



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))

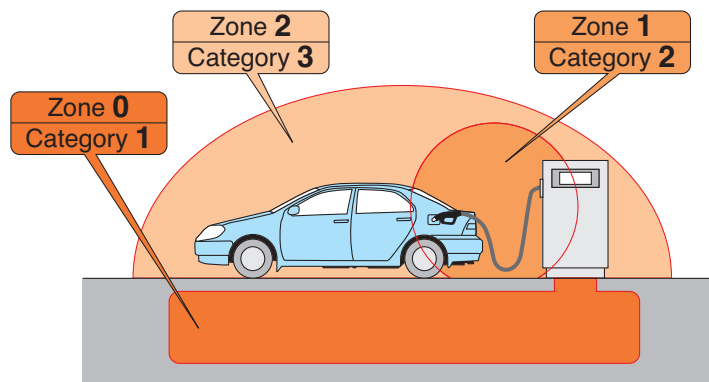
Certified equipment is designed to prevent the generation of ignition sources such as: Electric sparks, arcs and flashes, electrostatic discharges, electromagnetic waves, ionizing radiation, hot surfaces, flames and hot gases, mechanically generated sparks, optical radiation, chemical flame initiation,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


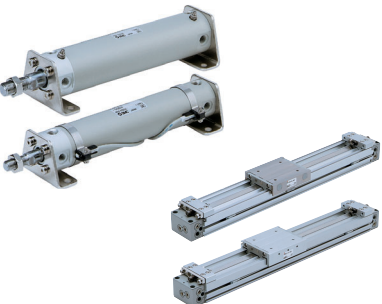



INDEX

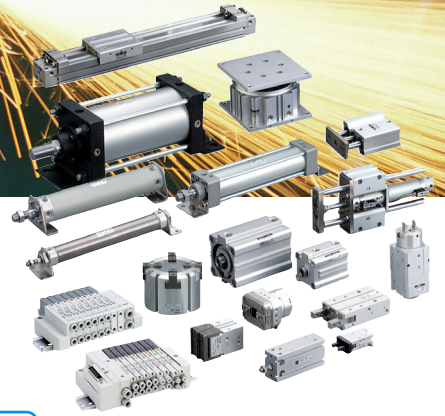
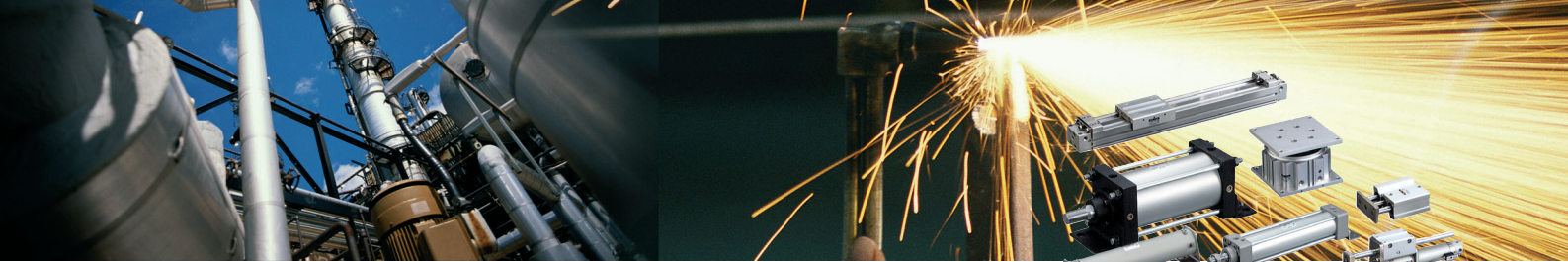


