



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))

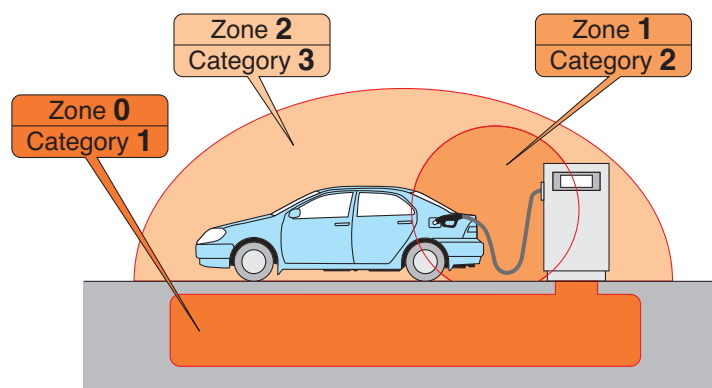
Certified equipment is designed to prevent the generation of ignition sources such as: Electric sparks, arcs and flashes, electrostatic discharges, electromagnetic waves, ionizing radiation, hot surfaces, flames and hot gases, mechanically generated sparks, optical radiation, chemical flame initiation, 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

### Pneumatic Solenoid Valve



5 Port Solenoid Valve: 52-SY5000/7000/9000  
5 Port Solenoid Valve: 56-VQC1000/2000/4000

Category			Page no.
1	2	3	
	●		1
		●	21

### Serial Transmission System

Integrated Type: For Input/Output: 56-EX250  
Decentralized Serial Wiring (GW system, 4 branches): 56-EX500  
Fieldbus System: 56-EX600

		●	36
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		●	40

### Air Cylinder



Air Cylinder: 55-C76  
ISO Cylinder: 55-C85  
ISO Cylinder: 55-C95 (Bore sizes: 160, 200, 250)  
ISO Cylinder: 55-C96  
ISO Cylinder: 55-CP96  
IISO Cylinder: 55-C55  
Air Cylinder: 55-CG1  
Air Cylinder: 55-CS1  
Compact Cylinder: 55-CQ2  
Dual Rod Cylinder: 55-CXS  
Mechanically Jointed Rodless Cylinder/Basic Type: 55-MY1B  
Mechanically Jointed Rodless Cylinder/Slide Bearing Guide Type: 55-MY1M  
Mechanically Jointed Rodless Cylinder/Linear Guide Type: 55-MY1H

	●		44
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### Auto Switch

Solid State Switch  
Reed Switch

		●	86
		●	86

### Rotary Actuator



Rotary Actuator: 55-CRB1  
Rotary Actuator: 56-CRB1  
Rotary Actuator: 55-CRB2-Z  
Rotary Actuator: 56-CRB2-Z  
Rotary Actuator/Free Mount Type: 55-CRBU2-Z  
Rotary Actuator/Free Mount Type: 56-CRBU2-Z  
Compact Rotary Actuator: 55-CRQ2  
Compact Rotary Actuator: 56-CRQ2

	●		106
		●	106
	●		108
		●	108
	●		110
		●	110
	●		112
		●	113

### Booster Regulator

Booster Regulator: 56-VBA

		●	114
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### Pressure Switch

2-Colour Display Digital Pressure Switch: 56-ISE70/75 (H)  
Pressure Switch, Reed Switch Type: 56-IS10

		●	116
		●	118

### 2 Port Valve for Fluid Control

Steam Valve: 56-VND

		●	119
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### Process Valve



Valve for Water and Chemical Base Fluids (2/3 port air operated valve): VCC  
Air Operated Chemical Valve/Threaded Type: 55-LVA  
**Process Pumps/Automatically Operated Type (Internal switching type)**  
- Air Operated Type (External Switching Type): 55-PA3000/5000  
- Air Operated Type (External Switching Type): 56-PA3000/5000

	●		120
	●		124
	●		131
		●	132

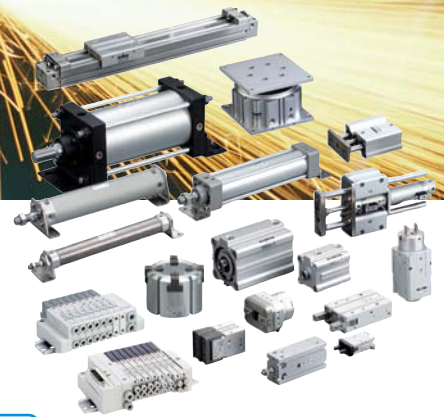
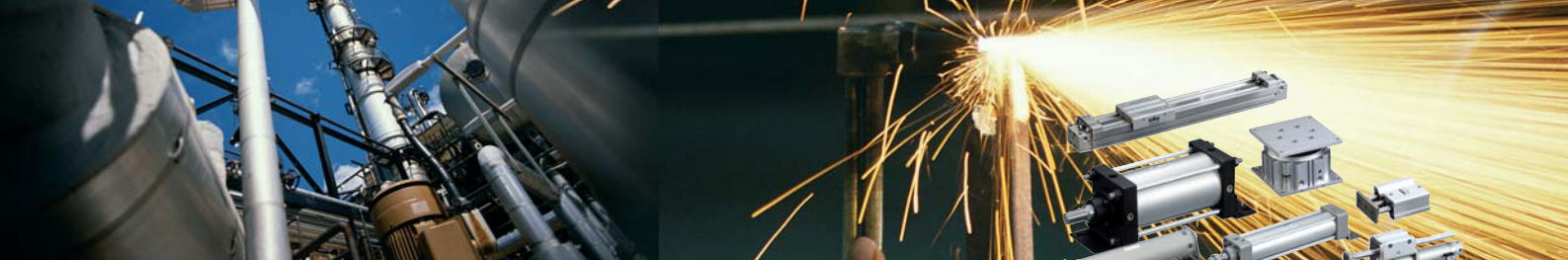
### Instrumentation Equipment



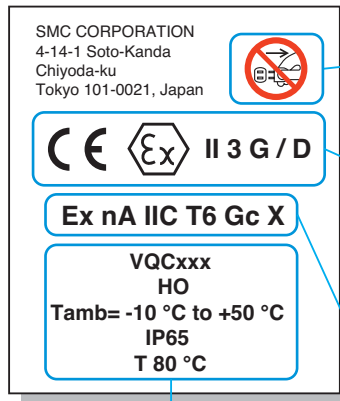
Pneumatic-Pneumatic Positioner: 55-IP5000/5100  
Pneumatic-Pneumatic Positioner: 56-IP5000/5100  
Electro-Pneumatic Positioner: IP8000-X14/IP8100-X14  
Smart Positioner: 52-IP8001/52-IP8101  
Cylinder Positioner: 56-IP200

	●		133
		●	133
	●		135
●			139
		●	143





## ● ATEX label example and explanation



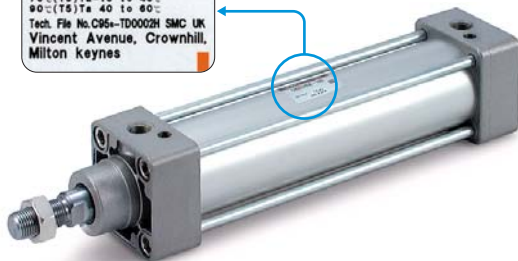
"Do not disconnect when energized"



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

\*G=Gas D=Dust

Part-number  
Year  
Operating temperature  
IP (only for Dust)  
T temperature(only for 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
<b>Types of Protection</b>			
Constructional safety "c"	2		EN 80079-37
Types of Protection "n"	3	EN 60079-15	
Increased Safety "e"	2	EN 60079-7	EN 13463-3 EN 13463-7
Encapsulation "m"	2	EN 60079-18	
Flameproof Enclosure "d"	2	EN 60079-1	
Oil Immersion "o"	2	EN 60079-6	
Pressurized "p"	2	EN 60079-2	
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



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.

**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

**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	52-SY7000
02	1/4	
C8	Ø 8 One-touch fitting	
C10	Ø 10 One-touch fitting	
N9	Ø 5/16" One-touch fitting	52-SY9000
N11	Ø 3/8" One-touch fitting	
02	1/4	
03	3/8	
C8	Ø 8 One-touch fitting	52-SY9000
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	

**Manual override**

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



# Series 52-SY

## 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

## 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 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		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) 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).

## 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	Port size		Flow characteristics							
	1,5,3 (P,EA,EB)	4,2 (A,B)	1 > 4/2 (P>A/B)				4/2 > 5/3 (A/B > EA/EB)			
			c[dm <sup>3</sup> /(s.bar)]	b	Cv	Q [l/min (ANR)]	c[dm <sup>3</sup> /(s.bar)]	b	Cv	Q [l/min (ANR)]
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	Port size		Flow characteristics							
	1,5,3 (P,EA,EB)	4,2 (A,B)	1 > 4/2 (P>A/B)				4/2 > 5/3 (A/B > EA/EB)			
			c[dm <sup>3</sup> /(s.bar)]	b	Cv	Q [l/min (ANR)]	c[dm <sup>3</sup> /(s.bar)]	b	Cv	Q [l/min (ANR)]
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

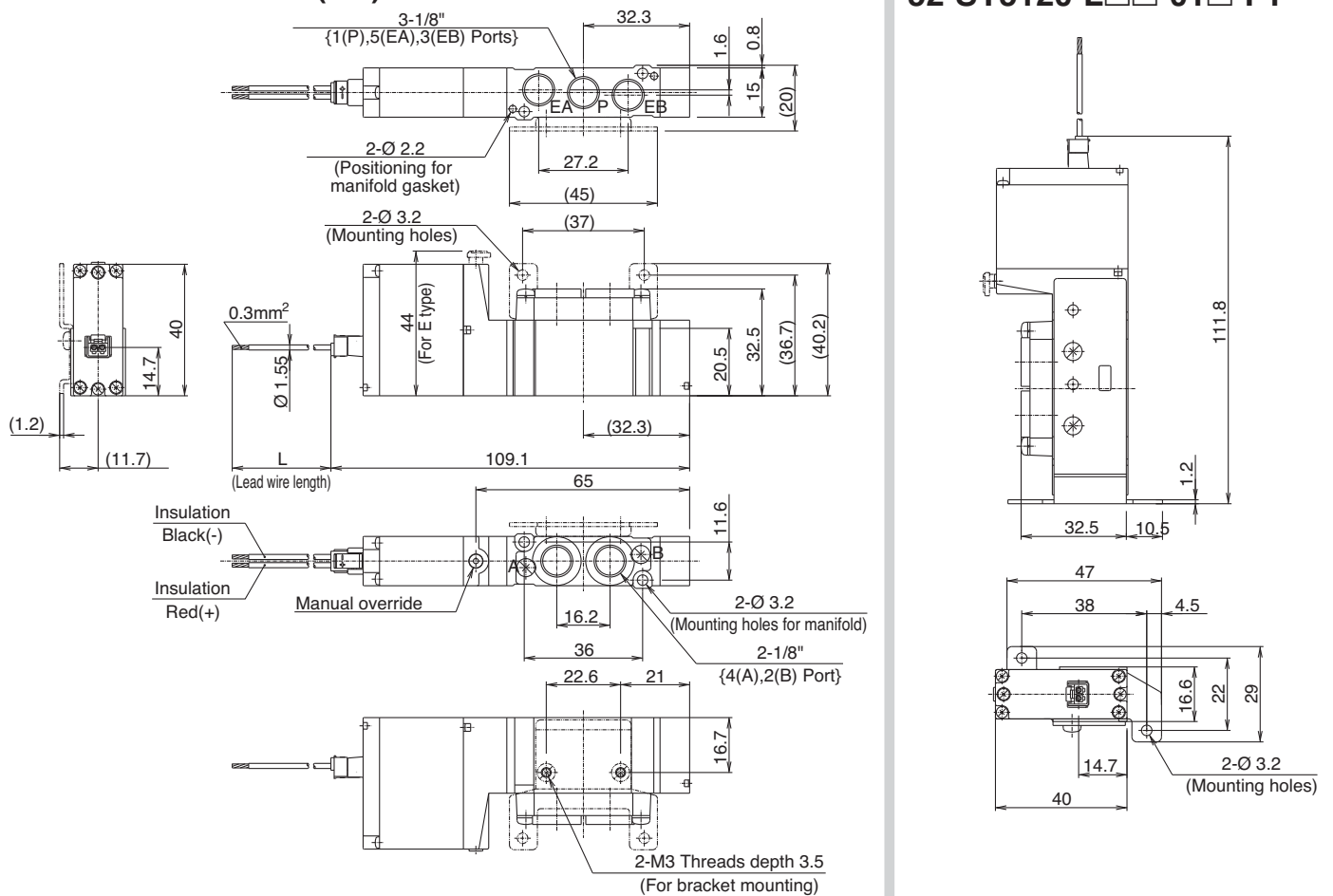
#### 2-position single

#### Plug connector type (L)

#### 52-SY5120-L□□-01□(-F2)

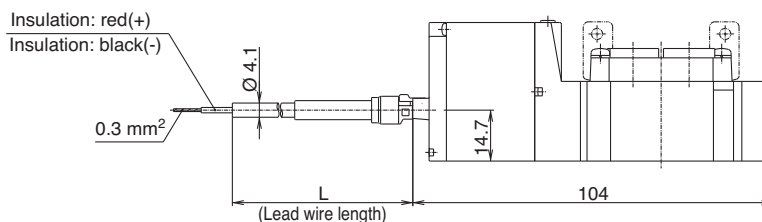
#### In case with foot bracket

#### 52-SY5120-L□□-01□-F1



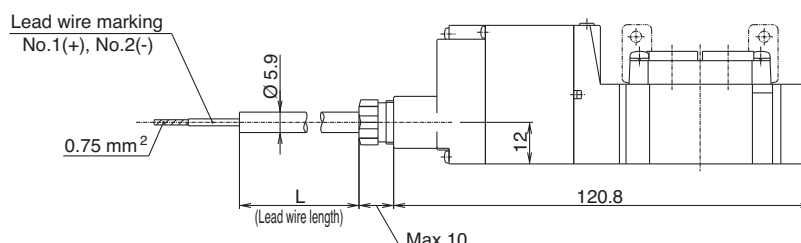
### Plug connector with cover type (LL)

#### 52-SY5120-LL□□-01□(-F2)



### Terminal type (TT)

#### 52-SY5120-TT□□-01□(-F2)





# Series 52-SY

## Dimensions

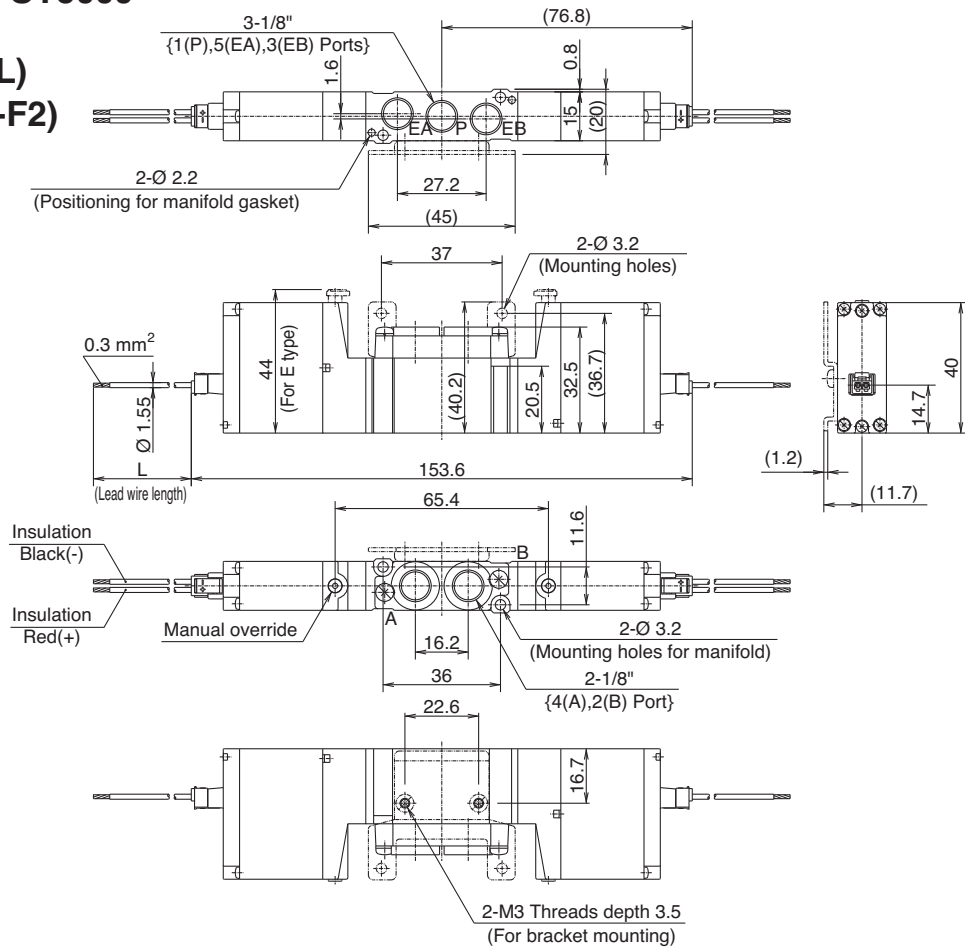
### Body ported type

#### Dimensions/Series 52-SY5000

#### 2-position double

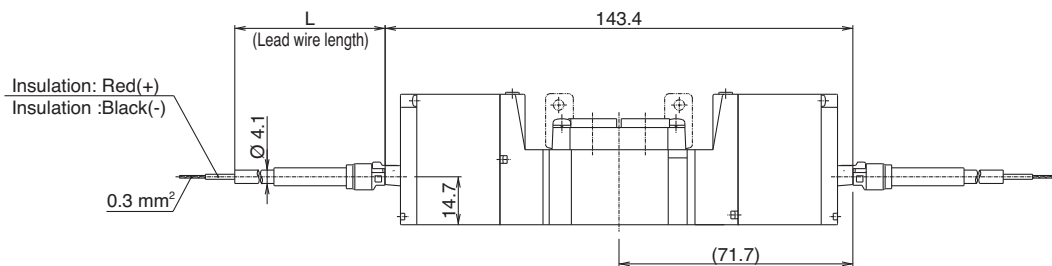
#### Plug connector type (L)

#### 52-SY5220-L□□-01□(-F2)



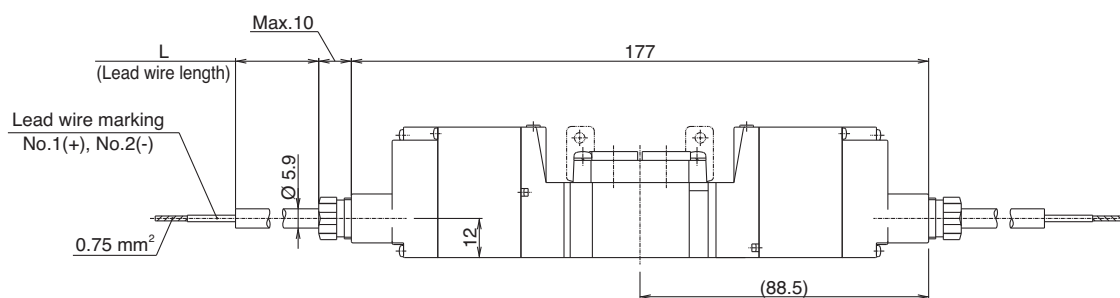
### Plug connector with cover type (LL)

#### 52-SY5220-LL□□-01□(-F2)



### Terminal type (TT)

#### 52-SY5220-TT□□-01□(-F2)





## Dimensions

### Body ported type

#### Dimensions/Series 52-SY5000

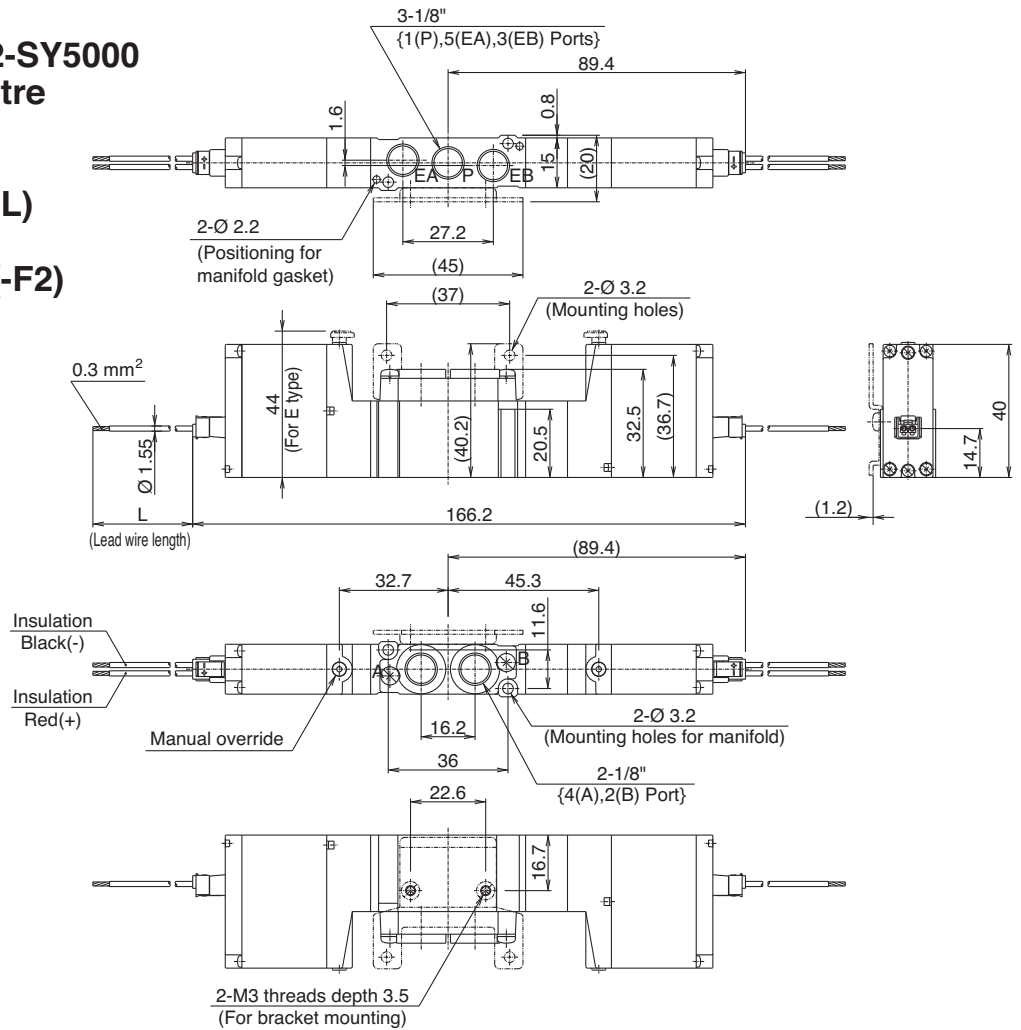
#### 3-position closed centre

#### -exhaust centre

#### pressure centre

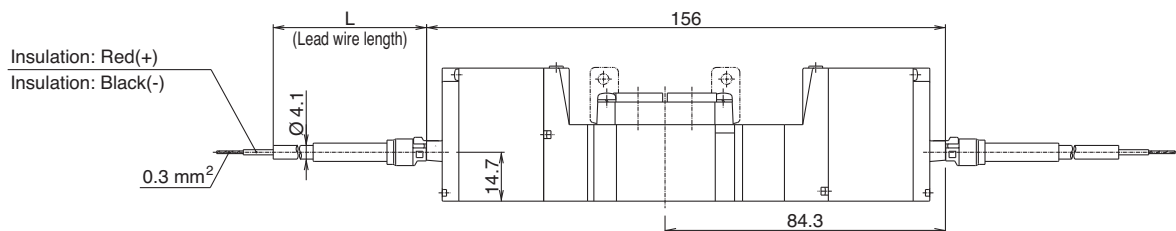
#### Plug connector type (L)

3  
52-SY5420-L□□-01□(-F2)  
5



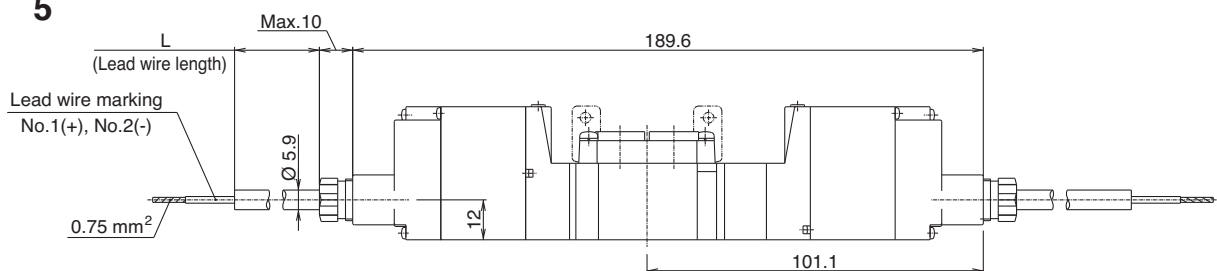
### Plug connector with cover type (LL)

3  
52-SY5420-LL□□-01□(-F2)  
5



### Terminal type (TT)

3  
52-SY5420-TT□□-01□(-F2)  
5





# Series 52-SY

## Dimensions

### Body ported type

#### Dimensions/Series 52-SY7000

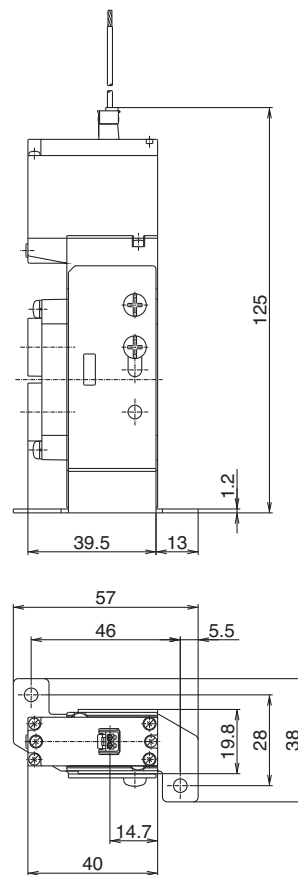
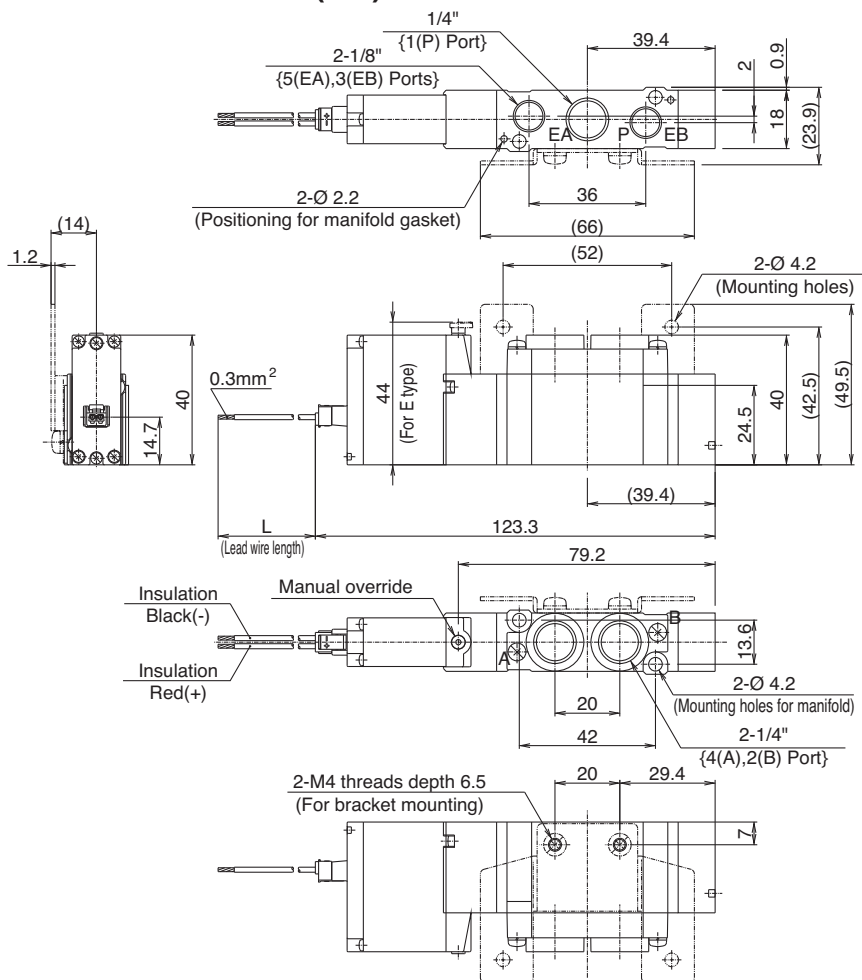
#### 2-position single

#### Plug connector type (L)

#### 52-SY7120-L□□-02□(-F2)

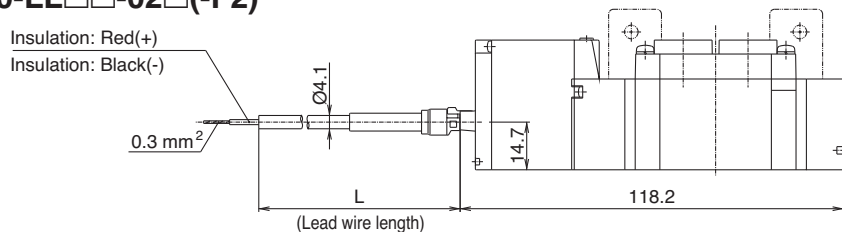
### In case with foot bracket

#### 52-SY7120-L□□-02□-(F1)



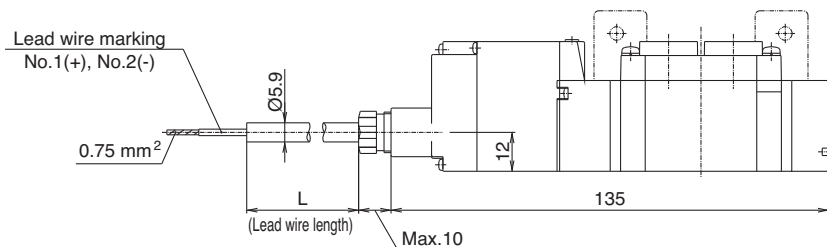
### Plug connector with cover type (LL)

#### 52-SY7120-LL□□-02□(-F2)



### Terminal type (TT)

#### 52-SY7120-TT□□-02□(-F2)





## Dimensions

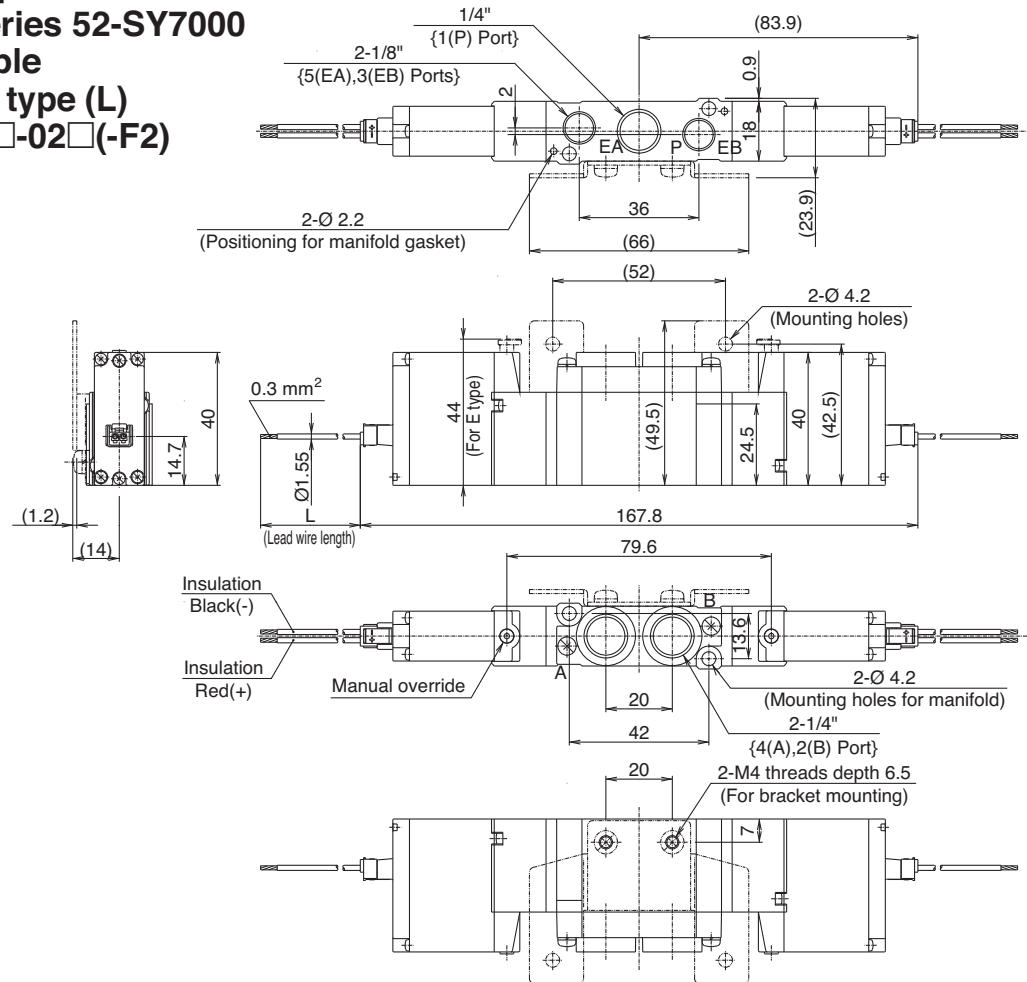
### Body ported type

#### Dimensions/Series 52-SY7000

#### 2-position double

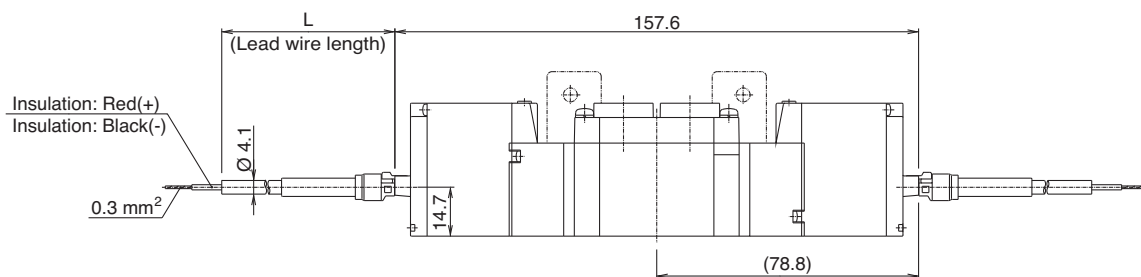
#### Plug connector type (L)

#### 52-SY7220-L□□-02□(-F2)



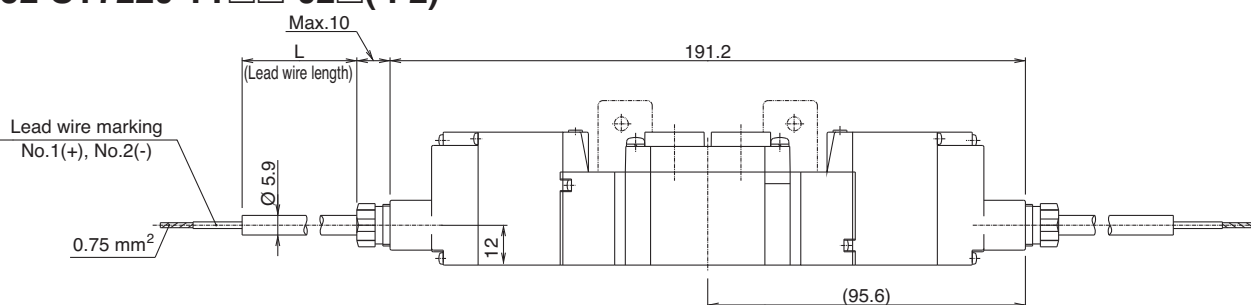
### Plug connector with cover type (LL)

