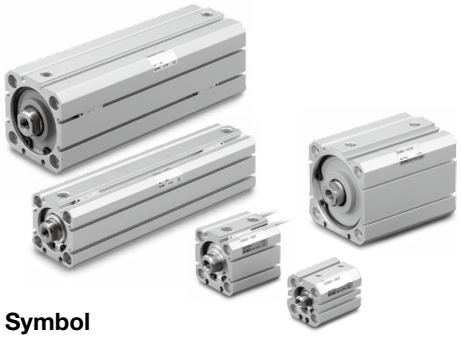
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load	
					DC		AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)			
Solid state auto switch	–	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	–	**M9NV**	**M9N**	●	●	●	○	–	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	–	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	–	○	–	
	Diagnostic indication (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	–	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	–	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	–	○	–	
	Water-resistant (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	–	○	IC circuit	
				3-wire (PNP)				**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**	**A93**	●	●	●	●	–	○∗2	–	Relay, PLC
			No			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·····Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ

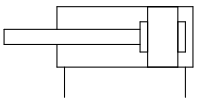
∗ Auto switches marked with a "○" are produced upon receipt of order.

∗ Since there are other applicable auto switches than listed above, refer to the **Web Catalog** for details.
∗ Auto switches are shipped together with the product but do not come assembled.



Symbol

Rubber bumper



Made to Order

Made to Order

(For details, refer to pp. 20, 21.)

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

[N]

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 (ø20 to ø63), 0.03 MPa (ø80, ø100)
Ambient and fluid temperature		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 $\left(^{+1.4}_{0}\ \text{mm}\right)$
Piston speed	**ø20 to ø63**	50 to 500 mm/s
	ø80, ø100	50 to 300 mm/s

∗1 Stroke length tolerance does not include the amount of bumper change.
The value in parentheses applies for over 150 mm stroke with ø25 to ø63, and over 125 mm stroke with ø100.

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

Manufacture of Intermediate Stroke

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 1)
Stroke range	6 to 299 mm
Example	Part no.: C55B32-47DCZ Makes 47 stroke tube

Weights

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

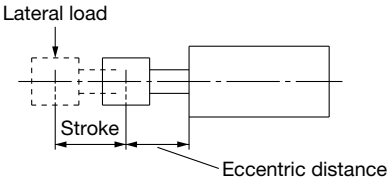
Bore size [mm]	Stroke [mm]																			
	5	10	15	20	25	30	35	40	45	50	60	80	100	125	150	175	200	250	300
20	116	129	142	155	167	180	193	206	219	232	257	309	360	425	489	567	631	760	889
25	157	172	188	203	219	234	250	265	280	296	327	389	450	528	605	703	781	936	1091
32	262	284	306	328	350	372	394	416	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

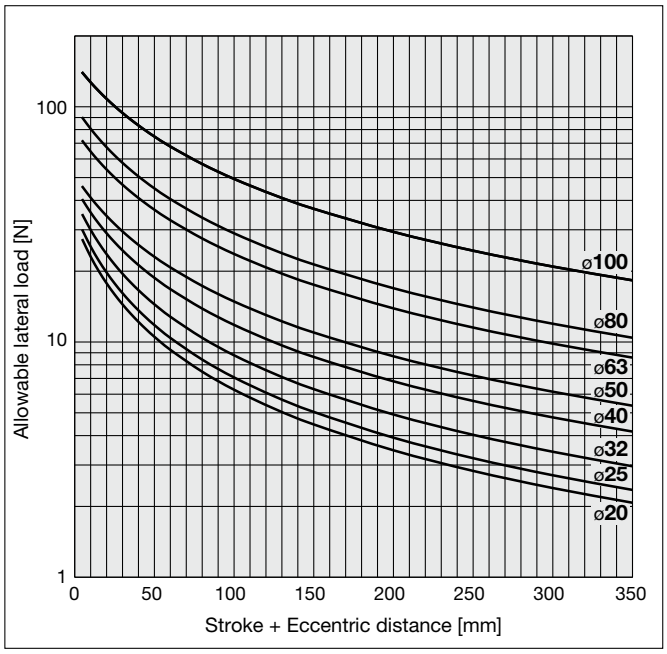
⚠ Precautions

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For actuator and auto switch precautions, refer to “Handling Precautions for SMC Products” and the Operation Manual on the SMC website: https://www.smcworld.com

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.

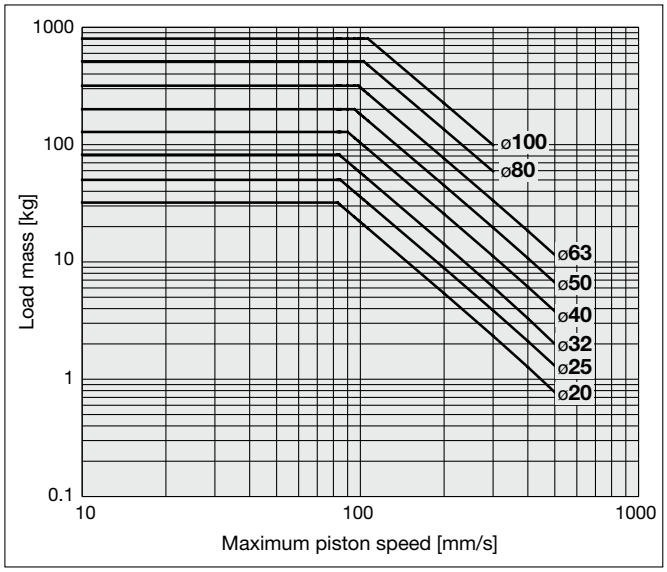




Allowable Kinetic Energy

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 Catalog**.

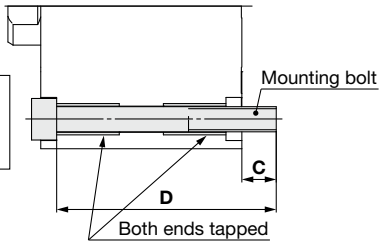
Mounting Bolt

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-M4X45L 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 ø20 and ø25). 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



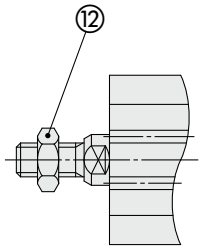
Mounting Bolt for C55

Model	C	D	Mounting bolt part no.
C□55B20-5DCZ	7.2	45	CQ-M4X45L
-10DCZ		50	X50L
-15DCZ		55	X55L
-20DCZ		60	X60L
-25DCZ		65	X65L
-30DCZ		70	X70L
-35DCZ		75	X75L
-40DCZ		80	X80L
-45DCZ		85	X85L
-50DCZ		90	X90L
C□55B25-5DCZ	10.2	50	CQ-M4X50L
-10DCZ		55	X55L
-15DCZ		60	X60L
-20DCZ		65	X65L
-25DCZ		70	X70L
-30DCZ		75	X75L
-35DCZ		80	X80L
-40DCZ		85	X85L
-45DCZ		90	X90L
-50DCZ		95	X95L
C□55B32-5DCZ	10	55	CQ-M5X55L
-10DCZ		60	X60L
-15DCZ		65	X65L
-20DCZ		70	X70L
-25DCZ		75	X75L
-30DCZ		80	X80L
-35DCZ		85	X85L
-40DCZ		90	X90L
-45DCZ		95	X95L
-50DCZ		100	X100L
-60DCZ		110	X110L
-80DCZ		130	X130L
-100DCZ		150	X150L

Model	C	D	Mounting bolt part no.
C□55B40-5DCZ	9	55	CQ-M5X55L
-10DCZ		60	X60L
-15DCZ		65	X65L
-20DCZ		70	X70L
-25DCZ		75	X75L
-30DCZ		80	X80L
-35DCZ		85	X85L
-40DCZ		90	X90L
-45DCZ		95	X95L
-50DCZ		100	X100L
-60DCZ		110	X110L
-80DCZ		130	X130L
-100DCZ		150	X150L
C□55B50-5DCZ	8.4	55	CQ-M6X55L
-10DCZ		60	X60L
-15DCZ		65	X65L
-20DCZ		70	X70L
-25DCZ		75	X75L
-30DCZ		80	X80L
-35DCZ		85	X85L
-40DCZ		90	X90L
-45DCZ		95	X95L
-50DCZ		100	X100L
-60DCZ		110	X110L
-80DCZ		130	X130L
-100DCZ		150	X150L
C□55B63-5DCZ	9.4	60	CQ-M6X60L
-10DCZ		65	X65L
-15DCZ		70	X70L
-20DCZ		75	X75L
-25DCZ		80	X80L
-30DCZ		85	X85L
-35DCZ		90	X90L
-40DCZ		95	X95L
-45DCZ		100	X100L
-50DCZ		105	X105L
-60DCZ		115	X115L
-80DCZ		135	X135L
-100DCZ		155	X155L