<Note for ordering ATEX compliant products>

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



	Category			Page no.
	1	2	3	
Pneumatic Solenoid Valve 	5 Port Solenoid Valve: 52-SY5000/7000/9000	●		1
	5 Port Solenoid Valve: 50-VFE3000/5000-X60		●	21
	3 Port Solenoid Valve: 50-VPE500/700-X60	●		29
	5 Port Solenoid Valve: 56-VQC1000/2000/4000	●		34
Serial Transmission System	Fieldbus System for outputs: 56-EX260		●	49
	Fieldbus System: 56-EX600		●	50
Air Cylinder 	Air Cylinder: 55-C76	●		54
	ISO Cylinder: 55-C85	●		58
	ISO Cylinder: 55-C95 (Bore sizes: 160, 200, 250)	●		61
	ISO Cylinder: 55-C96	●		63
	ISO Cylinder: 55-CP96	●		71
	ISO Cylinder: 55-C55	●		80
	ISO Cylinder: 55-JCM	●		82
	Air Cylinder: 55-CG1	●		83
	Stainless steal Cylinder: 55-CG5-S	●		86
	Air Cylinder: 55-CS1	●		87
	Compact Cylinder: 55-CQ2	●		91
	Dual Rod Cylinder: 55-CXS	●		96
	Mechanically Jointed Rodless Cylinder/Basic Type: 55-MY1B (-Z)	●		99
	Mechanically Jointed Rodless Cylinder/Slide Bearing Guide Type: 55-MY1M	●		100
	Mechanically Jointed Rodless Cylinder/Linear Guide Type: 55-MY1H (-Z)	●		101
Auto Switch	Solid State Switch		●	102
	Reed Switch		●	102
Rotary Actuator 	Rotary Actuator: 55-CRB1	●		120
	Rotary Actuator: 56-CRB1		●	120
	Rotary Actuator: 55-CRB2-Z	●		122
	Rotary Actuator: 56-CRB2-Z		●	122
	Rotary Actuator/Free Mount Type: 55-CRBU2-Z	●		124
	Rotary Actuator/Free Mount Type: 56-CRBU2-Z		●	124
	Compact Rotary Actuator: 55-CRQ2	●		126
	Compact Rotary Actuator: 56-CRQ2		●	127
Booster Regulator	Booster Regulator: 56-VBA		●	128
Pressure Switch	2-Colour Display Digital Pressure Switch: 56-ISE70/75 (H)		●	130
	Pressure Switch, Reed Switch Type: 56-IS10		●	132
2 Port Valve for Fluid Control	Steam Valve: 56-VND		●	137
Process Valve 	Valve for Water and Chemical Base Fluids (2/3 port air operated valve): VCC	●		138
	Air Operated Chemical Valve/Threaded Type: 55-LVA	●		142
	Process Pumps/Automatically Operated Type (Internal switching type)			
	- Air Operated Type (External Switching Type): 55-PA3000/5000	●		149
	- Air Operated Type (External Switching Type): 56-PA3000/5000		●	150
Instrumentation Equipment 	Pneumatic-Pneumatic Positioner: 55-IP5000/5100	●		151
	Pneumatic-Pneumatic Positioner: 56-IP5000/5100		●	151
	Electro-Pneumatic Positioner: IP6000/6100-X14	●		153
	Electro-Pneumatic Positioner: IP8000-X14/IP8100-X14	●		157
	Smart Positioner: 52-IP8001/52-IP8101	●		161
	Cylinder Positioner: 56-IP200		●	165



● **ATEX label example and explanation**

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





  II 3 G / D

Ex nA IIC T6 Gc X

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

"Do not disconnect when energized"

  ATEX compliance



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

*G=Gas D=Dust

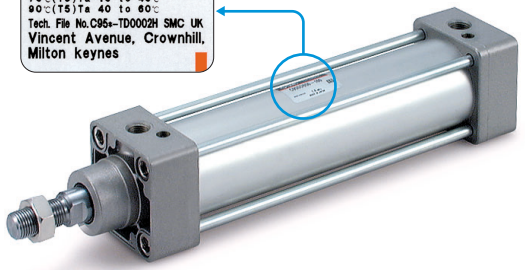
Part-number
Year
Operating temperature
IP (only for Dust)
T temperature(only for Dust)

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

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

  II 2 GDc

70°C (T6) Ta -10 to 40°C
90°C (T5) Ta 40 to 60°C
Tech. File No. C95-TD0002H SMC UK
Vincent Avenue, Crownhill,
Milton Keynes



Max. Surface temperature






T1 450 °C
T2 300 °C
T3 200 °C
T4 135 °C
T5 100 °C
T6 85 °C

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	
N11	Ø 3/8" One-touch fitting	52-SY9000
02	1/4	
03	3/8	
C8	Ø 8 One-touch fitting	
C10	Ø 10 One-touch fitting	
C12	Ø 12 One-touch fitting	
N9	Ø 5/16" One-touch fitting	
N11	Ø 3/8" One-touch fitting	

Port size (Base mounted type)

Sign	Port size	Compatible series
-	No sub-plate	52-SY5000
02	1/4	
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		1/4
	1/8 C6 (One-touch fittings for Ø 6 mm) C8 (One-touch fittings for Ø 8 mm)	1/4 C6 (One-touch fittings for Ø 6 mm) C8 (One-touch fittings for Ø 8 mm)	1/4 C10 (One-touch fittings for Ø 10 mm)
Manifold base weight W (g) n: Station	W=61n+101	W=79n+127	W=100n+151

Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both side.