#### 52-SY7220-LL□□-02□(-F2)



### Terminal type (TT)

#### 52-SY7220-TT□□-02□(-F2)





## Series 52-SY

## Dimensions

### Body ported type

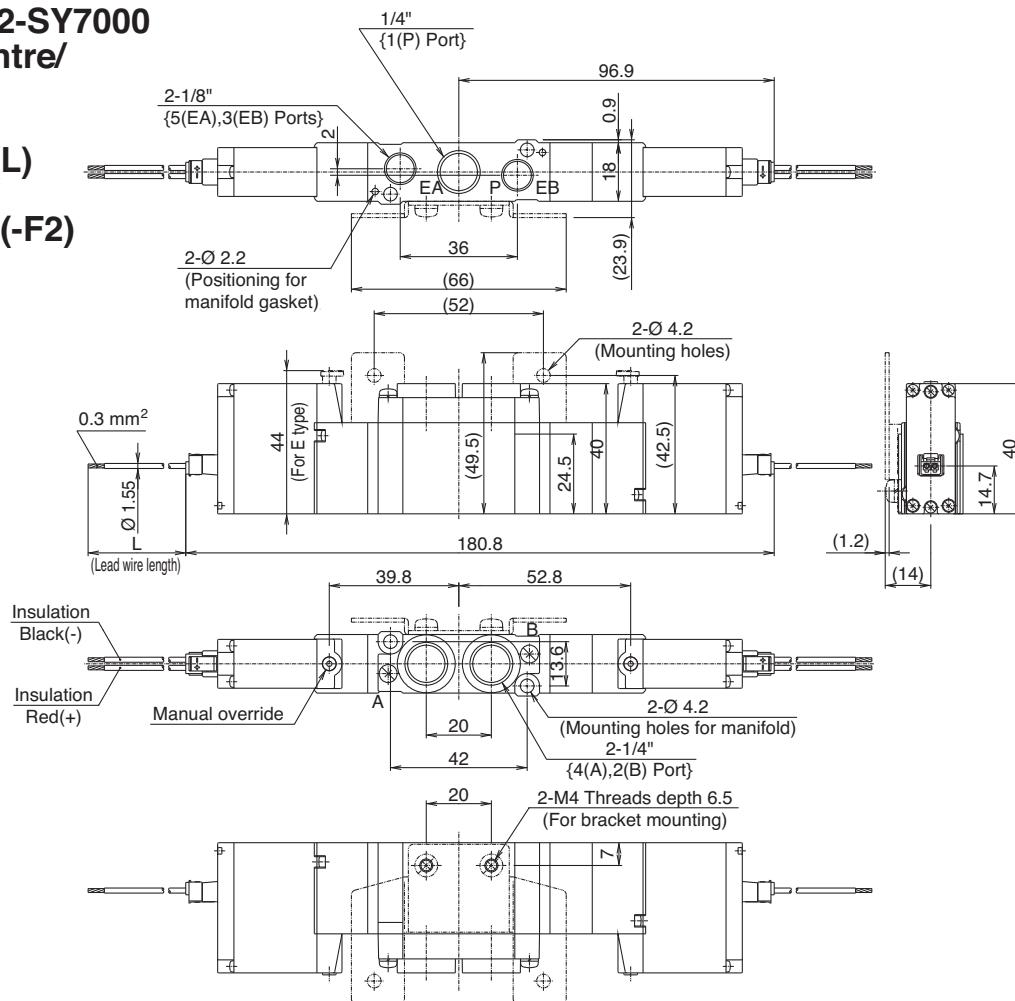
### Dimensions/Series 52-SY7000

### 3-position closed centre/

**exhaust centre/**

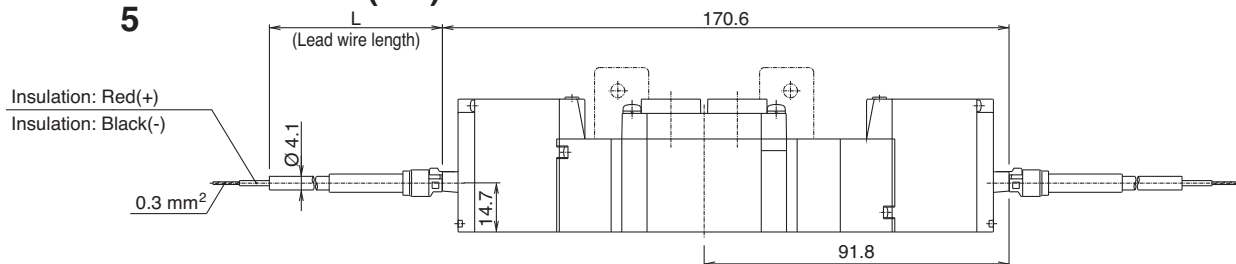
**pressure centre**  
**Plug connector type (L)**

**52-SY<sup>3</sup>7420-L□□-02□(-F2)<sub>5</sub>**



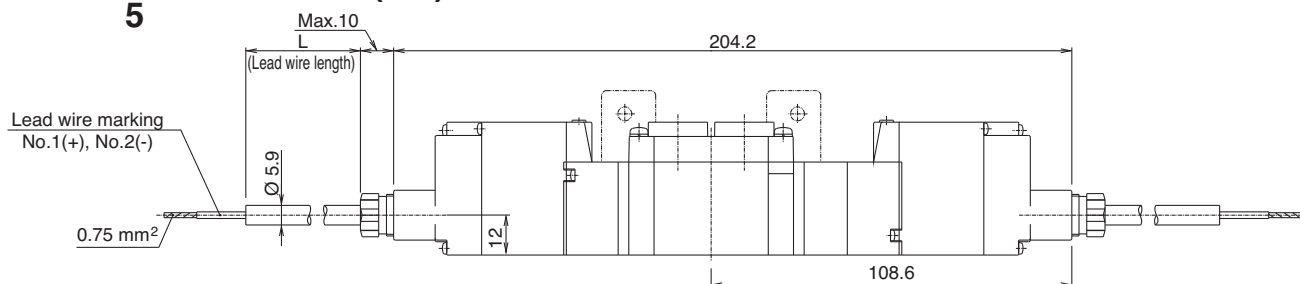
### Plug connector with cover type (LL)

52-SY7420-LL□□-02□(-F2)  
 3  
 5 L



## Terminal type (TT)

**52-SY7420-TT□□-02□(-F2)**





## Dimensions

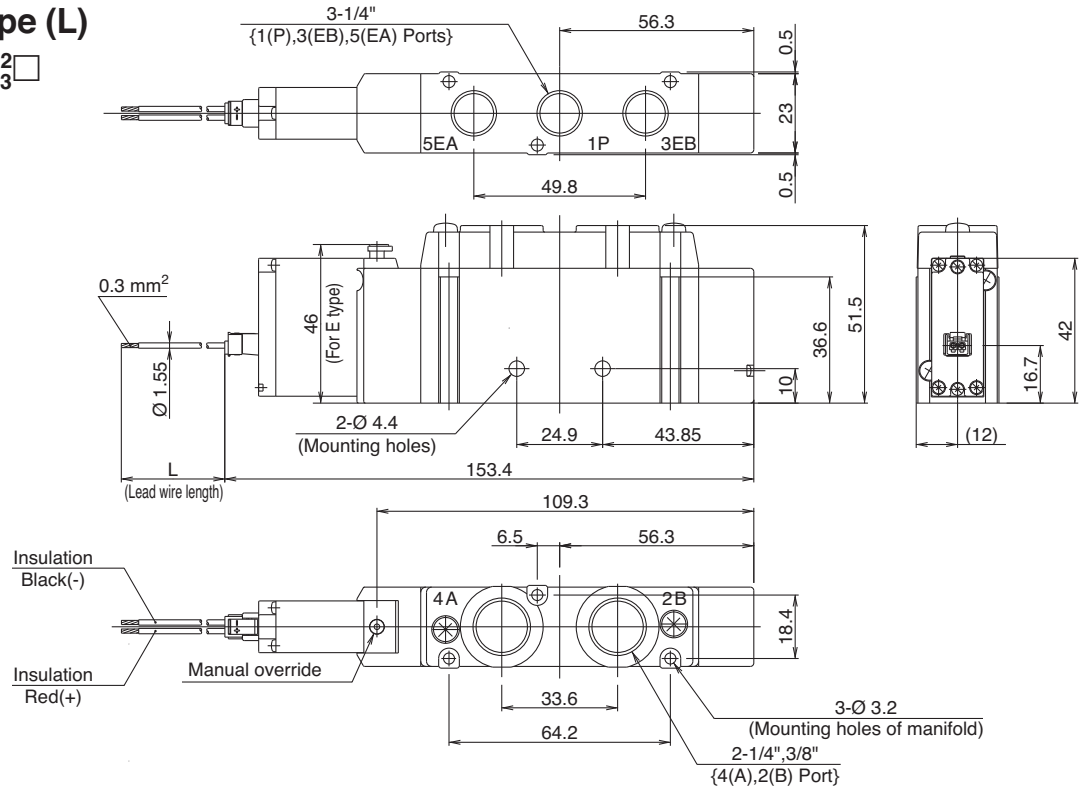
### Body ported type

#### Dimensions/Series 52-SY9000

#### 2-position single

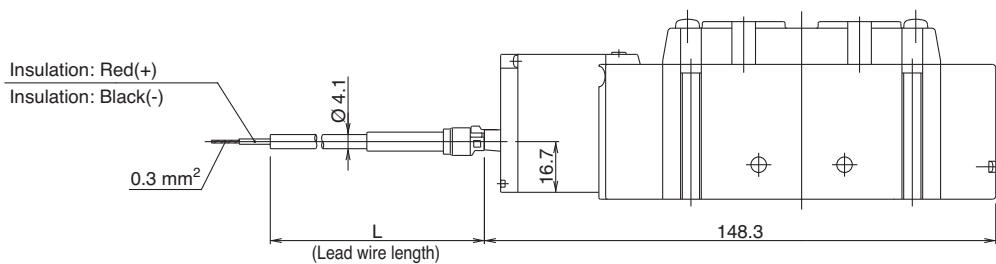
#### Plug connector type (L)

52-SY9120-L□□-02□  
03



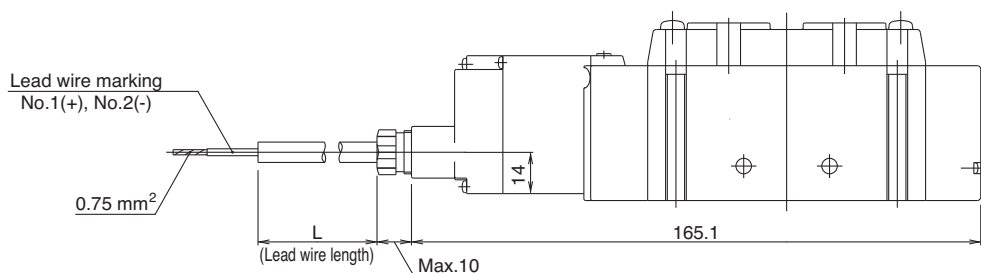
### Plug connector with cover type (LL)

52-SY9120-LL□□-02□  
03



### Terminal (TT)

52-SY9120-TT□□-02□  
03





# Series 52-SY

## Dimensions

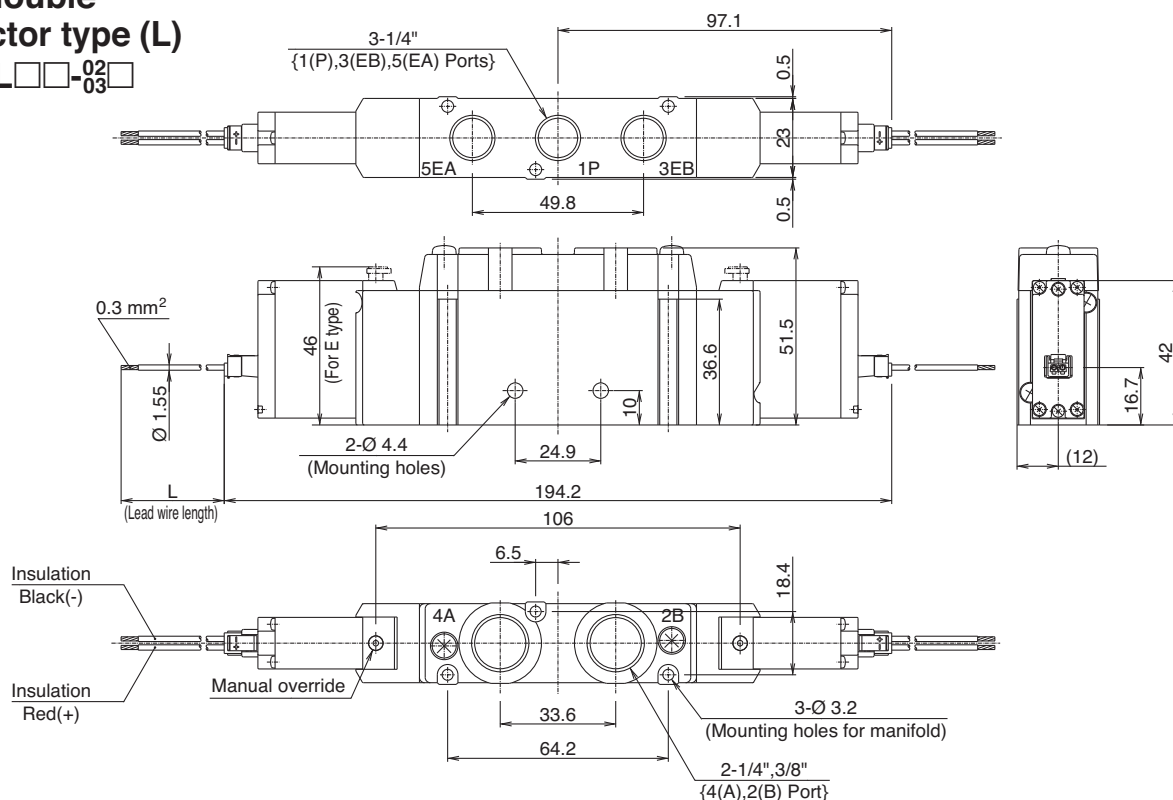
### Body ported type

#### Dimensions/Series 52-SY9000

#### 2-position double

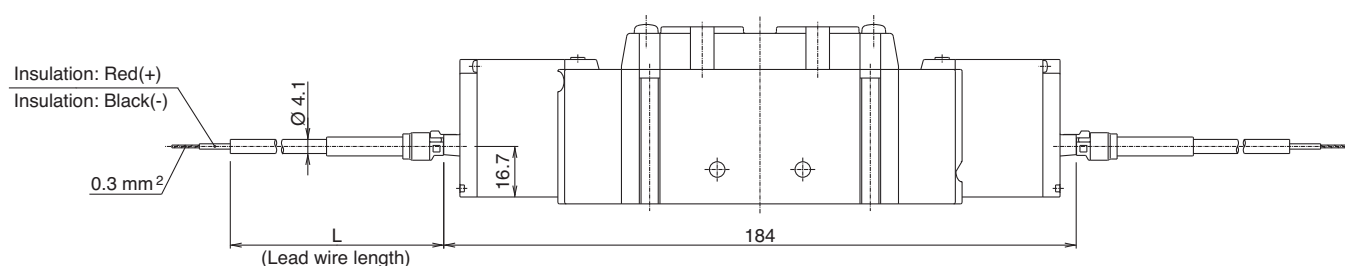
#### Plug connector type (L)

52-SY9220-L□□-02□  
03□



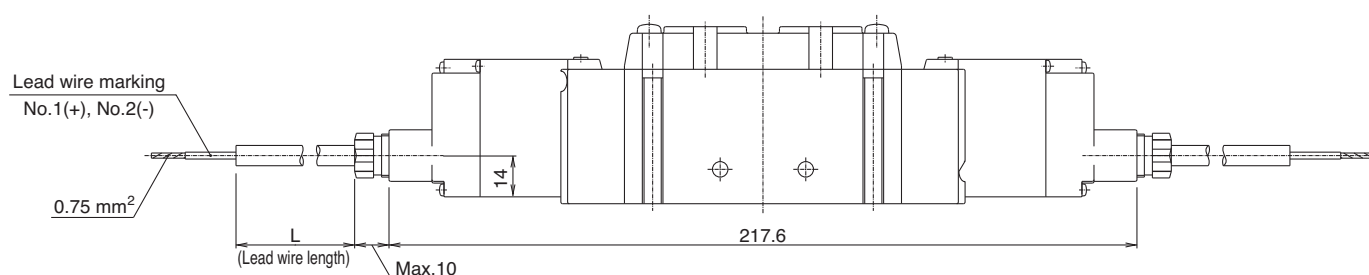
### Plug connector with cover type (LL)

52-SY9220-LL□□-02□  
03□



### Terminal type (TT)

52-SY9220-TT□□-02□  
03□





## Dimensions

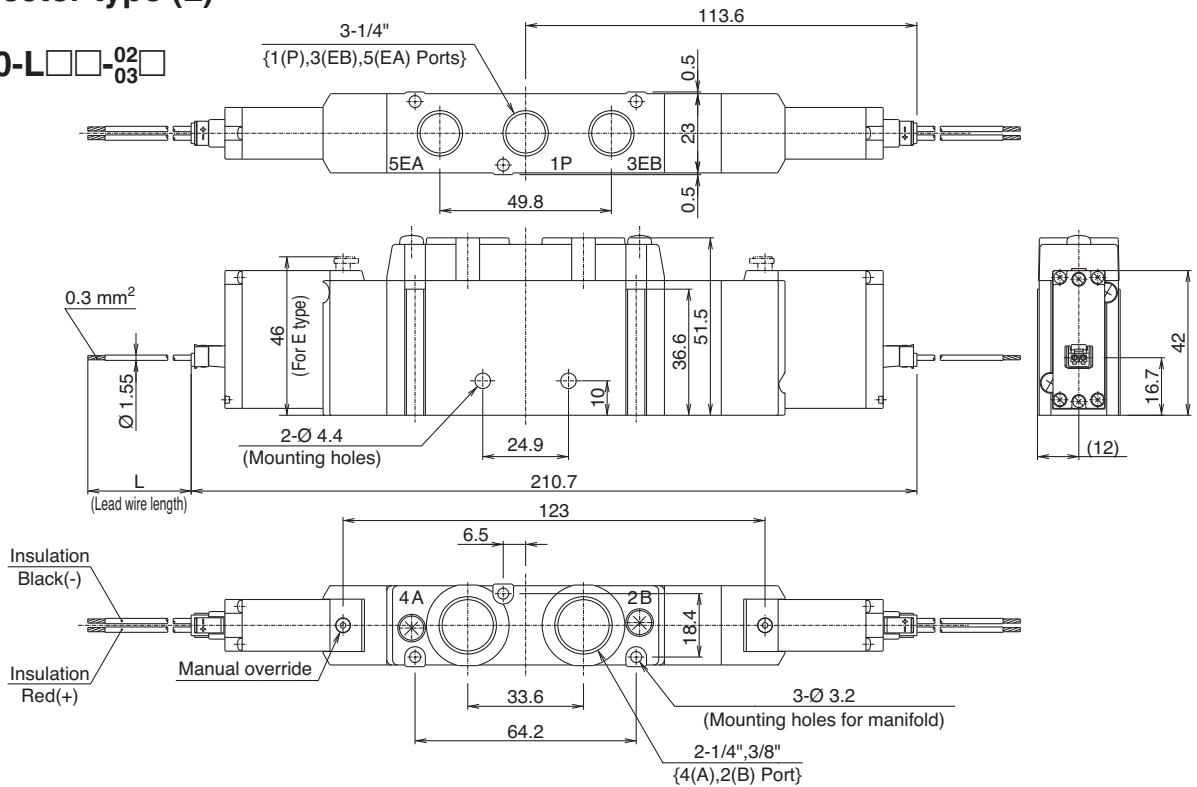
### Body ported type

#### Dimensions/Series 52-SY9000

#### 3-position closed centre/exhaust centre/pressure centre

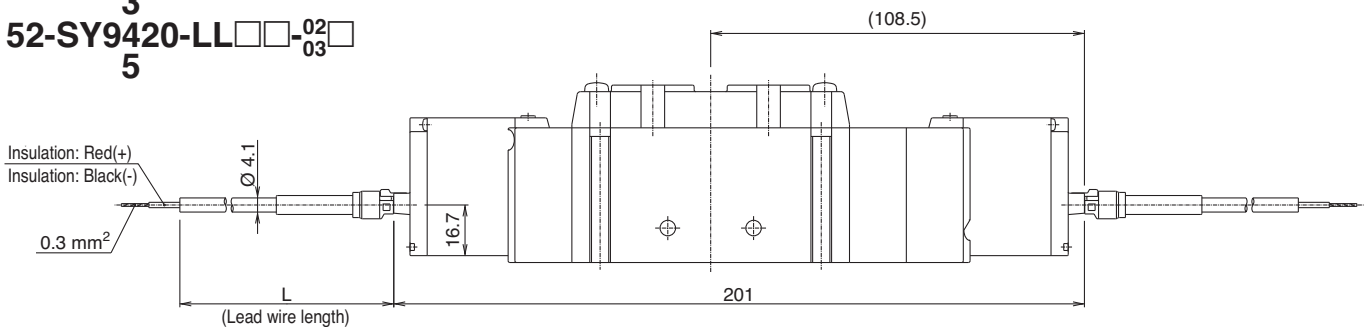
#### Plug connector type (L)

3  
52-SY9420-L□□-02□  
5



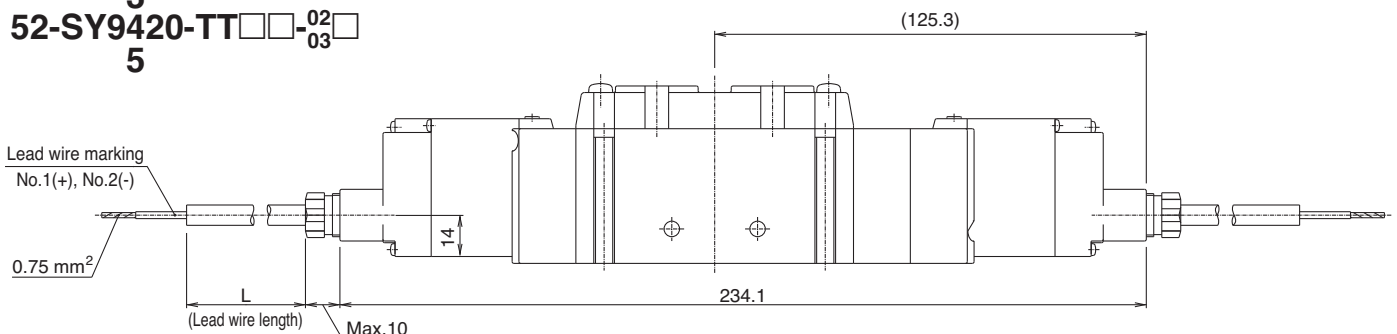
#### Plug connector with cover type (LL)

3  
52-SY9420-LL□□-02□  
5



#### Terminal type (TT)

3  
52-SY9420-TT□□-02□  
5





# Series 52-SY

## Dimensions

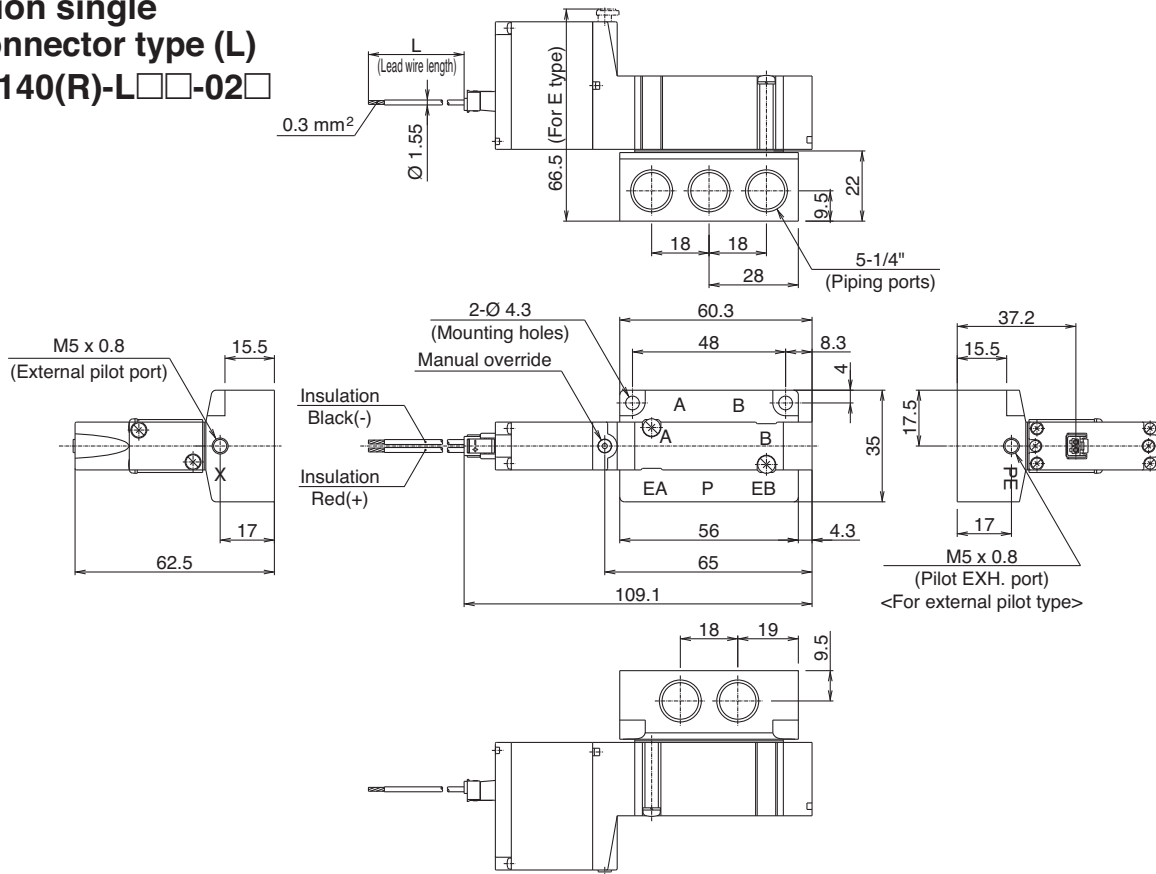
### Base mounted type

#### Dimensions/Series 52-SY5000

#### 2-position single

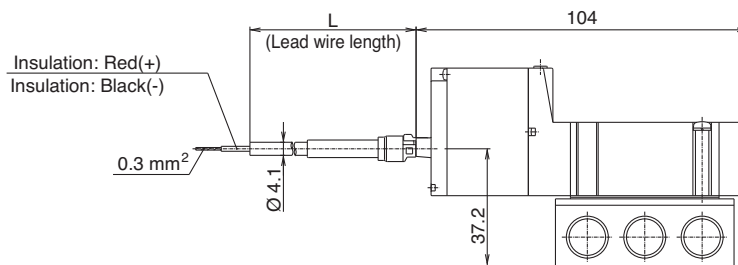
#### Plug connector type (L)

#### 52-SY5140(R)-L□□-02□



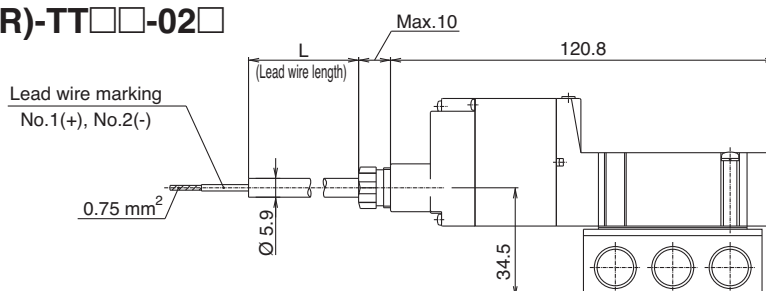
### Plug connector with cover type (LL)

#### 52-SY5140(R)-LL□□-02□



### Terminal type (TT)

#### 52-SY5140(R)-TT□□-02□





## Dimensions

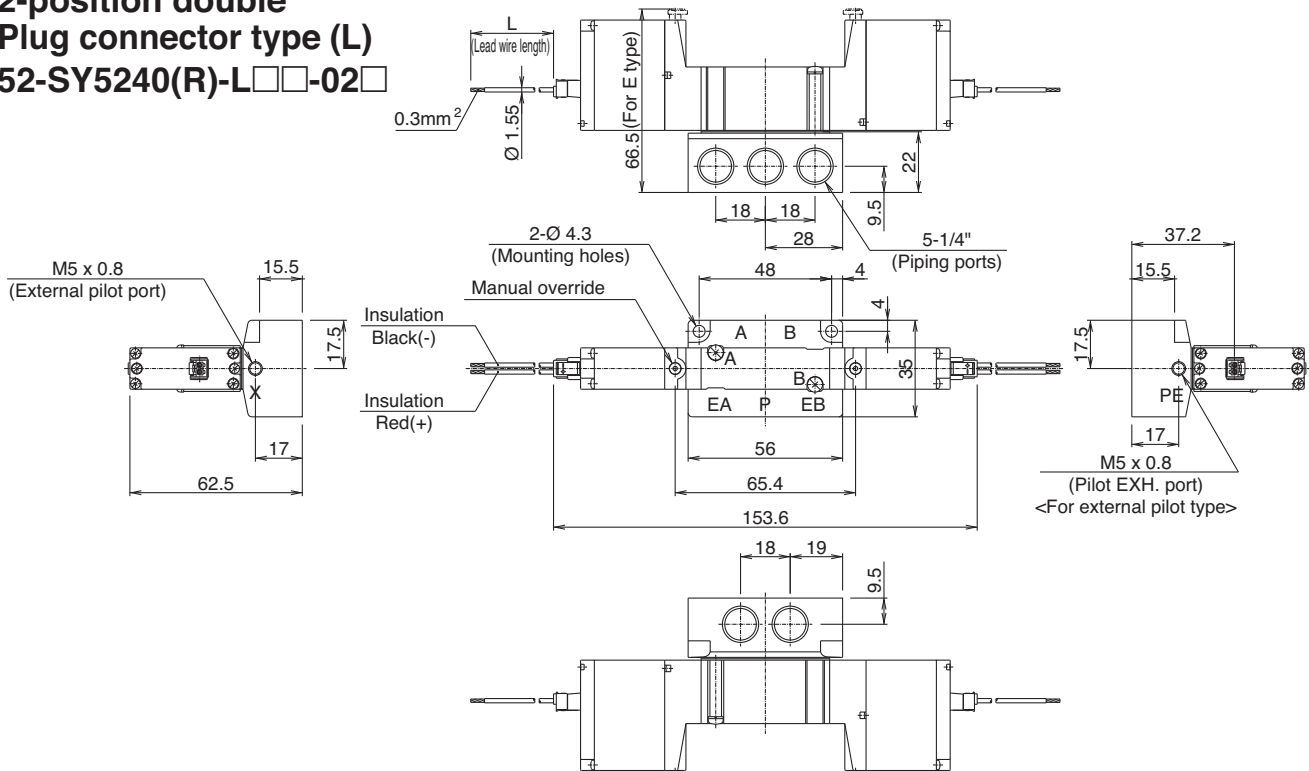
### Base mounted type

#### Dimensions/Series 52-SY5000

#### 2-position double

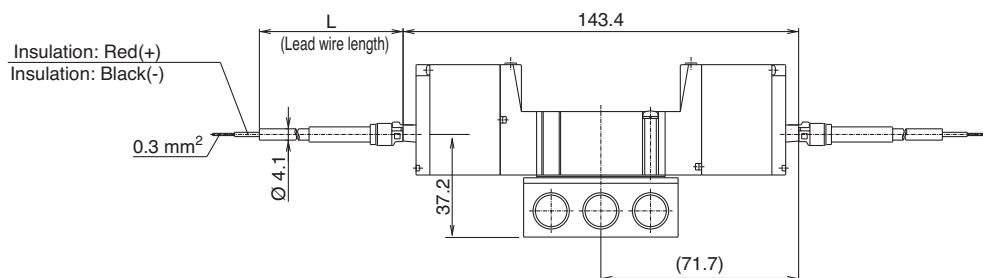
#### Plug connector type (L)

#### 52-SY5240(R)-L□□-02□



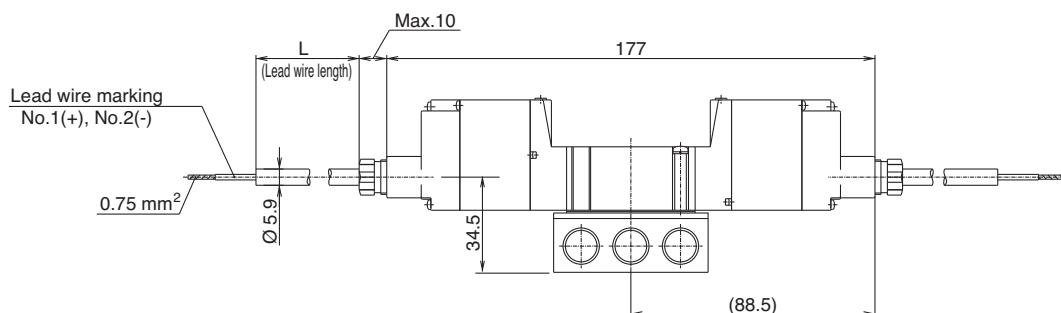
### Plug connector with cover type (LL)

#### 52-SY5240(R)-LL□□-02□



### Terminal type (TT)

#### 52-SY5240(R)-TT□□-02□





# Series 52-SY

## Dimensions

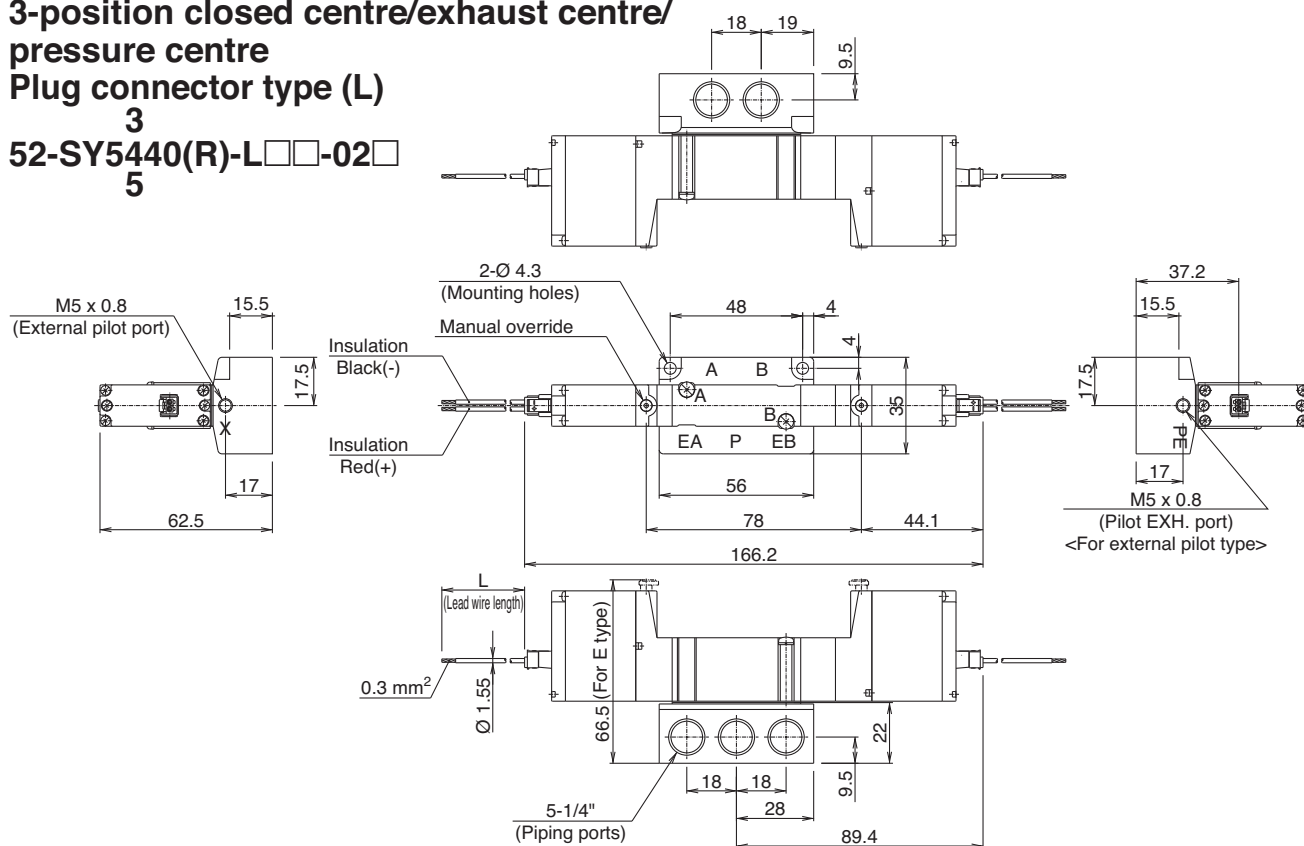
### Base mounted type

#### Dimensions/Series 52-SY5000

#### 3-position closed centre/exhaust centre/ pressure centre

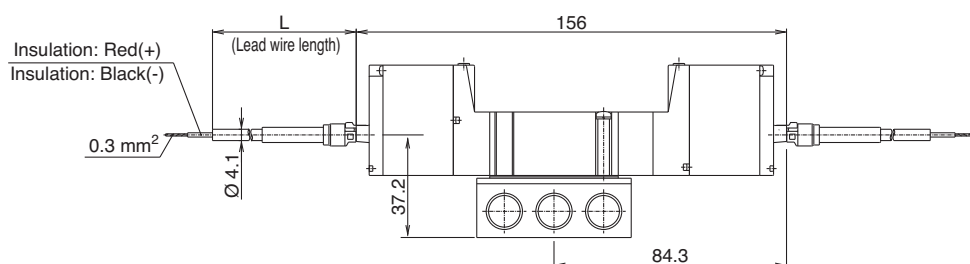
#### Plug connector type (L)

