SMC

Expertise – Passion – Automation

ATEX Compliant Products

SMC - provide products compliant to ATEX Directive

■ Outline of ATEX directive

Since 1st July 2003, equipment used in potentially explosive atmospheres within the EU is required to comply with the ATEX directive.

●ATEX, New Approach directives and CE marking

Directive 2014/34/EU, known as ATEX directive, is one of the directives based on the New Approach towards technical harmonization and standardization.
The New Approach is a new regulatory technique and strategy laid down by the European Council Resolution of 1985, in order to allow free movement of goods within the EU market and to prevent barriers to trade.
Products in compliance with all provisions of applicable directives (such as Directive 2014/34/EU for ATEX) must bear the CE marking. This is an indication that the products comply with the requirements of applicable directives and have been subjected to the conformity assessment procedure provided for in these directives.

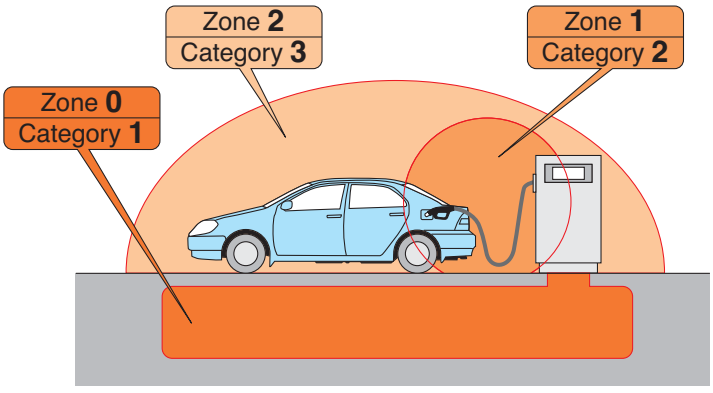
●ATEX definitions

Potentially explosive atmospheres are atmospheres likely to become explosive due to local and operational conditions.
The ATEX Directive regards "explosive atmospheres" as a mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture. (Quotation from Directive 2014/34/EU Article 1(4))
Certified equipment is designed to prevent the generation of ignition sources such as: Electric sparks, arcs and flashes, electrostatic discharges, electromagnetic waves, ionizing radiation, hot surfaces, flames and hot gases, mechanically generated sparks, optical radiation, chemical flame initiation, compression.

●Zone Classification

Potentially explosive environments are classified by the Safety and Protection of Workers Directive 1999/92/EC.
These are:

- 0, 1, 2 for gas explosive atmospheres
- 20, 21, 22 for dust explosive atmospheres



■ New elements at a glance

Previous legislation covered the most obvious sources of ignition generated by electrical devices.
The ATEX directive and the corresponding harmonized standards have extended the applicability of legislation to non-electrical products as well.

Pneumatic equipment used in potentially explosive atmospheres must, therefore, be assessed in line with the new directive.

The ATEX directive defines categories of equipment and protective systems, which can be used in the corresponding zones as per the following table.

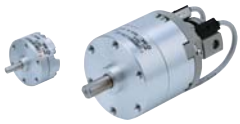
Zone		Equipment category	Presence of the explosive atmosphere
Gas	Dust		
0	20	1	Continuously or for long periods >1000 hours/year
1	21	2	Occasionally 10~1000 hours/year
2	22	3	Rarely or for short periods <10 hours/year

INDEX

<Note for ordering ATEX compliant products>

Some items may not be compliant with the ATEX Directive. For details, refer to How to Order.
For Self Declaration of Conformity, refer to our sales representative.

List of ATEX compliant products



ATEX label example and explanation

SMC CORPORATION
4-14-1 Soto-Kanda
Chiyoda-ku
Tokyo 101-0021, Japan

"Do not disconnect when energized"

II 3 G / D

Ex nA IIC T6 Gc X

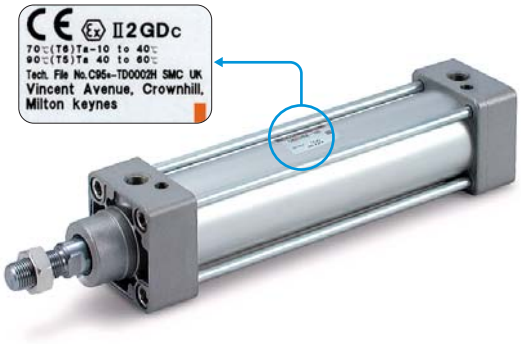
VQCxxx
HO
Tamb= -10 °C to +50 °C
IP65
T 80 °C

Part-number
Year
Operating temperature
IP (only for Dust)
T temperature(only for Dust)

ATEX compliance

Group	II					
Category	1		2		3	
Atmosphere*	G	D	G	D	G	D

*G=Gas D=Dust



	Max. Surface temperature
T1	450 °C
T2	300 °C
T3	200 °C
T4	135 °C
T5	100 °C
T6	85 °C

	Category	Standards for Electrical product	Standards for Non-electrical product
General requirements	all	EN 60079-0	EN 80079-36
Dust protection	all	EN 60079-0	EN 80079-36
Types of Protection			
Constructional safety "c"	2		EN 80079-37
Types of Protection "n"	3	EN 60079-15	
Increased Safety "e"	2	EN 60079-7	
Encapsulation "m"	2	EN 60079-18	
Flameproof Enclosure "d"	2	EN 60079-1	
Oil Immersion "o"	2	EN 60079-6	EN 13463-3
Pressurized "p"	2	EN 60079-2	EN 13463-7
Powder Filling "q"	2	EN 60079-5	
Intrinsically Safety "ia"	1	EN 60079-11	
Intrinsically Safety "ib"	2	EN 60079-11	

X=means that special conditions for use are in the installation manual e.g. protect products against impact

ATEX Compliant

5 Port Solenoid Valve
Series 52-SY

CE 0344 ⟨Ex⟩ II 2G Ex ia IIC T4...T5 Gb Ta–10 °C to 50 °C
II 2G Ex ia IIC T6 Gb Ta–10 °C to 45 °C

How to Order

52 - SY [5] [1] [2] 0 [ ] — [ ] [L] [3] [ ] — [01] [F] — [ ]

ATEX category 2

Series

5	52-SY5000
7	52-SY7000
9	52-SY9000

Type of actuation

1	2-position single
2	2-position double
3	3-position closed centre
4	3-position exhaust centre
5	3-position pressure centre

Piping style

2	Body ported type
4	Base mounted type

Pilot

–	Internal pilot
R	External pilot*

*Only the base mounted type.

Barrier

–	Without barrier
A	Z728.H
B	MTL728P+
F	KFD0-SD2-Ex1.1065

Note) One barrier per solenoid supplied. Additionally, when the barrier is selected, the barriers equivalent to the number of solenoids are included with the product.

Electrical entry

L	Plug connector type
LL	Plug connector with cover type
TT	Terminal type

Lead wire length

3	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
30	3000 mm
100	10000 mm (semi-standard)

L type has 300 mm and 600 mm only.

Manual override

–	Non locking push style
D	Push-turn locking slotted style
E	Push-turn locking lever style

Type of actuation

Sign	Port size	Compatible series
01	1/8	52-SY5000
C4	Ø 4 One-touch fitting	
C6	Ø 6 One-touch fitting	
C8	Ø 8 One-touch fitting	
N3	Ø 5/32" One-touch fitting	
N7	Ø 1/4" One-touch fitting	
N9	Ø 5/16" One-touch fitting	
02	1/4	52-SY7000
C8	Ø 8 One-touch fitting	
C10	Ø 10 One-touch fitting	
N9	Ø 5/16" One-touch fitting	
N11	Ø 3/8" One-touch fitting	
02	1/4	52-SY9000
03	3/8	
C8	Ø 8 One-touch fitting	
C10	Ø 10 One-touch fitting	
C12	Ø 12 One-touch fitting	
N9	Ø 5/16" One-touch fitting	
N11	Ø 3/8" One-touch fitting	

Port size (Base mounted type)

Sign	Port size	Compatible series
-	No sub-plate	
02	1/4	52-SY5000
02	1/4	52-SY7000
03	3/8	
03	3/8	52-SY9000
04	1/2	

Bracket

–	No bracket
F1	With foot bracket *
F2	With side bracket **

*Foot bracket only available for 2 position single solenoid valve 52-SY5000 and 52-SY7000.
**Side bracket only for 52-SY5000 and 52-SY7000
***No bracket for only body ported type's 52-SY9000.

Thread style

–	Rc
F	G
N	NPT
T	NPTF

Specifications

Series			52-SY5000	52-SY7000	52-SY9000
Ambient and fluid temperature	Temperature class T6		–10 to 45 °C (No freezing)		
	Temperature class T4, T5		–10 to 50 °C (No freezing)		
Coil temperature rise			40 °C or less (at rated)		
Barrier input voltage (non hazardous area)			24 V DC (System rated voltage) at 1.1 W		
Solenoid valve input voltage (hazardous area)			12 V DC at 0.52 W		
Intrinsically safe			ia		
Gas group			IIC		
Electrical entry	L type	Plug connector	IP30 (LL type : IP40)		
	T type	terminal box	IP65		

Note 1) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test were performed one time each in the axial and right angle directions of the main valve and armature, in both energized and de-energized states (Valve in the initial stage).
Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000Hz. The test was performed for both energized and de-energized states in the axial and right angle directions of the main valve and armature (valve in the initial stage).

Standard SY manifolds Types 20, 41, 42 are used for 52-SY valves

Safety Instructions

1) This product is not suitable for Zone 0. The suitable zones are Zones 1 and 2.
2) SMC-TAS and TAU Series, antistatic tubing, is available if required.
3) The solenoid valve has polarity (+ -). Confirm the correct polarity by referring to the colour of the lead wires. If the polarity is reversed, the barrier maybe damaged.
4) Confirm that the solenoid input voltage at the lead wires is DC 10.8 V (min).
5) The product must be connected to a certified barrier or certified intrinsically safe circuit with the follow maximum Values:

Ui= 28V
Ii= 225mA (resistively limited)
Pi= 1W
Ci= 0 nF
Li= 0 mH

Note) The valve is not connected to barrier when supplied.

Response time

Configuration	Response time (ms) (0.5 MPa)		
	52-SY5000	52-SY7000	52-SY9000
2-position single	26 or less	38 or less	50 or less
2-position double	22 or less	30 or less	50 or less
3-position	38 or less	56 or less	70 or less

Note 1) According to dynamic performance test JIS B8375-1981.
Note 2) Response time when barriers were combined with a valve.
System A: Valve + Z728.H
B: Valve + MTL728P+
F: Valve + KFD0-SD2-Ex1.1065

Manifold specifications for 20 type

Model		SS5Y5-20	SS5Y7-20
Applicable valve		52-SY5*20	52-SY7*20
Manifold style		Single base/ B mounting	
1 (SUP)/ 3/5 (EXH)		Common SUP/ Common EXH	
Valve stations		2 to 20 (1)	
4/2 (A/B) Location		Valve	
Port size	1,3,5 (P,EA,EB) Port	1/4	
	4,2 (A,B) Port	1/8 C4 (One-touch fittings for Ø 4 mm) C6 (One-touch fittings for Ø 6 mm) C8 (One-touch fittings for Ø 8 mm)	1/4 C8 (One-touch fittings for Ø 8 mm) C10 (One-touch fittings for Ø 10 mm)
Manifold base weight W (g) n: Station		W=36n+64	W=43n+64

Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both side.
Note 2) 52-SY9*20 valve are not available with manifold as standard.

Manifold specifications for 20 type

Model	Port size		Flow characteristics							
	1,5,3	4,2	1 > 4/2 (P>A/B)				4/2 > 5/3 (A/B > EA/EB)			
	(P,EA,EB)	(A,B)	c[dm³/(s.bar)]	b	Cv	Q [l/min (ANR)] Note 2)	c[dm³/(s.bar)]	b	Cv	Q [l/min (ANR)] Note 2)
SS5Y5-20	1/4	C8	1.9	0.28	0.48	477	2.2	0.20	0.53	527
SS5Y7-20	1/4	C10	3.6	0.31	0.93	921	3.6	0.27	0.88	898

Note 1) Values for 5 stations manifold with a 2 position single type valve.
Note 2) These valves have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

Manifold specifications for 41 and 42 type

Model		SS5Y5-41	SS5Y5-42	SS5Y7-42
Applicable valve		52-SY5*40		52-SY7*40
Manifold style		Single base/ B mounting		
1 (SUP)/ 3/5 (EXH)		Common SUP/ Common EXH		
Valve stations		2 to 20 (1)		
4/2 (A/B)	Location	Base		
Porting spec.	Direction	Side		
Port size	1,3,5 (P,EA,EB) Port	1/4		1/4
	4,2 (A,B) Port	1/8 C6 (One-touch fittings for Ø 6 mm) C8 (One-touch fittings for Ø 8 mm)	1/4 C6 (One-touch fittings for Ø 6 mm) C8 (One-touch fittings for Ø 8 mm)	1/4 C10 (One-touch fittings for Ø 10 mm)
Manifold base weight W (g) n: Station		W=61n+101	W=79n+127	W=100n+151

Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both side.
Note 2) 52-SY9*40 valve are not available with manifold as standard. Please contact SMC if you require it:
Note 3) 52-SY series are not available with resin type manifold (23 type, 20P type and 45 type).

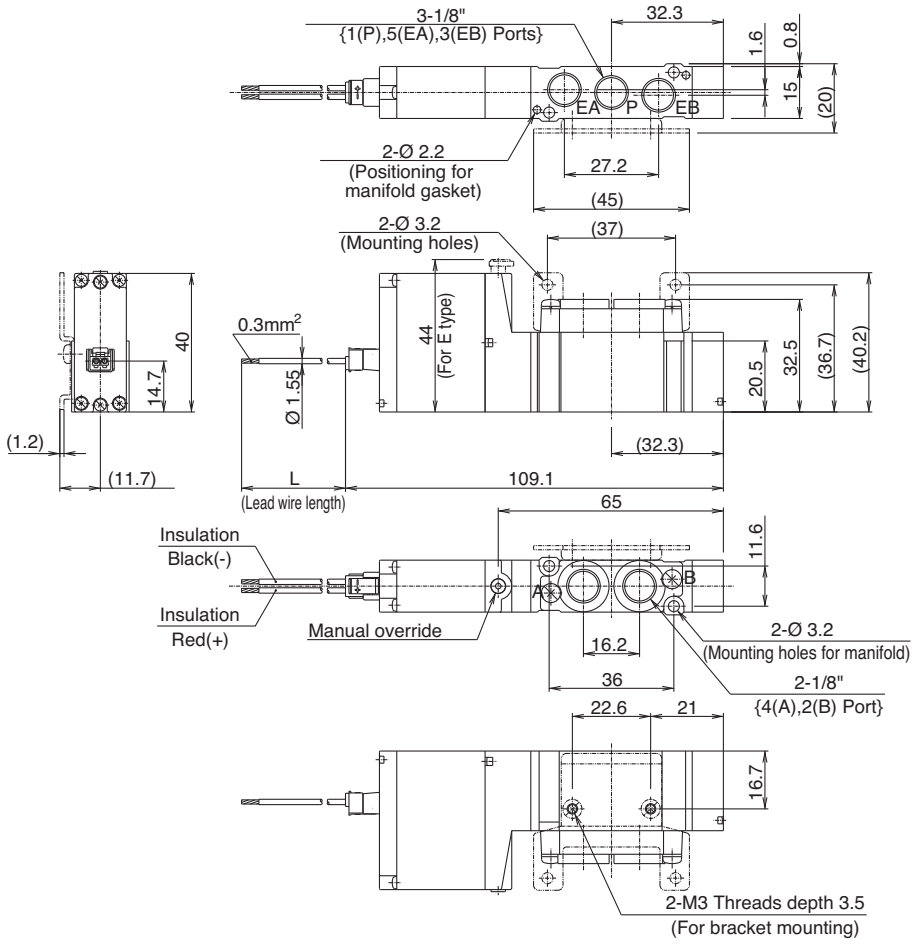
Manifold specifications for 41 and 42 type

Model	Port size		Flow characteristics							
	1,5,3	4,2	1 > 4/2 (P>A/B)				4/2 > 5/3 (A/B > EA/EB)			
	(P,EA,EB)	(A,B)	c[dm³/(s.bar)]	b	Cv	Q [l/min (ANR)] Note 2)	c[dm³/(s.bar)]	b	Cv	Q [l/min (ANR)] Note 2)
SS5Y5-41	1/4	C8	1.8	0.23	0.44	439	1.9	0.16	0.45	445
SS5Y5-42	1/4	C8	1.9	0.20	0.46	455	1.9	0.12	0.43	436
SS5Y7-42	1/4	C10	3.0	0.25	0.75	740	3.0	0.12	0.66	688

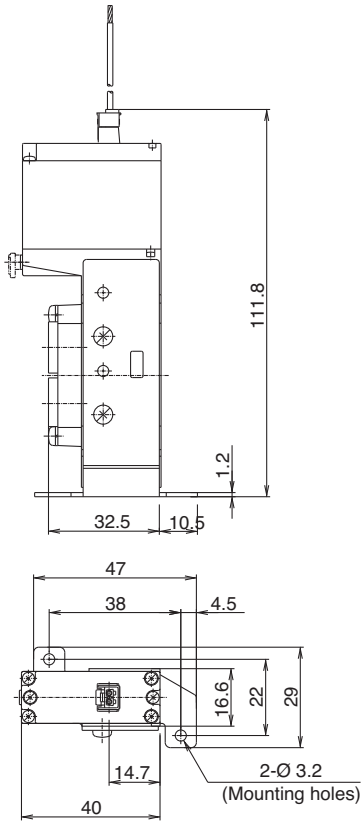
Note 1) Values for 5 stations manifold with a 2 position single type valve.
Note 2) These valves have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

Dimensions

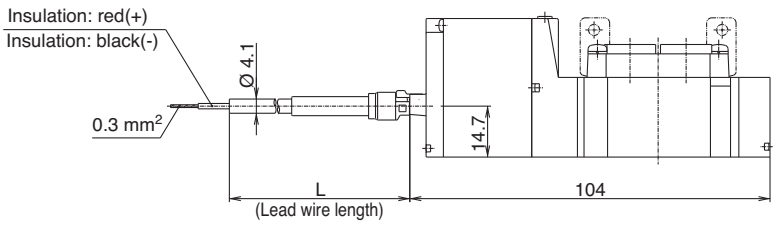
Body ported type
Dimensions/Series 52-SY5000
2-position single
Plug connector type (L)
52-SY5120-L□□-01□(-F2)



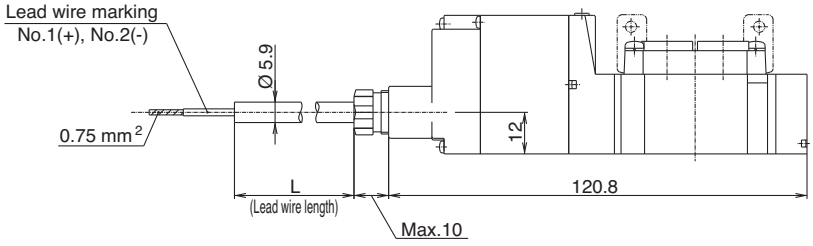
In case with foot bracket
52-SY5120-L□□-01□-F1



Plug connector with cover type (LL)
52-SY5120-LL□□-01□(-F2)

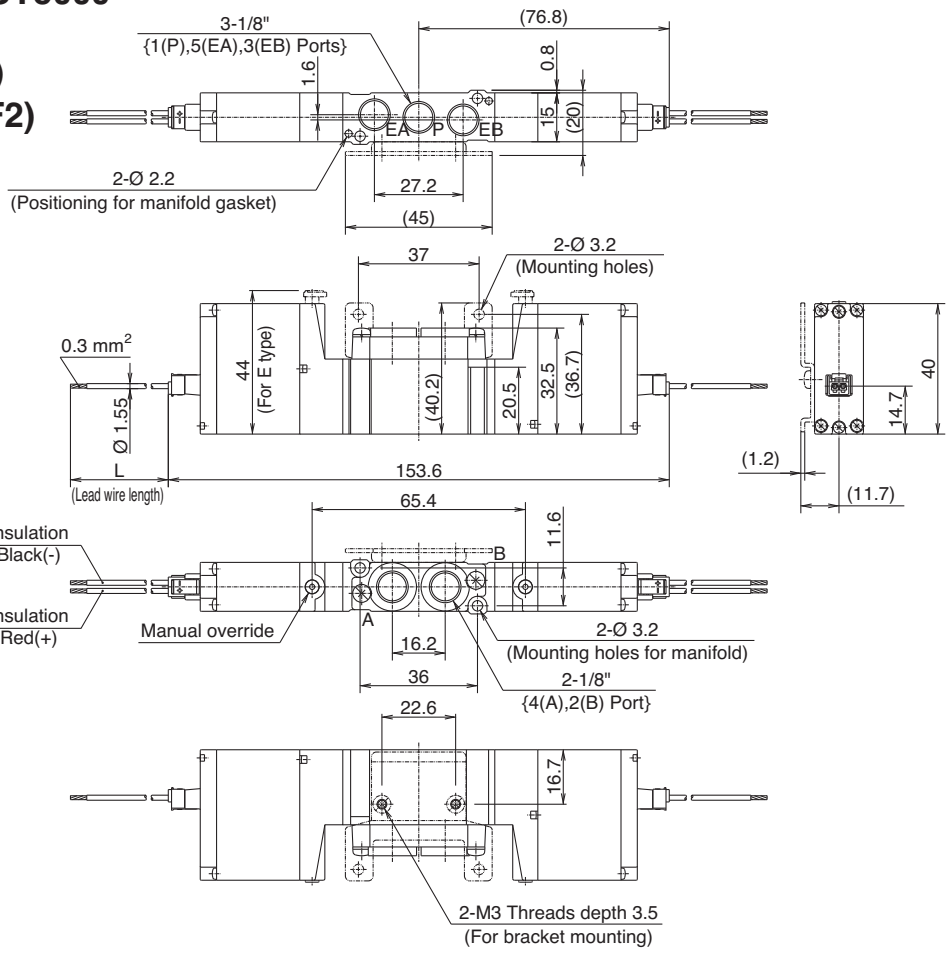


Terminal type (TT)
52-SY5120-TT□□-01□(-F2)

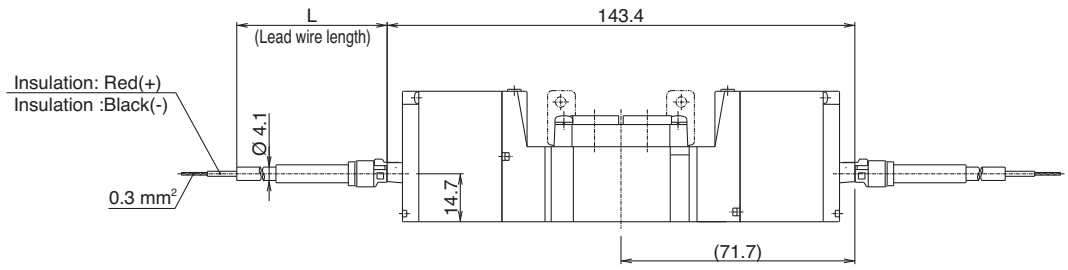


Dimensions

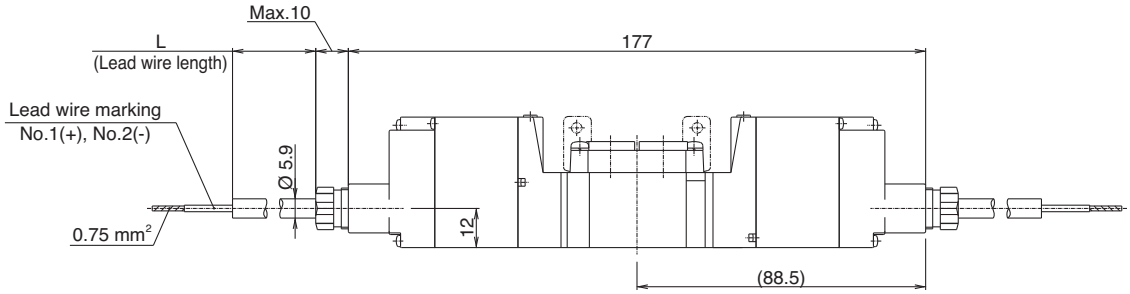
Body ported type
Dimensions/Series 52-SY5000
2-position double
Plug connector type (L)
52-SY5220-L□□-01□(-F2)



Plug connector with cover type (LL)
52-SY5220-LL□□-01□(-F2)



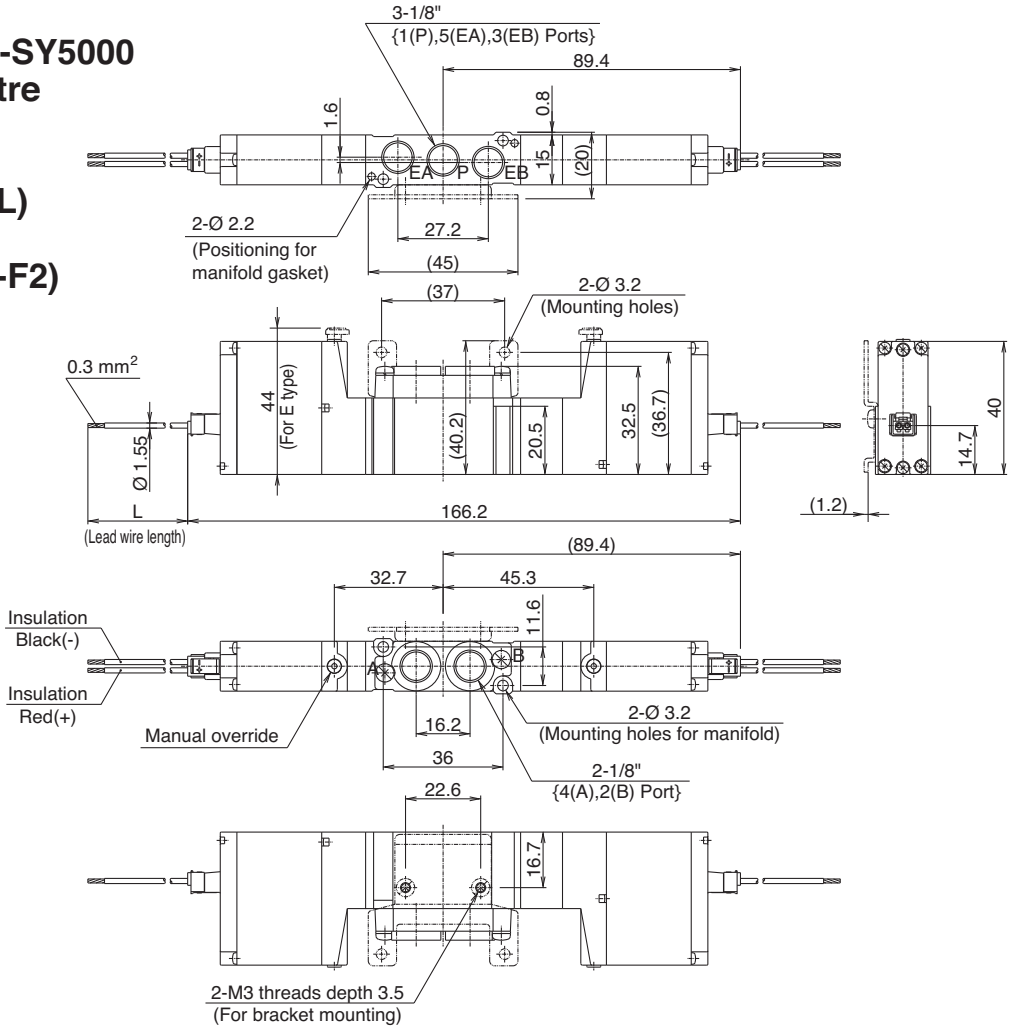
Terminal type (TT)
52-SY5220-TT□□-01□(-F2)



Dimensions

Body ported type
Dimensions/Series 52-SY5000
3-position closed centre
-exhaust centre-
pressure centre
Plug connector type (L)

3
52-SY5420-L□□-01□(-F2)
5



Plug connector with cover type (LL)

3
52-SY5420-LL□□-01□(-F2)
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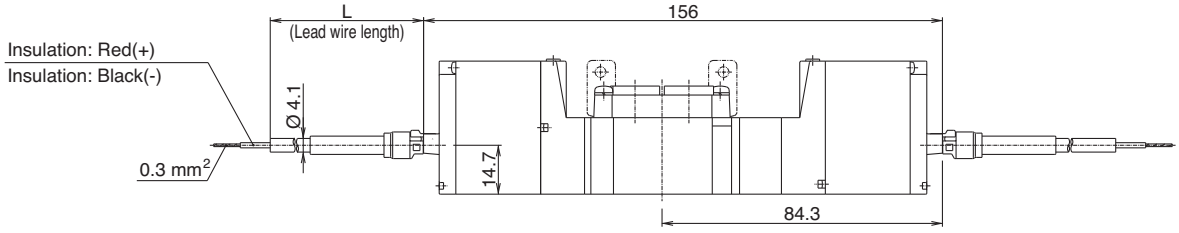

Terminal type (TT)

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52-SY5420-TT□□-01□(-F2)
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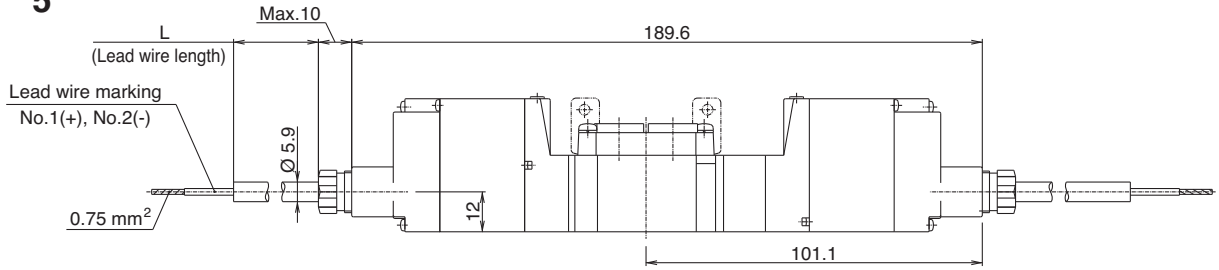
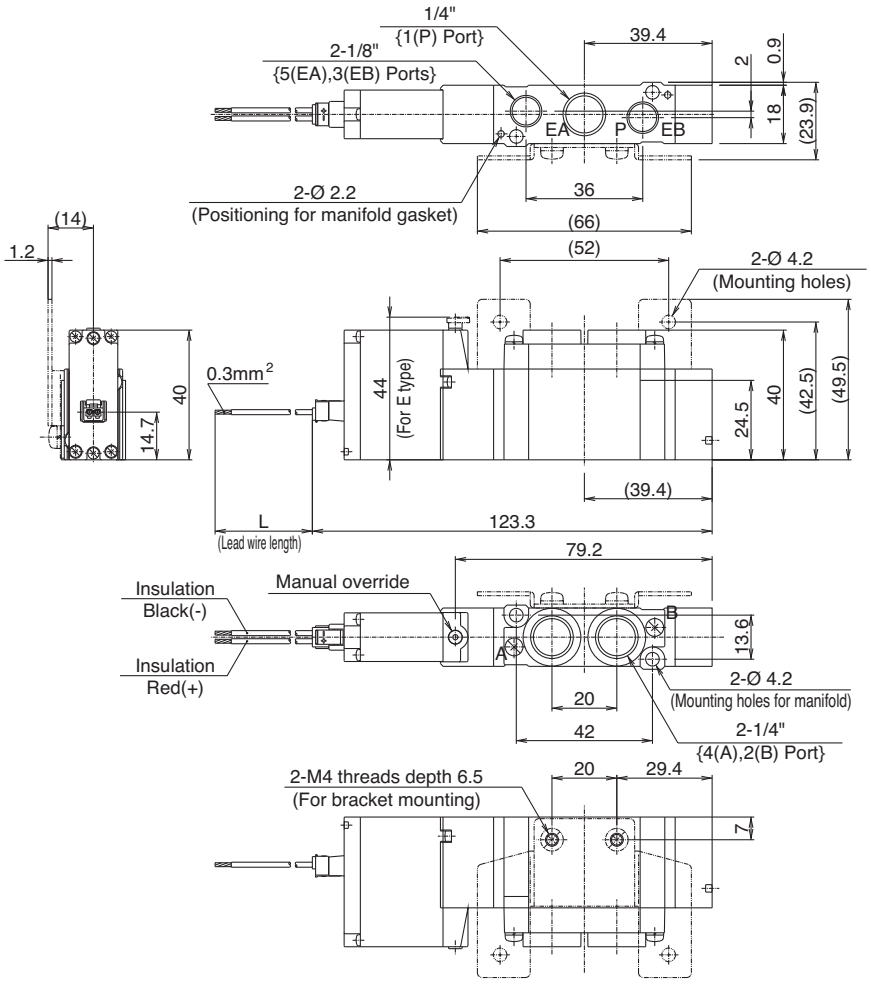
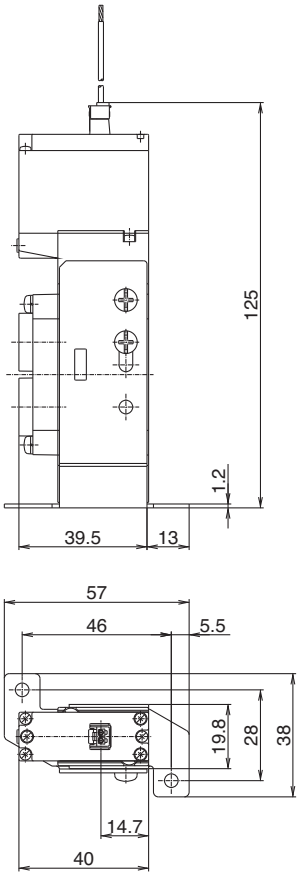


Dimensions

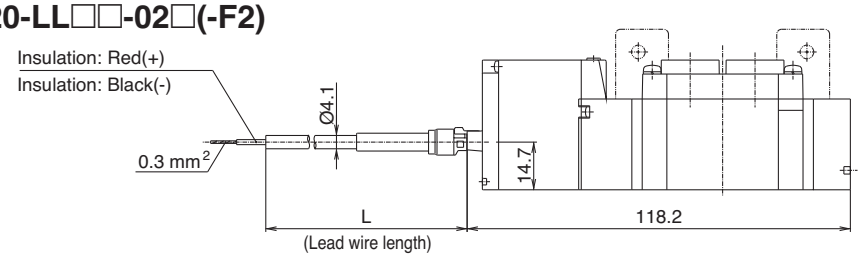
Body ported type
Dimensions/Series 52-SY7000
2-position single
Plug connector type (L)
52-SY7120-L□□-02□(-F2)



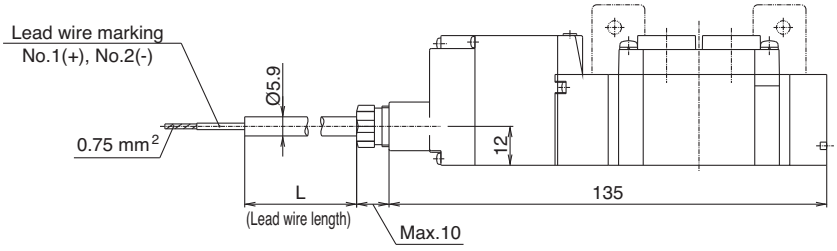
In case with foot bracket
52-SY7120-L□□-02□-(F1)



Plug connector with cover type (LL)
52-SY7120-LL□□-02□(-F2)

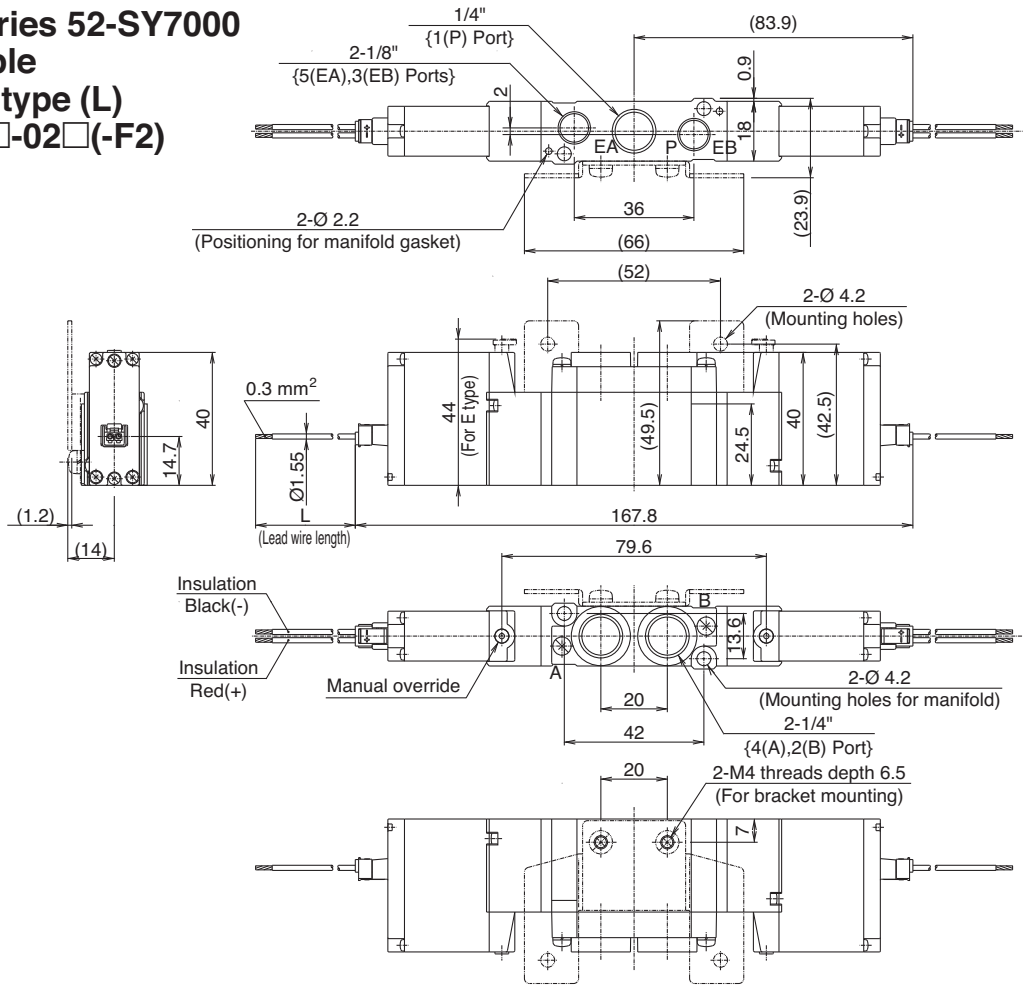


Terminal type (TT)
52-SY7120-TT□□-02□(-F2)

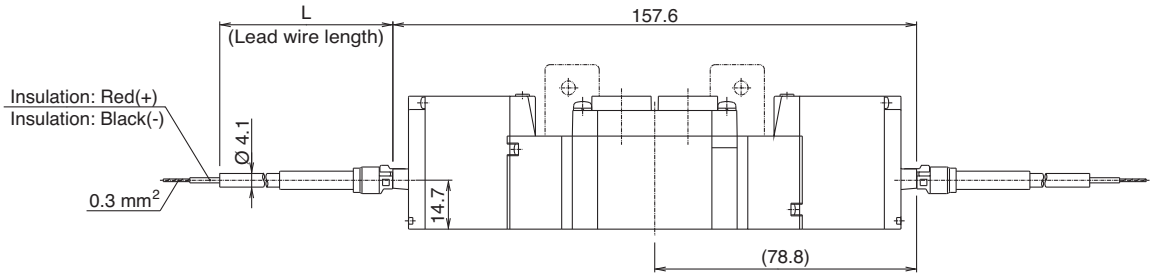


Dimensions

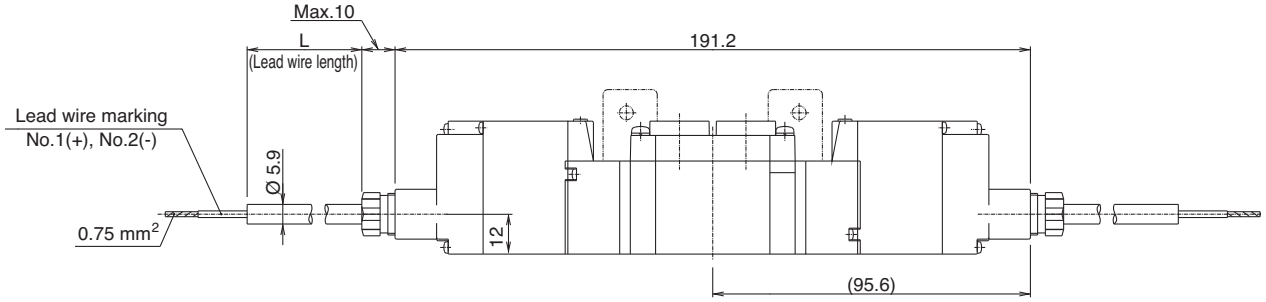
Body ported type
Dimensions/Series 52-SY7000
2-position double
Plug connector type (L)
52-SY7220-L□□-02□(-F2)



Plug connector with cover type (LL)
52-SY7220-LL□□-02□(-F2)



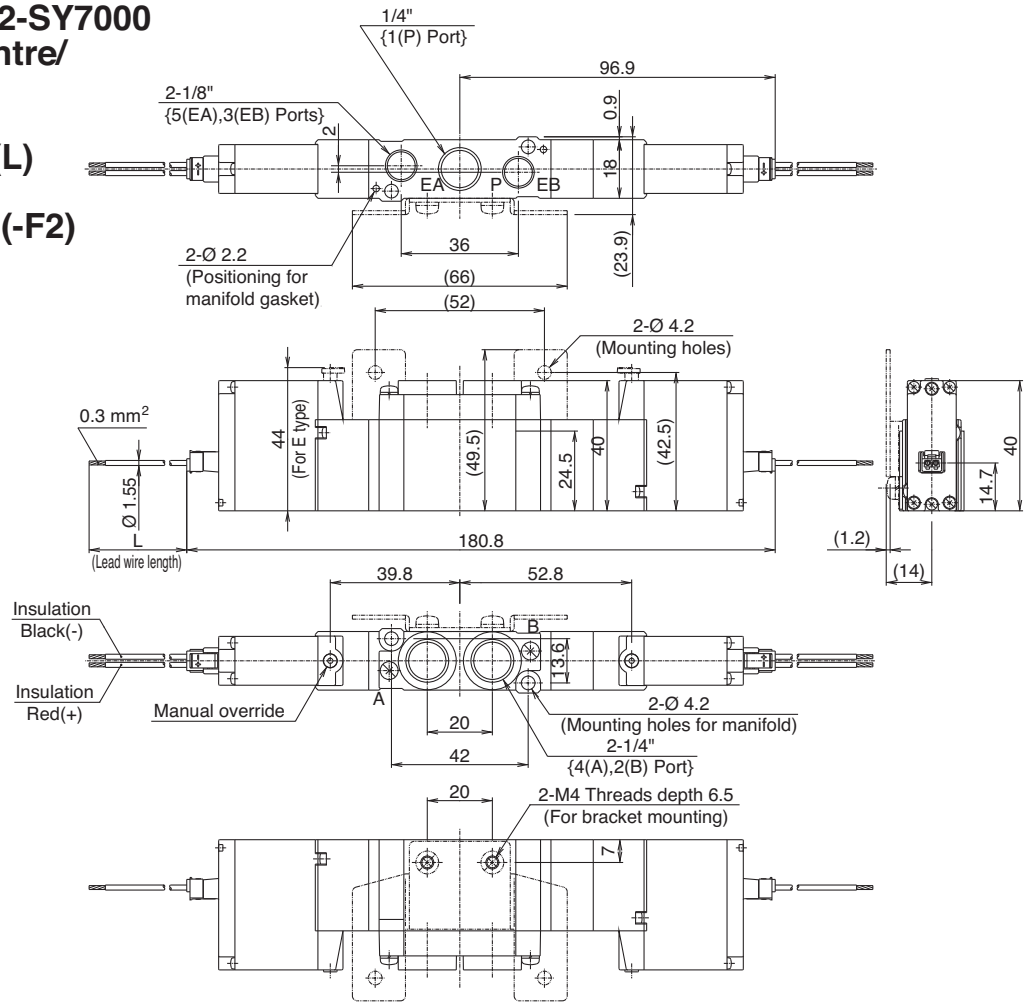
Terminal type (TT)
52-SY7220-TT□□-02□(-F2)



Dimensions

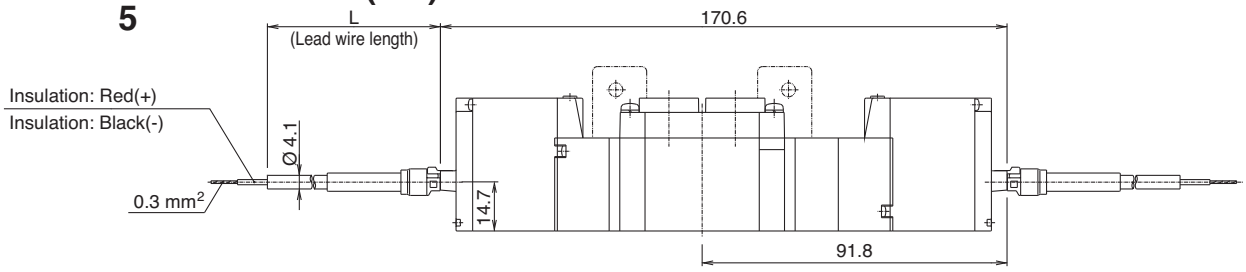
Body ported type
Dimensions/Series 52-SY7000
3-position closed centre/ exhaust centre/ pressure centre
Plug connector type (L)

3
52-SY7420-L□□-02□(-F2)
5



Plug connector with cover type (LL)

3
52-SY7420-LL□□-02□(-F2)
5



Terminal type (TT)

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52-SY7420-TT□□-02□(-F2)
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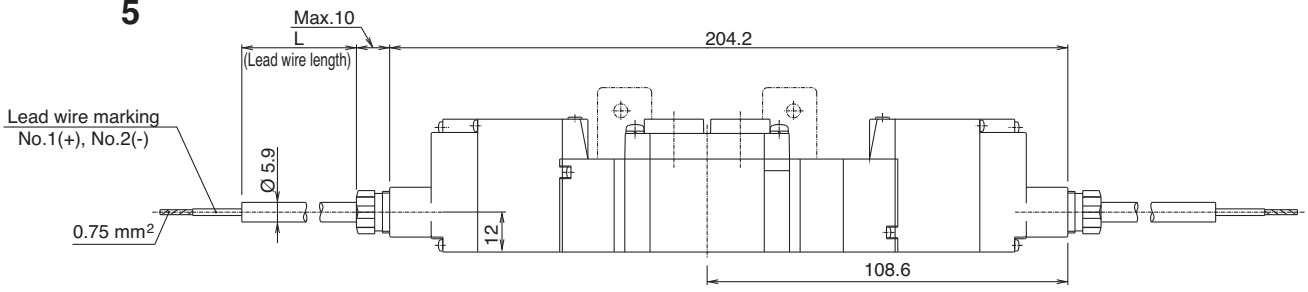
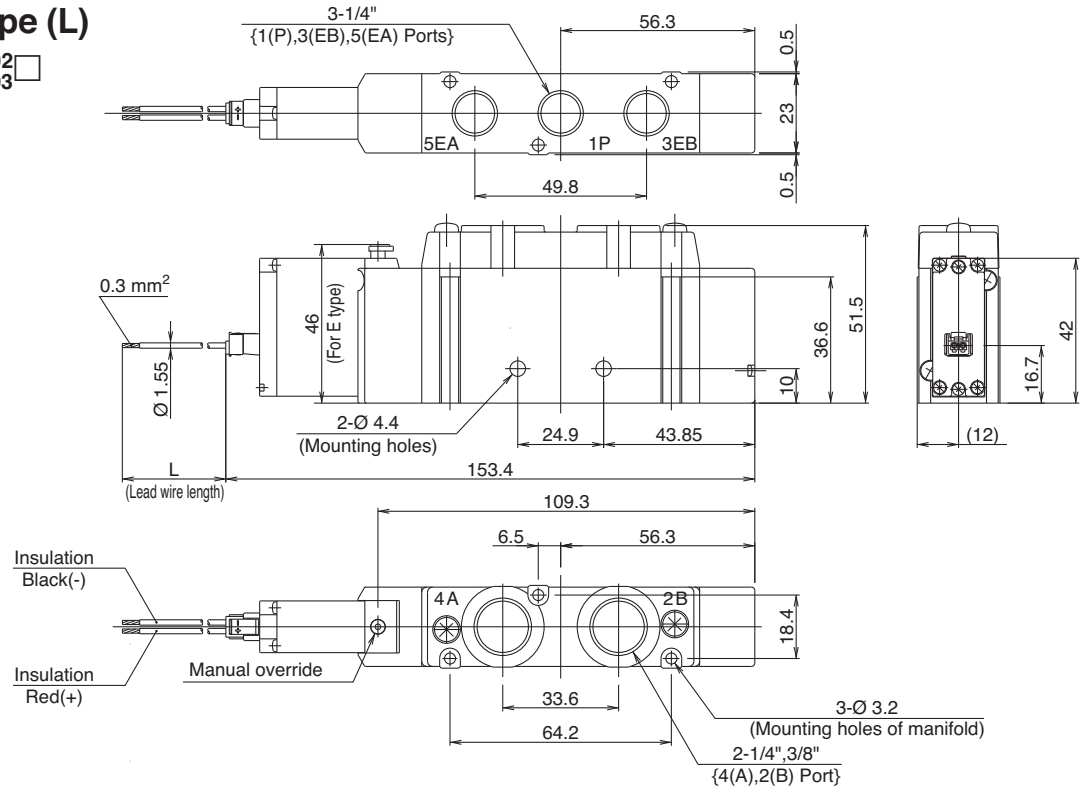
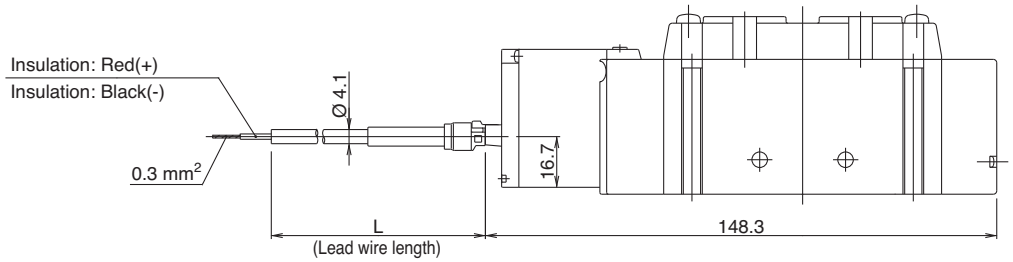


Dimensions

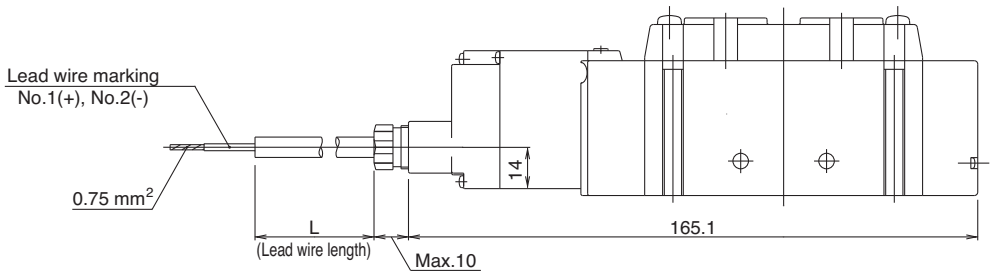
Body ported type
Dimensions/Series 52-SY9000
2-position single
Plug connector type (L)
52-SY9120-L□□-$^{02}_{03}$□