Note 2) 52-SY9*40 valve are not available with manifold as standard. Please contact SMC if you require it:
Note 3) 52-SY series are not available with resin type manifold (23 type, 20P type and 45 type).

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 ³ /(s.bar)]	b	Cv	Q [l/min (ANR)]	c[dm ³ /(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 ³ /(s.bar)]	b	Cv	Q [l/min (ANR)]	c[dm ³ /(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

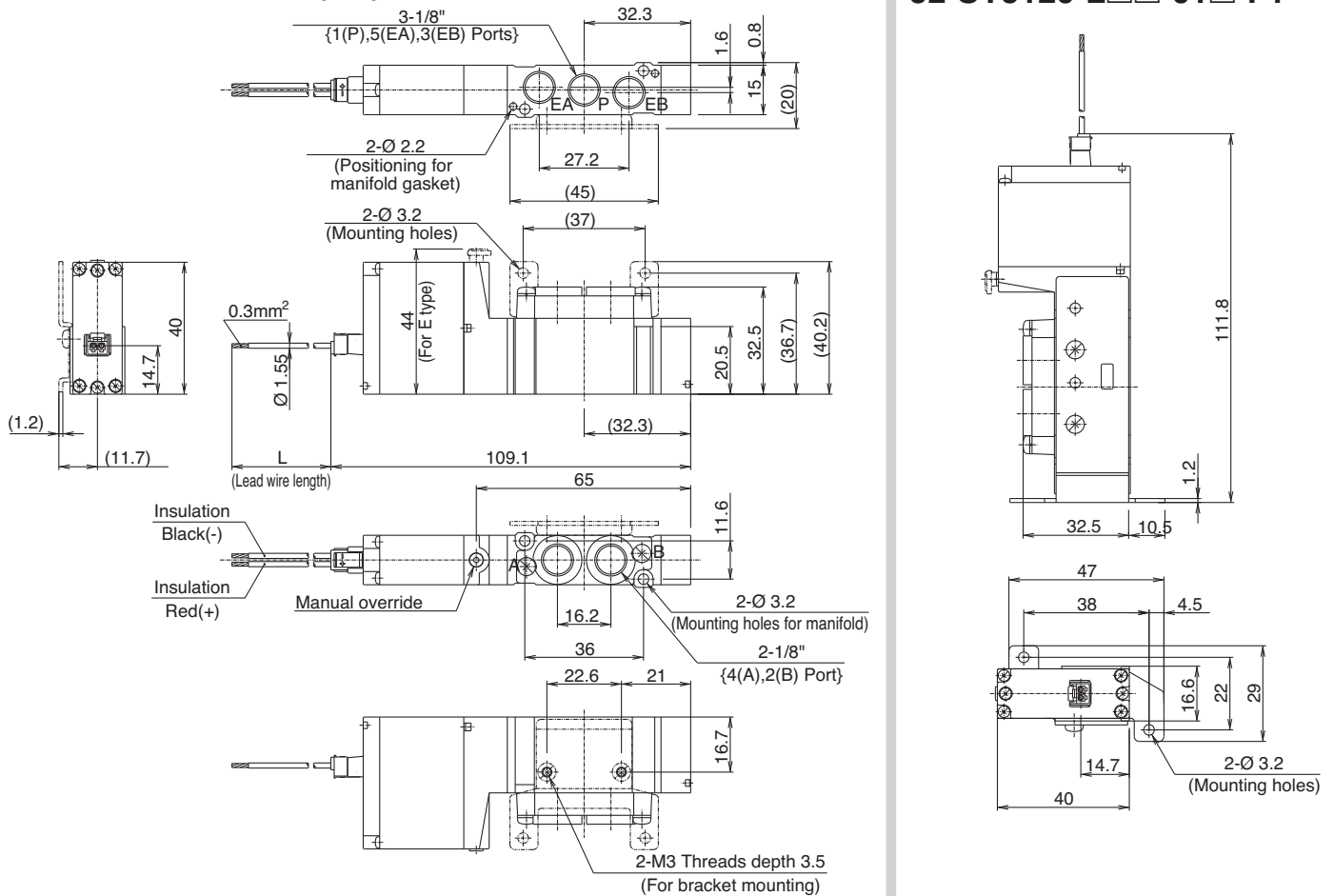
Note 1) Values for 5 stations manifold with a 2 position single type valve.