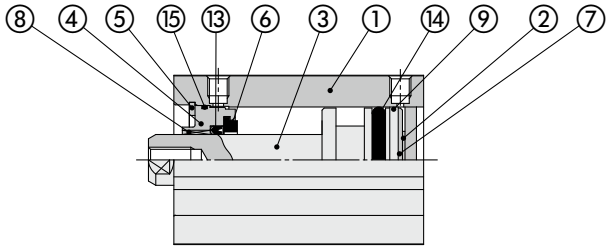
Model	C	D	Mounting bolt part no.
C□55B80-10DCZ	11	70	CQ-M8X70L
-15DCZ		75	X75L
-20DCZ		80	X80L
-25DCZ		85	X85L
-30DCZ		90	X90L
-35DCZ		95	X95L
-40DCZ		100	X100L
-45DCZ		105	X105L
-50DCZ		110	X110L
-60DCZ		120	X120L
-80DCZ		140	X140L
-100DCZ		160	X160L
C□55B100-10DCZ	13	85	CQ-M8X85L
-15DCZ		90	X90L
-20DCZ		95	X95L
-25DCZ		100	X100L
-30DCZ		105	X105L
-35DCZ		110	X110L
-40DCZ		115	X115L
-45DCZ		120	X120L
-50DCZ		125	X125L
-60DCZ		135	X135L
-80DCZ		155	X155L
-100DCZ		175	X175L

Construction

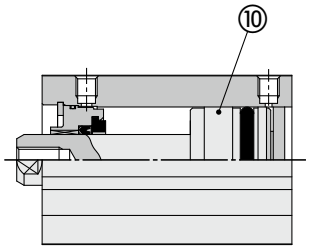


M: Male rod end

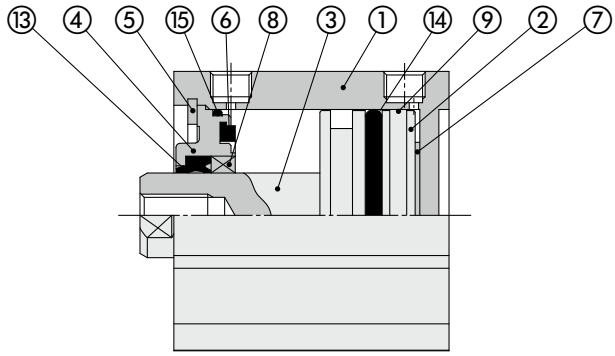
ø20, ø25



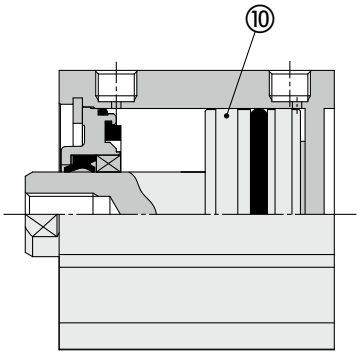
With auto switch (Built-in magnet)



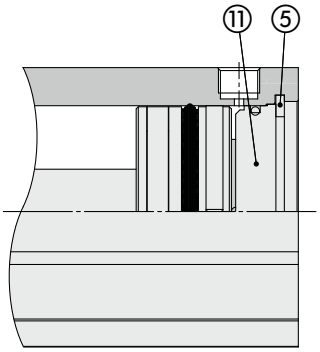
ø32 to ø100



With auto switch (Built-in magnet)



175 mm stroke or more
(150 mm stroke or more for ø80 and ø100)



Component Parts

No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Piston**	Aluminum alloy	
3	**Piston rod**	Stainless steel	ø20, ø25 Hard chrome plating
		Carbon steel	ø32 to ø100 Hard chrome plating
4	**Collar**	Aluminum alloy	ø20 to ø40 Anodized
		Aluminum alloy casted	ø50 to ø100 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**	Aluminum alloy	Anodized
12	**Rod end nut**	Carbon steel	Zinc chromated
13	**Rod seal**	NBR	
14	**Piston seal**	NBR	
15	**Tube gasket**	NBR	

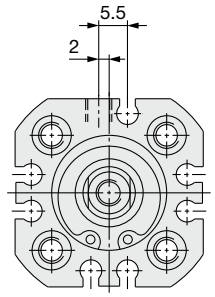
Replacement Parts/Seal Kit

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	CQ2B100-PS	

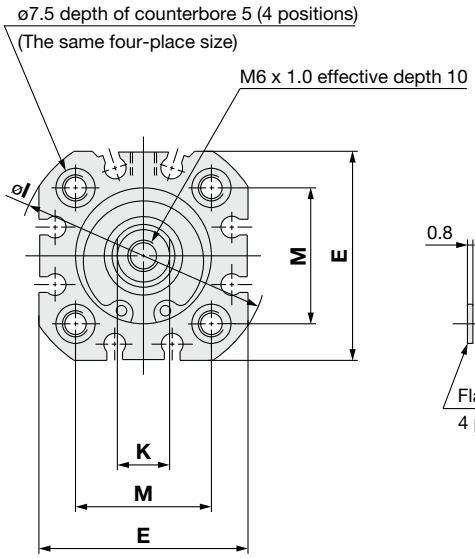
∗ Seal kits consist of items ⑬, ⑭ and ⑮, and can be ordered by using the seal kit number corresponding to each bore size.

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

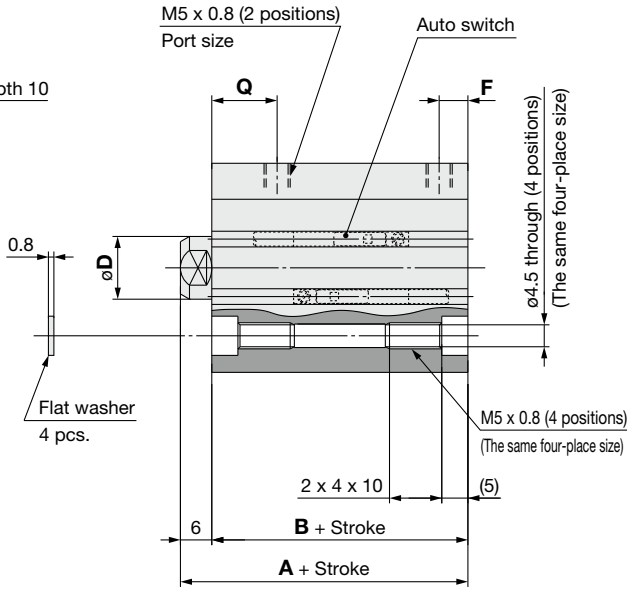
ø20, ø25

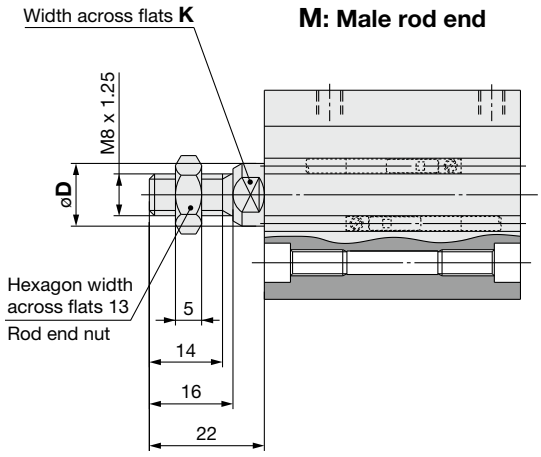


ø20



ø25





Standard Type [mm]

Bore size [mm]	150 mm stroke or less				Over 150 mm stroke				D	E	I	K	M
	A	B	F	Q	A	B	F	Q					
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