Plug connector with cover type (LL)
52-SY9120-LL□□-$^{02}_{03}$□

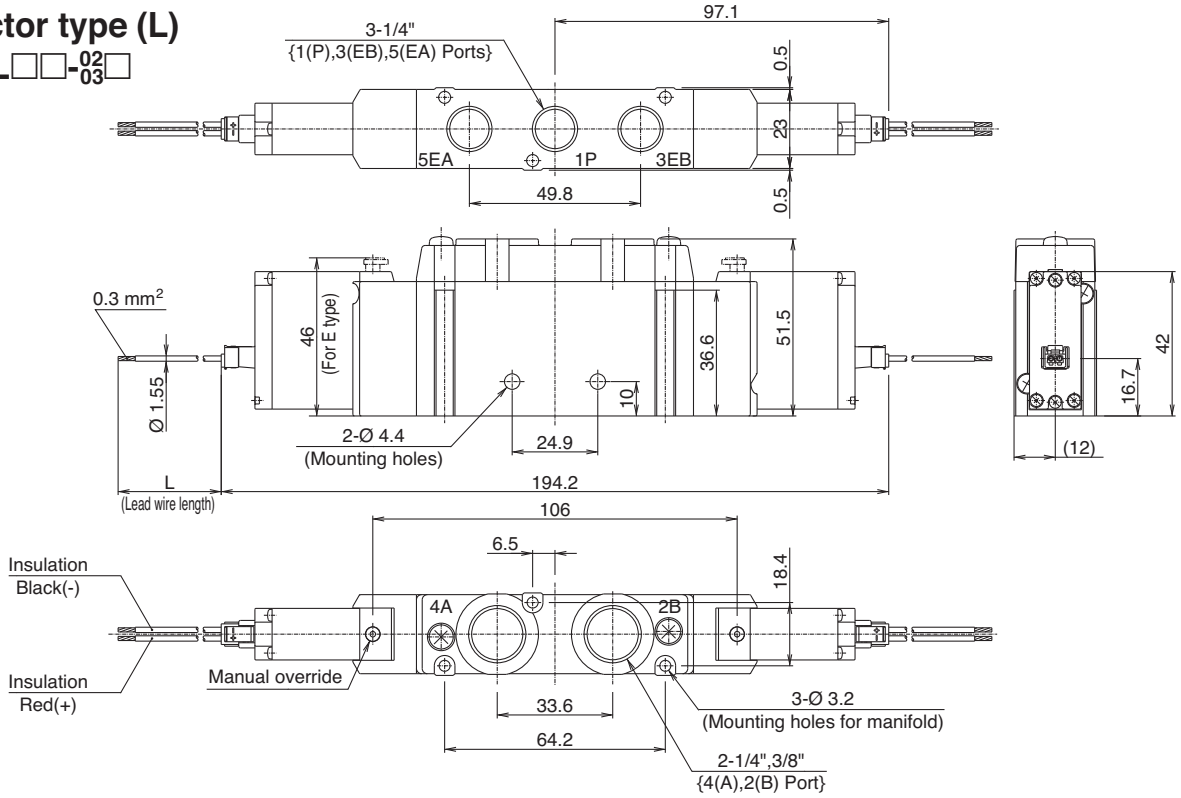


Terminal (TT)
52-SY9120-TT□□-$^{02}_{03}$□

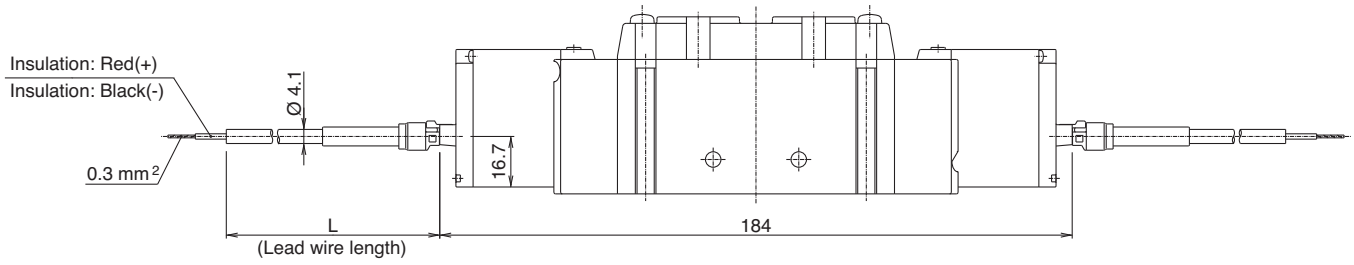


Dimensions

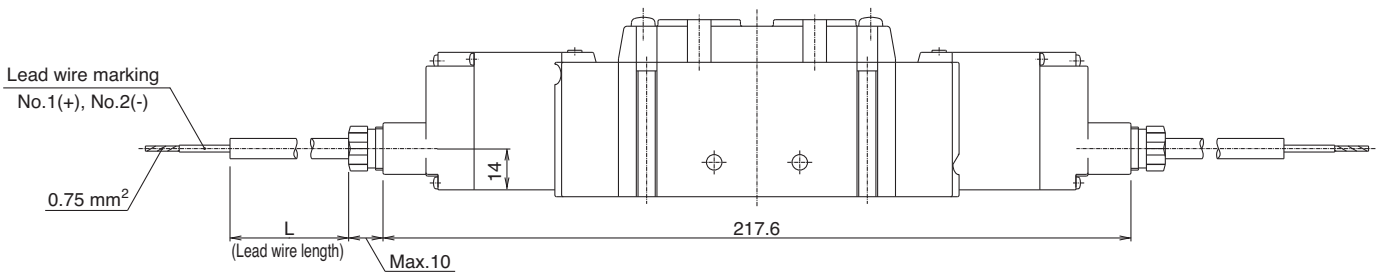
Body ported type
Dimensions/Series 52-SY9000
2-position double
Plug connector type (L)
52-SY9220-L□□-$^{02}_{03}$□



Plug connector with cover type (LL)
52-SY9220-LL□□-$^{02}_{03}$□



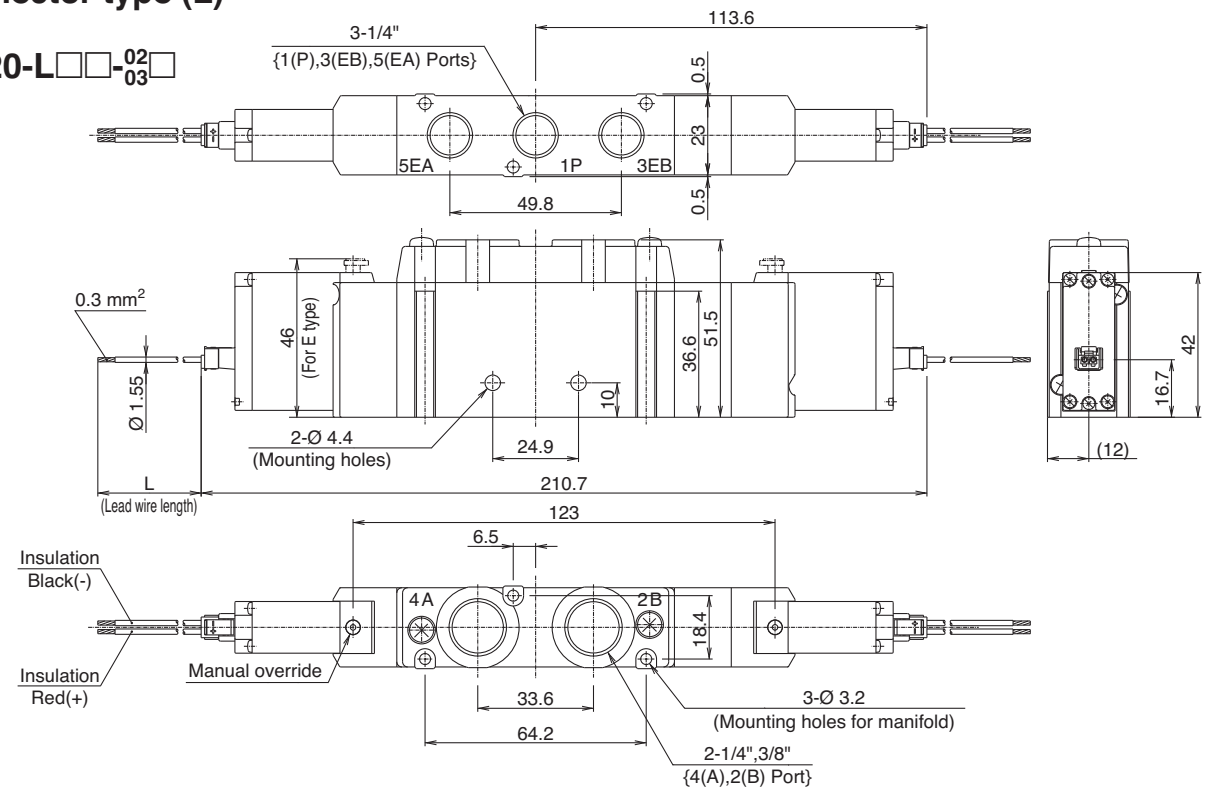
Terminal type (TT)
52-SY9220-TT□□-$^{02}_{03}$□



Dimensions

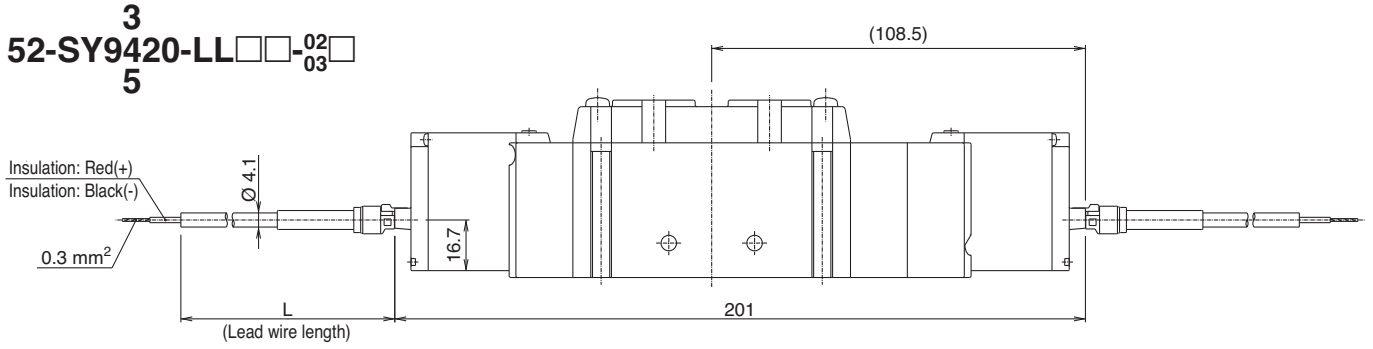
Body ported type
Dimensions/Series 52-SY9000
3-position closed centre/exhaust centre/pressure centre
Plug connector type (L)

3
52-SY9420-L□□-$^{02}_{03}$□
5



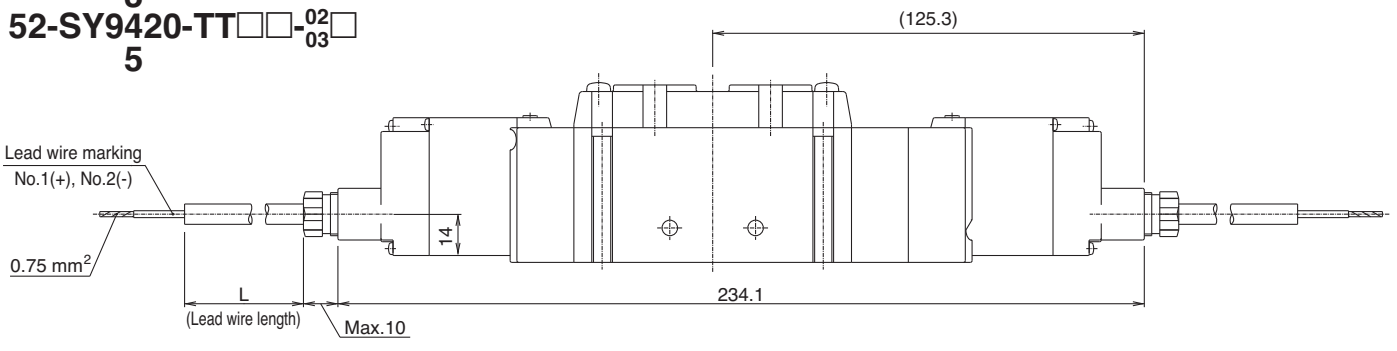
Plug connector with cover type (LL)

3
52-SY9420-LL□□-$^{02}_{03}$□
5



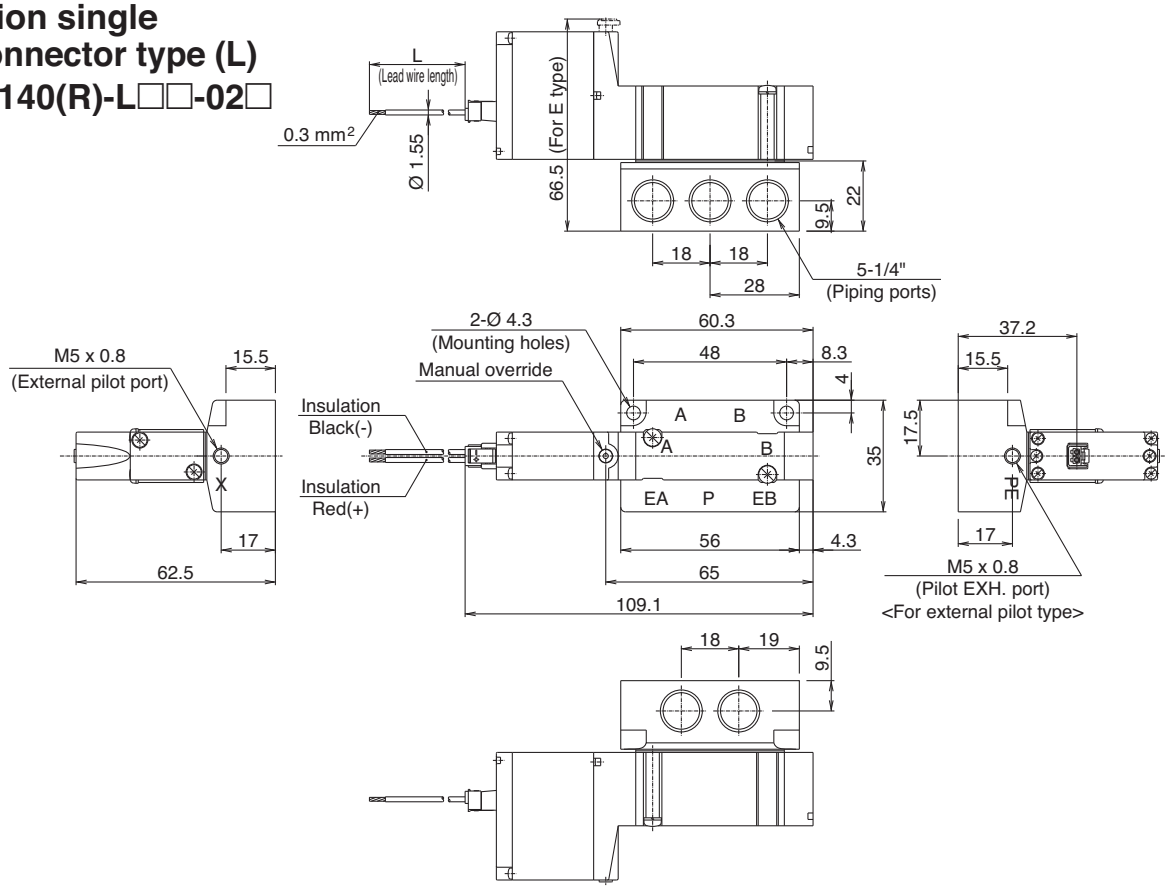
Terminal type (TT)

3
52-SY9420-TT□□-$^{02}_{03}$□
5

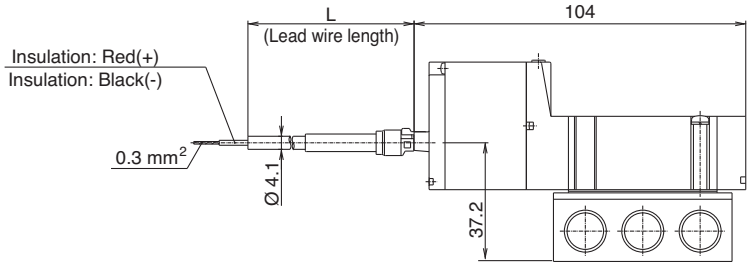


Dimensions

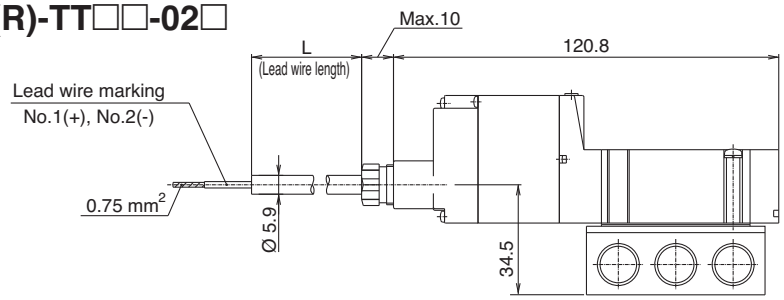
Base mounted type
Dimensions/Series 52-SY5000
2-position single
Plug connector type (L)
52-SY5140(R)-L□□-02□



Plug connector with cover type (LL)
52-SY5140(R)-LL□□-02□

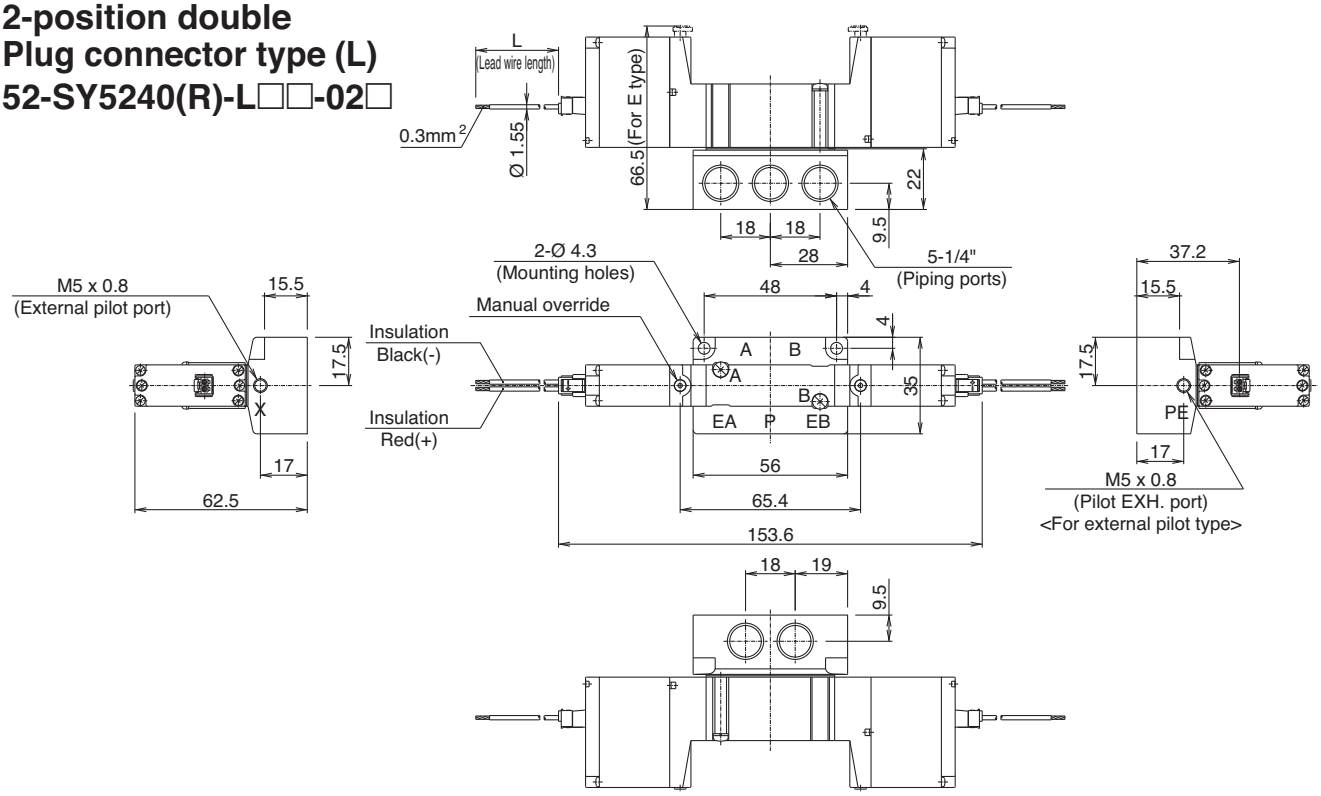


Terminal type (TT)
52-SY5140(R)-TT□□-02□

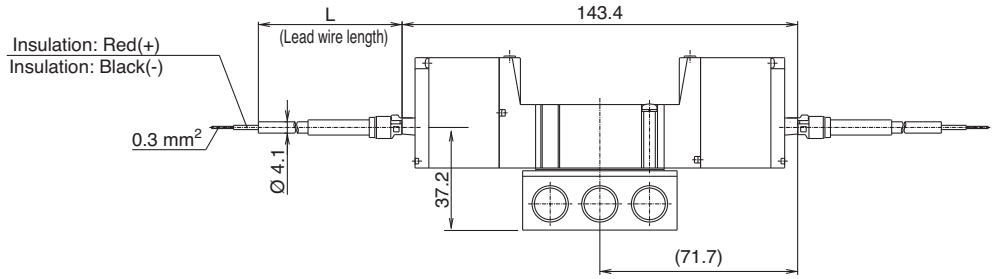


Dimensions

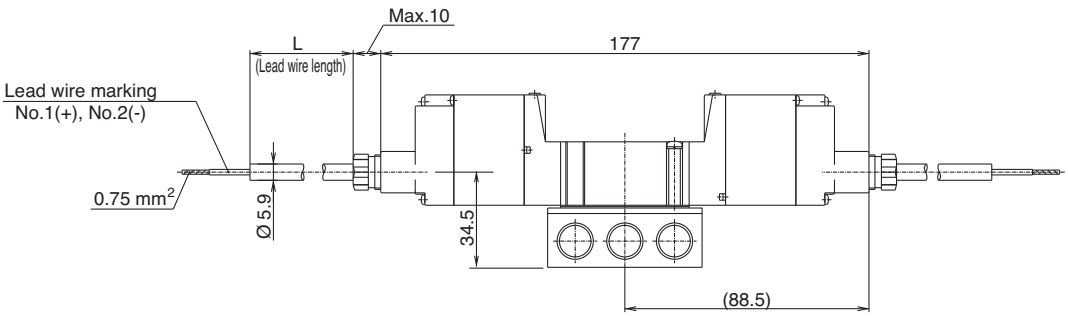
Base mounted type
Dimensions/Series 52-SY5000
2-position double
Plug connector type (L)
52-SY5240(R)-L□□-02□



Plug connector with cover type (LL)
52-SY5240(R)-LL□□-02□



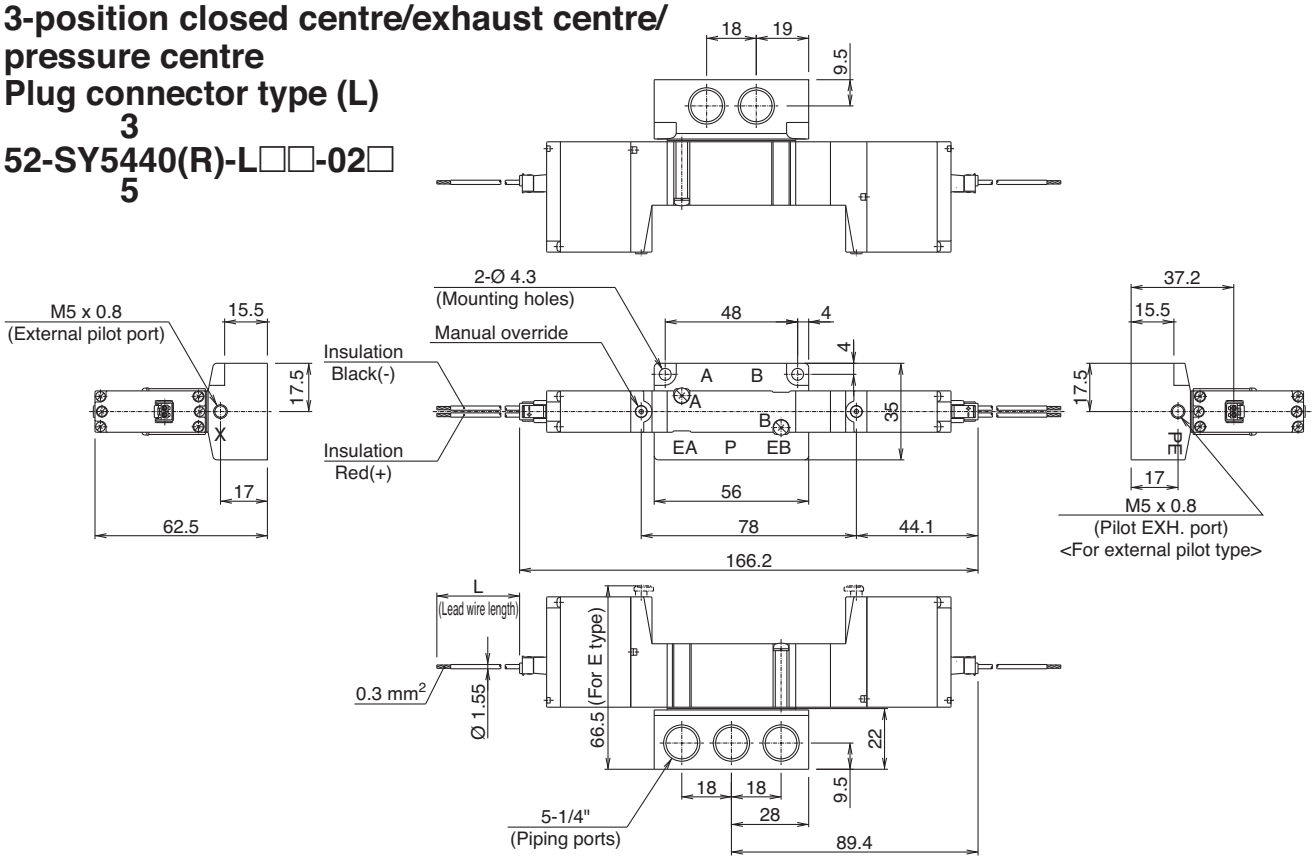
Terminal type (TT)
52-SY5240(R)-TT□□-02□



Dimensions

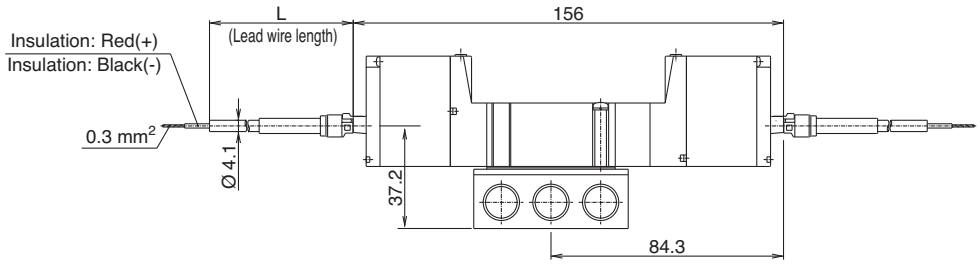
Base mounted type
Dimensions/Series 52-SY5000
3-position closed centre/exhaust centre/ pressure centre
Plug connector type (L)

3
52-SY5440(R)-L□□-02□
5



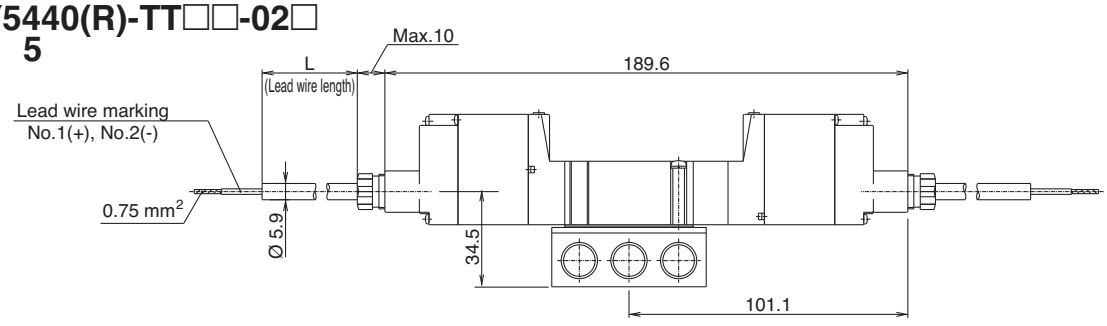
Plug connector with cover type (LL)

3
52-SY5440(R)-LL□□-02□
5



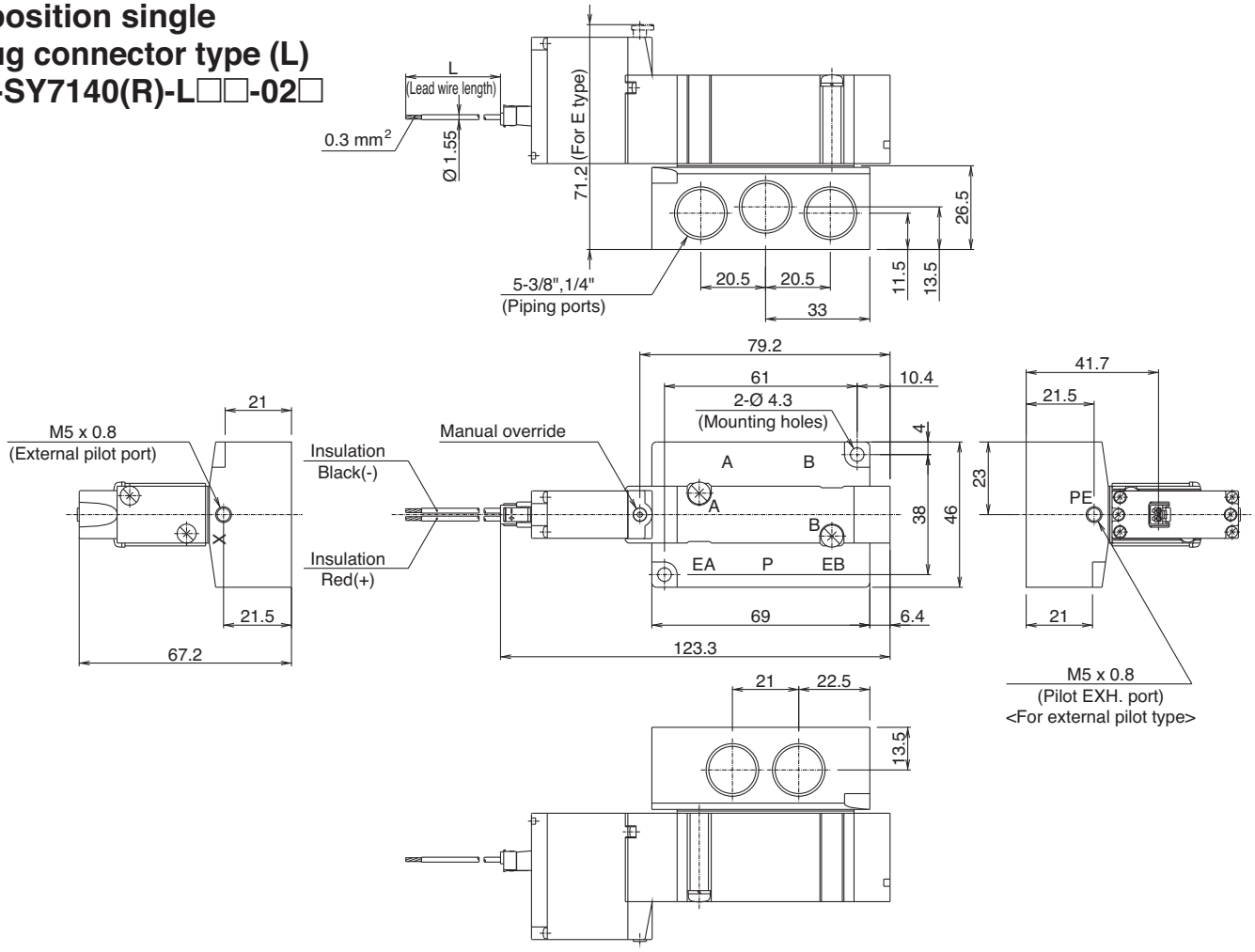
Terminal type (TT)

3
52-SY5440(R)-TT□□-02□
5

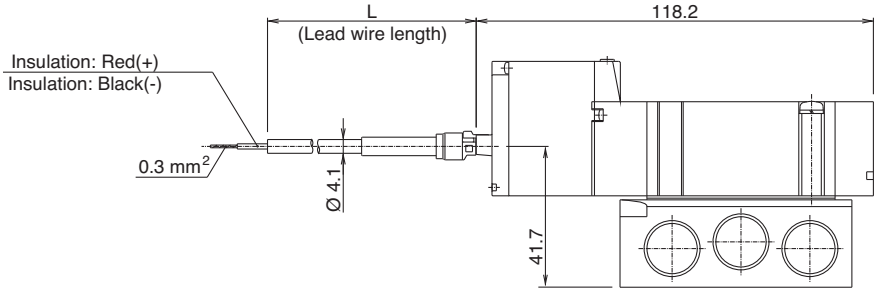


Dimensions

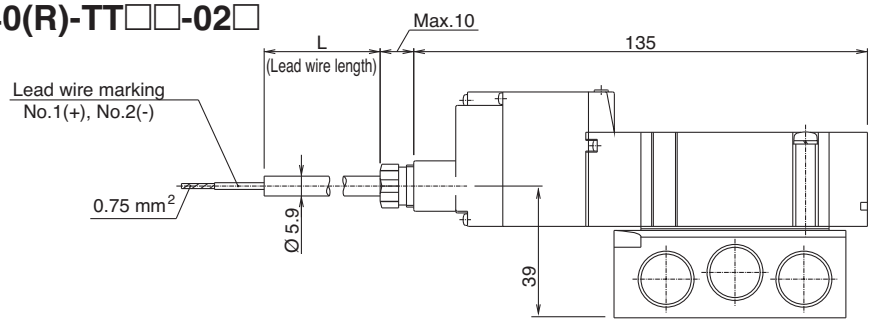
Base mounted type
Dimensions/Series 52-SY7000
2-position single
Plug connector type (L)
52-SY7140(R)-L□□-02□



Plug connector with cover type (LL)
52-SY7140(R)-LL□□-02□



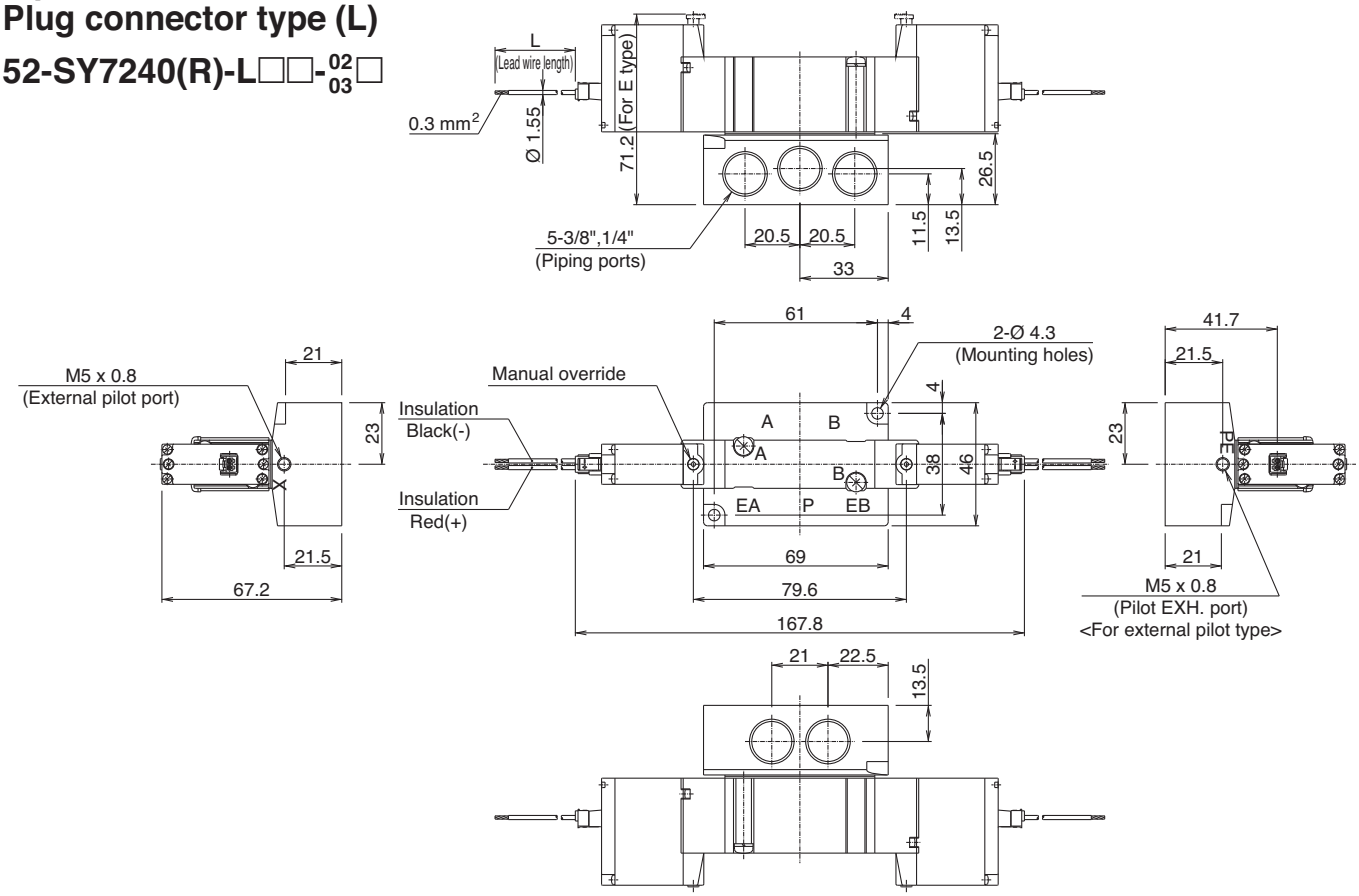
Terminal type (TT)
52-SY7140(R)-TT□□-02□



Dimensions

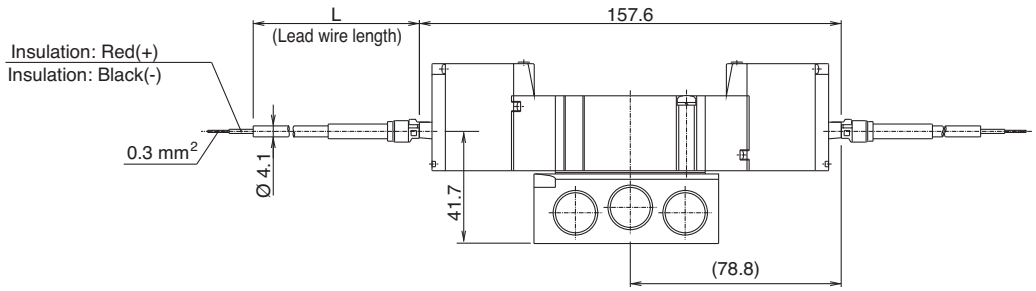
Base mounted type
Dimensions/Series 52-SY7000
2-position double
Plug connector type (L)

52-SY7240(R)-L□□-$^{02}_{03}$□



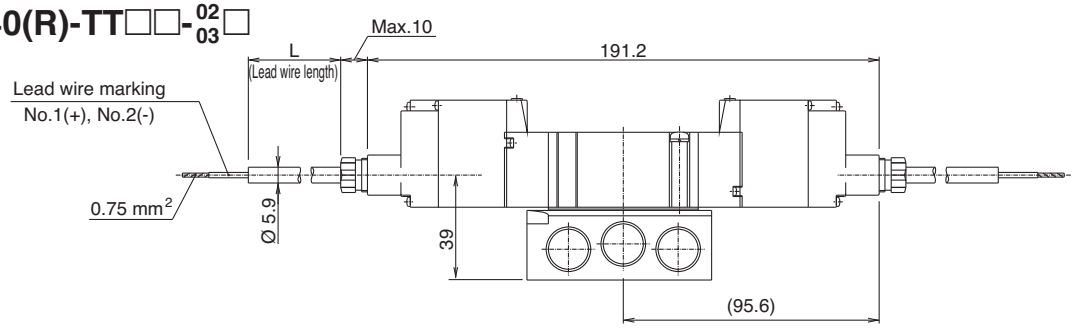
Plug connector with cover type (LL)

52-SY7240(R)-LL□□-$^{02}_{03}$□



Terminal type (TT)

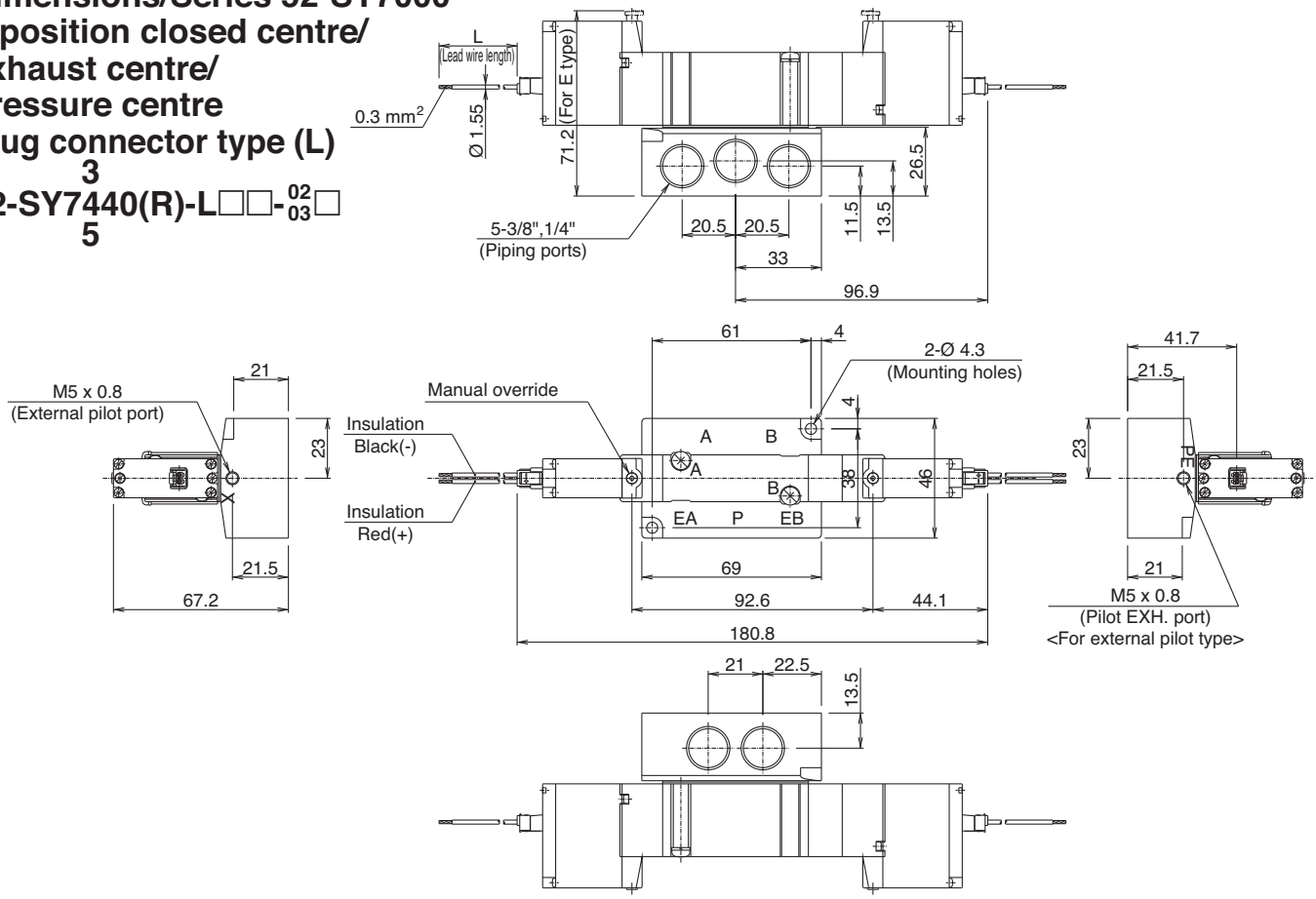
52-SY7240(R)-TT□□-$^{02}_{03}$□



Dimensions

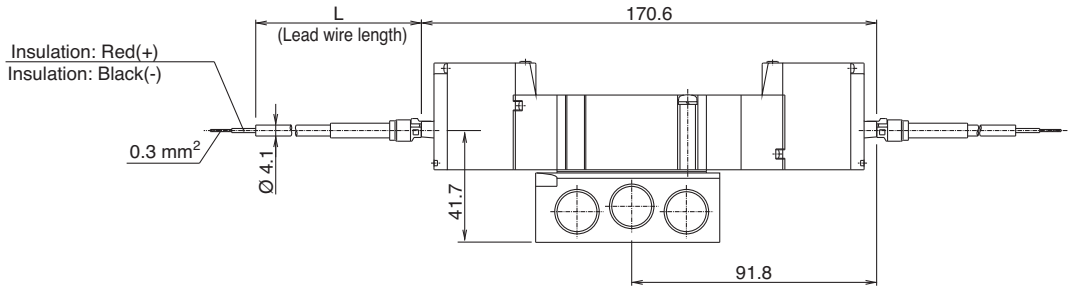
Base mounted type
Dimensions/Series 52-SY7000
3-position closed centre/ exhaust centre/ pressure centre
Plug connector type (L)

3
52-SY7440(R)-L□□-$^{02}_{03}$□
5



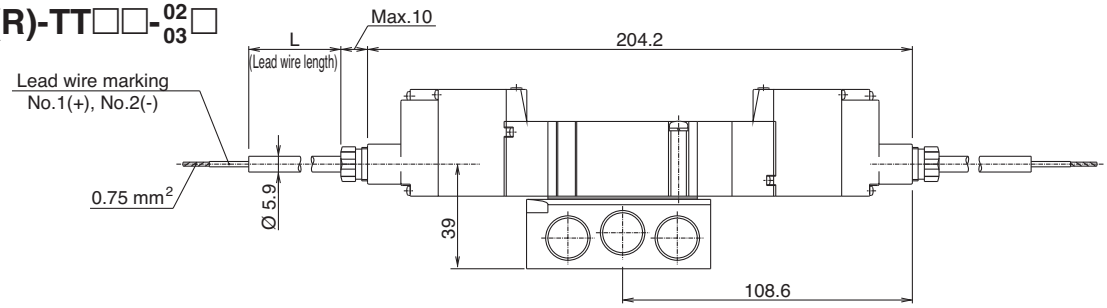
Plug connector with cover type (LL)

3
52-SY7440(R)-LL□□-$^{02}_{03}$□
5



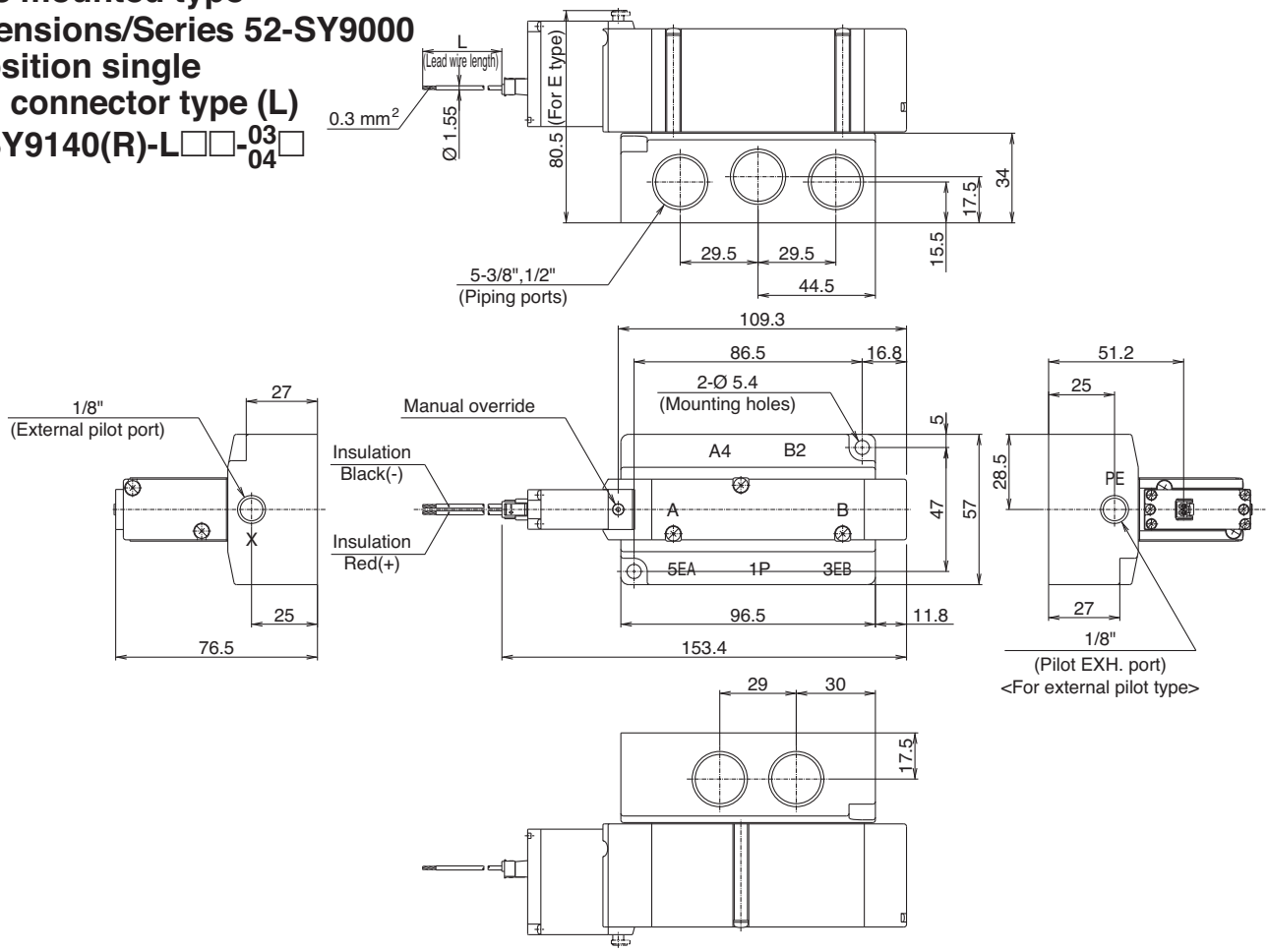
Terminal type (TT)

3
52-SY7440(R)-TT□□-$^{02}_{03}$□
5

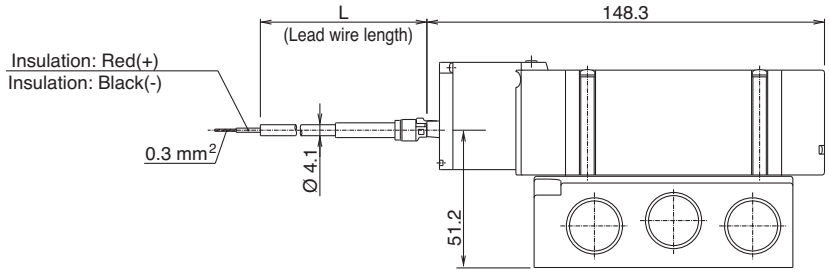


Dimensions

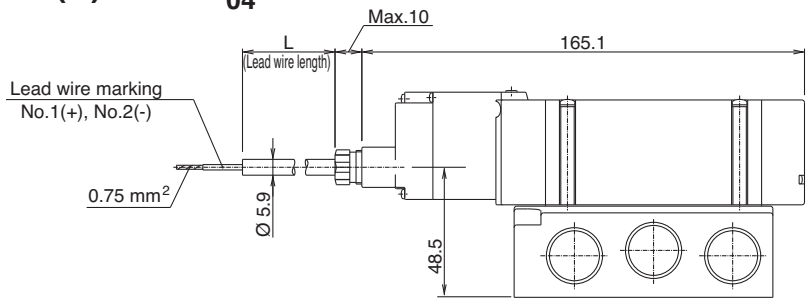
Base mounted type
Dimensions/Series 52-SY9000
2-position single
Plug connector type (L)
52-SY9140(R)-L□□-$^{03}_{04}$□



Plug connector with cover type (LL)
52-SY9140(R)-LL□□-$^{03}_{04}$□

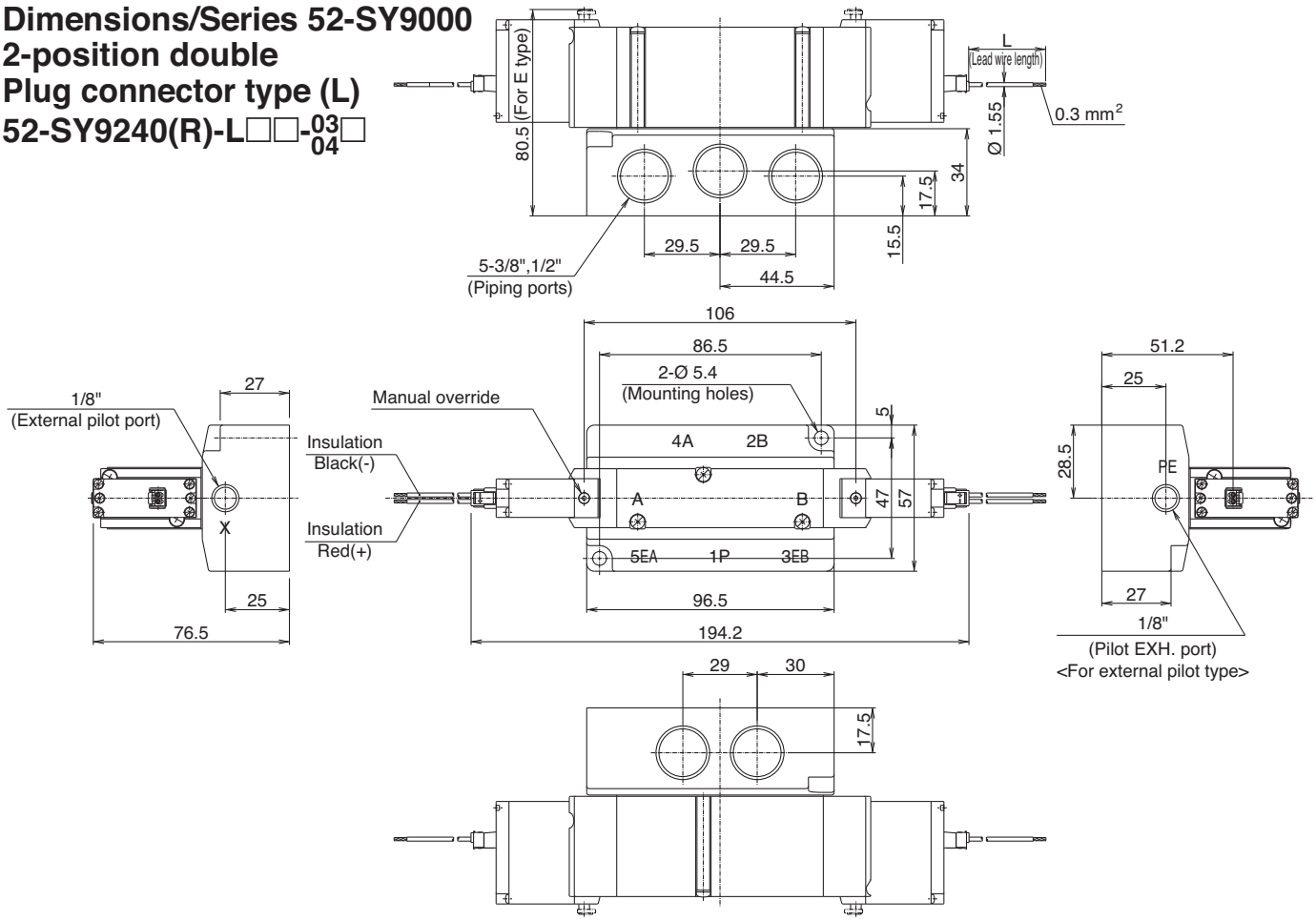


Terminal type (TT)
52-SY9140(R)-TT□□-$^{03}_{04}$□

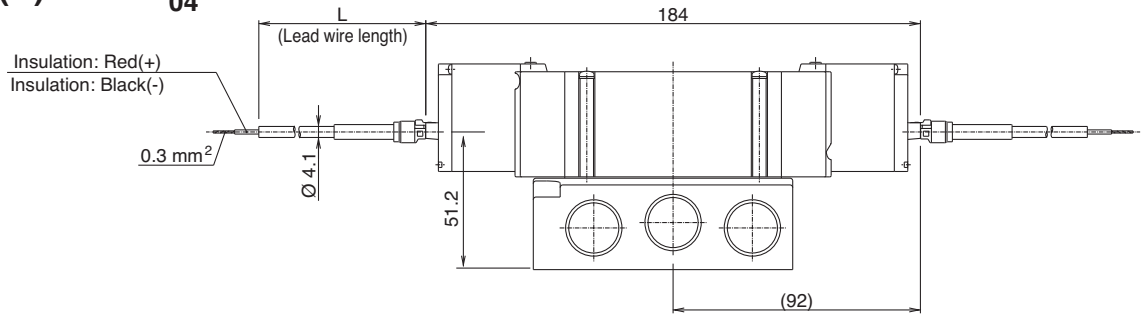


Dimensions

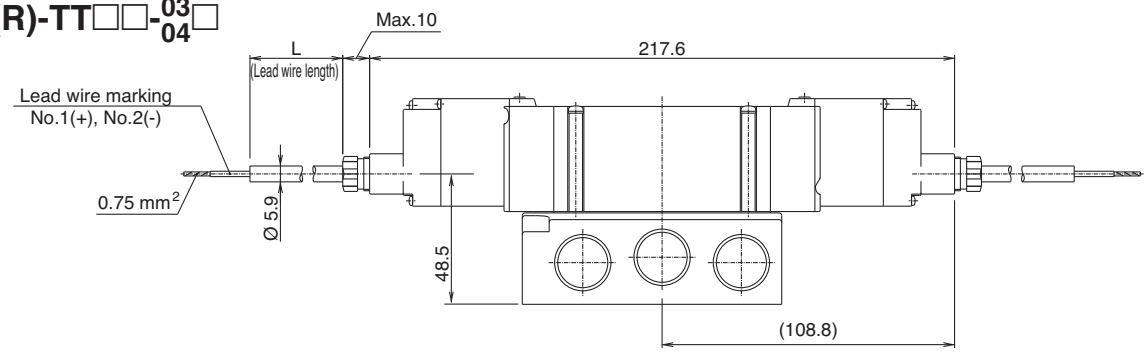
Base mounted type
Dimensions/Series 52-SY9000
2-position double
Plug connector type (L)
52-SY9240(R)-L□□-$^{03}_{04}$□