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.

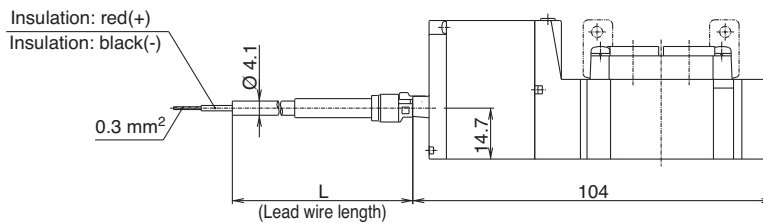
Dimensions

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

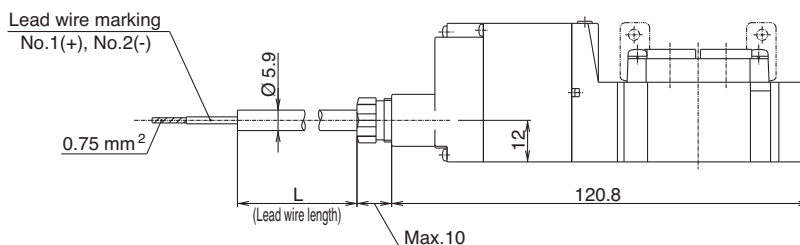
In case with foot bracket
52-SY5120-L□□-01□-F1



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



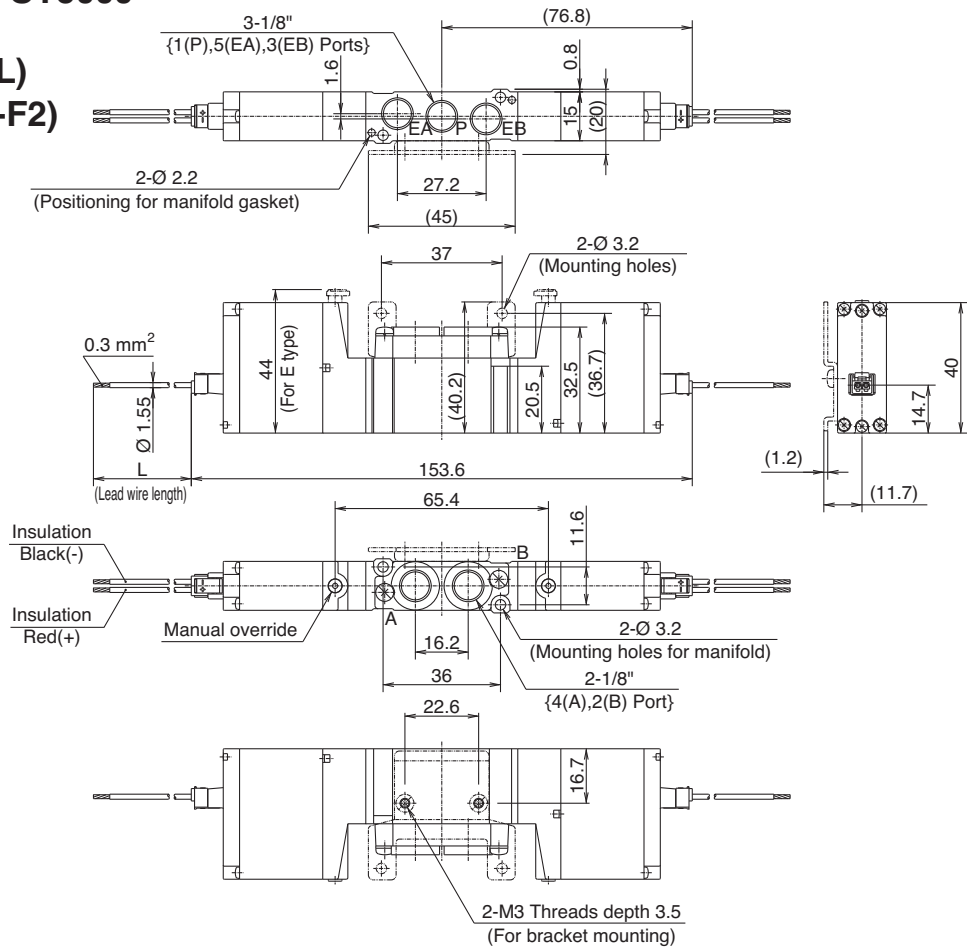
Terminal type (TT)
52-SY5120-TT□□-01□(-F2)