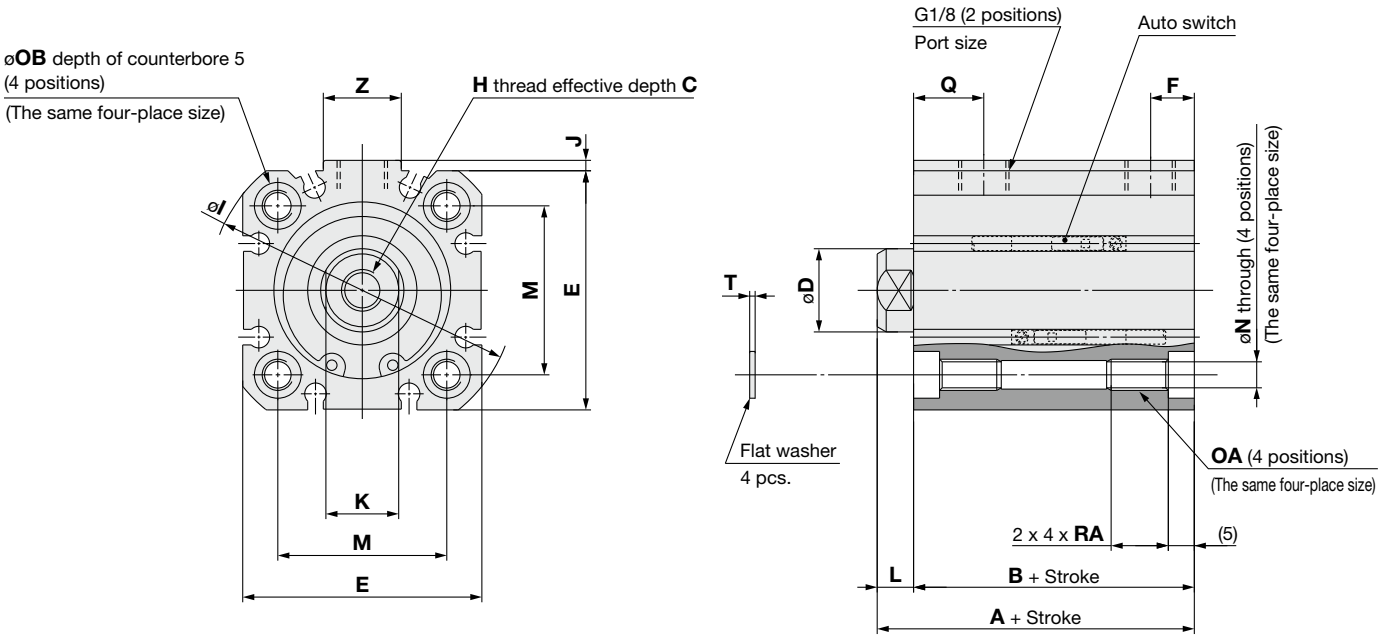
Male Rod End [mm]

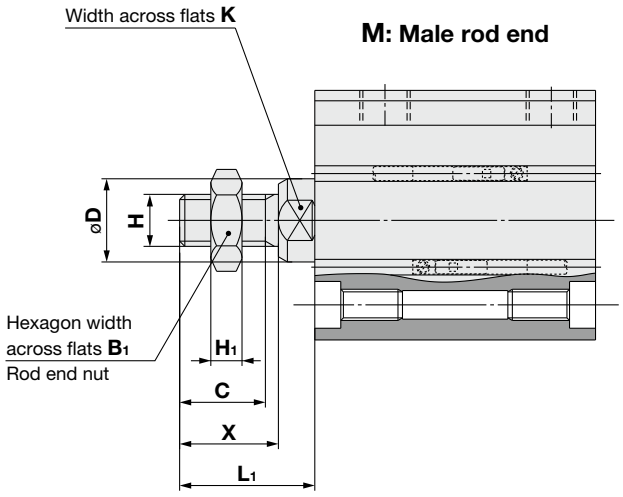
Bore size [mm]	D	K
20	10	8
25	12	10

* 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)

ø32 to ø63





Male Rod End [mm]

Bore size [mm]	B_1	C	D	H	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

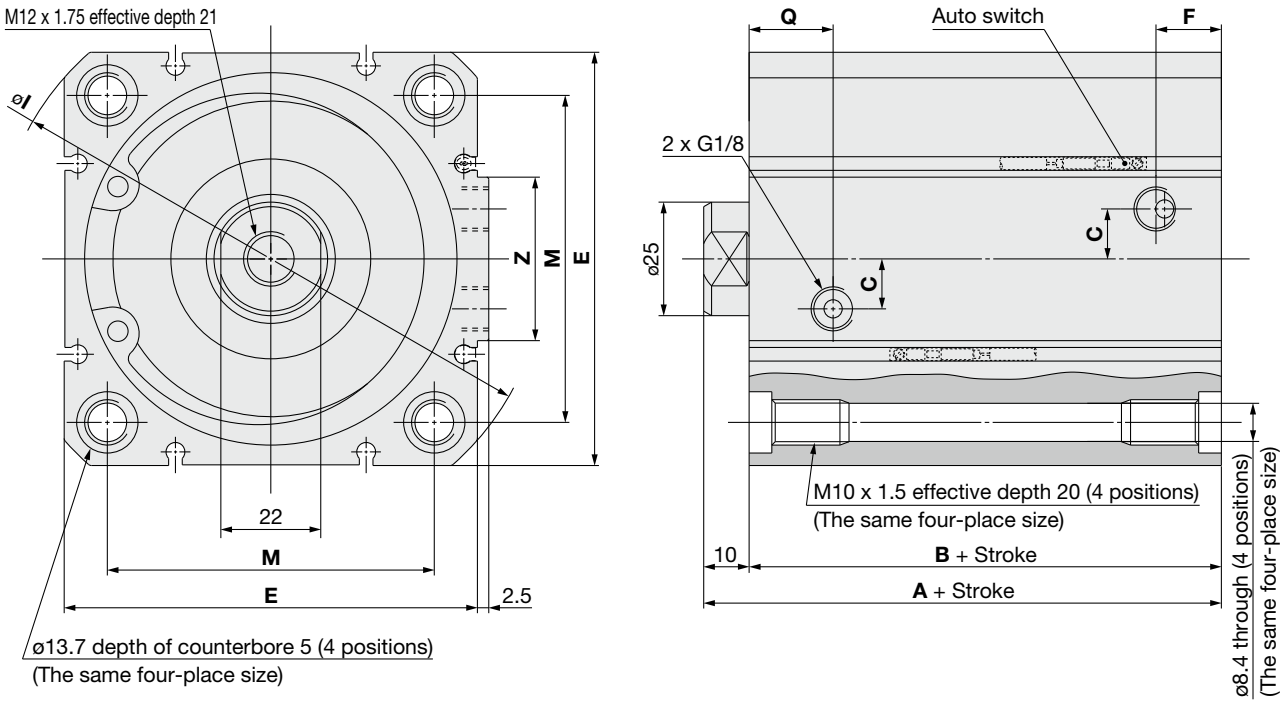
Standard Type [mm]

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

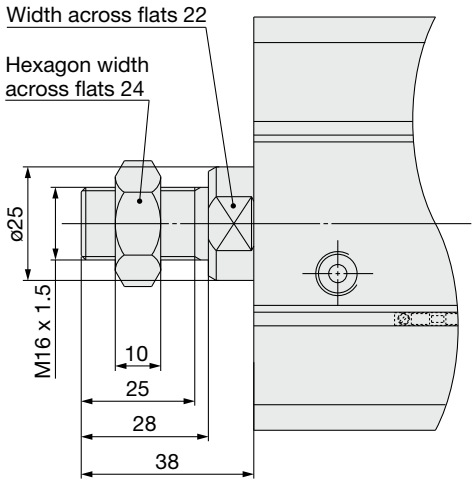
∗ Be sure to use the supplied flat washer when installing the cylinder with a through hole.
∗ Cylinder housing dimensions (B+stroke) for over 150 mm stroke differ from those dictated by ISO 21287.