3  
52-SY5440(R)-L□□-02□  
5



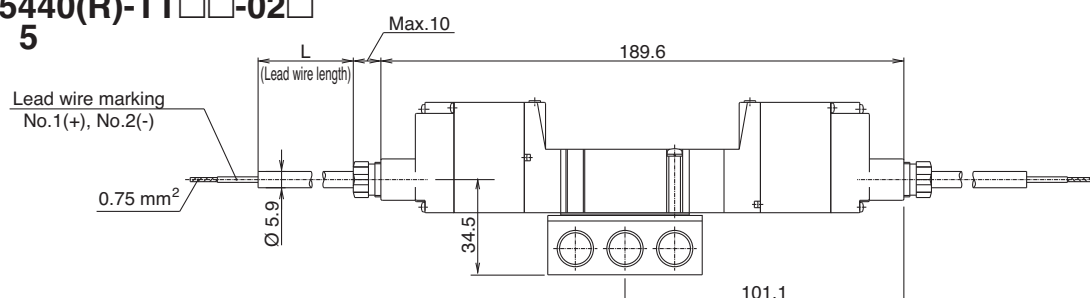
### Plug connector with cover type (LL)

3  
52-SY5440(R)-LL□□-02□  
5



### Terminal type (TT)

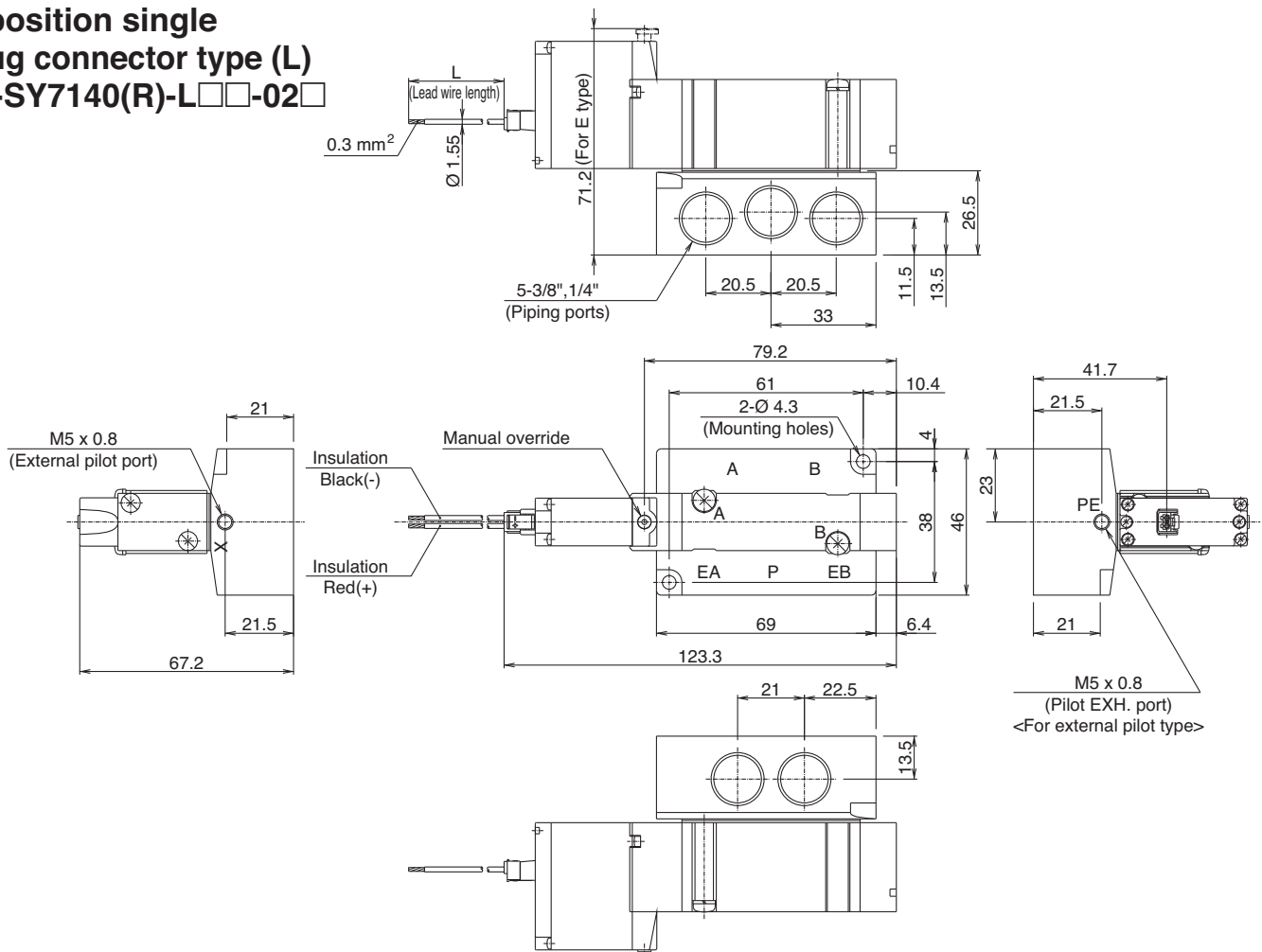
3  
52-SY5440(R)-TT□□-02□  
5



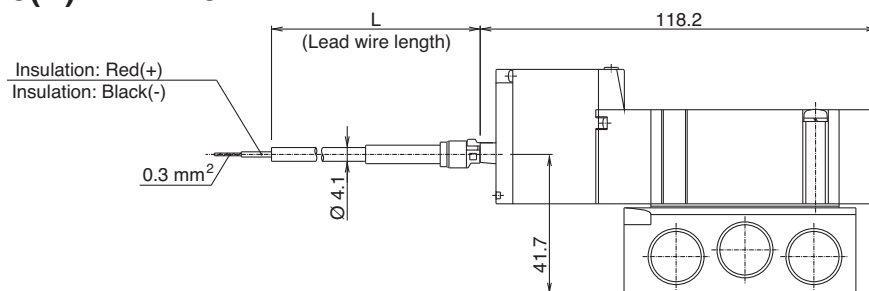


## Dimensions

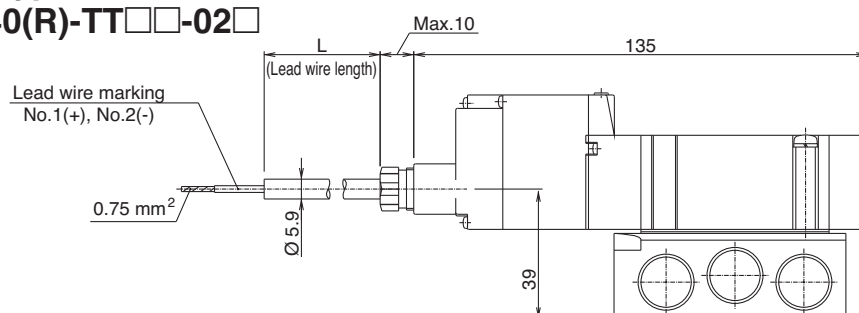
**Base mounted type**  
**Dimensions/Series 52-SY7000**  
**2-position single**  
**Plug connector type (L)**  
**52-SY7140(R)-L□□-02□**



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



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





# Series 52-SY

## Dimensions

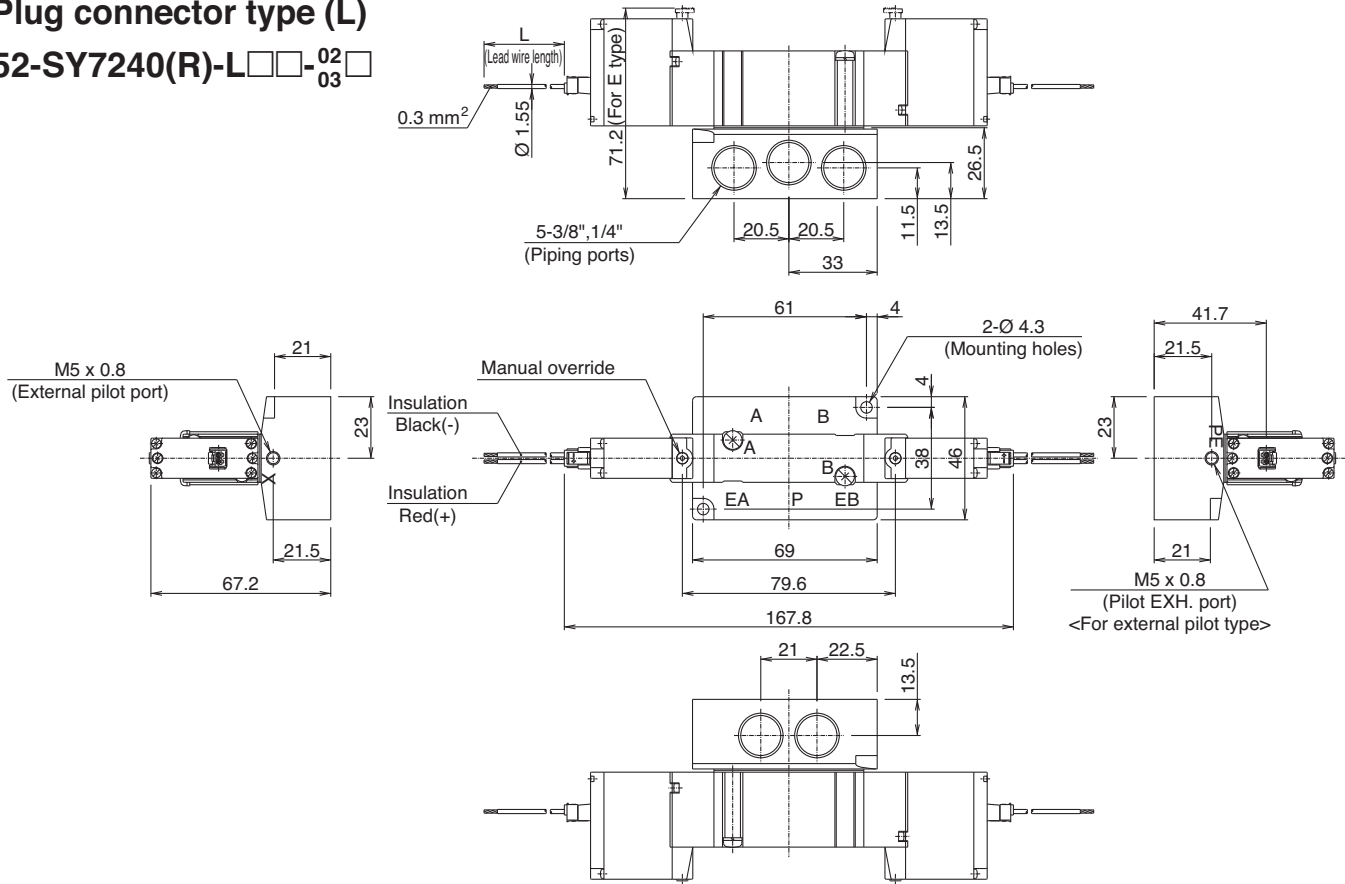
### Base mounted type

#### Dimensions/Series 52-SY7000

#### 2-position double

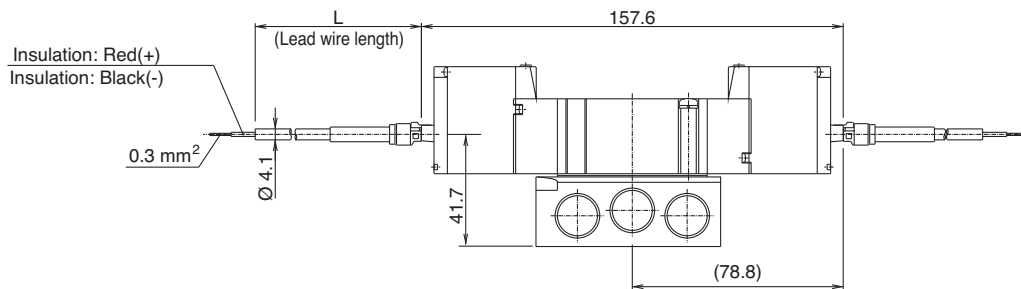
#### Plug connector type (L)

52-SY7240(R)-L□□-02□  
03□



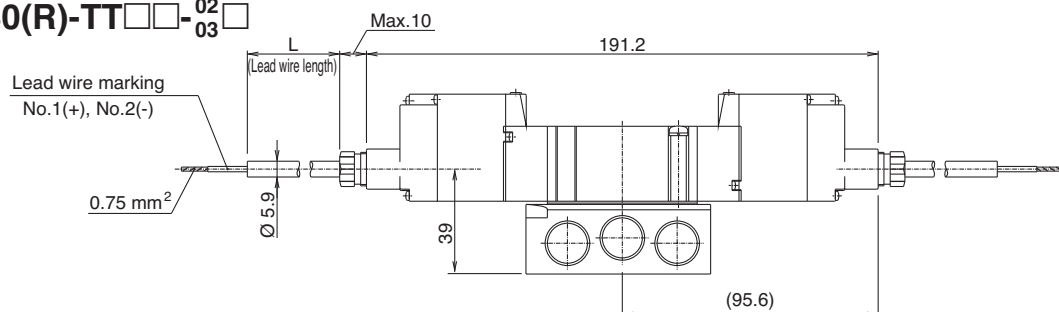
### Plug connector with cover type (LL)

52-SY7240(R)-LL□□-02□  
03□



### Terminal type (TT)

52-SY7240(R)-TT□□-02□  
03□





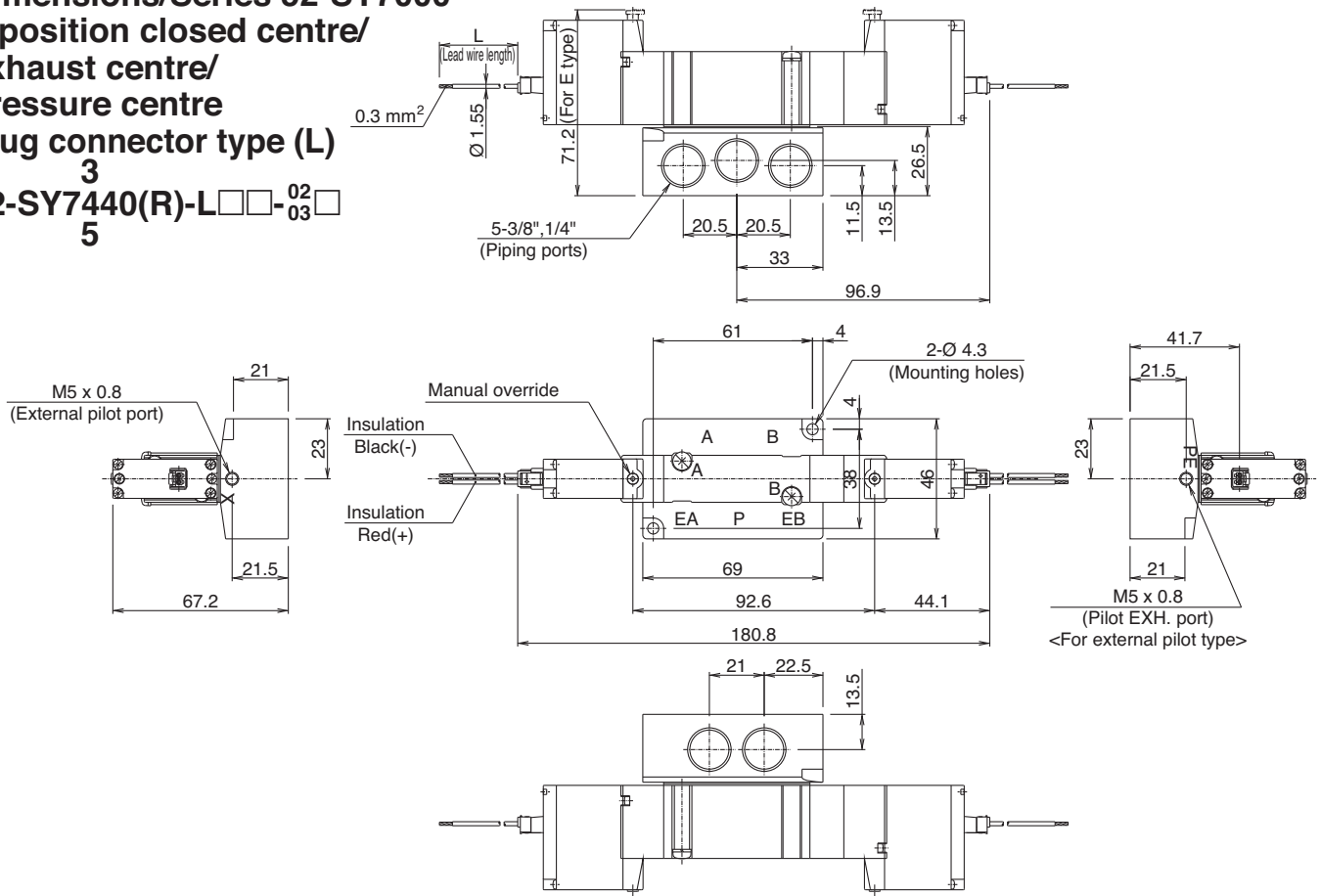
## Dimensions

### Base mounted type

#### Dimensions/Series 52-SY7000

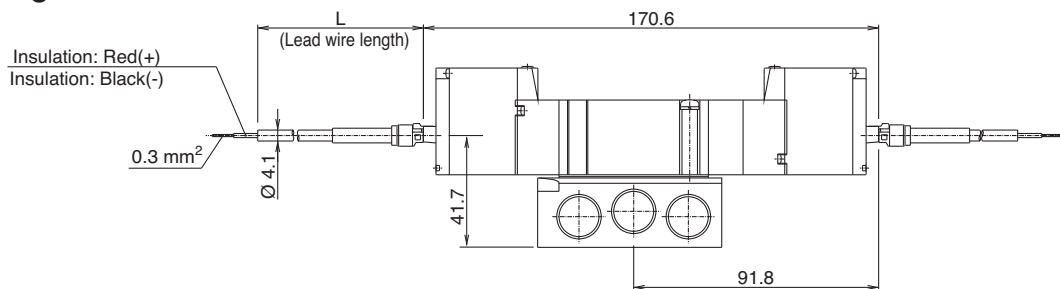
3-position closed centre/  
exhaust centre/  
pressure centre  
Plug connector type (L)

3  
52-SY7440(R)-L□□-02□  
5



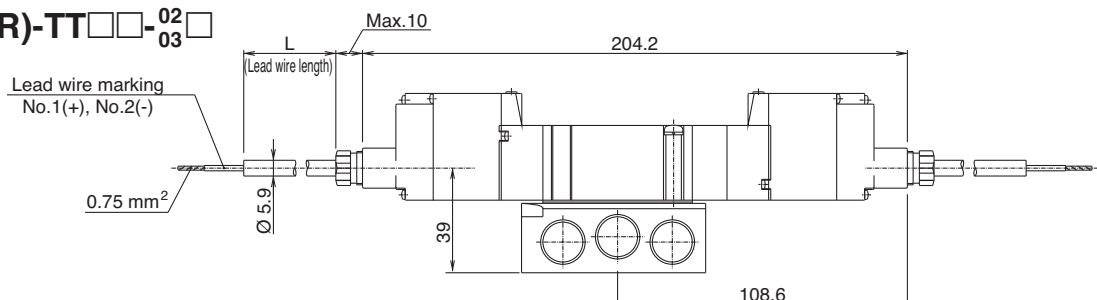
### Plug connector with cover type (LL)

3  
52-SY7440(R)-LL□□-02□  
5



### Terminal type (TT)

3  
52-SY7440(R)-TT□□-02□  
5





# Series 52-SY

## Dimensions

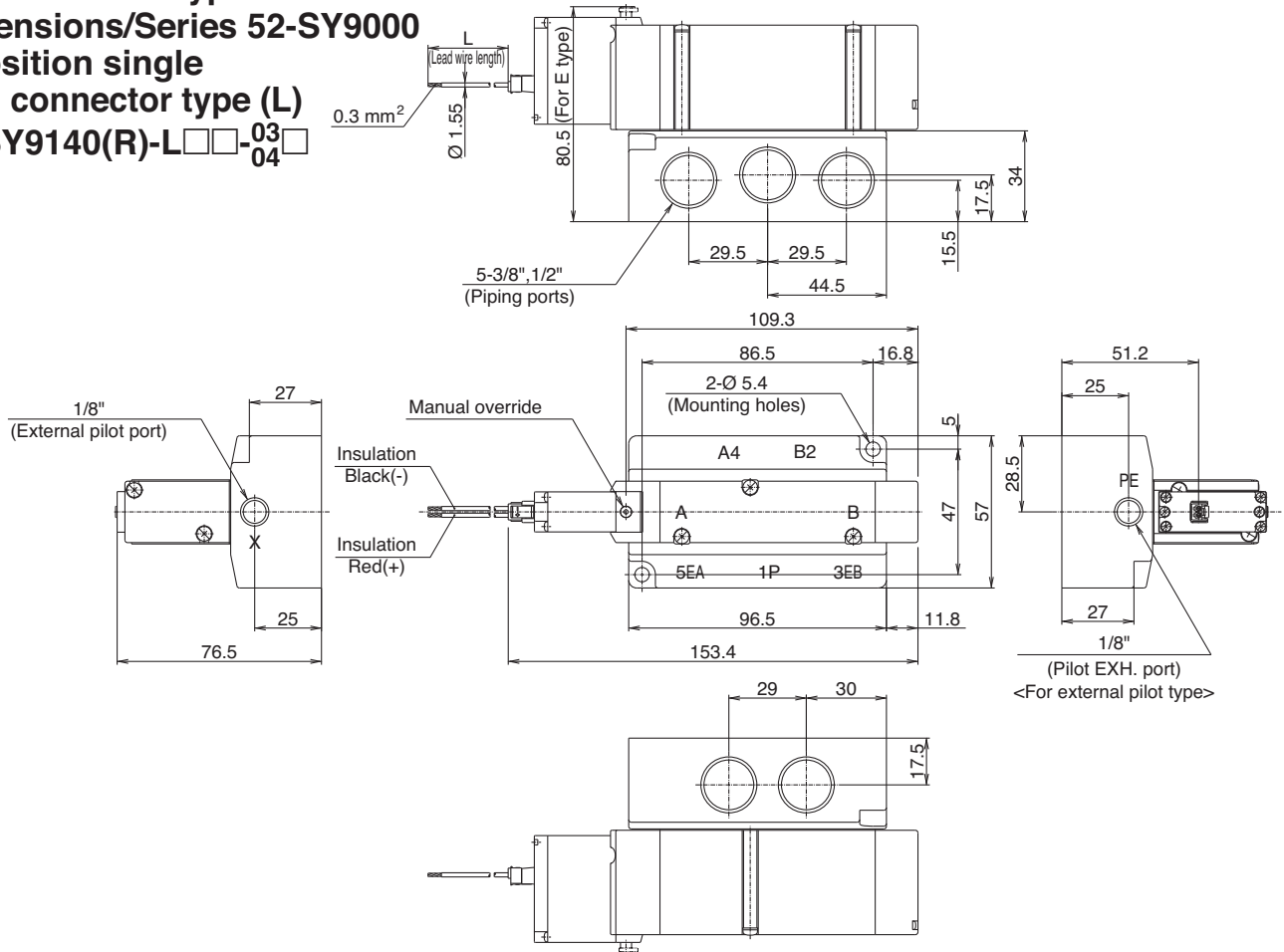
### Base mounted type

#### Dimensions/Series 52-SY9000

#### 2-position single

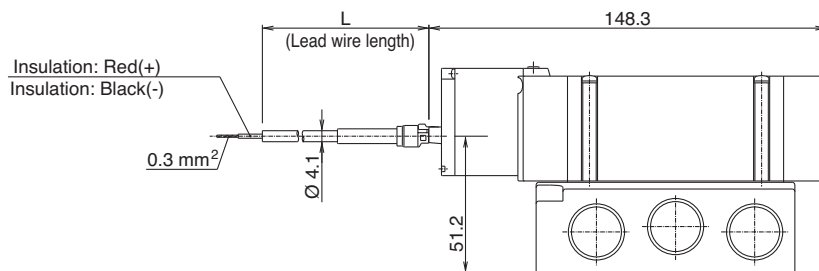
#### Plug connector type (L)

52-SY9140(R)-L□□-03□



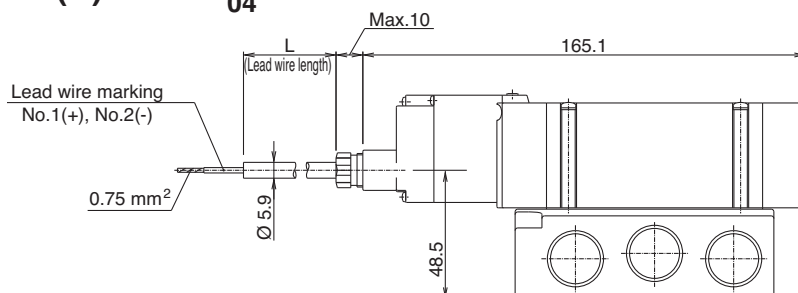
### Plug connector with cover type (LL)

52-SY9140(R)-LL□□-03□



### Terminal type (TT)

52-SY9140(R)-TT□□-03□





## Dimensions

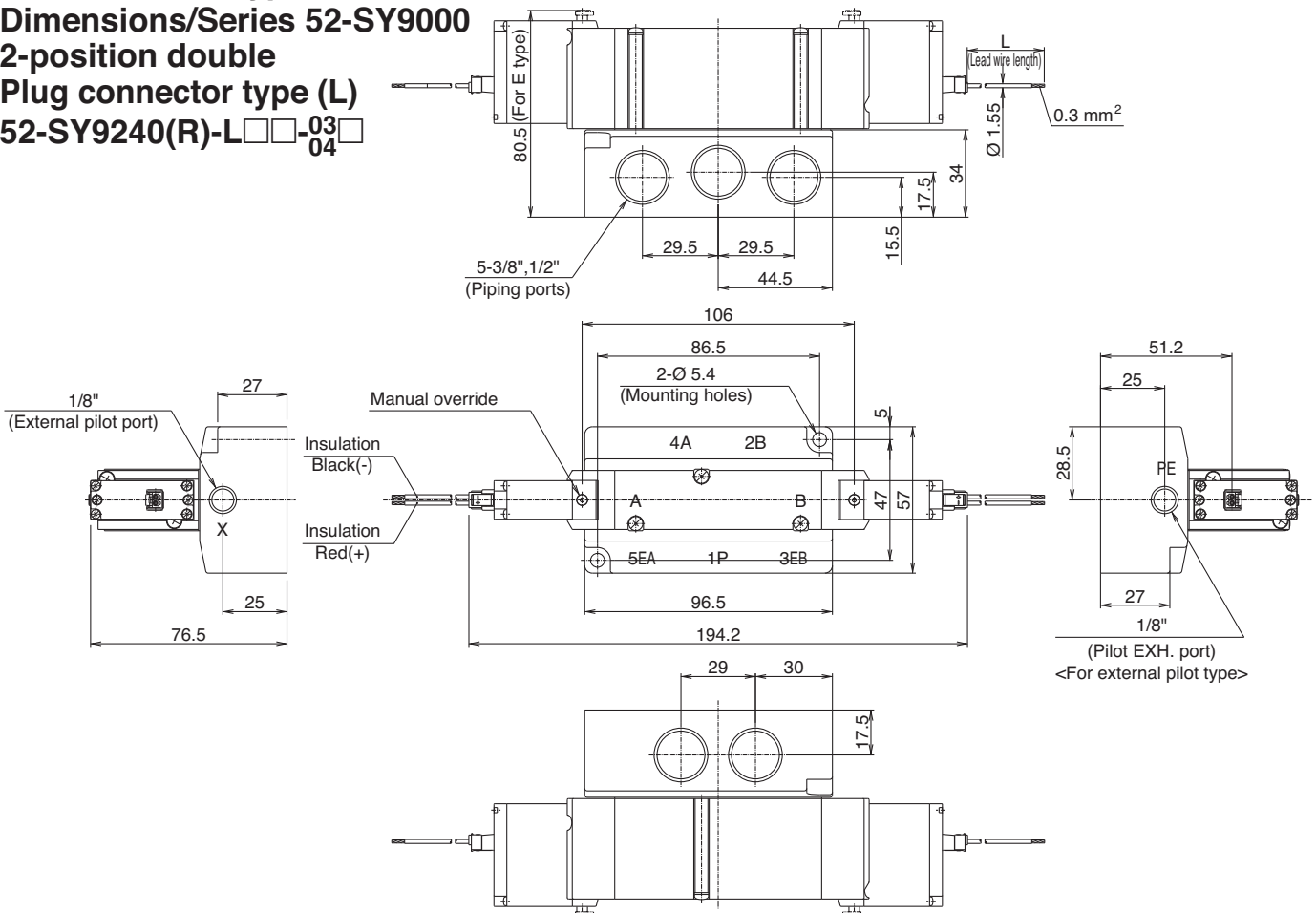
### Base mounted type

#### Dimensions/Series 52-SY9000

#### 2-position double

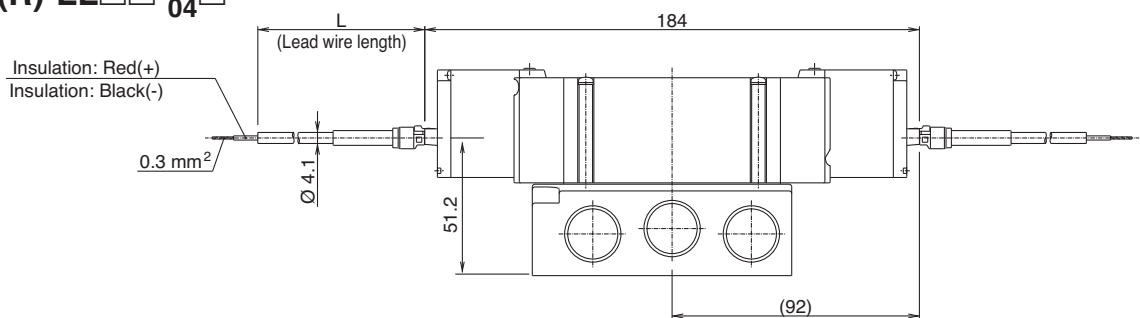
#### Plug connector type (L)

52-SY9240(R)-L□□-03□  
04



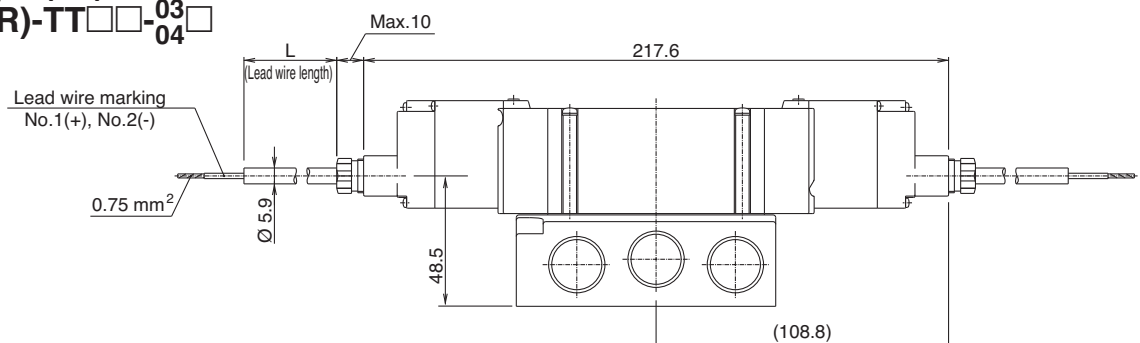
### Plug connector with cover type (LL)

52-SY9240(R)-LL□□-03□  
04



### Terminal type (TT)

52-SY9240(R)-TT□□-03□  
04





# Series 52-SY

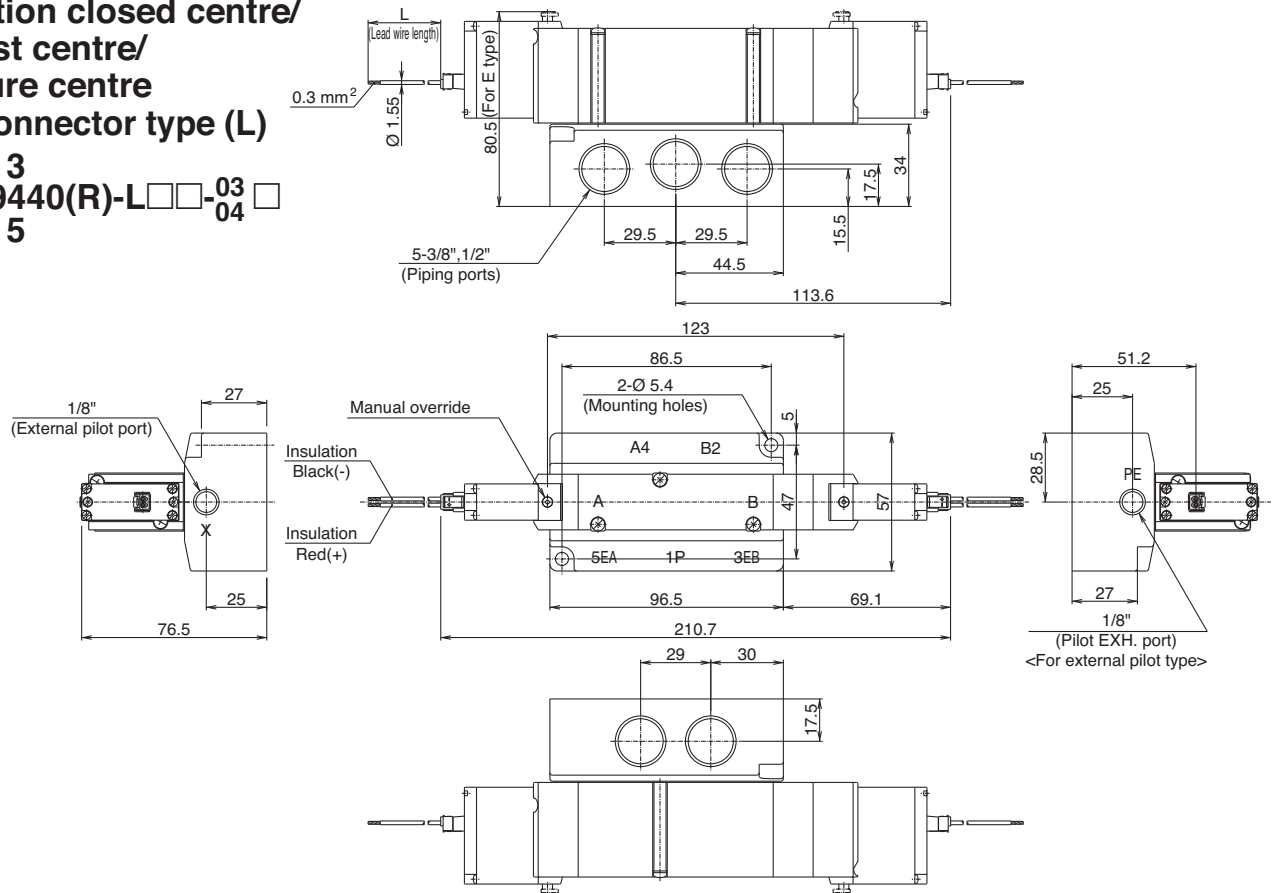
## Dimensions

### Base mounted type

#### Dimensions/Series 52-SY9000

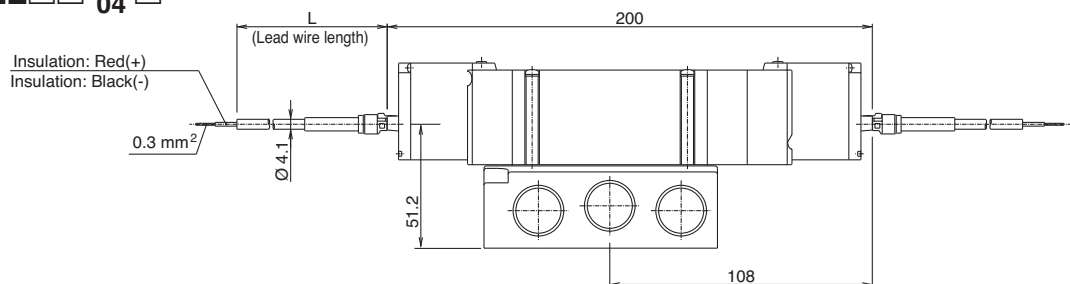
3-position closed centre/  
exhaust centre/  
pressure centre  
Plug connector type (L)

<sup>3</sup>  
52-SY9440(R)-L□□-03□  
<sub>5</sub>



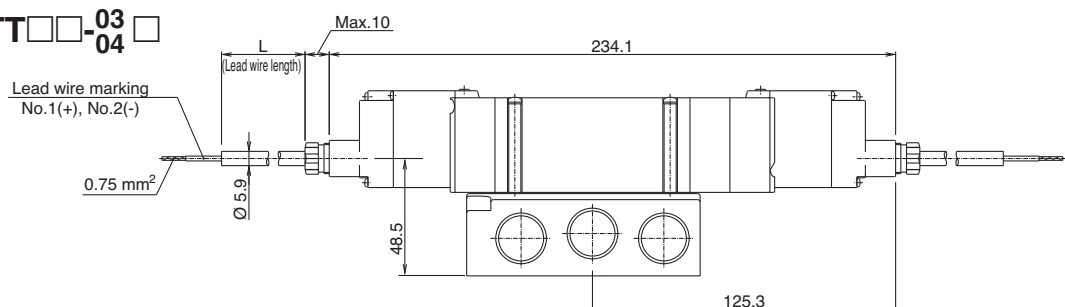
### Plug connector with cover type (LL)

<sup>3</sup>  
52-SY9440(R)-LL□□-03□  
<sub>5</sub>



### Terminal type (TT)

<sup>3</sup>  
52-SY9440(R)-TT□□-03□  
<sub>5</sub>







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).