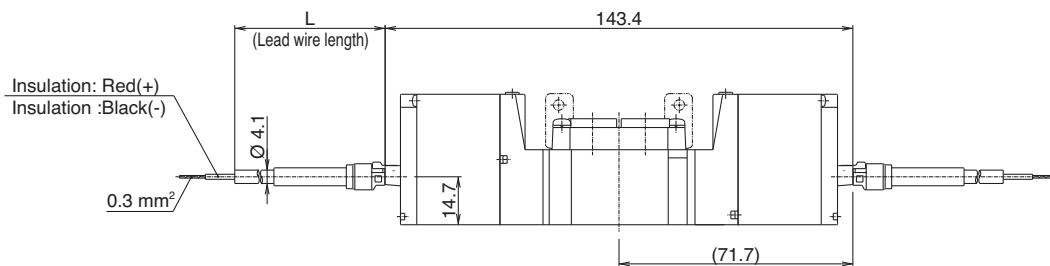
Series 52-SY

Dimensions

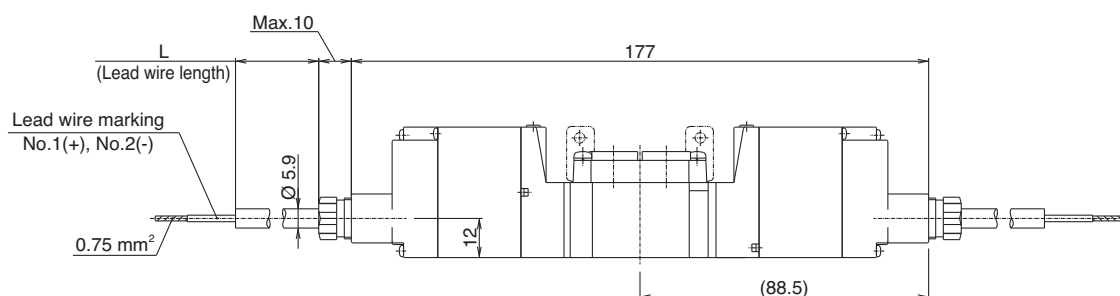
Body ported type Dimensions/Series 52-SY5000 2-position double Plug connector type (L) 52-SY5220-L□□-01□(-F2)