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

ø80, ø100



M: Male rod end



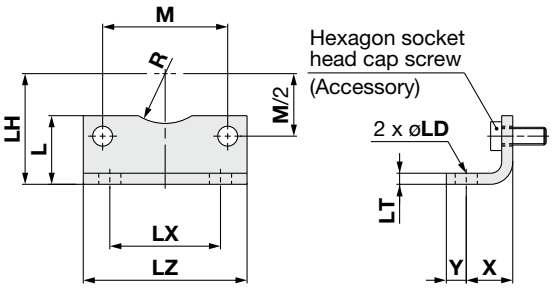
Standard Type [mm]

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



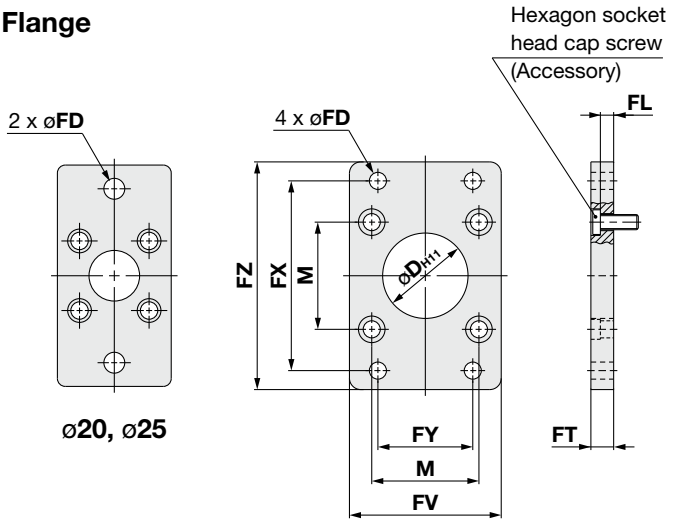
Material: Rolled steel
Surface treatment: Nickel plating

[mm]

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



ø32 to ø100

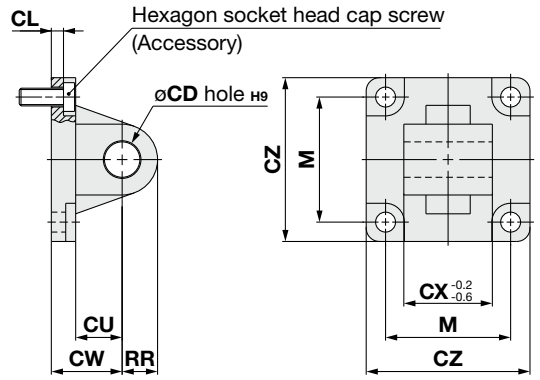
Material: Carbon steel
Surface treatment: Nickel plating

[mm]

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



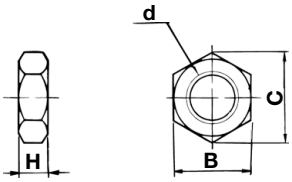
Material: Rolled steel
Surface treatment: Nickel plating

[mm]

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

[mm]

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
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

C55 W **B** **20** – **30** **D** **C** □ **Z** – □

With auto switch: C**D**55 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

Cylinder stroke [mm]
Refer to page 11 for standard and intermediate strokes.

Action

D	Double acting

Cushion

C	Rubber bumper

Rod end thread

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

Auto switch

Nil	Without auto switch (Built-in magnet cylinder)

∗ For applicable auto switches, refer to the table below.
∗ Auto switches are shipped together, but not assembled.

Number of auto switches

Nil	2
S	1
n	n

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

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

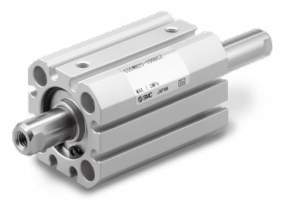
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load	
					DC		AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)			
Solid state auto switch	–	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	–	**M9NV**	**M9N**	●	●	●	○	–	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	–	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	–	○	–	
	Diagnostic indication (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	–	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	–	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	–	○	–	
	Water-resistant (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	–	○	IC circuit	
				3-wire (PNP)				**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**	**A93**	●	●	●	●	–	○∗2	–	Relay, PLC
			No			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·····Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ

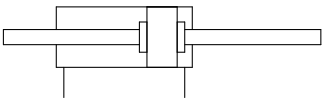
∗ Auto switches marked with a "○" are produced upon receipt of order.

∗ Since there are other applicable auto switches than listed above, refer to the **Web Catalog** 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 p. 21.)

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

[N]

Bore size [mm]	Operating pressure [MPa]		
	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. Refer to the back cover for Safety Instructions. For actuator and auto switch precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website: https://www.smcworld.com

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 (ø20 to ø63), 0.03 MPa (ø80, ø100)
Ambient and fluid temperature		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	**ø20 to ø63**	50 to 500 mm/s
	ø80, ø100	50 to 300 mm/s

∗1 Stroke length tolerance does not include the amount of bumper change.

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

Manufacture of Intermediate Stroke

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 10)
Stroke range	6 to 149 mm
Example	Part no.: C55WB32-78DCZ Makes 78 stroke tube

Weights

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	—

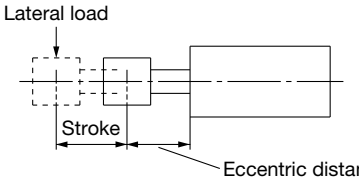
With an Auto Switch Magnet

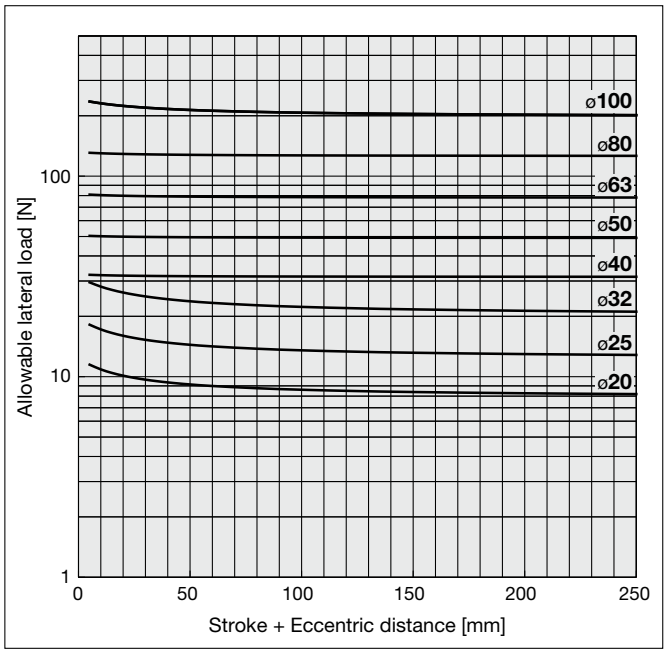
Unit: g

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.

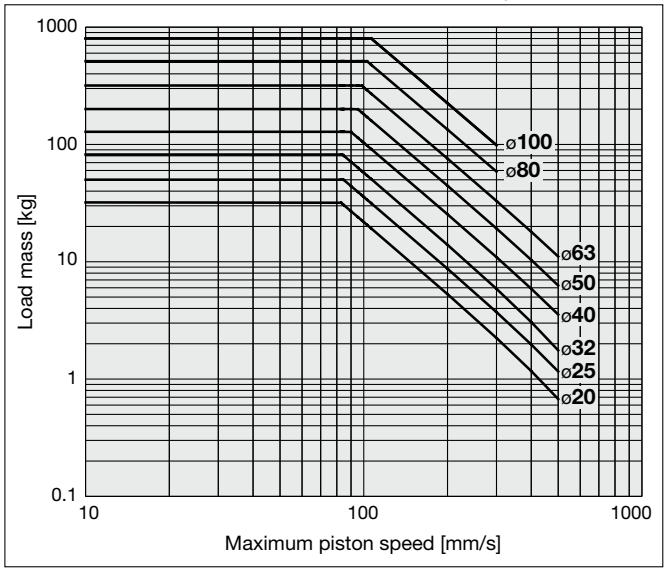




Allowable Kinetic Energy

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.