Plug connector with cover type (LL)
52-SY9240(R)-LL□□-$^{03}_{04}$□



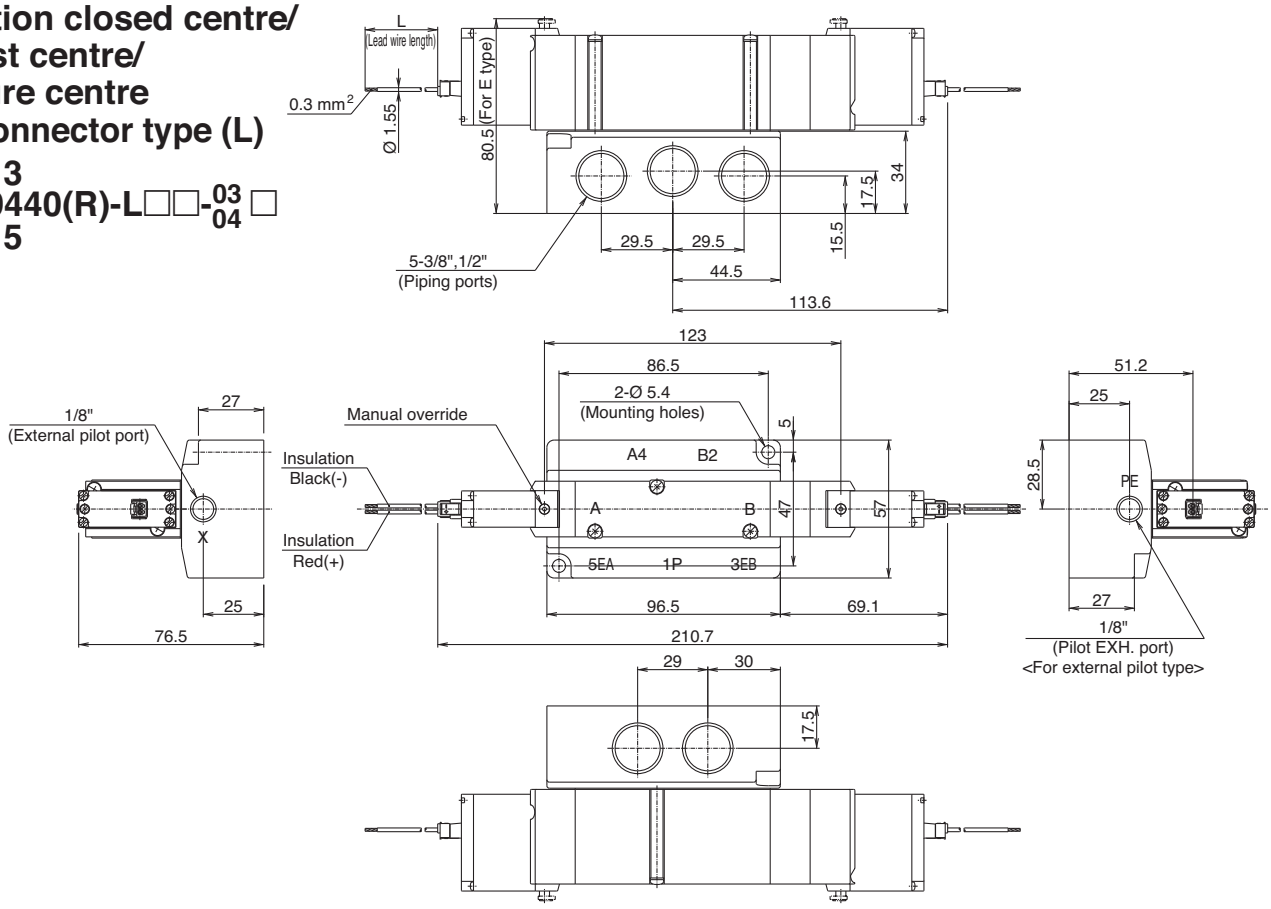
Terminal type (TT)
52-SY9240(R)-TT□□-$^{03}_{04}$□



Dimensions

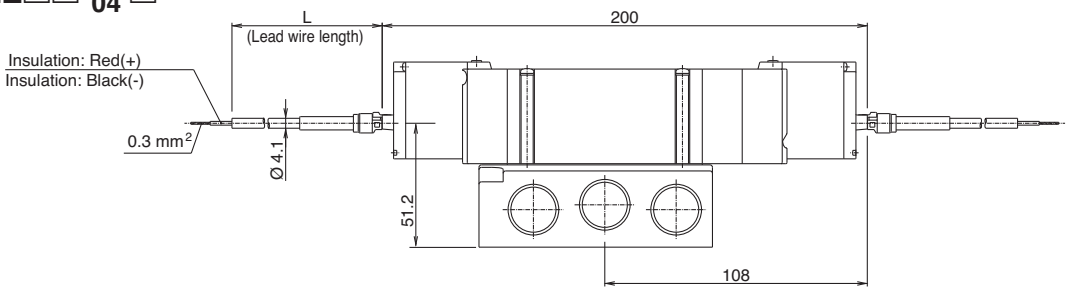
Base mounted type
Dimensions/Series 52-SY9000
3-position closed centre/ exhaust centre/ pressure centre
Plug connector type (L)

52-SY9440(R)-L□□-$^{03}_{04}$ $^{3}_{5}$ □



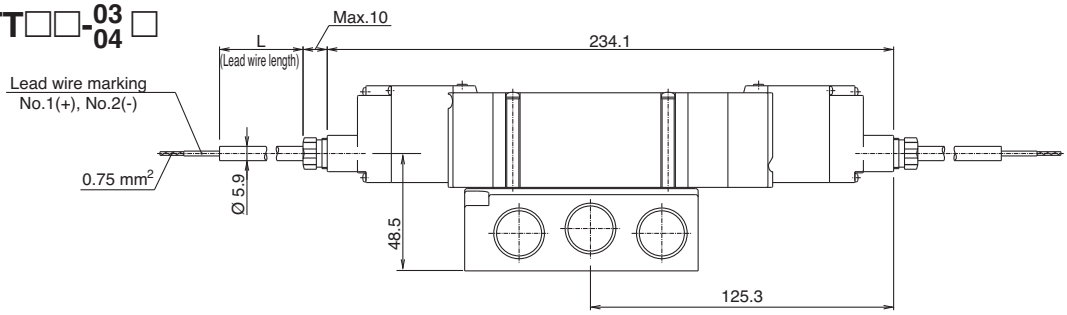
Plug connector with cover type (LL)

52-SY9440(R)-LL□□-$^{03}_{04}$ $^{3}_{5}$ □



Terminal type (TT)

52-SY9440(R)-TT□□-$^{03}_{04}$ $^{3}_{5}$ □



ATEX Compliant

5-Port Solenoid Valve
Series 56-VQC1000

Manifold with M- or T- kit
II 3G Ex nA II B T5 Gc X
II 3D Ex tc III C T85 °C Dc X IP67
- 10 °C ≤ Ta ≤ +50 °C
Special condition X "Protect from Impact"

How to Order Manifolds

56 - VV5QC 1 1 – 08 C3 TD0 N – □ ..... M / T / S Kit

ATEX category 3

Series

1	56-VQC1000

Manifold model

1	Plug-in unit

Stations

01	1 station
⋮	⋮

The minimum or the maximum number of stations differs depending on the electrical entry (refer to Electrical entry/Cable length).

Options

–	None
B	All stations with back pressure check valve
D	With DIN rail (rail length: standard)
D□	With DIN rail (rail length: special)
K	Special wiring specifications (except for double wiring)
N	With name plate
R	External pilot

Cylinder port size

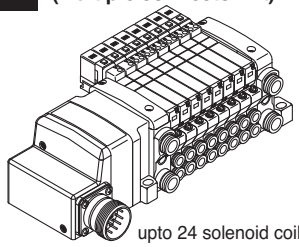
C3	With Ø 3.2 One-touch fitting
C4	With Ø 4 One-touch fitting
C6	With Ø 6 One-touch fitting
M5	M5 thread
CM	Mixed sizes and with port plug
L3	Top ported elbow wtih Ø 3.2 One-touch fitting
L4	Top ported elbow with Ø 4 One-touch fitting
L6	Top ported elbow with Ø 6 One-touch fitting
L5	M5 thread
LM	Elbow port, mixture sizes
B3	Bottom ported elbow with Ø 3.2 One-touch fitting
B4	Bottom ported elbow with Ø 4 One-touch fitting
B6	Bottom ported elbow with Ø 6 One-touch fitting
B5	M5 thread
BM	Elbow for bottom port, mixture sizes

COM.

N	Negative COM.

Kit designation/Electrical entry/Cable length

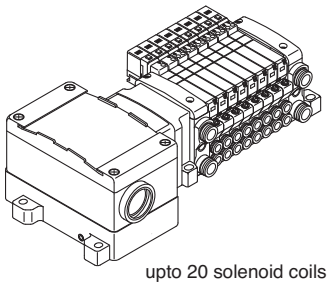
M **Kit (Multiple connector kit)**



upto 24 solenoid coils

MD0	Multiple connector kit (26P) without cable	1 to 12 stations (24 stations)
MD1	Multiple connector kit (26P) with 1.5 m cable	
MD2	Multiple connector kit (26P) with 3.0 m cable	
MD3	Multiple connector kit (26P) with 5.0 m cable	

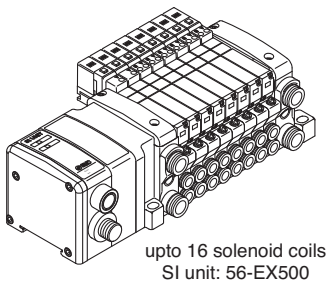
T **Kit (Terminal block box kit)**



upto 20 solenoid coils

TD0	Terminal block box kit	1 to 10 stations (20 stations)

S **Kit (Serial output kit)**



upto 16 solenoid coils
SI unit: 56-EX500

SDA2	Serial kit for PROFIBUS DP / DEVICENET ™	1 to 8 stations (16 stations)

Contact SMC for 56-EX250 with Profibus DP

The maximum number of stations displayed in parentheses is applied to the special wiring specifications. (Option "-K")
The maximum number of stations is determined by the total number of solenoids. (Single solenoid type: 1 point, Double solenoid type: 2 points)
Make sure that the total number of solenoids does not exceed the maximum number of stations. Additionally, when combining with option parts, make sure that the maximum number of stations is not exceeded.

All other specifications are the same as the standard products Series VQC.
For details, refer to **the WEB catalogue**.

How to Order Valves

56 - VQC 1 1 0 0 – 5

ATEX category 3

Series

1	56-VQC1000

Type of actuation

1	2-position single
2	2-position double (metal)
	2-position double (rubber)
3	3-position closed centre
4	3-position exhaust centre
5	3-position pressure centre
A Note)	4-position dual 3-port valve (A)
B Note)	4-position dual 3-port valve (B)
C Note)	4-position dual 3-port valve (C)

Note) For rubber seal type only.

Seal type

0	Metal seal
1	Rubber seal

Function

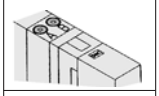
–	Standard type
R	External pilot

Coil voltage

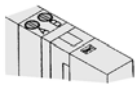
5	24 V DC

Manual override

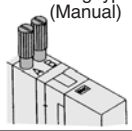
– : Non-locking push type



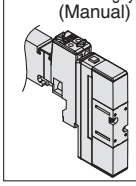
B: Locking type (Slotted)



C: Locking type (Manual)



D: Slide locking type (Manual)



Note) "56-" solenoid valve should be installed in "56-VV5QC11" manifold.
Power consumption when starting is 1W, when maintaining 0.35 W.
"56-VQC" solenoid valve has no polarity

Specifications for 56-VQC 1000/2000 and 4000

Valve specifications	Valve Configuration			Metal seal	Rubber seal
	Fluid			Air/Inert gas	
	56-VQC1000/2000	Max. operating pressure		0.7 MPa	
		Min. operating pressure	Single	0.1 MPa	0.15 MPa
			Double	0.1 MPa	
			3-position	0.1 MPa	0.2 MPa
			4-position	—	0.15 MPa
	56-VQC4000	Max. operating pressure		1.0 MPa	
		Min. operating pressure	Single	0.15 MPa	0.2 MPa
			Double	0.15 MPa	
			3-position	0.15 MPa	0.2 MPa
	Proof pressure			1.5 MPa	
	Fluid temperature			–10 to 50 °C Note 1)	
	Lubrication			Not required	
	Manual override			Push type/Locking type (tool required)/Locking type Note 2)/Slide locking type Note 2)	
	Impact resistance/Vibration resistance			150/30 m/s² Note 3)	
	Enclosure			Dust proof (conforms to IP67)	
Electrical specifications	Rated coil voltage			24 V DC	
	Allowable voltage fluctuation			10 % of rated voltage	
	Coil insulation type			Equivalent to B type	
	Power consumption (Current) Note4)		24 V DC	1 W (42 mA) for inrush / 0.35 W (15 mA) for holding	

Note 1) Use dry air to prevent condensation at low temperatures.
Note 2) Only for 56-VQC1000/2000.
Note 3) **Impact resistance:** No malfunction resulted from the impact test using a drop impact tester. The test was performed one time each in the axial and right angle directions of the main valve and armature, for both energised and de-energised states.
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed in the axial and right angle directions of the main valve and armature for both energised and de-energised states.
Note 4) The power-saving unit is included in the manifold.

ATEX Compliant

5-Port Solenoid Valve
Series 56-VQC2000

Manifold with M- or T- kit
II 3G Ex nA II B T5 Gc X
II 3D Ex tc III C T85 °C Dc X IP67
- 10 °C ≤ Ta ≤ +50 °C
Special condition X "Protect from Impact"

How to Order Manifolds

56 - VV5QC 2 1 – 08 C4 TD0 N – □ ····· M / T / S Kit

ATEX category 3

Series

2	56-VQC2000

Manifold model

1	Plug-in unit

Stations

01	1 station
⋮	⋮

The minimum or the maximum number of stations differs depending on the electrical entry (refer to Electrical entry/Cable length).

Options

–	None
B	All stations with back pressure check valve
D	With DIN rail (rail length: standard)
D□	With DIN rail (rail length: special)
K	Special wiring specifications (except for double wiring)
N	With name plate
R	External pilot
T	Branched P and R ports on U side

Cylinder port size

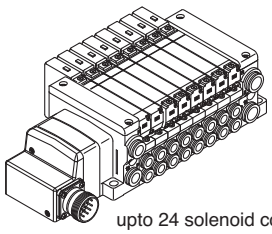
C4	With Ø 4 One-touch fitting
C6	With Ø 6 One-touch fitting
C8	With Ø 8 One-touch fitting
CM	Mixed sizes and with port plug
L4	Top ported elbow With Ø 4 One-touch fitting
L6	Top ported elbow With Ø 6 One-touch fitting
L8	Top ported elbow With Ø 8 One-touch fitting
LM	Elbow port, mixture sizes
B4	Bottom ported elbow With Ø 4 One-touch fitting
B6	Bottom ported elbow With Ø 6 One-touch fitting
B8	Bottom ported elbow With Ø 8 One-touch fitting
BM	Elbow for bottom port, mixture sizes

COM.

N	Negative COM.

Kit designation/Electrical entry/Cable length

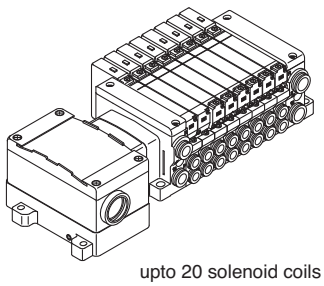
M **Kit (Multiple connector kit)**



upto 24 solenoid coils

MD0	Multiple connector kit (26P) without cable	1 to 12 stations (24 stations)
MD1	Multiple connector kit (26P) with 1.5 m cable	
MD2	Multiple connector kit (26P) with 3.0 m cable	
MD3	Multiple connector kit (26P) with 5.0 m cable	

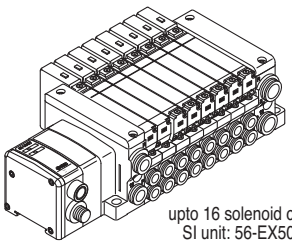
T **Kit (Terminal block box kit)**



upto 20 solenoid coils

TD0	Terminal block box kit	1 to 10 stations (20 stations)

S **Kit (Serial output kit)**



upto 16 solenoid coils
SI unit: 56-EX500
Note) A separate gateway unit and communication cable are required

SDA2	Serial kit for PROFIBUS DP / DEVICENET ™	1 to 8 stations (16 stations)

Contact SMC for 56-EX250 with Profibus DP

The maximum number of stations displayed in parentheses is applied to the special wiring specifications. (Option "-K")
The maximum number of stations is determined by the total number of solenoids. (Single solenoid type: 1 point, Double solenoid type: 2 points)
Make sure that the total number of solenoids does not exceed the maximum number of stations. Additionally, when combining with option parts, make sure that the maximum number of stations is not exceeded.

All other specifications are the same as the standard products Series VQC.
For details, refer to **the WEB catalogue**.

How to Order Valves

56 - VQC 2 1 0 0 [ ] – 5 [ ]

ATEX category 3

Series

2	56-VQC2000

Type of actuation

1	2-position single
2	2-position double (metal)
	2-position double (rubber)
3	3-position closed centre
4	3-position exhaust centre
5	3-position pressure centre
A Note)	4-position dual 3-port valve (A)
B Note)	4-position dual 3-port valve (B)
C Note)	4-position dual 3-port valve (C)

Note) For rubber seal type only.

Seal type

0	Metal seal
1	Rubber seal

Function

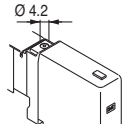
–	Standard type
R	External pilot

Coil voltage

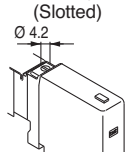
5	24 V DC

Manual override

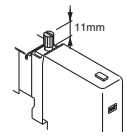
– : Non-locking push type



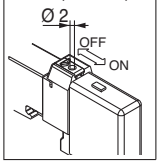
B: Locking type (Slotted)



C: Locking type (Manual)



D: Slide locking type (Manual)



Note) "56-" solenoid valve should be installed in "56-VV5QC21" manifold.
Power consumption when starting is 1W, when maintaining 0.35 W.
"56-VQC" solenoid valve has no polarity

ATEX Compliant

5-Port Solenoid Valve
Series 56-VQC4000

Manifold with M- or T- kit
II 3G Ex nA II B T5 Gc X
II 3D Ex tc III C T85 °C Dc X IP67
- 10 °C ≤ Ta ≤ +50 °C
Special condition X "Protect from Impact"

How to Order Manifolds

56 - VV5QC 4 1 – 08 02 ☐ TD0 N ☐ ····· M / T / S Kit

ATEX category 3

Series

4	56-VQC4000

Manifold model

1	Plug-in unit

Stations

01	1 station
⋮	⋮

The maximum number of stations differs depending on the electrical entry (refer to Electrical entry/Cable length).

Cylinder port size

C8	With Ø 8 One-touch fitting
C10	With Ø 10 One-touch fitting
C12	With Ø 12 One-touch fitting
CM	Mixed sizes and with port plug
02	1/4 thread
03	3/8 thread
B	Bottom port 1/4

Thread type

–	Rc
F	G
N	NPT
T	NPTF

COM.

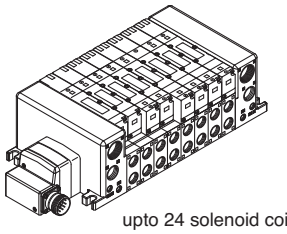
N	Negative COM.

Options

–	None
K	Special wiring specifications (except for double wiring)
N	With name plate (T kit only)

Kit designation/Electrical entry/Cable length

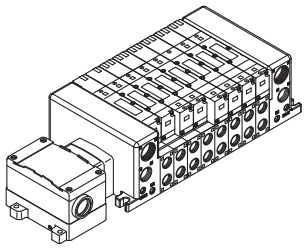
M **Kit (Multiple connector kit)**



upto 24 solenoid coils

MD0	Multiple connector kit (26P) without cable	1 to 12 stations (24 stations)
MD1	Multiple connector kit (26P) with 1.5 m cable	
MD2	Multiple connector kit (26P) with 3.0 m cable	
MD3	Multiple connector kit (26P) with 5.0 m cable	

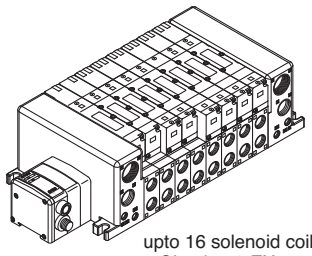
T **Kit (Terminal block box kit)**



upto 20 solenoid coils

TD0	Terminal block box kit	1 to 10 stations (20 stations)

S **Kit (Serial output kit)**



upto 16 solenoid coils
SI unit: 56-EX500

SDA2	Serial kit for PROFIBUS-DP/DEVICENET™	1 to 8 stations (16 stations)

Contact SMC for 56-EX250 with Profibus DP

The maximum number of stations displayed in parentheses is applied to the special wiring specifications. (Option "-K")
The maximum number of stations is determined by the total number of solenoids. (Single solenoid type: 1 point, Double solenoid type: 2 points)
Make sure that the total number of solenoids does not exceed the maximum number of stations. Additionally, when combining with option parts, make sure that the maximum number of stations is not exceeded.

All other specifications are the same as the standard products Series VQC.
For details, refer to **the WEB catalogue**.

How to Order Valves

56 - VQC 4 1 0 0 [ ] – 5 [ ]

ATEX category 3

Series

4	56-VQC4000

Type of actuation

1	2-position single
2	2-position double (metal)
	2-position double (rubber)
3	3-position closed centre
4	3-position exhaust centre
5	3-position pressure centre
6	3-position perfect

Seal type

0	Metal seal
1	Rubber seal

Function

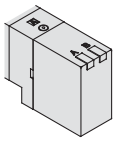
–	Standard type
R	External pilot

Coil voltage

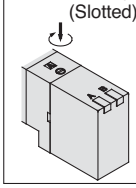
5	24 V DC

Manual override

– : Non-locking push type



B: Locking type (Slotted)



Note) "56-" solenoid valve should be installed in "56-VV5QC41" manifold.
Power consumption when starting is 1W, when maintaining 0.35 W.
"56-VQC" solenoid valve has no polarity.

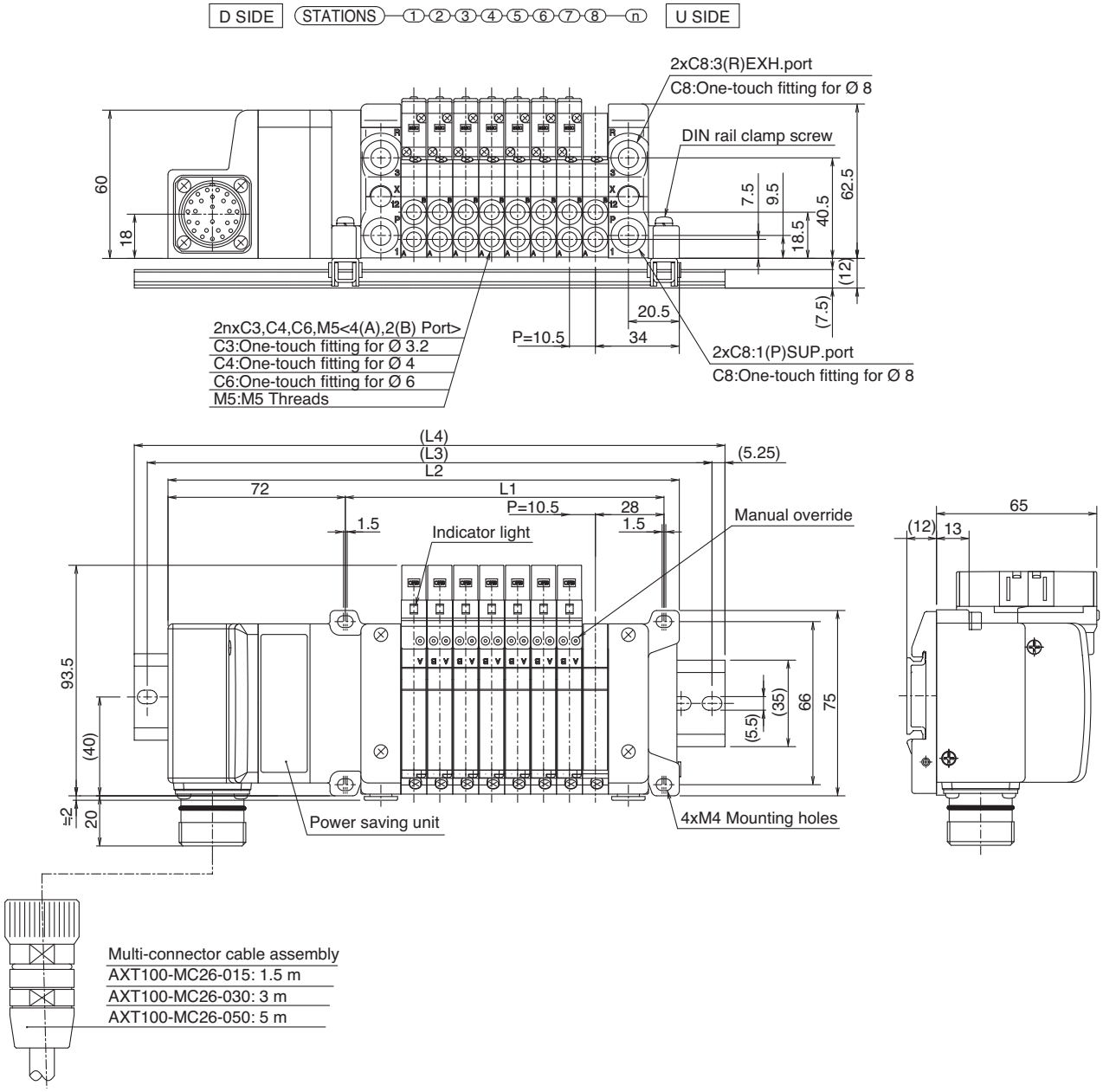
Options for 56-VQC

Name	56-VQC1000	56-VQC2000	56-VQC4000
Blanking plate assembly	VVQ1000-10A-1	VVQ2000-10A-1	VVQ4000-10A-1
Individual SUP spacer	VVQ1000-P-1-C6	VVQ2000-P-1-C8	VVQ4000-P-1-□□
Individual EXH spacer	VVQ1000-R-1-C6	VVQ2000-R-1-C8	VVQ4000-R-1-□□
SUP block plate	VVQ1000-16A	VVQ2000-16A	VVQ4000-16A
EXH block plate	–	VVQ2000-19A	VVQ4000-16A
EXH block base assembly	VVQC1000-19A-□-□□	–	–
Back pressure check valve	VVQ1000-18A	VVQ2000-18A	–
Port plug	VVQ0000-58A	VVQ1000-58A	–
Dual flow fitting assembly	VVQ1000-52A-C8	VVQ2000-52A-C10	–
Elbow fitting assembly	VVQ1000-F-L-□	VVQ2000-F-L-□	–
Port plug	VVQ0000-58A	VVQ1000-58A	–
Blanking plug	KQ2P-□□	KQ2P-□□	KQ2P-□□
DIN rail mounting bracket	VVQ1000-57A(-S)	VVQ2000-57A(-S)	–
Name plate	VVQ1000-N-□	VVQ2000-N-□	–

Notes) □: Please refer to standard catalogues for details.
Do not use options other than specified in this table.
Only these standard parts without "56-" prefix can be used.

M 56-VQC1000
Kit (Multiple Connector Kit)

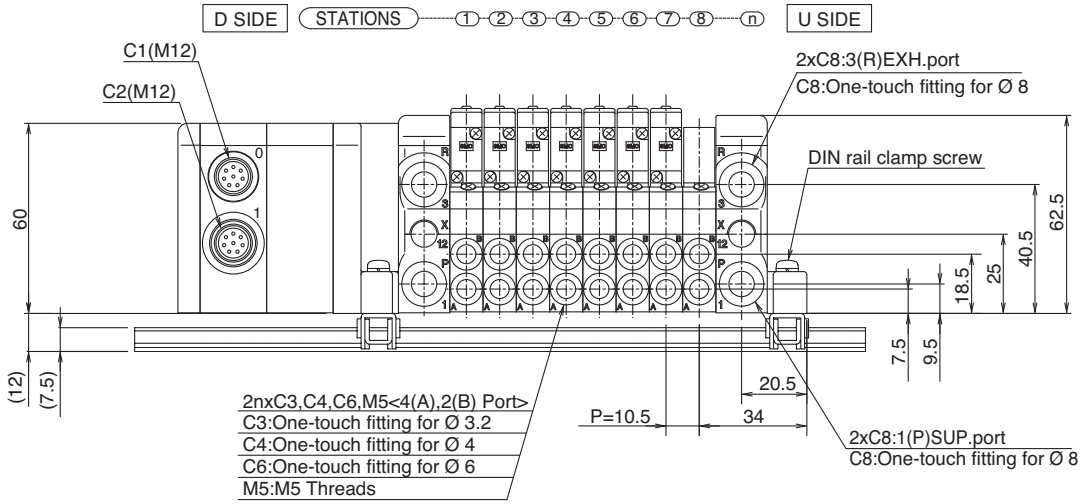
56-VV5QC11

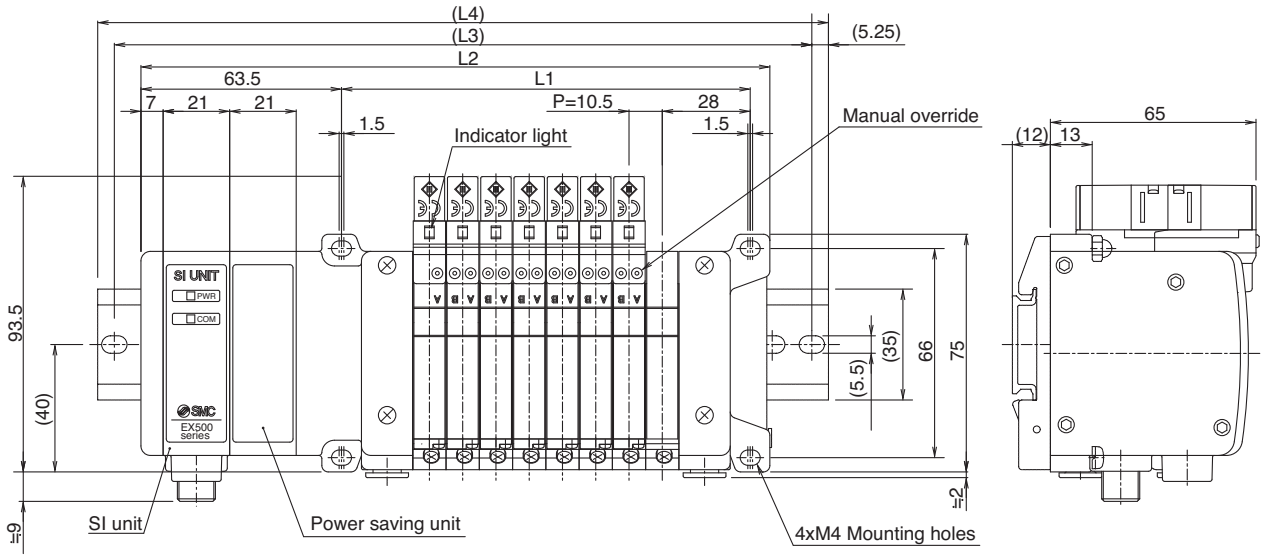


Formulas
L1 = 10.5n + 45
L2 = 10.5n + 123 (1 power saving unit for 1 to 12 solenoids)
L2 = 10.5n + 144 (2 power saving units for 13 to 24 solenoids)
n: Stations (Max. 24 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L2	133.5	144	154.5	165	175.5	186	196.5	207	217.5	228	238.5	249	280.5	291	301.5	312	322.5	333	343.5	354	364.5	375	385.5	396
L3	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250	262.5	275	300	312.5	325	337.5	350	362.5	375	375	387.5	400	412.5	425
L4	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5	273	285.5	310.5	323	335.5	348	360.5	373	385.5	385.5	398	410.5	423	435.5

56-VV5QC11
SDA2 Kit (Serial Transmission Kit: 56-EX500)

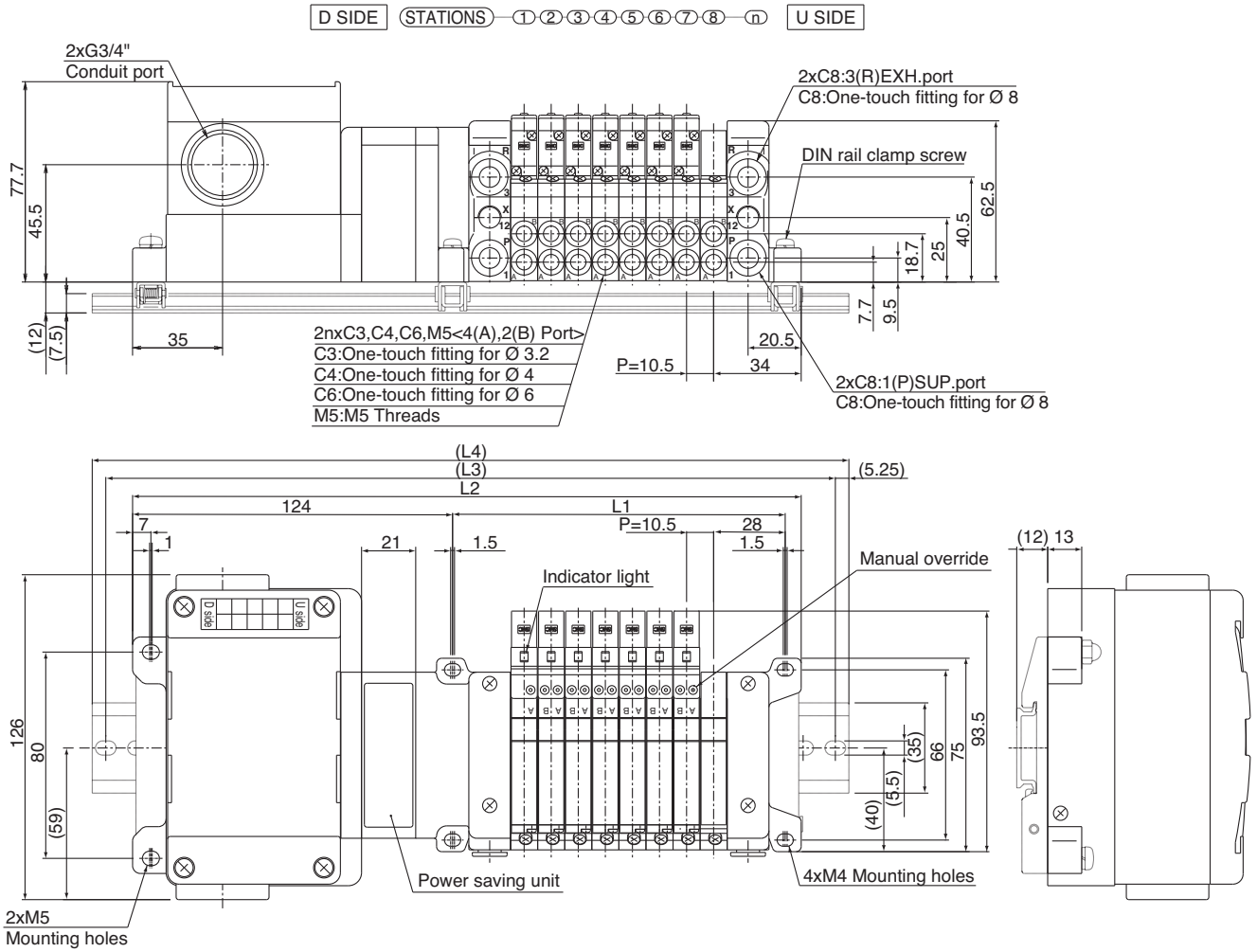




Formulas
L1 = 10.5n + 45
L2 = 10.5n + 114.5 (1 power saving unit for 1 to 12 solenoids)
L2 = 10.5n + 135.5 (2 power saving units for 13 to 16 solenoids) n: Stations (Max. 16 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213
L2	125	135.5	146	156.5	167	177.5	188	198.5	230	240.5	251	261.5	272	282.5	293	303.5
L3	150	162.5	175	187.5	187.5	200	212.5	225	250	262.5	275	287.5	300	312.5	312.5	325
L4	160.5	173	185.5	198	198	210.5	223	235.5	260.5	273	285.5	298	310.5	323	323	335.5

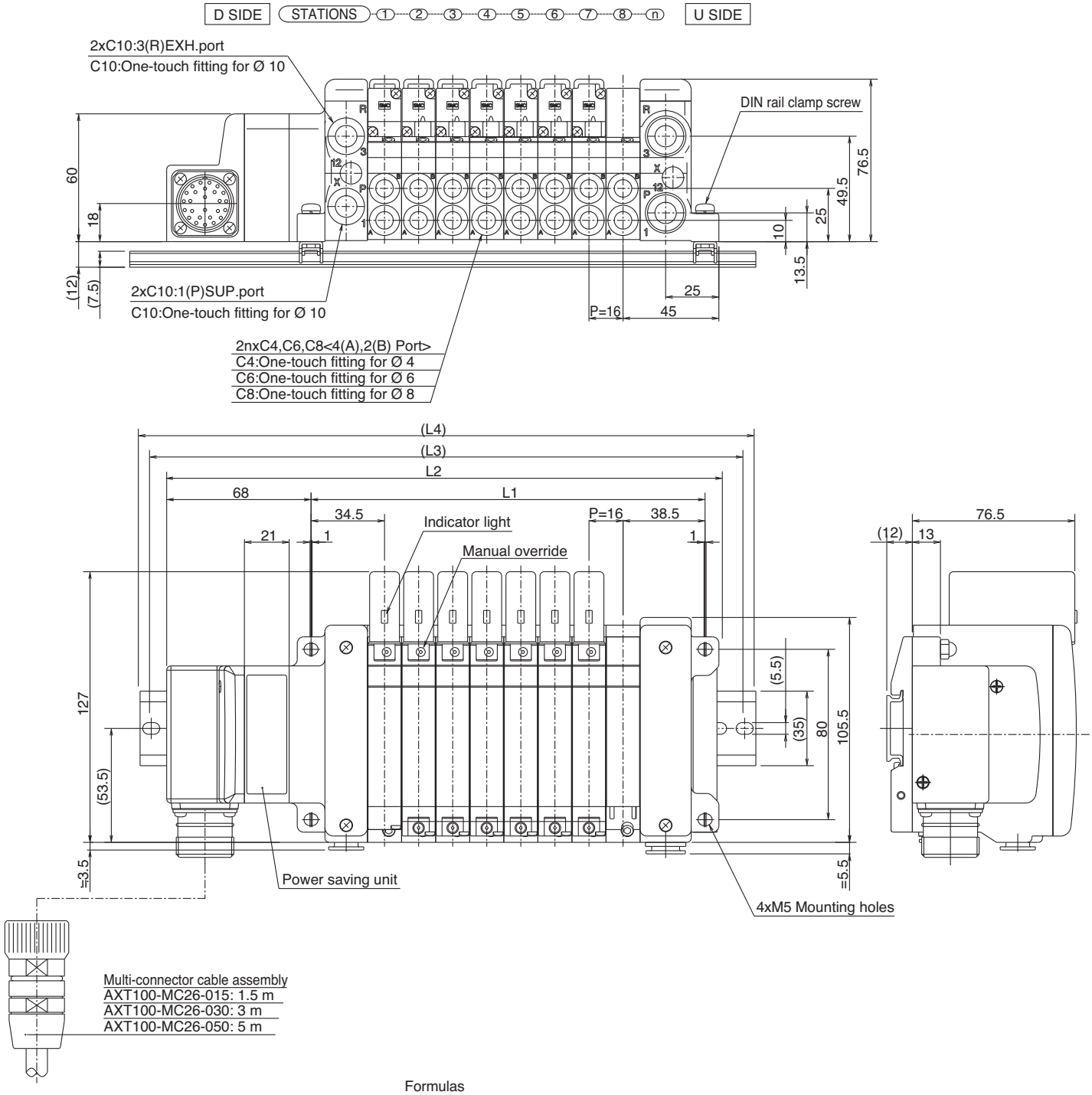
56-VV5QC11



Formulas
L1 = 10.5n + 45
L2 = 10.5n + 175.5 (1 power saving unit for 1 to 12 solenoids)
L2 = 10.5n + 196.5 (2 power saving units for 13 to 20 solenoids) n: Stations (Max. 20 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255
L2	186	196.5	207	217.5	228	238.5	249	259.5	270	280.5	291	301.5	333	343.5	354	364.5	375	385.5	396	406.5
L3	212.5	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5	325	362.5	375	375	387.5	400	412.5	425	437.5
L4	223	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323	335.5	373	385.5	385.5	398	410.5	423	435.5	448

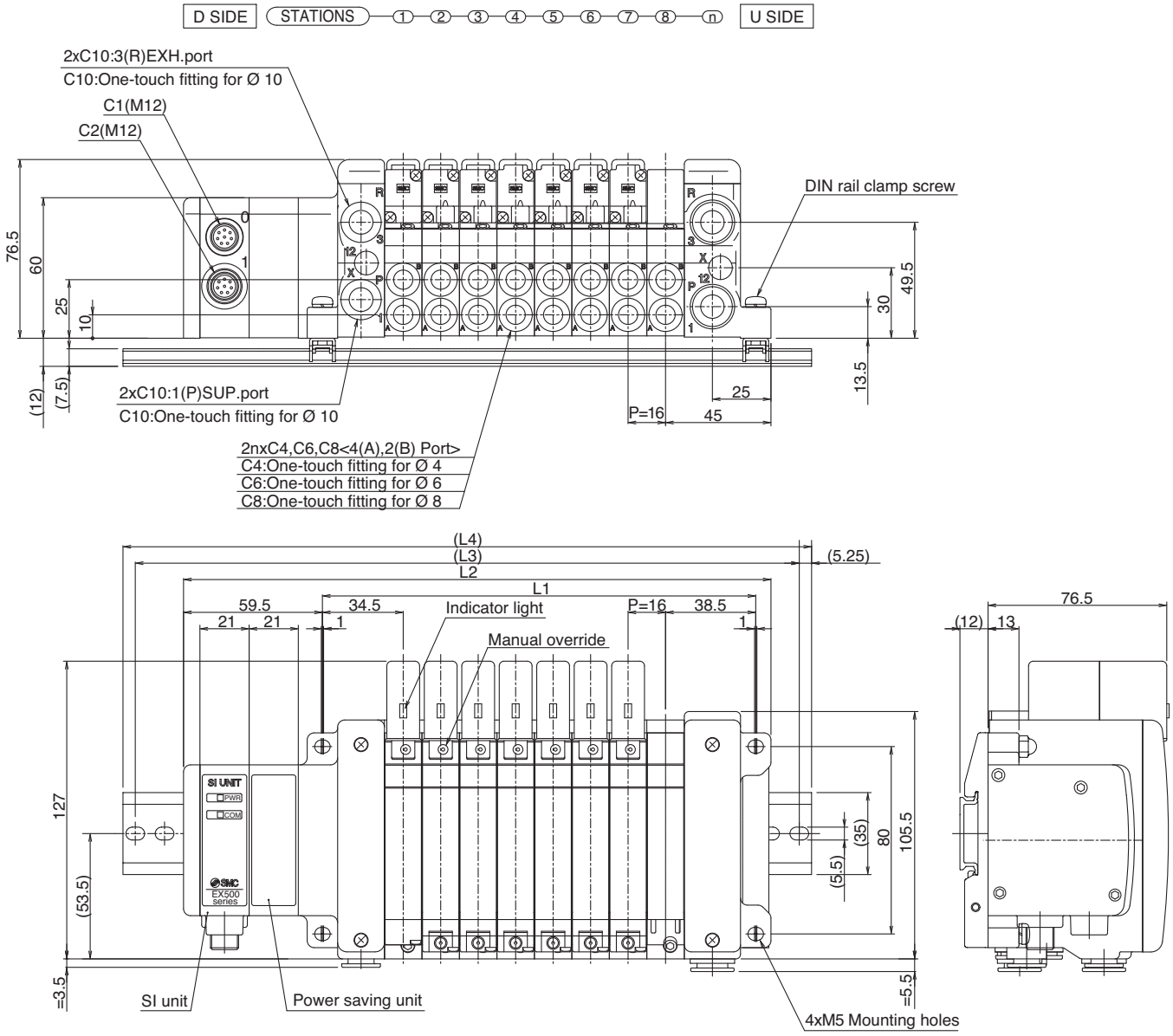
56-VV5QC21



Formulas
L1 = 16n + 57
L2 = 16n + 131.5 (1 power saving unit for 1 to 12 solenoids)
L2 = 16n + 152.5 (2 power saving units for 13 to 24 solenoids) n: Stations (Max. 24 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377	393	409	425	441
L2	147.5	163.5	179.5	195.5	211.5	227.5	243.5	259.5	275.5	291.5	307.5	323.5	360.5	376.5	392.5	408.5	424.5	440.5	456.5	472.5	488.5	504.5	520.5	536.5
L3	175	187.5	200	225	237.5	250	275	287.5	300	312.5	337.5	350	387.5	400	412.5	437.5	450	462.5	487.5	500	512.5	525	550	562.5
L4	185.5	198	210.5	235.5	248	260.5	285.5	298	310.5	323	348	360.5	398	410.5	423	448	460.5	473	498	510.5	523	535.5	560.5	573

56-VV5QC21
SDA2 Kit (Serial Transmission Kit: 56-EX500)

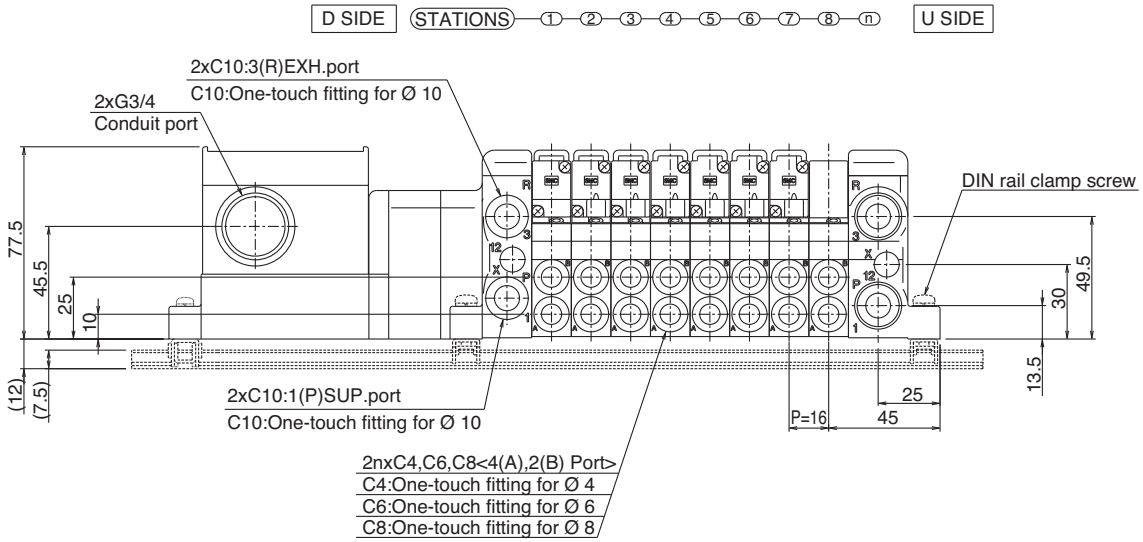


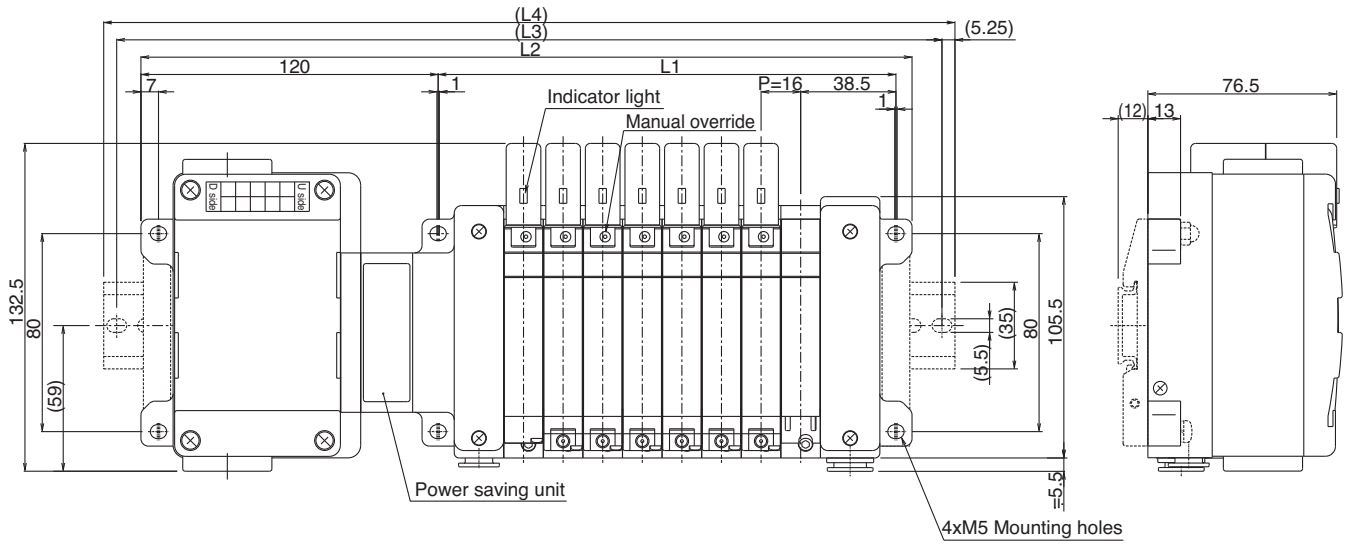
Formulas
L1 = 16n + 57
L2 = 16n + 123 (1 power saving unit for 1 to 12 solenoids)
L2 = 16n + 144 (2 power saving units for 13 to 16 solenoids) n: Stations (Max. 16 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313
L2	139	155	171	187	203	219	235	251	267	283	299	315	352	368	384	400
L3	162.5	175	200	212.5	225	250	262.5	275	287.5	312.5	325	337.5	375	387.5	412.5	425
L4	173	185.5	210.5	223	235.5	260.5	273	285.5	298	323	335.5	348	385.5	398	423	435.5

∗ With signal cut block, L4 is obtained by adding approximately 30 mm to L2.