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



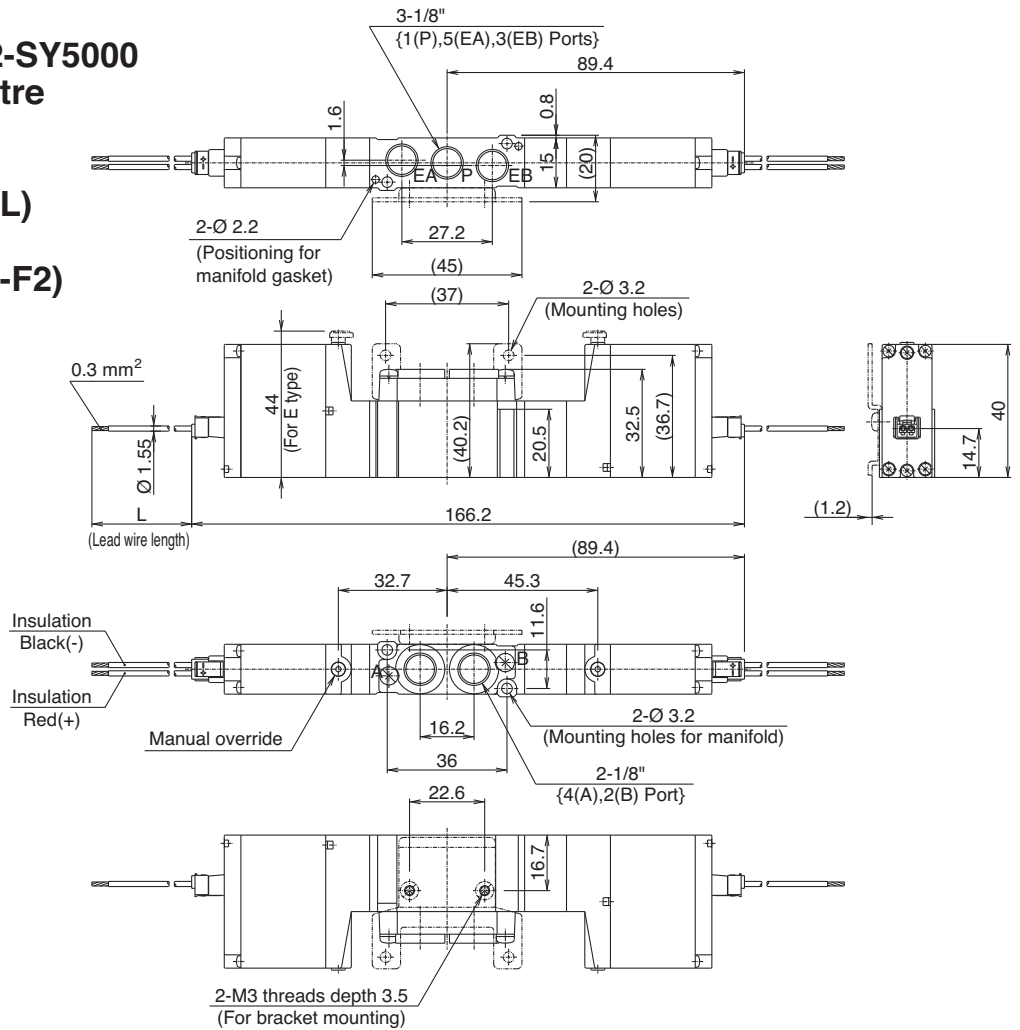
Terminal type (TT) 52-SY5220-TT□□-01□(-F2)



Dimensions

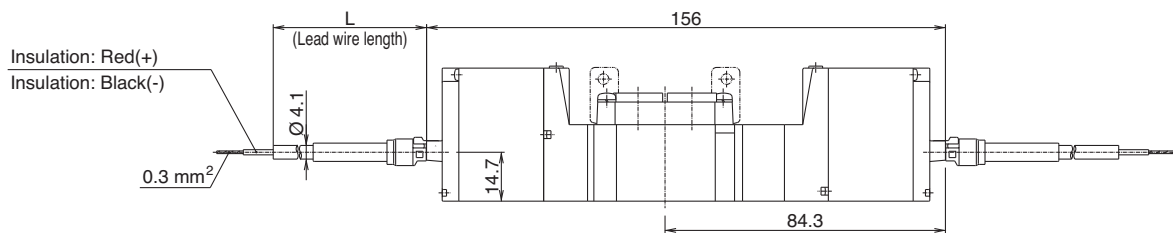
Body ported type
Dimensions/Series 52-SY5000
3-position closed centre
-exhaust centre
pressure centre
Plug connector type (L)

3
52-SY5420-L□□-01□(-F2)
 5



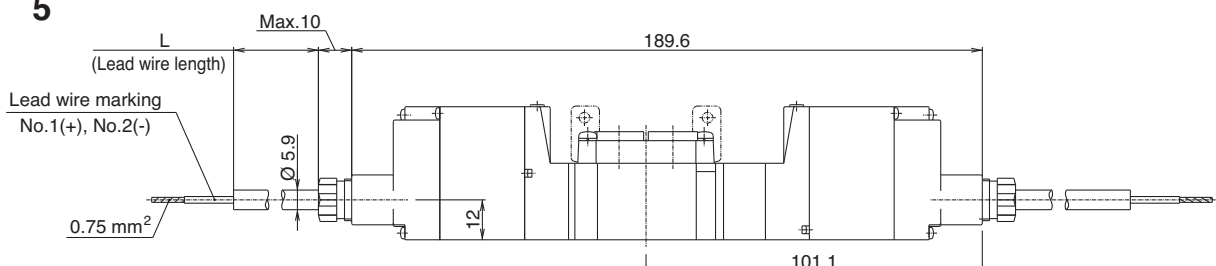
Plug connector with cover type (LL)