Operating pressure: 1 MPa



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

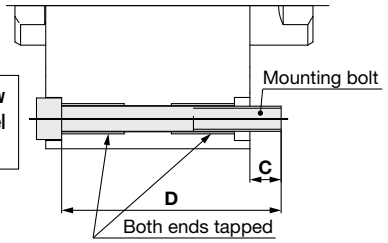
Mounting Bolt

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-M4X45L 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 ø20 and ø25). 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

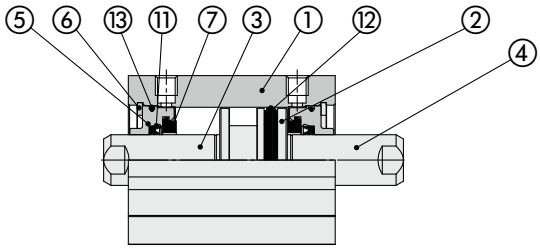
Model	C	D	Mounting bolt part no.
C□55WB20-5DCZ	7.2	45	CQ-M4X45L
-10DCZ		50	X50L
-15DCZ		55	X55L
-20DCZ		60	X60L
-25DCZ		65	X65L
-30DCZ		70	X70L
-35DCZ		75	X75L
-40DCZ		80	X80L
-45DCZ		85	X85L
-50DCZ		90	X90L
C□55WB25-5DCZ	10.2	50	CQ-M4X50L
-10DCZ		55	X55L
-15DCZ		60	X60L
-20DCZ		65	X65L
-25DCZ		70	X70L
-30DCZ		75	X75L
-35DCZ		80	X80L
-40DCZ		85	X85L
-45DCZ		90	X90L
-50DCZ		95	X95L
C□55WB32-5DCZ	10	55	CQ-M5X55L
-10DCZ		60	X60L
-15DCZ		65	X65L
-20DCZ		70	X70L
-25DCZ		75	X75L
-30DCZ		80	X80L
-35DCZ		85	X85L
-40DCZ		90	X90L
-45DCZ		95	X95L
-50DCZ		100	X100L
-60DCZ		110	X110L
-80DCZ		130	X130L
-100DCZ		150	X150L

Model	C	D	Mounting bolt part no.
C□55WB40-5DCZ	9	55	CQ-M5X55L
-10DCZ		60	X60L
-15DCZ		65	X65L
-20DCZ		70	X70L
-25DCZ		75	X75L
-30DCZ		80	X80L
-35DCZ		85	X85L
-40DCZ		90	X90L
-45DCZ		95	X95L
-50DCZ		100	X100L
-60DCZ		110	X110L
-80DCZ		130	X130L
-100DCZ		150	X150L
C□55WB50-5DCZ	8.4	55	CQ-M6X55L
-10DCZ		60	X60L
-15DCZ		65	X65L
-20DCZ		70	X70L
-25DCZ		75	X75L
-30DCZ		80	X80L
-35DCZ		85	X85L
-40DCZ		90	X90L
-45DCZ		95	X95L
-50DCZ		100	X100L
-60DCZ		110	X110L
-80DCZ		130	X130L
-100DCZ		150	X150L
C□55WB63-5DCZ	9.4	60	CQ-M6X60L
-10DCZ		65	X65L
-15DCZ		70	X70L
-20DCZ		75	X75L
-25DCZ		80	X80L
-30DCZ		85	X85L
-35DCZ		90	X90L
-40DCZ		95	X95L
-45DCZ		100	X100L
-50DCZ		105	X105L
-60DCZ		115	X115L
-80DCZ		135	X135L
-100DCZ		155	X155L

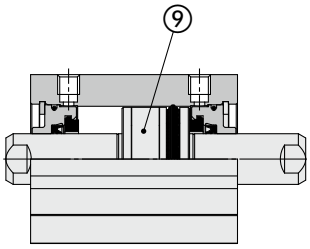
Model	C	D	Mounting bolt part no.
C□55WB80-10DCZ	10	70	CQ-M8X70L
-15DCZ		75	X75L
-20DCZ		80	X80L
-25DCZ		85	X85L
-30DCZ		90	X90L
-35DCZ		95	X95L
-40DCZ		100	X100L
-45DCZ		105	X105L
-50DCZ		110	X110L
-60DCZ		120	X120L
-80DCZ		140	X140L
-100DCZ		160	X160L
C□55WB100-10DCZ	13	85	CQ-M8X85L
-15DCZ		90	X90L
-20DCZ		95	X95L
-25DCZ		100	X100L
-30DCZ		105	X105L
-35DCZ		110	X110L
-40DCZ		115	X115L
-45DCZ		120	X120L
-50DCZ		125	X125L
-60DCZ		135	X135L
-80DCZ		155	X155L
-100DCZ		175	X175L

Construction

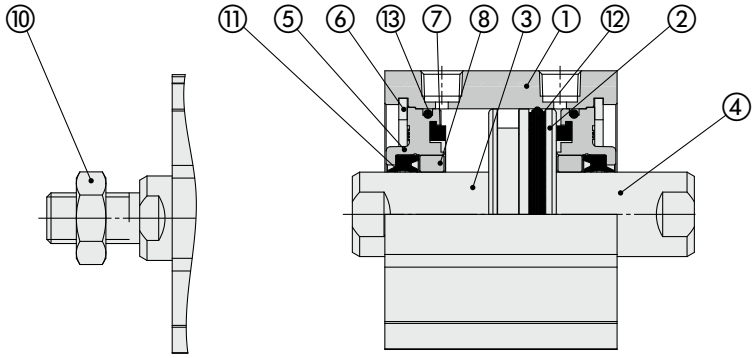
ø20, ø25



With auto switch (Built-in magnet)

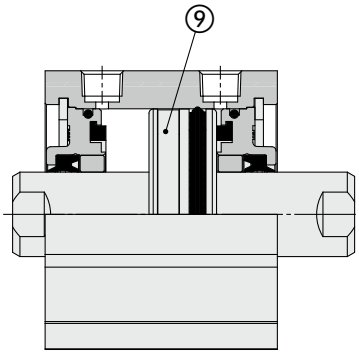


ø32 to ø100



M: Male rod end

With auto switch (Built-in magnet)



Component Parts

No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Piston**	Aluminum alloy	
3	**Piston rod A**	Stainless steel	ø20, ø25 Hard chrome plating
		Carbon steel	ø32 to ø100 Hard chrome plating
4	**Piston rod B**	Stainless steel	ø20, ø25 Hard chrome plating
		Carbon steel	ø32 to ø100 Hard chrome plating
5	**Collar**	Aluminum alloy	ø20 to ø40 Anodized
		Aluminum alloy casted	ø50 to ø100 Painted after chromated
6	**Retaining ring**	Carbon tool steel	
7	**Bumper A**	Urethane	
8	**Bushing**	Bearing alloy	ø50 to ø100
9	**Magnet**	—	
10	**Rod end nut**	Carbon steel	
11	**Rod seal**	NBR	
12	**Piston seal**	NBR	
13	**Tube gasket**	NBR	