56-VV5QC21

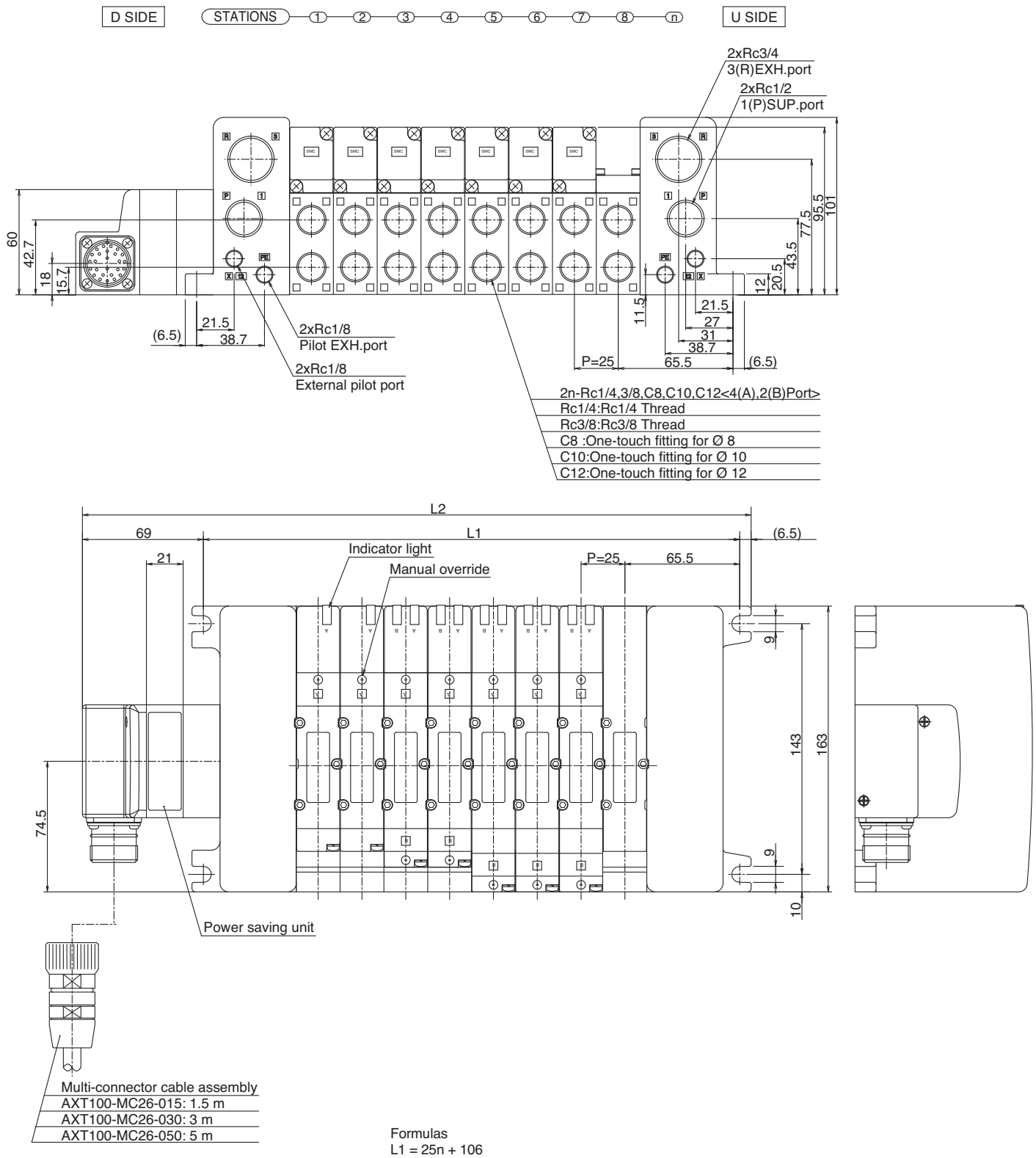




Formulas
L1 = 16n + 45
L2 = 16n + 184 (1 power saving unit for 1 to 12 solenoids)
L2 = 16n + 205 (2 power saving units for 13 to 20 solenoids) n: Stations (Max. 20 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377
L2	200	216	232	248	264	280	296	312	328	344	360	376	413	429	445	461	477	493	509	525
L3	225	237.5	262.5	275	287.5	300	325	337.5	350	375	387.5	400	437.5	450	475	487.5	500	512.5	537.5	550
L4	235.5	248	273	285.5	298	310.5	335.5	348	360.5	385.5	398	410.5	448	460.5	485.5	498	510.5	523	548	560.5

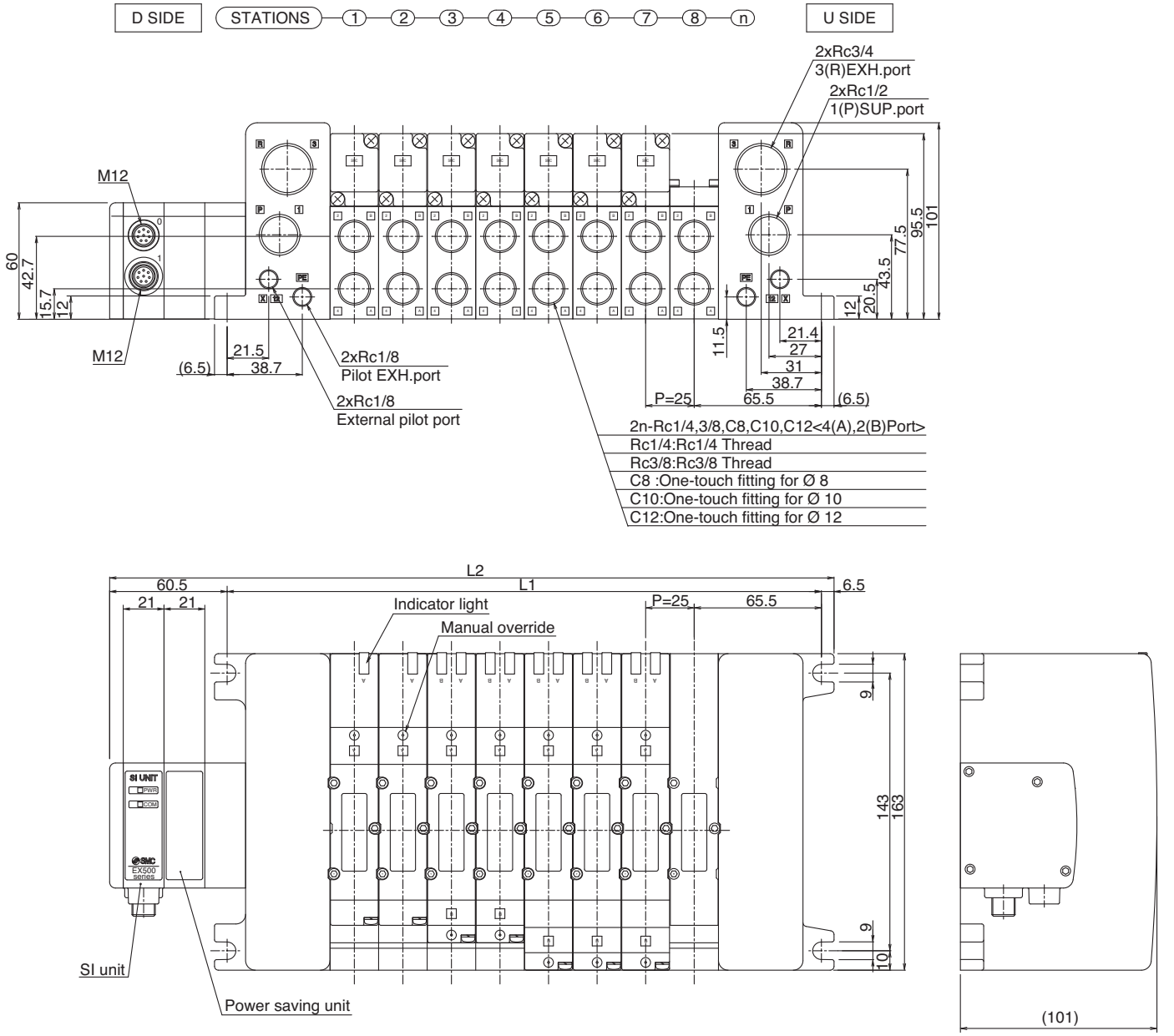
56-VV5QC41



Formulas
L1 = 25n + 106
L2 = 25n + 181.5 (1 power saving unit for 1 to 12 solenoids)
L2 = 25n + 202.5 (2 power saving units for 13 to 16 solenoids) n: Stations (Max. 16 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	206.5	231.5	256.5	281.5	306.5	331.5	356.5	381.5	406.5	431.5	456.5	481.5	527.5	552.5	577.5	602.5

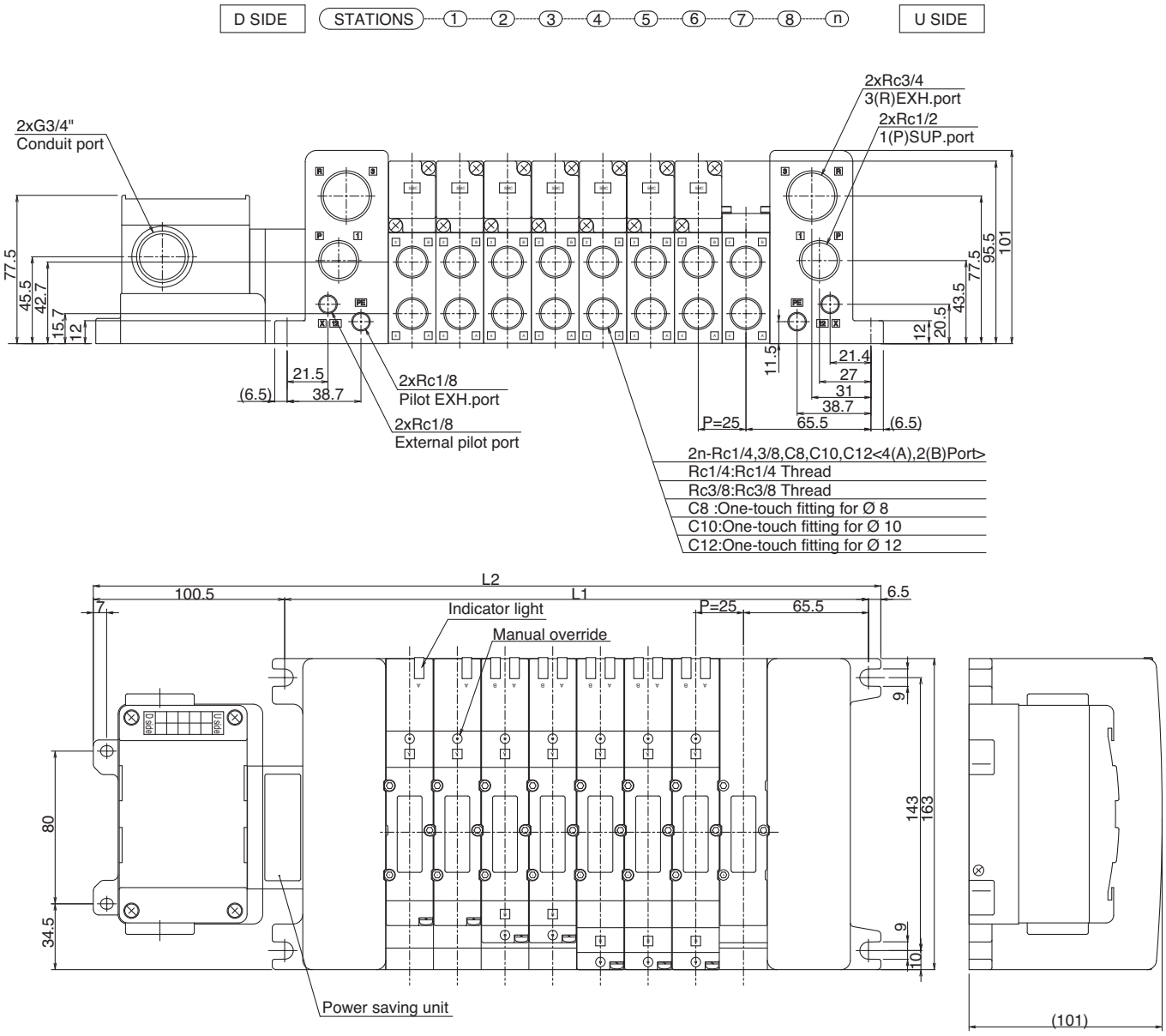
56-VV5QC41
SDA2 Kit (Serial Transmission Kit: 56-EX500)



Formulas
L1 = 25n + 106
L2 = 25n + 173 (1 power saving unit for 1 to 12 solenoids)
L2 = 25n + 194 (2 power saving units for 13 to 16 solenoids)
n: Stations (Max. 16 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	198	223	248	273	298	323	348	373	398	423	448	473	519	544	569	594

56-VV5QC41



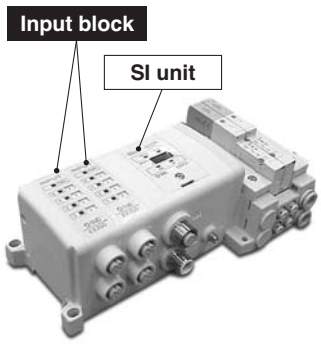
Formulas
L1 = 25n + 106
L2 = 25n + 213 (1 power saving unit for 1 to 12 solenoids)
L2 = 25n + 234 (2 power saving units for 13 to 16 solenoids) n: Stations (Max. 16 single wire stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	238	263	288	313	338	363	388	413	438	463	488	513	559	584	609	634

ATEX Compliant

Decentralised Serial Wiring
Series 56-EX250

How to Order SI Units



56 - EX250 — S PR1 — X42

- **56**: ATEX category 3
- **PR1**: Protocol

PR1	PROFIBUS DP

II 3G Ex nA II T4 X 5 °C ≤ Ta ≤ 45 °C
II 3D tD A22 IP67 T66 °C X

SI Unit Specifications

Model		56-EX250-SPR1-X42
Protocol		PROFIBUS DP-V0
Transmission speed		(9.6/19.2/45.45/93.75/187.5/500 kbps), (1.5/3/6/12 Mbps)
Output specifications	Number of outputs	Max. 32 points
	Output type	Source/PNP (Negative common)
	Connected load	Solenoid valve with protection circuit for 24 V DC and 1.5 W or less surge voltage (made by SMC)
	Power supply	24 V DC +10 %/-5 %
	Current supply	Max. 2.0 A
Input specifications	Number of inputs	Max. 32 points
	Input block	56-EX250-IE2-X43
	Power supply	24 V DC ±20 %
	Current supply	Max. 1.0 A
Internal current consumption (Unit)		100 mA or less
Operating temperature/humidity range		+5 to +45 °C at 35 % to 85 % RH (without condensation)
Withstand voltage		500 V AC for 1 min. between external terminal and FG
Insulation resistance		10 MΩ or more (500 V DC) between external terminal and FG
Enclosure		IP67
Weight		250 g or less

How to Order Input Block

Input block

56 - EX250 — IE 2 — X43

- **56**: ATEX category 3
- **2**: Block type

2	M12 connector, 4 inputs

II 3G Ex nA II T4 X 5 °C ≤ Ta ≤ 45 °C
II 3D tD A22 IP67 T77 °C X

Input Block Specifications

Model	56-EX250-IE2-X43
Applicable sensor	Source type (PNP output) Sink type (NPN output) / (Selected using a switch)
Number of inputs	4 inputs
Rated voltage	24 V DC
Rated input current	8 mA typ.
Display	Green LED is ON (when SI unit power supply is ON). Yellow LED is ON (when input signal is ON)
Connector on the input device side	M12 connector (4 pins, plug or 5 pins, plug)
Sensor supply current	Max. 30 mA/Sensor
Operating temperature/humidity range	-10 to +50 °C at 35 % to 85 % RH (without condensation)
Withstand voltage	500 V AC for 1 min. between external terminal and FG
Insulation resistance	10 MΩ or more (500 V DC) between external terminal and FG
Enclosure	IP67
Weight	90 g

All other specifications are the same as the standard products Series EX250.
For details, refer to **the WEB catalogue**.

ATEX Compliant

Decentralised Serial Wiring
(GW System, 4 Branches)
Series 56-EX500

How to Order Gateway (GW) Unit

Gateway (GW) Unit

56 - EX500 — G PR1A

ATEX category 3

Protocol

PR1A	PROFIBUS DP
DN1-X8	Device Net ™

II 3G Ex nA II T4 X 5 °C ≤ Ta ≤ 45 °C
II 3D Ex tD A22 IP65 T57 °C X
(56-EX500-GPR1A)

II 3G Ex nA II T4 X 5 °C ≤ Ta ≤ 45 °C
II 3D Ex tD A22 IP65 T53 °C X
(56-EX500-GDN1-X8)

Gateway (GW) Unit Specifications

Model	56-EX500-GDN1-X8	EX500-GPR1A
Applicable PLC/Communication protocol	DeviceNet™	PROFIBUS DP-V0
Communication speed	125/250/500 Kbps	(9,6/19,2/45,45/93,75/187,5/500 Kbps),(1,5/3/6/12 Mbps)
Rated voltage	24 V DC	
Power supply voltage range	Input and control unit power supply: 24 V DC ±10 % Solenoid valve power supply: 24 V DC +10 %/–5 % (Warning of voltage drop at approx. 20 V or less)	
Current consumption	200 mA or less (single GW unit)	
Inputs/outputs points	Maximum 64 inputs/64 outputs	Maximum 32 inputs/64 outputs
Input/output branches	4 branches (16 inputs/16 outputs per branch)	4 branches (8 inputs/16 outputs per branch)
Input supply current	Max. 2.8 A (Máx. 0.7 A per branch)	Max. 1.4 A (Máx. 0.35 A per branch)
Output supply current	Max. 3.0 A (Máx. 0.75 A per branch)	
Branch cable length	5 m or less between connected devices (Total 10 m or less per branch)	
Operating temperature/humidity range	+5 to +45 °C at 35 % to 85 % RH (without condensation)	
Withstand voltage	1000 V AC for 1 minute between terminals and housing	
Insulation resistance	2 MΩ or more (500 V DC) between terminals and housing	
Enclosure	IP65	
Weight	470 g	

All other specifications are the same as the standard products Series EX500.
For details, refer to **the WEB catalogue**.

How to Order SI Units

56 – EX500 – S001

- **56**: ATEX category 3
- **S001**: Applicable solenoid valve: Series SV

CE ⟨Ex⟩ II 3G Ex nA II T5 X 5 °C ≤ Ta ≤ 45 °C
II 3D Ex tD A22 IP67 T52 °C X

SI Unit Specifications (56-EX500-S001)

Model		56-EX500-S001
Internal current consumption		100 mA or less
Output	Number of outputs	16 outputs
	Output type	Sink/NPN (Positive common)
	Connection block	Solenoid valve (Single, double) Relay output module (1 output, 2 outputs)
	Connection block stations	Double solenoid valve, relay output module (2 outputs): Max. 8 stations Single solenoid valve, relay output module (1 output): Max. 16 stations
	Connection block supply current	Max. 0.65 A
Environment	Enclosure	IP67
	Operating temperature range	Operating: 5 to 45 °C Stored: –25 to 70 °C (with no freezing and condensation)
	Operating humidity range	Operating, Stored: 35 to 85 % RH (with no condensation)
	Withstand voltage	1000 VAC for 1 minute between terminals and housing
	Insulation resistance	2 MΩ or more (500 VDC) between terminals and housing
Standards		CE marking, UL (CSA)
Weight		115 g
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (1 pc.)

How to Order SI Units

56 – EX500 – Q 0 0 1

- **56**: ATEX category 3
- **Q**: Applicable solenoid valve: Series SY/VQC/S0700
- **0**: SI unit COM.

0	Sink/NPN (Positive common)
1	Source/PNP (Negative common)

- **1**: SI unit type

1	For without EX9 output block
2	For EX9 output block mounting

CE ⟨Ex⟩ II 3G Ex nA II T5 X 5 °C ≤ Ta ≤ 45 °C
II 3D Ex tD A22 IP67 T54 °C X

SI Unit Specifications (56-EX500-Q□0□)

Model		56-EX500-Q001	56-EX500-Q101
Internal current consumption		100 mA or less	
Output	Number of outputs	16 outputs	
	Output type	Sink/NPN (Positive common)	Source/PNP (Negative common)
	Connection block	Positive common compatible solenoid valve (single, double)	Negative common compatible solenoid valve (single, double)
	Connection block stations	Double solenoid valve: Max. 8 stations Single solenoid valve: Max. 16 stations	
	Connection block supply current	Max. 0.75 A	
Environment	Enclosure	IP67	
	Operating temperature range	Operating: 5 to 45 °C Stored: –25 to 70 °C (with no freezing and condensation)	
	Operating humidity range	Operating, Stored: 35 to 85 % RH (with no condensation)	
	Withstand voltage	1000 VAC for 1 minute between terminals and housing	
	Insulation resistance	2 MΩ or more (500 VDC) between terminals and housing	
Standards		CE marking, UL (CSA)	
Weight		105 g	
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (1 pc.)	

How to Order

Input manifold

EEX500 — IB1 — E 4

Input unit specification

Connector type

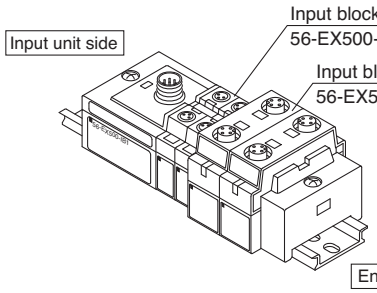
E	M8 connector
T	M12 connector
M	M8 and M12 mixed

Stations

1	1 station
⋮	⋮
4	4 stations

When ordering an input block manifold, enter the Input manifold part no. + Input block part no. together.
The input block, end block and DIN rail are included in the input manifold. Refer to How to Order.

Example
M8 and M12 on a single manifold



EEX500-IB1-M4 ····· **1 set**
∗ **56-EX500-IE1** ····· **2 sets**
∗ **56-EX500-IE3** ····· **2 sets**

CE ⟨Ex⟩ II 3G Ex nA II T5 X 5 °C ≤ Ta ≤ 45 °C
II 3D Ex tD A22 IP65 T60 °C X

Input block

56 - EX500 — IE 1

ATEX category 3

Block type

1	M8 connector, PNP specification
2	M8 connector, NPN specification
3	M12 connector, PNP specification
4	M12 connector, NPN specification
5	8-point integrated type, M8 connector, PNP specifications
6	8-point integrated type, M8 connector, NPN specifications

CE ⟨Ex⟩ II 3G Ex nA II T5 X 5 °C ≤ Ta ≤ 45 °C
II 3D Ex tD A22 IP65 T60 °C X (Input block 56-EX500-IE1 to 4)

CE ⟨Ex⟩ II 3G Ex nA II T5 X 5 °C ≤ Ta ≤ 45 °C
II 3D Ex tD A22 IP65 T66 °C X (Input block 56-EX500-IE5 to 6)

Input unit specification

Model	**56-EX500-IB1**
Connection block	The EX500 series input block (mixed combination is possible)
Number of inputs	Max. 8 points (56-EX500-GPR1A)
	Max. 16 points (56-EX500-GDN1-X8)
Block supply voltage	24 V DC
Block supply current	Max. 0.35 A (56-EX500-GPR1A)
	Max. 0.7 A (56-EX500-GDN1-X8)
Current consumption	100 mA or less
Operating temperature range	Operating: 5 to 45 °C Stored: –25 to 70 °C (with no freezing and condensation)
Operating humidity range	Operating, Stored: 35 to 85 % RH (with no condensation)
Withstand voltage	1000 V AC for 1 minute between terminals and housing
Insulation resistance	2 MΩ or more (500 V DC) between terminals and housing
Enclosure	IP65
Weight Note)	100 g (Input unit + end block)

Note) Not including the DIN rail weight.

Input block specifications

Model	**56-EX500-IE1,3,5**	**56-EX500-IE2,4,6**
Input type	PNP sensor input	NPN sensor input
Sensor connector	IE1/2/5/6: M8 connector (3 pins), IE3/4: M12 connector (4 pins)	
Number of inputs	IE1/2/3/4: 2 inputs, IE5/6: 8 inputs	
Rated voltage	24 V DC	
Sensor supply current	Max. 30 mA/Sensor	
Operating temperature range	Operating: 5 to 45 °C Stored: –25 to 70 °C (with no freezing and condensation)	
Operating humidity range	Operating, Stored: 35 to 85 % RH (with no condensation)	
Withstand voltage	1000 V AC for 1 minute between terminals and housing	
Insulation resistance	2 MΩ or more (500 V DC) between terminals and housing	
Enclosure	IP65	
Weight	IE1/2: 20 g, IE3/4: 40 g, IE5/6: 55 g	

ATEX Compliant

Fieldbus System
Series 56-EX600

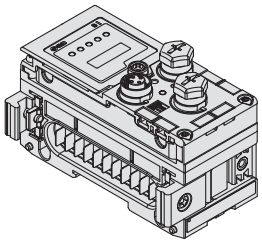
How to Order

SI Unit

56-EX600-S[EN1]-X10

Protocol

Symbol	Description
PR1A	PROFIBUS DP
EN1	EtherNet/IP™



CE Ex II 3G Ex nA IIC T4 Gc X -10 °C ≤ Ta ≤ 50 °C
II 3D Ex tc IIIC T82 °C Dc X IP67 (56-EX600-SPR1A-X10)

CE Ex II 3G Ex nA IIC T4 Gc X -10 °C ≤ Ta ≤ 50 °C
II 3D Ex tc IIIC T77 °C Dc X IP67 (56-EX600-SEN1-X10)

Digital Input Unit

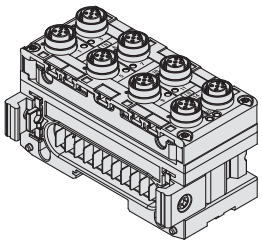
56-EX600-DX[P][D]-X10

Input type

Symbol	Description
P	PNP
N	NPN

Number of Inputs, Open circuit detection, and Connector

Symbol	Number of inputs	Open circuit detection	Connector
C	8 inputs	No	M8 connector (3 pins) 8 pcs.
D	16 inputs	No	M12 connector (5 pins) 8 pcs.



CE Ex II 3G Ex nA IIC T4 Gc X -10 °C ≤ Ta ≤ 50 °C
II 3D Ex tc IIIC T82 °C Dc X IP67 (56-EX600-DX□C-X10)

CE Ex II 3G Ex nA IIC T4 Gc X -10 °C ≤ Ta ≤ 50 °C
II 3D Ex tc IIIC T86 °C Dc X IP67 (56-EX600-DX□D-X10)

End Plate

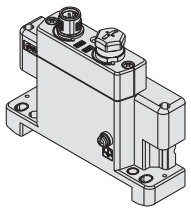
56-EX600-ED2-□-X10

Power connector

Symbol	Connector
2	M12 (5 pins)

Mounting method

Symbol	Description
–	Without DIN rail mounting bracket
2	With DIN rail mounting bracket



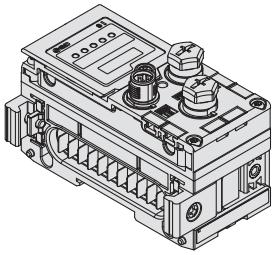
CE Ex II 3G Ex nA IIC T4 Gc X -10 °C ≤ Ta ≤ 50 °C
II 3D Ex tc IIIC T72 °C Dc X IP67

SI Unit Specifications

All Units Common Specifications

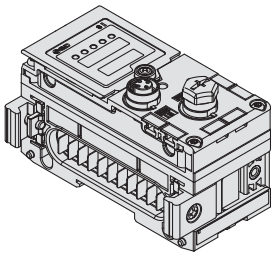
Environmental resistance	Operating temperature range	–10 to 50 °C
	Storage temperature range	–20 to 60 °C
	Operating humidity range	35 to 85 % RH (No dew condensation)
	Withstand voltage	500 V AC for 1 minute between external terminals and FE
	Insulation resistance	500 V DC, 10 MΩ or more between external terminals and FE

SI Unit



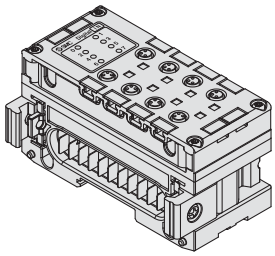
Model		56-EX600-SPR1A-X10
Communication	Protocol	PROFIBUS DP (DP-V0)
	Device type	PROFIBUS DP Slave
	Communication speed	9.6/19.2/45.45/93.75/187.5/500 kbps 1.5/3/6/12 Mbps
	Configuration file	GSD file
	Occupation area (Number of inputs/outputs)	Max. (512 inputs/512 outputs)
Terminating resistor		Internally implemented
Internal current consumption (Power supply for Control/Input)		80 mA or less
Output	Output type	Source/PNP (Negative common)
	Number of outputs	32 outputs (8/16/24/32 outputs selectable)
	Load	Solenoid valve with surge voltage suppressor 24 V DC, 1.5 W or less (SMC)
	Power supply	24 V DC, 2 A
	Fail safe	HOLD/CLEAR/Forced power ON
	Protection	Short-circuit protection
Enclosure		IP67 (Manifold assembly)
Weight		300 g

SI Unit

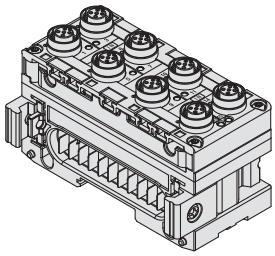


Model		56-EX600-SEN1-X10
Communication	Number of communication ports	1 port
	Protocol	EtherNet/IP™ (Conformance version: Composite 6)
	Communication speed	10/100 Mbps
	Communication method	Full duplex/Half duplex
	Configuration file	EDS file
	Occupation area (Number of inputs/outputs)	Max. (512 inputs/512 outputs)
	IP address setting range	SI Unit switch settings: 192.168.0 or 1.1 to 254 Through DHCP server: Optional address
	Device information	Vendor ID: 7 (SMC Corporation) Device type: 12 (Communication Adapter) Product code: 126
Internal current consumption (Power supply for Control/Input)		120 mA or less
Output	Output type	Source/PNP (Negative common)
	Number of outputs	32 outputs (8/16/24/32 outputs selectable)
	Load	Solenoid valve with surge voltage suppressor 24 V DC, 1.5 W or less (SMC)
	Power supply	24 V DC, 2 A
	Fail safe	HOLD/CLEAR/Forced power ON
	Protection	Short-circuit protection
Enclosure		IP67 (Manifold assembly)
Weight		300 g

Digital Unit Specifications



56-EX600-DX□C-X10



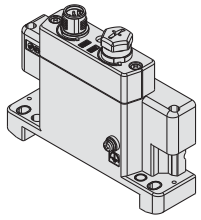
56-EX600-DX□D-X10

Digital Input Unit

Model		56-EX600-DXPC-X10	56-EX600-DXNC-X10	56-EX600-DXPD-X10	56-EX600-DXND-X10
Input	Input type	PNP	NPN	PNP	NPN
	Input connector	M8 (3-pin) socket Note 2)		M12 (5-pin) socket Note 1)	
	Number of inputs	8 inputs (1 input/Connector)		16 inputs (2 inputs/Connector)	
	Supplied voltage	24 V DC			
	Max. supplied current	0.25 A/Connector 2 A/Unit		0.5 A/Connector 2 A/Unit	
	Protection	Short-circuit protection			
	Input current (at 24 V DC)	9 mA or less			
	ON voltage	17 V or more (At NPN input, between the pin for input terminal and supplied voltage of +24 V) (At PNP input, between the pin for input terminal and supplied voltage of 0 V)			
	OFF voltage	5 V or less (At NPN input, between the pin for input terminal and supplied voltage of +24 V) (At PNP input, between the pin for input terminal and supplied voltage of 0 V)			
Current consumption		55 mA or less		70 mA or less	
Enclosure		IP67 (Manifold assembly)			
Weight		275 g		340 g	

Note 1) M12 (4-pin) connector can be connected.
Note 2) When connecting the M8 plug connector, the tightening torque must be 0.2 N·m ±10 %. If tightened with an excessive tightening torque, this may cause the connector thread of the Unit to break.

End Plate Specifications



56-EX600-ED2-□-X10

End Plate

Model		56-EX600-ED2-□-X10
Power specifications	**Power connector**	M12 (5-pin) plug
	Power supply (for Control/Input)	24 V DC ±10 %, Class 2, 2 A
	Power supply (for Output)	24 V DC +10/–5 %, Class 2, 2 A
Enclosure		IP67 (Manifold assembly)
Weight		170 g

ATEX Compliant

Air cylinder/ Double acting

Series 55-C76

Ø 32, Ø 40

CE Ⓔx II 2GDc 90 °C (T5) Ta –10 °C to 40 °C
110 °C (T4) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

55 - CD76 W E 32 — 50 C A - XC6A

ATEX category 2

Built-in magnet

–	None
D	Built-in magnet

Type

–	Standard
W*	Double rod
K	Non-rotating rod

* Only with "E" option.

Mounting

E	Double end type
F*	Front nose type
Y*	Front nose in line type

* Except for air cushion type.

Bore size

32	32 mm
40	40 mm

Auto switch mounting

A	Rail mounting
B	Band mounting

Only for Built in magnet option

Cushion

–	Rubber cushion
C	Air cushion (only "E" execution) Note1)

Note 1) Not available with "K" non rotating rod option

Standard Stroke

Bore size	Standard stroke (mm)	**X2018** (Long stroke)
32 mm	10, 25, 40, 50, 80, 100	301 to 1000
40 mm	125, 160, 200, 250, 300	

Special

–	Standard
XA□□*	Change of rod end shape
XC6A	Stainless steel piston rod and rod-end nut
XC6B	Stainless steel piston rod, rod-end nut and mounting nut
XC22 1) 2)	Fluoro rubber seals (Only with rubber cushion type)
XC85 2)	Food grade grease
X2018 2)	Long stroke

1) Only for rubber cushion type.
2) Not available with "K", non rotating rod option.
* XA0 to XA30 and XA50

Refer to page 86 for applicable auto switches.

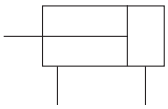
Mounting Bracket Part No.

Mounting bracket \ Bore size (mm)		32	40
Mounting bracket	Flange, Foot (1pc.)	C76F32A	C76F40A
	Flange, Foot (2 pcs. with mounting nut 1 pc.)	C76F32B	C76F40B
	Trunnion	C76T32	C76T40
	Clevis	C76C32	C76C40
Accessories	Single knuckle joint	KJ10DA	KJ12DA
	Double knuckle joint	GKM10-20A	GKM12-24A
	Floating joint	JA25-10-150	JA40-12-175

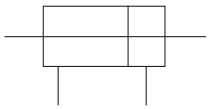
Symbol

Standard: Double Action

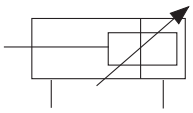
Rubber Cushion
Single Rod



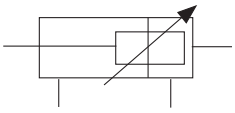
Rubber Cushion
Double Rod



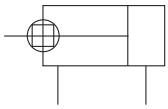
Air Cushion
Single Rod



Air Cushion
Double Rod



Non-rotating rod: Double Acting/Single Rod



Specifications

Bore size	**Ø 32**	**Ø 40**
Action	Double acting	
Fluid	Air	
Proof pressure	1.5 MPa	
Max. operating pressure	1.0 MPa	
Min. operating pressure	0.05 MPa	
Ambient and fluid temperature	–10 to 60 °C (No freezing)	
Lubrication	Not required (Non-lube)	
Operating piston speed	50 to 1000 mm/s	
Allowable stroke tolerance	0/+1.4	
Non rotating accuracy	± 0.5°	
Port size	G 1/8	G 1/4
Cushion	Rubber cushion, Air cushion	
Mounting	Double end, Front nose, Front nose in line	

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Simple Specials -XA (Change of rod end shape) as detailed for the equivalent standard Non-Atex range of C76 series

ATEX Compliant

ISO Cylinder/Double Acting
Series 55-C85
Ø 8, Ø 10, Ø 12, Ø 16, Ø 20, Ø 25

CE Ex II 2GDc 90 °C (T5) Ta –10 °C to 40 °C
110 °C (T4) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

Double acting Single rod 55-C **D** 85 **K** **N** **20** – **40** **C** – **A** –
Double acting Double rod 55-C **D** 85 **W** **E** **20** – **40** **C** – **B** –

ATEX category 2

Magnet

—	None
D	Built-in magnet

Style

—	Standard
K	Non rotating rod (only rubber bumper)

Mounting style

Symbol	Mounting
N	Basic integrated clevis
E***	Double end type
F**	Front nose type
Y**	Front nose in line port

* Select "E" option with double rod type
** Except for air cushion type

Special

–	Standard
XA□□*	Change of rod end shape
XC6A	Stainless steel piston rod and rod-end nut
XC6B	Stainless steel piston rod, piston rod nut and mounting nut
XC22 1)	Fluoro rubber seals
X2018	Long stroke

1) Not available with "K", non rotating rod option.
* XA0 to XA30 and XA50

Auto switch mounting type

A	Rail mounting
B	Band mounting

Cushion

—	Rubber bumper (Standard)
C	Air cushion (only "N" execution, bores 10 to 25 mm)

Bore size **Stroke**

Bore size (mm)	Standard stroke (mm)**	X2018 (Long stroke)		
		Standard	Non-rotating	Double rod
Ø 8*	10, 25, 40, 50, 80, 100	200	100	100
Ø 10		400		
Ø 12	10, 25, 40, 50, 80, 100, 125, 160, 200		200	200
Ø 16				
Ø 20	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300	1000	1000	500
Ø 25				

* Not available with air cushion.
** Other strokes available on request.

Mounting Bracket Part No.

Bracket \ Bore (mm)	8	10	12	16	20	25
Foot (1 pc.)	C85L10A		C85L16A		C85L25A	
Foot (2 pcs. with mounting nut 1 pc.)	C85L10B		C85L16B		C85L25B	
Flange	C85F10		C85F16		C85F25	
Trunnion	C85T10		C85T16		C85T25	
Clevis	C85C10		C85C16		C85C25	
Single knuckle joint	KJ4D		KJ6D		KJ8D	KJ10D
Double knuckle joint	GKM4-8		GKM6-10		GKM8-16	GKM10-20
Floating joint	JA10-4-070		JA15-6-100		JA20-8-125	JA30-10-125

Note) Please order mounting brackets separately.

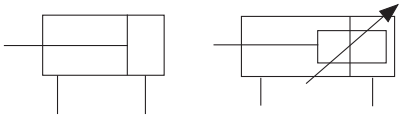
Refer to page 86 for applicable auto switches.

Rubber Bumper/Single Rod

Air Cushion/Single Rod

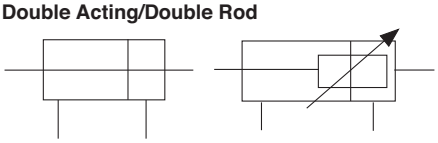
Symbol

Double Acting/Single Rod



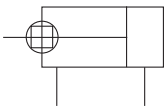
Rubber Bumper Air Cushion

Double Acting/Double Rod



Rubber Bumper Air Cushion

Non-rotating rod: Double Acting/Single Rod



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

Bore size (mm)		8	10	12	16	20	25
Piston rod dia. (mm)		4	4	6	6	8	10
Piston rod thread		M4 X 0.7	M4 X 0.7	M6 X 1	M6 X 1	M8 X 1.25	M10 X 1.25
Ports		M5	M5	M5	M5	G 1/8	G 1/8
Action		Double acting					
Fluid		Air					
Proof pressure		1.5 MPa					
Max. operating pressure		1.0 MPa					
Min. operating pressure		0.1 MPa	0.08 MPa		0.05 MPa		
Ambient and fluid temperature		–10 to 60 °C (no freezing)					
Cushion		Rubber bumper, Air cushion (Except for Ø 8)					
Lubrication		Not required (Non lube)					
Piston speed		50 to 750 mm/s Rubber bumper, 50 to 1000 mm/s Air cushion					
Allowable kinetic energy	Rubber bumper	0.02 J	0.03 J	0.04 J	0.09 J	0.27 J	0.4 J
	Air cushion	—	0.17 J	0.19 J	0.4 J	0.66 J	0.97 J
Non-rotating accuracy		±1° 30'	±1° 30'	±1°	±1°	±0° 42'	±0° 42'
Stroke tolerance (mm)		+1 / 0				+1.4 / 0	

ATEX Compliant

ISO Cylinder/Double Acting, Single Rod

Series 55-C95

Ø 160, Ø 200, Ø 250

CE Ex II 2GDc 95 °C (T5) Ta –10 °C to 40 °C
115 °C (T4) Ta 40 °C to 60 °C

How to Order

Without magnet 55 – C95S B 160 – 100 – XC6

With magnet 55 – C95SD B 160 – 100 – XC6

ATEX category 2

Built-in magnet for auto switch

Mounting

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

* G, C and D options are not available with double rod

Bore size

160	160 mm
200	200 mm
250	250 mm

Made to Order

–	Standard
XA□□	Change of rod end shape. XA0 to XA30 and XA50
XC6	Stainless steel piston rod and rod-end nut
XC14□*	Change of trunnion bracket mounting position (Rod side)

* Simple specials part no. except for XC14A or B.

Cylinder stroke

Maximum Stroke

Bore size (mm)	Standard	XC6	XC14
160	2000	1600	2000
200	2000	1600	2000
250	2400	1500	2400

* Please consult with SMC for longer strokes.

Specifications

Bore size (mm)	Ø 160	Ø 200	Ø 250
Action	Double Acting, Single Rod		
Fluid	Air		
Proof pressure	1.5 MPa		
Max. operating pressure	1.0 MPa		
Min. operating pressure	0.05 MPa		
Ambient and fluid temperature	–10 to 60 °C (No freezing)		
Lubrication	Not required (Non-lube)		
Piston speed	50 to 500 mm/s		
Stroke tolerance	Up to 250: $^{+1.0}_{0}$, 251 to 1000: $^{+1.4}_{0}$, 1001 to 1500: $^{+1.8}_{0}$ 1501 to 2000: $^{+2.2}_{0}$, 2001 to 2400: $^{+2.6}_{0}$		
Cushion	Both ends (Air cushion)		
Port size	G 3/4	G 3/4	G 1
Mounting	Basic, Axial foot, Rod side flange, Head side flange, Single clevis, Double clevis, Centre trunnion		

All other specifications are the same as the standard products Series C95.

Refer to page 86 for applicable auto switches.

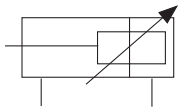
Mounting Bracket, Mounting Accessories

Description	Bore size	Ø 160	Ø 200	Ø 250
L	Foot	L5160	L5200	L5250
F, G	Flange	F5160	F5200	F5250
C	Single clevis	C5160	C5200	C5250
D	Double clevis	D5160	D5200	D5250
GKM	Rod clevis (2)	GKM35-54		GKM40-84
KJ	Piston rod (3) ball joint	KJ36D		KJ42D

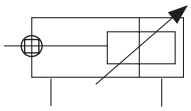
Note 1) Accessories for each mounting bracket are as follows.
Foot, Flange, Single clevis: Mounting bolts
Double clevis: Mounting bolts, Clevis pin
Note 2) GKM according to ISO 8140 (Except GKM35-54)
Note 3) KJ according to ISO 8139

Symbol

Double acting/ Single rod



Non rotating rod: Double acting/ Single rod



ATEX Compliant

ISO Cylinder/Double Acting, Double Rod

Series 55-C95W

Ø 160, Ø 200, Ø 250

CE Ⓔx II 2GDc 95 °C (T5) Ta –10 °C to 40 °C
115 °C (T4) Ta 40 °C to 60 °C

How to Order

Without magnet 55 – C95S B 160 – 100 W – XC14

With magnet 55 – C95SD B 160 – 100 W – XC14

ATEX category 2

Built-in magnet for auto switch

Mounting

B	Basic/without bracket
L	Axial foot
F	Rod side flange
T	Centre trunnion

Bore size

160	160 mm
200	200 mm
250	250 mm

Cylinder stroke
Maximum Stroke

Bore size (mm)	Standard	XC14
160	1200	1200
200	1200	1200
250	1200	1200

∗ Please consult with SMC for longer strokes.

Made to Order

	Standard
—	Change of rod end shape
XA□□	Change of rod end shape. XA0 to XA30 and XA50
XC14□∗	Change of trunnion bracket mounting position

∗ Simple specials part no. except for XC14A or B.

Specifications

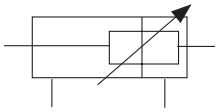
Bore size (mm)	Ø 160	Ø 200	Ø 250
Action	Double Acting, Double Rod		
Fluid	Air		
Proof pressure	1.5 MPa		
Max. operating pressure	1.0 MPa		
Min. operating pressure	0.05 MPa		
Ambient and fluid temperature	–10 to 60 °C (No freezing)		
Lubrication	Not required (Non-lube)		
Piston speed	50 to 500 mm/s		
Stroke tolerance	Up to 250: $^{+1.0}_{0}$, 251 to 1000: $^{+1.4}_{0}$, 1001 to 1500: $^{+1.8}_{0}$ 1501 to 2000: $^{+2.2}_{0}$, 2001 to 2400: $^{+2.6}_{0}$		
Cushion	Both ends (Air cushion)		
Port size	G 3/4	G 3/4	G 1
Mounting	Basic, Axial foot, Rod side flange, Centre trunnion		

All other specifications are the same as the standard products Series C95W.

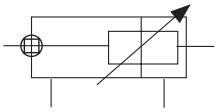
Refer to page 86 for applicable auto switches.

Symbol

Double acting/ Double rod



Non rotating rod:
Double acting/ Double rod



ATEX Compliant ISO Cylinder
Standard: Double Acting
Series 55-C96/55-C96W
Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

	Without magnet	Built-in magnet
CE ⟨Ex⟩ II 2GDc	85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

For the Ø 125, refer to the next page

How to Order

Without magnet 55 – C96S B 32 – 100 C □ – XC68

With magnet 55 – C96SD B 32 – 100 C □ – XC68

ATEX category 2

Built-in magnet for auto switch

Mounting

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

∗ Mounting options for W type: B, L, F, T, G

Bore size

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

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm)	Standard max. stroke Note)	Double Rod Max. stroke	XC68 Max. stroke
32	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500	1000	1000	1000
40	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500	1900		1700
50	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600	1900		1700
63	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600	1900		1700
80	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600, 700, 800	1900		1700
100	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600, 700, 800	1900		1700

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

Made to Order

–	Standard
XA□□	Change of rod end shape
XC4	With heavy duty scraper (Ø 32 to Ø 100)
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
XC14□∗	Change of trunnion bracket mounting position
XC22	Fluororubber seals
XC65	Made of stainless steel (Combination of XC7 and XC68)
XC68	With chrome plated stainless steel piston rod and stainless steel nut

∗ Simple specials part no. except for XC14A or B.

Rod

–	Single rod
W	Double rod

All other specifications (dimensions, drawings, etc) are the same as the non ATEX type.

Refer to page 86 for applicable auto switches.

ATEX Compliant ISO Cylinder
Standard: Double Acting, Single Rod
Series 55-C96
Ø 125

CE Ex II 2GDc

Without magnet	Built-in magnet
85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

For the Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, and Ø 100, refer to page 50.

How to Order

Without magnet 55 – C96S B 125 – 100 – XC68

With magnet 55 – C96SD B 125 – 100 – XC68

ATEX category 2

Built-in magnet for auto switch

Mounting

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

Bore size

125	125 mm

Made to Order

—	Standard
XA□□	Change of rod end shape
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
XC14□*	Change of trunnion bracket mounting position
XC18	NPT ports
XC22	Fluororubber seals
XC68	With chrome plated stainless steel piston rod and stainless steel nut

* Simple specials part no. except for XC14A or B.

Cylinder stroke (mm)

Bore size (mm)	Standard max. stroke*	**XC68** Max. stroke
125**	2000	1600

Intermediate strokes are available.
* Please consult with SMC for longer strokes.
** Ø 125 are produced upon receipt of order.

All other specifications (dimensions, drawings, etc) are the same as the non ATEX type.

Refer to page 86 for applicable auto switches.

ATEX Compliant ISO Cylinder
Standard: Double Acting, Double Rod
Series 55-C96W
Ø 125

	Without magnet	Built-in magnet
II 2GDc	85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

For the Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, and Ø 100, refer to page 50.

How to Order

Without magnet 55 – C96S B 125 – 100 W – XC68

With magnet 55 – C96SD B 125 – 100 W – XC68

ATEX category 2

Built-in magnet for auto switch

Mounting

B	Basic/without bracket
L	Axial foot
F	Rod side flange
T	Centre trunnion

Bore size

125	125 mm

Rod

W	Double rod

Cylinder stroke (mm)

Bore size (mm)	Max. stroke*
125**	1000

Intermediate strokes are available.
* Please consult with SMC for longer strokes.
** Ø 125 are produced upon receipt of order.

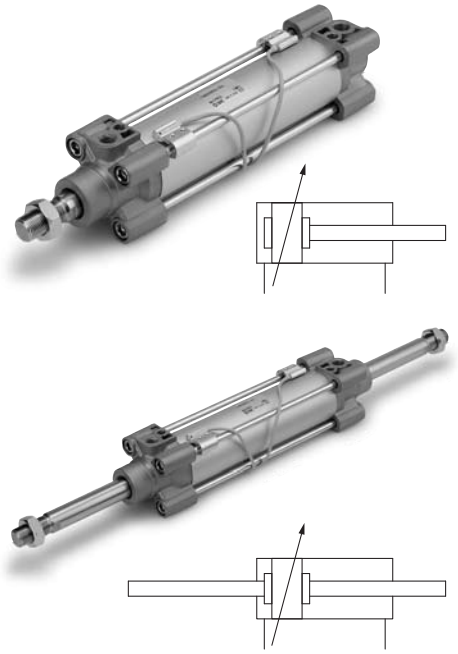
Made to Order

—	Standard
XA□□	Change of rod end shape
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
XC14□*	Change of trunnion bracket mounting position
XC18	NPT ports
XC22	Fluororubber seals
XC68	With chrome plated stainless steel piston rod and stainless steel nut

* Simple specials part no. except for XC14A or B.

All other specifications (dimensions, drawings, etc) are the same as the non ATEX type.

Refer to page 86 for applicable auto switches.



Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting						
Fluid	Air						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Min. operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: –20 to 70 °C∗ With auto switch: –10 to 60 °C∗						
Lubrication	Not required (Non-lube)						
Operating piston speed	50 to 1000 mm/s						50 to 700 mm/s
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_{0}$, 251 to 1000 st: $^{+1.4}_{0}$, 1001 to 1500 st: $^{+1.8}_{0}$, 1501 to 2000 st: $^{+2.2}_{0}$						
Cushion	Both ends (Air cushion)						
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion						

∗ No freezing

ATEX Compliant ISO Cylinder
Non-rotating type: Double Acting
Series 55-C96K/55-C96KW
Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

	Without magnet	Built-in magnet
CE Ex II 2GDc	85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

How to Order

Without magnet **55 – C96K B 32 – 100 C** □

With magnet **55 – C96KD B 32 – 100 C** □

ATEX category 2

Built-in magnet for auto switch

Mounting

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

∗ Mounting options for W type: B, L, F, T, G

Bore size

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

Cylinder stroke (mm)

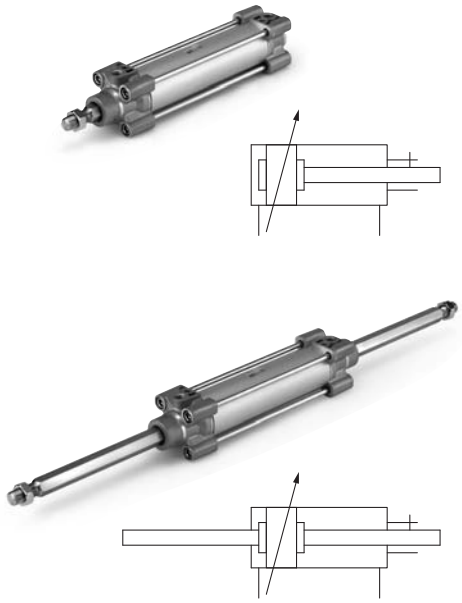
Bore size (mm)	Maximum stroke (mm)
32	500
40	500
50	600
63	600
80	800
100	800

Rod

–	Simple rod
W	Double rod

All other specifications are the same as the standard products Series C96. For details, refer to **the WEB catalog**.

Refer to page 86 for applicable auto switches.



Specifications

Bore size (mm)	32	40	50	63	80	100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					
Min. operating pressure	0.05 MPa					
Ambient and fluid temperature	Without auto switch: –20 to 70 °C* With auto switch: –10 to 60 °C*					
Lubrication	Not required (Non-lube)					
Operating piston speed	50 to 1000 mm/s					
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_{0}$, 251 to 1000 st: $^{+1.4}_{0}$					
Cushion	Both ends (Air cushion)					
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
Non-rotating accuracy	±0.5°		±0.5°		±0.3°	
Allowable rotating torque Nm max.	0.25	0.45	0.64		0.79	

* No freezing

ATEX Compliant ISO Cylinder
Smooth Cylinder/Double Acting, Single Rod
Series 55-C96Y
Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100, Ø 125

CE Ex II 2GDc

Without magnet	Built-in magnet
85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

How to Order

Without magnet **55 – C96Y B 32 – 100**

With magnet **55 – C96YD B 32 – 100**

ATEX category 2

Built-in magnet for auto switch

Mounting

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

Bore size

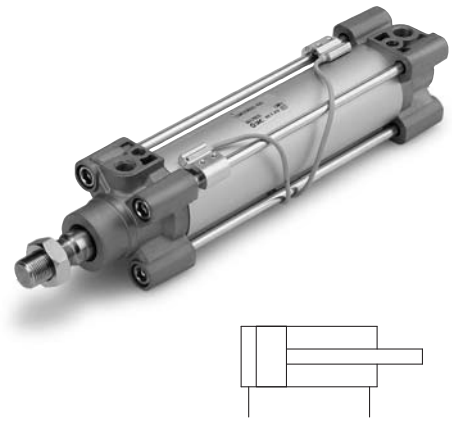
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm
125	125 mm

Cylinder stroke (mm)

Bore size (mm)	Maximum stroke (mm)
32	800
40	800
50	1000
63	1000
80	1000
100	1000
125	1000

All other specifications (dimensions, drawings, etc) are the same as the non ATEX type.

Refer to page 86 for applicable auto switches.



Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting						
Fluid	Air						
Proof pressure	1.05 MPa						
Max. operating pressure	0.7 MPa						
Min. operating pressure	0.02 MPa		0.01 MPa				
Ambient and fluid temperature	Without auto switch: –10 to 70 °C∗ With auto switch: –10 to 60 °C∗						
Lubrication	Not required (Non-lube)						
Operating piston speed	5 to 500 mm/s						
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_{0}$, 251 to 1000 st: $^{+1.4}_{0}$						
Cushion	Non						
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion						
Allowable air leak	0.5 l/min (ANR)						

∗ No freezing

ATEX Compliant ISO Cylinder
Standard: Double Acting, Single Rod
Series 55-CP96
Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

	Without magnet	Built-in magnet
CE Ex II 2GDc	85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

For the Ø 125, refer to the next page

How to Order

Without magnet **55 – CP96S B 32 – 100 C – XC68**

With magnet **55 – CP96SD B 32 – 100 C – XC68**

ATEX category 2

Built-in magnet for auto switch

Mounting

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

Bore size

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

Made to Order

–	Standard
XA□□	Change of rod end shape
XC4	With heavy duty scraper (Ø 32 to Ø 100)
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
XC22	Fluororubber seals
XC65	Made of stainless steel (Combination of XC7 and XC68)
XC68	With chrome plated stainless steel piston rod and stainless steel nut

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm)	Max. stroke*	**XC68** Max. stroke
32	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500	2000	1800
40	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500	2000	1700
50	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600	2000	1700
63	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600	2000	1700
80	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600, 700, 800	2000	1700
100	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600, 700, 800	2000	1700

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

All other specifications are the same as the standard products Series CP96. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

ATEX Compliant ISO Cylinder
Standard: Double Acting, Single Rod
Series 55-CP96
Ø 125

	Without magnet	Built-in magnet
CE ⟨Ex⟩ II 2GDc	85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105°C (T4) Ta 40 °C to 60 °C

For the Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, and Ø 100, refer to page 58.