**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 with 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

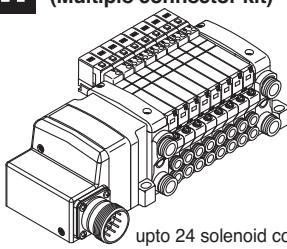
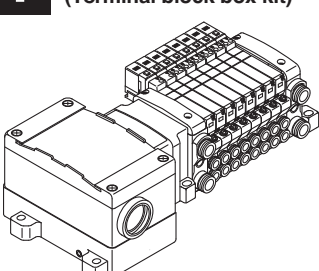
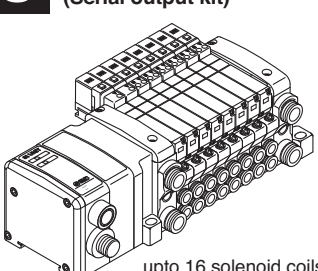
**Options**

—	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

**COM.**

N	Negative COM.
---	---------------

**Kit designation/Electrical entry/Cable length**

<b>M</b> Kit (Multiple connector kit)	<b>T</b> Kit (Terminal block box kit)	<b>S</b> Kit (Serial output kit)
 upto 24 solenoid coils	 upto 20 solenoid coils	 upto 16 solenoid coils SI unit: 56-EX500
<b>MD0</b> Multiple connector kit (26P) without cable <b>MD1</b> Multiple connector kit (26P) with 1.5 m cable <b>MD2</b> Multiple connector kit (26P) with 3.0 m cable <b>MD3</b> Multiple connector kit (26P) with 5.0 m cable	<b>TD0</b> Terminal block box kit	<b>SDA2</b> Serial kit for PROFIBUS DP / DEVICENET™
1 to 12 stations (24 stations)	1 to 10 stations (20 stations)	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	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.

**Function**

—	Standard type
R	External pilot

**Seal type**

0	Metal seal
1	Rubber seal

**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 <sup>Note 1)</sup>				
	Lubrication		Not required				
	Manual override		Push type/Locking type (tool required)/Locking type <sup>Note 2)/</sup> Slide locking type <sup>Note 2)</sup>				
Impact resistance/Vibration resistance		150/30 m/s <sup>2</sup> <sup>Note 3)</sup>					
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) <sup>Note 4)</sup>	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).

**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

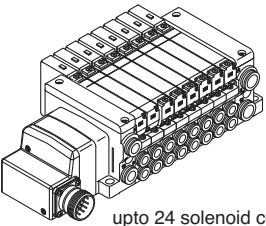
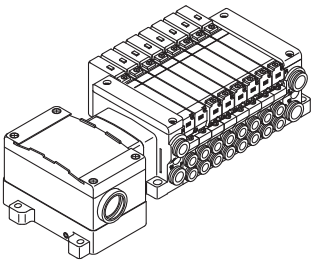
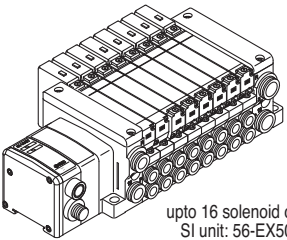
**Options**

-	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

**COM.**

N	Negative COM.
---	---------------

**Kit designation/Electrical entry/Cable length**

<b>M</b> Kit (Multiple connector kit)	<b>T</b> Kit (Terminal block box kit)	<b>S</b> Kit (Serial output kit)
 upto 24 solenoid coils	 upto 20 solenoid coils	 upto 16 solenoid coils SI unit: 56-EX500 Note) A separate gateway unit and communication cable are required
<b>MD0</b> Multiple connector kit (26P) without cable <b>MD1</b> Multiple connector kit (26P) with 1.5 m cable <b>MD2</b> Multiple connector kit (26P) with 3.0 m cable <b>MD3</b> Multiple connector kit (26P) with 5.0 m cable	<b>TD0</b> Terminal block box kit	<b>SDA2</b> Serial kit for PROFIBUS DP / DEVICENET™
1 to 12 stations (24 stations)	1 to 10 stations (20 stations)	1 to 8 stations (16 stations)

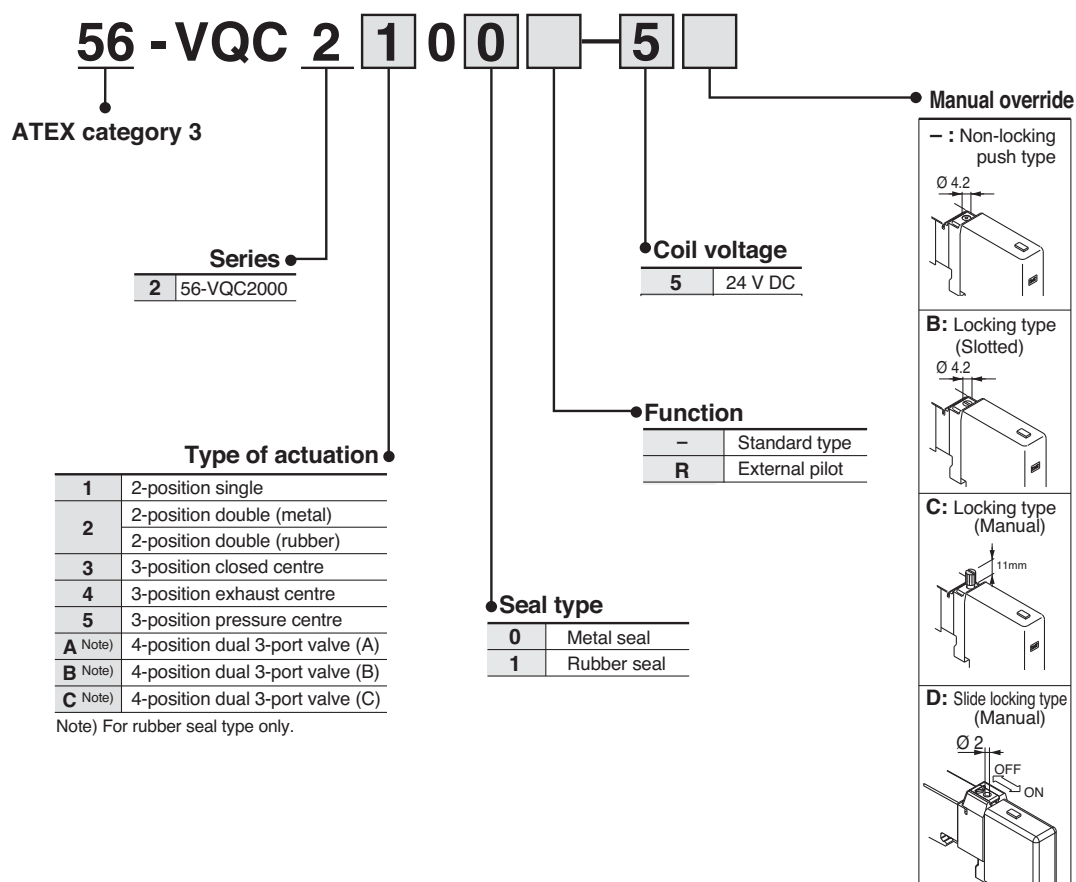
Contact SMC for 56-EX250 with Profibus DP

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



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

**Options**

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

**COM.**

N	Negative COM.
---	---------------

**Kit designation/Electrical entry/Cable length**

<p><b>M</b> Kit (Multiple connector kit)</p> <p>upto 24 solenoid coils</p> <table border="1"> <tr> <td>MD0</td> <td>Multiple connector kit (26P) without cable</td> <td>1 to 12 stations (24 stations)</td> </tr> <tr> <td>MD1</td> <td>Multiple connector kit (26P) with 1.5 m cable</td> <td></td> </tr> <tr> <td>MD2</td> <td>Multiple connector kit (26P) with 3.0 m cable</td> <td></td> </tr> <tr> <td>MD3</td> <td>Multiple connector kit (26P) with 5.0 m cable</td> <td></td> </tr> </table>	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		<p><b>T</b> Kit (Terminal block box kit)</p> <p>upto 20 solenoid coils</p> <table border="1"> <tr> <td>TD0</td> <td>Terminal block box kit</td> <td>1 to 10 stations (20 stations)</td> </tr> </table>	TD0	Terminal block box kit	1 to 10 stations (20 stations)	<p><b>S</b> Kit (Serial output kit)</p> <p>upto 16 solenoid coils SI unit: 56-EX500</p> <table border="1"> <tr> <td>SDA2</td> <td>Serial kit for PROFIBUS-DP/DEVICENET™</td> <td>1 to 8 stations (16 stations)</td> </tr> </table>	SDA2	Serial kit for PROFIBUS-DP/DEVICENET™	1 to 8 stations (16 stations)
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																			
TD0	Terminal block box kit	1 to 10 stations (20 stations)																		
SDA2	Serial kit for PROFIBUS-DP/DEVICENET™	1 to 8 stations (16 stations)																		

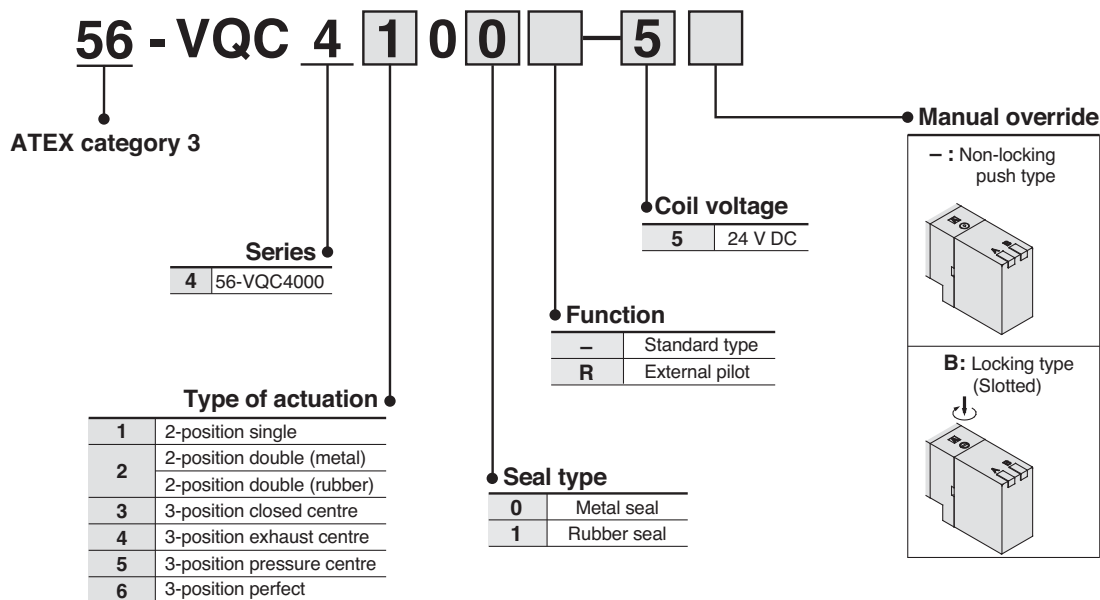
Contact SMC for 56-EX250 with Profibus DP

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



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.

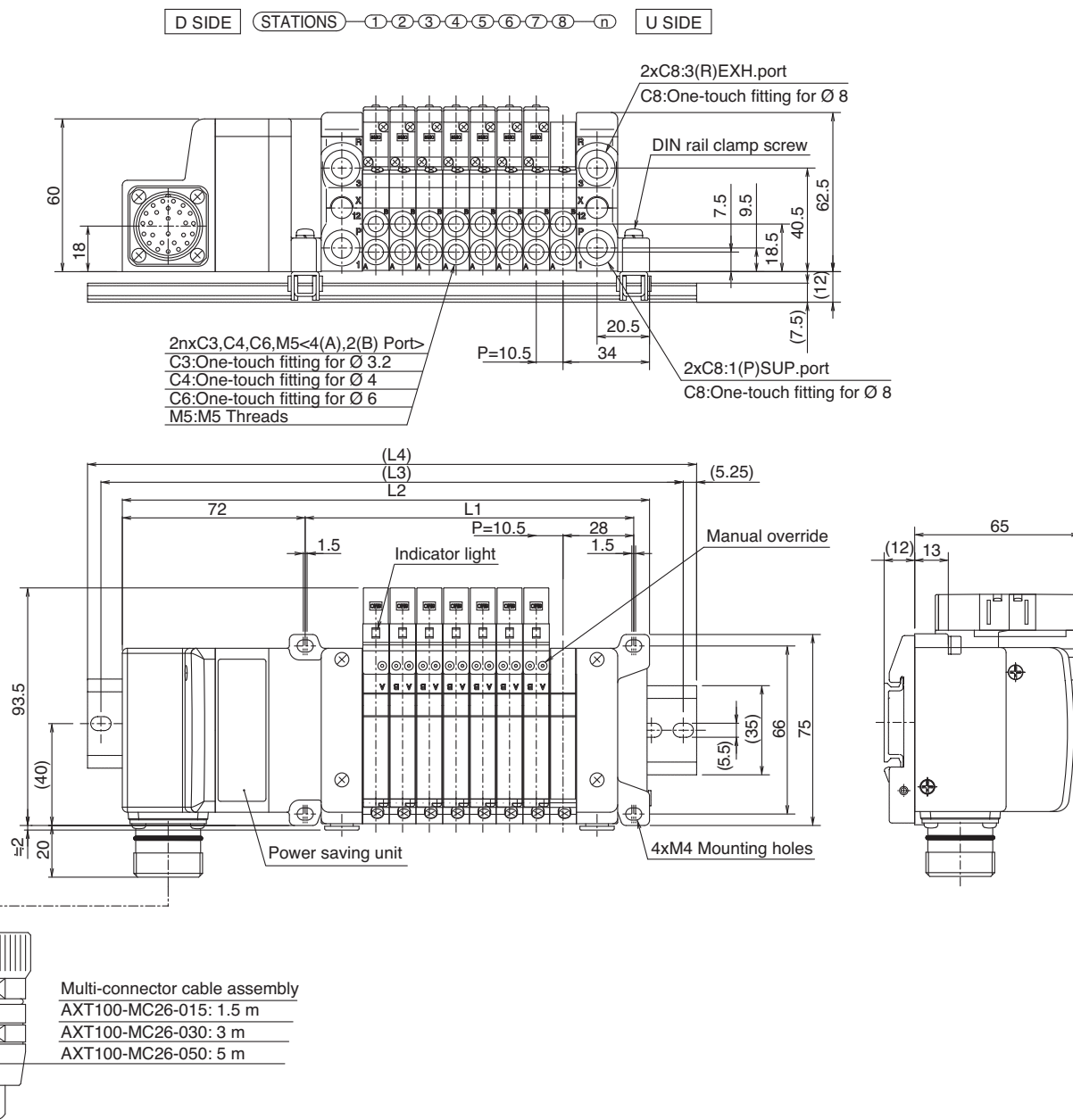
Only these standard parts without "56-" prefix can be used.



# M 56-VQC1000

## Kit (Multiple Connector Kit)

### 56-VV5QC11



#### Formulas

$$L1 = 10.5n + 45$$

$$L2 = 10.5n + 123 \quad (1 \text{ power saving unit for 1 to 12 solenoids})$$

$$L2 = 10.5n + 144 \quad (2 \text{ power saving units for 13 to 24 solenoids})$$

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

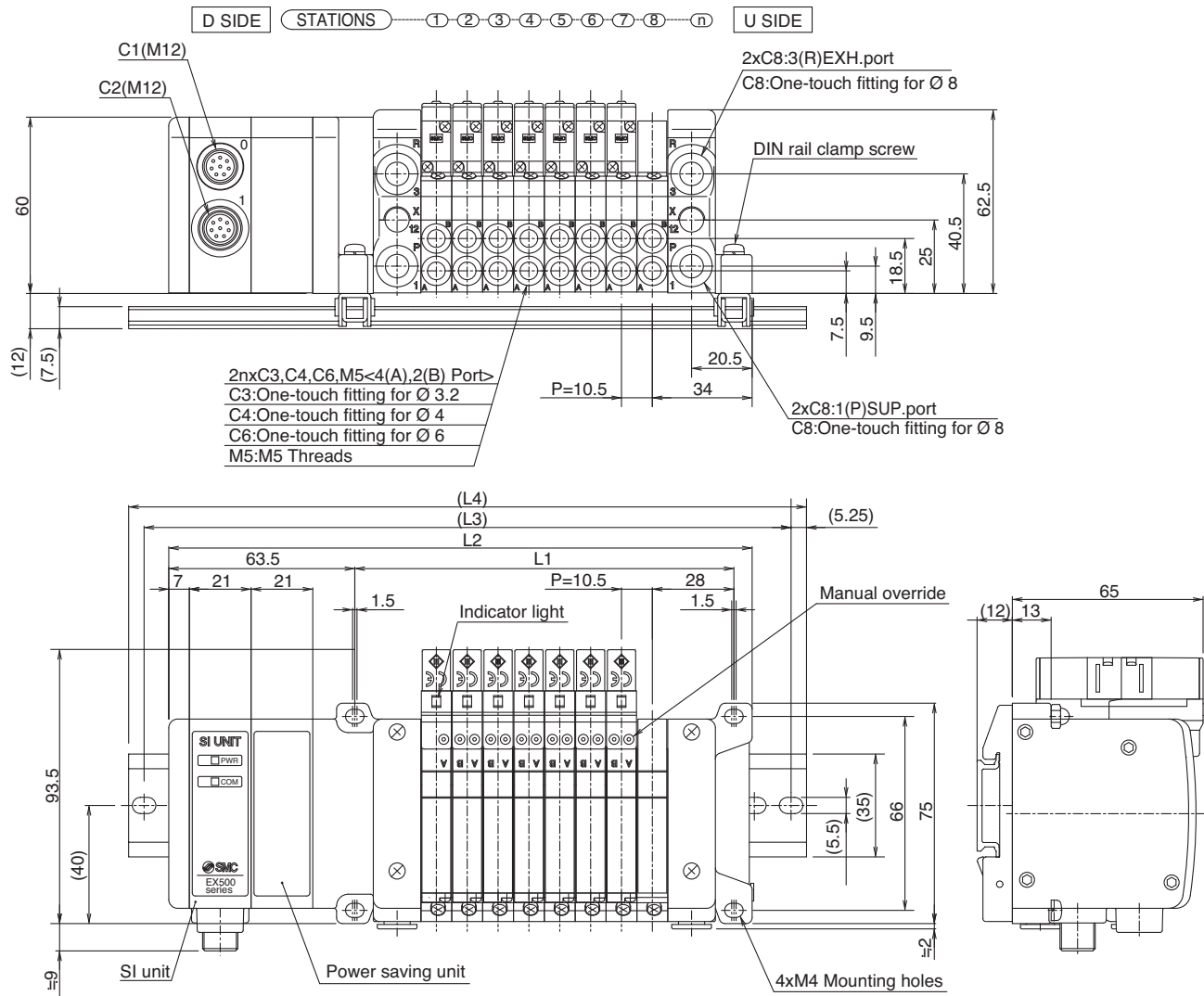


# S 56-VQC1000

## Kit (Serial Transmission Kit) Decentralised Serial wiring

56-VV5QC11

SDA2 Kit (Serial Transmission Kit: 56-EX500)



### Formulas

$$L1 = 10.5n + 45$$

$$L2 = 10.5n + 114.5 \quad (1 \text{ power saving unit for 1 to 12 solenoids})$$

$$L2 = 10.5n + 135.5 \quad (2 \text{ power saving units for 13 to 16 solenoids}) \quad n: \text{Stations (Max. 16 single wire stations)}$$

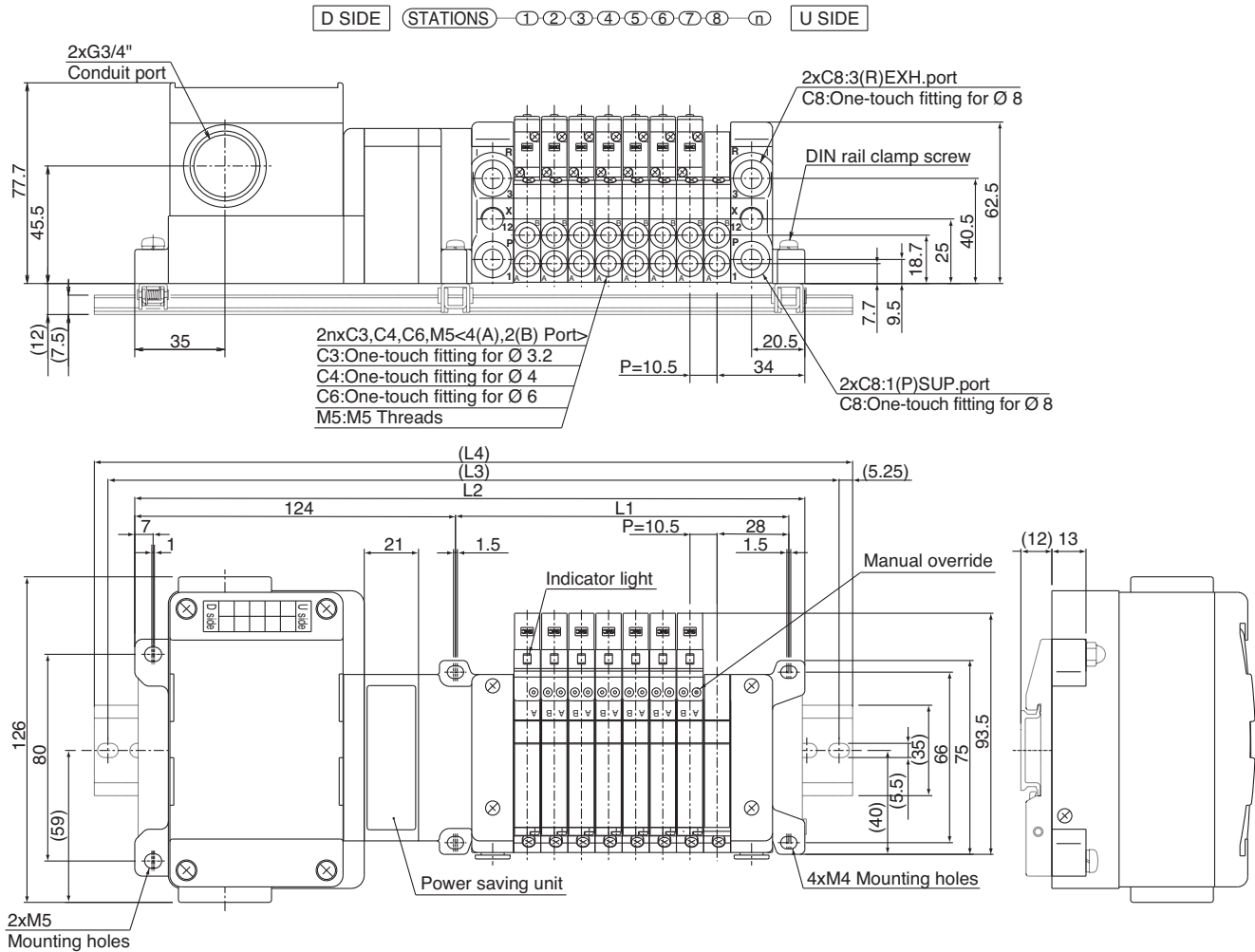
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213
L2	125	135.5	146	156.5	167	177.5	188	198.5	230	240.5	251	261.5	272	282.5	293	303.5
L3	150	162.5	175	187.5	187.5	200	212.5	225	250	262.5	275	287.5	300	312.5	312.5	325
L4	160.5	173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



# T 56-VQC1000

## Kit (Terminal Block Box Kit)

### 56-VV5QC11



#### Formulas

$$L1 = 10.5n + 45$$

$$L2 = 10.5n + 175.5 \quad (1 \text{ power saving unit for 1 to 12 solenoids})$$

$$L2 = 10.5n + 196.5 \quad (2 \text{ power saving units for 13 to 20 solenoids}) \quad n: \text{Stations (Max. 20 single wire stations)}$$

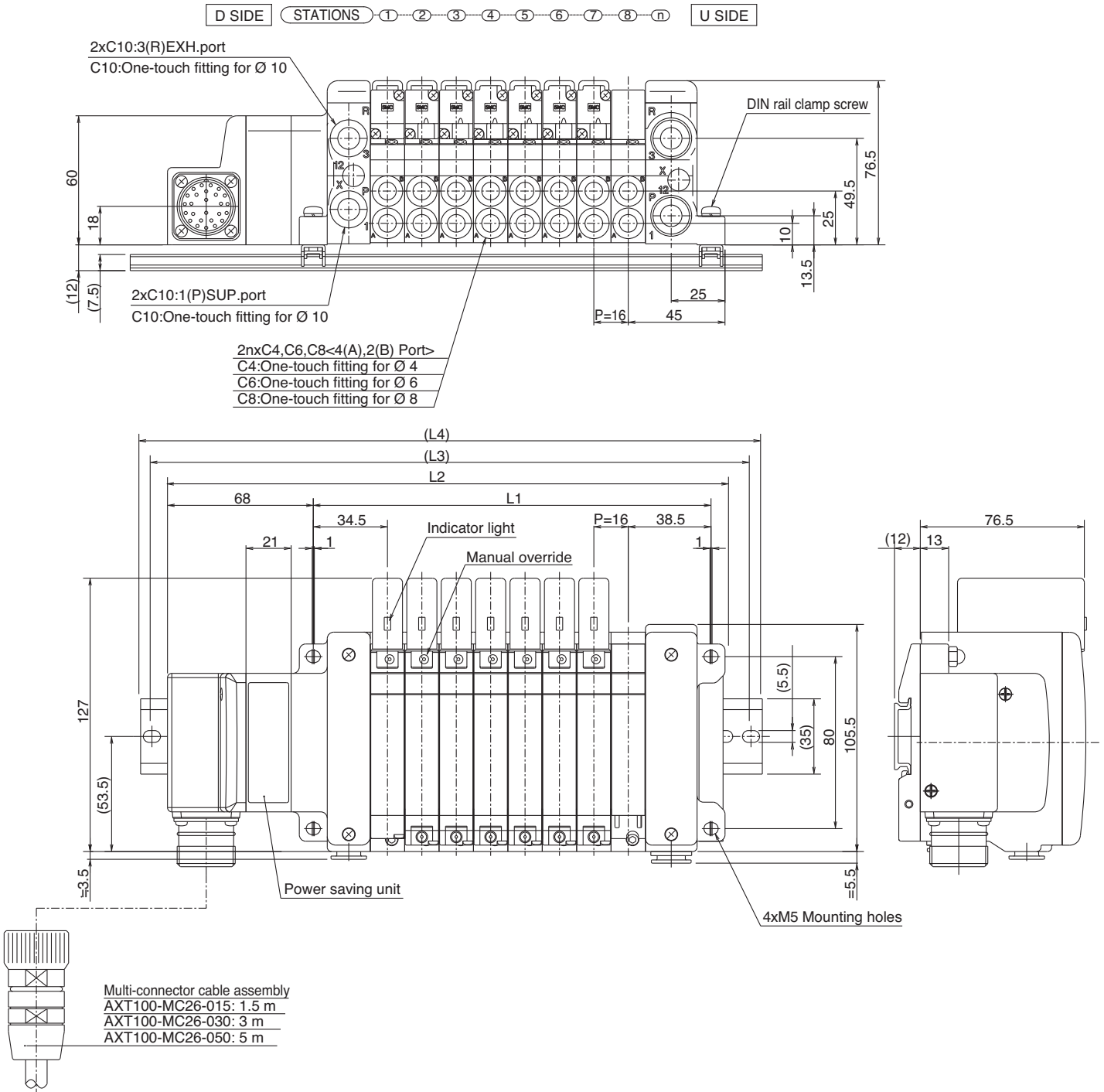
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234	244.5	255
L2	186	196.5	207	217.5	228	238.5	249	259.5	270	280.5	291	301.5	313	323.5	334	344.5	355	365.5	376	386.5
L3	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5	400	412.5	425	437.5	450
L4	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5



# M 56-VQC2000

## Kit (Multiple Connector Kit)

### 56-VV5QC21



#### Formulas

$$L1 = 16n + 57$$

$$L2 = 16n + 131.5 \quad (1 \text{ power saving unit for 1 to 12 solenoids})$$

$$L2 = 16n + 152.5 \quad (2 \text{ power saving units for 13 to 24 solenoids}) \quad n: \text{Stations (Max. 24 single wire stations)}$$

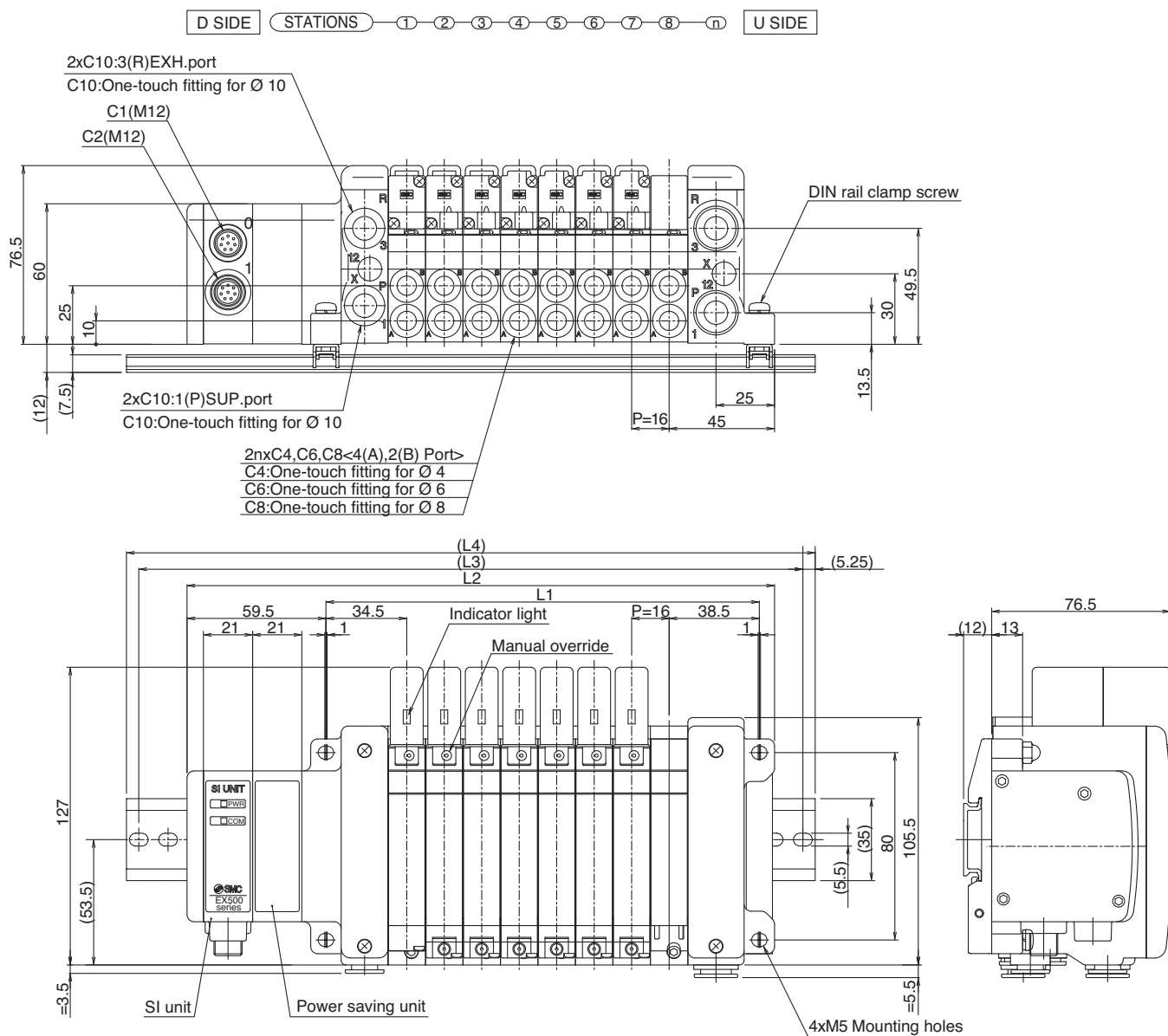
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329	345	361	377	393	409	425	441
L2	147.5	163.5	179.5	195.5	211.5	227.5	243.5	259.5	275.5	291.5	307.5	323.5	360.5	376.5	392.5	408.5	424.5	440.5	456.5	472.5	488.5	504.5	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



# S 56-VQC2000

## Kit (Serial Transmission Kit) Decentralised Serial wiring

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



#### Formulas

$$L1 = 16n + 57$$

$$L2 = 16n + 123 \quad (1 \text{ power saving unit for 1 to 12 solenoids})$$

$$L2 = 16n + 144 \quad (2 \text{ power saving units for 13 to 16 solenoids}) \quad n: \text{Stations (Max. 16 single wire stations)}$$

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

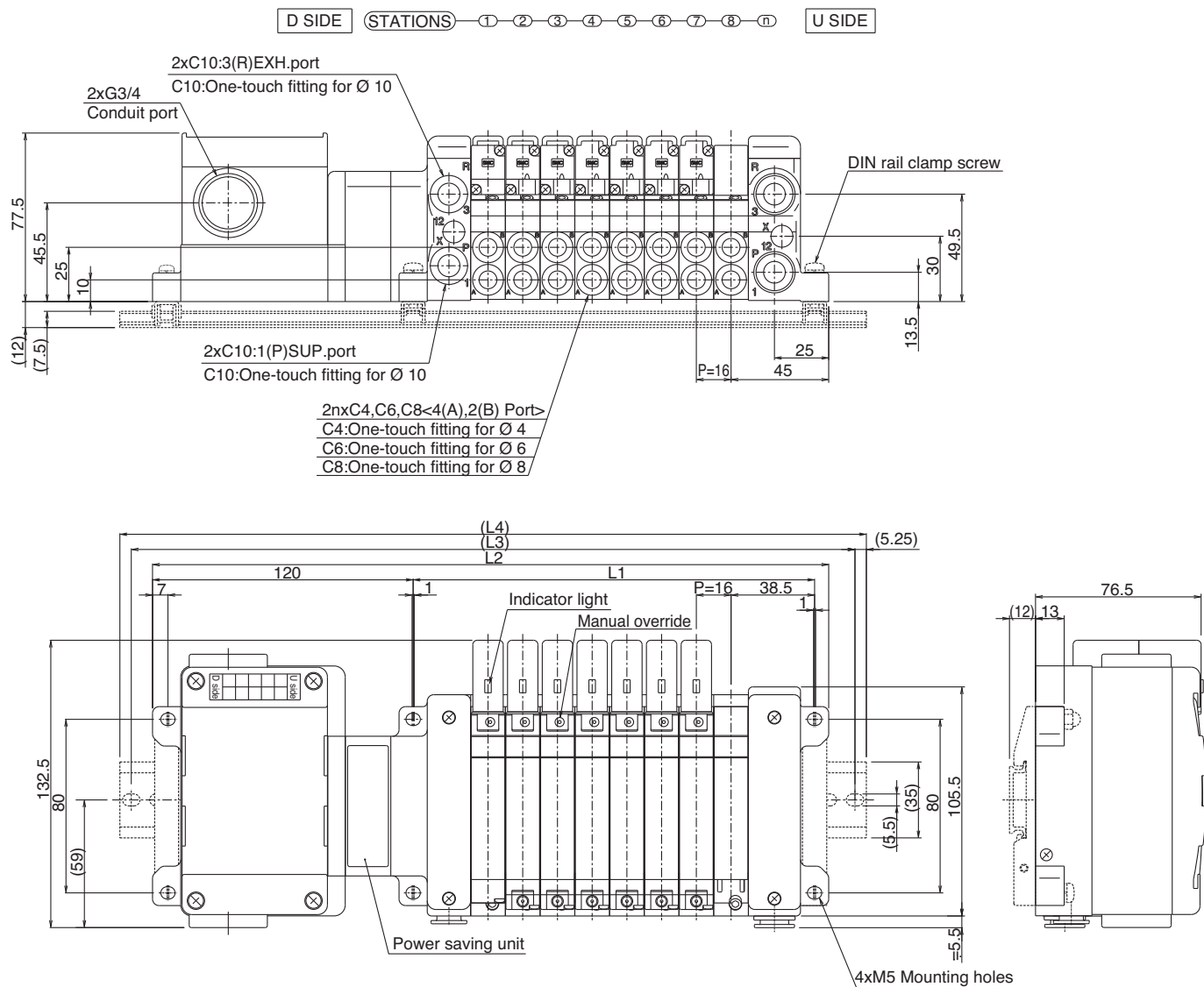
\* With signal cut block, L4 is obtained by adding approximately 30 mm to L2.