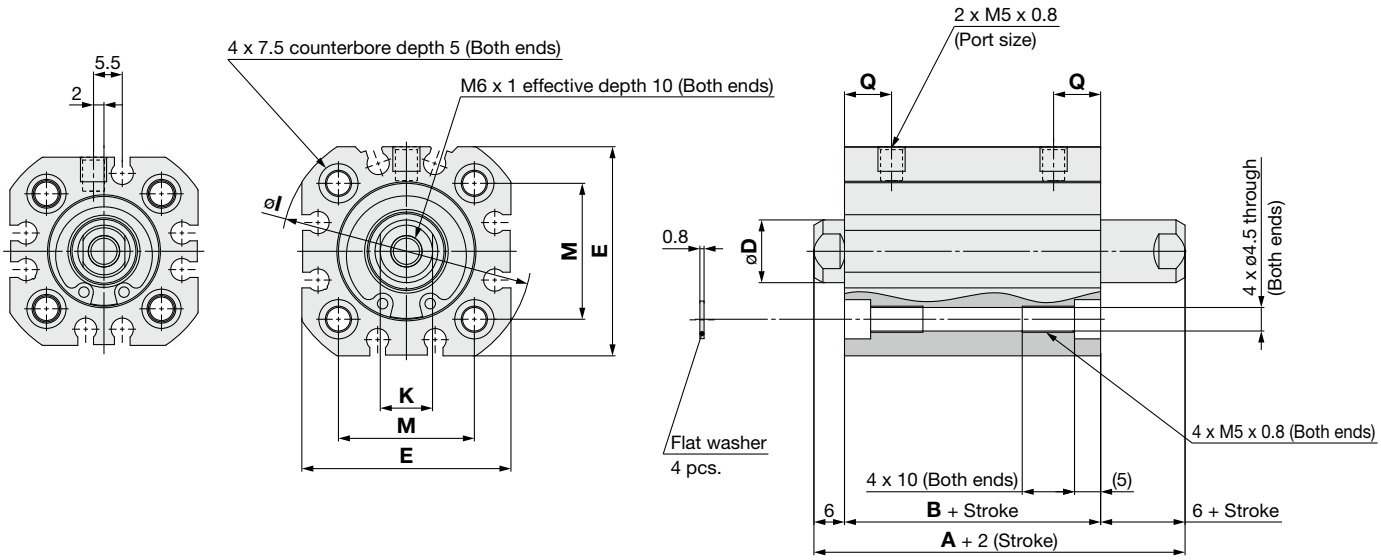
Replacement Parts/Seal Kit

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	

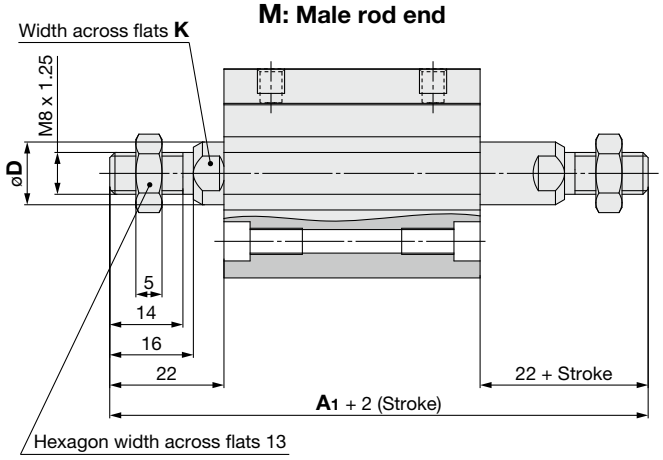
∗ Seal kits consist of items ⑪, ⑫ and ⑬, and can be ordered by using the seal kit number corresponding to each bore size.

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

ø20, ø25



M: Male rod end



Standard Type [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

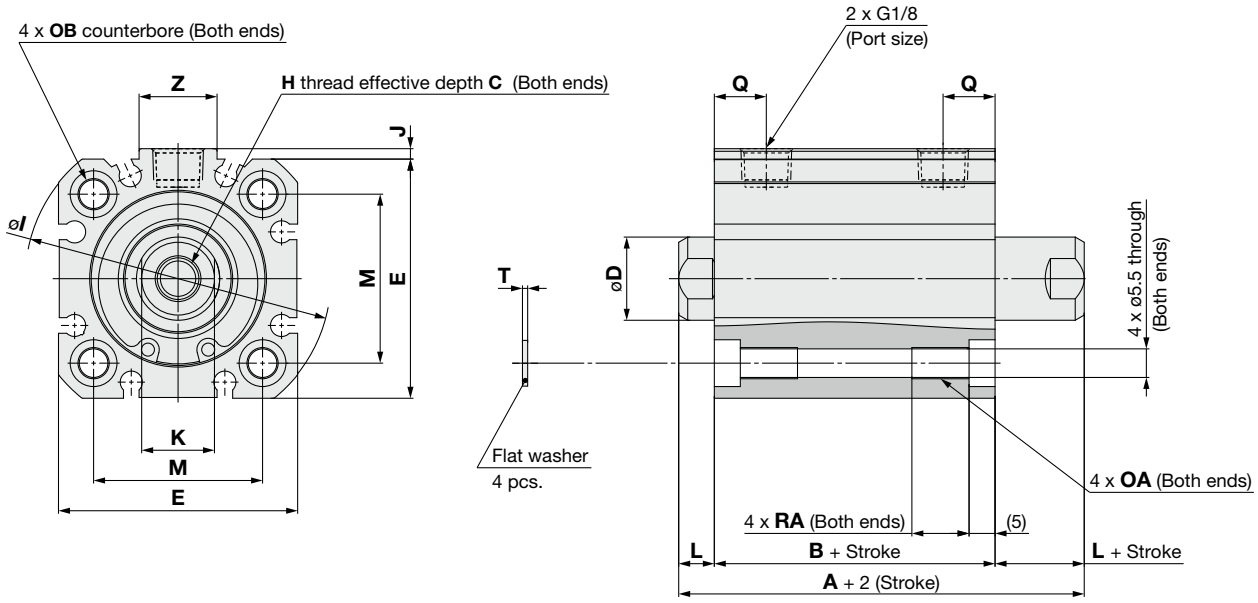
Male Rod End [mm]

Bore size [mm]	A_1	D	K
20	81	10	8
25	83	12	10

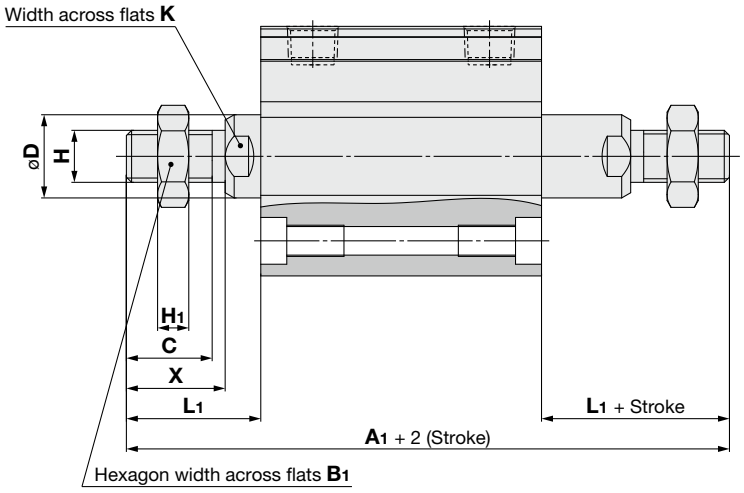
* For details on the rod end nut and accessory brackets ⇨ p. 9
* The positions of left and right width across flats are not constant.
* Be sure to use the supplied flat washer when installing the cylinder with a through hole.

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

ø32 to ø63



M: Male rod end



Male Rod End [mm]

Bore size [mm]	A_1	B_1	C	D	H	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

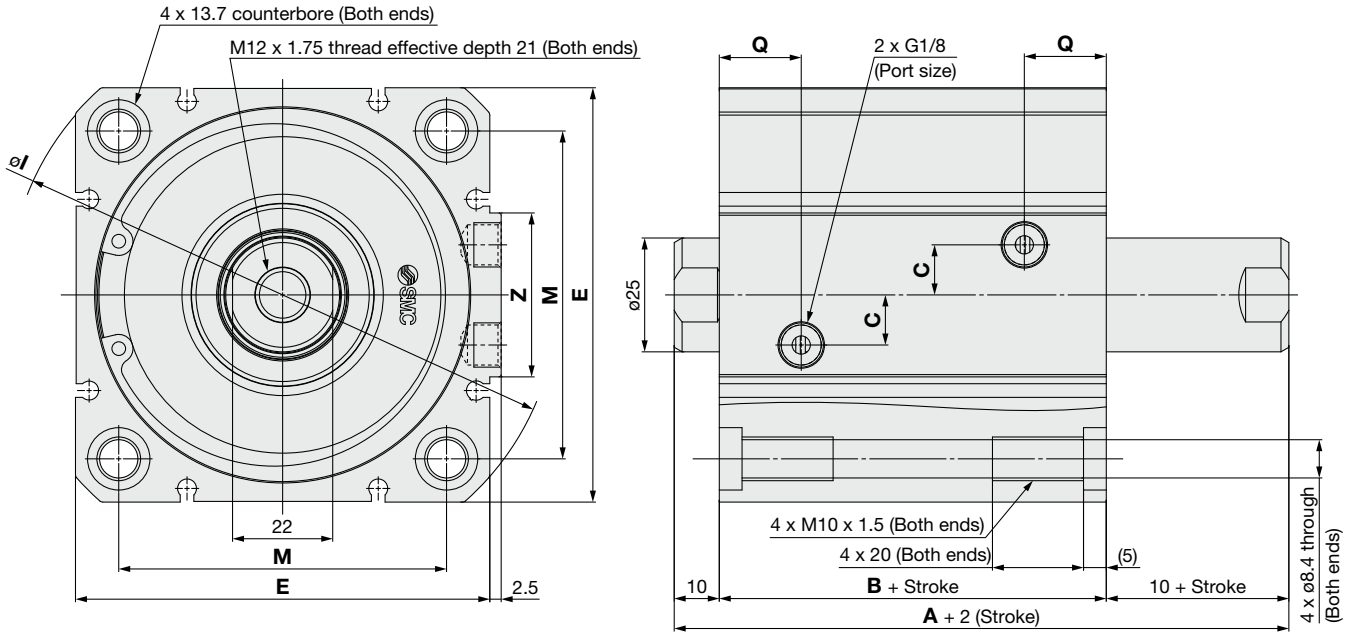
Standard Type [mm]