How to Order

Without magnet 55 – CP96S B 125 – 100 – XC68

With magnet 55 – CP96SD B 125 – 100 – XC68

ATEX category 2

Built-in magnet for auto switch

Mounting

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

Bore size

125	125 mm

Cylinder stroke (mm)

Bore size (mm)	Max. stroke*	XC68 Max. stroke
125**	2000	1600

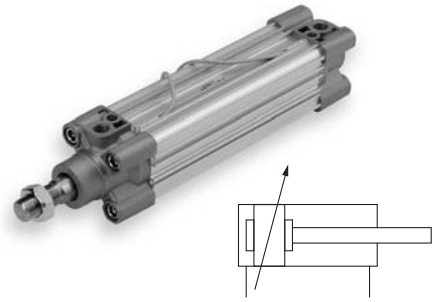
Intermediate strokes are available.
* Please consult with SMC for longer strokes.
** Ø 125 are produced upon receipt of order.

Made to Order

—	Standard
XA□□	Change of rod end shape
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
XC18	NPT ports
XC22	Fluororubber seals
XC68	With chrome plated stainless steel piston rod and stainless steel nut

All other specifications are the same as the standard products Series CP96.
For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.



Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting						
Fluid	Air						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Min. operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: –20 to 70 °C∗ With auto switch: –10 to 60 °C∗						
Lubrication	Not required (Non-lube)						
Operating piston speed	50 to 1000 mm/s						50 to 700 mm/s
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_{0}$, 251 to 1000 st: $^{+1.4}_{0}$, 1001 to 1500 st: $^{+1.8}_{0}$, 1501 to 2000 st: $^{+2.2}_{0}$						
Cushion	Both ends (Air cushion)						
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion						

∗ No freezing

ATEX Compliant ISO Cylinder
Standard: Double Acting, Double Rod
Series 55-CP96W
Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

	Without magnet	Built-in magnet
II 2GDc	85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

For the Ø 125, refer to the next page

How to Order

Without magnet **55 – CP96S B 32 – 100 C W – XC68**

With magnet **55 – CP96SD B 32 – 100 C W – XC68**

ATEX category 2

Built-in magnet for auto switch

Mounting

B	Basic/without bracket
L	Axial foot
F	Rod side flange
G	Head side flange

Bore size

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

Made to Order

–	Standard
XA□□	Change of rod end shape
XC4	With heavy duty scraper (Ø 32 to Ø 100)
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
XC22	Fluororubber seals
XC65	Made of stainless steel (Combination of XC7 and XC68)
XC68	With chrome plated stainless steel piston rod and stainless steel nut

Rod

W	Double rod

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm)	Max. stroke for standard type and **XC68***
32	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500	1000
40	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500	1000
50	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600	1000
63	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600	1000
80	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600, 700, 800	1000
100	25, 50, 80, 100, 125, 160, 200 250, 320, 400, 500, 600, 700, 800	1000

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

All other specifications are the same as the standard products Series CP96W. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

ATEX Compliant ISO Cylinder
Standard: Double Acting, Double Rod
Series 55-CP96W
Ø 125

	Without magnet	Built-in magnet
II 2GDc	85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

For the Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, and Ø 100, refer to page 61.

How to Order

Without magnet **55 – CP96S B 125 – 100 W – XC68**

With magnet **55 – CP96SD B 125 – 100 W – XC68**

ATEX category 2

Built-in magnet for auto switch

Mounting

B	Basic/without bracket
L	Axial foot
F	Rod side flange

Bore size

125	125 mm

Made to Order

—	Standard
XA□□	Change of rod end shape
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
XC18	NPT ports
XC22	Fluororubber seals
XC68	With chrome plated stainless steel piston rod and stainless steel nut

Rod

W	Double rod

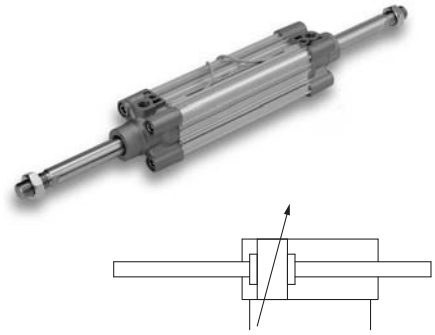
Cylinder stroke (mm)

Bore size (mm)	Max. stroke*
125**	1000

Intermediate strokes are available.
* Please consult with SMC for longer strokes.
** Ø 125 are produced upon receipt of order.

All other specifications are the same as the standard products Series CP96W. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.



Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting						
Fluid	Air						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Min. operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: –20 to 70 °C∗ With auto switch: –10 to 60 °C∗						
Lubrication	Not required (Non-lube)						
Operating piston speed	50 to 1000 mm/s						50 to 700 mm/s
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_{0}$, 251 to 1000 st: $^{+1.4}_{0}$, 1001 to 1500 st: $^{+1.8}_{0}$, 1501 to 2000 st: $^{+2.2}_{0}$						
Cushion	Both ends (Air cushion)						
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion						

∗ No freezing

ATEX Compliant ISO Cylinder
Non-rotating Type: Double Acting, Single Rod
Series 55-CP96K
Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

	Without magnet	Built-in magnet
CE Ex II 2GDc	85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

How to Order

Without magnet 55 – CP96K B 32 – 100 C

With magnet 55 – CP96KD B 32 – 100 C

ATEX category 2

Built-in magnet for auto switch

Mounting

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

Bore size

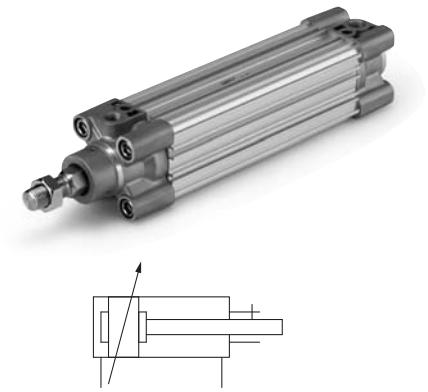
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Cylinder stroke (mm)

Bore size (mm)	Maximum stroke (mm)
32	500
40	500
50	600
63	600
80	800
100	800

All other specifications are the same as the standard products Series CP96. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.



Specifications

Bore size (mm)	32	40	50	63	80	100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					
Min. operating pressure	0.05 MPa					
Ambient and fluid temperature	Without auto switch: –20 to 70 °C* With auto switch: –10 to 60 °C*					
Lubrication	Not required (Non-lube)					
Operating piston speed	50 to 1000 mm/s					
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_{0}$, 251 to 1000 st: $^{+1.4}_{0}$					
Cushion	Both ends (Air cushion)					
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
Non-rotating accuracy	±0.5°		±0.5°		±0.3°	
Allowable rotating torque Nm max.	0.25	0.45	0.64		0.79	

* No freezing

ATEX Compliant ISO Cylinder
Non-rotating Type: Double Acting, Double Rod
Series 55-CP96KW
Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE Ex II 2GDc

Without magnet	Built-in magnet
85 °C (T5) Ta –20 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C	85 °C (T5) Ta –10 °C to 40 °C 105 °C (T4) Ta 40 °C to 60 °C

How to Order

Without magnet **55 – CP96K B 32 – 100 C W**

With magnet **55 – CP96KD B 32 – 100 C W**

ATEX category 2

Built-in magnet for auto switch

Mounting

B	Basic/without bracket
L	Axial foot
F	Rod side flange
G	Head side flange

Bore size

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

Cylinder stroke (mm)

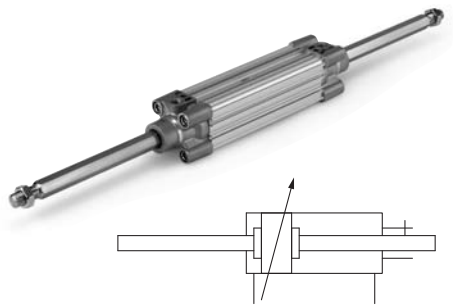
Bore size (mm)	Maximum stroke (mm)
32	500
40	500
50	600
63	600
80	800
100	800

Rod

W	Double rod

All other specifications are the same as the standard products Series CP96W. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.



Specifications

Bore size (mm)	32	40	50	63	80	100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					
Min. operating pressure	0.05 MPa					
Ambient and fluid temperature	Without auto switch: –20 to 70 °C∗ With auto switch: –10 to 60 °C∗					
Lubrication	Not required (Non-lube)					
Operating piston speed	50 to 1000 mm/s					
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_{0}$, 251 to 1000 st: $^{+1.4}_{0}$					
Cushion	Both ends (Air cushion)					
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
Non-rotating accuracy	±0.5°		±0.5°		±0.3°	
Allowable rotating torque Nm max.	0.25	0.45	0.64		0.79	

∗ No freezing

ATEX Compliant

ISO Standards/Compact Cylinder

Series 55-C55

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

CE Ex II 2GDc 85 °C (T6) Ta -10 °C to 40 °C
105 °C (T4) Ta 40 °C to 60 °C

How to Order

55 — CD55 B 20 — 10 — X1439

ATEX category 2

Built-in magnet

–	None
D	Built-in magnet

Mounting style

B	Through-hole/Both ends tapped common (Standard)
L	Foot
F	Front flange
G	Rear 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

Cylinder stroke (mm)
Refer to standard stroke table

Rod end thread

–	Rod end female thread
M	Rod end male thread

Special

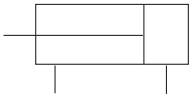
–	Standard
X1439	Special Auto switch groove: T Slot for Ø 20-63 bore sizes

All other specifications are the same as the standard products Series C55.
For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

Symbol

Double Acting/Single Rod



Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
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						0.03 MPa	
Ambient and fluid temperature	–10 to 60 °C (No freezing)							
Cushion	Rubber bumper on both end							
Stroke length tolerance	+1.0 mm 0							
Mounting	Through-hole/Both ends tapped common							
Piston speed	50 to 500 mm/s						50 to 300 mm/s	

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Intermediate strokes
20 to 63	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125, 150	6 ~149
80 to 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125	6 ~124

Mounting Bracket Part No.

Bore size (mm)	Foot	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

- Order two foot brackets per cylinder.
- Parts belonging to each bracket are as follows.
  Foot, Flange, Single clevis/Body mounting bolt

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

ATEX Compliant

Air Cylinder/Standard/Double Acting

Series 55-CG1

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

CE Ex II 2GDc 95 °C (T5) Ta –10 °C to 40 °C
115 °C (T4) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

55 - C D G1 W B N 20 TN – [ ] – XC85

ATEX category 2

Built in magnet

–	None
D	Built-in magnet

Rod

–	Single rod
W	Double rod

Mounting

B	Basic
L	Axial foot
F	Front flange
G	Rear flange
U*	Front trunnion
T*	Rear trunnion
D	Clevis

* Not available for bore sizes Ø 80 and Ø 100.

Cushion

N	Rubber bumper
A	Air cushion

Bore size

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

Thread type of port

Rubber bumper

–	Rc	Ø 20~Ø 100
TN	NPT	Ø 20~Ø 100
TF	G	Ø 32~Ø 100

Air cushion

–	M5x0.8	Ø20~Ø25
	Rc	Ø 32~Ø 100
TN	NPT	Ø 32~Ø 100
TF	G	Ø 32~Ø 100

Made to Order

–	Standard
XC85	Food grade grease
XC10 Note 1)	Dual stroke cylinder/Double rod
XC11 Note 1) 2)	Dual stroke cylinders/Single rod

Note 1) Not available for Ø 80-100. "How to Order" for XC10, and XC11 are different from the above. Refer to the catalogue on smc.es
Note 2) Not available for rubber cushion type.
Note 3) XC10 and XC11 are not applicable to XC85.

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (1) (mm)	Long stroke (2) (mm)
20	25, 50, 75, 100, 125, 150, 200	201 to 350
25	25, 50, 75, 100, 125, 150, 200, 250, 300	301 to 400
32		301 to 450
40		301 to 800
50/63		301 to 1200
80		301 to 1400
100		301 to 1500

Note 1) Other intermediate strokes can be manufactured upon receipt of order. Spacers are not used for the intermediate strokes.
Note 2) Long stroke applies to the axial foot and the front flange style. If other mounting brackets are used or the length exceeds the stroke limit, the stroke should be determined based on the stroke selection table in the technical data.

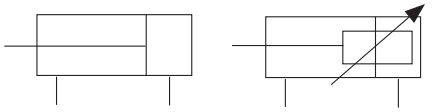
All other specifications are the same as the standard products Series CG1. For details, refer to **the WEB catalogue.**

Refer to page 86 for applicable auto switches.

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

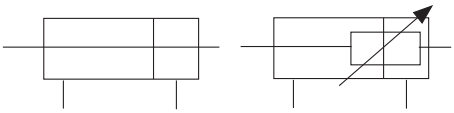
Symbol

Double Acting/Single Rod



Rubber Bumper　　Air Cushion

Double Acting/Double Rod



Rubber Bumper　　Air Cushion

Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting/Single rod							
Lubrication	Non-lube							
Fluid	Air							
Proof pressure	1.5 MPa							
Max. operating pressure	1.0 MPa							
Min. operating pressure	0.05 MPa							
Ambient and fluid temperature	–10 to +60 °C (No freezing)							
Piston speed	50 to 1000 mm/s						50 to 700 mm/s	
Stroke tolerance	Up to $1000^{+1.4}_{0}$ mm, Up to $1200^{+1.8}_{0}$ mm						Up to $1000^{+1.4}_{0}$ mm Up to $1500^{+1.8}_{0}$ mm	
Cushion	Rubber bumper/Air cushion							
Mounting*	Basic, Axial foot, Front flange, Rear flange, Front trunnion, Rear trunnion, Clevis (Used for changing the port location by 90 degrees.)							

∗ Front/Rear trunnion styles are not available for bore sizes Ø 80 and Ø 100.

Accessories

Mounting		Basic	Axial foot	Front flange	Rear flange	Front trunnion	Rear trunnion	Clevis
Standard	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	—	●
Option	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint ** (With pins)	●	●	●	●	●	●	●
	Pivot bracket	—	—	—	—	●*	●*	●
	Rod boot	●	●	●	●	●	●	●

∗ Pivot bracket is not available for bore sizes Ø 80 and Ø 100.
∗∗ Pins and snap rings for double knuckle joint are included, not mounted.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)							
	20	**25**	**32**	**40**	**50**	**63**	**80**	**100**
Axial foot*	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100
Flange	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100
Trunnion	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	—	—
Clevis**	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063	CG-D080	CG-D100
Pivot bracket	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	CG-080-24A	CG-100-24A

∗ Order two foot brackets per cylinder.
∗∗ Clevis pins, snap rings and mounting bolts are attached for the clevis.
∗∗∗ Mounting bolts are attached for the foot type and the flange type.

ATEX Compliant

Air Cylinder/Standard/Double Acting

Series 55-CS1

Non-lube: Ø 125, Ø 140, Ø 160, Ø 180, Ø 200, Ø 250, Ø 300

CE Ⓔx II 2GDc 95 °C (T5) Ta 0 °C to 40 °C
115 °C (T4) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

55-CDS1 □ L □ N 160 — 300 R

ATEX category 2

Build in magnet

-	Ø 125~Ø 300	Without magnet
D	Ø 125~Ø 200	Built in magnet*

*(Aluminium tube)

Rod type

-	Single rod
W	Double rod

Mounting

B	Basic
L	Foot
F	Front flange
G	Rear flange
C	Single clevis
D	Double clevis
T	Centre trunnion

Mounting options for W type: B, L, F, T

Non-lube

Tube material

Symbol	Bore size	Tube material
—	**Ø 125 to Ø 160**	Aluminium tube
	Ø 180 to Ø 300	Steel tube
F	**Ø 125 to Ø 160**	Steel tube

Table above applies to without magnet type

Cylinder stroke (mm)
(Refer to following page for max. stroke table.)

Rod boot/Cushion

Cushion	N	No cushion
	R	With cushion on rod side
	H	With cushion on head side
	—	With both sides cushion

Bore size
Non-lube

125	125 mm
140	140 mm
160	160 mm
180	180 mm
200	200 mm
250*	250 mm
300*	300 mm

* It is not available with auto-switch

Mounting Bracket Part No.

Bore size (mm)	125	140	160	180	200	250	300
Foot*	CS1-L12	CS1-L14	CS1-L16	CS1-L18	CS1-L20	CS1-L25	CS1-L30
Flange	CS1-F12	CS1-F14	CS1-F16	CS1-F18	CS1-F20	CS1-F25	CS1-F30
Single clevis	CS1-C12	CS1-C14	CS1-C16	CS1-C18	CS1-C20	CS1-C25	CS1-C30
Double clevis**	CS1-D12	CS1-D14	CS1-D16	CS1-D18	CS1-D20	CS1-D25	CS1-D30

* Order 2 foot brackets for one cylinder.
** When ordering the double clevis, the clevis pin and the cotter pin (2 pcs.) are attached.

All other specifications are the same as the standard products Series CS1/CS1W. For details, refer to **the WEB catalogue**

Refer to page 86 for applicable auto switches.

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

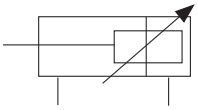
Specifications

Style	Non-lube
Fluid	Air (Non-lube)
Proof pressure [1)]	1.57 MPa
Max. operating pressure [1)]	0.97 MPa
Min. operating pressure	0.05 MPa
Piston speed	50 to 500 mm/s
Cushion	None, air cushion
Ambient and fluid temperature	0 to 60 °C (No freezing)
Stroke length tolerance (mm)	250 or less: $^{+1.0}_{0}$, 251 to 1,000: $^{+1.4}_{0}$, 1,001 to 1,500: $^{+1.8}_{0}$ 1501 to 2000: $^{+2.2}_{0}$
Mounting	Basic, Foot, Front flange, Rear flange, Single clevis, Double clevis, Centre trunnion

Note 1) For the CDS1 diameter 180 and 200 the Proof pressure is 1.2 MPa and the Max. operating pressure is 0.7 MPa.

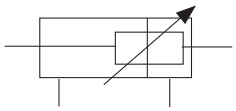
Symbol

Double Acting/Single Rod



Air Cushion

Double Acting/Double Rod



Air Cushion

Accessories

Mounting		Basic	Foot	Front flange	Rear flange	Single clevis	Double clevis	Centre trunnion
Standard	Clevis pin, Cotter pin	–	–	–	–	–	●	–
Accessory	Rod end nut	●	●	●	●	●	●	●
	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint (Knuckle pin, Cotter pin)	●	●	●	●	●	●	●

(mm)

Max. Stroke

Tube material	Without magnet			With magnet	
	Aluminium alloy	Carbon steel tube		Aluminium alloy	
Mounting bracket / Bore	Basic Rear flange Single clevis Double clevis Centre trunnion Foot Front flange	Basic Rear flange Single clevis Double clevis	Foot Front flange	B, G, C, D, T	L, F *
125	1000 or less	1000 or less	1600 or less	1000 or less	1400 or less
140	1000 or less	1000 or less	1600 or less	1000 or less	1400 or less
160	1200 or less	1200 or less	1600 or less	1200 or less	1400 or less
180	—	1200 or less	2000 or less	1200 or less	1500 or less
200	—	1200 or less	2000 or less	998 or less	998 or less
250	—	1200 or less	2400 or less	-	-
300	—	1200 or less	2400 or less	-	-

* For double Rod Type (W), max. stroke for L and F options is the same as B and T options.

ATEX Compliant

Compact Cylinder/Standard: Double Acting, Single Rod

Series 55-CQ2

Ø 12, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE Ⓔx II 2GDc 85 °C (T6) Ta –10 °C to 40 °C
105 °C (T4) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

Without magnet Ø 12 to Ø 25: 55 – CQ2 B 20 ☐ – 30 D ☐ – ☐

Without magnet Ø 32 to Ø 100: 55 – CQ2 B 32 ☐ – 30 D ☐ Z – ☐

With magnet: 55 – CDQ2 B 32 ☐ – 30 D ☐ Z – ☐

ATEX category 2

With magnet (Built-in magnet)

Mounting bracket

B	Through-hole (Standard)
A	Both ends tapped
L	Foot
F	Rod side flange
G	Head side flange
D	Double clevis

∗ Mounting brackets are shipped together, (but not assembled).
∗ Cylinder mounting bolts are not included.

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Port thread type

–	M thread	Ø 12 to Ø 25
	Rc	Ø 32 to Ø 100
TF	G	

∗ For cylinders without magnet, M threads are compatible only with Ø 32-5 mm stroke.

Auto switch mounting groove

Z	Ø 12 to Ø 25	2 surfaces
	Ø 32 to Ø 100	4 surfaces

Body option

–	Standard (Rod end female thread)
C	With rubber bumper
M	Rod end male thread

∗ Combination of body options (CM) is available.

Action

D	Double acting

Cylinder stroke (mm)

Bore size	Standard stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50 to 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Note) For intermediate strokes, refer to the standard products Series CQ2.

Made to Order

–	Standard
XC85	With food grade grease

All other specifications are the same as the standard products Series CQ2. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

ATEX Compliant

Compact Cylinder/Standard: Double Acting, Double Rod

Series 55-CQ2W

Ø 12, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE Ex II 2GDc 85 °C (T6) Ta –10 °C to 40 °C
105 °C (T4) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

Without magnet Ø 12 to Ø 25: 55 – CQ2W B 20 ☐ – 30 D ☐ – ☐

Without magnet Ø 32 to Ø 100: 55 – CQ2W B 32 ☐ – 30 D ☐ Z – ☐

With magnet: 55 – CDQ2W B 32 ☐ – 30 D ☐ Z – ☐

ATEX category 2

With magnet (Built-in magnet)

Mounting bracket

B	Through-hole (Standard)
A	Both ends tapped
L	Foot
F	Flange

∗ Mounting brackets are shipped together, (but not assembled).
∗ Cylinder mounting bolts are not included.

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Port thread type

–	M thread	Ø 12 to Ø 25
	Rc	Ø 32 to Ø 100
TF	G	

∗ For cylinders without magnet, M threads are compatible only with Ø 32-5 mm stroke.

Action

D	Double acting

Cylinder stroke (mm)

Bore size	Standard stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50 to 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Body option

–	Standard (Rod end female thread)
C	With rubber bumper
M	Rod end male thread

∗ Combination of body options (CM) is available.

Auto switch mounting groove

Z	Ø 12 to Ø 25	2 surfaces
	Ø 32 to Ø 100	4 surfaces

Made to Order

–	Standard
XC85	With food grade grease

All other specifications are the same as the standard products Series CQ2. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

ATEX Compliant

Compact Cylinder/Long stroke: Double Acting, Single Rod

Series 55-CQ2

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE Ex II 2GDc 85 °C (T6) Ta –10 °C to 40 °C
105 °C (T4) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

Without magnet 55 – CQ2 **A 32 – 200 DC Z –**

With magnet 55 – CDQ2 **A 32 – 200 DC Z –**

ATEX category 2

Built-in magnet for auto switch

Mounting bracket

A	Both ends tapped
L	Foot
F	Rod side flange
G	Head side flange
D	Double clevis

∗ Mounting brackets are shipped together, (but not assembled).

Bore size

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

Port thread type

–	Rc
TF	G

Cylinder stroke (mm)

Bore size	Standard stroke
32, 40, 50 63, 80, 100	125, 150, 175, 200, 250, 300

Action

D	Double acting

Cushion

C	Rubber cushion

Body option

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

Auto switch mounting groove

Z	4 surfaces

Made to Order

–	Standard
XC85	With food grade grease

All other specifications are the same as the standard products Series CQ2. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

ATEX Compliant

Compact Cylinder/Large Bore Size: Double Acting, Single Rod

Series 55-CQ2

Ø 125, Ø 140, Ø 160, Ø 180, Ø 200

CE Ⓔx II 2GDc 85 °C (T6) Ta –10 °C to 40 °C
105 °C (T4) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

Without magnet 55– CQ2B 125 ☐ –30 D C ☐ Z –☐

With magnet 55– CDQ2B 125 ☐ –30 D C ☐ Z –☐

ATEX category 2

Built-in magnet for auto switch

Mounting bracket

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

∗ Cylinder mounting bolts are not included.

Bore size

125	125 mm
140	140 mm
160	160 mm
180	180 mm
200	200 mm

Port thread type

–	Rc
TF	G

Cylinder stroke (mm)

Bore size	Standard stroke
125, 140, 160	10, 20, 30, 40, 50, 75, 100
180, 200	125, 150, 175, 200, 250, 300

Action

D	Double acting

Cushion

C	Rubber cushion

Body option

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

Auto switch mounting groove

Z	4 surfaces

Made to Order

–	Standard
XC85	With food grade grease

All other specifications are the same as the standard products Series CQ2. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

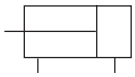
Style

Bore size (mm)			12	16	20	25	32	40	50	63	80	100	125	140	160	180	200
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Both ends tapped	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Built-in magnet		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Piping	Screw-in style	M5	M5	M5	M5	M5 (1) G 1/8	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 1/2	G 1/2
	Rod end male thread		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	With rubber bumper		●	●	●	●	●	●	●	●	●	●	●(2)	●(2)	●(2)	●(2)	●(2)

Note 1) Among those without an auto switch, only the 5mm stroke uses M5 piping.
Note 2) Rubber bumper is standard for bore sizes over Ø 125.

JIS Symbol

Double Acting: Single Rod



Double Acting: Double Rod

Specifications

Bore size (mm)	12	16	20	25	32	40	50	63	80	100	125	140	160	180	200
Style	Pneumatic (Non-lube)														
Fluid	Air														
Proof pressure	1.5 MPa													1.05 MPa	
Max. operating pressure	1.0 MPa													0.7 MPa	
Min. operating pressure	0.07 MPa		0.05 MPa												
Ambient and fluid temperature	With auto switch: –10 °C to 60 °C (No freezing) / Without auto switch: –10 °C to 70 °C (No freezing)														
Cushion	None, rubber bumper										Rubber bumper				
Rod end thread	Male thread, Female thread														
Tolerance of stroke length (mm)	$^{+1.0}_{0}$										$^{+1.4}_{0}$				
Mounting	Through-hole, Both end tapped, Foot, Front flange, Rear flange, Double clevis										Through-hole both end tapped				
Piston speed	50 to 500 mm/s													20 to 400 mm/s	

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

ATEX Compliant

Dual Rod Cylinder
Series 55-CXS/55-CXSW
Ø 6, Ø 10, Ø 15, Ø 20, Ø 25, Ø 32

CE Ex II 2GDc 65 °C (T6) Ta –10 °C to 40 °C
85 °C (T6) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 21 and in zones 2 and 22. If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zones 2 and 22 and not in zones 1 and 21.

How to Order

55-CXS [W] [M] [20] [ ] – [100] – [ ]

ATEX category 2

Dual rod cylinder

Type

–	Single rod
W	Double rod

Bearing

M	Slide bearing
L	Ball bushing bearing

Bore size

6	6 mm
10	10 mm
15	15 mm
20	20 mm
25	25 mm
32	32 mm

Port thread type

Symbol	Type	Bore size
–	M thread	Ø 6~Ø 20
	Rc	Ø 25~Ø 32
TF	G	Ø 25~Ø 32

Made to order

–	Standard
XB11	Long stroke type
XC22	Fluoro rubber seals. Only for Ø 25

Standard Strokes

CXS (mm)

Bore size	Standard stroke	-XB11
Ø 6	10, 20, 30, 40, 50	—
Ø 10	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75	80, 90, 100, 110, 120, 125, 150
Ø 15	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100	100, 120, 125, 150
Ø 20		110, 120, 125, 150, 175, 200
Ø 25		
Ø 32		

CXSW (mm)

Bore size	Standard stroke	-XB11
Ø 6	10, 20, 30, 40, 50	—
Ø 10	10, 20, 30, 40, 50	75, 100, 125, 150, 175, 200
Ø 15		
Ø 20	10, 20, 30, 40, 50, 75, 100	125, 150, 175, 200
Ø 25		
Ø 32		

All other specifications are the same as the standard products Series CXS. For details, refer to **the WEB catalogue.**

Refer to page 86 for applicable auto switches.

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

CXS Specifications

Bore size (mm)	6	10	15	20	25	32
Fluid	Air (Non-lube)					
Min. operating pressure	0.15 MPa	0.1 MPa		0.05 MPa		
Max. operating pressure	0.7 MPa					
Proof pressure	1.05 MPa					
Ambient and fluid temperature	–10 to 60 °C (No freezing)					
Piston speed	30 to 300 mm/s	30 to 800 mm/s	30 to 700 mm/s		30 to 600 mm/s	
Piping port	M5 X 0.8				G 1/8, R 1/8	
Stroke adjustable range	0 to –5 mm to the standard stroke					
Bearing	Slide bearing, Ball bushing bearing (Same dimensions)					
Cushion	Rubber bumper					

CXSW Specifications

Bore size (mm)	6	10	15	20	25	32
Fluid	Air (Non-lube)					
Min. operating pressure	0.15 MPa			0.1 MPa		
Max. operating pressure	0.7 MPa					
Proof pressure	1.05 MPa					
Ambient and fluid temperature	–10 to 60 °C (No freezing)					
Piston speed	50 to 500 mm/s					
Piping port	M5 X 0.8				G 1/8, R 1/8	
Stroke adjustable range	0 to –10 mm (Extension side: 5 mm, Retraction side: 5 mm)					
Bearing	Slide bearing, Ball bearing (Same dimensions)					
Cushion	Rubber bumper					

ATEX Compliant

Mechanically Jointed Rodless Cylinder
Series 55-MY1B
Basic Type/Ø 10, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE Ex II 2Gc 75 °C (T6) Ta 5 to 40 °C
95 °C (T5) Ta 40 to 60 °C

Note 1) This cylinder can be used in zones 1 and 2.
If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zone 2 and not in zone 1.

How to Order

Basic Type **55-MY1B** **25** □ □ — **300** — **XB11**

ATEX category 2

Basic type

Bore size

10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Piping thread

Symbol	Type	Bore size
–	M thread	Ø 10~Ø 20
	Rc	Ø 25~Ø 100
TN	NPT	
TF	G	

Piping

–	Standard type
G	Centralized piping type

Stroke
Refer to the standard stroke table below.

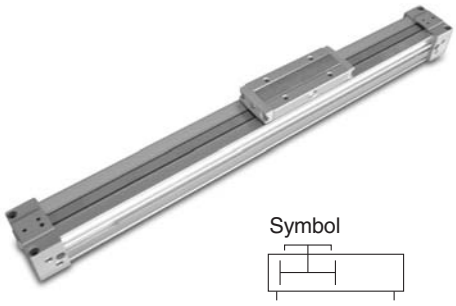
Special

–	Standard type
XB11	Long Stroke type

Standard strokes

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm) Stroke achievable with -XB11
10, 16	100, 200, 300, 400, 500, 600, 700 800, 900, 1000, 1200, 1400, 1600 1800, 2000	3000
20, 25, 32, 40, 50, 63, 80, 100		5000

(*) Strokes are manufacturable in 1mm increments, up to the maximum stroke. however, when exceeding a 2000 mm stroke,specify "-XB11" at the end of the model number.
With strokes of 49 mm or less, the air cushion capacity may decrease and it may not be possible to mount multiple auto switches.



Symbol

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

Bore size (mm)		10	16	20	25	32	40	50	63	80	100
Fluid		Air									
Action		Double acting									
Operating pressure range		0.2 to 0.8MPa	0.1 to 0.8 MPa								
Proof pressure		1.2 MPa									
Ambient and fluid temperature		5 to 60 °C									
Cushion		Rubber bumper	Air cushion								
Lubricaton		Non-lube									
Stroke length tolerance		1000 or less $^{+1.8}_{0}$ 1001 to 3000 $^{+2.8}_{0}$	2700 or less $^{+1.8}_{0}$, 2701 to 5000 $^{+2.8}_{0}$								
Port size	**Front/Side ports**	M5 x 0.8			Rc, NPT, G 1/8		Rc, NPT, G 1/4	Rc, NPT, G 3/8		Rc, NPT, G 1/2	
Operating piston speed		100 to 500 mm/s	100 to 1000 mm/s								

All other specifications are the same as the standard products Series MY1B. For details, refer to **the WEB catalogue.**

Refer to page 86 for applicable auto switches.

ATEX Compliant

Mechanically Jointed Rodless Cylinder

Series 55-MY1M

Slide Bearing Type/Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63

CE Ex II 2Gc 75 °C (T6) Ta 5 to 40 °C
95 °C (T5) Ta 40 to 60 °C

Note 1) This cylinder can be used in zones 1 and 2.
If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zone 2 and not in zone 1.

How to Order

Slide Bearing Guide Type

55-MY1M **25** □ □ — **300** — **XB11**

ATEX category 2

Slide bearing guide type

Bore size

16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

Piping

–	Standard type
G	Centralized piping type

Port thread types

Symbol	Type	Bore size
–	M thread	Ø 16~Ø 20
	Rc	Ø 25~Ø 63
TN	NPT	
TF	G	

Stroke
Refer to the standard stroke table below.

Special

–	Standard type
XB11	Long Stroke type

Standard strokes

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm) Stroke achievable with -XB11
16	100, 200, 300, 400, 500, 600, 700 800, 900, 1000, 1200, 1400, 1600 1800, 2000	3000
20, 25, 32, 40 50, 63		5000

(*) Strokes are manufacturable in 1mm increments, up to the maximum stroke. however, when exceeding a 2000 mm stroke,specify "-XB11" at the end of the model number.

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Standard strokes

Bore size (mm)		16	20	25	32	40	50	63
Fluid		Air						
Action		Double acting						
Operating pressure range		0.15 to 0.8 MPa						
Proof pressure		1.2 MPa						
Ambient and fluid temperature		5 to 60 °C						
Cushion		Air cushion						
Lubrication		Non-lube						
Stroke length tolerance		1000 or less $^{+1.8}_{0}$ 1001 to 3000 $^{+2.8}_{0}$		2700 or less $^{+1.8}_{0}$, 2701 to 5000 $^{+2.8}_{0}$				
Port size	**Front/Side ports**	M5 x 0.8		Rc, NPT, G 1/8		Rc, NPT, G 1/4	Rc, NPT, G 3/8	
Operating piston speed		100 to 1000 mm/s						

All other specifications are the same as the standard products Series MY1M. For details, refer to **the WEB catalogue.**

Refer to page 86 for applicable auto switches.

ATEX Compliant

Mechanically Jointed Rodless Cylinder

Series 55-MY1H

Linear Guide Type/Ø 10, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40

CE Ex II 2Gc 75 °C (T6) Ta 5 to 40 °C
95 °C (T5) Ta 40 to 60 °C

Note 1) This cylinder can be used in zones 1 and 2.
If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zone 2 and not in zone 1.

How to Order

55-MY1H **25** **[ ]** **[ ]** — **300** — **XB10**

- **ATEX category 2**
- **Linear guide type**
- **Bore size**

10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm

- **Piping**

–	Standard type
G	Centralized piping type

- **Port thread types**

Symbol	Type	Bore size
–	M thread	Ø 10~Ø 20
	Rc	Ø 25~Ø 40
TN	NPT	
TF	G	

- **Stroke**
Refer to the standard stroke table below.

- **Special**

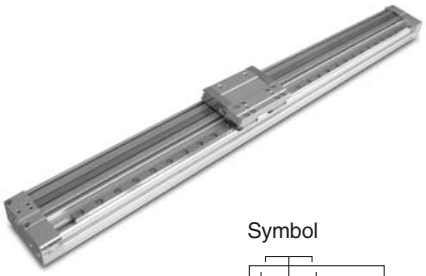
–	Standard type
XB10	Intermediate stroke (using exclusive body)
XB11	Long Stroke type
X1985	Rust Free Guide for Ø 25-40

Note) Bore size 10 is only available as Standard. XB10 and XB11 is not available.

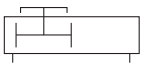
Standard strokes

Bore size (mm)	Standard stroke (mm) (*)	Max. stroke (mm) Stroke achievable with -XB11
10	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600	600
16		1000
20		
25		
32		1500
40		

(*) Strokes are manufacturable in 1 mm increments, up to the maximum stroke. However, add "-XB10" to the end of the part number for nonstandard strokes from 51 to 599. Also when exceeding a 600 mm stroke specify "-XB11" at the end of the model number (except for Ø 10). Ø 10 can only be manufactured up to 600mm stroke.



Symbol



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

Bore size (mm)		10	16	20	25	32	40
Fluid		Air					
Action		Double acting					
Operating pressure range		0.2 to 0.8 MPa	0.1 to 0.8 MPa				
Proof pressure		1.2 MPa					
Ambient and fluid temperature		5 to 60 °C					
Cushion		Rubber bumper	Air cushion				
Lubrication		Non-lube					
Stroke length tolerance		$^{+1.8}_{0}$ (mm)					
Port size	**Front/Side ports**	M5 x 0.8			Rc, NPT, G 1/8		Rc, NPT, G 1/4
Operating piston speed		100 to 500 mm/s	100 to 1000 mm/s				

All other specifications are the same as the standard products Series MY1H. For details, refer to **the WEB catalogue**

Refer to page 86 for applicable auto switches.

How to Order

55-MY1H 25 [ ] [ ] – 300 – X1985

- **55** — ATEX category 2
- **H** — Linear guide type
- **25** — Bore size
- [ ] — Port thread types
- [ ] — Piping
- **300** — Stroke: Refer to the standard stroke table below.
- **X1985** — Rust proof guide

Bore size

25	25 mm
32	32 mm
40	40 mm

Piping

-	Standard type
G	Centralized piping type

Port thread types

Symbol	Type	Bore size
–	Rc	Ø 25~Ø 40
TN	NPT	
TF	G	

Standard strokes

Bore size (mm)	Stroke (mm) (*)
25	50, 100, 150, 200, 250 300, 350, 400, 450, 500, 550, 600, 750
32	
40	

(*) X1985 type can only be manufactured with the strokes listed in table.

ATEX Compliant Auto Switch Applicable Cylinder List

Model / Switch type	55-C76	55-C85	55-C95	55-C96	55-CP96	55-C55	55-CG1	55-CS1	55-CQ2(Z)	55-CXS/W	55-MY1B	55-MY1M	55-MY1H	56-CRB1	56-CRB2	56-CRBU2	55-CRQ2
D-M9□-588	●	● Note 1)		●	●	●	● (20 to 63)		●	●	● (Except 50)	●	●	● (50 to 100)	●	●	●
D-M9□V-588	●	● Note 2)		●	●	●	● (20 to 63)		●	●	● (Except 50)	●	●	● (50 to 100)	●	●	●
D-M9□W-588	●	● Note 1)		●	●	●	● (20 to 63)		●	●	● (Except 50)	●	●	● (50 to 100)	●	●	●
D-M9□WV-588	●	● Note 2)		●	●	●	● (20 to 63)		●	●	● (Except 50)	●	●	● (50 to 100)	●	●	●
D-H7A2-588	●																
D-F7P-588	●																
D-F7PV-588	●																
D-F5P-588			● (160 to 250)														
D-Y7P-588			● (160 to 200)														
D-Y7PV-588			● (160 to 200)														
D-S7P-588														● (50 to 100)	● (20 to 40)	● (20 to 40)	
D-S9P-588															● (10, 15)	● (10, 15)	
D-S9PV-588															● (10, 15)	● (10, 15)	
D-F6P-588																	
D-C73-588 **D-C80-588**	●	● Note 3)					● (20 to 63)										
D-A73-588 **D-A80-588**	●	● Note 4)															
D-A73H-588 **D-A80H-588**	●	● Note 4)															
D-A54-588 **D-A67-588**			● (160 to 250)	●	●												
D-A90-588 **D-A93-588**	●	● (16 to 25)		●	●	●	● (20 to 63)	● (125 to 200)	●	●	● (10 to 20)	● (16, 20)	●				●
D-A90V-588 **D-A93V-588**	●	● Note 5)		●	●	●	● (20 to 63)	● (125 to 200)	●	●	● (10 to 20)	● (16, 20)	●				●
D-90A-588 **D-93A-588**															● (10, 15)	● (10, 15)	
D-Z73-588 **D-Z80-588**			● (160 to 200)														
D-E73A-588 **D-E80A-588**																	
D-R73-588 **D-R80-588**														● (50 to 100)	● (20 to 40)	● (20 to 40)	

( ): Cylinder size
Note 1) 55-C85 Band mounting all sizes, and Rail mounting for 8 to 16 only.
Note 2) 55-C85 Band mounting only.
Note 3) 55-C85 Rail mounting only.
Note 4) 55-C85 Rail mounting only.
Note 5) 55-C85 Rail mounting only, for 16 to 25 only.

∗ All Auto Switches are ATEX category 3. Adding them to a category 2 cylinder means that the overall assembly rating is only to category 3.

ATEX Compliant Solid-state Switch / Direct Mounting

D-M9N(V)-588•D-M9P(V)-588•D-M9B(V)-588

II 3G Ex nA II T5 X -10 °C Ta +60 °C
II 3D tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□/D-M9□V (With indicator light)						
Auto switch part no.	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 V DC (4.5 to 28 V DC)				—	
Current consumption	10 mA or less				—	
Load voltage	28 V DC or less		—		24 VDC (10 to 28 V DC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 V DC				0.8 mA or less	
Indicator light	Red LED illuminates when turned ON.					

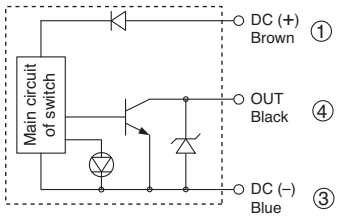
• This category 3 type autoswitch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

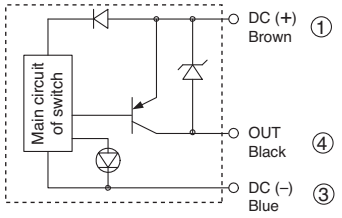
Auto switch model		D-M9N□	D-M9P□	D-M9B□
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	Ø 0.9		
Conductor	Cross section [mm²]	0.15		
	Strand diameter [mm]	Ø 0.05		
Minimum bending radius [mm] (Reference)		20		

Auto Switch Internal Circuit

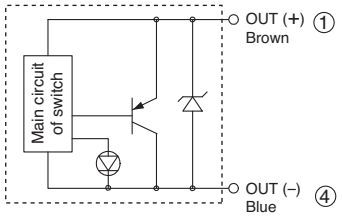
D-M9N, D-M9NV



D-M9P, D-M9PV



D-M9B, D-M9BV



How to Order

Standard Model Number

D-M9 N V L -588

Auto switch part number

Wiring and output

N	3-wire NPN
P	3-wire PNP
B	2-wire

Electrical entry

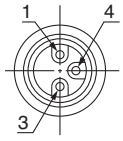
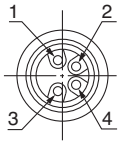
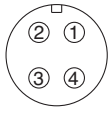
–	In-line
V	Perpendicular

Lead wire length

–	0.5 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m + M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m + M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

Suffix for ATEX certified category 3

Connector Specifications

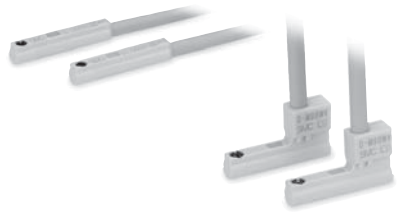
Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

ATEX Compliant 2-Colour Solid State Switch: Direct Mounting

Series D-M9NW(V)/D-M9PW(V)/D-M9BW(V)-588

II 3G Ex nA II T5 X -10 °C Ta +60 °C
II 3D tD A22 IP67 T93 °C X

Grommet



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Auto Switch Specifications

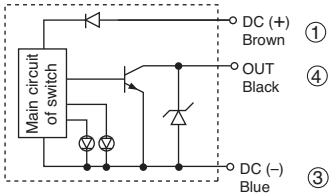
PLC: Programmable Logic Controller

D-M9□W/D-M9□WV (With 2 colour indicator light)						
Auto switch part no.	D-M9NW	D-M9NWV	D-M9PW	D-M9PWV	D-M9BW	D-M9BWV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 V DC relay, PLC	
Power supply voltage	5, 12, 24 V DC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 V DC or less		—		24 V DC (10 to 28 V DC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 V DC				0.8 mA or less	
Indicator light	Operating position ····· Red LED illuminates. Optimum operating position ····· Green LED illuminates.					

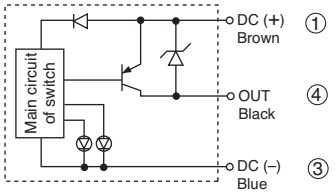
● This category 3 type autoswitch can only be used in zones 2 and 22.

Auto Switch Internal Circuit

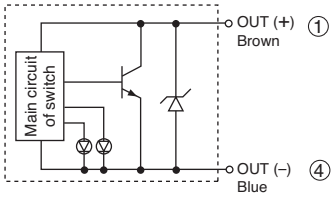
D-M9NW, D-M9NWV



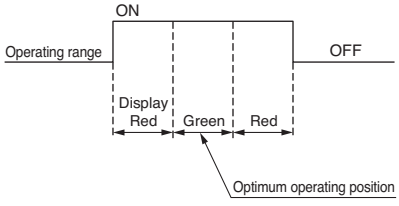
D-M9PW, D-M9PWV



D-M9BW, D-M9BWV



Indicator light / Display method



Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NW□	D-M9PW□	D-M9BW□
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	Ø 0.9		
Conductor	Cross section [mm²]	0.15		
	Strand diameter [mm]	Ø 0.05		
Minimum bending radius [mm] (Reference)		20		

How to Order

D-M9 N W V L -588

Auto switch part number

2 colour display

Suffix for ATEX certified category 3

Wiring/Output type

N	3-wire NPN
P	3-wire PNP
B	2-wire

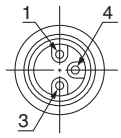
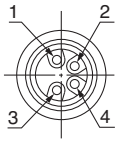
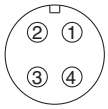
Electrical entry direction

–	In-line
V	Perpendicular

Lead wire length

–	0.5 m
M	1 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m+ M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m+ M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

Connector Specifications

Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

ATEX Compliant Solid State Switch/Band Mounting

D-H7A2-588

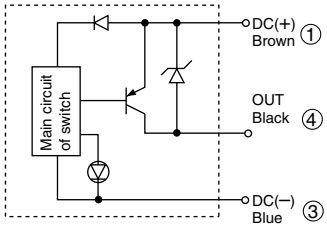
II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Internal Circuit

D-H7A2



Specifications

PLC: Programmable Logic Controller

D-H7 (With indicator light)	
Auto switch model number	**D-H7A2**
Wiring	3 wire
Output	PNP
Application	IC circuit/Relay/PLC
Power voltage	5/12/24 V DC (4.5 to 28 V DC)
Current consumption	10 mA or less
Load current	80 mA or less
Internal voltage drop	0.8 V or less
Current leakage	100 μA or less at 24 V DC
Indicator light	Red LED illuminates when turned ON.

● This category 3 type autoswitch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		**D-H7A2**
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

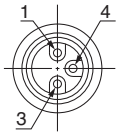
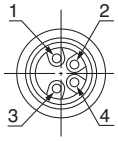
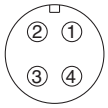
How to order

D-H7A2 □ -588

- **Auto switch part number**
- **Lead wire length**
- **Suffix for ATEX certified category 3**

–	0.5 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m+ M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m + M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

Connector Specifications

Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

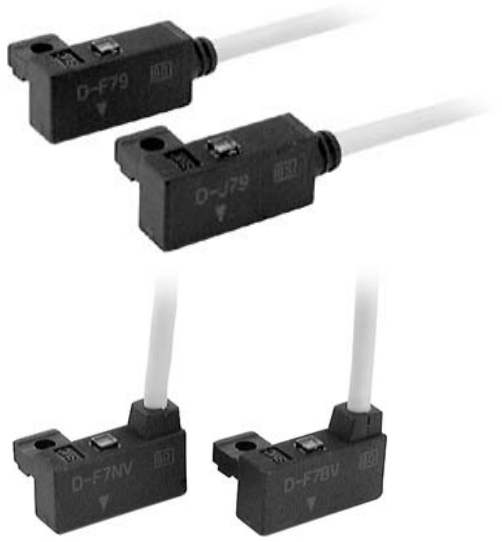
ATEX Compliant

ATEX Compliant Solid State Switch/Rail Mounting

D-F7P(V)-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

PLC: Programmable Logic Controller

D-F7P, D-F7PV (With indicator light)		
Auto switch model number	**D-F7P**	**D-F7PV**
Electrical entry	In-line	Perpendicular
Wiring	3 wire	
Output	PNP	
Application	IC circuit/Relay/PLC	
Power voltage	5/12/24 V DC (4.5 to 28 V DC)	
Current consumption	10 mA or less	
Load current	80 mA or less	
Internal voltage drop	0.8 V or less	
Current leakage	100 μA or less at 24 V DC	
Indicator light	Red LED illuminates when turned ON	

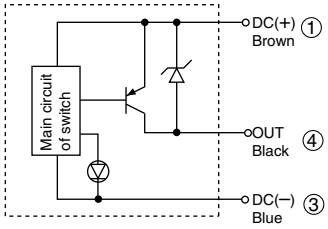
● This category 3 type autoswitch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		**D-F7P□**
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

Internal Circuit

D-F7P, D-F7PV



How to order

D-F7P □ □ -588

Auto switch part number

Electrical entry

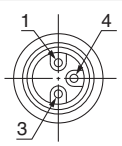
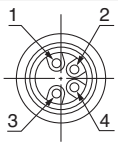
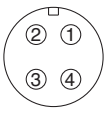
–	In Line
V	Perpendicular

Suffix for ATEX certified category 3

Lead wire length

–	0.5 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m + M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m + M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

Connector Specifications

Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

ATEX Compliant Solid State Switch/Tie-rod Mounting

D-F5P-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93°C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

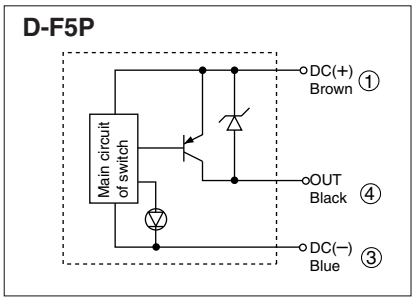
PLC: Programmable Logic Controller

D-F5P (With indicator light)	
Auto switch model number	**D-F5P**
Wiring	3 wire
Output	PNP
Application	IC circuit/Relay/PLC
Power voltage	5/12/24 V DC (4.5 to 28 V DC)
Current consumption	10 mA or less
Load current	80 mA or less
Internal voltage drop	0.8 V or less
Current leakage	100 μA or less at 24 V DC
Indicator light	Red LED illuminates when turned ON

● This category 3 type autoswitch can only be used in zones 2 and 22.

Internal Circuit

D-F5P



Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		**D-F5P**
Sheath	Outside diameter [mm]	Ø 4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	Ø 1.22
Conductor	Cross section [mm²]	0.3
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		24

How to order

D-F5P □ -588

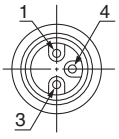
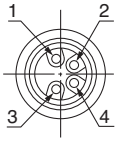
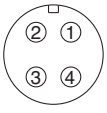
Suffix for ATEX certified category 3

Auto switch part number

Lead wire length

–	0.5 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m + M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m + M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

Connector Specifications

Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

ATEX Compliant Solid State Switch/Direct Mounting

D-Y7P(V)-588

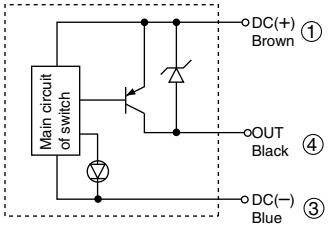
II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Internal Circuit

D-Y7P, D-Y7PV



Specifications

PLC: Programmable Logic Controller

D-Y7P/D-Y7PV (With indicator light)		
Auto switch model number	**D-Y7P**	**D-Y7PV**
Electrical entry	In-line	Perpendicular
Wiring	3 wire	
Output	PNP	
Application	IC circuit/Relay/PLC	
Power voltage	5/12/24 V DC (4.5 to 28 V DC)	
Current consumption	10 mA or less	
Load current	80 mA or less	
Internal voltage drop	0.8 V or less	
Current leakage	100 μA or less at 24 V DC	
Indicator light	Red LED illuminates when turned ON	

● This category 3 type autoswitch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		**D-Y7P□**
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	Ø 1.0
Conductor	Cross section [mm²]	0.15
	Strand diameter [mm]	Ø 0.05
Minimum bending radius [mm] (Reference)		21

How to order

D-Y7P □ □ -588

Auto switch part number

Suffix for ATEX certified category 3

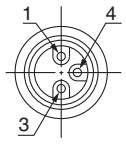
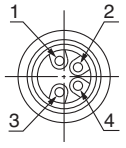
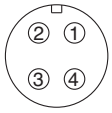
Electrical entry

–	In-Line
V	Perpendicular

Lead wire length

–	0.5 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m + M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m + M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

Connector Specifications

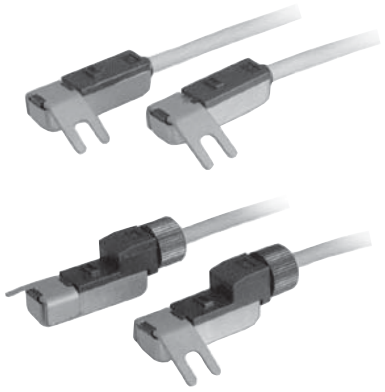
Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

ATEX Compliant Solid State Switch / Direct Mounting

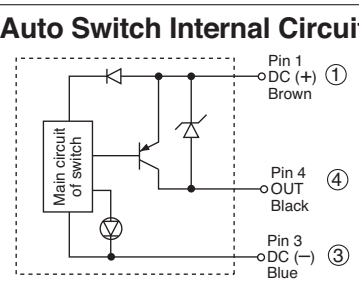
D-S7P-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet/Connector
Electrical entry: In-line



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.