# T 56-VQC2000

## Kit (Terminal Block Box Kit)

### 56-VV5QC21



#### Formulas

$$L1 = 16n + 45$$

$$L2 = 16n + 184 \quad (1 \text{ power saving unit for 1 to 12 solenoids})$$

$$L2 = 16n + 205 \quad (2 \text{ power saving units for 13 to 20 solenoids}) \quad n: \text{Stations (Max. 20 single wire stations)}$$

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





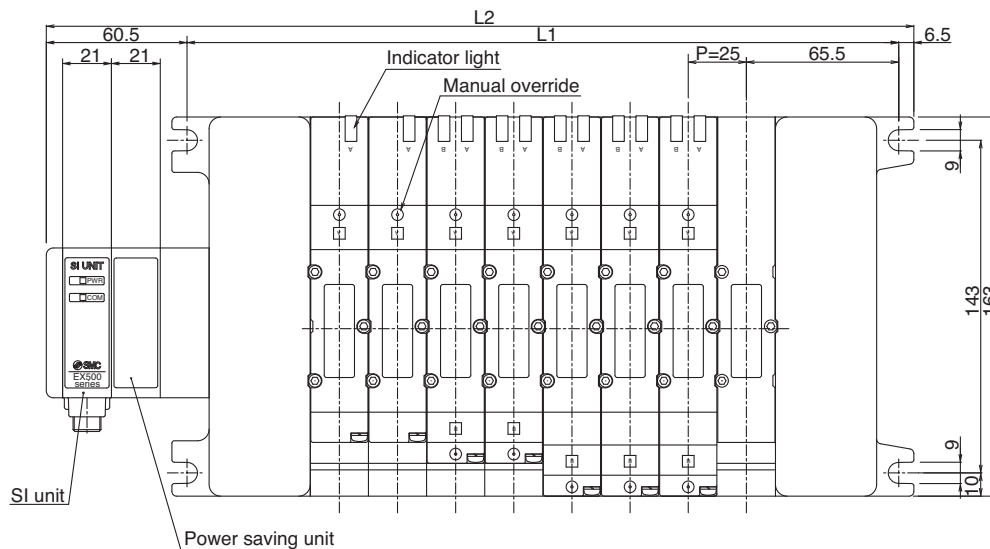
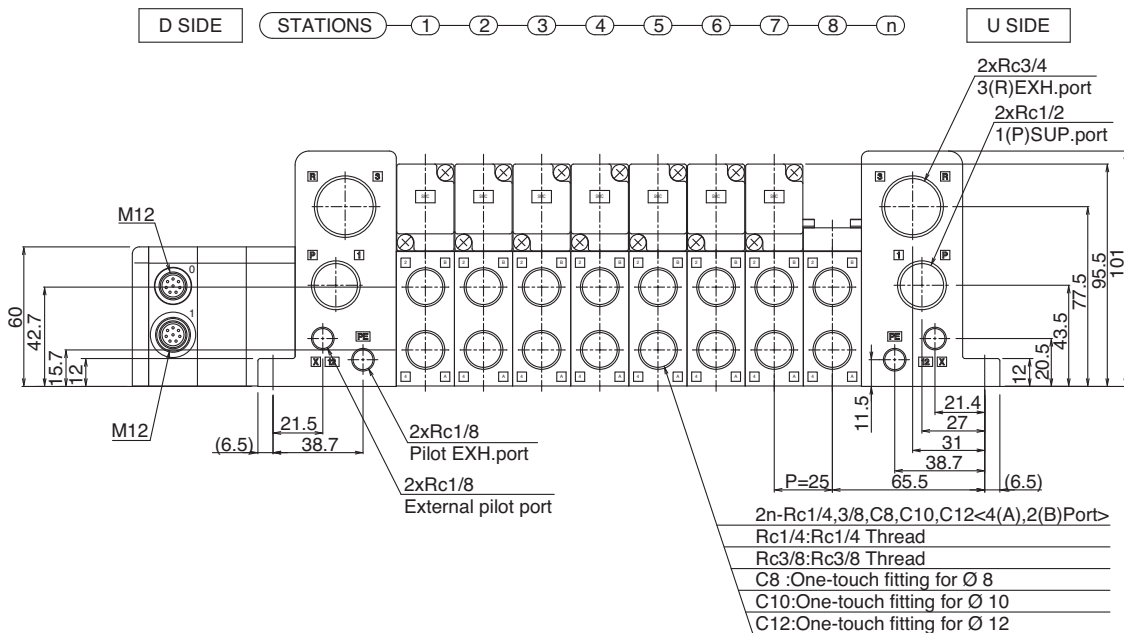


# S 56-VQC4000

## Kit (Serial Transmission Kit) Decentralised Serial wiring

56-VV5QC41

SDA2 Kit (Serial Transmission Kit: 56-EX500)



### Formulas

$$L1 = 25n + 106$$

$$L2 = 25n + 173 \quad (1 \text{ power saving unit for 1 to 12 solenoids})$$

$$L2 = 25n + 194 \quad (2 \text{ power saving units for 13 to 16 solenoids})$$

n: Stations (Max. 16 single wire stations)

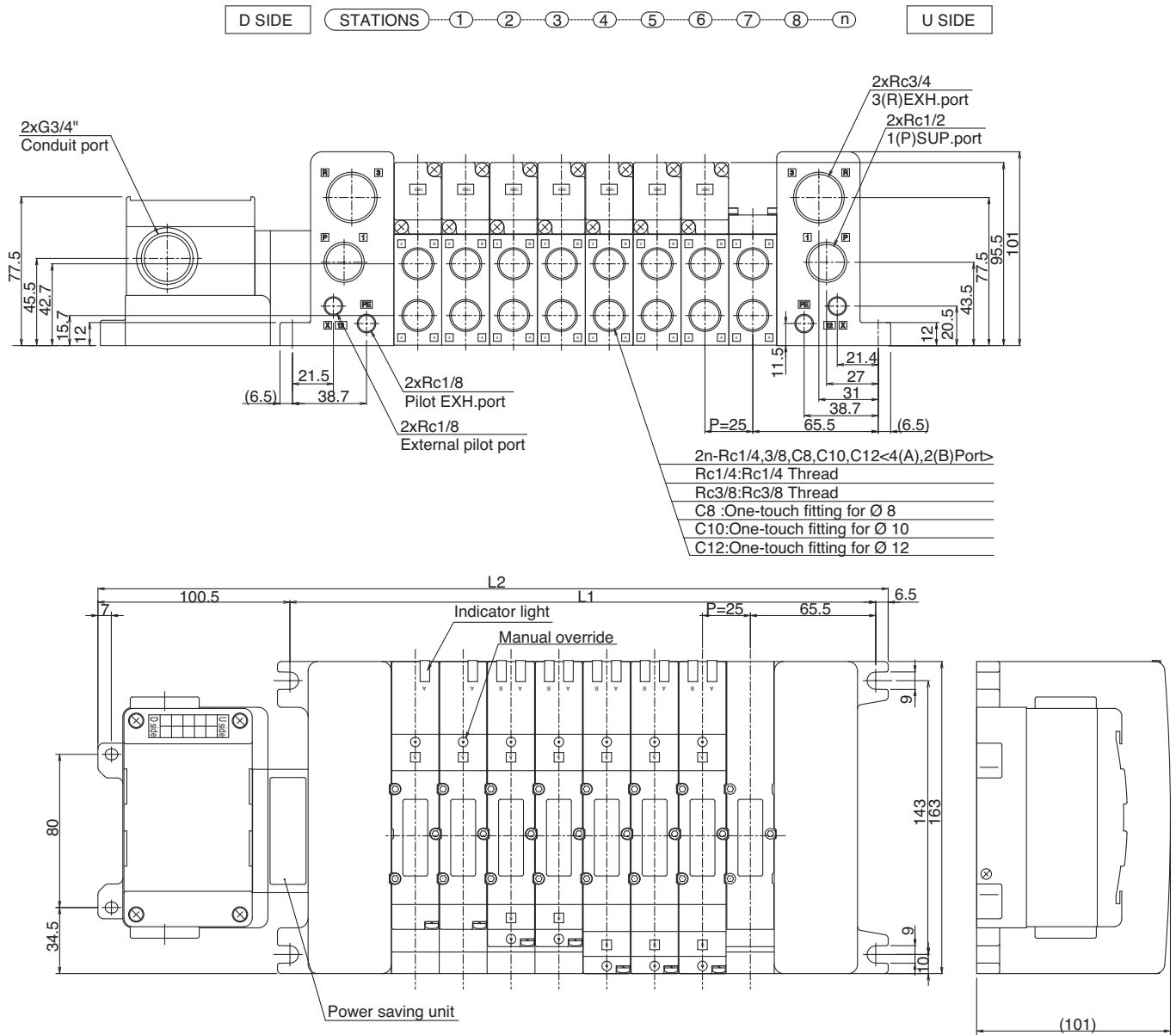
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	198	223	248	273	298	323	348	373	398	423	448	473	519	544	569	594



# T 56-VQC4000

## Kit (Terminal Block Box Kit)

### 56-VV5QC41



#### Formulas

$$L1 = 25n + 106$$

$$L2 = 25n + 213 \quad (1 \text{ power saving unit for 1 to 12 solenoids})$$

$$L2 = 25n + 234 \quad (2 \text{ power saving units for 13 to 16 solenoids}) \quad n: \text{Stations (Max. 16 single wire stations)}$$

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

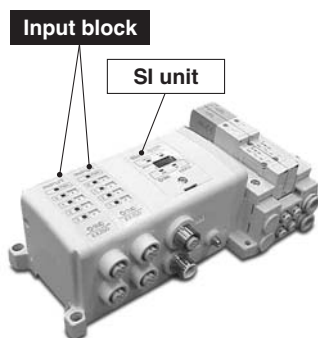


**ATEX Compliant**

# Decentralised Serial Wiring

## Series 56-EX250

### How to Order SI Units



**56 - EX250 — S** **PR1** — X42

ATEX category 3

Protocol

PR1 PROFIBUS DP

### 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 %
Input specifications	Current supply	Max. 2.0 A
	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

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

### How to Order Input Block

Input block

**56 - EX250 — IE** **2** — X43

Block type

2 M12 connector, 4 inputs

ATEX category 3

### 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	

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

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™

CE Ex II 3G Ex nA II T4 X 5 °C ≤ Ta ≤ 45 °C  
II 3D Ex tD A22 IP65 T53 °C X (56-EX500-GPR1A)

CE Ex 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**.



# Series 56-EX500

## How to Order SI Units

### 56 – EX500 – S001

ATEX category 3

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

ATEX category 3

Applicable solenoid valve:  
Series SY/VQC/S0700

SI unit COM.

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

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

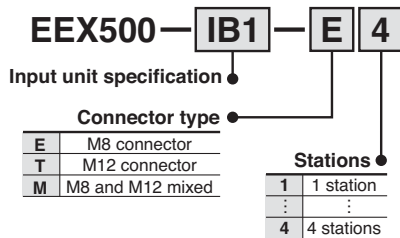
## SI Unit Specifications (56-EX500-Q□0□)


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

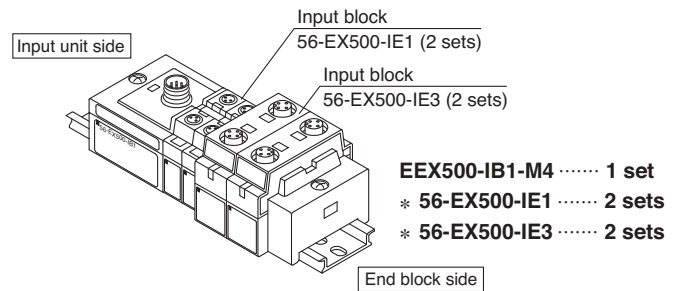


CE  II 3G Ex nA II T5 X 5 °C ≤ Ta ≤ 45 °C  
II 3D Ex tD A22 IP65 T60 °C X

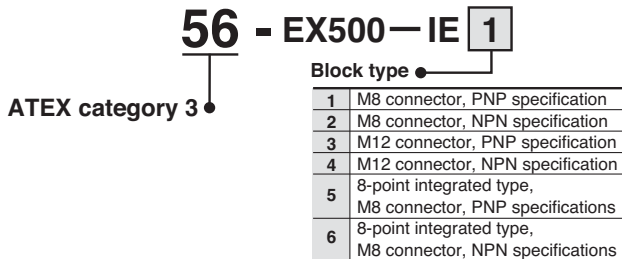
When ordering an input block manifold, enter the  
Input manifold part no. + Input block part no. together.

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



### Input block



CE  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  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 <sup>Note)</sup>	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	



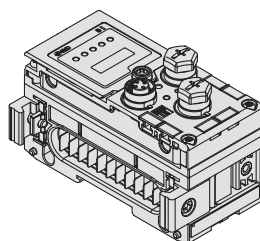
ATEX Compliant

# Fieldbus System

## Series 56-EX600

### How to Order

#### SI Unit



56-EX600-S **EN1** -X10

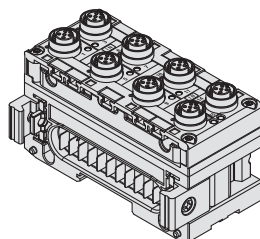
#### Protocol

Symbol	Description
<b>PR1A</b>	PROFIBUS DP
<b>EN1</b>	EtherNet/IP™

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

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

#### Digital Input Unit



56-EX600-DX **P** **D** -X10

#### Input type

Symbol	Description
<b>P</b>	PNP
<b>N</b>	NPN

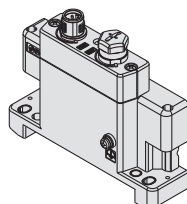
#### Number of Inputs, Open circuit detection, and Connector

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

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

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

#### End Plate



56-EX600-ED **2** - -X10

#### Power connector

Symbol	Connector
<b>2</b>	M12 (5 pins)

#### Mounting method

Symbol	Description
<b>-</b>	Without DIN rail mounting bracket
<b>2</b>	With DIN rail mounting bracket

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

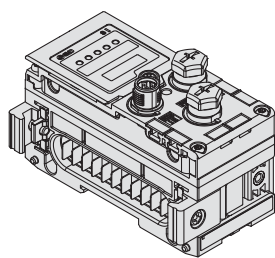


## SI Unit Specifications

### All Units Common Specifications

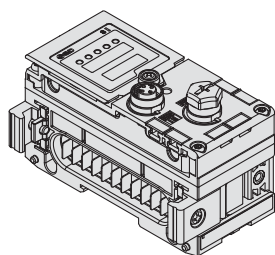
Environmental resistance	Operating temperature range	-10 to 50 °C
	Storage temperature range	-20 to 60 °C
	Operating humidity range	35 to 85 % RH (No dew condensation)
	Withstand voltage	500 V AC for 1 minute between external terminals and FE
	Insulation resistance	500 V DC, 10 MΩ or more between external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

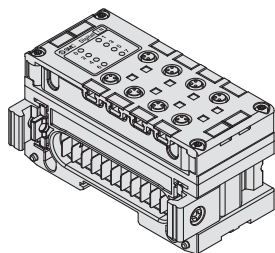


Model		56-EX600-SEN1-X10
Communication	Number of communication ports	1 port
	Protocol	EtherNet/IP™ (Conformance version: Composite 6)
	Communication speed	10/100 Mbps
	Communication method	Full duplex/Half duplex
	Configuration file	EDS file
	Occupation area (Number of inputs/outputs)	Max. (512 inputs/512 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

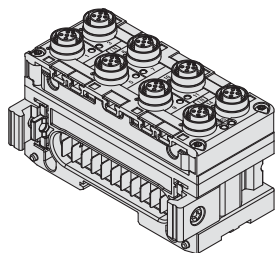


# Series EX600

## Digital Unit Specifications



56-EX600-DX□C-X10



56-EX600-DX□D-X10

### Digital Input Unit

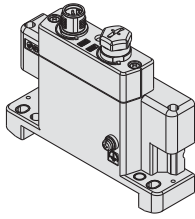
Model		56-EX600-DXPC-X10	56-EX600-DXNC-X10	56-EX600-DXPD-X10	56-EX600-DXND-X10
Input	Input type	PNP	NPN	PNP	NPN
	Input connector	M8 (3-pin) socket <sup>Note 2)</sup>		M12 (5-pin) socket <sup>Note 1)</sup>	
	Number of inputs	8 inputs (1 input/Connector)		16 inputs (2 inputs/Connector)	
	Supplied voltage	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 $\pm 10\%$ , 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  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

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 <sup>1)</sup> 2)	Fluoro rubber seals (Only with rubber cushion type)
XC85 <sup>2)</sup>	Food grade grease
X2018 <sup>2)</sup>	Long stroke

1) Only for rubber cushion type.

2) Not available with "K", non rotating rod option.

\* XA0 to XA30 and XA50

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	

Refer to page 86 for applicable auto switches.

### Mounting Bracket Part No.

Bore size (mm)		32	40
Mounting bracket			
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



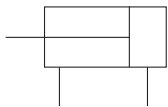
# ATEX Compliant Air Cylinder *Series 55-C76*



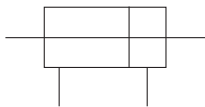
## Symbol

### Standard: Double Action

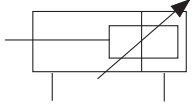
Rubber Cushion  
Single Rod



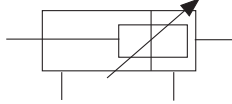
Rubber Cushion  
Double Rod



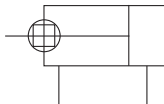
Air Cushion  
Single Rod



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  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.

Bore (mm)	8	10	12	16	20	25
Bracket						
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



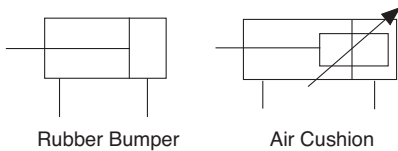
Air Cushion/Single Rod

## Specifications

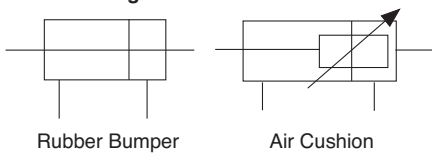
Bore size (mm)		8	10	12	16	20	25
Piston rod dia. (mm)		4	4	6	6	8	10
Piston rod thread		M4 X 0.7	M4 X 0.7	M6 X 1	M6 X 1	M8 X 1.25	M10 X 1.25
Ports		M5	M5	M5	M5	G 1/8	G 1/8
Action		Double acting					
Fluid		Air					
Proof pressure		1.5 MPa					
Max. operating pressure		1.0 MPa					
Min. operating pressure		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	

## Symbol

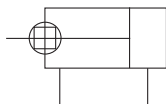
### Double Acting/Single Rod



### Double Acting/Double Rod



### Non-rotating rod: Double Acting/Single Rod



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





ATEX Compliant

# ISO Cylinder/Double Acting, Single Rod Series 55-C95

Ø 160, Ø 200, Ø 250

CE 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

Bore size

160	160 mm
200	200 mm
250	250 mm

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

• 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 <sup>(2)</sup>	GKM35-54		GKM40-84
KJ	Piston rod <sup>(3)</sup> 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

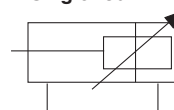
Note 2) GKM according to ISO 8140 (Except GKM35-54)

Note 3) KJ according to ISO 8139



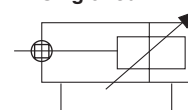
### Symbol

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 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

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.

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.

## Specifications

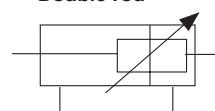
Bore size (mm)	Ø 160	Ø 200	Ø 250
Action	Double Acting, Double Rod		
Fluid	Air		
Proof pressure	1.5 MPa		
Max. operating pressure	1.0 MPa		
Min. operating pressure	0.05 MPa		
Ambient and fluid temperature	-10 to 60 °C (No freezing)		
Lubrication	Not required (Non-lube)		
Piston speed	50 to 500 mm/s		
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.

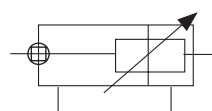
## Symbol

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

CE  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 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 <small>Note)</small>	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		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

CE II 2GDc

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

Built-in magnet  
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

• 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.

• Rod

**W** Double rod

• Cylinder stroke (mm)

Bore size (mm)	Max. stroke*
<b>125**</b>	1000

Intermediate strokes are available.

\* Please consult with SMC for longer strokes.

\*\* Ø 125 are produced upon receipt of order.

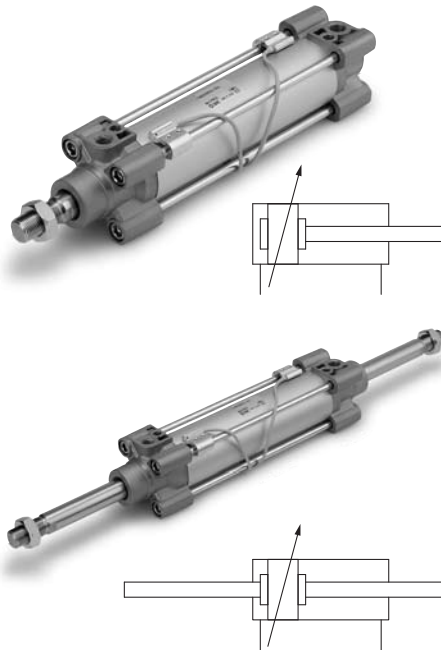
All other specifications (dimensions, drawings, etc)  
are the same as the non ATEX type.

Refer to page 86 for applicable auto switches.



**ISO Cylinder: Standard**  
**Double Acting, Single/Double Rod**     ***Series C96/C96W***

### Specifications



Bore size (mm)	32	40	50	63	80	100	125
<b>Action</b>	Double acting						
<b>Fluid</b>	Air						
<b>Proof pressure</b>	1.5 MPa						
<b>Max. operating pressure</b>	1.0 MPa						
<b>Min. operating pressure</b>	0.05 MPa						
<b>Ambient and fluid temperature</b>	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*						
<b>Lubrication</b>	Not required (Non-lube)						
<b>Operating piston speed</b>	50 to 1000 mm/s						50 to 700 mm/s
<b>Allowable stroke tolerance</b>	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: $^{+2.2}_0$						
<b>Cushion</b>	Both ends (Air cushion)						
<b>Port size</b>	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
<b>Mounting</b>	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

CE	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 - C96K

With magnet

55 - C96KD

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

55 - C96K

B

32

-

100

C

55 - C96KD

B

32

-

100

C

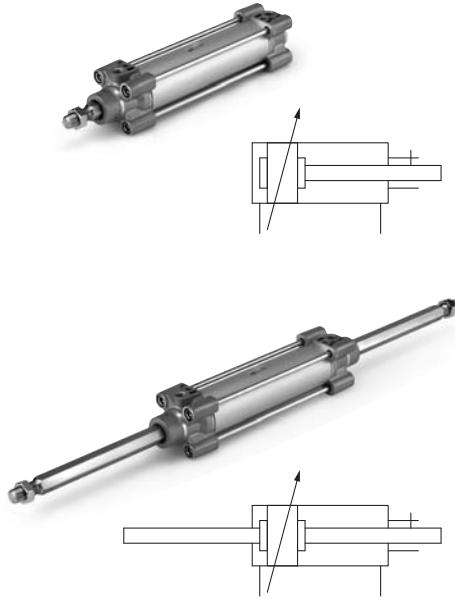
All other specifications are the same as the standard products Series C96. For details, refer to the WEB catalog.

Refer to page 86 for applicable auto switches.



ISO Cylinder: Non-rotating Rod Type  
Double Acting, Single/Double Rod **Series C96K/C96KW**

## Specifications



Bore size (mm)	32	40	50	63	80	100
<b>Action</b>	Double acting					
<b>Fluid</b>	Air					
<b>Proof pressure</b>	1.5 MPa					
<b>Max. operating pressure</b>	1.0 MPa					
<b>Min. operating pressure</b>	0.05 MPa					
<b>Ambient and fluid temperature</b>	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*					
<b>Lubrication</b>	Not required (Non-lube)					
<b>Operating piston speed</b>	50 to 1000 mm/s					
<b>Allowable stroke tolerance</b>	Up to 250 st: $^{+1.0}_0$ , 251 to 1000 st: $^{+1.4}_0$					
<b>Cushion</b>	Both ends (Air cushion)					
<b>Port size</b>	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
<b>Mounting</b>	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
<b>Non-rotating accuracy</b>	$\pm 0.5^\circ$		$\pm 0.5^\circ$		$\pm 0.3^\circ$	
<b>Allowable rotating torque Nm max.</b>	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



II 2GDc

Without magnet

85 °C (T5) Ta -20 °C to 40 °C  
105 °C (T4) Ta 40 °C to 60 °C

Built-in magnet

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

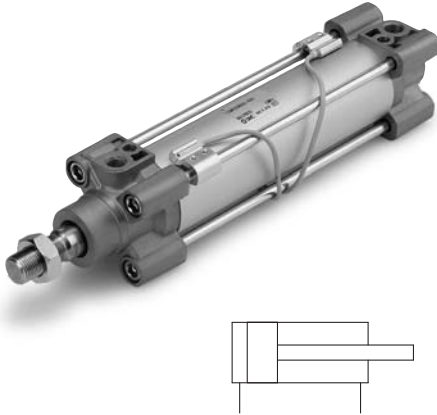
Cylinder stroke (mm)

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



II 2GDc

(Without magnet)

85 °C (T5) Ta -20 °C to 40 °C  
105 °C (T4) Ta 40 °C to 60 °C

(Built-in magnet)

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

Bore size

<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

Cylinder stroke (mm)

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

Made to Order

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





# ATEX Compliant ISO Cylinder

## Standard: Double Acting, Single Rod

### Series 55-CP96

Ø 125



II 2GDc

Without magnet

85 °C (T5) Ta -20 °C to 40 °C  
105 °C (T4) Ta 40 °C to 60 °C

Built-in magnet

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

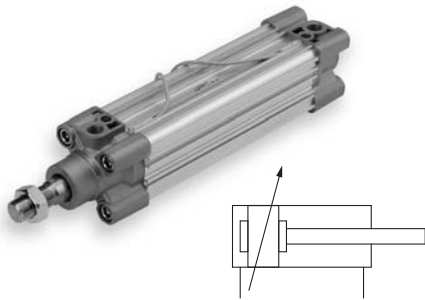
	Standard
XA□□	Change of rod end shape
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
XC18	NPT ports
XC22	Fluororubber seals
XC68	With chrome plated stainless steel piston rod and stainless steel nut

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.



## Series CP96



### Specifications

Bore size (mm)	32	40	50	63	80	100	125
<b>Action</b>	Double acting						
<b>Fluid</b>	Air						
<b>Proof pressure</b>	1.5 MPa						
<b>Max. operating pressure</b>	1.0 MPa						
<b>Min. operating pressure</b>	0.05 MPa						
<b>Ambient and fluid temperature</b>	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*						
<b>Lubrication</b>	Not required (Non-lube)						
<b>Operating piston speed</b>	50 to 1000 mm/s						50 to 700 mm/s
<b>Allowable stroke tolerance</b>	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: $^{+2.2}_0$						
<b>Cushion</b>	Both ends (Air cushion)						
<b>Port size</b>	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
<b>Mounting</b>	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



II 2GDc 85 °C (T5) Ta -20 °C to 40 °C  
105 °C (T4) Ta 40 °C to 60 °C

Without magnet

Built-in magnet

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 CW-XC68

With magnet

55-CP96SD B 32-100 CW-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

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.

Intermediate strokes are available.

\* Please consult with SMC for longer strokes.





# ATEX Compliant ISO Cylinder

## Standard: Double Acting, Double Rod

### Series 55-CP96W

Ø 125



II 2GDc

Without magnet

85 °C (T5) Ta -20 °C to 40 °C  
105 °C (T4) Ta 40 °C to 60 °C

Built-in magnet

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.

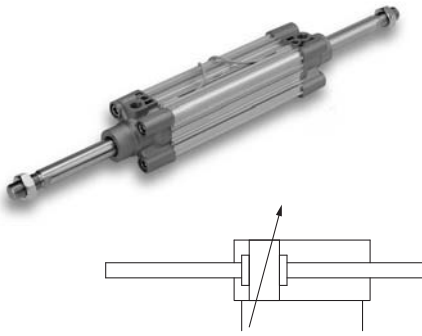
\*\* Ø 125 are produced upon receipt of order.

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.



ISO Cylinder: Standard  
Double Acting, Double Rod **Series CP96W**



## Specifications

Bore size (mm)	32	40	50	63	80	100	125
<b>Action</b>	Double acting						
<b>Fluid</b>	Air						
<b>Proof pressure</b>	1.5 MPa						
<b>Max. operating pressure</b>	1.0 MPa						
<b>Min. operating pressure</b>	0.05 MPa						
<b>Ambient and fluid temperature</b>	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*						
<b>Lubrication</b>	Not required (Non-lube)						
<b>Operating piston speed</b>	50 to 1000 mm/s						50 to 700 mm/s
<b>Allowable stroke tolerance</b>	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: $^{+2.2}_0$						
<b>Cushion</b>	Both ends (Air cushion)						
<b>Port size</b>	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
<b>Mounting</b>	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

CE		II 2GDc	Without magnet	Built-in magnet
			85 °C (T5) Ta -20 °C to 40 °C	85 °C (T5) Ta -10 °C to 40 °C
			105 °C (T4) Ta 40 °C to 60 °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>B</b>	Basic/without bracket
<b>L</b>	Axial foot
<b>F</b>	Rod side flange
<b>G</b>	Head side flange
<b>C</b>	Single clevis
<b>D</b>	Double clevis

#### Bore size

<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

#### Cylinder stroke (mm)

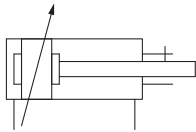
Bore size (mm)	Maximum stroke (mm)
<b>32</b>	500
<b>40</b>	500
<b>50</b>	600
<b>63</b>	600
<b>80</b>	800
<b>100</b>	800

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.



**ISO Cylinder: Non-rotating Rod Type**  
**Double Acting, Single Rod *Series CP96K***



### Specifications

Bore size (mm)	32	40	50	63	80	100
<b>Action</b>	Double acting					
<b>Fluid</b>	Air					
<b>Proof pressure</b>	1.5 MPa					
<b>Max. operating pressure</b>	1.0 MPa					
<b>Min. operating pressure</b>	0.05 MPa					
<b>Ambient and fluid temperature</b>	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*					
<b>Lubrication</b>	Not required (Non-lube)					
<b>Operating piston speed</b>	50 to 1000 mm/s					
<b>Allowable stroke tolerance</b>	Up to 250 st: $^{+1.0}_0$ , 251 to 1000 st: $^{+1.4}_0$					
<b>Cushion</b>	Both ends (Air cushion)					
<b>Port size</b>	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
<b>Mounting</b>	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
<b>Non-rotating accuracy</b>	±0.5°		±0.5°		±0.3°	
<b>Allowable rotating torque Nm max.</b>	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



II 2GDc

Without magnet

85 °C (T5) Ta -20 °C to 40 °C  
105 °C (T4) Ta 40 °C to 60 °C

Built-in magnet

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

Rod

W	Double rod
---	------------

Cylinder stroke (mm)

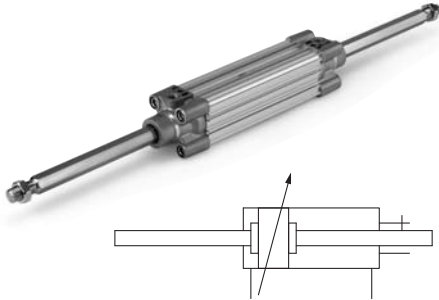
Bore size (mm)	Maximum stroke (mm)
32	500
40	500
50	600
63	600
80	800
100	800

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

Refer to page 86 for applicable auto switches.



ISO Cylinder: Non-rotating Rod Type  
Double Acting, Double Rod **Series CP96KW**



## Specifications

Bore size (mm)	32	40	50	63	80	100
<b>Action</b>	Double acting					
<b>Fluid</b>	Air					
<b>Proof pressure</b>	1.5 MPa					
<b>Max. operating pressure</b>	1.0 MPa					
<b>Min. operating pressure</b>	0.05 MPa					
<b>Ambient and fluid temperature</b>	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*					
<b>Lubrication</b>	Not required (Non-lube)					
<b>Operating piston speed</b>	50 to 1000 mm/s					
<b>Allowable stroke tolerance</b>	Up to 250 st: $^{+1.0}_0$ , 251 to 1000 st: $^{+1.4}_0$					
<b>Cushion</b>	Both ends (Air cushion)					
<b>Port size</b>	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
<b>Mounting</b>	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
<b>Non-rotating accuracy</b>	±0.5°		±0.5°		±0.3°	
<b>Allowable rotating torque Nm max.</b>	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  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

**Rod end thread**

—	Rod end female thread
M	Rod end male thread

**Cylinder stroke (mm)**  
Refer to standard stroke table

**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.

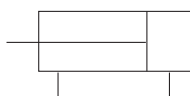


# ATEX Compliant Compact Cylinder *Series 55-C55*



## 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  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**

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

**Rubber bumper**

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

**Air cushion**

-	M5x0.8	Ø 20~Ø 25
-	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 <sup>Note 1)</sup>	Dual stroke cylinder/Double rod
XC11 <sup>Note 1) 2)</sup>	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 <sup>(1)</sup> (mm)	Long stroke <sup>(2)</sup> (mm)
20	25, 50, 75, 100, 125, 150, 200	201 to 350
25		301 to 400
32		301 to 450
40	25, 50, 75, 100, 125, 150, 200, 250, 300	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.



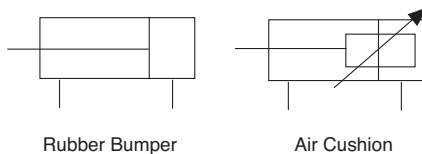
# ATEX Compliant ISO Cylinder/Standard *Series 55-CG1*



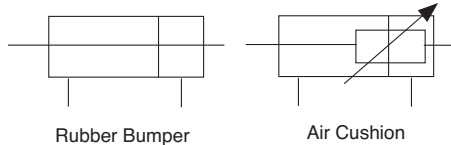
**Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.**

## Symbol

### Double Acting/Single Rod



### Double Acting/Double Rod



## 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 <sup>+1.4</sup> <sub>0</sub> mm, Up to 1200 <sup>+1.8</sup> <sub>0</sub> mm						Up to 1000 <sup>+1.4</sup> <sub>0</sub> mm Up to 1500 <sup>+1.8</sup> <sub>0</sub> 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.

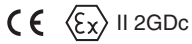
\*\*\* Mounting bolts are attached for the foot type and the flange type.



**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



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

**Rod boot/Cushion**

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

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

**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.



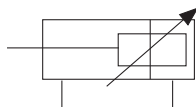
# ATEX Compliant Air Cylinder/Standard *Series 55-CS1*



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

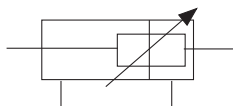
## Symbol

### Double Acting/Single Rod



Air Cushion

### Double Acting/Double Rod



Air Cushion

## Specifications

Style	Non-lube
Fluid	Air (Non-lube)
Proof pressure <sup>1)</sup>	1.57 MPa
Max. operating pressure <sup>1)</sup>	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.