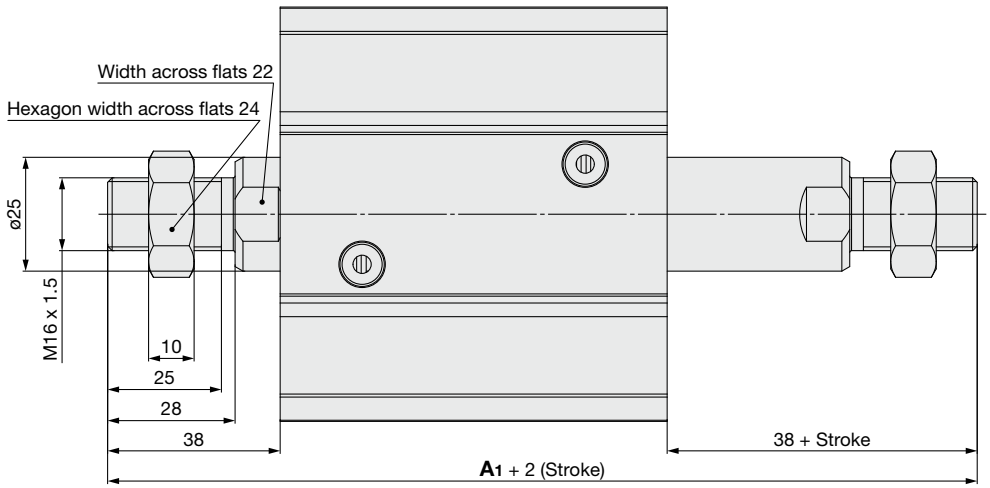
Bore size [mm]	A	B	C	D	E	H	I	J	K	L	M	N	OA	OB	Q	RA	T	Z
32	58	44	12	16	46	M8 x 1.25	59	2	14	7	32.5	5.5	M6 x 1.0	9	10	11	1	15
40	59	45	12	16	52	M8 x 1.25	67	3	14	7	38	5.5	M6 x 1.0	9	12.5	11	1	17
50	61	45	16	20	64	M10 x 1.5	82	2	17	8	46.5	6.6	M8 x 1.25	10.5	13.5	15	1.6	17
63	65	49	16	20	74	M10 x 1.5	96	3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

ø80, ø100





Standard Type [mm]

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

Male Rod End [mm]

Bore size [mm]	A_1
80	131
100	143

∗ For details on the rod end nut and accessory brackets ⇨ p. 9
∗ The positions of left and right width across flats are not constant.
∗ Cylinder housing dimensions (B+stroke) for ø80 bore cylinders differ from those dictated by ISO 21287.

ISO Standards

Smooth Cylinder

RoHS

C55Y Series

ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

C55Y **B** **20** – **30** **D** **C** □ **Z**

With auto switch: **CD55Y** **B** **20** – **30** **D** **C** □ **Z** – **M9B** □

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Mounting

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

❷ 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

❸ Cylinder stroke [mm]

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

❹ Action

D	Double acting

❺ Cushion

C	Rubber bumper

❻ Rod end thread

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

❼ Auto switch

Nil	Without auto switch (Built-in magnet cylinder)

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

∗ Auto switches are shipped together, but not assembled.

❽ Number of auto switches

Nil	2
S	1
n	n

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

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
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		12 V		**M9BV**	**M9B**	●	●	●	○	—	○	—	
	Diagnostic indication (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	—	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water-resistant (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)				**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**	●	●	●	●	—	—	—	Relay, PLC
			No			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·····Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ

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

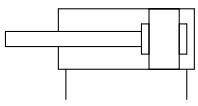
∗ Auto switches are shipped together with the product but do not come assembled.

∗ **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	**ø20 to ø63**	5 to 500 mm/s
	ø80, ø100	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

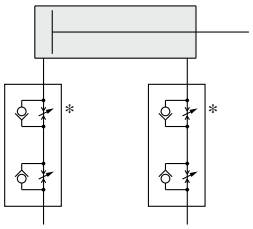
Be sure to read this before handling the products. Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

Recommended Pneumatic Circuit

⚠ Warning

Horizontal Operation

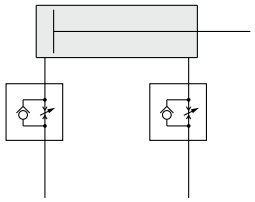
I



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.

II

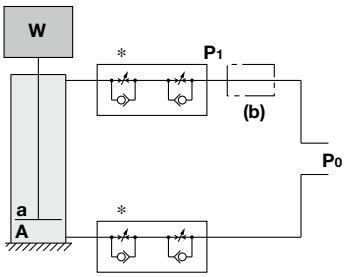


Meter-in speed controller

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

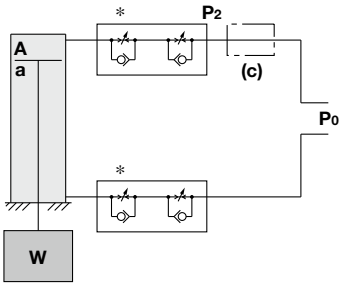
Vertical Operation

I



(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 + P0a > P0A**,
adjust **P1** to make **W + P1a = P0A**.

II



(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 **P2** to make **W + P2A = P0a**.

W: Load (N) **P0**: Operating pressure (MPa) **P1, P2**: Reduced pressure (MPa) **a**: Rod side piston area (mm^2) **A**: Head side piston area (mm^2)

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.
Note 1) Easy checking method
Minimum operating pressure after the cylinder is mounted to the equipment (MPa) = Minimum operating pressure of cylinder (MPa) + {Load weight (kg) x Friction coefficient of guide/Sectional area of cylinder (mm^2)}
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.smcworld.com

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 17-2.

Mounting

⚠Caution

1. Do not apply excessive lateral load to the piston rod.
Note 1) Easy checking method
Minimum operating pressure after the cylinder is mounted to the equipment (MPa) = Minimum operating pressure of cylinder (MPa) + {Load weight (kg) x Friction coefficient of guide/Sectional area of cylinder (mm^2)}
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 17-1 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

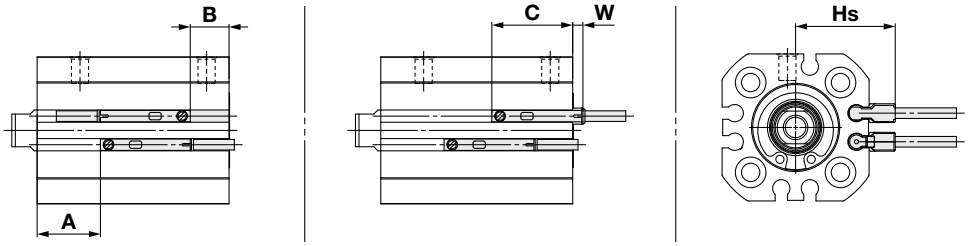
1. Take measures to prevent pressure fluctuation.
A malfunction may occur with the fluctuation of pressure.

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 ø12, ø16

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

Auto switch model / Bore size	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 / 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	—	22
25	16.5	11.5	23.5	0.5	26.5	12.5	7.5	27.5	—	24
32	18.5	13.5	25.5	—	29.5	14.5	9.5	29.5	—	27
40	17	16	28	—	32.5	13	12	32	—	30
50	13.5	19.5	31.5	—	38.5	9.5	15.5	35.5	—	36
63	14.5	22.5	34.5	—	43.5	10.5	18.5	38.5	—	41
80	16	23.5	35.5	—	52	12	19.5	39.5	—	49.5
100	23.5	29.5	41.5	—	62	19.5	25.5	45.5	—	59.5

Double Acting, Single Rod Over 150 mm stroke

[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	13	16	28	—	24.5	9	12	32	—	22
25	14	18	30	—	26.5	10	14	34	—	24
32	17.5	20.5	32.5	—	29.5	13.5	16.5	36.5	—	27
40	19.5	21	33	—	32.5	15.5	17	37	—	30
50	13.5	23	35	—	38.5	9.5	19	39	—	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	37.5	49.5	—	62	16.5	33.5	53.5	—	59.5

Double Acting, Double Rod

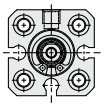
[mm]

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	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

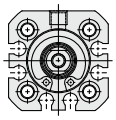
The Number of Surfaces and Grooves Where an Auto Switch Can Be Mounted

For ø12, ø16

Auto switches can be mounted on any of the three sides, there are two round grooves on each side. However, for ø12 bore, there is only one round groove.