Specifications

PLC: Programmable Logic Controller

D-S7P1/D-S7P2 (With indicator light)		
Auto switch model number	**D-S7P1**	**D-S7P2**
Electrical entry	In-Line	Perpendicular
Wiring	3 wire	
Output	PNP	
Application	IC circuit/Relay/PLC	
Power voltage	5/12/24 V DC (4.5 to 28 V DC)	
Current consumption	10 mA or less	
Load current	40 mA or less	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)	
Current leakage	100 μA or less at 24 V DC	
Indicator light	Red LED illuminates when turned ON	

● This category 3 type autoswitch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		**D-Y7P□**
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

How to order

D-S7P □ □ -588

Auto switch part number

Mounting

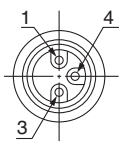
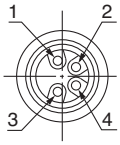
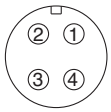
1	Right hand mounting
2	Left hand mounting

Lead wire length

–	0.5 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m + M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m + M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

Suffix for ATEX certified category 3

Connector Specifications

Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

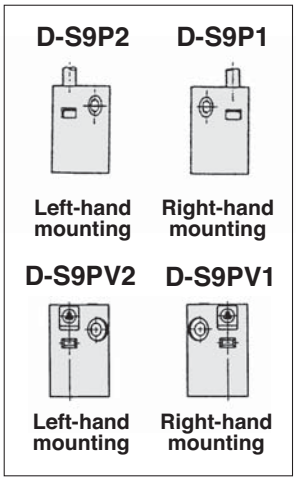
ATEX Compliant Solid State Switch/Direct Mounting

D-S9P-588

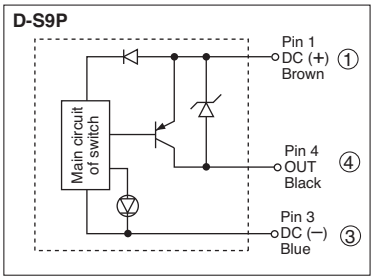
II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.



Internal Circuit



Specifications

PLC: Programmable Logic Controller

D-S9P/D-S9PV (With indicator light)		
Auto switch model number	D-S9P1, D-S9P2	D-S9PV1, D-S9PV2
Electrical entry	In-Line	Perpendicular
Wiring	3 wire	
Output	PNP	
Application	IC circuit/Relay/PLC	
Power voltage	5/12/24 V DC (4.5 to 28 V DC)	
Current consumption	10 mA or less	
Load current	40 mA or less	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)	
Current leakage	100 μA or less at 24 V DC	
Indicator light	Red LED illuminates when turned ON	

● This category 3 type autoswitch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-Y7P□
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

How to order

D-S9P □ □ □ -588

Auto switch part number

Suffix for ATEX certified category 3

Electrical entry

–	In-Line
V	Perpendicular

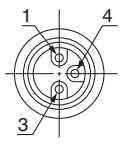
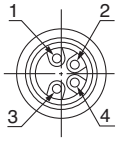
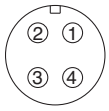
Mounting

1	Right hand mounting
2	Left hand mounting

Lead wire length

–	0.5 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m + M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m + M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

Connector Specifications

Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

ATEX Compliant Solid-state Switch / Direct Mounting

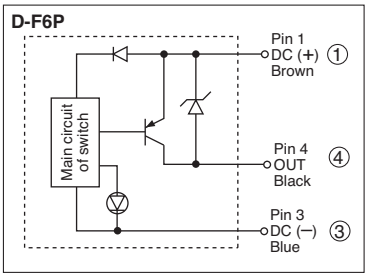
D-F6P-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Internal Circuit



Specifications

PLC: Programmable Logic Controller

D-F6P (With indicator light)	
Auto switch part no.	**D-F6P**
Electrical entry direction	In-line
Wiring type	3-wire
Output type	PNP
Applicable load	IC circuit, relay, and PLC
Power supply voltage	5, 12, 24 V DC (4.5 to 28 V)
Current consumption	10 mA or less
Load current	40 mA or less
Internal voltage drop	0.8 V or less
Leakage current	100 μA or less at 24 V DC
Indicator light	Red LED illuminates when turned ON.

• This category 3 type autoswitch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		**D-F6P**
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	Ø 0.9
Conductor	Cross section [mm²]	0.15
	Strand diameter [mm]	Ø 0.05
Minimum bending radius [mm] (Reference)		20

How to order

D-F6P □ **-588**

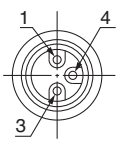
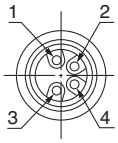
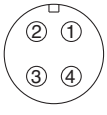
Auto switch part no.

Lead wire length

Suffix for ATEX certified category 3

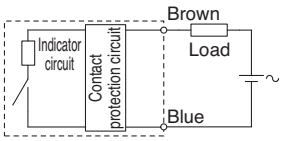
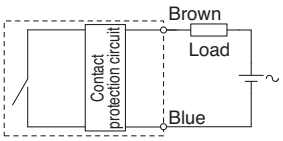
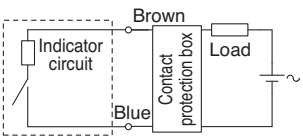
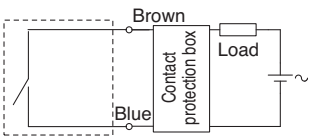
–	0.5 m
L	3 m
Z	5 m
SAPC	0.5 m + M8 - 3 pins pre-wired connector
MAPC	1 m + M8 - 3 pins pre-wired connector
SBPC	0.5 m + M8 - 4 pins pre-wired connector
MBPC	1 m + M8 - 4 pins pre-wired connector
SDPC	0.5 m + M12 - 4 pins pre-wired connector
MDPC	1 m + M12 - 4 pins pre-wired connector

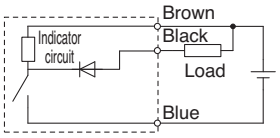
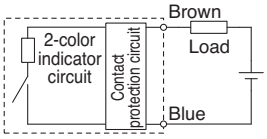
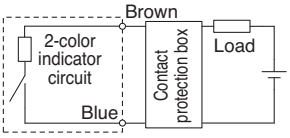
Connector Specifications

Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			

Prior to Use
Auto Switch/Internal Circuit

Reed Auto Switch

No.	①	②	③	④
Internal Circuit	**2-wire (Reed switch)** 	**2-wire (Reed switch)** 	**2-wire (Reed switch)** 	**2-wire (Reed switch)** 

No.	⑤	⑥	⑦
Internal Circuit	**3-wire (Reed switch, NPN)** 	**2-wire (Reed switch)** 	**2-wire (Reed switch)** 

Contact Protection Box: CD-P12

<Applicable switch models>
D-A73/A8, D-A73H/A80H, D-C73/C8, D-E73A/E80A, D-Z73/Z8, 9□A, and D-A9/A9□V type
The auto switches above do not have a built-in contact protection circuit. A contact protection box is not required for solid state auto switches due to their construction.

① **Where the operation load is an inductive load.**
② **Where the wiring length to load is greater than 5 m.**
Therefore, use a contact protection box with the switch for any of the above cases:
The contact life may be shortened (due to permanent energizing conditions.)

Even for the built-in contact protection circuit type (D-A54), **use the contact protection box when the wiring length to load is very long (over 30 m) and PLC (Programmable Logic Controller) with a large inrush current is used.**

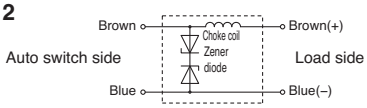
Contact Protection Box Specifications

Part no.	**CD-P12**
Load voltage	24 VDC
Max. load current	50 mA

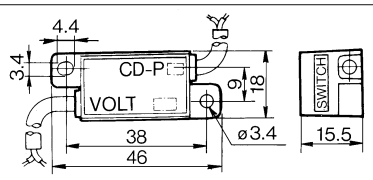
∗ Lead wire length — Auto switch connection side 0.5 m
Load connection side 0.5 m

Contact Protection Box Internal Circuit

CD-P12



Contact Protection Box/Dimensions



Contact Protection Box Connection

To connect a switch unit to a contact protection box, connect the lead wire from the side of the contact protection box marked SWITCH to the lead wire coming out of the switch unit. Keep the switch as close as possible to the contact protection box, with a lead wire length of no more than 1 meter.

ATEX Compliant Reed Switch/Band Mounting

D-C73/D-C80-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

PLC: Programmable Logic Controller

D-C7 (With indicator light)		
Auto switch model number	**D-C73**	
Applicable load	Relay/PLC	
Load voltage	24 V DC	
Max. load current and range	5 to 40 mA	
Internal Circuit ∗	③	
Contact protection circuit	None	
Internal voltage drop	2.4 V or less	
Indicator light	Red LED illuminates when turned ON	
D-C8 (Without indicator light)		
Auto switch model number	**D-C80**	
Applicable load	Relay/PLC/IC circuit	
Load voltage	24 V AC/DC or less	48 V AC/DC
Max. load current	50 mA	40 mA
Internal Circuit ∗	④	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

∗ For internal circuit, refer to the Internal Circuit No. on page 96.
● This category 3 type auto switch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		**D-C73/D-C80**
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 1.1
Conductor [mm]	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		21

How to order

D-C □ □ **-588**

Suffix for ATEX certified category 3

Auto switch model number

73	With indicator lamp
80	Without indicator lamp

Lead wire length

–	0.5 m
L	3 m
Z	5 m (Except D-C80)

ATEX Compliant Reed Switch/Rail Mounting

D-A73(H)/D-A80(H)-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet
Electrical entry: Perpendicular

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

PLC: Programmable Logic Controller

D-A73, D-A73H (With indicator light)		
Auto switch model number	**D-A73/D-A73H**	
Applicable load	Relay/PLC	
Load voltage	24 V DC	
Load current range	5 to 40 mA	
Internal Circuit *	③	
Contact protection circuit	None	
Internal voltage drop	2.4 V or less	
Indicator light	Red LED illuminates when turned ON	
D-A80, D-A80H (Without indicator light)		
Auto switch model number	**D-A80/D-A80H**	
Applicable load	Relay/IC circuit/PLC	
Load voltage	24 V AC/DC or less	48 V AC/DC
Max. load current	50 mA	40 mA
Internal Circuit *	④	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

* For internal circuit, refer to the Internal Circuit No. on page 96.
● This category 3 type auto switch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		D-A73/D-A73H/D-A80/D-A80H
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		21

How to order

D-A □ □ □ **-588**

Auto switch model number

73	With indicator light
80	Without indicator light

Electrical Entry

-	Perpendicular
H	In-line

Lead wire length

–	0.5 m
L	3 m
Z	5 m (Except A80□)

Suffix for ATEX certified category 3

ATEX Compliant Reed Switch/Tie-rod Mounting

D-A54/D-A67-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

PLC: Programmable Logic Controller

D-A54 (With indicator light)	
Auto switch model number	**D-A54**
Applicable load	Relay/PLC
Load voltage	24 V DC
Max. load current and range	5 to 50 mA
Internal Circuit *	①
Contact protection circuit	Built-in
Internal voltage drop	2.4 V or less (up to 20 mA) / 3.5 V or less (up to 50 mA)
Indicator light	Red LED illuminates when turned ON
D-A67 (Without indicator light)	
Auto switch model number	**D-A67**
Applicable load	PLC/IC circuit
Load voltage	MAX. 24 V DC
Max. load current and range	30 mA
Internal Circuit *	④
Contact protection circuit	None
Internal resistance	1 Ω or less (Including 3 m lead wire)

* For internal circuit, refer to the Internal Circuit No. on page 96.
● This category 3 type auto switch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		**D-A54/D-A67**
Sheath	Outside diameter [mm]	Ø 4
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 1.22
Conductor	Cross section [mm^2]	0.3
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		24

How to Order

D − A □ □ − 588

● ATEX category 3

Auto switch model number

54	With indicator light
67	Without indicator light

● Lead wire length

—	0.5 m
L	3 m
Z	5 m (Except D-A67)

ATEX Compliant Reed Switch/Direct Mounting

D-A90(V)/D-A93(V)-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

PLC: Programmable Logic Controller

D-A90, D-A90V (Without indicator light)		
Auto switch model number	**D-A90/D-A90V**	
Applicable load	IC circuit/Relay/PLC	
Load voltage	24 V AC/DC or less	48 V AC/DC or less
Max. load current	50 mA	40 mA
Internal Circuit *	④	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

D-A93, D-A93V (With indicator light)	
Auto switch model number	**D-A93/D-A93V**
Applicable load	Relay/PLC
Load voltage	24 V DC
Max. load current and load current range	5 to 40 mA
Internal Circuit *	③
Contact protection circuit	None
Internal voltage drop	D-A 93 —— 2.4 V or less (up to 20 mA)/3 V or less (up to 40 mA) D-A 93V —— 2.7 V or less
Indicator light	Red LED illuminates when turned ON

* For internal circuit, refer to the Internal Circuit No. on page 96.
● This category 3 type auto switch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		D-A90 (V)/D-A93 (V)
Sheath	Outside diameter [mm]	Ø 2.7
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 0.96
Conductor	Cross section [mm²]	0.18
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		17

How to order

D-A □ □ □ -588

Auto switch model number

93	With indicator light
90	Without indicator light

Electrical entry

–	In line
V	Perpendicular

Lead wire length

–	0.5 m
L	3 m
Z	5 m (Except D-A90□)

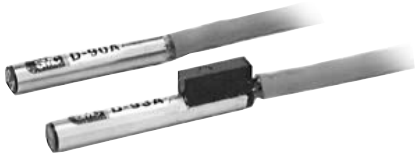
Suffix for ATEX certified category 3

ATEX Compliant Reed Switch/Direct Mounting

D-90A/D-93A-588

II 3G Ex nA II T5 X -10°C ≤ Ta ≤ +60°C
II 3D Ex tD A22 IP67 T93°C X

Grommet
Lead wire: Heavy-duty cord



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

PLC: Programmable Logic Controller

D-90A (Without indicator light)	
Auto switch model number	**D-90A**
Applicable load	Relay/IC circuit/PLC
Load voltage	24 V AC DC
Max. load current	50 mA
Internal Circuit *	④
Internal resistance	1 Ω or less (Including 3 m lead wire)
D-93A (With indicator light)	
Auto switch model number	**D-93A**
Applicable load	Relay/PLC
Load voltage	24 V DC
Load current range	5 to 40 mA
Internal Circuit *	③
Internal voltage drop	2.4V or less
Indicator light	Red LED illuminates when turned ON

* For internal circuit, refer to the Internal Circuit No. on page 96.
● This category 3 type auto switch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		**D-90A/D-93A**
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		21

How to order

D- ☐ **A** ☐ **-588**

Suffix for ATEX certified category 3

Auto switch model number

93	With indicator light
90	Without indicator light

Lead wire length

–	0.5 m
L	3 m
Z	5 m

ATEX Compliant Reed Switch/Direct Mounting

D-Z73/D-Z80-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

PLC: Programmable Logic Controller

D-Z73 (With indicator light)		
Auto switch model number	**D-Z73**	
Applicable load	Relay/PLC	
Load voltage	24 V DC	
Max. load current and range	5 to 40 mA	
Internal Circuit *	③	
Contact protection circuit	None	
Internal voltage drop	2.4 V or less (up to 20 mA)/3 V or less (up to 40 mA)	
Indicator light	Red LED illuminates when turned ON	
D-Z80 (Without indicator light)		
Auto switch model number	**D-Z80**	
Applicable load	Relay/PLC/IC circuit	
Load voltage	24 V AC/DC or less	48 V AC/DC
Max. load current	50 mA	40 mA
Internal Circuit *	④	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

* For internal circuit, refer to the Internal Circuit No. on page 96.
● This category 3 type auto switch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		D-Z73/D-Z80
Sheath	Outside diameter [mm]	Ø 2.7
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.18
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		17

How to order

D-Z □ □ **-588**

Suffix for ATEX certified category 3

Auto switch model number

73	With indicator light
80	Without indicator light

Lead wire length

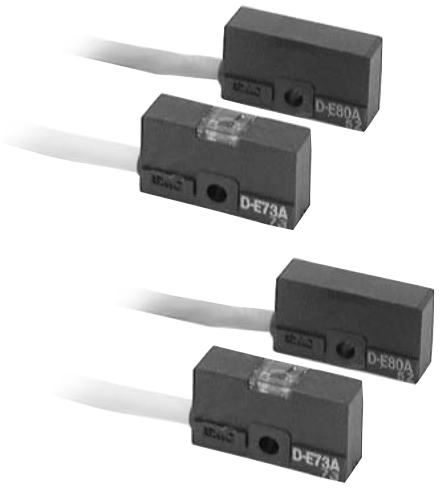
–	0.5 m
L	3 m
Z	5 m (Except D-Z80)

ATEX Compliant Reed Switch/Direct Mounting

D-E73A/D-E80A-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

PLC: Programmable Logic Controller

D-E73A (With indicator light)		
Auto switch model number	**D-E73A**	
Applicable load	Relay/PLC	
Load voltage	24 V DC	
Max. load current and range	5 to 40 mA	
Internal Circuit *	③	
Contact protection circuit	None	
Internal voltage drop	2.4 V or less	
Indicator light	Red LED illuminates when turned ON	

D-E80A (Without indicator light)		
Auto switch model number	**D-E80A**	
Applicable load	Relay/PLC/IC circuit	
Load voltage	24 V AC/DC or less	48 V AC/DC
Max. load current	50 mA	40 mA
Internal Circuit *	④	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

* For internal circuit, refer to the Internal Circuit No. on page 96.
● This category 3 type auto switch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		D-E73A/D-E80A
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		21

How to order

D-E □ A □ -588

Suffix for ATEX certified category 3

Auto switch model number

73	With indicator light
80	Without indicator light

Lead wire length

–	0.5 m
L	3 m

Note) Z (5 metres) is not available on D-E73A and D-E80A

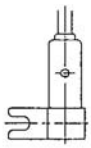
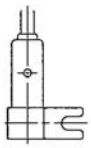
ATEX Compliant Reed Switch/Direct Mounting

D-R73/D-R80-588

II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tD A22 IP67 T93 °C X

Grommet
Electrical entry: In-line

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

D-R□□2	D-R□□1
	
Left hand mounting	Right hand mounting

Specifications

PLC: Programmable Logic Controller

D-R73□ (With indicator light)	
Auto switch model number	**D-R731/D-R732**
Applicable load	Relay/PLC
Load voltage	24 V DC
Load current range	5 to 40 mA
Internal Circuit *	③
Internal voltage drop	2.4 V or less
Indicator light	Red LED illuminates when turned ON
D-R80□ (Without indicator light)	
Auto switch model number	**D-R801/D-R802**
Applicable load	Relay/IC circuit/PLC
Load voltage	24 V AC/DC
Max. load current	50 mA
Internal Circuit *	④
Internal resistance	1 Ω or less (Including 3 m lead wire)

* For internal circuit, refer to the Internal Circuit No. on page 96.
● This category 3 type auto switch can only be used in zones 2 and 22.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		D-R73□/D-R80□
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		21

How to order

D − R □ □ □ − 588

Suffix for ATEX certified category 3

Auto switch model number

73	With indicator light
80	Without indicator light

Lead wire length

—	0.5 m
L	3 m
Z	5 m

Mounting

1	Right hand mounting
2	Left hand mounting

ATEX Compliant

Rotary Actuator: Vane Type

Series 55-CRB1/56-CRB1

Sizes: 50, 63, 80, 100

How to Order

CE Ⓔx II 2Gc 90 °C (T5) Ta 5 °C to 40 °C
110 °C (T4) Ta 40 °C to 60 °C

Note 1) This rotary actuator can be used in zones 1 and 2.

55-CRB1 B W 80 — 90 S — —

ATEX category 2

Mounting

B	Basic type
L*	Foot type

Refer to Table 1 below if only foot assembly is required separately.
* Foot accesory is shipped together with the actuator but not mounted on it.

Size

50
63
80
100

Thread Port

–	Rc(PT)
XF	G(PF)
XN	NPT

Connecting port position

-	Side ports
E	Axial ports

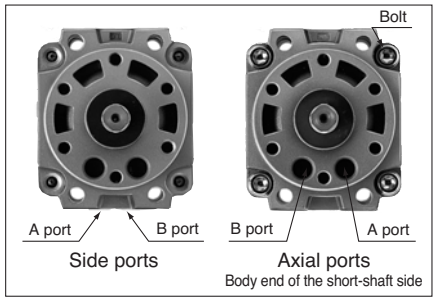


Table 1: Foot assembly part no.

Model	Unit part no.
CRB1LW 50	P411020-5
CRB1LW 63	P411030-5
CRB1LW 80	P411040-5
CRB1LW100	P411050-5

Shaft type

W	Double shaft (long shaft key & four chamfers)

Rotation

Classification	Symbol	Single vane	Double vane
Standard	90	90°	90°
	180	180°	—
	270	270°	—
Optional	100	100°	100°
	190	190°	—
	280	280°	—

Vane type

S	Single vane
D	Double vane

How to Order

CE Ⓔx II 3G 84 °C (T6) Ta 5 °C to 40 °C
104 °C (T4) Ta 40 °C to 60 °C

Note 1) This rotary actuator can be used in zone 2 and not in zone 1.

56-CDRB1 B W 80 — 90 S — —

ATEX category 3

With auto switch unit

-	Without switch unit
D	With switch unit

Mounting

B	Basic type
L*	Foot type

Refer to Table 1 below if only foot assembly is required separately.
* Foot accesory is shipped together with the actuator but not mounted on it.

Size

50
63
80
100

Thread Port

–	Rc(PT)
XF	G(PF)
XN	NPT

Connecting port position

–	Side ports
E	Axial ports

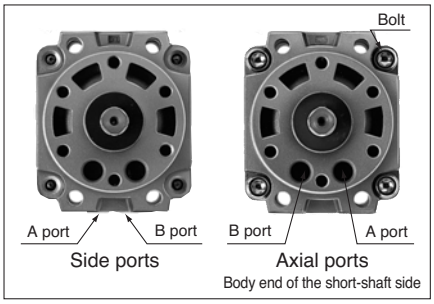


Table 1: Foot assembly part no.

Model	Unit part no.
CRB1LW 50	P411020-5
CRB1LW 63	P411030-5
CRB1LW 80	P411040-5
CRB1LW100	P411050-5

Shaft type

W	Double shaft (long shaft key & four chamfers)

Rotation

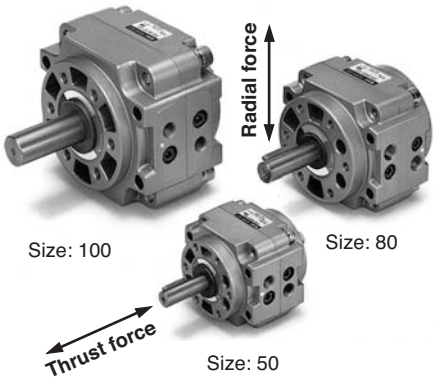
Classification	Symbol	Single vane	Double vane
Standard	90	90°	90°
	180	180°	—
	270	270°	—
Optional	100	100°	100°
	190	190°	—
	280	280°	—

Vane type

S	Single vane
D	Double vane

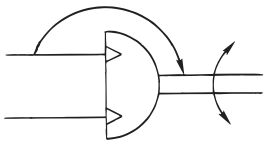
All other specifications are the same as the standard products Series CRB1. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

JIS symbol



Specifications

Model (Size)		CRB1BW50	CRB1BW63	CRB1BW80	CRB1BW100	CRB1BW50	CRB1BW63	CRB1BW80	CRB1BW100
Vane type		Single vane (S)				Double vane (D)			
Rotation	Standard	$90°^{+4}_{0}$, $180°^{+4}_{0}$, $270°^{+4}_{0}$				$90°^{+4}_{0}$			
	Optional	$100°^{+4}_{0}$, $190°^{+4}_{0}$, $280°^{+4}_{0}$				$100°^{+4}_{0}$			
Fluid		Air (non-lube)							
Proof pressure [MPa]		1.5 MPa							
Ambient and fluid temperature		5 to 60 °C							
Max. operating pressure [MPa]		1.0 MPa							
Min. operating pressure [MPa]		0.15 MPa							
Speed regulation range (sec/90)		0.1 to 1							
Allowable kinetic energy [J]		0.082	0.12	0.398	0.6	0.112	0.16	0.54	0.811
Shaft load	Allowable radial load [N]	245	390	490	588	245	390	490	588
	Allowable thrust load [N]	196	340	490	539	196	340	490	539
Bearing type		Ball bearing							
Port position		Side ports or axial ports							
Size	Side ports	Rc, NPT, G 1/8		Rc, NPT, G 1/4		Rc, NPT, G 1/8		Rc, NPT, G 1/4	
	Axial ports	Rc, NPT, G 1/8		Rc, NPT, G 1/4		Rc, NPT, G 1/8		Rc, NPT, G 1/4	
Mounting		Basic, Foot							

ATEX Compliant

Rotary Actuator: Vane Type

Series 55-CRB2/56-CRB2

Sizes: 10, 15, 20, 30, 40

How to Order

CE Ⓔx II 2Gc 130 °C (T4) Ta 5 °C to 40 °C
150 °C (T3) Ta 40 °C to 60 °C

Note 1) This rotary actuator can be used in zones 1 and 2.

55-CRB2 B W ☐ — 180 S E Z

ATEX category 2

Mounting

B	Basic type
F[1)]	Flange type

∗ When ordering "F" mounting type, flange is shipped together with the actuator, but not mounted.
∗ Flange can be mounted at 60 degrees intervals.
Note1) Not available for size 40.

Size

10
15
20
30
40

Vane type

S	Single vane
D	Double vane

Connecting port position

–	Side ports
E	Axial ports

Shaft type

W	Double shaft with single flat (sizes 10 to 30)
	Long shaft key, Short shaft with single flat (size 40)
S	Single shaft (Long shaft) with single flat (sizes 10 to 30)
	Long shaft with key (size 40)

Rotation

Vane type	Symbol	Rotation
Single vane	90	90°
	180	180°
	270	270°
Double vane	90	90°
	100	100°

Flange Assembly Part No.

Model	Assembly part no.
CRB2FW10	P211070-2
CRB2FW15	P211090-2
CRB2FW20	P211060-2
CRB2FW30	P211080-2

How to Order

CE Ⓔx II 3G 100 °C (T5) Ta 5 °C to 40 °C
120 °C (T4) Ta 40 °C to 60 °C

Note 1) This rotary actuator can be used in zone 2 and not in zone 1.

56-CDRB2 B W ☐ — 180 S ☐ Z

ATEX category 3

With auto switch unit

–	Without switch unit
D	With switch unit

Mounting

B	Basic type
F[1)]	Flange type

∗ When ordering "F" mounting type, flange is shipped together with the actuator, but not mounted.
∗ Flange can be mounted at 60 degrees intervals.
Note1) Not available for size 40.

Size

10
15
20
30
40

Vane type

S	Single vane
D	Double vane

Connecting port position

–	Body size
E	Axial position

∗ E not possible with switch unit

Shaft type

W	Double shaft with single flat (sizes 10 to 30)
	Long shaft key, Short shaft with single flat (size 40)
S∗	Single shaft (Long shaft) with single flat (sizes 10 to 30)
	Long shaft with key (size 40)

∗ Cannot be selected when mounting an auto switch

Rotation

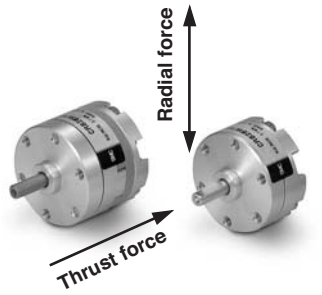
Vane type	Symbol	Rotation
Single vane	90	90°
	180	180°
	270	270°
Double vane	90	90°
	100	100°

Flange Assembly Part No.

Model	Assembly part no.
CRB2FW10	P211070-2
CRB2FW15	P211090-2
CRB2FW20	P211060-2
CRB2FW30	P211080-2

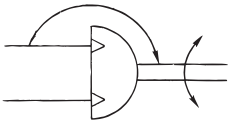
All other specifications are the same as the standard products Series CRB2. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

JIS symbol



Single Vane Specifications

Model (Size)		CRB2BW10-□S		CRB2BW15-□S		CRB2BW20-□S	CRB2BW30-□S	CRB2BW40-□S
Vane type		Single vane						
Rotation		90°, 180°	270°	90°, 180°	270°	90°, 180°, 270°		
Fluid		Air (non-lube)						
Proof pressure [MPa]		1.05					1.5	
Ambient and fluid temperature		5 to 60 °C						
Max. operating pressure [MPa]		0.7					1.0	
Min. operating pressure [MPa]		0.2		0.15				
Speed regulation range (sec/90) Note 2)		0.03 to 0.3					0.04 to 0.3	0.07 to 0.5
Allowable kinetic energy [J]		0.00015		0.001		0.003	0.02	0.04
Shaft load	Allowable radial load [N]	15		15		25	30	60
	Allowable thrust load [N]	10		10		20	25	40
Bearing type		Ball bearing						
Port position		Side ports or axial ports						
Size	Side ports	M5	M3	M5	M3	M5		
	Axial ports	M3				M5		
Shaft type		Double shaft (with single flat on both shafts)						Double shaft (Long shaft key & single flat)
Mounting		Basic, Flange						Basic

Double Vane Specifications

Model (Size)		CRB2BW10-□D	CRB2BW15-□D	CRB2BW20-□D	CRB2BW30-□D	CRB2BW40-□D
Vane type		Double vane				
Rotation		90°, 100°				
Fluid		Air (non-lube)				
Proof pressure [MPa]		1.05			1.5	
Ambient and fluid temperature		5 to 60 °C				
Max. operating pressure [MPa]		0.7			1.0	
Min. operating pressure [MPa]		0.2	0.15			
Speed regulation range (sec/90) Note 2)		0.03 to 0.3			0.04 to 0.3	0.07 to 0.5
Allowable kinetic energy [J]		0.0003	0.0012	0.0033	0.02	0.04
Shaft load	Allowable radial load [N]	15	15	25	30	60
	Allowable thrust load [N]	10	10	20	25	40
Bearing type		Ball bearing				
Port position		Side ports or axial ports				
Port size (Side ports, Axial ports)		M3		M5		
Shaft type		Double shaft (double shaft with single flat on both shafts)				
Mounting		Basic, Flange				Basic

∗ The following notes apply to both Single and Double Vane Specification tables above.
Note 2) Make sure to operate within the speed regulation range.
Exceeding the maximum speed (0.3 sec/90) can cause the unit to stick or not operate.

ATEX Compliant

Rotary Actuator: Free-Mounting Type

Series 55-CRBU2/56-CRBU2

Sizes: 10, 15, 20, 30, 40

How to Order

CE Ex II 2Gc 130 °C (T4) Ta 5 °C to 40 °C
150 °C (T3) Ta 40 °C to 60 °C

Note 1) This rotary actuator can be used in zones 1 and 2.

55-CRBU2 W □ — 180 S E Z

ATEX category 2

Free-mounting

Shaft type

W	Double shaft with single flat (sizes 10 to 30)
	Long shaft key, Short shaft with single flat (size 40)
S	Single shaft (Long shaft) with single flat (sizes 10 to 30)
	Long shaft with key (size 40)

Size

10
15
20
30
40

Rotation

Vane type	Symbol	Rotation
Single vane	90	90°
	180	180°
	270	270°
Double vane	90	90°
	100	100°

Vane type

S	Single vane
D	Double vane

Connecting port position

-	Side ports
E	Axial ports

How to Order

CE Ex II 3G 100 °C (T5) Ta 5 °C to 40 °C
120 °C (T4) Ta 40 °C to 60 °C

Note 1) This rotary actuator can be used in zone 2 and not in zone 1.

56-CDRBU2 W □ — 180 S E Z

ATEX category 3

With auto switch unit

–	Without switch unit
D	With switch unit

Free-mounting

Shaft type

W	Double shaft with single flat (sizes 10 to 30)
	Long shaft key, Short shaft with single flat (size 40)
S*	Single shaft (Long shaft) with single flat (sizes 10 to 30)
	Long shaft with key (size 40)

* Cannot be selected when mounting an auto switch

Size

10
15
20
30
40

Rotation

Vane type	Symbol	Rotation
Single vane	90	90°
	180	180°
	270	270°
Double vane	90	90°
	100	100°

Vane type

S	Single vane
D	Double vane

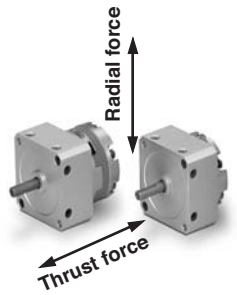
Connecting port position

–	Body size
E	Axial position

* E not possible with switch unit

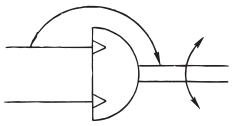
All other specifications are the same as the standard products Series CRBU2. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

JIS symbol



Single Vane Specifications

Model (Size)		CRBU2W10-□S	CRBU2W15-□S	CRBU2W20-□S	CRBU2W30-□S	CRBU2W40-□S
Rotation		90°, 180°, 270°				
Fluid		Air (non-lube)				
Proof pressure [MPa]		1.05			1.5	
Ambient and fluid temperature		5 to 60 °C				
Max. operating pressure [MPa]		0.7			1.0	
Min. operating pressure [MPa]		0.2	0.15			
Speed regulation range (sec/90) Note 1)		0.03 to 0.3			0.04 to 0.3	0.07 to 0.5
Allowable kinetic energy [J]		0.00015	0.001	0.003	0.02	0.04
Shaft load	Allowable radial load [N]	15		25	30	60
	Allowable thrust load [N]	10		20	25	40
Bearing type		Ball bearing				
Port position		Side ports or axial ports				
Port size	Side ports	M5				
	Axial ports	M3		M5		
Shaft type		Double shaft (Double shaft with single flat on both shafts)				Double shaft (Long shaft key & Single flat)

Double Vane Specifications

Model (Size)		CRBU2W10-□D	CRBU2W15-□D	CRBU2W20-□D	CRBU2W30-□D	CRBU2W40-□D
Rotation		90°, 100°				
Fluid		Air (non-lube)				
Proof pressure [MPa]		1.05			1.5	
Ambient and fluid temperature		5 to 60 °C				
Max. operating pressure [MPa]		0.7			1.0	
Min. operating pressure [MPa]		0.2	0.15			
Speed regulation range (sec/90) Note 1)		0.03 to 0.3			0.04 to 0.3	0.07 to 0.5
Allowable kinetic energy [J]		0.0003	0.0012	0.0033	0.02	0.04
Shaft load	Allowable radial load [N]	15		25	30	60
	Allowable thrust load [N]	10		20	25	40
Bearing type		Ball bearing				
Port position		Side ports or axial ports				
Port size	Side ports	M5				
	Axial ports	M3		M5		
Shaft type		Double shaft (Double shaft with single flat on both shafts)				Double shaft (Long shaft key & Single flat)

∗ The following notes apply to both Single and Double Vane Specification tables above.
Note 1) Make sure to operate within the speed regulation range.
Exceeding the maximum speeds can cause the unit to stick or not operate.

ATEX Compliant

Compact Rotary Actuator: Rack-and-Pinion Type

Series 55-CRQ2

CE Ⓔx II 2Gc 70 °C (T6) Ta 0 °C to 40 °C
90 °C (T5) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 2.
If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zone 2 and not in zone 1.

How to Order

55-CDRQ2B S 20 – 90

ATEX category 2

Built-in magnet

-	None
D	Magnet

Shaft type

S	Single shaft with one chamfer	10, 15
	Single shaft with key	20~40
W	Double shaft with one chamfer	10, 15
	Double shaft with key	20~40

Size

10
15
20
30
40

Port thread type

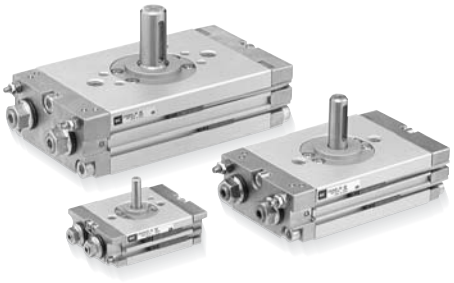
Size	Port thread	
10, 15	–	M5
20, 30, 40	–	Rc 1/8
	TF	G 1/8
	TN	NPT 1/8
	TT	NPTF 1/8

Rotation

90	80° to 100°
180	170° to 190°

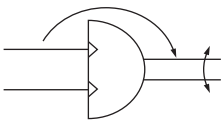
Air cushion

Sizes	Air cushion	
10, 15	Without	–
20, 30, 40	Without	–
	With	C



Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

JIS symbol



Specifications

Size	10	15	20	30	40
Fluid	Air (non-lube)				
Maximum operating pressure	0.7 MPa		1 MPa		
Minimum operating pressure	0.15 MPa		0.1 MPa		
Ambient and fluid temperature	0 to 60 °C (with no freezing)				
Cushion	Rubber bumper		Non attached, Air cushion		
Angle adjustment	Rotation end ±5°				
Rotation	80° to 100°, 170° to 190°				
Port size	M5 x 0.8		Rc, G, NPT, NPTF 1/8		
Output Nm at 0.5 MPa	0.3	0.75	1.8	3.1	5.3

Allowable Kinetic Energy and Rotation Time Adjustment Range

Size	Allowable kinetic energy				Stable operational rotation time adjustment range
	Allowable kinetic energy (J)			Cushion angle	Rotation time (s/90°)
	Without cushion	Rubber bumper	With air cushion *		
10	—	0.25×10^{-3}	—	—	0.2 to 0.7
15	—	0.39×10^{-3}	—	—	0.2 to 0.7
20	0.025	—	0.12	40°	0.2 to 1
30	0.048	—	0.25	40°	0.2 to 1
40	0.081	—	0.40	40°	0.2 to 1

*) Allowable kinetic energy with cushion
Maximum energy absorption with optimal adjustment of cushion needle

All other specifications are the same as the standard products Series CRQ2.
For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

ATEX Compliant

Compact Rotary Actuator: Rack-and-Pinion Type

Series 56-CRQ2

CE Ex II 3G 60 °C (T6) Ta 0 °C to 40 °C
80 °C (T6) Ta 40 °C to 60 °C

Note 1) This cylinder can be used in zones 1 and 2.
If the cylinder is used with SMC category 3 type auto switch, then the cylinder can only be used in zone 2 and not in zone 1.

How to Order

Without magnet 56 – CRQ2B **S** **20** □ – **90** □

With magnet 56 – CDRQ2B **S** **20** □ – **90** □

ATEX category 3

Built-in magnet for auto switch

Shaft type

S	Single shaft
W	Double shaft

Size

10
15
20
30
40

Port thread

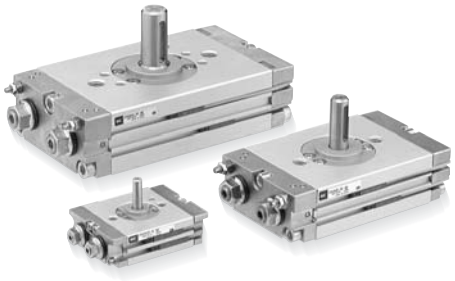
Size	Port thread	
10, 15	**—**	M5
20, 30, 40	**—**	Rc 1/8
	TF	G 1/8
	TN	NPT 1/8
	TT	NPTF 1/8

Rotation

90	80° to 100°
180	170° to 190°

Cushion

Symbol	Cushion	Size				
		10	**15**	**20**	**30**	**40**
–	Without cushion	—	—	●	●	●
	Rubber cushion	●	●	—	—	—
C	Air cushion	—	—	●	●	●

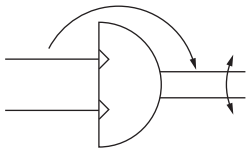


Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Specifications

Size	10	15	20	30	40
Fluid	Air (non-lube)				
Maximum operating pressure	0.7 MPa		1 MPa		
Minimum operating pressure	0.15 MPa		0.1 MPa		
Ambient and fluid temperature	0 to 60 °C (with no freezing)				
Cushion	Rubber bumper		Non attached, Air cushion		
Angle adjustment	Rotation end ±5°				
Rotation	80° to 100°, 170° to 190°				
Port size	M5 x 0.8		Rc, G, NPT, NPTF 1/8		
Output Nm at 0.5 MPa	0.3	0.75	1.8	3.1	5.3

JIS symbol



All other specifications are the same as the standard products Series CRQ2. For details, refer to **the WEB catalogue**.

Refer to page 86 for applicable auto switches.

ATEX Compliant

Booster Regulator
Series 56-VBA10A to 43A

II 3 GD c T6 Ta 2 °C to 50 °C

For more details, other specifications, dimensions, see the specific catalogue.

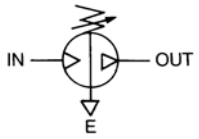
How to Order

Series VBA 10A / 2□A / 4□A

56 – VBA [40A] – [ ] [04] [GN] – [ ]

- 56: ATEX category 3
- 40A: Body size
- [ ]: Thread type
- 04: Port size
- GN: Options
- [ ]: Semi-standard

Symbol



Body size

10A	1/4, Handle-operated type	Pressure increase ratio: Twice
11A	1/4, Handle-operated type	Pressure increase ratio: 2 to 4 times
20A	3/8, Handle-operated type	Pressure increase ratio: Twice
40A	1/2, Handle-operated type	
22A	3/8, Air-operated type	
42A	1/2, Air-operated type	
43A	1/2, Max. operating pressure 1.6 Mpa	

Thread type Note)

Symbol	Thread type
–	Rc
F	G
N	NPT
T	NPTF

Note) Thread types apply to the IN, OUT, and EXH ports of the VBA10A and to the IN, OUT, EXH, and gauge ports of the VBA2□A and VBA4□A. The gauge ports of the VBA10A are Rc thread type regardless of the thread type indication.

Port size

Symbol	Port size	Applicable series
02	1/4	VBA10A
03	3/8	VBA2□A
04	1/2	VBA4□A

Options

Symbol	Options
–	None
G	Pressure gauge
N	Silencer
S	High-noise reduction silencer Note)
GN	Pressure gauge, Silencer
GS	Pressure gauge, High-noise reduction silencer Note)
LN	Elbow silencer Note)
LS	Elbow high-noise reduction silencer Note)
GLN	Pressure gauge, Elbow silencer Note)
GLS	Pressure gauge, Elbow high-noise reduction silencer Note)

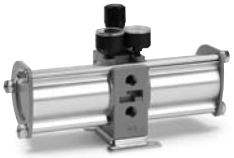
Note) Refer to "Combination of Thread Type and Options."

Semi-standard

Symbol	Specifications
–	Pressure unit on the product name label and pressure gauge: MPa
Z Note)	Pressure unit on the product name label and pressure gauge: psi

Note) Thread type: NPT, NPTF
Under the new measurement law, the pressure unit of "psi" on the pressure gauges cannot be used in Japan.

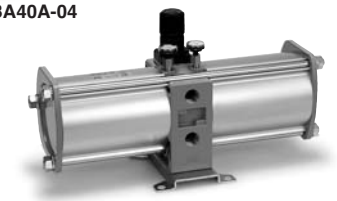

VBA10A-02


VBA20A-03


VBA22A-03


VBA42A-04


VBA40A-04


VBA43A-04

Combination of Thread Type and Options

Body size	Thread type	Options										Semi-standard	
		–	G	N	S	GN	GS	LN	LS	GLN	GLS	–	-Z
10A 11A	–	●	●	●	●	●	●	●	●	●	●	●	–
	F	●	●	●	●	●	●	●	●	●	●	●	–
	N	●	●	●	–	●	–	●	–	●	–	●	●
	T	●	●	●	–	●	–	●	–	●	–	●	●
20A 22A	–	●	●	●	●	●	●					●	–
	F	●	●	●	●	●	●					●	–
	N	●	●	●	●	●	●					●	●
	T	●	●	●	●	●	●					●	●
40A 42A 43A	–	●	●	●	●	●	●					●	–
	F	●	●	●	●	●	●					●	–
	N	●	●	●	●	●	●					●	●
	T	●	●	●	●	●	●					●	●

All other specifications are the same as the standard products Series VBA. For details, refer to **the WEB catalogue.**

SMC

Standard Specifications

Model	VBA10A-02	VBA20A-03	VBA40A-04	VBA22A-03	VBA42A-04	VBA43A-04	VBA1111-02
Fluid	Compressed air						
Pressure increase ratio	Twice						2 to 4 times
Pressure adjustment mechanism	Handle-operated with relief mechanism Note 1)			Air-operated		Handle-operated with relief mechanism Note 1)	
Max. flow rate Note 2) **[l/min (ANR)]**	230	1000	1900	1000	1900	1600	70
Set pressure range [MPa]	0.2 to 2.0	0.2 to 1.0		0.2 to 1.0		0.2 to 1.6	0.2 to 2.0
Supply pressure range [MPa]	0.1 to 1.0						
Proof pressure [MPa]	3	1.5		1.5		2.4	3
Port size (IN/OUT/EXH: 3 locations) [Rc]	1/4	3/8	1/2	3/8	1/2	1/2	1/4
Pressure gauge port size (IN/OUT: 2 locations) [Rc]	1/8	1/8	1/8	1/8	1/8	1/8	1/16
Ambient and fluid temperature [°C]	2 to 50 (No freezing)						
Installation	Horizontal						
Lubrication	Grease (Non-lube)						
Weight [kg]	0.84	3.9	8.6	3.9	8.6	8.6	0.98

Note 1) If the OUT pressure is higher than the set pressure by the handle, excessive pressure is exhausted from the back of the handle.
Note 2) Flow rate at IN= OUT= 0.5 MPa. The pressure varies depending on the operating conditions.

Options/Part No.

Pressure Gauge, Silencer (When thread type is Rc or G.)

Description \ Model		VBA10A-02 VBA10A-F02	VBA20A-03 VBA20A-F03	VBA40A-04 VBA40A-F04	VBA22A-03 VBA22A-F03	VBA42A-04 VBA42A-F04	VBA43A-04 VBA43A-F04	VBA1111-02 EVBA1111-F02
Pressure gauge	G	G27-20-01	G36-10-01		KT-VBA22A-7	G36-10-01	G27-20-01	G27-20-01
Silencer	N	AN200-02	AN300-03	AN400-04	AN300-03	AN400-04	AN400-04	AN200-02
High-noise reduction silencer	S	ANA1-02	ANA1-03	ANA1-04	ANA1-03	ANA1-04	ANA1-04	ANA1-02

Note 1) In the case of option GN, two pressure gauges and one silencer are included as accessories.
Note 2) KT-VBA22A-7 is a pressure gauge with fittings. (Please order two units when using with IN and OUT.)
Note 3) Pressure unit of pressure gauge: MPa.

Pressure Gauge, Silencer (When thread type is NPT or NPTF.)

Description \ Model		VBA10A-N02∗ VBA10A-T02∗ ∗: when "-Z"	VBA20A-N03∗ VBA20A-T03∗ ∗: when "-Z"	VBA40A-N04∗ VBA40A-T04∗ ∗: when "-Z"	VBA22A-N03∗ VBA22A-T03∗ ∗: when "-Z"	VBA42A-N04∗ VBA42A-T04∗ ∗: when "-Z"	VBA43A-N04∗ VBA43A-T04∗ ∗: when "-Z"	VBA1111-N02∗ NVBA1111-T02∗ ∗: when "-Z"
Pressure gauge ∗: no symbol Note 5)	G	G27-20-01	G36-10-N01		KT-VBA22A-7N	G36-10-N01	G27-20-N01	G27-20-01
Pressure gauge ∗: when "-Z" Note 4)		G27-P20-01	G36-P10-N01		KT-VBA22A-8N	G36-P10-N01	G27-P20-N01	G27-P20-01
Silencer	N	AN200-N02	AN300-N03	AN400-N04	AN300-N03	AN400-N04	AN400-N04	AN200-N02
High-noise reduction silencer	S	—	ANA1-N03	ANA1-N04	ANA1-N03	ANA1-N04	ANA1-N04	—

Note 1) In the case of option GN, two pressure gauges and one silencer are included as accessories.
Note 2) KT-VBA22A-7N, KT-VBA22A-8N are pressure gauges with fittings. (Please order two units when using with IN and OUT.)
Note 3) Under the new measurement law, the pressure unit of "psi" on the pressure gauges cannot be used in Japan.
Note 4) Pressure unit of pressure gauge: psi
Note 5) Pressure unit of pressure gauge: MPa.

ATEX Compliant

Digital Pressure Switch for Air

Series 56-ISE70

II 3G Ex nA II T5 X 0 °C ≤ Ta ≤ 50 °C
II 3D tD A22 IP67 T53 °C X

How to Order

1MPa **56 – ISE70 – 02 – 43 – M** □ □

ATEX category 3

Piping specifications

02	Rc 1/4
N02	NPT 1/4
F02	G 1/4 (ISO1179)

Output specifications

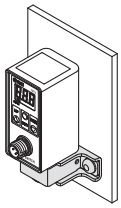
27	2 settings NPN open collector 2 outputs (Pin no.: 2, 4)
43	Fixed setting: (The pressure set point for switching the output signal is common to NPN and PNP.) NPN open collector 1 output (Pin no.: 4) + PNP open collector 1 output (Pin no.: 2)
65	Fixed setting PNP open collector 1 output (Pin no.: 4)
67	2 settings PNP open collector 2 outputs (Pin no.: 2, 4)

Unit specifications

—	With display unit switching function Note 1)
M	Fixed SI unit Note 2)
P	Pressure unit: psi (Initial value) With display unit switching function Note 1)

Note 1) Under the New Measurement Law, sales of switches with the unit switching function are not allowed for use in Japan. (Initial value: MPa)
Note 2) Fixed unit: Mpa

Option 2

—	None
A	With bracket  Note) Mounting screws are not included.

Option 1

—	None
S	Lead wire with M12 connector (5 m), straight
L	Lead wire with M12 connector (5 m), right-angled

Specifications

Model	**56-ISE70**
Rated pressure range	0 to 1 MPa
Pressure display range/Set pressure range	–0.1 to 1 MPa
Withstand pressure	1.5 MPa
Pressure display resolution/Minimum unit setting	0.01 MPa
Applicable fluid	Air, Non-corrosive gas, Non-flammable gas
Power supply voltage	12 to 24 VDC ± 10 %, Ripple (p-p) 10 % or less (with power supply polarity protection)
Current consumption	55 mA or less (at no load)

Follow the instructions given below when handling the pressure switch.
- Operating temperature range is 0 to 50 °C
- Do not expose the pressure switch to heat radiation from a heat source located nearby. It can cause malfunction.
- Do not expose the pressure switch/connector/cable to vibration and impact. Otherwise it can cause damage or malfunction.
- Protect the product from direct sunlight or UV light using a suitable protective cover.
- Do not disconnect the M12 connector while energized.
- Use only an ATEX approved M12 connector.
- For cleaning this product, use a clean and damp cloth, to prevent the buildup of an electrostatic charge.
- Ground properly to prevent the buildup of an electrostatic charge.

All other specifications are the same as the standard products Series ISE70.
For details, refer to **the WEB catalog** or Best Pneumatics No. 6.

ATEX Compliant

Digital Pressure Switch for General Fluids

Series 56-ISE75/75H

CE Ex II 3G Ex nA II T4 X -5 °C ≤ Ta ≤ 50 °C
II 3D tD A22 IP67 T54 °C X

How to Order

10 MPa 56 – ISE75 – 02 – 43 – M □ □

15 MPa 56 – ISE75H – 02 – 43 – M □ □

ATEX category 3

Piping specifications

02	Rc 1/4
N02	NPT 1/4
F02	G 1/4 (ISO1179)

Output specifications

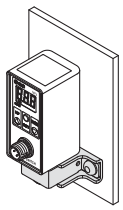
27	2 settings NPN open collector 2 outputs (Pin no.: 2, 4)
43	Fixed setting: (The pressure set point for switching the output signal is common to NPN and PNP.) NPN open collector 1 output (Pin no.: 4) + PNP open collector 1 output (Pin no.: 2)
65	Fixed setting PNP open collector 1 output (Pin no.: 4)
67	2 settings PNP open collector 2 outputs (Pin no.: 2, 4)

Unit specifications

—	With display unit switching function Note 1)
M	Fixed SI unit Note 2)
P	Pressure unit: psi (Initial value) With display unit switching function Note 1)

Note 1) Under the New Measurement Law, sales of switches with the unit switching function are not allowed for use in Japan. (Initial value: MPa)
Note 2) Fixed unit: Mpa

Option 2

—	None
A	With bracket  Note) Mounting screws are not included.

Option 1

—	None
S	Lead wire with M12 connector (5 m), straight
L	Lead wire with M12 connector (5 m), right-angled

Specifications

Model	56-ISE75	56-ISE75H
Rated pressure range	0 to 10 MPa	0 to 15 MPa
Pressure display range/Set pressure range	0.4 to 10 MPa	0.5 to 15 MPa
Withstand pressure	30 MPa	45 MPa
Pressure display resolution/Minimum unit setting	0.1 MPa	
Applicable fluid	Fluid or gas that will not corrode SUS304, SUS430 and SUS630	
Power supply voltage	12 to 24 VDC ± 10 %, Ripple (p-p) 10 % or less (with power supply polarity protection)	
Current consumption	55 mA or less (at no load)	

Follow the instructions given below when handling the pressure switch.
- Operating temperature range is – 5 to 50 °C
- Do not expose the pressure switch to heat radiation from a heat source located nearby. It can cause malfunction.
- Do not expose the pressure switch/connector/cable to vibration and impact. Otherwise it can cause damage or malfunction.
- Protect the product from direct sunlight or UV light using a suitable protective cover.
- Do not disconnect the M12 connector while energized.
- Use only an ATEX approved M12 connector.
- For cleaning this product, use a clean and damp cloth, to prevent the buildup of an electrostatic charge.
- Ground properly to prevent the buildup of an electrostatic charge.

All other specifications are the same as the standard products Series ISE75/ISE75H.
For details, refer to **the WEB catalog** or Best Pneumatics No. 6.

ATEX Compliant

Pressure Switch: Reed Switch Type

Series 56-IS10

CE Ex II 3 GD Ex Na II T5 Ta-5 °C to 60 °C T90 °C
IP67 / IP40

For details about certified products conforming to international standards, visit us at www.smcworld.com.