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

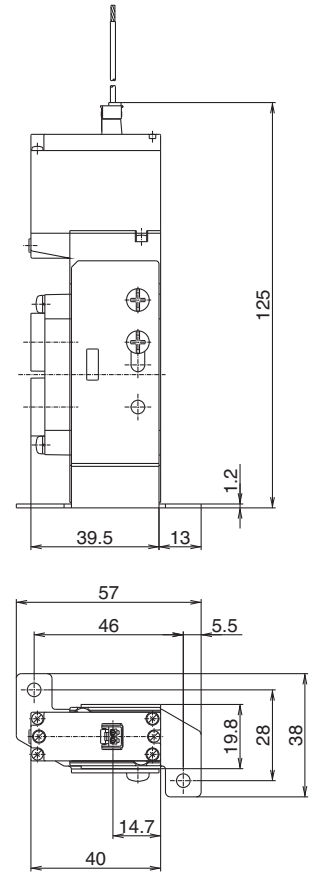
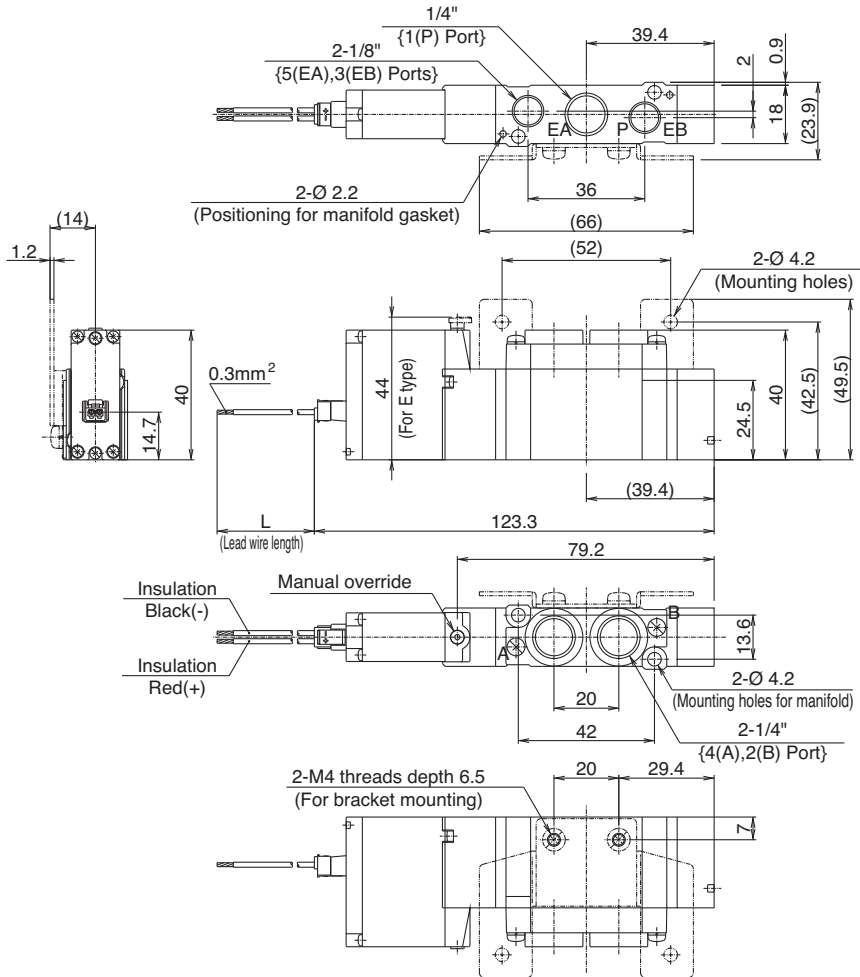
2-position single

Plug connector type (L)

52-SY7120-L□□-02□(-F2)

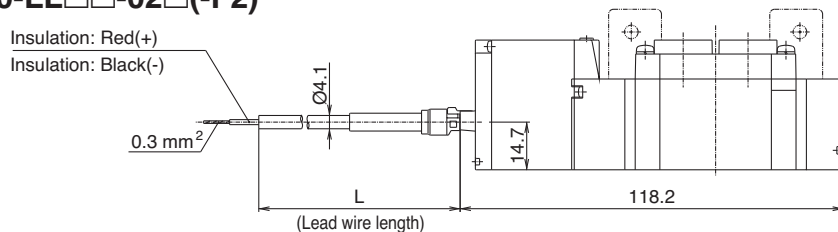
In case with foot bracket

52-SY7120-L□□-02□(-F1)