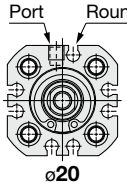
ø12



ø16

For ø20 to ø100

Auto switches can be mounted on any of the four sides, there are two round grooves on each side.
However, for ø20 bore, there is only one round groove on the ported side.



ø20

ø25 to ø100

Operating Range

[mm]

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 guideline 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 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 Catalog**.
∗ With pre-wired connector is also available for solid state auto switches. For details, refer to the **Web Catalog**.

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 Catalog.
https://www.smcworld.com

1 Change of Rod End Shape

Symbol
-XA1 to 23, -XA26 to 30

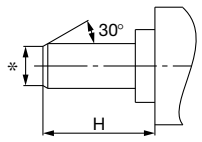
Applicable Series

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

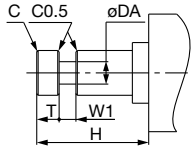
⚠ Precautions

- 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 ≤ 6 → D–1 mm 6 > D ≤ 25 → D–2 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.

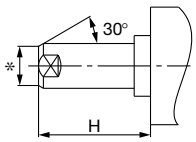
Symbol: A1



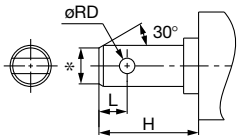
Symbol: A2



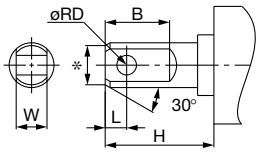
Symbol: A3



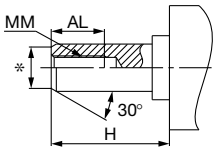
Symbol: A4



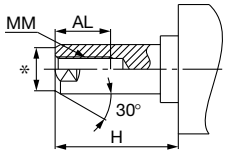
Symbol: A5



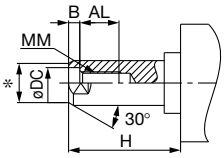
Symbol: A6



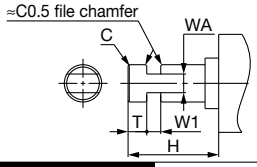
Symbol: A7



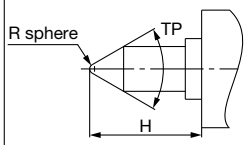
Symbol: A8



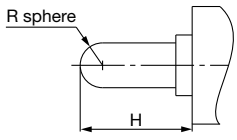
Symbol: A9



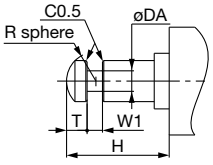
Symbol: A10



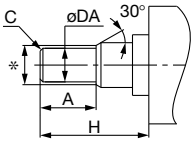
Symbol: A11



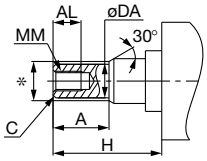
Symbol: A12



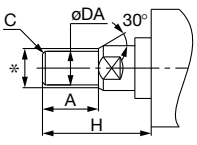
Symbol: A13



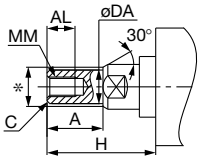
Symbol: A14



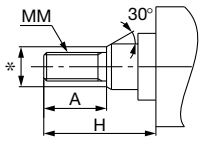
Symbol: A15



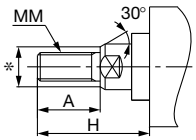
Symbol: A16



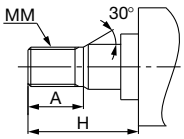
Symbol: A17



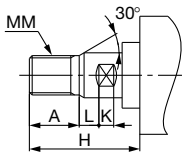
Symbol: A18



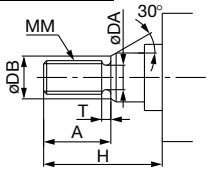
Symbol: A19



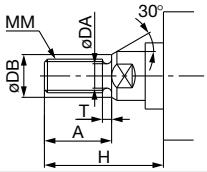
Symbol: A20



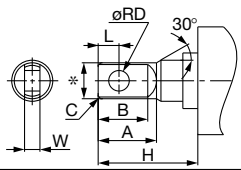
Symbol: A21



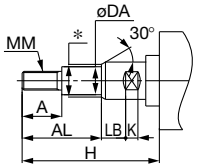
Symbol: A22



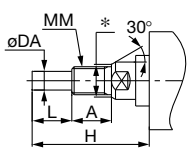
Symbol: A23



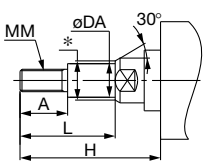
Symbol: A26



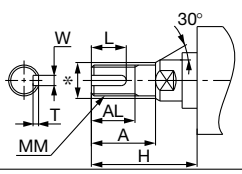
Symbol: A27



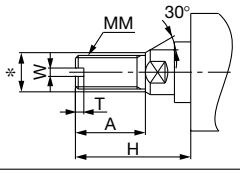
Symbol: A28



Symbol: A29



Symbol: A30



C55 Series
Made to Order Common Specifications

Please contact SMC for detailed dimensions, specifications, and delivery times.

Made to Order

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

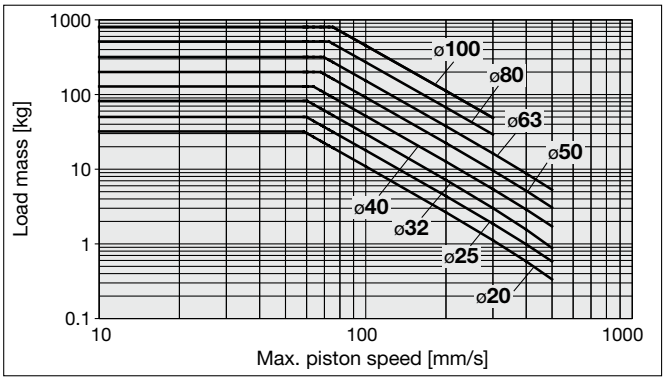
Standard model no. **D(M)Z – XB6**

Heat-resistant cylinder

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



⚠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.

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 150 mm stroke or less (or 125 mm or less for ø80 and ø100)

* 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

Symbol
-XC35

4 With Coil Scraper

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

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 150 mm stroke or less (or 125 mm or less for ø80 and ø100)

* 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

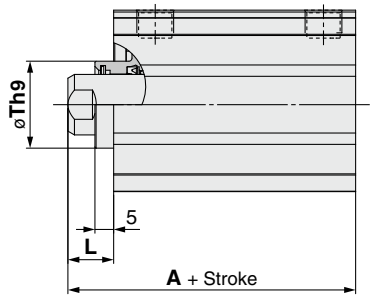
Standard model no. – **XC35**

With coil scraper

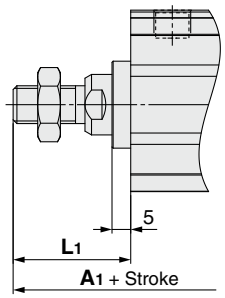
Specifications: Same as those of the standard type

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

Double acting, Single rod



Rod end male thread



[mm]

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	$59^{+0}_{-0.074}$

Symbol

5 Auto Switch Mounting Groove: T-slot Type — -X1439

Description	Model	Action	Note
Compact cylinder	**C55**	Double acting, Single rod	Available for ø20 to ø63 with a stroke of 150 mm or less

How to Order

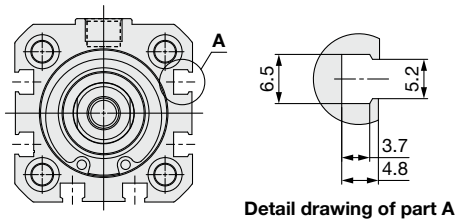
Standard model no. – X1439

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 ø20 to ø63



Detail drawing of part A

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

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length (m): 0.5 (Nil)	Lead wire length (m): 3 (L)	Lead wire length (m): 5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	–	Grommet	Yes	3-wire (NPN)	5 V, 12 V	–	**Y69A**	**Y59A**	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			**Y7PV**	**Y7P**	●	●	○	○		
				2-wire	12 V		**Y69B**	**Y59B**	●	●	○	○	–	
	Diagnostic indication (2-color 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-color 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

∗ Lead wire length symbols: 0.5 m ····· Nil (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 catalog 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 catalogs 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 catalog 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.