Long service life:
5 million cycles

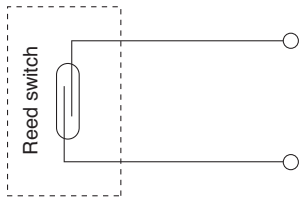
56-IS10

Specifications

Model	56-IS10-01
Fluid	Air
Proof pressure	1.0 MPa
Max. operating pressure	0.7 MPa
Regulating pressure range (at OFF point)	0.1 to 0.4 / 0.1 to 0.6 MPa (semi-standard)
Hysteresis	0.08 MPa or less
Error of scale	± 0.05 MPa or less
Repeatability	± 0.05 MPa or less
Contacts	1a
Wiring specifications	Grommet, Lead wire length 0.5 m (Standard), Option: 3 m, 5 m
Enclosure	Equivalent to IP40
Ambient and fluid temperature	–5 to 60 °C (No freezing)
Port size	R 1/8
Weight	62 g

Electrical Circuit

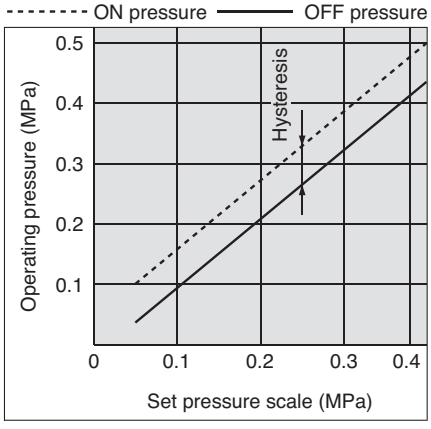
Up to 48 V AC/DC



Switch Characteristics

Max. contact capacity	AC 2 VA, 2 W DC	
Voltage	≤ 24 VAC/DC or less	48 VAC/DC
Max. operating current	50 mA	40 mA

Operating Pressure Range



How to Order

56-IS10 – N 01 S –

Atex Category 3

Therad size

–	R 1/8
N	NPT 1/8

Seal

–	None
S	With seal

Semi-standard

a	Set pressure range	–	0.1 to 0.4 MPa
		6 Note1)	0.1 to 0.6 MPa
	+		
b	Lead wire length	–	0.5 m
		L	3 m
		Z	5 m
	+		
c	Scale plate pressure unit	–	MPa
		P Note2)	Both MPa and psi

Note 1) Set pressure range of 6P(L, Z) is 0.2 to 0.6 MPa (30 to 90 psi).

Note 2) This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

ATEX Compliant

ATEX Compliant 2 Port Steam Valve

Series 56-VND

CE Ⓔx II 3G TX
-5 °C ≤ Ta ≤ 60 °C

How to Order

Body option

–	Standard (Copper alloy)
S*	Stainless steel body

* Threaded type only

Thread type

–	Rc
F	G
N	NPT
T	NPTF

Air operated **56-VND 2 0 ☐ D S – ☐ 15A – ☐**

ATEX category 3

Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

Valve size / Valve type / Port size

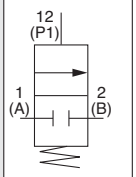
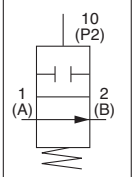
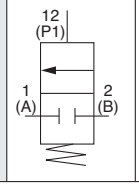
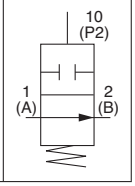
Symbol	Orifice dia. (mm)	Valve type Symbol 0 (N.C.)	2 (N.O.)	4 (N.C.)	Port size Symbol	Port size Rc
1	Ø 7	—	●	●	6A	1/8
		—	●	●	8A	1/4
		—	●	●	10A	3/8
2	Ø 15	●	●	—	10A	3/8
		●	●	—	15A	1/2
3	Ø 20	●	●	—	20A	3/4
4	Ø 25	●	●	—	25A	1
5	Ø 32	●	●	—	32A	1 1/4
		●	●	—	32F	1 1/4 B Flange
6	Ø 40	●	●	—	40A	1 1/2
		●	●	—	40F	1 1/2 B Flange
7	Ø 50	●	●	—	50A	2
		●	●	—	50F	2B Flange

Option

–	None
B*	With bracket
L	With indicator light (visual verification of operation)
BL*	With bracket and indicator light (visual verification of operation)

* Brackets (for valve size 1/2/3/4 only) will be assembled at the time of shipment.
Bracket part no.
Valve size 1: VN1-A16 (with thread) Valve size 2 to 4: VN☐-16
(☐: 2 to 4)

JIS Symbol

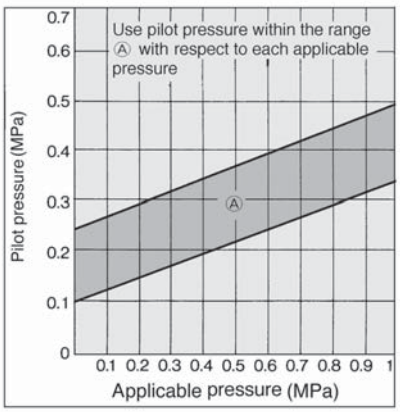
Valve size \ Valve type	N.C. Normally closed	N.O. Normally open
56-VND1		
56-VND 2 3 4 5 6 7		

Model

Model	Port size Rc	Port size Flange Note)	Orifice dia. Ø (mm)	Flow characteristics Av x 10^{-6} m^2	Mass (kg)
56-VND10☐D-6A	1/8	–	7	26	0.3
56-VND10☐D-8A	1/4	–		28	
56-VND10☐D-10A	3/8	–		31	
56-VND20☐D-10A		–	15	120	0.6
56-VND20☐D-15A	1/2	–		130	
56-VND30☐D-20A	3/4	–	20	240	0.9
56-VND40☐D-25A	1	–	25	380	1.4
56-VND50☐D-32A	1 1/4	–	32	440	2.3
56-VND50☐D-32F	–	32			5.5
56-VND60☐D-40A	1 1/2	–	40	920	3.6
56-VND60☐D-40F	–	40			7.2
56-VND70☐D-50A	2	–	50	1500	5.7
56-VND70☐D-50F	–	50			10.8

Note) The companion flange is JIS B 2210 10K (standard) or its equivalent.

Graph ① Operating pressure - Pilot pressure (N.O.)



Valve Specifications

Fluid (Main piping)			Steam
Fluid temperature			–5 to 180 °C Note 1)
Ambient temperature			–5 to 60 °C Note 1)
Proof pressure			1.5 MPa
Operating pressure range			0 to 0.97 MPa
External pilot air	**Pressure**	**N.C.**	0.3 to 0.7 MPa
		N.O.	0.1 + 0.25 x (Operating pressure) to 0.25 + 0.25 x (Operating pressure) MPa Refer to below "Graph (1)".
	Lubrication		Not required
	Temperature		-5 °C to 60 °C
ATEX Category			Ⓔx II 3G TX -5 °C ≤ Ta ≤ 60 °C
Seal material			PTFE

Note 1) No freezing

ATEX Compliant

Valve for Water and Chemical-base Fluids (2/3 Port Air Operated Valve)

Series VCC

II 2GD c 75 °C (T6X)
5 °C ≤ Ta ≤ 80 °C

How to Order

Valve

VCC1 2 – 00

Passage number

2	2 port valve
3	3 port valve Note)
2D	2 port/Diaphragm type (Applicable for 2 liquid paint)

Note) Pressure cannot be applied from a 3 port valve RETURN port.

Port size

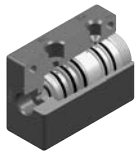
00	For manifold mounting
02	Rc 1/4 (for single unit) Note)
02F	G 1/4 (for single unit) Note)

Note) Part number for sub-base
For 2 port: VCC12-S-$^{02}_{02F}$ $^{[Rc\ 1/4]}_{[G\ 1/4]}$
For 3 port: VCC13-S-$^{02}_{02F}$ $^{[Rc\ 1/4]}_{[G\ 1/4]}$


VCC12(D)-00


VCC13-00


VCC12(D)-02(F)


VCC13-02(F)

Manifold

Standard **VV M CC1– 06 06 C4**

Type (Passage number)

2	2 port valve, Cleaning valve
3	3 port valve
M	2/3 port valves mixed mounting

Pilot port fitting size

C4	Ø 4 one-touch fitting (Antistatic)
C6	Ø 6 one-touch fitting (Antistatic)

2 port valve mountable number

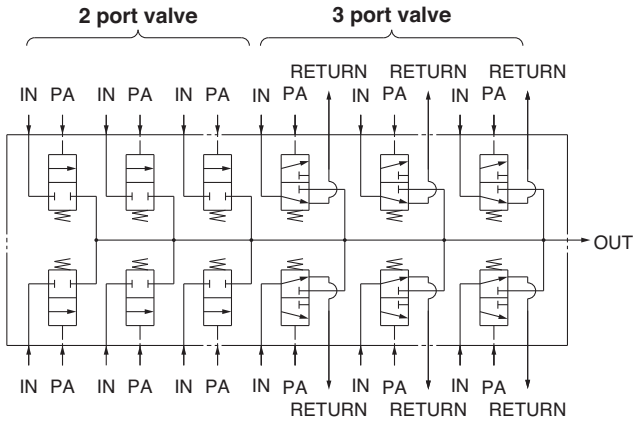
00	No 2 port valves used
02	2 pcs. (colours)
04	4 pcs. (colours)
⋮	⋮

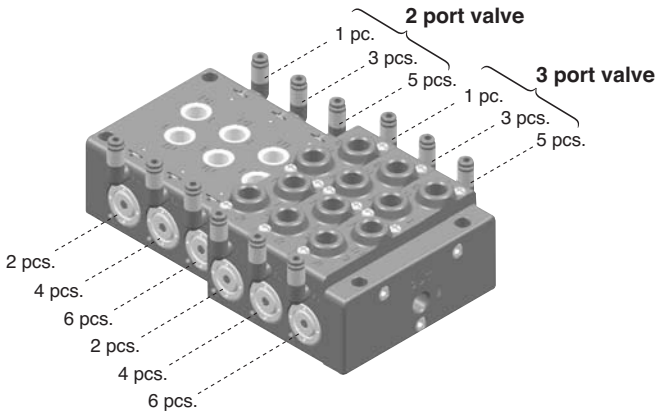
3 port valve mountable number

00	No 3 port valves used
02	2 pcs. (colours)
04	4 pcs. (colours)
⋮	⋮

Note) Maximum mountable valve number: 40 pcs. (total of 2 port and 3 port valves)

Circuit example





SMC

How to Order

Manifold

With gate valve **VV M CC1- 06 06 C4 - G 04**

Passage number

2	2 port valve, Cleaning valve
M	2/3 port valves mixed mounting

2 port valve mountable number

00	No 2 port valves used
02	2 pcs. (colours)
04	4 pcs. (colours)
⋮	⋮

3 port valve mountable number

00	No 3 port valves used
02	2 pcs. (colours)
04	4 pcs. (colours)
⋮	⋮

Note) Maximum mountable valve number: 40 pcs. (total of 2 port, 3 port and gate valves)

Pilot port fitting size

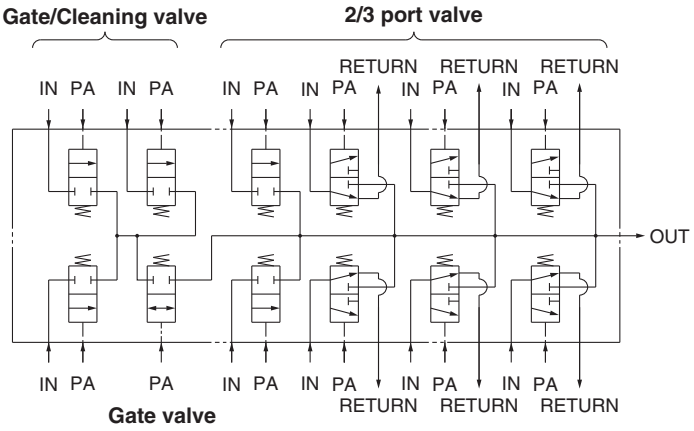
C4	Ø 4 one-touch fitting (Antistatic)
C6	Ø 6 one-touch fitting (Antistatic)

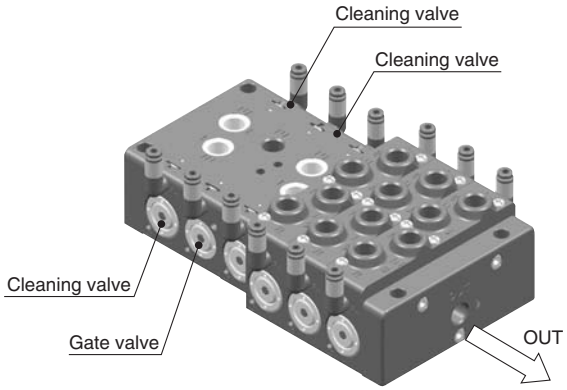
Gate valve and cleaning valve mountable number

02	Cleaning valve (2 port valve): 1 pc. + Gate valve: 1 pc.
04	Cleaning valve (2 port valve): 3 pcs. + Gate valve: 1 pc.
06	Cleaning valve (2 port valve): 5 pcs. + Gate valve: 1 pc.

∗ The gate valve and cleaning valve (2 port valve) are not included. They are ordered separately. (Gate valve is equivalent to 2 port valve.)
∗ When cleaning valve number is an even number, use the blanking plug for 2 port valve.

Circuit example





SUS316L Stainless steel fitting

VCK K 0604 - 02F

Shape

H	Male connector
K	40° swivel elbow
L	90° swivel elbow

Applicable tubing (O.D. x I.D.)

0604	6 x 4
0806	8 x 6
1075	10 x 7.5
1008	10 x 8
1209	12 x 9

Port size

02F	G 1/4

∗ G 1/4 bottom seal has a special shape.

VCKH
Male connector

VCKK
40° swivel elbow

VCKL
90° swivel elbow

Option

Blanking Plug Assembly

Type	Model	Description	Qty.
For a 2 port valve	**VVCC12-10A-1**	Blanking plug (with O-ring)	1
		Hexagon socket head plug (R 1/4)	1
For a 3 port valve	**VVCC13-10A-1**	Blanking plug (with O-ring)	1
		Hexagon socket head plug (R 1/4)	2

Specifications

Model	VCC12	VCC13	VCC12D
Passage number	2 port	3 port	2 port (Diaphragm type)
Construction (Fluid contact material)	Poppet seal (PEEK resin + Stainless steel) + Special fluororesin sliding part		Poppet seal (PEEK resin + Stainless steel) + Special fluororesin diaphragm
Fluid	Water/Chemical-based paint, Ink, Cleaning solvent (Water, Butyl acetate), Air		
Operating pressure range [MPa]	0 to 1.0 (Instantaneous pulsation pressure: 1.2)		0 to 0.7 (Instantaneous pulsation pressure: 0.9)
Withstand pressure [MPa]	2		1.5
Pilot pressure [MPa]	0.4 to 0.7		
Orifice size [mm]	Ø 3.8		
Effective area [mm^2]	6		
Fluid temperature [°C]	5 to 50		
Ambient temperature [°C]	5 to 50		
Explosion proof construction	Explosion protection ⟨Ex⟩ II 2GD c 75 °C (T6X), 5 °C ≤ Ta ≤ 80 °C		
Lubrication	Not possible (Default lubricant: White vaseline)		
Mounting orientation	Unrestricted		
Valve leakage (cm^3/min)	1 or less (3 port valve IN → RETURN: 20 or less) Note 1)		1 or less Note 2)

Note 1) Supply pressure: Valve leakage at 1.2 MPa (for air)
Note 2) Supply pressure: Valve leakage at 0.9 MPa (for air)

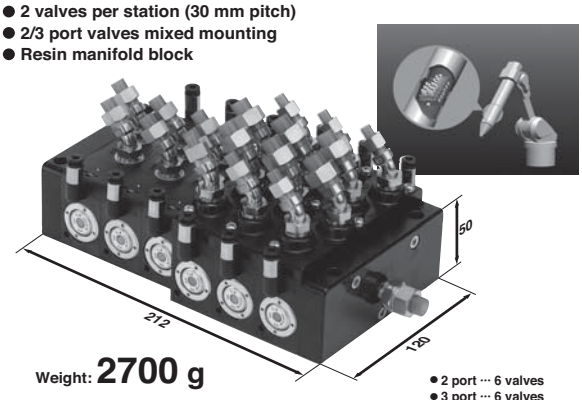
SUS316L Stainless Steel Fitting Specifications

Applicable tubing	Nylon/Fluoro tubing
Fluid	Water/Chemical-based paint, Ink, Cleaning solvent (Water, Butyl acetate), Air
Max. operating pressure (at 20 °C) [MPa]	1.0
Ambient and fluid temperature [°C]	0 to 60 °C

Weight

Valve	VCC12 (2 port)		37 g
	VCC13 (3 port)		48 g
Blanking plug assembly	For 2 port		29 g
	For 3 port		45 g
Manifold block ∗ Valves are not attached.	For 2 port (2 stations, one-piece style)		150 g
	For 3 port (2 stations, one-piece style)		254 g
	For gate valve		300 g
End plate	For 2 port		409 g
	For 3 port		495 g
	For 2/3 port mixed mounting		452 g
Fittings	**VCKH**	Ø 6	24 g
		Ø 8	25 g
		Ø 10	33 g
		Ø 12	36 g
	VCKK	Ø 6	25 g
		Ø 8	26 g
		Ø 10	32 g
		Ø 12	37 g
	VCKL	Ø 6	29 g
		Ø 8	30 g
		Ø 10	37 g
		Ø 12	41 g

- **2 valves per station (30 mm pitch)**
- **2/3 port valves mixed mounting**
- **Resin manifold block**



Weight: 2700 g

ATEX Explosion protection

- **2 port ··· 6 valves**
- **3 port ··· 6 valves**
- **Fitting ··· 19 pcs.**

Manifold Specifications

Series VCC

1. How to Order a Manifold

VV M CC1 – 06 10 C4 – G04

① ② ③ ④ ⑤

∗ This "How to Order" is that of the example below.

① Type (Passage number)

2	2 port valve
3	3 port valve
M	2/3 port valves mixed mounting

② 2 port valve mountable number Note 1)

00	Without 2 port valve
02	2 pcs. (colours)
04	4 pcs. (colours)
⋮	⋮
40	40 pcs. (colours) Note 2)

③ 3 port valve mountable number Note 1)

00	Without 3 port valve
02	2 pcs. (colours)
04	4 pcs. (colours)
⋮	⋮
40	40 pcs. (colors) Note 2)

④ Pilot port fitting size

C4	Ø 4 one-touch fitting
C6	Ø 6 one-touch fitting

⑤ Gate valve and cleaning valve mountable number Note 1)

–	Without gate valve Note 3)
G02	Cleaning valve: 1 pc. + Gate valve: 1 pc.
G04	Cleaning valve: 3 pcs. + Gate valve: 1 pc.
G06	Cleaning valve: 5 pcs. + Gate valve: 1 pc.

Note 1) Two valves can be installed per manifold block. Total valve number must be an even number.
Note 2) Maximum valve number is forty (40) valves (colours) by a total of ② + ③ + ⑤.
Note 3) When "Without gate valve" is selected, use 2 port valve of ② as a cleaning valve.

2. How to Order a Valve

VCC1 2 – 00

①

① Type (Passage number)

2	2 port valve
3	3 port valve
2D	2 port/Diaphragm type

3. How to Order the Blanking Plug

VVCC1 2 – 10A – 1

①

① Type (Passage number)

2	For 2 port valves
3	For 3 port valves

Used when the number of valves used on the manifold base is an odd number.

4. How to Order the SUS316L Stainless Steel Fitting

VCK K 1075 – 02F

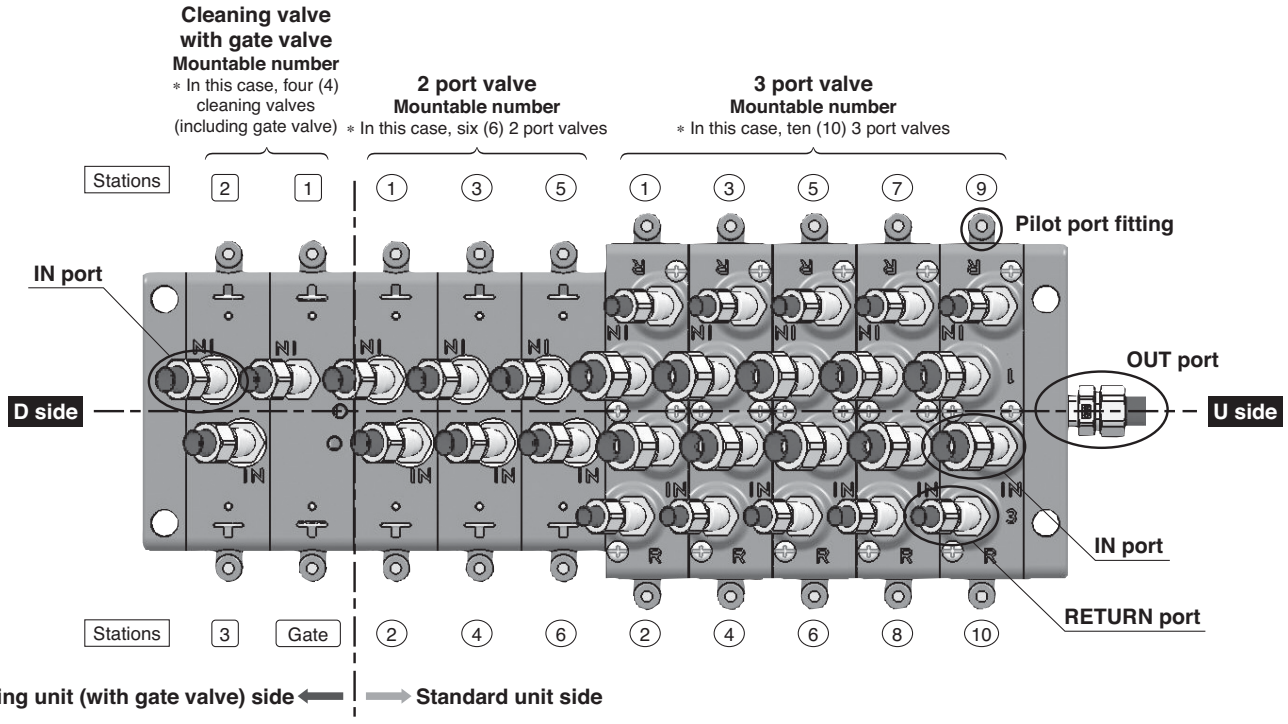
① ②

① Type (Shape)

K	40° swivel elbow
L	90° swivel elbow
H	Male connector

② Piping port

1209	Piping port for Ø 12 x Ø 9
1008	Piping port for Ø 10 x Ø 8
1075	Piping port for Ø 10 x Ø 7.5
0806	Piping port for Ø 8 x Ø 6
0604	Piping port for Ø 6 x Ø 4



ATEX Compliant

High Purity Chemical Valve
Series 55-LVA

55-LVA10 and 55-LVA12 II 2G c IIB T6 X Ta 0 °C to +50 °C II 2G c IIB TXX Ta 0 °C to +60 °C Special condition X "Protect from impact"
55-LVA2□, 55-LVA3□, 55-LVA4□, 55-LVA5□, 55-LVA6□ and 55-LVA200 II 2GD c IIB 80 °C T6 X Ta 0 °C to +50 °C II 2GD c IIB TXX Ta 0 °C to +60 °C Special condition X "Protect from impact"

Note) The manifold type is not available with ATEX certification

How to Order Valves (Single Type)

55-LVA [2] [0] – [02] [ ] – [A] [ ]

Body class

Symbol	Body class	Orifice diam.
1	1	Ø 2
2	2	Ø 4
3	3	Ø 8
4	4	Ø 12
5	5	Ø 20
6	6	Ø 22

Valve type

0	N.C.
1	N.O.
2	Double acting

Note) Refer to "Variations" in the table below for valve type combinations.

Port size

Symbol	Port size	Body class
01	1/8	1
02	1/4	
01	1/8	2
02	1/4	
02	1/4	3
03	3/8	
03	3/8	4
04	1/2	
04	1/2	5
06	3/4	
10	1	6

Option

–	None
1	With flow rate adjustment
2	With by-pass
3	With flow rate adjustment & by-pass
4	With indicator

Note) Refer to "Variations" in the table below for option combinations. Options can not be combined each other.

Material

Symbol	Body	Actuator section: End plate	Dia-phragm	Applicable option: 1	2	3	4	Note
A	SUS	PPS / —	PTFE	●			●	—
B	PPS	PPS	PTFE	●			●	Except 55-LVA50/60
C	PFA	PPS	PTFE	●	●	●	●	Except 55-LVA10/50/60
D	SUS	PPS / —	NBR	●			●	Except 55-LVA60
E	SUS	PPS / —	EPR	●			●	Except 55-LVA60
F	PFA	PVDF	PTFE					Hydrofluoric acid compatible (Only 55-LVA40)
G	PPS	PPS	NBR	●			●	Except 55-LVA50/60
H	PPS	PPS	EPR	●			●	Except 55-LVA50/60
N	PFA	PPS	PTFE	●	●	●	●	Ammonium hydroxide compatible Except 55-LVA10/50/60

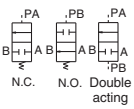
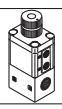
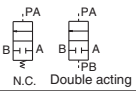
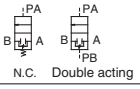
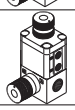
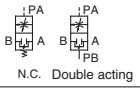
Thread type

Symbol	Thread type
–	Rc
N	NPT
F	G

Specifications

Model		55-LVA10 / 55-LVA40	55-LVA20 / 55-LVA50	55-LVA30 / 55-LVA60
Fluid temperature (°C)	Temperature class T6	0 to 50		
	Temperature class TX	0 to 100		
Ambient temperature (°C)	Temperature class T6	0 to 50		
	Temperature class TX	0 to 60		

Variations

Type	Symbol	Valve type	Model	55-LVA10		55-LVA20		55-LVA30		55-LVA40		55-LVA50		55-LVA60
			Orifice diameter	Ø 2		Ø 4		Ø 8		Ø 12		Ø 20		Ø 22
			Body material Note 1) / Port size	1/8	1/4	1/8	1/4	1/4	3/8	3/8	1/2	1/2	3/4	1
			Stainless steel (SUS316)	○	○	○	○	○	○	○	○	○	○	○
			PPS	○	○	—	○	—	○	—	○	—	—	—
			PFA	—	—	—	○	—	○	—	○	—	—	—
Basic type		 N.C. N.O. Double acting	N.C.	○	○	○	○	○	○	○	○	○	○	○
			N.O.	—	—	○	○	○	○	○	○	○	○	○
			Double acting	○	○	○	○	○	○	○	○	○	○	○
With flow rate adjustment		 N.C. Double acting	N.C.	—	—	○	○	○	○	○	○	○	○	○
			Double acting	—	—	○	○	○	○	○	○	○	○	○
With by-pass Body material Only PFA		 N.C. Double acting	N.C.	—	—	—	—	—	○	—	○	—	○	—
			Double acting	—	—	—	—	—	○	—	○	—	○	—
With flow rate adjustment & by-pass Body material Only PFA		 N.C. Double acting	N.C.	—	—	—	—	—	○	—	○	—	○	—
			Double acting	—	—	—	—	—	○	—	○	—	○	—
With indicator		 N.C.	N.C.	—	—	○	○	○	○	○	○	○	○	○

Note) Refer to the "Material" table for the applicable optional body materials.

Basic type

With flow rate adjustment

Standard Specifications

Model		55-LVA10	55-LVA20	55-LVA30	55-LVA40	55-LVA50	55-LVA60
Orifice diameter		Ø 2	Ø 4	Ø 8	Ø 12	Ø 20	Ø 22
Port size		1/8, 1/4	1/8, 1/4	1/4, 3/8	3/8, 1/2	1/2, 3/4	1
Flow characteristics	Av x 10^{-6}m²	1.7	8.4	40.8	79.2	144	192
	Cv	0.07	0.35	1.7	3.3	6	8
Withstand pressure [MPa]		1					
Operating pressure [MPa]		0 to 0.5				0 to 0.4	
Back pressure [MPa]	N.C./N.O. Note 2)	0.15 or less	0.3 or less			0.2 or less	
	Double acting	0.3 or less	0.4 or less			0.3 or less	
Valve leakage [cm³/min]		0 (with water pressure)					
Pilot air pressure [MPa]		0.3 to 0.5					
Pilot port size		M5 X 0.8		Rc 1/8, NPT 1/8, G 1/8			
Fluid temperature [°C]	Temperature class T6	0 to 50					
	Temperature class TX	0 to 100 Note 1)					
Ambient temperature [°C]	Temperature class T6	0 to 50					
	Temperature class TX	0 to 60					
Weight [kg]	Stainless steel (SUS)	0.12	0.18	0.44	0.86	1.67	1.96
	PPS	0.05	0.08	0.18	0.32	—	—
	PFA	—	0.09	0.20	0.35	—	—

Note 1) 0 to 60 °C when the diaphragm is NBR or EPR.
Note 2) The N.O. type is not available for 55-LVA10.
Note 3) Contact SMC if the valve will be used with vacuum and B → A flow.

Piping

⚠ Caution

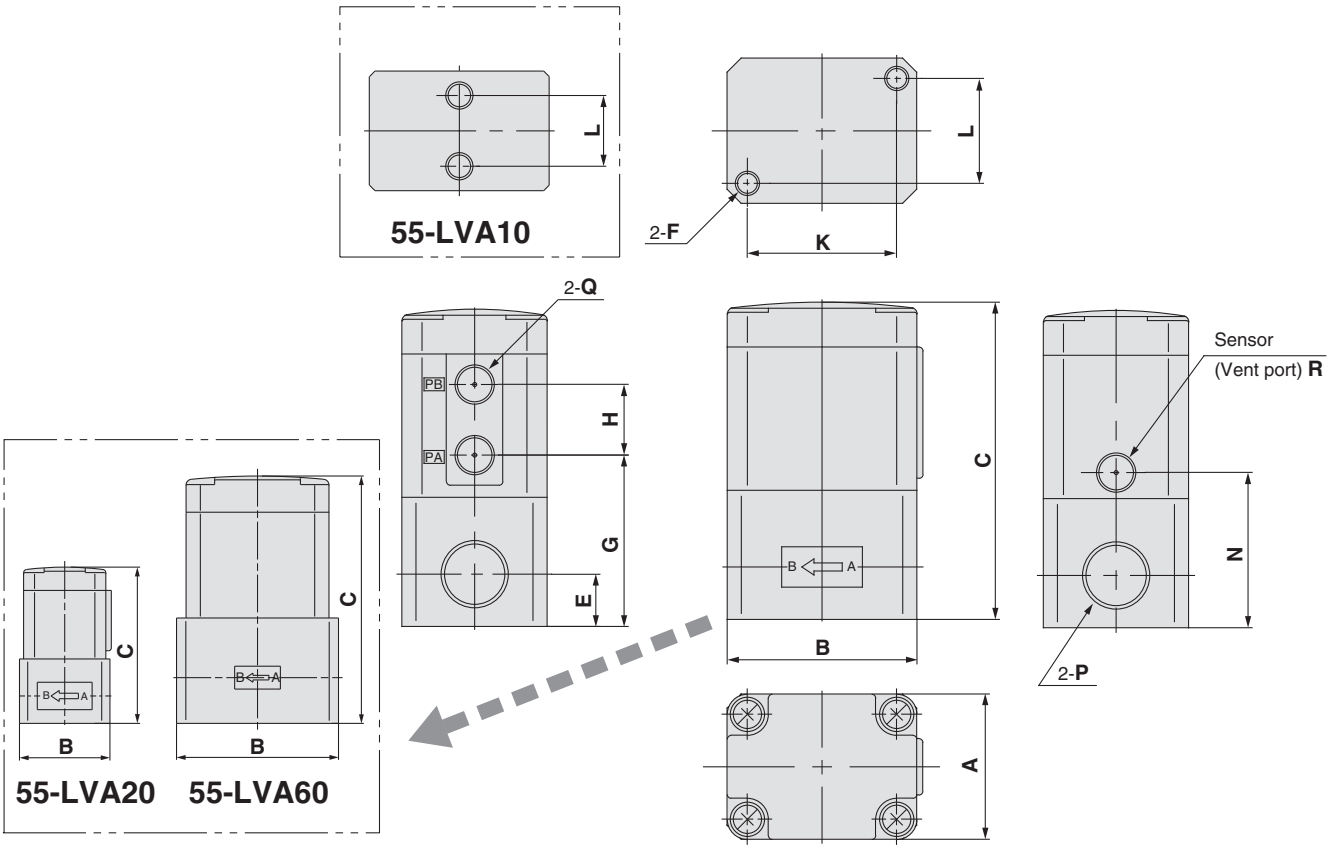
1. Avoid using metal fittings with a resin body (taper threads).

This can cause damage to the valve body.

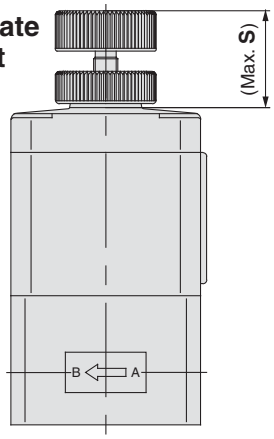
Dimensions

Body material: Stainless steel

Basic type



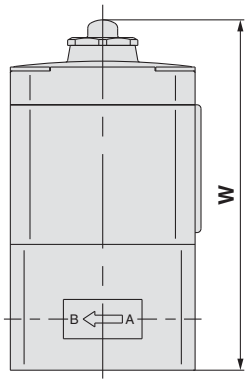
With flow rate adjustment



Dimensions (mm)

Model	S
55-LVA2□	14.5
55-LVA3□	24.4
55-LVA4□	29
55-LVA5□	34.5
55-LVA6□	36

With indicator



Dimensions (mm)

Model	W
55-LVA20	63.7
55-LVA30	89.1
55-LVA40	109.9
55-LVA50	140.5
55-LVA60	147.8

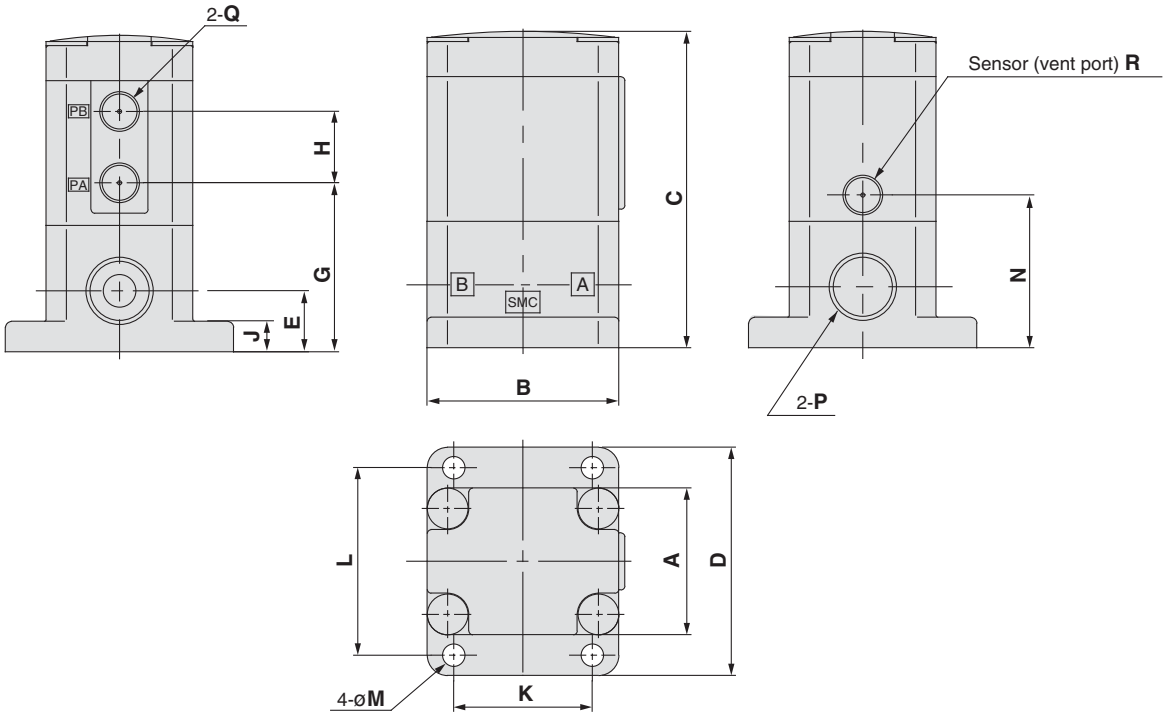
Dimensions (mm)

Model	A	B	C	E	F	G	H	K	L	N	P	Q	R
55-LVA1□	20	33	49.5	10	M5 X 0.8 X 4	27.5	11	—	13	27.5	Rc 1/8, 1/4 NPT 1/8, 1/4 G 1/8, 1/4	M5 X 0.8	Ø 4.2
55-LVA2□	30	33	57	10	M X 0.8 X 5	31	13	22	22	26			M3 x 0.5
55-LVA3□	36	47	78.6	13	M6 X 1.0 X 8	42.5	17.5	37	26	38.5	Rc 1/4, 3/8 NPT 1/4, 3/8 G 1/4, 3/8	Rc 1/8 NPT 1/8 G 1/8	Rc 1/8 NPT 1/8 G 1/8
55-LVA4□	46	60	95.4	16	M8 X 1.25 X 10	54.5	18	47.5	33.5	47.5	Rc 3/8, 1/2 NPT 3/8, 1/2 G 3/8, 1/2		
55-LVA5□	58	75	122.5	19	M8 X 1.25 X 10	61.5	27.5	60	43	55.5	Rc 1/2, 3/4 NPT 1/2, 3/4 G 1/2, 3/4		
55-LVA6□	58	85	129.8	24	M8 X 1.25 X 10	69	27.5	60	43	62.8	Rc 1 NPT 1 G1		

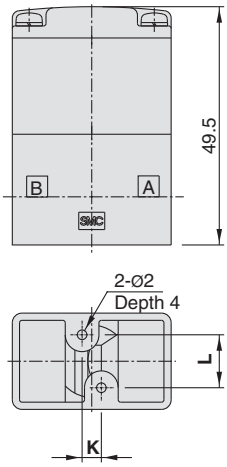
Dimensions

Body material: PPS

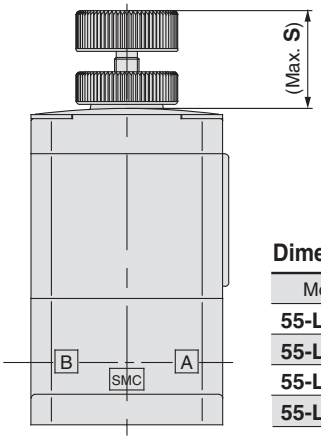
Basic type



55-LVA10



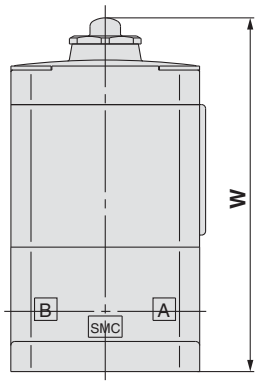
With flow rate adjustment



Dimensions (mm)

Model	S
55-LVA2□	14.5
55-LVA3□	24.4
55-LVA4□	29
55-LVA5□	34.5

With indicator



Dimensions (mm)

Model	W
55-LVA20	64.2
55-LVA30	88.1
55-LVA40	110.4
55-LVA50	147

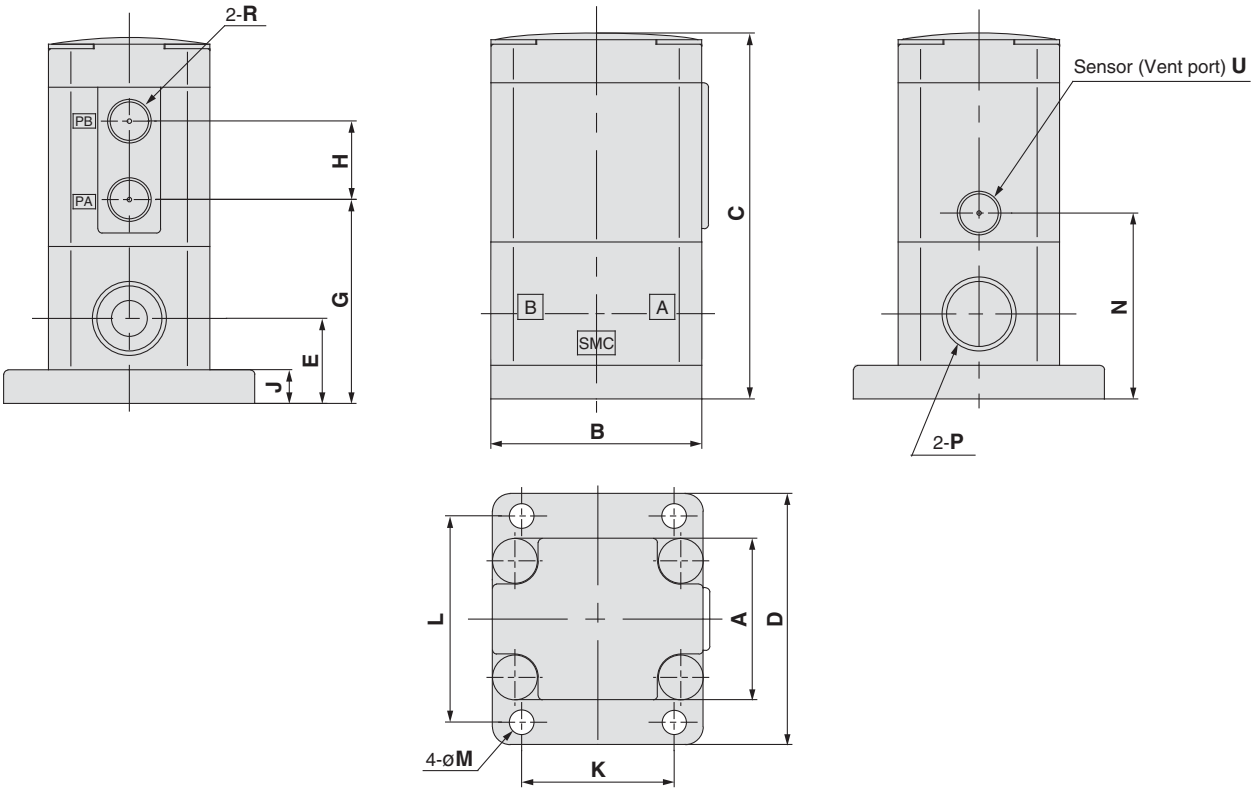
Dimensions (mm)

Model	A	B	C	D	E	G	H	J	K	L	M	N	O	P	Q	R
55-LVA1□	20	33	49.5	—	10	27.5	11	—	4	11	—	27.5	—	Rc 1/8, 1/4 NPT 1/8, 1/4 G 1/8,1/4	M5 X 0.8	Ø 4.2
55-LVA20	30	36	54.7	44	11	32	—	4	20	37	3.5	27	14.8	Rc 1/4 NPT 1/4 G 1/4	Rc 1/8 NPT 1/8 G 1/8	Ø 2.4
55-LVA2 1/2	30	36	57.5	44	11	31.5	13	4	20	37	3.5	26.5	—		M5 X 0.8	M3 X 0.5
55-LVA3□	36	47	77.6	56	15	41.5	17.5	7.5	34	46	5.5	37.5	—	Rc 3/8 NPT 3/8 G 3/8	Rc 1/8 NPT 1/8 G 1/8	Rc 1/8 NPT 1/8 G 1/8
55-LVA4□	46	60	95.9	68	22	55	18	8	42	57	5.5	48	—	Rc 1/2 NPT 1/2 G 1/2		
55-LVA5□	58	75	129	84	26	68	27.5	8	56	71	6.5	62	—	Rc 3/4 NPT 3/4 G 3/4		

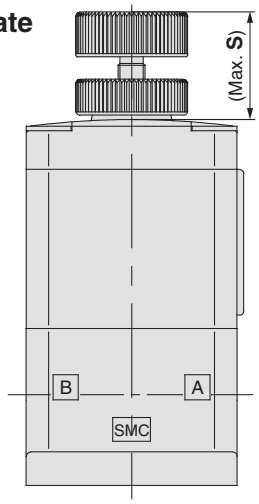
Dimensions

Body material: PFA

Basic type



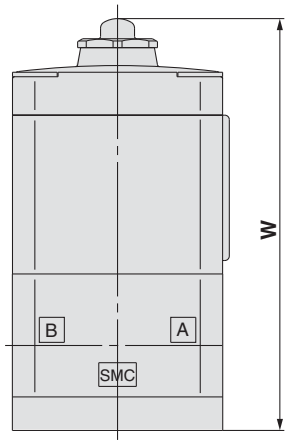
With flow rate adjustment



Dimensions (mm)

Model	S
55-LVA2□	14.5
55-LVA3□	24.4
55-LVA4□	29

With indicator



Dimensions (mm)

Model	W
55-LVA20	67.7
55-LVA30	92.1
55-LVA40	110.4

Dimensions (mm)

Model	A	B	C	D	E	G	H	J	K	L	M	N	P	Q	R	U
55-LVA2□	30	36	61	44	14.5	35	13	4	20	37	3.5	30	Rc 1/4 NPT 1/4 G 1/4	—	M5 X 0.8	M3 X 0.5
55-LVA3□	36	47	81.5	56	19	45.5	17.5	7.5	34	46	5.5	41.5	Rc 3/8 NPT 3/8 G 3/8	—	Rc 1/8 NPT 1/8 G 1/8	Rc 1/8 NPT 1/8 G 1/8
55-LVA4□	46	60	95.9	68	22	55	18	8	42	57	5.5	48	Rc 1/2 NPT 1/2 G 1/2	—		

ATEX Compliant

Air Operated Type
Series 55-LVA

55-LVA10 and 55-LVA12 II 2G c IIB T6 X Ta 0 °C to +50 °C II 2G c IIB TXX Ta 0 °C to +60 °C Special condition X "Protect from impact"
55-LVA2□, 55-LVA3□, 55-LVA4□, 55-LVA5□, 55-LVA6□ and 55-LVA200 II 2GD c IIB 80 °C T6 X Ta 0 °C to +50 °C II 2GD c IIB TXX Ta 0 °C to +60 °C Special condition X "Protect from impact"

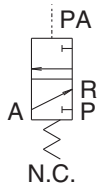
Note) The manifold type is not available with ATEX certification

Standard Specifications

Model		55-LVA200
Orifice diameter		Ø 4
Port size		1/4
Flow characteristics	Av x 10^{-6} m^2	7.2
	Cv	0.3
Withstand pressure [MPa]		1
Operating pressure [MPa]		0 to 0.5
Valve leakage [cm^3/min]		0 (with water pressure)
Pilot air pressure [MPa]		0.4 to 0.5
Pilot port size		M5 X 0.8
Max. operating frequency [Hz]		1.0
Fluid temperature [°C]	Temperature class T6	0 to +50
	Temperature class TX	0 to +100
Ambient temperature [°C]	Temperature class T6	0 to +50
	Temperature class TX	0 to +60
Weight [kg]		0.162

How to Order Valve

55-LVA 2 0 0 – 02 □ – C



Body class

Symbol	Body class	Orifice dia.
2	2	Ø 4

Valve type

Symbol	
0	N.C

Port size

Symbol	Port size
02	1/4

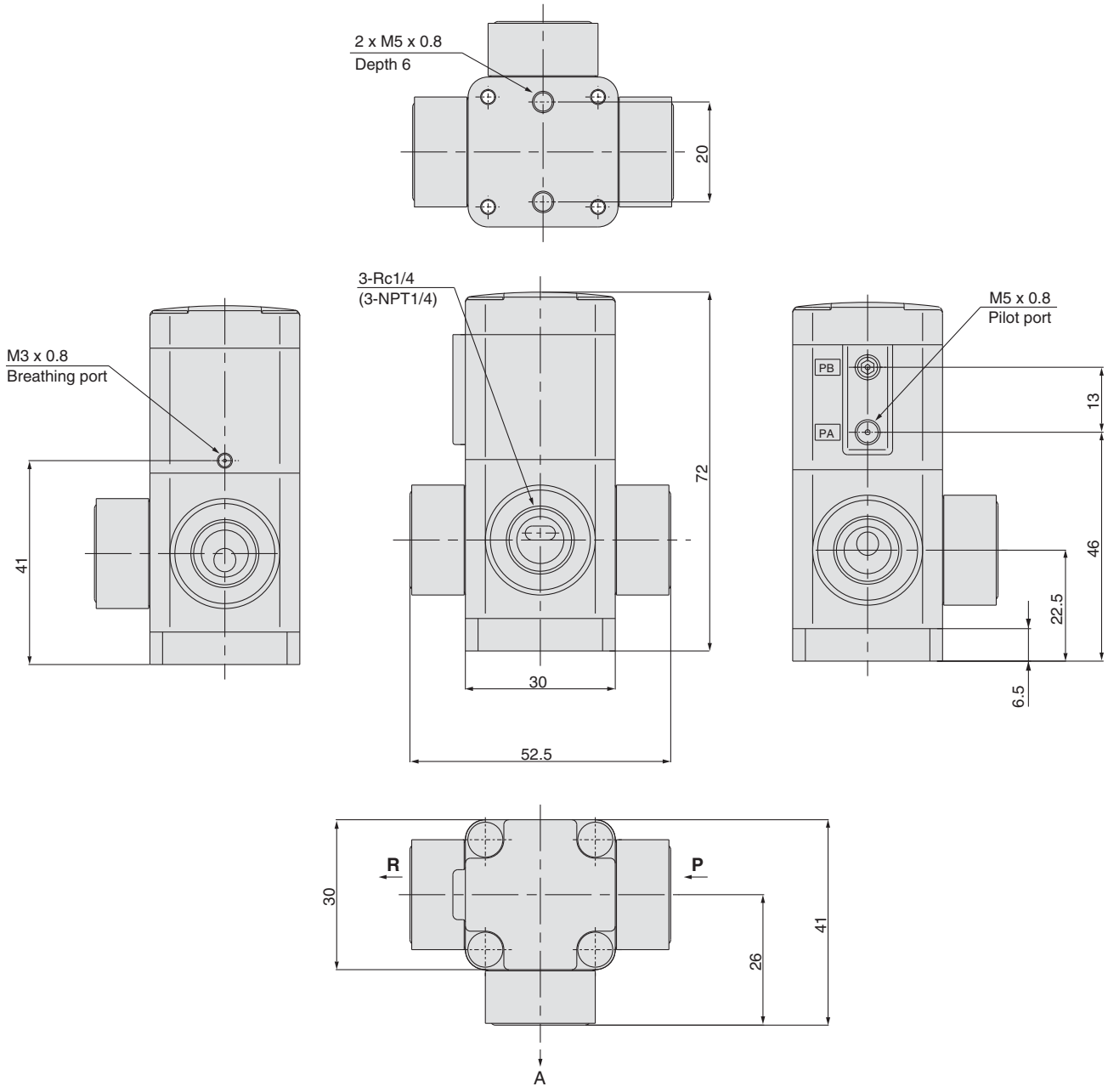
Thread type

Symbol	Thread type
–	Rc
N	NPT

Material

Symbol	Body	Actuator section	Diaphragm
C	PFA	PPS	PTFE

Dimensions


2 x M5 x 0.8
Depth 6
20
3-Rc1/4
(3-NPT1/4)
72
30
52.5
M3 x 0.8
Breathing port
41
M5 x 0.8
Pilot port
PB
PA
13
46
22.5
6.5
R
P
30
41
26
A

Process Pump. Automatically operated type
Air operated type
Series 55-PA3000/5000
Automatically operated type (internal switching type)
Air operated type (external switching type)

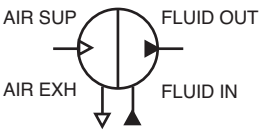
For 55-PA3□□0: II 2 GD c T6 Ta 0 °C to +60 °C
For 55-PA3□□3: II 2 GD c T5 Ta 0 °C to +60 °C
For 55-PA5□□□: II 2 GD c T6 Ta 0 °C to +60 °C
For 55-PA5□□3: II 2 GD c T6 Ta 0 °C to +60 °C

For more details, other specifications, dimensions, see the specific catalogue.

How to Order

Automatically operated type (internal switching type)

Symbol



Automatically operated type

55 — PA 3 1 1 0 — □ 03 — □

ATEX Category 2

Body size

3	3/8 standard
5	1/2 standard

Liquid contact body material

1	ADC12 (Aluminium)
2	SCS14 (Stainless steel)

Diaphragm material

1	PTFE
2	NBR

Automatically operated type

Thread type

–	Rc
T	NPTF
F	G
N	NPT

Port size

03	3/8 (10A): PA3
04	1/2 (15A): PA5
06	3/4 (20A): PA5

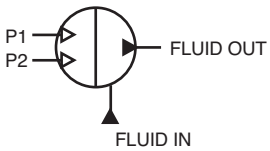
Option

–	Body only
N	With silencer

∗ A silencer of 2504-002 (NPT: 2504-N002) is provided.

Air operated type (external switching type)

Symbol



Air operated type

55 — PA 3 1 1 3 — □ 03

ATEX Category 2

Body size

3	3/8 standard
5	1/2 standard

Liquid contact body material

1	ADC12 (Aluminium)
2	SCS14 (Stainless steel)

Diaphragm material

1	PTFE

Air operated type

Thread type

–	Rc
T	NPTF
F	G
N	NPT

Port size

03	3/8 (10A): PA3
04	1/2 (15A): PA5
06	3/4 (20A): PA5

Process Pump. Automatically operated type
Air operated type
Series 56-PA3000/5000
Automatically operated type (internal switching type)
Air operated type (external switching type)

CE Ex II 3 GD c T6 Ta 0 °C to +60 °C

For more details, other specifications, dimensions, see the specific catalogue.