## Accessories

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

					(mm)	
Max. Stroke		Without magnet			With magnet	
Tube material		Aluminium alloy	Carbon steel tube		Aluminium alloy	
<div>Mounting bracket</div>	<div>Basic Rear flange Single clevis Double clevis Centre trunnion Foot Front flange</div>	<div>Basic Rear flange Single clevis Double clevis</div>	<div>Foot Front flange</div>	B, G, C, D, T	L, F *	
Bore						
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  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

**Without magnet**  
Ø 32 to Ø 100

**With magnet**

55 - CQ2 B 20 - 30 D -  
55 - CQ2 B 32 - 30 D Z -  
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	
TF	G	Ø 32 to Ø 100

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

### Made to Order

-	Standard
XC85	With food grade grease

### 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.

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  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

**Without magnet**  
Ø 32 to Ø 100

**With magnet**

**55 - CQ2W** B 20   - 30 D   -  

**55 - CQ2W** B 32   - 30 D   Z -  

**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.

**Made to Order**

-	Standard
XC85	With food grade grease

**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

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



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	<b>55-CQ2</b>	<b>A</b>	<b>32</b>		<b>-200</b>	<b>DC</b>		<b>Z</b>	
With magnet	<b>55-CDQ2</b>	<b>A</b>	<b>32</b>		<b>-200</b>	<b>DC</b>		<b>Z</b>	

**ATEX category 2**

**Built-in magnet for auto switch**

**Mounting bracket**

<b>A</b>	Both ends tapped
<b>L</b>	Foot
<b>F</b>	Rod side flange
<b>G</b>	Head side flange
<b>D</b>	Double clevis

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

**Bore size**

<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

**Port thread type**

<b>-</b>	Rc
<b>TF</b>	G

**Made to Order**

<b>-</b>	Standard
<b>XC85</b>	With food grade grease

**Auto switch mounting groove**

<b>Z</b>	4 surfaces
----------	------------

**Body option**

<b>-</b>	Standard (Rod end female thread)
<b>M</b>	Rod end male thread

**Cushion**

<b>C</b>	Rubber cushion
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**Action**

<b>D</b>	Double acting
----------	---------------

**Cylinder stroke (mm)**

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

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 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** **DC** **Z** -

With magnet **55 - CDQ2B** **125** **-30** **DC** **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

<b>125</b>	125 mm
<b>140</b>	140 mm
<b>160</b>	160 mm
<b>180</b>	180 mm
<b>200</b>	200 mm

Port thread type

-	Rc
<b>TF</b>	G

Made to Order

-	Standard
<b>XC85</b>	With food grade grease

Auto switch mounting groove

**Z** 4 surfaces

Body option

-	Standard (Rod end female thread)
<b>M</b>	Rod end male thread

Cushion

**C** Rubber cushion

Action

**D** Double acting

Cylinder stroke (mm)

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

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.



# Series 55-CQ2

## Style

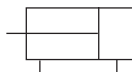
Bore size (mm)			12	16	20	25	32	40	50	63	80	100	125	140	160	180	200
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Both ends tapped	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Built-in magnet		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Piping	Screw-in style	M5	M5	M5	M5	M5 <sup>(1)</sup> G 1/8	G 1/8	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		●	●	●	●	●	●	●	●	●	●	● <sup>(2)</sup>	● <sup>(2)</sup>	● <sup>(2)</sup>	● <sup>(2)</sup>	● <sup>(2)</sup>

Note 1) Among those without an auto switch, only the 5mm stroke uses M5 piping.

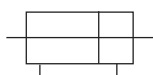
Note 2) Rubber bumper is standard for bore sizes over Ø 125.

## 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  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
<b>W</b>	Double rod

Bearing

<b>M</b>	Slide bearing
<b>L</b>	Ball bushing bearing

Bore size

<b>6</b>	6 mm
<b>10</b>	10 mm
<b>15</b>	15 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm

Port thread type

Symbol	Type	Bore size
—	M thread	Ø 6~Ø 20
	Rc	Ø 25~Ø 32
<b>TF</b>	G	Ø 25~Ø 32

Made to order

—	Standard
<b>XB11</b>	Long stroke type
<b>XC22</b>	Fluoro rubber seals. Only for Ø 25

Standard Strokes

**CXS**

(mm)

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

**CXSW**

(mm)

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

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.



# ATEX Compliant Dual Rod Cylinder *Series 55-CXS/55-CXSW*



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  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

Stroke

Refer to the  
standard stroke  
table below.

Special

-	Standard type
<b>XB11</b>	Long Stroke 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	
<b>TN</b>	NPT	Ø 25~Ø 100
<b>TF</b>	G	

Piping

-	Standard type
<b>G</b>	Centralized piping 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	3000
20, 25, 32, 40, 50, 63, 80, 100	800, 900, 1000, 1200, 1400, 1600, 1800, 2000	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.

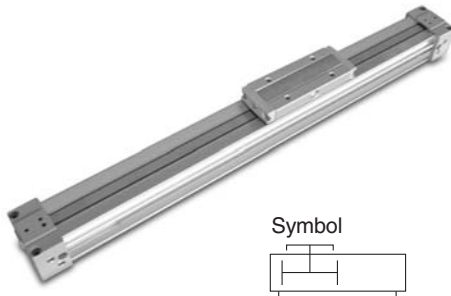
## Specifications

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 <sup>+1.8</sup> <sub>0</sub> 1001 to 3000 <sup>+2.8</sup> <sub>0</sub>	2700 or less <sup>+1.8</sup> <sub>0</sub> , 2701 to 5000 <sup>+2.8</sup> <sub>0</sub>									
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									

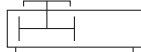
Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

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.



Symbol







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 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

ATEX category 2

55-MY1M

Slide bearing  
guide type

25

300

Stroke  
Refer to the  
standard stroke  
table below.

XB11

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	3000
20, 25, 32, 40 50, 63	800, 900, 1000, 1200, 1400, 1600 1800, 2000	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.

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	
TN	NPT	Ø 25-Ø 63
TF	G	



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 <sup>+1.8</sup> <sub>0</sub> 1001 to 3000 <sup>+2.8</sup> <sub>0</sub>		2700 or less <sup>+1.8</sup> <sub>0</sub> , 2701 to 5000 <sup>+2.8</sup> <sub>0</sub>				
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  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

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.

Piping

—	Standard type
G	Centralized piping type

Port thread types

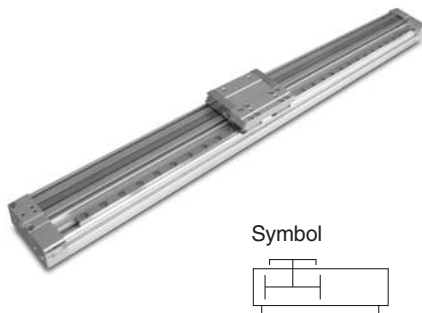
Symbol	Type	Bore size
—	M thread	Ø 10~Ø 20
	Rc	
TN	NPT	Ø 25~Ø 40
TF	G	

## Standard strokes

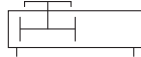
Bore size (mm)	Standard stroke (mm) (*)	Max. stroke (mm) Stroke achievable with -XB11
10		600
16		
20	50, 100, 150, 200, 250,	1000
25	300, 350, 400, 450, 500,	
32	550, 600	1500
40		

(\*) 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.

## Specifications



Symbol



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

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				

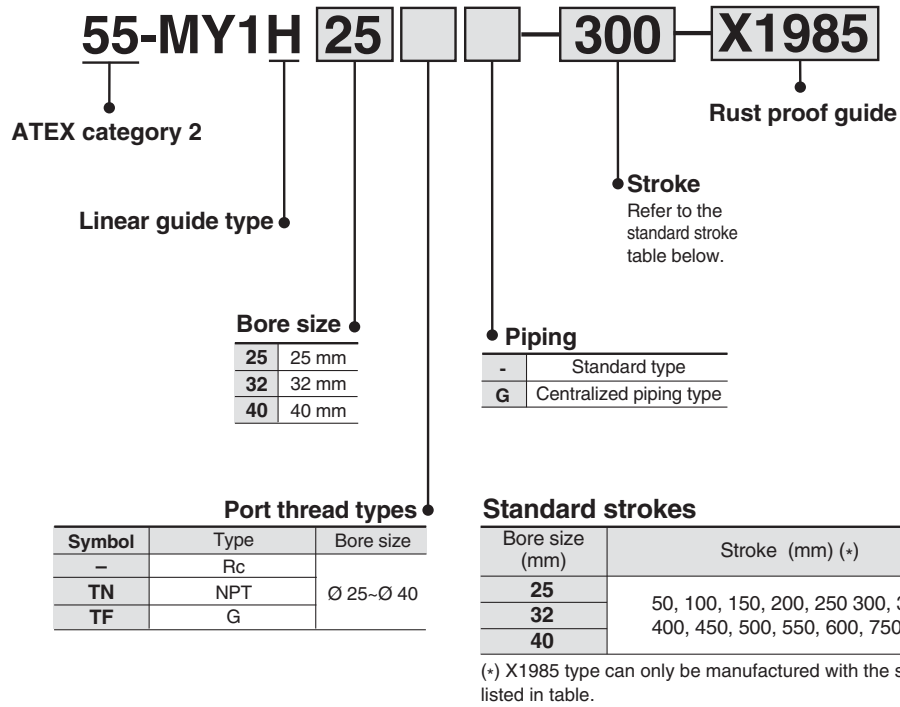
All other specifications are the same as the standard products  
Series MY1H. For details, refer to the **WEB catalogue**

Refer to page 86 for applicable auto switches.



# Mechanically jointed Rodless Cylinder *Series 55-MY1H*

## How to Order





# 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**

## ATEX Compliant Solid-state Switch / Direct Mounting

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



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

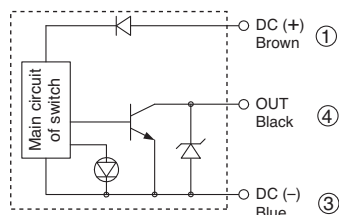
### Grommet



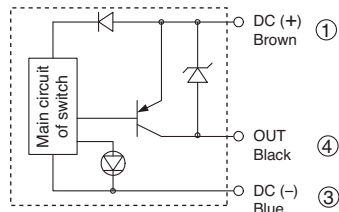
Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

### Auto Switch Internal Circuit

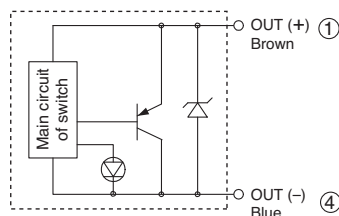
#### D-M9N, D-M9NV



#### D-M9P, D-M9PV



#### D-M9B, D-M9BV



### 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		

### 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

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**

# ATEX Compliant 2-Colour Solid State Switch: Direct Mounting Series *D-M9NW(V)/D-M9PW(V)/D-M9BW(V)-588*



CE Ex 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

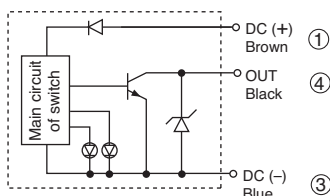
PLC: Programmable Logic Controller

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.					

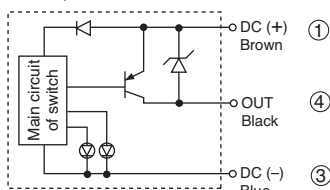
● This category 3 type autoswitch can only be used in zones 2 and 22.

## Auto Switch Internal Circuit

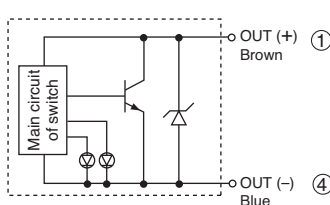
### D-M9NW, D-M9NWV



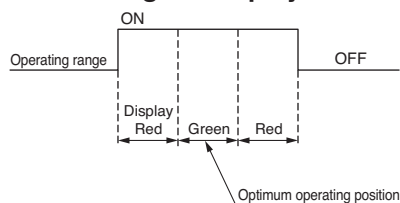
### D-M9PW, D-M9PWV



### 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
Wiring/Output type	Suffix for ATEX certified category 3
Electrical entry direction	Lead wire length
N 3-wire NPN	— 0.5 m
P 3-wire PNP	M 1 m
B 2-wire	L 3 m
— In-line	Z 5 m
V Perpendicular	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/Band Mounting

# D-H7A2-588



CE  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

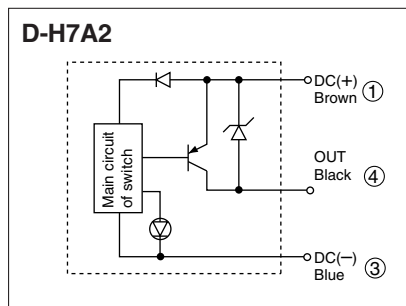
D-H7 (With indicator light)	
Auto switch model number	<b>D-H7A2</b>
<b>Wiring</b>	3 wire
<b>Output</b>	PNP
<b>Application</b>	IC circuit/Relay/PLC
<b>Power voltage</b>	5/12/24 V DC (4.5 to 28 V DC)
<b>Current consumption</b>	10 mA or less
<b>Load current</b>	80 mA or less
<b>Internal voltage drop</b>	0.8 V or less
<b>Current leakage</b>	100 μA or less at 24 V DC
<b>Indicator light</b>	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		<b>D-H7A2</b>
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 [mm <sup>2</sup> ]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

### Internal Circuit



### How to order

**D-H7A2**  **-588**

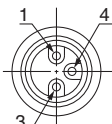
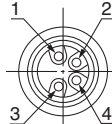
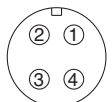
Auto switch part number

Suffix for ATEX certified category 3

Lead wire length

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



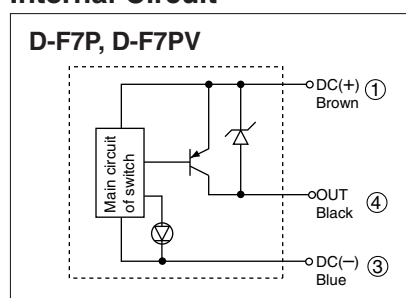
CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

### Grommet



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

### Internal Circuit



### Specifications

PLC: Programmable Logic Controller

D-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 $\mu$ A 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 [mm <sup>2</sup> ]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

### How to order

**D-F7P □ □ -588**

Auto switch part number

Suffix for ATEX certified category 3

Lead wire length

Electrical entry	
—	In Line
V	Perpendicular

—	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/Tie-rod Mounting

## D-F5P-588



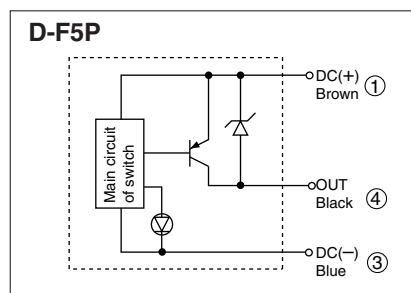
II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93°C X

### Grommet



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

### Internal Circuit



### Specifications

PLC: Programmable Logic Controller

D-F5P (With indicator light)	
Auto switch model number	<b>D-F5P</b>
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		<b>D-F5P</b>
Sheath	Outside diameter [mm]	Ø 4
	Number of cores	3 cores (Brown/Blue/Black)
Insulator	Outside diameter [mm]	Ø 1.22
	Cross section [mm <sup>2</sup> ]	0.3
Conductor	Strand diameter [mm]	Ø 0.08
	Minimum bending radius [mm] (Reference)	24

### How to order

**D-F5P -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/Direct Mounting

## D-Y7P(V)-588



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

### 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.

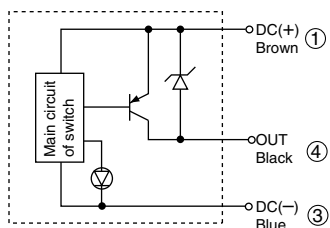
### Grommet



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

### Internal Circuit

#### D-Y7P, D-Y7PV



### 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 [mm <sup>2</sup> ]	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**

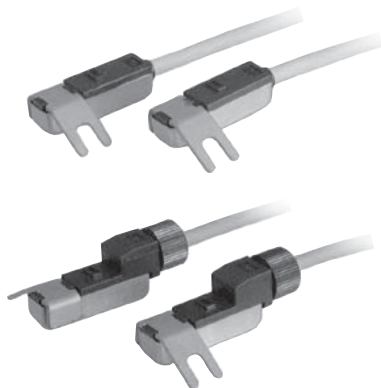
## ATEX Compliant Solid State Switch / Direct Mounting

# D-S7P-588



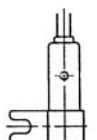
CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

**Grommet/Connector  
Electrical entry: In-line**



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

**D-S7P2**



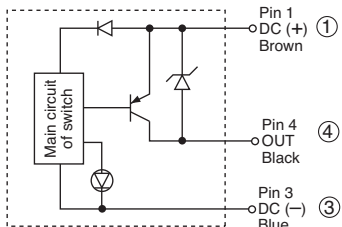
Left-hand  
mounting

**D-S7P1**



Right-hand  
mounting

### Auto Switch Internal Circuit



## 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 [mm <sup>2</sup> ]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

## How to order

**D-S7P □ □ -588**

Auto switch  
part number

Suffix for  
ATEX certified category 3

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**

# ATEX Compliant Solid State Switch/Direct Mounting

## D-S9P-588



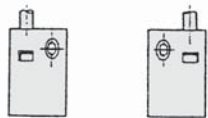
CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

### Grommet



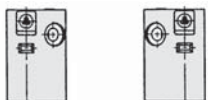
Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

### D-S9P2 D-S9P1



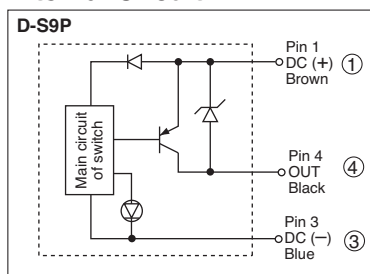
Left-hand mounting Right-hand mounting

### D-S9PV2 D-S9PV1



Left-hand mounting Right-hand mounting

### 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 $\mu$ A 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 [mm <sup>2</sup> ]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

### How to order

<b>D-S9P</b>		<b>-588</b>
Auto switch part number	Electrical entry	Suffix for ATEX certified category 3
—	In-Line	
V	Perpendicular	
Mounting		Lead wire length
1	Right hand mounting	— 0.5 m
2	Left hand mounting	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 / Direct Mounting

# D-F6P-588



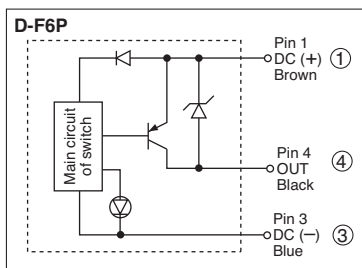
CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

### 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.	<b>D-F6P</b>
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 $\mu$ A 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		<b>D-F6P</b>
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)
	Number of cores	3 cores (Brown/Blue/Black)
Insulator	Outside diameter [mm]	Ø 0.9
	Cross section [mm <sup>2</sup> ]	0.15
Conductor	Strand diameter [mm]	Ø 0.05
	Minimum bending radius [mm] (Reference)	20

### How to order

**D-F6P** **-588**

Auto switch part no.

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

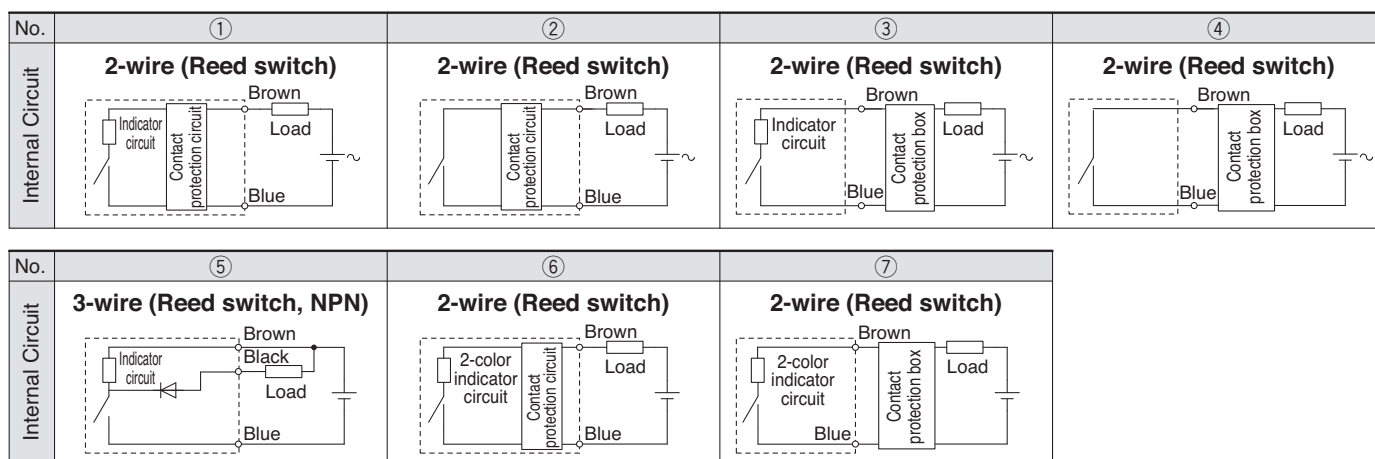
Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			



# Prior to Use

## Auto Switch/Internal Circuit

### Reed Auto 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.

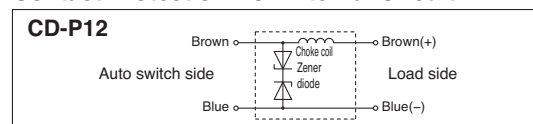
#### Contact Protection Box Specifications

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

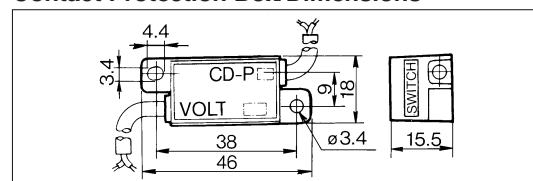


\* Lead wire length — Auto switch connection side 0.5 m  
Load connection side 0.5 m

#### Contact Protection Box Internal Circuit



#### 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**

# ATEX Compliant Reed Switch/Band Mounting

## D-C73/D-C80-588



CE Ex 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	<b>D-C73</b>
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	<b>D-C80</b>
Applicable load	Relay/PLC/IC circuit
Load voltage	24 V <sup>AC</sup> / <sub>DC</sub> or less
Max. load current	50 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		<b>D-C73/D-C80</b>
Sheath	Outside diameter [mm]	Ø 3.4
	Number of cores	2 cores (Brown, Blue)
Insulator	Outside diameter [mm]	Ø 1.1
	Cross section [mm <sup>2</sup> ]	0.2
Conductor [mm]	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

<b>73</b>	With indicator lamp
<b>80</b>	Without indicator lamp

#### Lead wire length

<b>-</b>	0.5 m
<b>L</b>	3 m
<b>Z</b>	5 m (Except D-C80)



ATEX Compliant

# ATEX Compliant Reed Switch/Rail Mounting D-A73(H)/D-A80(H)-588



CE Ex 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 <sup>AC</sup> DC or less	48 V <sup>AC</sup> 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 [mm <sup>2</sup> ]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius of lead wire [mm] (Reference)		21

## How to order

Auto switch model number		Suffix for ATEX certified category 3	
73	With indicator light	-588	
80	Without indicator light		
Electrical Entry		Lead wire length	
-	Perpendicular	-	0.5 m
H	In-line	L	3 m
		Z	5 m (Except A80□)



**ATEX Compliant**

## ATEX Compliant Reed Switch/Tie-rod Mounting

# D-A54/D-A67-588



CE Ex 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	<b>D-A54</b>
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	<b>D-A67</b>
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		<b>D-A54/D-A67</b>
Sheath	Outside diameter [mm]	Ø 4
Insulator	Number of cores	2 cores (Brown, Blue)
	Outside diameter [mm]	Ø 1.22
Conductor	Cross section [mm <sup>2</sup> ]	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 •

<b>54</b>	With indicator light
<b>67</b>	Without indicator light

• Lead wire length

<b>-</b>	0.5 m
<b>L</b>	3 m
<b>Z</b>	5 m (Except D-A67)



**ATEX Compliant**

# ATEX Compliant Reed Switch/Direct Mounting D-A90(V)/D-A93(V)-588



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

## 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 <sup>AC</sup> <sub>DC</sub> or less	48 V <sup>AC</sup> <sub>DC</sub> 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.

## Grommet



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

## Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		D-A90 (V)/D-A93 (V)
Sheath	Outside diameter [mm]	Ø 2.7
	Number of cores	2 cores (Brown, Blue)
Insulator	Outside diameter [mm]	Ø 0.96
	Cross section [mm <sup>2</sup> ]	0.18
Conductor	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

● Suffix for ATEX certified category 3

● Lead wire length

—	0.5 m
L	3 m
Z	5 m (Except D-A90□)



**ATEX Compliant**

# ATEX Compliant Reed Switch/Direct Mounting

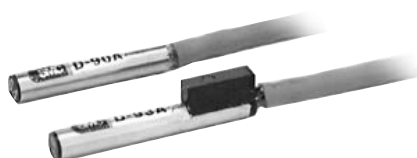
## D-90A/D-93A-588

CE Ex 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 <sup>AC</sup> 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
	Number of cores	2 cores (Brown, Blue)
Insulator	Outside diameter [mm]	Ø 1.1
	Cross section [mm <sup>2</sup> ]	0.2
Conductor	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**

## ATEX Compliant Reed Switch/Direct Mounting

# D-Z73/D-Z80-588



CE 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	<b>D-Z73</b>
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	<b>D-Z80</b>
Applicable load	Relay/PLC/IC circuit
Load voltage	24 V <sup>AC</sup> / <sub>DC</sub> or less
Max. load current	50 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		<b>D-Z73/D-Z80</b>
Sheath	Outside diameter [mm]	Ø 2.7
	Number of cores	2 cores (Brown, Blue)
Insulator	Outside diameter [mm]	Ø 1.1
	Cross section [mm <sup>2</sup> ]	0.18
Conductor	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

<b>73</b>	With indicator light
<b>80</b>	Without indicator light

### Lead wire length

<b>-</b>	0.5 m
<b>L</b>	3 m
<b>Z</b>	5 m (Except D-Z80)



**ATEX Compliant**

## ATEX Compliant Reed Switch/Direct Mounting

# D-E73A/D-E80A-588



CE 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 <sup>AC</sup> <sub>DC</sub> or less	48 V <sup>AC</sup> <sub>DC</sub>
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
	Number of cores	2 cores (Brown, Blue)
Insulator	Outside diameter [mm]	Ø 1.1
	Cross section [mm <sup>2</sup> ]	0.2
Conductor	Strand diameter [mm]	Ø 0.08
	Minimum bending radius of lead wire [mm] (Reference)	21

## How to order

D-E 73 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**

## ATEX Compliant Reed Switch/Direct Mounting

# D-R73/D-R80-588

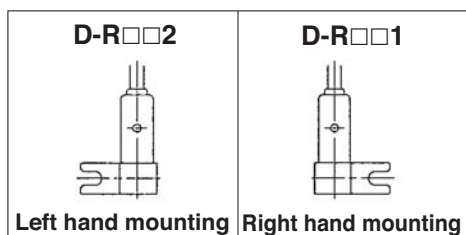


CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

**Grommet  
Electrical entry: In-line**



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



## 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 <sup>AC</sup> 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
	Number of cores	2 cores (Brown, Blue)
Insulator	Outside diameter [mm]	Ø 1.1
	Cross section [mm <sup>2</sup> ]	0.2
Conductor	Strand diameter [mm]	Ø 0.08
	Minimum bending radius of lead wire [mm] (Reference)	21

## How to order

**D - R □ □ □ - 588**

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

Suffix for  
ATEX certified  
category 3








**ATEX Compliant**

# Rotary Actuator: Vane Type

## Series 55-CRB1/56-CRB1

Sizes: 50, 63, 80, 100

### How to Order

CE  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>B</b>	Basic type
<b>L*</b>	Foot type

Refer to Table 1 below if only foot assembly is required separately.

\* Foot accessory is shipped together with the actuator but not mounted on it.

**Size**

<b>50</b>
<b>63</b>
<b>80</b>
<b>100</b>

**Thread Port**

<b>-</b>	Rc(PT)
<b>XF</b>	G(PF)
<b>XN</b>	NPT

**Connecting port position**

<b>-</b>	Side ports
<b>E</b>	Axial ports

Table 1: Foot assembly part no.

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

**Shaft type**

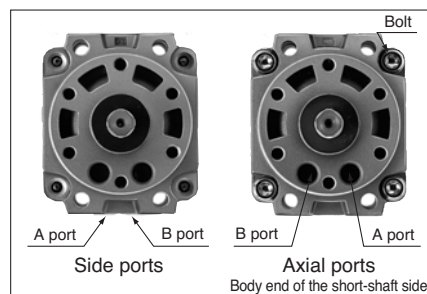
<b>W</b>	Double shaft (long shaft key & four chamfers)
----------	---

**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**

<b>S</b>	Single vane
<b>D</b>	Double vane



### How to Order

CE  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**

<b>-</b>	Without switch unit
<b>D</b>	With switch unit

**Mounting**

<b>B</b>	Basic type
<b>L*</b>	Foot type

Refer to Table 1 below if only foot assembly is required separately.

\* Foot accessory is shipped together with the actuator but not mounted on it.

**Size**

<b>50</b>
<b>63</b>
<b>80</b>
<b>100</b>

**Thread Port**

<b>-</b>	Rc(PT)
<b>XF</b>	G(PF)
<b>XN</b>	NPT

**Connecting port position**

<b>-</b>	Side ports
<b>E</b>	Axial ports

Table 1: Foot assembly part no.

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

**Shaft type**

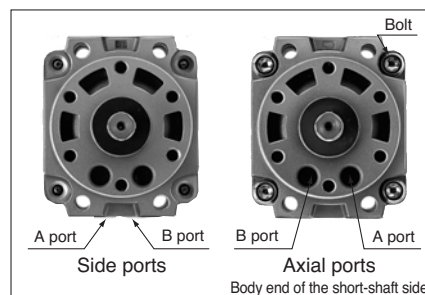
<b>W</b>	Double shaft (long shaft key & four chamfers)
----------	---

**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**

<b>S</b>	Single vane
<b>D</b>	Double vane

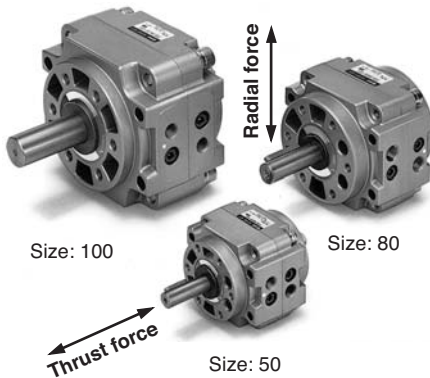


All other specifications are the same as the standard products Series CRB1. For details, refer to the **WEB catalogue**.

Refer to page 86 for applicable auto switches.

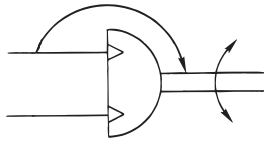


# Rotary actuator Vane Type *Series 55-CRB1/56-CRB1*



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° <sup>+4</sup> <sub>0</sub> , 180° <sup>+4</sup> <sub>0</sub> , 270° <sup>+4</sup> <sub>0</sub>				90° <sup>+4</sup> <sub>0</sub>			
	Optional	100° <sup>+4</sup> <sub>0</sub> , 190° <sup>+4</sup> <sub>0</sub> , 280° <sup>+4</sup> <sub>0</sub>				100° <sup>+4</sup> <sub>0</sub>			
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



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 <sup>1)</sup>	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.

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

Vane type

S	Single vane
D	Double vane

Rotation

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

Connecting port position

-	Side ports
E	Axial ports

### Flange Assembly Part No.

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

### How to Order



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 <sup>1)</sup>	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.

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

Vane type

S	Single vane
D	Double vane

Rotation

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

Connecting port position

-	Body size
E	Axial position

\* E not possible with switch unit

### Flange Assembly Part No.

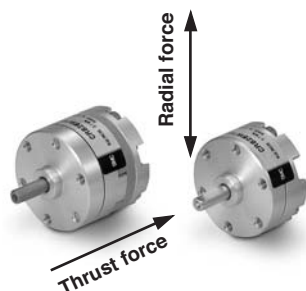
Model	Assembly part no.
CRB2FW10	P211070-2
CRB2FW15	P211090-2
CRB2FW20	P211060-2
CRB2FW30	P211080-2

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.

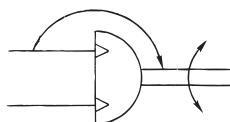


# Rotary actuator Vane Type *Series 55-CRB2/56-CRB2*



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) <sup>Note 2)</sup>	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) <sup>Note 2)</sup>		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



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**

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

<b>S</b>	Single vane
<b>D</b>	Double vane

**Connecting port position**

-	Side ports
<b>E</b>	Axial ports

## How to Order



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
<b>D</b>	With switch unit

**Free-mounting**

**Shaft type**

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

<b>S</b>	Single vane
<b>D</b>	Double vane

**Connecting port position**

-	Body size
<b>E</b>	Axial position

\* E not possible with switch unit

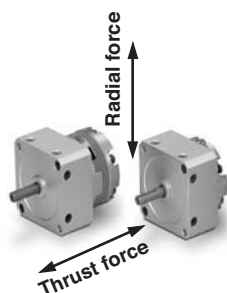
\* Cannot be selected when mounting an auto switch

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.

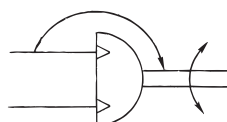


# Rotary Actuator Free-Mounting Type *Series 55-CRBU2/56-CRBU2*



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) <sup>Note 1)</sup>		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) <sup>Note 1)</sup>		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  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** • **Air cushion** • **Rotation** • **Port thread type** • **Size** • **Shaft type**

Built-in magnet	
-	None
D	Magnet

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

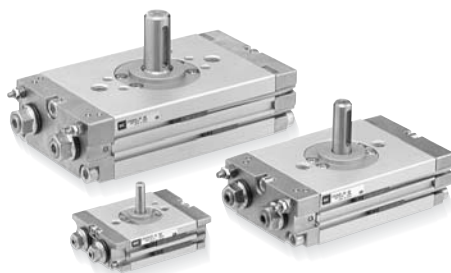
Rotation	
90	80° to 100°
180	170° to 190°

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

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	

## Specifications



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

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

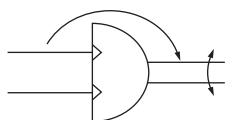
Size	Allowable kinetic energy				Stable operational rotation time adjustment range
	Allowable kinetic energy (J)			Cushion angle	
	Without cushion	Rubber bumper	With air cushion *		Rotation time (s/90°)
10	—	0.25 x 10 <sup>-3</sup>	—	—	0.2 to 0.7
15	—	0.39 x 10 <sup>-3</sup>	—	—	0.2 to 0.7
20	0.025	—	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.

JIS symbol








ATEX Compliant

# Compact Rotary Actuator: Rack-and-Pinion Type

## Series 56-CRQ2

CE  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

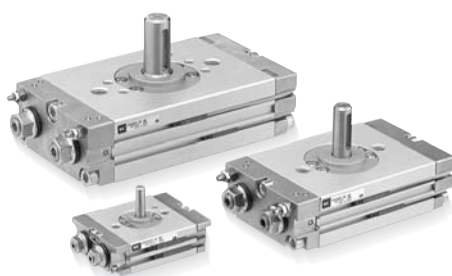
Size	Port thread
10, 15	— M5
	— Rc 1/8
20, 30, 40	TF G 1/8
	TN NPT 1/8
	TT NPTF 1/8

Cushion

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

Rotation

90	80° to 100°
180	170° to 190°

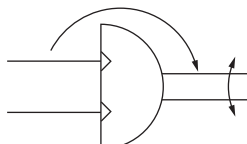


Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

### 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

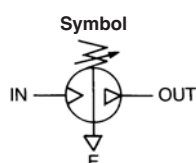
CE  $\text{Ex}$  II 3 GD c T6 Ta 2 °C to 50 °C

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

## How to Order

Series VBA 10A  
2□A  
4□A

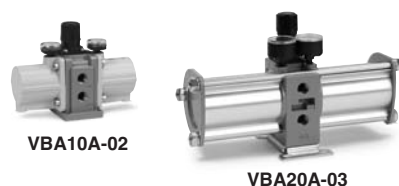
56-VBA 40A - 04 GN -



• ATEX category 3

• 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	
40A	1/2, Handle-operated type	Pressure increase ratio: Twice
22A	3/8, Air-operated type	
42A	1/2, Air-operated type	
43A	1/2, Max. operating pressure 1.6 Mpa	



• Thread type <sup>Note)</sup>

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.

• Semi-standard

Symbol	Specifications
—	Pressure unit on the product name label and pressure gauge: MPa
Z <sup>Note)</sup>	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.

• Options

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

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

• Port size

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

## 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.



## 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 <sup>Note 1)</sup>			Air-operated		Handle-operated with relief mechanism <sup>Note 1)</sup>	
Max. flow rate <sup>Note 2)</sup> [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.)

Model	VBA10A-02	VBA20A-03	VBA40A-04	VBA22A-03	VBA42A-04	VBA43A-04	VBA1111-02
Description	VBA10A-F02	VBA20A-F03	VBA40A-F04	VBA22A-F03	VBA42A-F04	VBA43A-F04	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.)