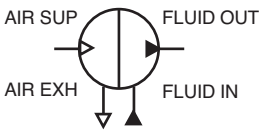
How to Order

Automatically operated type (internal switching type)

56-PA3000

56-PA5000

Symbol



Automatically operated type

56 — PA 3 1 1 0 — □ 03 — □

- **56**: ATEX category 3
- **Body size**

3	3/8 standard
5	1/2 standard

- **Liquid contact body material**

1	ADC12 (Aluminium)
2	SCS14 (Stainless steel)

- **Diaphragm material**

1	PTFE
2	NBR

- **0**: Automatically operated type
- **□**: Thread type

–	Rc
T	NPTF
F	G
N	NPT

- **03**: Port size

03	3/8 (10A): PA3
04	1/2 (15A): PA5
06	3/4 (20A): PA5

- **□**: Option

–	Body only
N	With silencer*

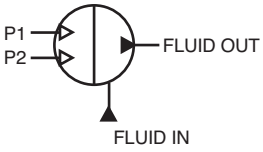
* For AIR EXH: AN200-02 (NPT: AN200-N02)

Air operated type (external switching type)

56-PA3000

56-PA5000

Symbol



Air operated type

56 — PA 3 1 1 3 — □ 03

- **56**: ATEX category 3
- **Body size**

3	3/8 standard
5	1/2 standard

- **Liquid contact body material**

1	ADC12 (Aluminium)
2	SCS14 (Stainless steel)

- **Diaphragm material**

1	PTFE

- **3**: Air operated type
- **□**: Thread type

–	Rc
T	NPTF
F	G
N	NPT

- **03**: Port size

03	3/8 (10A): PA3
04	1/2 (15A): PA5
06	3/4 (20A): PA5

ATEX Compliant

Pneumatic-Pneumatic Positioner

Series 55/56-IP5000 (Lever type)

Series 55/56-IP5100 (Rotary type)

CE Ex II 2GDc T4-T6
II 3GDc T4-T6

For more details, other specifications, dimensions, see the specific catalogue.

How to Order

56 -IP5 000 – 0 1 0 □ □ – □

ATEX category

55	2
56	3

Positioner type

000	Lever type
100	Rotary type

Input pressure

0	0.2 to 1.0 MPa (Standard)
1	1/2 split, 0.02 to 0.06, 0.06 to 0.1 MPa

Pressure gauge (SUP, OUT1)

0	Not provided
1	0.2 MPa
2	0.3 MPa
3	1.0 MPa

Indication of opening Note 1)

0	Not provided
1	Indicated

Note 1) 55/56-IP5000 is available only with option "0" (no indication).

Ambient temperature

–	–20 to 80 °C (Standard)
T	High temperature –5 to 100 °C
L	Low temperature –30 to 60 °C

Note) Please refer to table below

Pressure gauge / Air port

–	Rc (Standard)
N	NPT
F	G

Accessories Note 1)

–	Without accessory (standard)	With standard lever (10 to 85 mm stroke) for 55/56-IP5000
A	With Ø 0.7 output restrictor integrated pilot valve	Common to 55/56-IP5000 and 55/56-IP5100 small capacity actuators
B	With Ø 1.0 output restrictor integrated pilot valve	
C	With fork lever type fitting M	Only for 55/56-IP5100
D	With fork lever type fitting S	
E	With lever unit for a 35 to 100 mm stroke	Only for 55/56-IP5000 Note 2)
F	With lever unit for a 50 to 140 mm stroke	

Note 1) If multiple accessories are required, they should be indicated in alphabetical order.
ex. 55-IP5000-010-AD
Note 2) For "E" and "F", standard lever is not provided.

Specifications

Classification	Ambient temperature range		
	Low temp. model 55-IP5□00-□□□L-□	Standard model 55-IP5□00-□□□-□	High temp. model 55-IP5□00-□□□T□-□
II 2GD c T4	–	–	-5 °C to 100 °C
II 2GD c T5	–	-20 °C to 80 °C	-5 °C to 80 °C
II 2GD c T6	-30 °C to 60 °C	-20 °C to 60 °C	-5 °C to 60 °C

Classification	Ambient temperature range		
	Low temp. model 56-IP5□00-□□□L-□	Standard model 56-IP5□00-□□□-□	High temp. model 56-IP5□00-□□□T□-□
II 3GD c T4	–	–	-5 °C to 100 °C
II 3GD c T5	–	-20 °C to 80 °C	-5 °C to 80 °C
II 3GD c T6	-30 °C to 60 °C	-20 °C to 60 °C	-5 °C to 60 °C

Item \ Type	55/56-IP5000		55/56-IP5100	
	Lever type lever feedback		Rotary type cam feedback	
	Single action	Double action	Single action	Double action
Supply pressure	0.14~0.7 MPa			
Input pressure	0.02~0.1 MPa			
Standard stroke	10~85mm		60~100	
Sensitivity	Within 0.1 % F.S.	Within 0.5 % F.S.		
Linearity	Within ±1 % F.S.	Within ±2 % F.S.		
Hysteresis	Within 0.75 % F.S.	Within 1 % F.S.		
Repeatability	Within 0.5 % F.S.			
Output flow rate	80 l/min (ANR) or more (SUP.=0.14 MPa)			
	200 l/min (ANR) or more (SUP.=0.4 MPa)			
Air consumption	Within 5 l/min (ANR) (SUP.=0.14 MPa)			
	Within 11 l/min (ANR) (SUP.=0.4 MPa)			
Ambient and using fluid Temperature	-20 °C~80 °C (Standard model) -30 °C~60 °C (Low Temp.) -5 °C~100 °C (High Temp.)			
Thermal coefficient	Within 0.1 % F.S./C			
Air connection port	Rc 1/4 (Standard)			
Material	Aluminium diecast, Stainless steel, Brass, Nitrile rubber			
Mass	Approx. 1.4 kg		Approx. 1.2 kg	
Size	118 x 102 x 86 (Body)		118 x 92 x 77.5 (Body)	

Note) Standard air temperature: 20, Absolute pressure: 101.3 kPa.
Relative humidity: 65 %

ATEX Compliant

Electro-Pneumatic Positioner

Series IP8000 (Lever type)
Series IP8100 (Rotary type)

CE Ex II 2G Ex ib IIC T5/T6

For more details, other specifications, dimensions, see the specific catalogue.

How to Order

ATEX Directive Intrinsically Safe Explosion Proof

IP8 [000] – 0 [0] 0 – [ ] – X14 – [L]

Positioner type

000	Lever type
100	Rotary type

Pressure gauge (SUP, OUT1)

0	Not provided
1	0.2 MPa (R 1/8)
2	0.3 MPa (R 1/8)
3	1.0 MPa (R 1/8)

Option Note 7)

Symbol	Option	Applicable model	
		IP8000-X14	IP8100-X14
–	–	●	●
L	Low temperature (–40 to 60 °C)	●	●
W	With internal position indicator	–	●

ATEX directive compliance and connection

X14	ATEX directive category 2 Intrinsically safe explosion-proof equipment Air connection port: 1/4 NPT Conduit connection port: M20 x 1.5 With blue cable gland

Lever type
IP8000

Rotary type
IP8100

Accessories Note 1)

Symbol	Accessories	Applicable model	
		IP8000-X14	IP8100-X14
–	Without accessory	●	●
A	With Ø 0.7 output restrictor integrated pilot valve Note 2)	●	●
B	With Ø 1.0 output restrictor integrated pilot valve Note 2)	●	●
C	With fork lever type fitting M Note 3)	–	●
D	With fork lever type fitting S Note 4)	–	●
E	With lever unit for a 35 to 100 mm stroke Note 5)	●	–
F	With lever unit for a 50 to 140 mm stroke Note 5)	●	–
G	With compensation spring (A) Note 6)	●	●
H	With external scale plate	–	●

Note 1) If multiple accessories are required, they should be indicated in alphabetical order.
ex. IP8100-010-AG
Note 2) "A" is applied to approx 90 cm^3-capacity actuator.
"B" is applied to approx 180 cm^3-capacity actuator.
Note 3) Fork lever-type fitting MX (Connection thread: M6 x 1) for IP8100-0□0-□-X14.
Note 4) Fork lever-type fitting SX (Connection thread: M6 x 1) for IP8100-0□0-□-X14.
Note 5) Standard lever is not attached.
Note 6) It is to be used together with "A" or "B" when tending to overshoot by the use of "A" or "B". It is mounted to the body as a replacement of the standard compensation spring.
Note 7) Combination of "L" and "W" is not available.

Specifications

Item \ Type	IP8000		IP8100	
	Lever type lever feedback		Rotary type cam feedback	
	Single acting	Double acting	Single acting	Double acting
Input current	4 to 20 mA DC (standard) Note 1)			
Input resistance	235 ohms (4 to 20 mA DC)			
Supply air pressure	0.14 to 0.7 MPa			
Standard stroke	10 to 85 mm (Deflection angle 10 to 30)		60 to 100 Note 2)	
Sensitivity	Within 0.1 % F.S.	Within 0.5 % F.S.		
Linearity	Within ±1 % F.S.	Within ±2 % F.S.		
Hysteresis	Within 0.75 % F.S.	Within 1 % F.S.		
Repeatability	Within ±0.5 % F.S.			
Coefficient of temperature	Within 0.1 % F.S. / C			
Output flow rate	80 l/min (ANR) or more (SUP = 0.14 MPa) Note 3)			
Air consumption	Within 5 l/min (ANR) or less (SUP = 0.14 MPa)			
Ambient fluid temperature	Standard type: –20 to 80 °C (T5) / –20 to 60 °C (T6)			
	Low temperature type: –40 to 60 °C (T6)			
Explosion protected construction CE Ex	Intrinsic safety type of explosion protection (CE 0344 Ex II 2G Ex ib IIc T5/T6)			
	Approval no. KEMA 03 ATEX1119			
Air connection port	1/4 NPT female screw			
Electrical wiring connection	M20 x 1.5			
Material	Aluminum diecast body			
Weight	Approx. 2.4 kg			
Classification of degree of protection	JISF8007, IP65 (conforms to IEC 60529)			
Parameters	Ui ≤ 28 V, Ii ≤ 125 mA, Pi ≤ 1.2 W, Ci ≤ 0nF, Li ≤ 0mH			

Note 1) 1/2 Split range is possible with the standard type (by adjusting the span).
Note 2) The stroke is adjustable in 0 to 60 °C and 0 to 100 °C
Note 3) Standard air (JIS B0120): temp. 20 °C, absolute press. 760 mm Hg, ratio humidity 65 %.

All other specifications are the same as the standard products Series IP8□.
For details, refer to **the WEB catalogue**.

Accessory / Option

Pilot valve with output restriction (IP8000, 8100 type)

In general, mounting on a small-size actuator may cause hunting. For prevention, a pilot valve with a built-in output restriction is available. The restriction is removable.

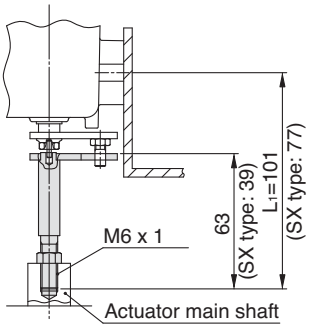
(Ambient temperature: Standard)

Actuator Capacity	Orifice size	Part number	Pilot unit part number
90 cm^3	Ø 0.7	P36801080	P565010-18
180 cm^3	Ø 1	P36801081	P565010-19

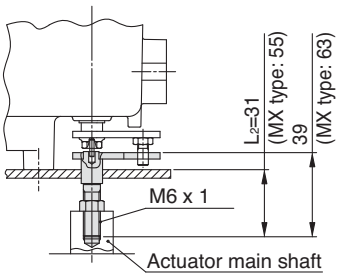
Fork lever joints (IP8100 type)

Two types of the fork lever joints are available dependent upon different mounting dimensions.
This is recommended because it can absorb off-centering, compared with direct mounting type.

Part name	Part number
Fork lever assembly MX	P368010-36
Fork lever assembly SX	P368010-37



Side mounting with the fork lever assembly MX

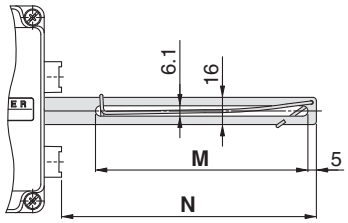


Rear mounting with the fork lever assembly SX

External feedback lever (IP8000 type)

Different feedback levers are available dependent upon valve strokes. Consult with SMC in case of 10 mm or less stroke.

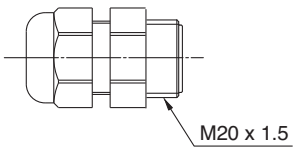
Stroke	Unit number	Size **M**	Size **N**
10 to 85 mm (standard)	P368010-20	125	150
35 to 100 mm (Accessory “E”)	P368010-21	110	195
50 to 140 mm (Accessory “F”)	P368010-22	110	275



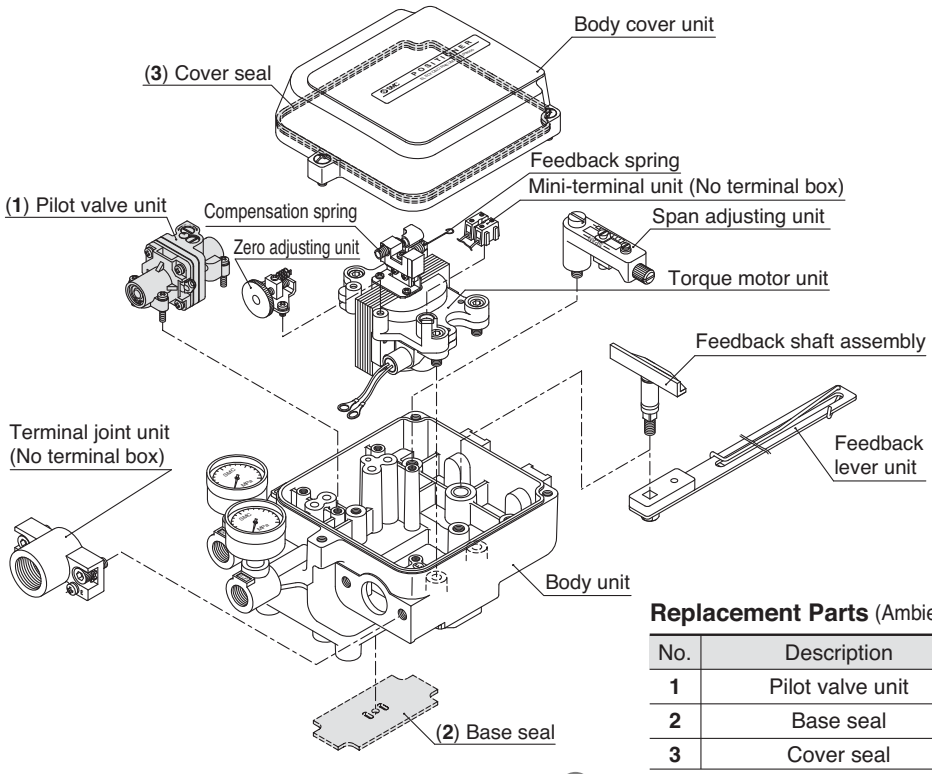
Cable gland (for -X14)

Cable gland

Description	Part number	Suited cable outer diameter
Cable gland	07-9534-1M2B	Ø 6 to Ø 12



Exploded View

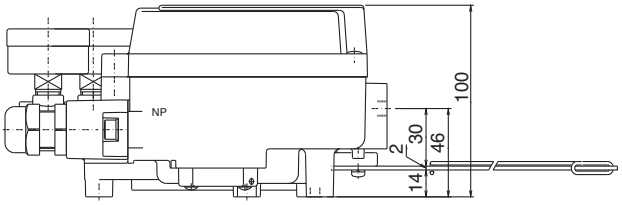


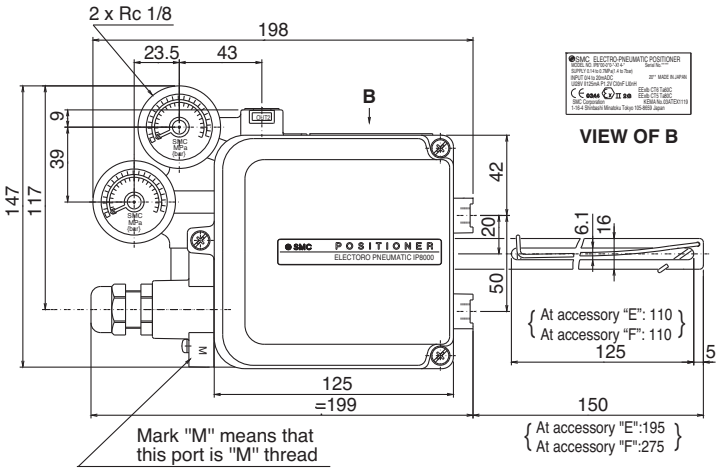
Replacement Parts (Ambient temperature: Standard)

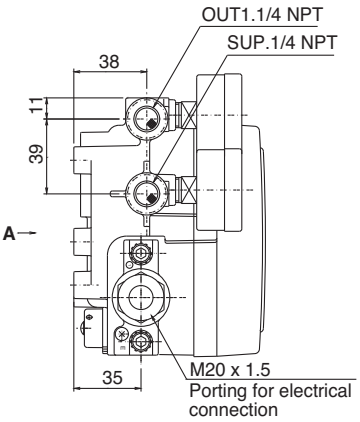
No.	Description	Part no.	Note
1	Pilot valve unit	P565010-7	IP8000/8100
2	Base seal	P56501012-3	
3	Cover seal	P56501013	

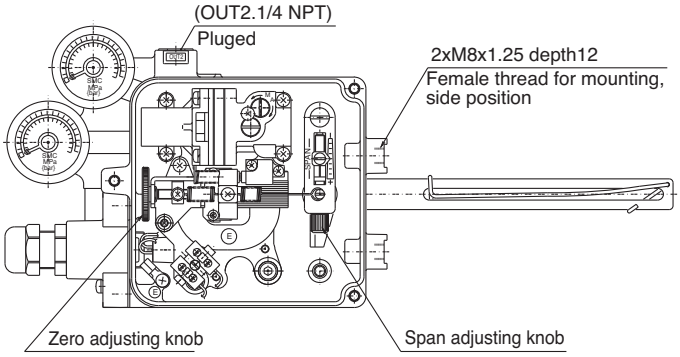
Dimensions / IP8000

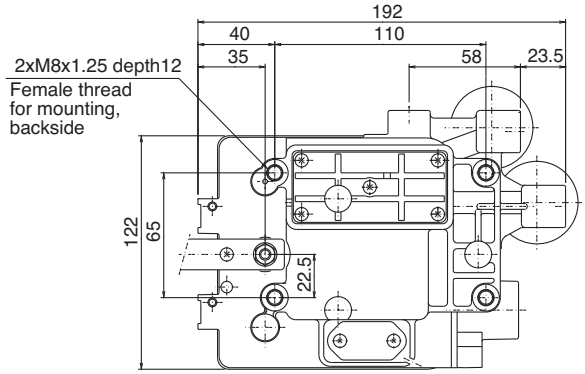
IP8000-0□0-□-X14 (lever type)







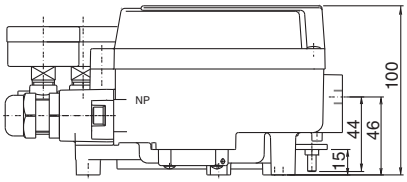




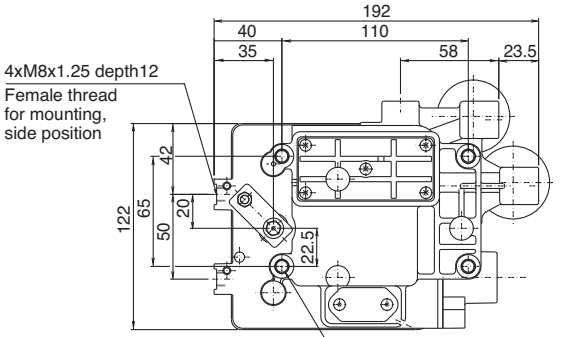
VIEW OF A

Dimensions / IP8100

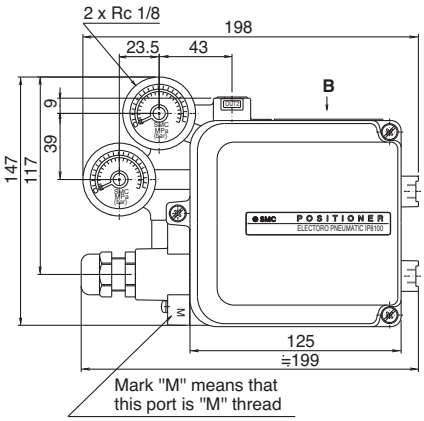
IP8100-0□0-□-X14 (rotary type)

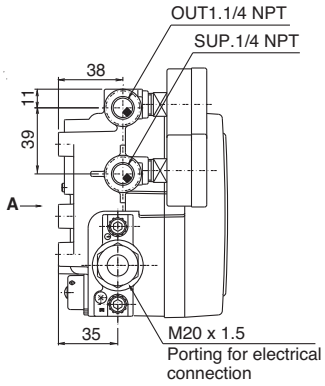


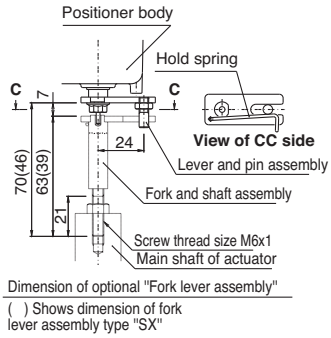
VIEW OF B

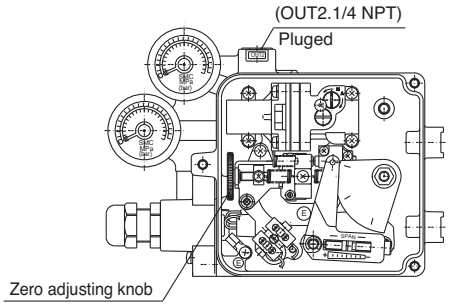


VIEW OF A









ATEX Compliant

Smart Positioner (Lever type / Rotary type)

Series 52-IP8001/8101

CE Ex II 1 G Ex ia IIC T4/T5/T6 Ga
T4/T5: Ta = -20 °C to 80 °C T6: Ta = -20 °C to 60 °C

How to Order

ATEX Directive Intrinsically Safe Explosion proof

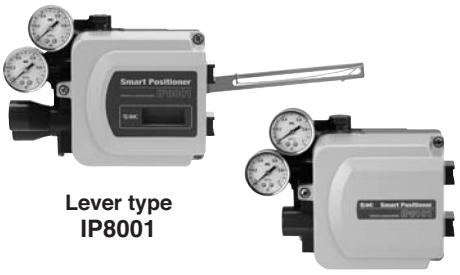
52 – IP8 001 – 0 3 4 – □ – □ – □

ATEX directive compliance

52	ATEX directive category 1 Intrinsically safe explosion-proof

Specifications

4	Intrinsically safe explosion proof (ATEX) + output function + HART communication



Lever type
IP8001

Rotary type
IP8101

Type

001	Smart Lever type
101	Smart Rotary type

Pressure gauge

Symbol	Pressure gauge	Applicable model	
		IP8001	**IP8101**
1	0.2 MPa	●	—
2	0.3 MPa	●	—
3	1.0 MPa	●	●

Accessories Note 1)

Symbol	Accessories	Applicable model	
		IP8001	**IP8101**
—	None (Standard)	●	●
C	Fork lever-type fitting M	—	●
D	Fork lever-type fitting S	—	●
E	For stroke 35 to 100 mm with lever unit Note 2)	●	—
F	For stroke 50 to 140 mm with lever unit Note 2)	●	—
H	With external scale plate	—	●
W	Body with LCD window	●	●

Note 1) If two or more accessories are required, the part numbers should be given in alphabetical order. (ex. 52-IP8101-034-CH)
Note 2) Standard lever is not attached.

Connection

Symbol	Air	Electric
—	Rc 1/4	G 1/2
M Note)	Rc 1/4	M20 x 1.5
N	Rc 1/4	1/2 NPT
1	1/4 NPT	G 1/2
2 Note)	1/4 NPT	M20 x 1.5
3	1/4 NPT	1/2 NPT
4	G 1/4	G 1/2
5 Note)	G 1/4	M20 x 1.5
6	G 1/4	1/2 NPT

Note) When the symbol is M, 2, or 5 for 52-ATEX directive items, a blue cable gland is included with the electrical connection.

ATEX temperature

Symbol	ATEX temperature	Applicable model	
		IP8001	**IP8101**
—	T4	●	●
T6	T5/T6	●	●

All other specifications are the same as the standard products Series IP8□.
For details, refer to **the WEB catalogue**.

Specifications [Note 1)]

Item \ Type	IP8001	IP8101
	Smart Positioner	
	Lever type	Rotary type
	Single action / Double action	
Input current	4 to 20 mA DC (Standard) [Note 2)]	
Min. operating current	3.85 mA DC or more	
Intra-terminal voltage	12 V DC (equivalent to 600 Ω input resistance, at 20 mA DC)	
Max. supplied power	1 W (Imax: 100 mA DC, Vmax: 28 V DC)	
Supply air pressure	0.14 to 0.7 MPa	0.3 to 0.7 MPa
Standard stroke	10 to 85 mm (Allowable deflection angle 10 to 30°)	60 to 100°
Sensitivity [Note 3)]	Within 0.2 % F.S.	
Linearity [Note 3)]	Within ±1 % F.S.	
Hysteresis [Note 3)]	Within 0.5 % F.S.	
Repeatability [Note 3)]	Within ±0.5 % F.S.	
Coefficient of temperature	Within 0.05 % F.S./C	
Supply pressure fluctuation	— [Note 4)]	
Output flow [Note 5)]	80 l/min (ANR) or more (SUP = 0.14 MPa)	200 l/min (ANR) or more (SUP = 0.4 MPa)
Air consumption [Note 5)]	2 l/min (ANR) or less (SUP = 0.14 MPa) 4 l/min (ANR) or less (SUP = 0.4 MPa)	11 l/min (ANR) or less (SUP = 0.4 MPa)
Ambient and fluid temperature	–20 °C to 80 °C (T4/T5) –20 °C to 60 °C (T6)	
Explosion proof construction [Note 6)]	ATEX intrinsically safe explosion-proof construction (II 1G Ex ia IIC T4/T5/T6)	
ATEX intrinsically safe explosion-proof parameter (current circuit)	Ui ≤ 28 V, Ii ≤ 100 mA, Pi ≤ 0.7 W, Ci ≤ 12.5 nF, Li ≤ 1.5 mH	
Enclosure Protection Rating	JISF8007, IP65 (conforms to IEC Pub.60529)	
Communication method [Note 6)]	HART transmission	
Air connection port [Note 7)]	Rc 1/4 female thread, NPT 1/4 female thread, G 1/4 female thread	
Electrical connection port [Note 7)]	G 1/2 female thread, M20 x 1.5 female thread, NPT 1/2 female thread	
Material/coating	Aluminum diecast body/baking finish with denatured epoxy resin	
Weight	2.6 kg	

Note 1) Specification values are given at normal temperature (20 °C).
Note 2) 1/2 Split range (Standard)
Note 3) Characteristics relating to accuracy differ depending on combination with other constituent loop equipment, such as positioners and actuators.
Note 4) While there is no output changes due to pressure fluctuations, when the pressure supply setting is changed following calibration, once again adjust balance current and perform calibration.
Note 5) (ANR) indicates JIS B0120 standard air.
Note 6) Model selection required for explosion proof construction and HART transmission.
Note 7) Thread type can be specified by model selection.

Optional Specifications

Item		Type: 52-IP8□01-0□4
		Smart Positioner
Analogue output	**Wiring**	2-wire
	Output signal	4 to 20 mA DC
	Power supply voltage	10 to 28 V DC
	Load resistance	0 to 750 Ω
	Accuracy	±0.5 % F.S. or less [Note 1)]
Alarm output 1, 2	**Wiring**	2-wire
	Applicable standards	DIN19234/NAMUR Standard
	Power supply voltage	5 to 28 V DC
	Load resistance	(Constant current output)
	Alarm ON	≥2.1 mA DC
	Alarm OFF (Leakage current)	≤1.2 mA DC
	Response time	50 msec or less

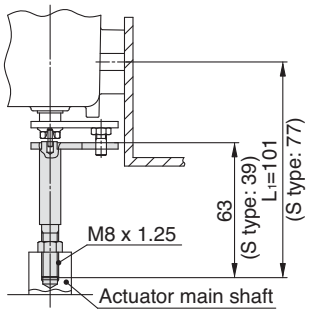
Note 1) Indicates analogue output accuracy with respect to LCD display position value (P value).

Accessory / Option

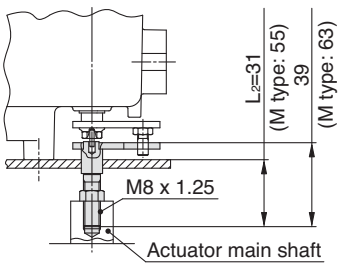
Fork lever-type fittings (8101)

2 types of rotary type IP8101 fork lever-type fittings, that differ by installation dimensions dependent on bracket installation method, and 2 types of installation portion thread sizes, are available.
When installing on the side surface, using fork lever assembly M provides interchangeability with the installation dimensions of SMC IP610 positioner. When installing on the rear surface, using fork lever assembly S also provides interchangeability with the installation dimensions of SMC IP610 positioner.

Part name	Unit number	Installation portion thread size	Model selection accessory
Fork lever assembly M	P368010-24	M8 x 1.25	C
Fork lever assembly S	P368010-25		D



Side mounting with the fork lever assembly M



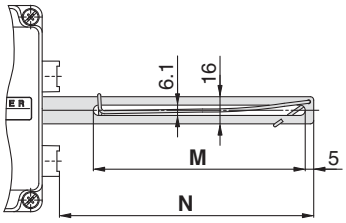
Rear mounting with the fork lever assembly S

External feedback lever (IP8001)

Different feedback levers are available dependent upon valve strokes. Order according to the valve stroke.

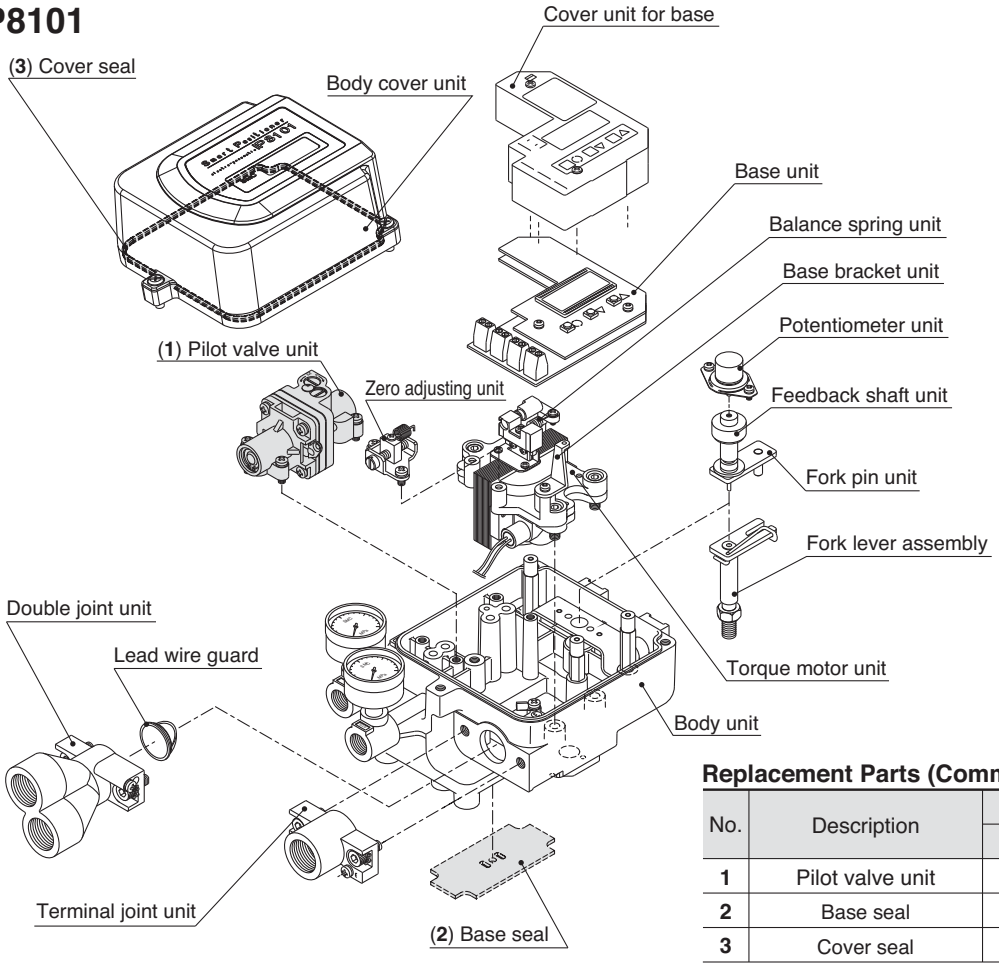
Feedback lever types

Stroke	Unit number	Size **M**	Size **N**	Model selection accessory
	IP8001			
10 to 85 mm	P565010-323	125	150	Standard accessory
35 to 100 mm	P565010-324	110	195	E
50 to 140 mm	P565010-325	110	275	F
6 to 12 mm	P565010-329	75	75	Available as special order



Exploded View

IP8101

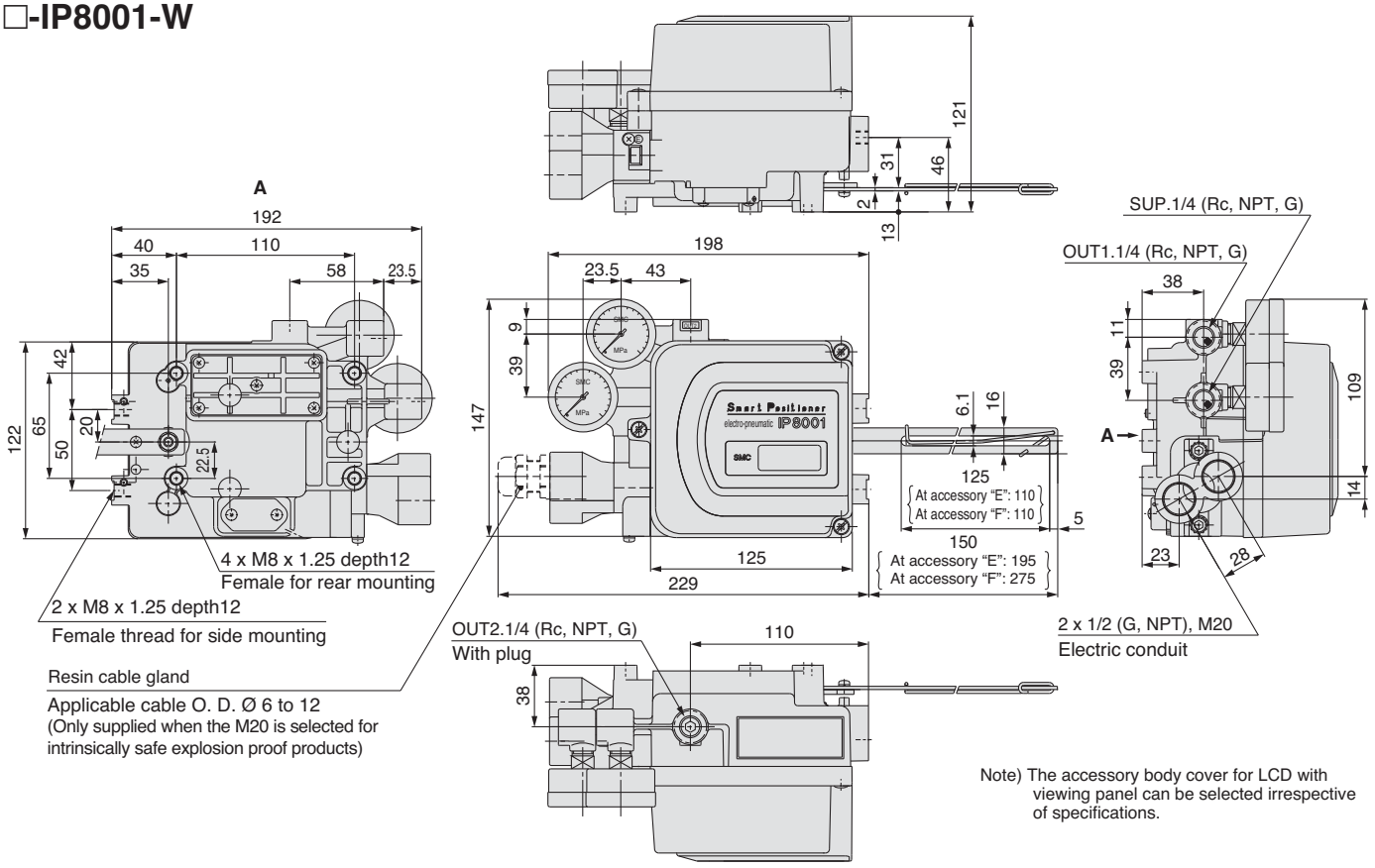


Replacement Parts (Common for IP8001/8101)

No.	Description	Part no.	
		IP8001	**IP8101**
1	Pilot valve unit	P565010-322	P565010-303
2	Base seal	P56501012-3	
3	Cover seal	P56501013	

Dimensions / IP8001 (Lever type)

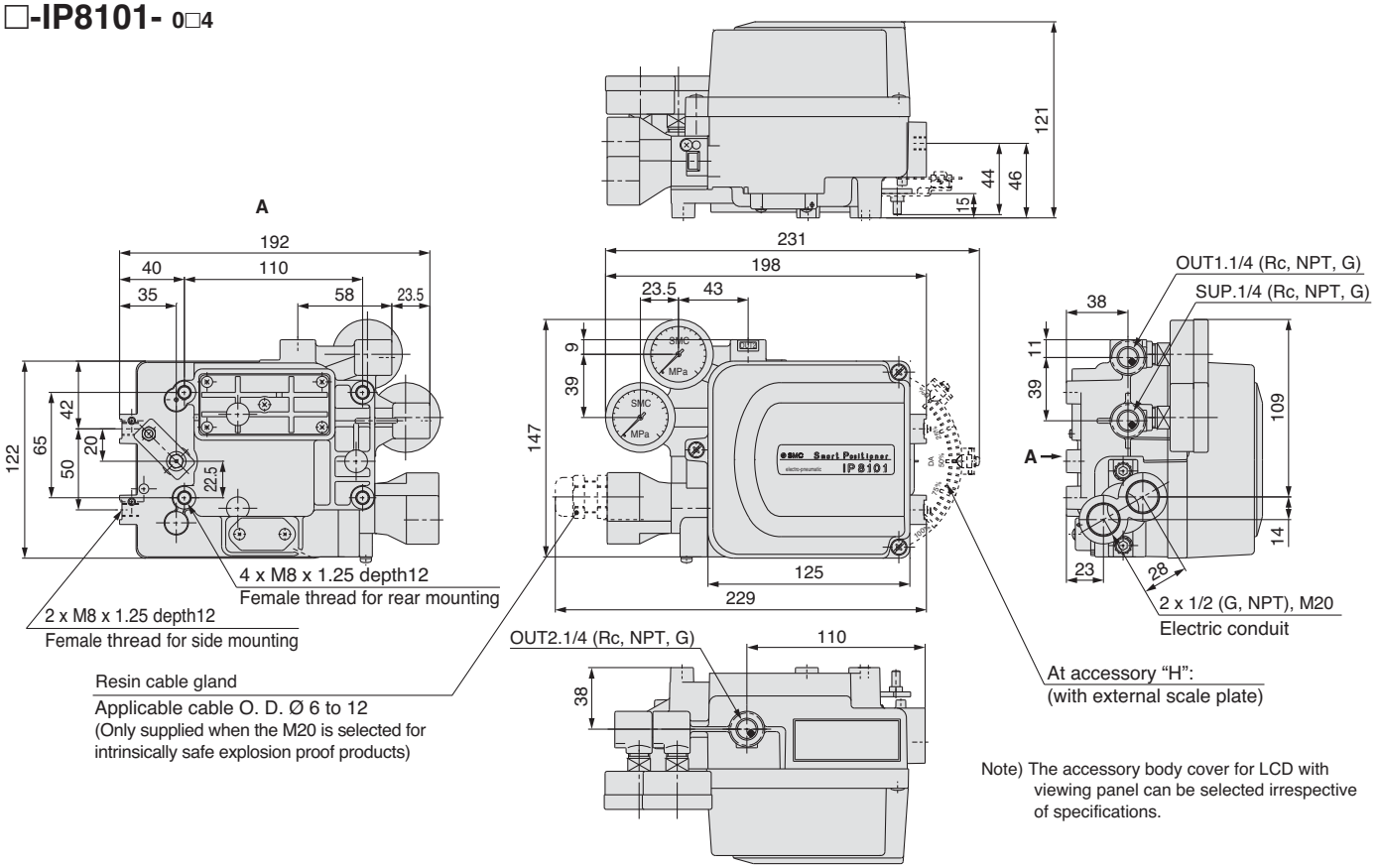
□-IP8001-W



Note) The accessory body cover for LCD with viewing panel can be selected irrespective of specifications.

Dimensions / IP8101 (Rotary type)

□-IP8101- 0□4



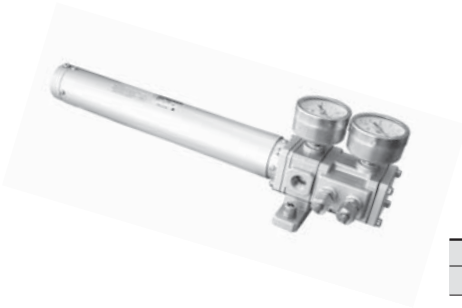
Note) The accessory body cover for LCD with viewing panel can be selected irrespective of specifications.

ATEX Compliant

Pneumatic Cylinder Positioner
Series 56-IP200/56-IP210

CE Ex II 3GD T5...T6

How to Order



56 - IP2 0 0 - □ - □

56: Conform to ATEX directive category 3

Model

0	Standard
1	Outside tube fixed to the main body

□: Stroke 25 to 300 mm

□: Temperature and Material

–	Standard	-5 to 60 °C
T	High	-5 to 100 °C
L	Low	-30 to 60 °C
S	Feedback spring and zero adjuster screw made of stainless steel	

Specifications

Classification	Ambient temperature range		
	Low temp. model 56-IP20□-□-L□-□	Standard model 56-IP20□-□-□-□	High temp. model 56-IP20□-□-T□-□
II 3GD c T5	—	—	-5 °C to 100 °C
II 3GD c T5	—	—	-5 °C to 80 °C
II 3GD c T6	-30 °C to 60 °C	-5 °C to 60 °C	-5 °C to 60 °C

Supply pressure	0.3 ~ 0.7 MPa
Signal pressure	0.02 ~ 0.1 MPa
Port size	Rc 1/4 (standard)
Pressure gauge port type	Rc 1/8
Linearity	Less than +/- 2 % F.S.
Hysteresis	Less than 1 % F.S.
Repeatability	Less than 1 % F.S.
Sensitivity	Less than 0.5 % F.S.
Air consumption	18 l/min (ANR) or less (at 0.5 MPa supply)
Max. air flow	200 l/min (ANR) or less (at 0.5 MPa supply)
Applicable cylinder [mm]	50 ~ 300 bore sizes / 25 ~ 300 mm stroke
Operating temperature	-5 °C ~ 60 °C (Standard)
	-30 °C ~ 60 °C (Low Temperature)
	-5 °C ~ 100 °C (High Temperature)

Note) Standard air temperature: 20, Absolute pressure: 101.3 kPa. Relative humidity: 65 %

All other specifications are the same as the standard products Series IP200. For details, refer to **the WEB catalogue**.

Safety Instructions

⚠ 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. In addition to these safety instructions, please refer to Instruction Manual specific to the product.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
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. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

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, wichever 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) Vacuum pads are excluded from this 1 year warranty.**
A 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 vacuum pad or failure due to the deterioration of rubber material are not covered 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.

⚠ Caution

1. The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.
Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

⚠ Safety Instructions	Be sure to read "Handling Precautions for SMC Products" (M-E03-3) before using.

Common Precautions

Be sure to read before handing.

Selection

⚠Warning

1. Confirm specifications.

Products represented in this catalogue are designed for use in compressed air applications only (including vacuum), unless otherwise indicated. Do not use the products outside of their designed parameters. Contact SMC when using the product with fluids other than compressed air (including vacuum).

Installation

⚠Warning

1. Do not install unless the safety instructions have been read and understood.
Keep this catalogue on file for future reference.

2. Maintenance
When installing the product, allow for maintenance access.

3. Tightening torque
When installing the product, follow the torque specification.

Piping

⚠Caution

1. Before piping
Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

2. Sealant tape
When installing piping or a fitting into a port, make sure that the sealant material does not clog the pressure port. Leave the first 1.5 to 2 thread turns exposed at the end of the pipe/fitting when using sealant tape.

Air Supply

⚠Warning

1. Operation fluid
Consult with SMC when using the product in applications which use fluids other than compressed air (including vacuum).
Regarding products for general fluids, consult with SMC regarding applicable fluids.

2. Large amount of drainage.
Compressed air containing larger mount of drainage can cause malfunction of pneumatic equipment.
Please installation of an air dryer and mist separator (Drain Catch) before air filter.

3. Drain
If condensation in the air filter is not emptied on a regular basis, condensation that flows to the outlet side can cause a malfunction. If it is difficult to check and remove, installation of a filter with an auto-drain function is recommended. Refer to Best Pneumatics for details on compressed air quality.

4. Use clean air
Do not use compressed air which includes chemicals, synthetic oils containing organic solvents, salt, or corrosive gases, etc., as this can cause damage or malfunction.

Environment

⚠Warning

1. Do not use in an environment where the product is directly exposed to corrosive gases, chemicals, sea water, water or steam.

2. In locations which receive direct sunlight, provide a protective cover, etc.

3. Do not operate in locations where vibration or impact occurs.

4. Do not use in locations where radiated heat will be received from nearby heat sources.

5. Avoid striking the product with a metallic object.

6. Avoid using this product in a non-explosive environment which can become explosive due to air leakage.

Maintenance

⚠Warning

1. Maintenance procedures are outlined in the operation manual.
Failure to follow proper procedures can result in product malfunction and or lead to damage to the equipment or machine.

2. Maintenance
If handled improperly, compressed air can be dangerous. Assembly, handling and repair of pneumatic systems should only be performed by qualified personnel.

3. Drain
Remove condensation from the filter bowl on a regular basis.

4. Shut down before maintenance
Before attempting any kind of maintenance confirm that the supply pressure is shut off and all residual air pressure is released from the system to be worked on.

5. Start-up after maintenance
Apply operating pressure and power to the equipment, then check for proper operation and possible air leaks. If operation is abnormal, verify product set-up parameters.

6. Do not make any modification to the product.

SMC products “out of scope” of the ATEX Directive

Products that are out of scope of the ATEX Directive do not need a declaration of conformity to ATEX for use in potentially explosive atmospheres. These products can be used in ATEX zones as specified.

SMC products which are out of scope of the ATEX Directive match part of the definitions of components or equipment (see ATEX Directive Article 1(3)).
See below for definitions of components and equipment.
For “equipment out of scope” and also equipment within the scope, the user has the responsibility for hazards arising from the assembly of several products. For “components out of scope”, the user has the responsibility to assess the suitability of using these products in an explosive atmosphere and in his application.

Equipment out of scope

Equipment is defined by the ATEX Directive as *“machines, apparatus, fixed or mobile devices, control components and instrumentation thereof and detection or prevention systems which, separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy and/or the processing of material and which are capable of causing an explosion through their own potential sources of ignition.”* (Article 1(3))

Out of scope
Equipment in scope of the ATEX directive has an autonomous function in a process and an ignition source of its own.
Products that fit the definition of equipment but do not have an ignition source of their own are “out of scope”.
Therefore products such as hand valves, pressure gauges, pressure regulators etc are “out of scope” if an Ignition Hazard Assessment shows that they do not have any ignition sources of their own. This does not include ignition hazards that arise from the assembly of these products in a circuit. An example for this is heat due to adiabatic compression, which can occur in a dead ended pipe when the pressure cycles but also at a closed valve or in a pressure gauge.
SMC can supply a declaration confirming that “equipment out of scope” does not have any ignition sources of their own for use in given zones. Please contact SMC if you require a declaration.

Table 1: SMC products (equipment), which are out of scope because they do not have any potential ignition source of their own.

Product description	**Series**	Out of scope for zone:	Note
Heavy duty Auto Drain	**ADH4000**	1, 2	1
Air filters	**AF10/20/30/40/50/60**	1, 2, 21, 22	1
Main line filters	**AFF2B~AFF75B**	1, 2, 21, 22	1
Mist separators	**AM150~850**	1, 2, 21, 22	1
Micro mist separators	**AMD150~850, AMD801**	1, 2, 21, 22	1
Super mist separators	**AME150~850**	1, 2, 21, 22	1
Odour removal filters	**AMF150~850, AMF801**	1, 2, 21, 22	1
Water separators	**AMG150~850**	1, 2, 21, 22	1
Micro mist separator with pre-filter	**AMH150~850**	1, 2, 21, 22	1
Clean gas filter	**SFA, SFB, SFC**	1, 2, 21, 22	1
Micro mist separator	**AFD20/30/40**	1,2, 21, 22	1
Mist separator	**AFM20/30/40**	1,2, 21, 22	1
Lubricator	**AL10/20/30/40/50/60**	1,2, 21, 22	1, 2
Large flow lubricator	**AL800/900**	1, 2, 21, 22	1, 2
MR Unit	**AMR3000~6000**	1, 2	1
Regulator	**AR10/20/25/20/30/40/50/60**	1, 2, 21, 22	1, 2
Pilot operated regulator	**AR425 to 935**	1, 2, 21, 22	1
Miniature regulator	**ARJ**	1, 2, 21, 22	1
Manifold regulator	**ARM5, ARM10/11, ARM1000/2000/2500/3000**	1, 2, 21, 22	1, 2, 3
Precision regulator	**ARP20~40**	1, 2, 21, 22	1, 2
Regulator for 2 MPa	**ARX**	1, 2, 21, 22	1
Filter regulator	**AW10/20/30/40/60**	1, 2, 21, 22	1, 2
Clean regulator	**SRH, SRP11#1**	1, 2, 21, 22	1
Air hydro Converter	**CCT**	1, 2	1
Pressure Gauges	**G(A)14/15/27/33/36/46/46E, GZ46, GC3, GD40**	1, 2, 21, 22	1
Booster relay	**IL100**	1, 2	1
Lock up valve	**IL201/211/220**	1, 2	1
Precision regulator	**IR1000/2000/3000**	1, 2	1
Vacuum regulator	**IRV1000/2000/3000, IRV10/20**	1, 2	1
Filter regulator	**IW212~217**	1, 2	1
Hand valve	**VH200/201/400/401**	1, 2, 21, 22	1
Finger valve	**VHK2**	1, 2	1

Product description	Series	Out of scope for zone:	Note
2 Port Micro Mechanical Valve	**VM11□□-4N(U)-□□□**	1, 2, 21, 22	1, 4, 5, 6
2/3 Port Mechanical Valve	**VM12□-□□□-□□□, VM131-□□□-35□** **VM220-□02-□□□, VM230-□02-35□**	1, 2, 21, 22	1, 4, 5, 6
3 port mechanical valve	**VM430-□01-□□□, VM830-□01-□□**	1, 2, 21, 22	1, 5, 6
5 port mechanical valves	**VZM45□-□01-□□□-(F), VZM55□-□01-□□□-(F)** **VFM35□-□02-□□□-(F), VFM25□-□02-□□□-(F)**	1,2, 21, 22	1, 5, 6
3 port residual pressure release valve	**VHS20/30/40/50**	1, 2, 21, 22	1
Multistage ejector	**ZL**	1, 2	1, 2

Note 1:
- Limited to explosive atmospheres types IIA, IIB
- It is the circuit designer's responsibility to ensure significant heat generation due to compression of operating gas does not occur.
- The explosive atmosphere is not allowed to enter the pneumatic circuit, even in case of expected malfunction.
- The product is not intended for use in an environment where stray electric currents can be induced or where cathodic corrosion protection is used.
- Exhaust air or leakage should not be allowed to whirl up gathered dust and create a potentially explosive dust atmosphere.

Note 2:
Excluding options with electrical pressure/vacuum/level switch or electrical valve

Note 3:
For ARM10/11, ARM5: Excluding options with 3-way valve.

Note 4:
2 port only, 3 port excluded: for 3-positon twist selector (VM100, 200): 3 port only, 5 port excluded.

Note 5:
For types with roller, the friction between roller and its axle must be assessed with the assembly the valve is used for.

Note 6:
The valves must not be actuated beyond the total travel given in the documentation, even in the case of expected malfunction.

Note 7:
Excluding option Z: with miniature indicator.

Components

"Components" are defined by the ATEX Directive as *"any item essential to the safe functioning of equipment and protective systems but with no autonomous function."* (Article 1(3))
It is the users' responsibility to assess components when he assembles them into equipment or protective systems covered by the ATEX Directive.

Out of scope
Products that do not have an autonomous function and are not essential to the safe functioning of ATEX equipment and protective systems are out of scope of the ATEX Directive.
SMC products which are out of scope as they do not have an autonomous function and which SMC does not explicitly intend for the safe functioning of ATEX equipment and protective systems are listed in Table 2. These have to be assessed by the user, when he carries out the Ignition Hazard Assessment of his assembly.

Table 2: SMC products without autonomous function (components), which are out of scope because they are not (intended to be) essential to the safe functioning of ATEX equipment and protective systems

Product description	Series
Check valve	**AK, AKB, AKH**
Silencers	**AN□, 25□□**
Quick exhaust valve	**AQ**
Speed controller	**AS, ASP, ASD**
Multi-connector	**DM, KDM**
Self align fittings	**H, DL, L, LL**
Floating joint	**JA, JB, JS**
Insert fittings	**KF, KFG**
S Couplers	**KK, KKA, KK130**
Fittings	**KQ, KQ2, KP, KA, KG, KJ, KM, KR, KW**
Miniature fittings	**M, MS**
Tubing	**T, TS, TU, TUS, TUH, TRB, TRS, TRBU, TA, TPH, TPS**

Product description	Series
Multi holder	**TM, TMA**
Holder	**TMH**
Shuttle valve	**VR12□□, VR12□□F**
Cross interface	**Y24~Y54**
Vacuum pads	**ZP**
Valve for Water and Chemical-base Fluids, for manifold mounting	**VCC12(D)-00**
Brackets	**Mounting brackets for cylinders, FRL, valves and so on when sold on their own.**
Manifold base	**SS5Y5-20-□□-(□□□)** **SS5Y5-41-□□-□□(□)** **SS5Y5-42-□□-□□(□)** **SS5Y7-20-□□-(□□□)** **SS5Y7-42-□□-□□(□)**

Note) Out of scope for / can be used in all zones subject to assessment by user.

Expertise – Passion – Automation

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