Model	VBA10A-N02 *	VBA20A-N03 *	VBA40A-N04 *	VBA22A-N03 *	VBA42A-N04 *	VBA43A-N04 *	VBA1111-N02 *
Description	VBA10A-T02 * *: when "-Z"	VBA20A-T03 * *: when "-Z"	VBA40A-T04 * *: when "-Z"	VBA22A-T03 * *: when "-Z"	VBA42A-T04 * *: when "-Z"	VBA43A-T04 * *: when "-Z"	NVBA1111-T02 * *: when "-Z"
Pressure gauge *: no symbol <sup>Note 5)</sup>	G27-20-01	G36-10-N01		KT-VBA22A-7N	G36-10-N01	G27-20-N01	G27-20-01
Pressure gauge *: when "-Z" <sup>Note 4)</sup>	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

CE  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)

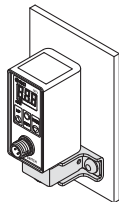
Unit specifications

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

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  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**

**15 MPa**

**56 - ISE75**    **56 - ISE75H**

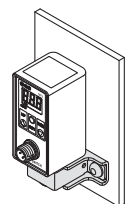
**02**    **02**

**43**    **43**

**M**    **M**

**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

**ATEX category 3**

**Piping specifications**

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

**Output specifications**

<b>27</b>	2 settings NPN open collector 2 outputs (Pin no.: 2, 4)
<b>43</b>	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)
<b>65</b>	Fixed setting PNP open collector 1 output (Pin no.: 4)
<b>67</b>	2 settings PNP open collector 2 outputs (Pin no.: 2, 4)

**Unit specifications**

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

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

### 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



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](http://www.smcworld.com).

**Long service life:  
5 million cycles**



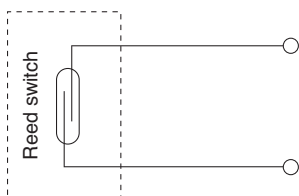
56-IS10

### 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

### 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

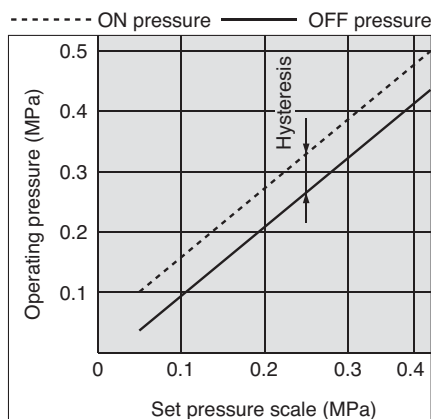
Semi-standard

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
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.)

### Operating Pressure Range





ATEX Compliant

# ATEX Compliant 2 Port Steam Valve Series 56-VND

CE Ex II 3G TX  
-5 °C ≤ Ta ≤ 60 °C

## How to Order

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

**ATEX category 3**

**Body option**

-	Standard (Copper alloy)
S*	Stainless steel body

\* Threaded type only

**Thread type**

-	Rc
F	G
N	NPT
T	NPTF

**Valve size**

Symbol	Orifice dia. (mm)	0	2	4
		N.C.	N.O.	N.C.
1	Ø 7	—	●	●
2	Ø 15	●	●	—
3	Ø 20	●	●	—
4	Ø 25	●	●	—
5	Ø 32	●	●	—
6	Ø 40	●	●	—
7	Ø 50	●	●	—

**Valve type**

**Port size**

Symbol	Port size Rc
6A	1/8
8A	1/4
10A	3/8
15A	1/2
20A	3/4
25A	1
32A	1 1/4
32F	1 1/4 B Flange
40A	1 1/2
40F	1 1/2 B Flange
50A	2
50F	2B Flange

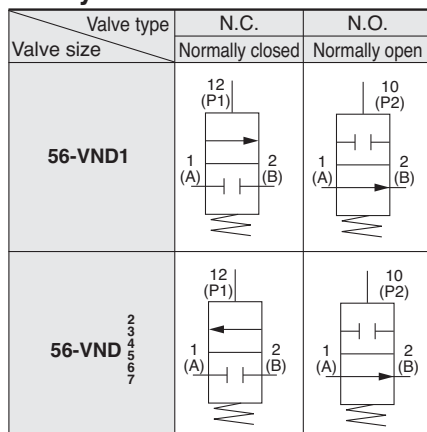
**Option**

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

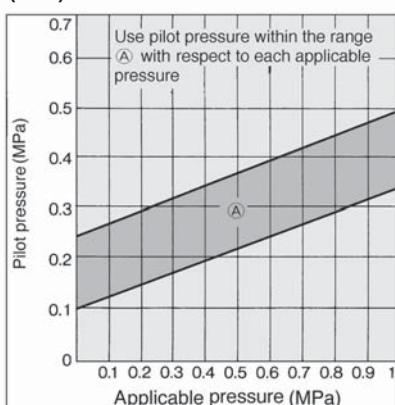
\* Brackets (for valve size 1/2/3/4 only) will be assembled at the time of shipment. Bracket part no.  
Valve size 1: VN1-A16 (with thread) Valve size 2 to 4: VN□-16

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

## JIS Symbol



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




## Model

Model	Port size		Orifice dia. Ø (mm)	Flow characteristics Av x 10 <sup>-6</sup> m <sup>2</sup>	Mass (kg)
	Rc	Flange <small>Note 1)</small>			
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		440	5.5
56-VND60□D-40A	1 1/2	—	40	920	3.6
56-VND60□D-40F	—	40		920	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.

## Valve Specifications

Fluid (Main piping)			Steam
Fluid temperature			-5 to 180 °C <small>Note 1)</small>
Ambient temperature			-5 to 60 °C <small>Note 1)</small>
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			CE  II 3G TX -5 °C ≤ Ta ≤ 60 °C
Seal material			PTFE

Note 1) No freezing





CE  $\Xi$  II 2GD c 75 °C (T6X)  
5 °C ≤ T<sub>a</sub> ≤ 80 °C

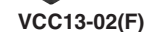
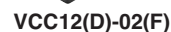
## Valve

Passage number ●

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

- **Port size**

Note) Part number for sub-base  
For 2 port: VCC12-S-<sup>02</sup><sub>02F</sub> [Rc 1/4]  
[G 1/4]  
For 3 port: VCC13-S-<sup>02</sup><sub>02F</sub> [Rc 1/4]  
[G 1/4]



## Manifold

## Standard

Type (Passage number) ●

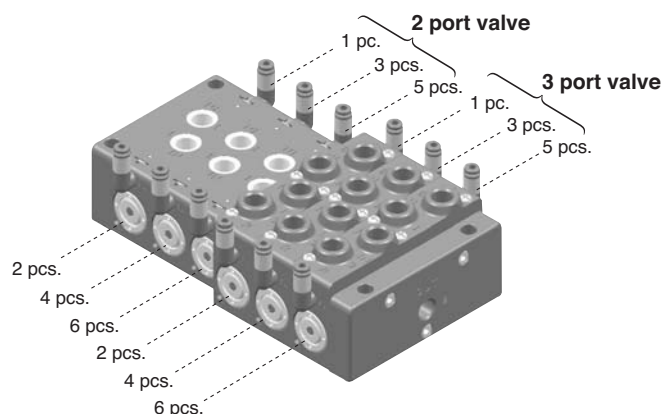
- **Pilot port fitting size**

**2 port valve mountable number** ●

- **3 port valve mountable number**

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

### Circuit example





## How to Order

### Manifold

With gate valve

**VV M CC1-06 06 C4-G 04**

● **Passage number**

<b>2</b>	2 port valve, Cleaning valve
<b>M</b>	2/3 port valves mixed mounting

● **2 port valve mountable number**

<b>00</b>	No 2 port valves used
<b>02</b>	2 pcs. (colours)
<b>04</b>	4 pcs. (colours)
⋮	⋮

● **3 port valve mountable number**

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

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

● **Gate valve and cleaning valve mountable number**

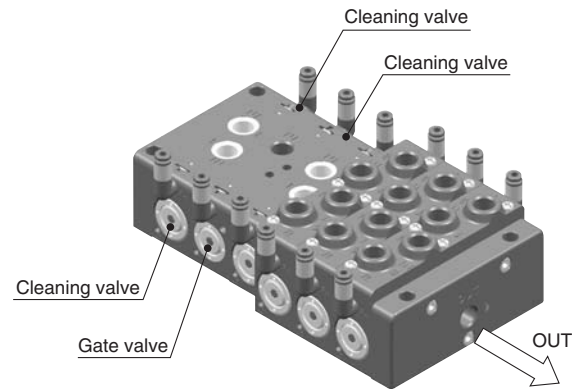
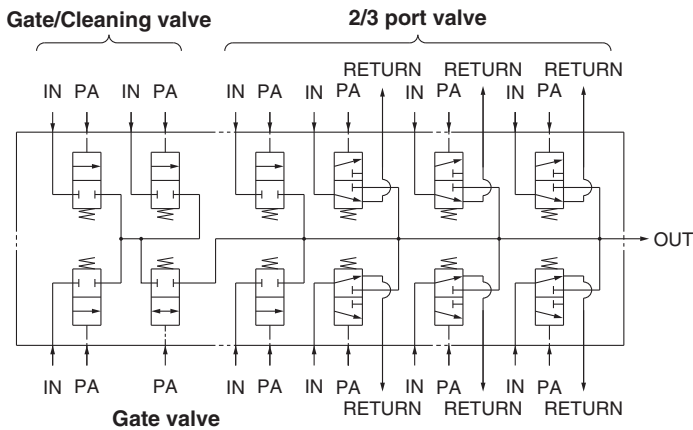
<b>02</b>	Cleaning valve (2 port valve): 1 pc. + Gate valve: 1 pc.
<b>04</b>	Cleaning valve (2 port valve): 3 pcs. + Gate valve: 1 pc.
<b>06</b>	Cleaning valve (2 port valve): 5 pcs. + Gate valve: 1 pc.

● **Pilot port fitting size**

<b>C4</b>	Ø 4 one-touch fitting (Antistatic)
<b>C6</b>	Ø 6 one-touch fitting (Antistatic)

\* 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**

<b>H</b>	Male connector
<b>K</b>	40° swivel elbow
<b>L</b>	90° swivel elbow

● **Port size**

<b>02F</b>	G 1/4
* G 1/4 bottom seal has a special shape.	

● **Applicable tubing (O.D. x I.D.)**

<b>0604</b>	6 x 4
<b>0806</b>	8 x 6
<b>1075</b>	10 x 7.5
<b>1008</b>	10 x 8
<b>1209</b>	12 x 9



### Option

#### Blanking Plug Assembly

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





# Series VCC

## 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 <sup>2</sup> ]	6		
Fluid temperature [°C]	5 to 50		
Ambient temperature [°C]	5 to 50		
Explosion proof construction	Explosion protection $\text{C} \text{E} \text{II} 2 \text{GD} \text{c} 75 \text{ } ^\circ\text{C} (\text{T6X}), 5 \text{ } ^\circ\text{C} \leq \text{Ta} \leq 80 \text{ } ^\circ\text{C}$		
Lubrication	Not possible (Default lubricant: White vaseline)		
Mounting orientation	Unrestricted		
Valve leakage (cm <sup>3</sup> /min)	1 or less (3 port valve IN → RETURN: 20 or less) <sup>Note 1)</sup>		1 or less <sup>Note 2)</sup>

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

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

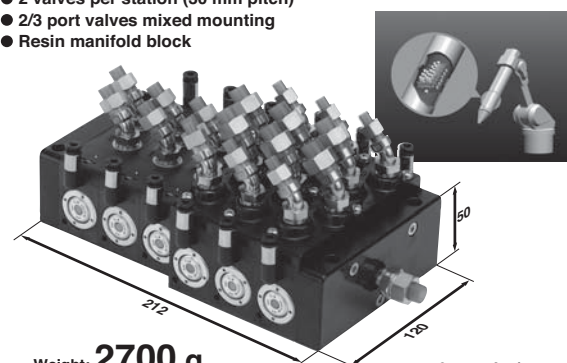
## SUS316L Stainless Steel Fitting Specifications

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)

<b>2</b>	2 port valve
<b>3</b>	3 port valve
<b>M</b>	2/3 port valves mixed mounting

#### ② 2 port valve mountable number Note 1)

<b>00</b>	Without 2 port valve
<b>02</b>	2 pcs. (colours)
<b>04</b>	4 pcs. (colours)
<b>:</b>	<b>:</b>
<b>40</b>	40 pcs. (colours) <small>Note 2)</small>

#### ④ Pilot port fitting size

<b>C4</b>	Ø 4 one-touch fitting
<b>C6</b>	Ø 6 one-touch fitting

#### ③ 3 port valve mountable number Note 1)

<b>00</b>	Without 3 port valve
<b>02</b>	2 pcs. (colours)
<b>04</b>	4 pcs. (colours)
<b>:</b>	<b>:</b>
<b>40</b>	40 pcs. (colours) <small>Note 2)</small>

#### ⑤ Gate valve and cleaning valve mountable number Note 1)

<b>-</b>	Without gate valve <small>Note 3)</small>
<b>G02</b>	Cleaning valve: 1 pc. + Gate valve: 1 pc.
<b>G04</b>	Cleaning valve: 3 pcs. + Gate valve: 1 pc.
<b>G06</b>	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)

<b>2</b>	2 port valve
<b>3</b>	3 port valve
<b>2D</b>	2 port/Diaphragm type

#### 3. How to Order the Blanking Plug

**VVCC1** **2** - **10A** - **1**

①

#### ① Type (Passage number)

<b>2</b>	For 2 port valves
<b>3</b>	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**

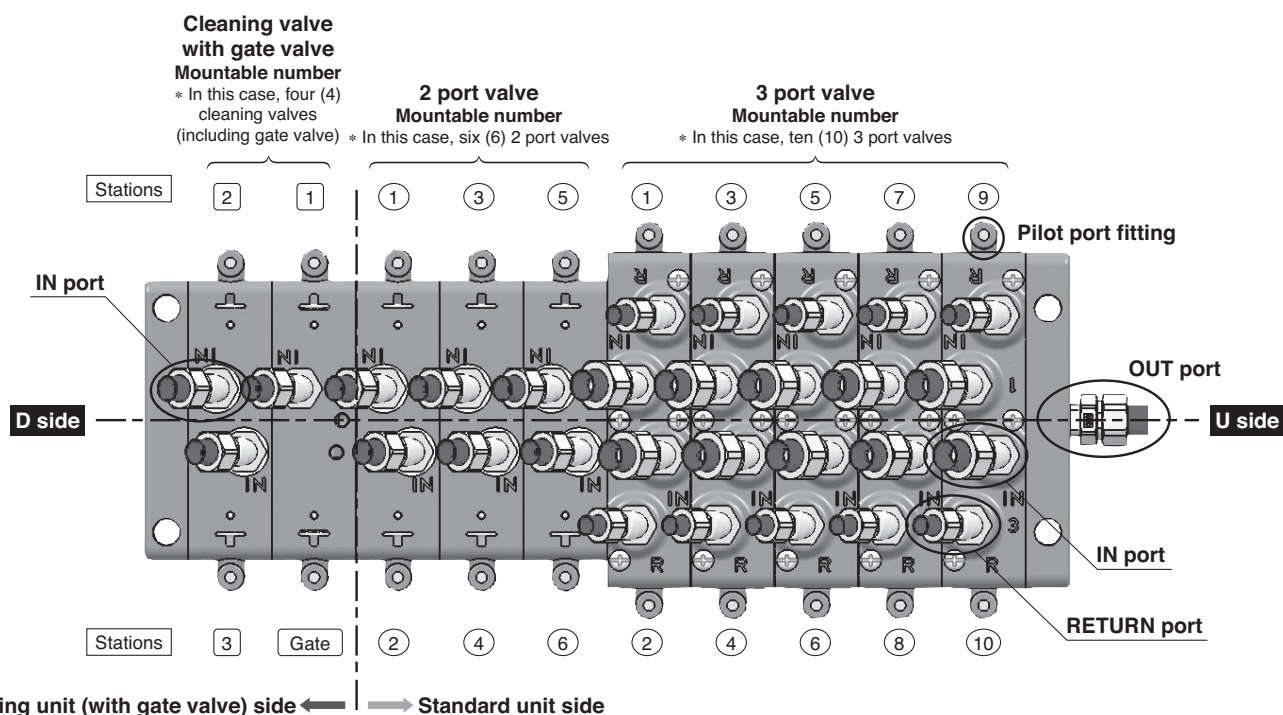
① ②

#### ① Type (Shape)

<b>K</b>	40° swivel elbow
<b>L</b>	90° swivel elbow
<b>H</b>	Male connector

#### ② Piping port

<b>1209</b>	Piping port for Ø 12 x Ø 9
<b>1008</b>	Piping port for Ø 10 x Ø 8
<b>1075</b>	Piping port for Ø 10 x Ø 7.5
<b>0806</b>	Piping port for Ø 8 x Ø 6
<b>0604</b>	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				Note
				1	2	3	4	
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






## Specifications

Model		55-LVA10	55-LVA20	55-LVA30	55-LVA40	55-LVA50	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					

### Thread type

Symbol	Thread type
-	Rc
N	NPT
F	G

## Variations

Type	Symbol	Model	Orifice diameter	Port size	Body material (Note 1)	Valve type	55-LVA10	55-LVA20	55-LVA30	55-LVA40	55-LVA50	55-LVA60
							Ø 2	Ø 4	Ø 8	Ø 12	Ø 20	Ø 22
							1/8	1/4	1/8	1/4	1/2	3/4
Basic type		N.C.	Stainless steel (SUS316)	PFA	N.C.	Double acting	○	○	○	○	○	○
							○	○	○	○	○	○
							○	○	○	○	○	○
With flow rate adjustment		N.C.	Stainless steel (SUS316)	PFA	N.C.	Double acting	—	—	○	○	○	○
							—	—	○	○	○	○
With by-pass		N.C.	Stainless steel (SUS316)	PFA	N.C.	Double acting	—	—	—	○	—	—
							—	—	—	○	—	—
With flow rate adjustment & by-pass		N.C.	Stainless steel (SUS316)	PFA	N.C.	Double acting	—	—	—	○	—	—
							—	—	—	○	—	—
With indicator		N.C.	Stainless steel (SUS316)	PFA	N.C.		—	—	○	○	○	○

Note) Refer to the "Material" table for the applicable optional body materials.



# High Purity Chemical Valve *Series 55-LVA*

## Standard Specifications



Basic type



With flow rate adjustment

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 <sup>-6</sup> 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. <sup>Note 2)</sup>	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 <sup>Note 1)</sup>					
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.

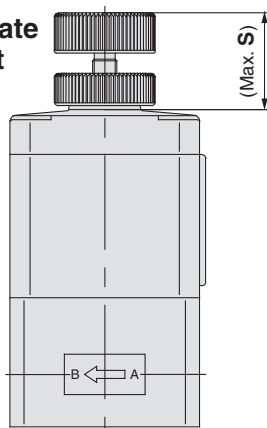
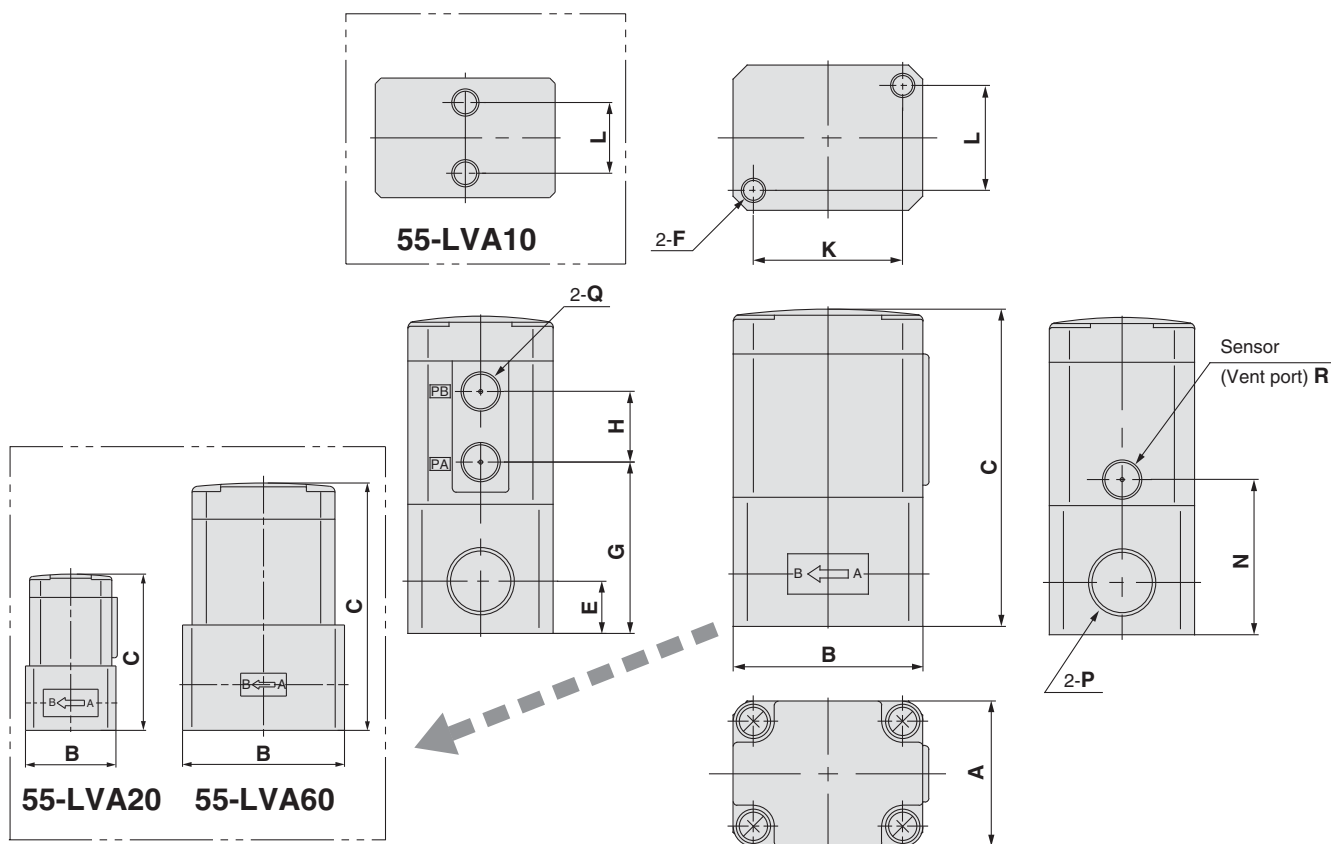


## Series 55-LVA

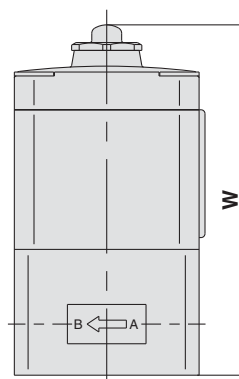
## Dimensions

**Body material: Stainless steel**

## Basic type



### With indicator



### Dimensions (mm)

Model	S
55-LVA2□	14.5
55-LVA3□	24.4
55-LVA4□	29
55-LVA5□	34.5
55-LVA6□	36

**Dimensions** (mm)

Model	W
<b>55-LVA20</b>	63.7
<b>55-LVA30</b>	89.1
<b>55-LVA40</b>	109.9
<b>55-LVA50</b>	140.5
<b>55-LVA60</b>	147.8

## Dimensions

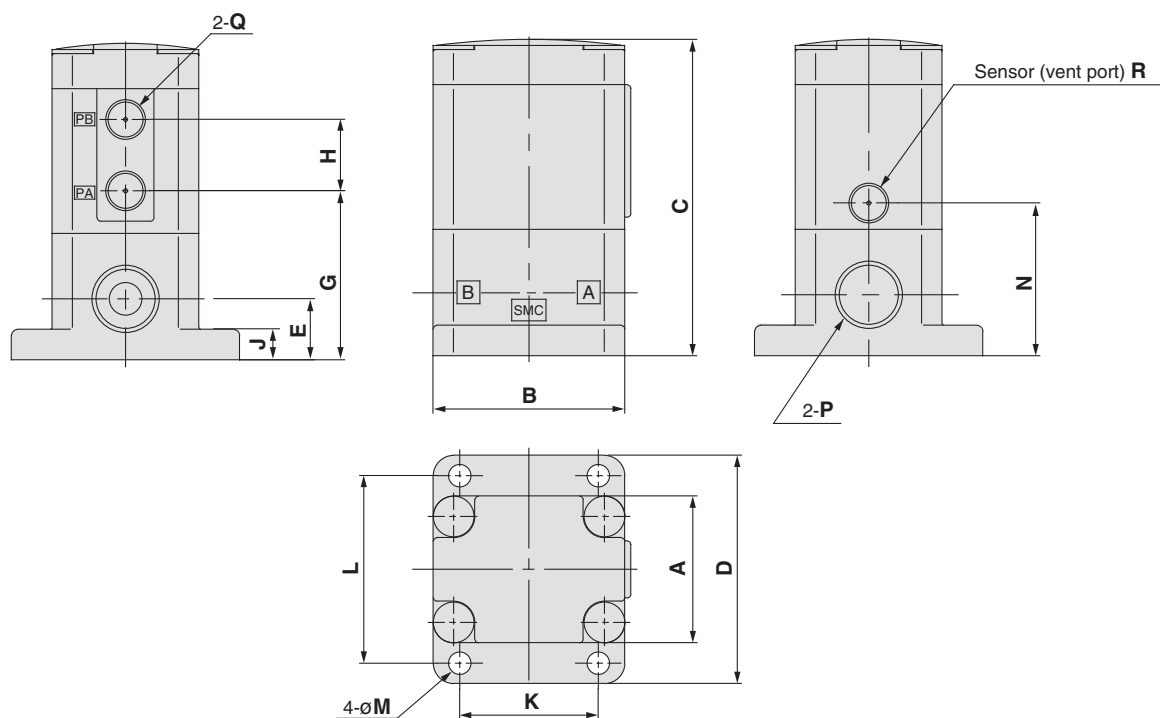
Model	A	B	C	E	F	G	H	K	L	N	P	Q	R
55-LVA1□	20	33	49.5	10	M5 X 0.8 X 4	27.5	11	—	13	27.5	Rc 1/8, 1/4 NPT 1/8, 1/4 G 1/8, 1/4	M5 X 0.8	Ø 4.2
55-LVA2□	30	33	57	10	M X 0.8 X 5	31	13	22	22	26			M3 x 0.5
55-LVA3□	36	47	78.6	13	M6 X 1.0 X 8	42.5	17.5	37	26	38.5	Rc 1/4, 3/8 NPT 1/4, 3/8 G 1/4, 3/8		
55-LVA4□	46	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 G 1		



## Dimensions

Body material: PPS

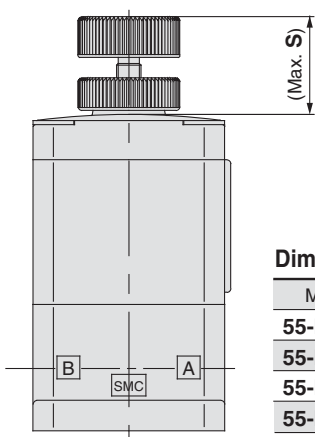
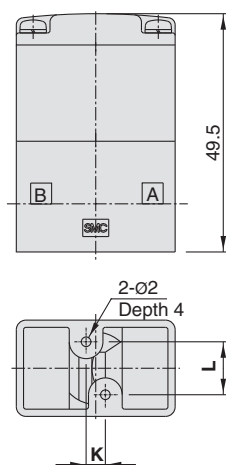
Basic type



### 55-LVA10

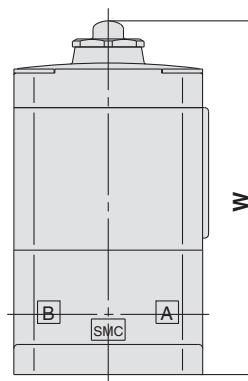
With flow rate adjustment

With indicator



Dimensions (mm)

Model	S
55-LVA2□	14.5
55-LVA3□	24.4
55-LVA4□	29
55-LVA5□	34.5



Dimensions (mm)

Model	W
55-LVA20	64.2
55-LVA30	88.1
55-LVA40	110.4
55-LVA50	147

### Dimensions

(mm)

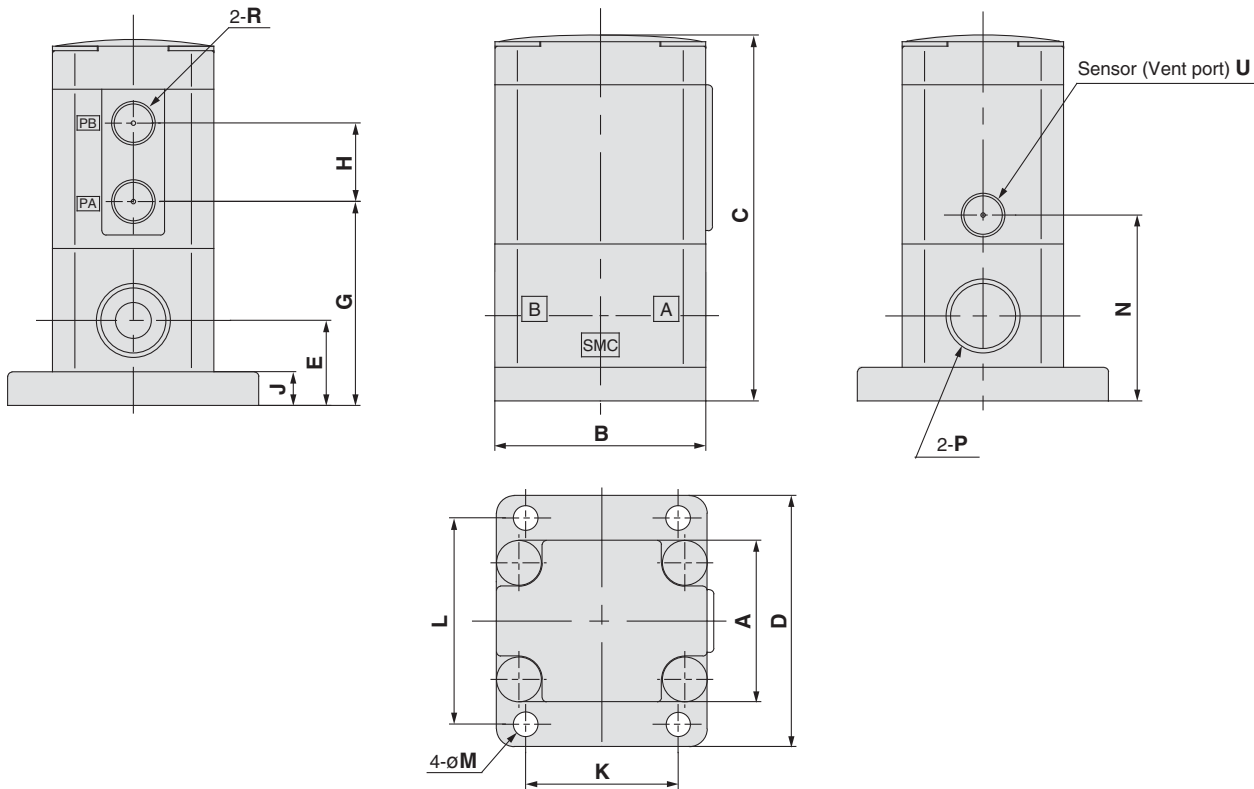
Model	A	B	C	D	E	G	H	J	K	L	M	N	O	P	Q	R
55-LVA1□	20	33	49.5	—	10	27.5	11	—	4	11	—	27.5	—	Rc 1/8, 1/4 NPT 1/8, 1/4 G 1/8, 1/4	M5 X 0.8	Ø 4.2
55-LVA20	30	36	54.7	44	11	32	—	4	20	37	3.5	27	14.8	Rc 1/4 NPT 1/4 G 1/4	Rc 1/8 NPT 1/8 G 1/8	Ø 2.4
55-LVA2 <sup>1</sup> / <sub>2</sub>	30	36	57.5	44	11	31.5	13	4	20	37	3.5	26.5	—	Rc 3/8 NPT 3/8 G 3/8	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 1/2 NPT 1/2 G 1/2	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 3/4 NPT 3/4 G 3/4	Rc 1/8 NPT 1/8 G 1/8	Rc 1/8 NPT 1/8 G 1/8
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	Rc 1/8 NPT 1/8 G 1/8	Rc 1/8 NPT 1/8 G 1/8



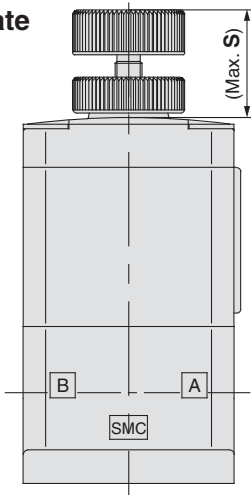
Series 55-LVA

Dimensions

Body material: PFA  
Basic type

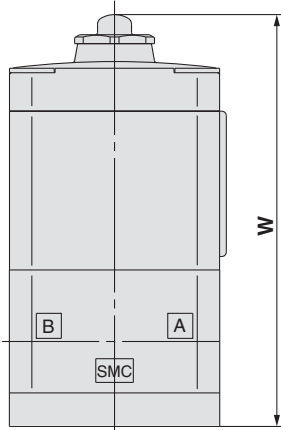


With flow rate  
adjustment



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

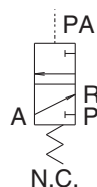


## Standard Specifications

Model		55-LVA200
Orifice diameter		Ø 4
Port size		1/4
Flow characteristics	Av x 10 <sup>-6</sup> m <sup>2</sup>	7.2
	Cv	0.3
Withstand pressure [MPa]		1
Operating pressure [MPa]		0 to 0.5
Valve leakage [cm <sup>3</sup> /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	Valve type
0	N.C.

### Thread type

Symbol	Thread type
-	Rc
N	NPT

### Port size

Symbol	Port size
02	1/4

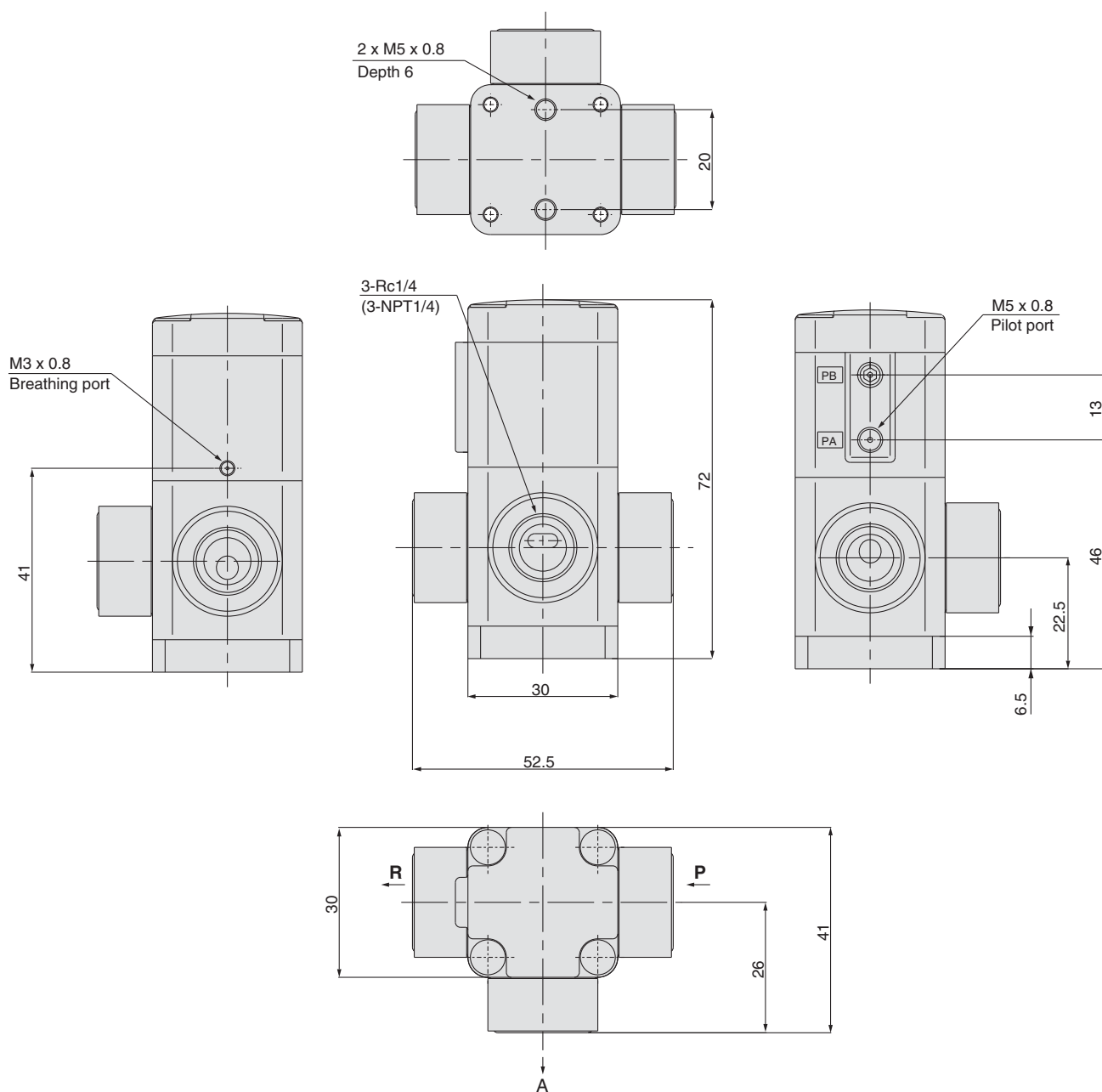
### Material

Symbol	Body	Actuator section	Diaphragm
C	PFA	PPS	PTFE



# Series 55-LVA

## Dimensions





# Process Pump. Automatically operated type

## Air operated type

# Series 55-PA3000/5000

Automatically operated type (internal switching type)

Air operated type (external switching type)



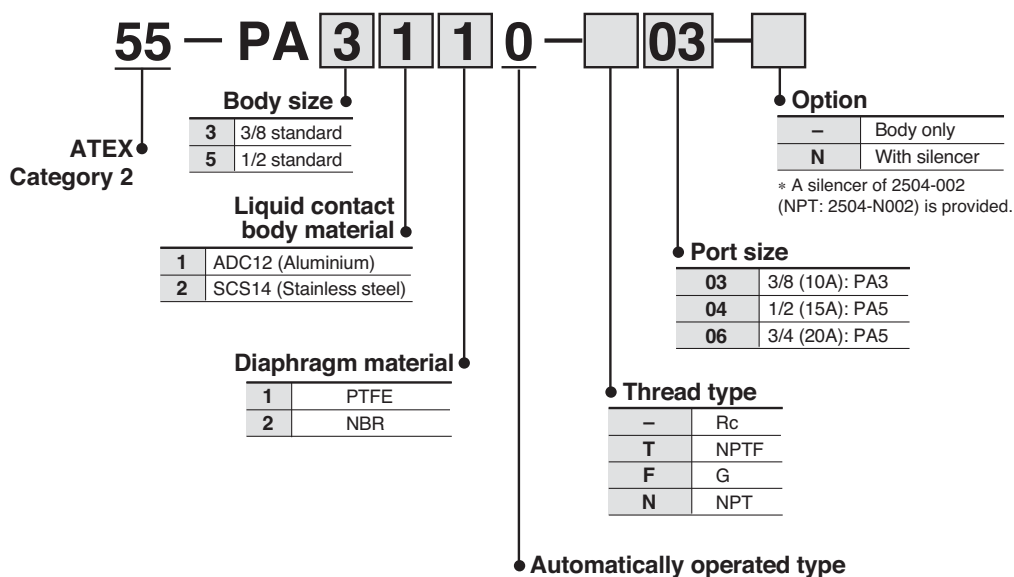
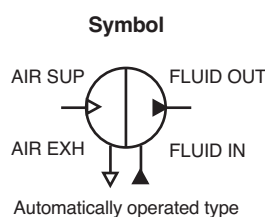
For 55-PA3□□0: II 2 GD c T6 Ta 0 °C to +60 °C  
 For 55-PA3□□3: II 2 GD c T5 Ta 0 °C to +60 °C  
 For 55-PA5□□□: II 2 GD c T6 Ta 0 °C to +60 °C  
 For 55-PA5□□3: II 2 GD c T6 Ta 0 °C to +60 °C



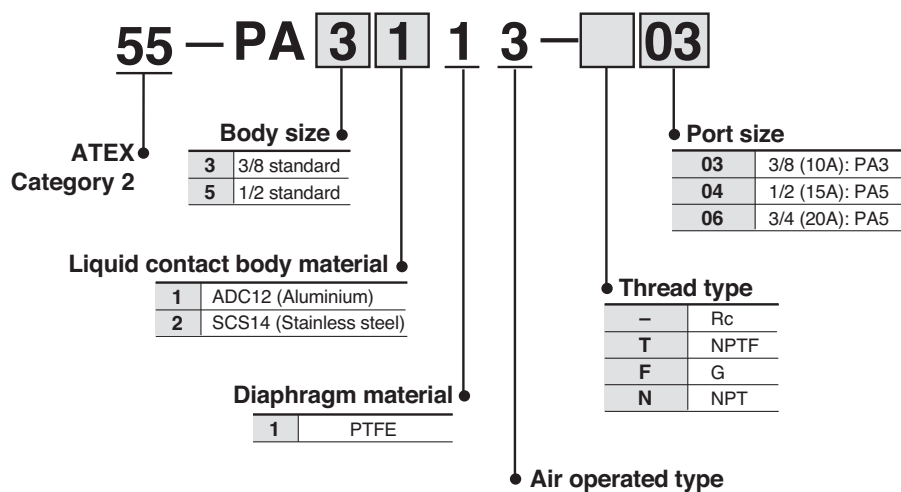
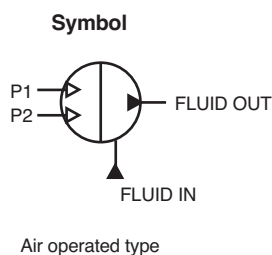
For more details, other specifications, dimensions, see the specific catalogue.

## How to Order

### Automatically operated type (internal switching type)



### Air operated type (external switching type)






# 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  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)

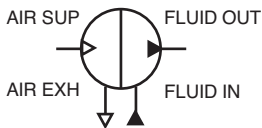
56-PA3000



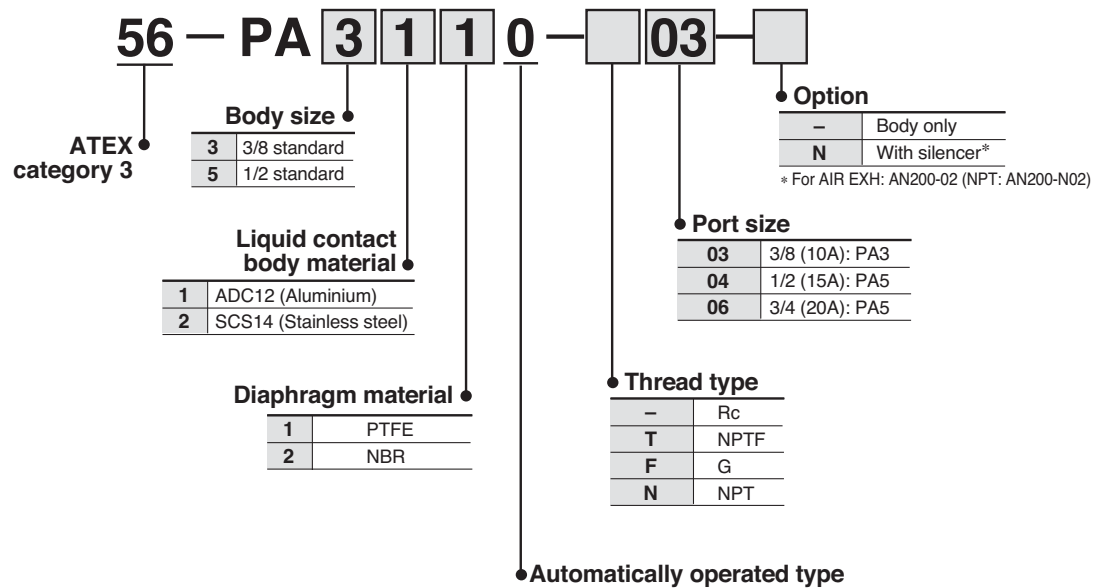
56-PA5000



Symbol



Automatically operated type



#### Air operated type (external switching type)

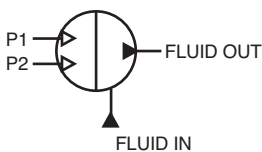
56-PA3000



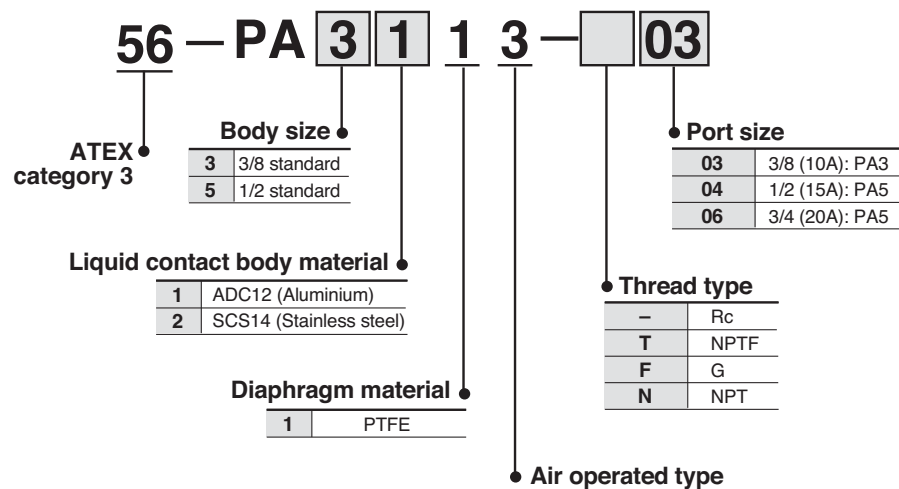
56-PA5000



Symbol



Air operated type







**ATEX Compliant**

# Pneumatic-Pneumatic Positioner

## *Series 55/56-IP5000* (Lever type)

## *Series 55/56-IP5100* (Rotary type)

CE  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

**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 <small>Note 2)</small>
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.

**Pressure gauge / Air port**

-	Rc (Standard)
N	NPT
F	G



# Series 55-/56-IP5000/5100

## Specifications

Classification	Ambient temperature range			Classification	Ambient temperature range		
	Low temp. model 55-IP5□00-□□□□L-□	Standard model 55-IP5□00-□□□□-□	High temp. model 55-IP5□00-□□□□T□-□		Low temp. model 56-IP5□00-□□□□L-□	Standard model 56-IP5□00-□□□□-□	High temp. model 56-IP5□00-□□□□T□-□
II 2GD c T4	—	—	-5 °C to 100 °C	II 3GD c T4	—	—	-5 °C to 100 °C
II 2GD c T5	—	-20 °C to 80 °C	-5 °C to 80 °C	II 3GD 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	II 3GD c T6	-30 °C to 60 °C	-20 °C to 60 °C	-5 °C to 60 °C

Type  Item		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  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

#### Accessories Note 1)

Symbol	Accessories	Applicable model	
		IP8000-X14	IP8100-X14
—	Without accessory	●	●
A	With Ø 0.7 output restrictor integrated pilot valve <small>Note 2)</small>	●	●
B	With Ø 1.0 output restrictor integrated pilot valve <small>Note 2)</small>	●	●
C	With fork lever type fitting M <small>Note 3)</small>	—	●
D	With fork lever type fitting S <small>Note 4)</small>	—	●
E	With lever unit for a 35 to 100 mm stroke <small>Note 5)</small>	●	—
F	With lever unit for a 50 to 140 mm stroke <small>Note 5)</small>	●	—
G	With compensation spring (A) <small>Note 6)</small>	●	●
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<sup>3</sup>-capacity actuator.

"B" is applied to approx 180 cm<sup>3</sup>-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) <sup>Note 1)</sup>				
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 <sup>Note 2)</sup>	
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) <sup>Note 3)</sup>				
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	 	Intrinsic safety type of explosion protection (  0344  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	$U_i \leq 28\text{ V}$ , $I_i \leq 125\text{ mA}$ , $P_i \leq 1.2\text{ W}$ , $C_i \leq 0\text{ nF}$ , $L_i \leq 0\text{ mH}$				

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**.



# Series IP8000/8100

## 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)

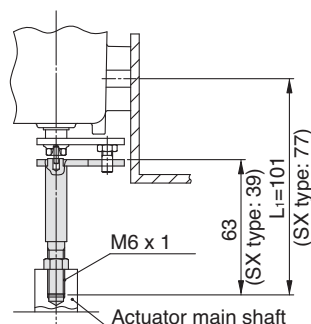
Actuator Capacity	Orifice size	Part number	Pilot unit part number
90 cm <sup>3</sup>	Ø 0.7	P36801080	P565010-18
180 cm <sup>3</sup>	Ø 1	P36801081	P565010-19

### Fork lever joints (IP8100 type)

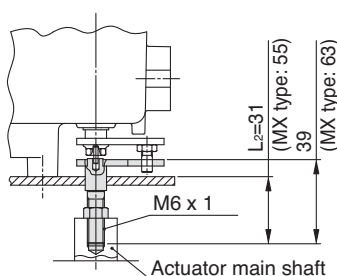
Two types of the fork lever joints are available dependent upon different mounting dimensions.

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

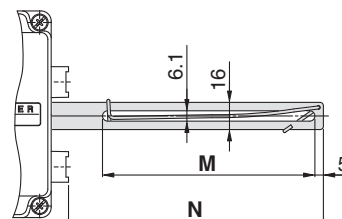


Rear mounting with the fork lever assembly SX

### 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.

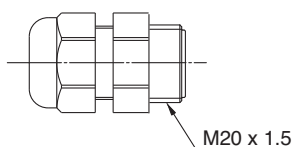
Stroke	Unit number	Size M	Size N
10 to 85 mm (standard)	P368010-20	125	150
35 to 100 mm (Accessory "E")	P368010-21	110	195
50 to 140 mm (Accessory "F")	P368010-22	110	275



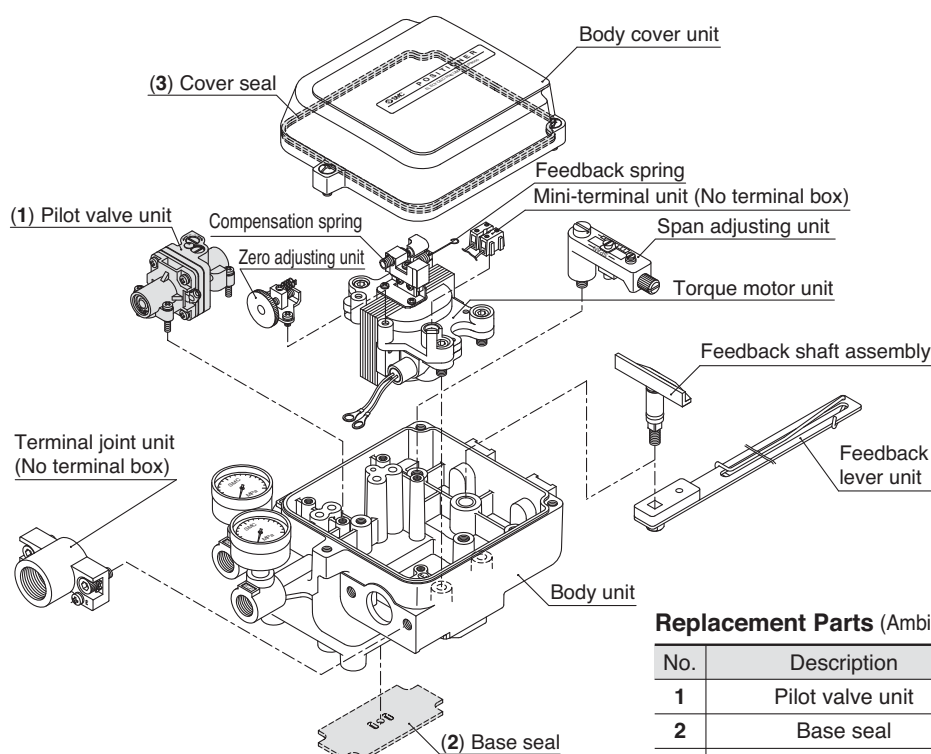
### Cable gland (for -X14)

#### Cable gland

Description	Part number	Suited cable outer diameter
Cable gland	07-9534-1M2B	Ø 6 to Ø 12



## Exploded View



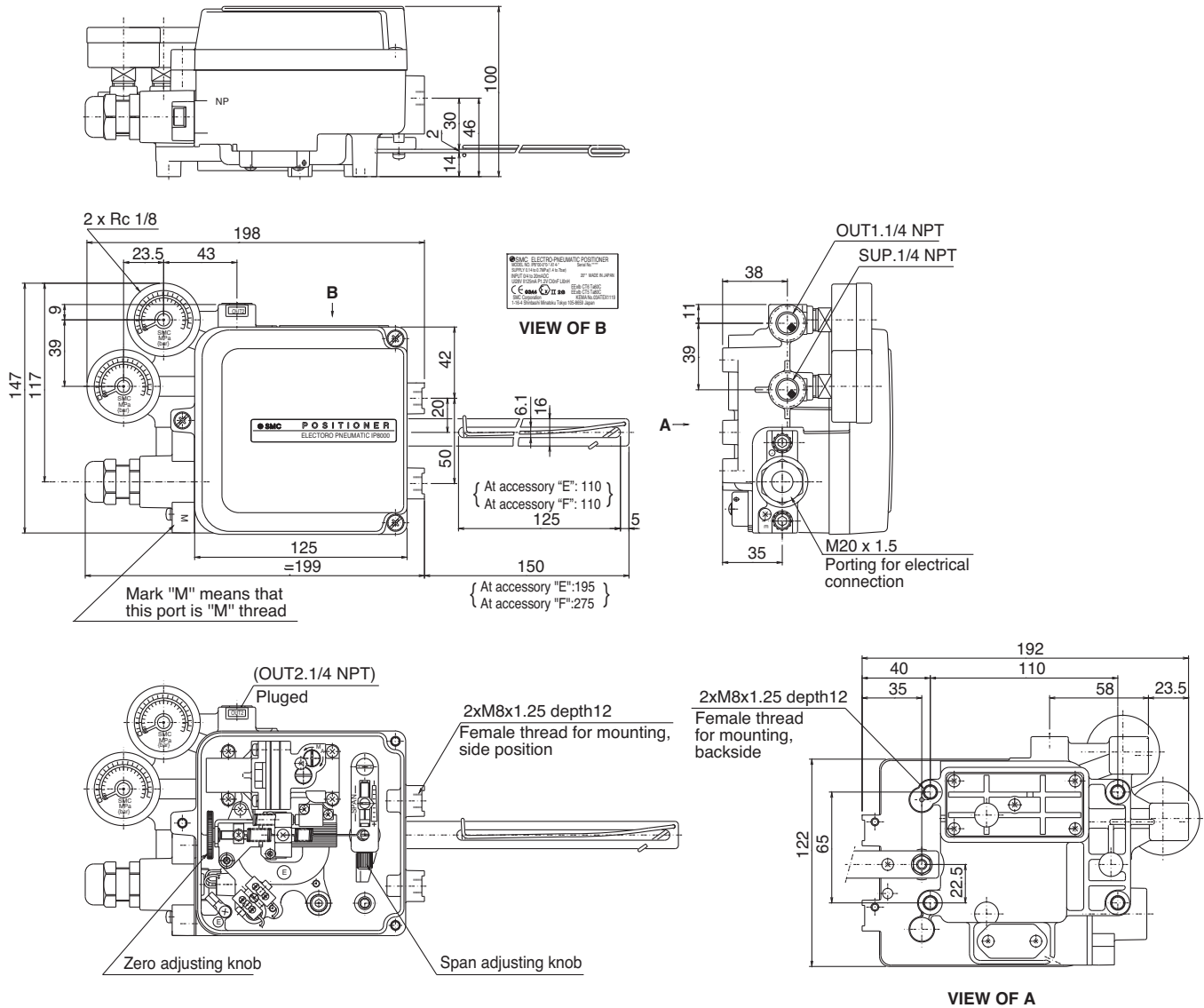
### Replacement Parts (Ambient temperature: Standard)

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)











## ATEX Compliant

# Smart Positioner (Lever type / Rotary type) Series 52-IP8001/8101



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

### Specifications

4

Intrinsically safe explosion proof (ATEX) +  
output function + HART communication

### ATEX directive compliance

52

ATEX directive category 1  
Intrinsically safe explosion-proof

ATEX Directive Intrinsically  
Safe Explosion proof

52-IP8001-034- - -

### ATEX temperature

Symbol	ATEX temperature	Applicable model	
		IP8001	IP8101
—	T4	●	●
T6	T5/T6	●	●

### Connection

Symbol	Air	Electric
—	Rc 1/4	G 1/2
M <sup>Note)</sup>	Rc 1/4	M20 x 1.5
N	Rc 1/4	1/2 NPT
1	1/4 NPT	G 1/2
2 <sup>Note)</sup>	1/4 NPT	M20 x 1.5
3	1/4 NPT	1/2 NPT
4	G 1/4	G 1/2
5 <sup>Note)</sup>	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.

### 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<sup>Note 1)</sup>

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 <sup>Note 2)</sup>	●	—
F	For stroke 50 to 140 mm with lever unit <sup>Note 2)</sup>	●	—
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.

All other specifications are the same as  
the standard products Series IP8□.  
For details, refer to **the WEB catalogue**.



# Series 52-IP8001/8101

## 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) <sup>Note 2)</sup>			
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 <sup>Note 3)</sup>	Within 0.2 % F.S.			
Linearity <sup>Note 3)</sup>	Within ±1 % F.S.			
Hysteresis <sup>Note 3)</sup>	Within 0.5 % F.S.			
Repeatability <sup>Note 3)</sup>	Within ±0.5 % F.S.			
Coefficient of temperature	Within 0.05 % F.S./C			
Supply pressure fluctuation	— <sup>Note 4)</sup>			
Output flow <sup>Note 5)</sup>	80 l/min (ANR) or more (SUP = 0.14 MPa)		200 l/min (ANR) or more (SUP = 0.4 MPa)	
Air consumption <sup>Note 5)</sup>	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 <sup>Note 6)</sup>	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 <sup>Note 6)</sup>	HART transmission			
Air connection port <sup>Note 7)</sup>	Rc 1/4 female thread, NPT 1/4 female thread, G 1/4 female thread			
Electrical connection port <sup>Note 7)</sup>	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	<b>Wiring</b>	2-wire
	<b>Output signal</b>	4 to 20 mA DC
	<b>Power supply voltage</b>	10 to 28 V DC
	<b>Load resistance</b>	0 to 750 $\Omega$
	<b>Accuracy</b>	$\pm 0.5$ % F.S. or less <small>Note 1)</small>
Alarm output 1, 2	<b>Wiring</b>	2-wire
	<b>Applicable standards</b>	DIN19234/NAMUR Standard
	<b>Power supply voltage</b>	5 to 28 V DC
	<b>Load resistance</b>	(Constant current output)
	<b>Alarm ON</b>	$\geq 2.1$ mA DC
	<b>Alarm OFF (Leakage current)</b>	$\leq 1.2$ mA DC
	<b>Response time</b>	50 msec or less

Note 1) Indicates analogue output accuracy with respect to LCD display position value (P value).

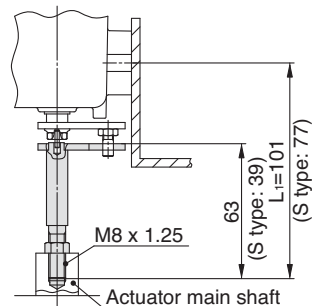


## Accessory / Option

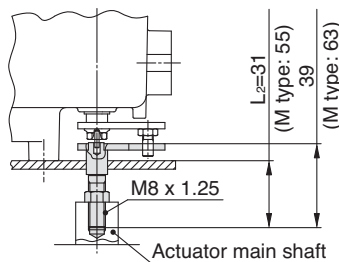
### Fork lever-type fittings (8101)

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



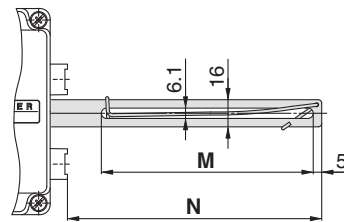
Rear mounting with the fork lever assembly S

### External feedback lever (IP8001)

Different feedback levers are available dependent upon valve strokes. Order according to the valve stroke.

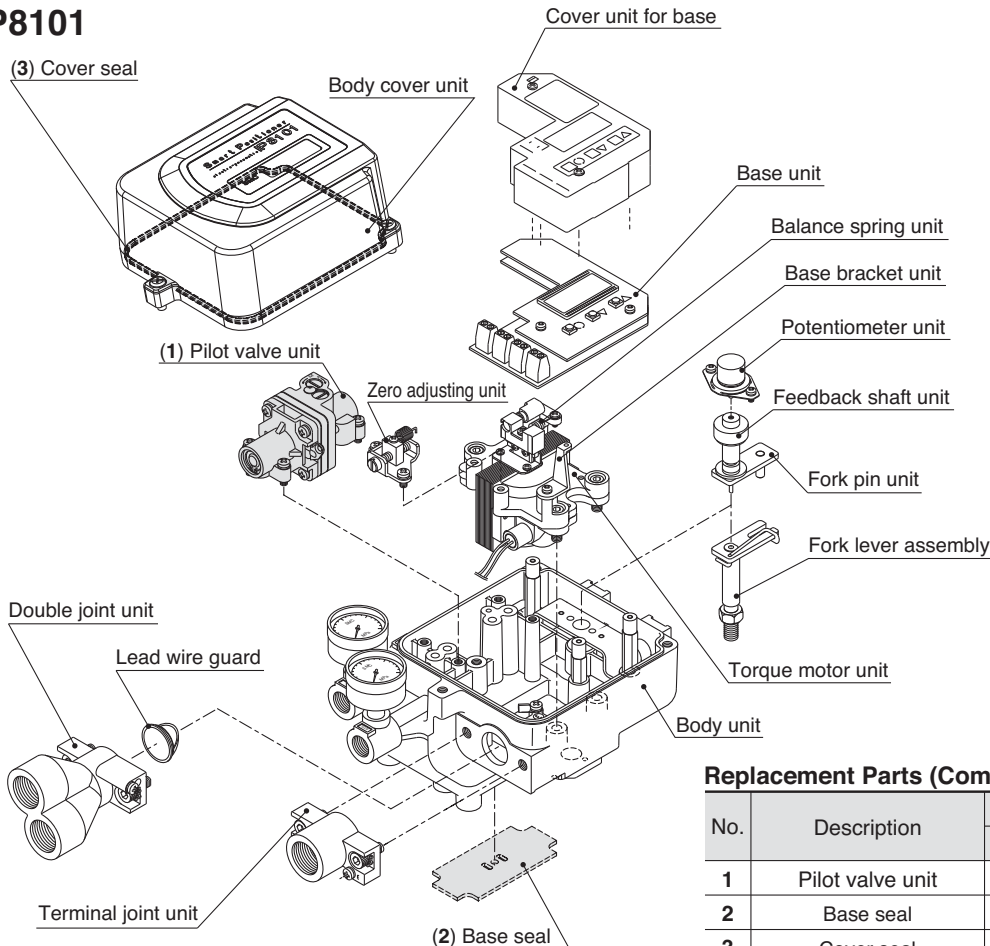
#### Feedback lever types

Stroke	Unit number IP8001	Size M	Size N	Model selection accessory
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)

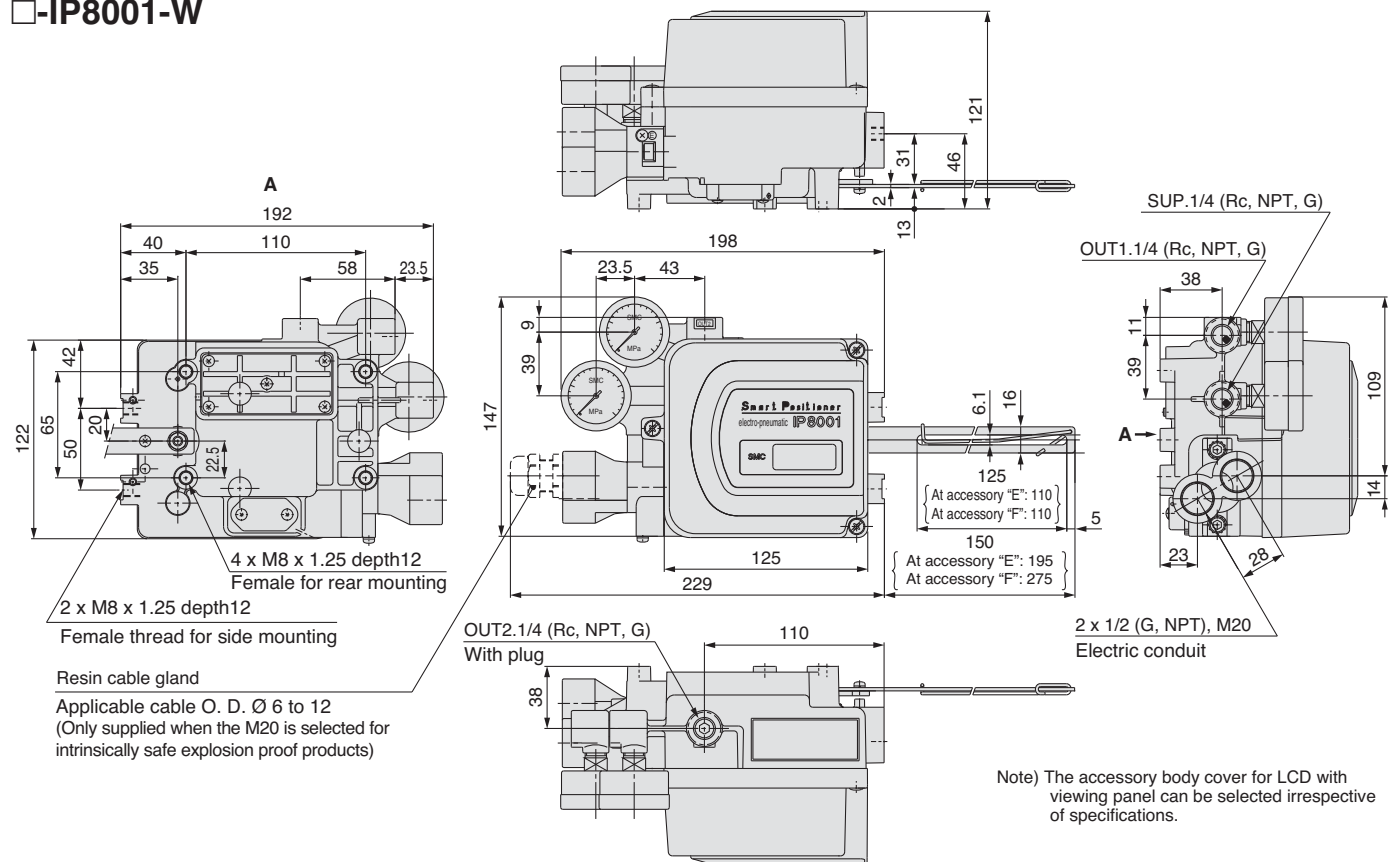
No.	Description	Part no.	
		IP8001	IP8101
1	Pilot valve unit	P565010-322	P565010-303
2	Base seal	P56501012-3	
3	Cover seal	P56501013	



# Series 52-IP8001/8101

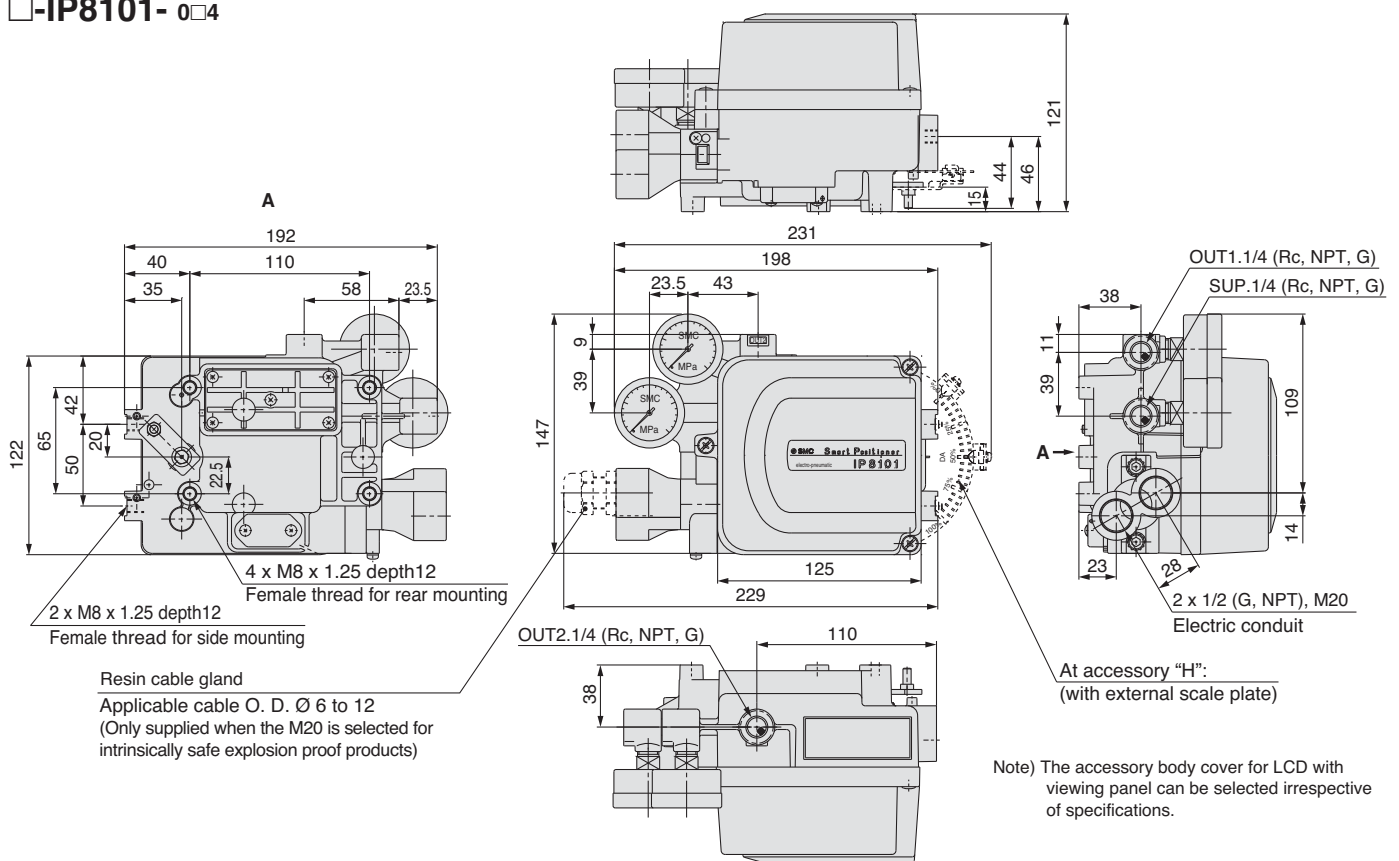
## Dimensions / IP8001 (Lever type)

### □-IP8001-W



## Dimensions / IP8101 (Rotary type)

### □-IP8101- □□4





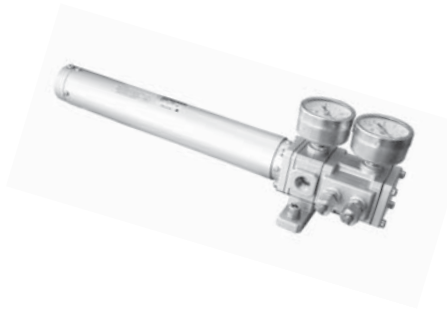


ATEX Compliant

# Pneumatic Cylinder Positioner Series 56-IP200/56-IP210

CE II 3GD T5...T6

## How to Order



56 - IP2 0 0 -  -

Conform to ATEX directive category 3

Stroke 25 to 300 mm

Model

Temperature and Material

0	Standard
1	Outside tube fixed to the main body

-	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□-□-□-□	Standard model 56-IP20□-□-□-□	High temp. model 56-IP20□-□-□-□
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)\*<sup>1</sup>, 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, whichever is first.\*<sup>2</sup>  
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.

\*<sup>2</sup>) 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 handling.

## 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 amount 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-position 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	Product description	Series
Check valve	AK, AKB, AKH	Multi holder	TM, TMA
Silencers	AN□, 25□□	Holder	TMH
Quick exhaust valve	AQ	Shuttle valve	VR12□□, VR12□□F
Speed controller	AS, ASP, ASD	Cross interface	Y24~Y54
Multi-connector	DM, KDM	Vacuum pads	ZP
Self align fittings	H, DL, L, LL	Valve for Water and Chemical-base Fluids, for manifold mounting	VCC12(D)-00
Floating joint	JA, JB, JS	Brackets	Mounting brackets for cylinders, FRL, valves and so on when sold on their own.
Insert fittings	KF, KFG	Manifold base	SS5Y5-20-□□-(□□□) SS5Y5-41-□□-□□(□) SS5Y5-42-□□-□□(□) SS5Y7-20-□□-(□□□) SS5Y7-42-□□-□□(□)
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		

Note) Out of scope for / can be used in all zones subject to assessment by user.





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