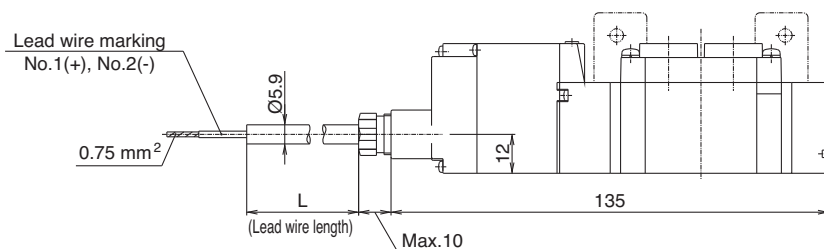
Plug connector with cover type (LL)

52-SY7120-LL□□-02□(-F2)



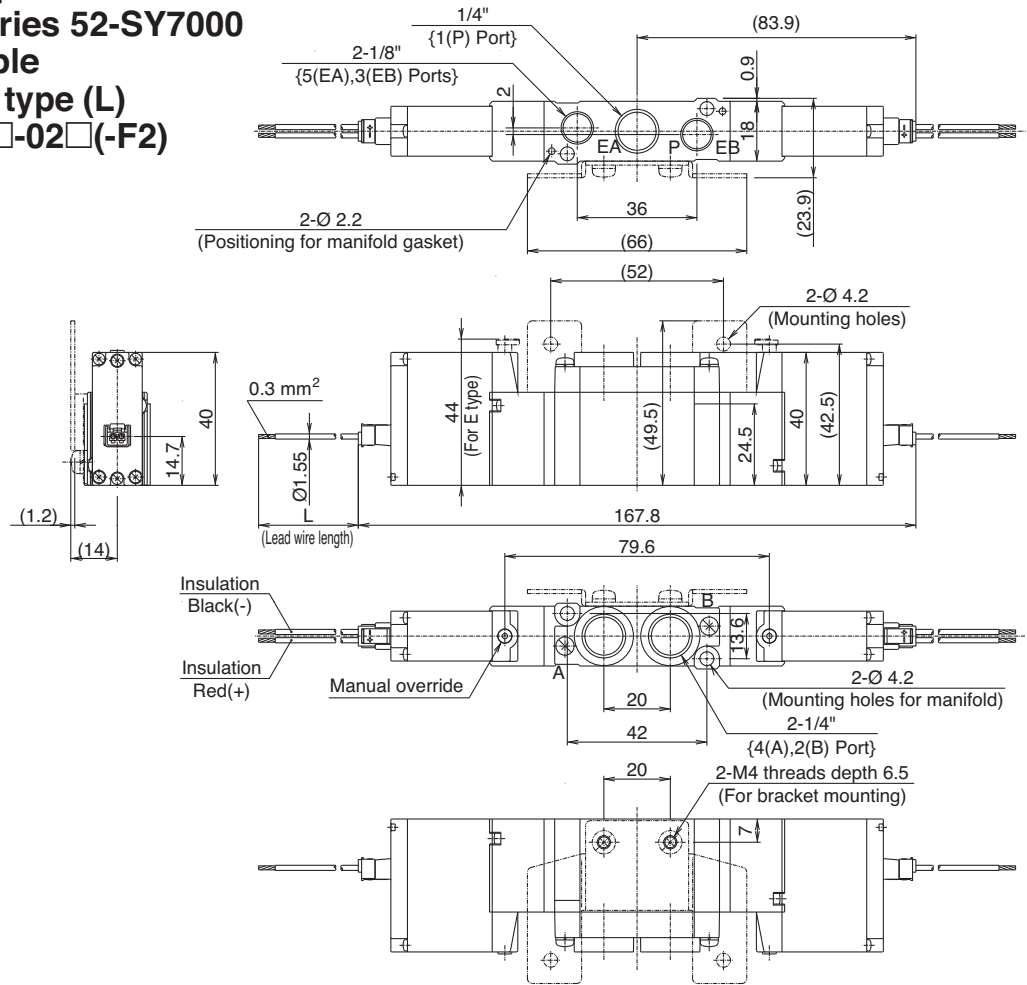
Terminal type (TT)

52-SY7120-TT□□-02□(-F2)

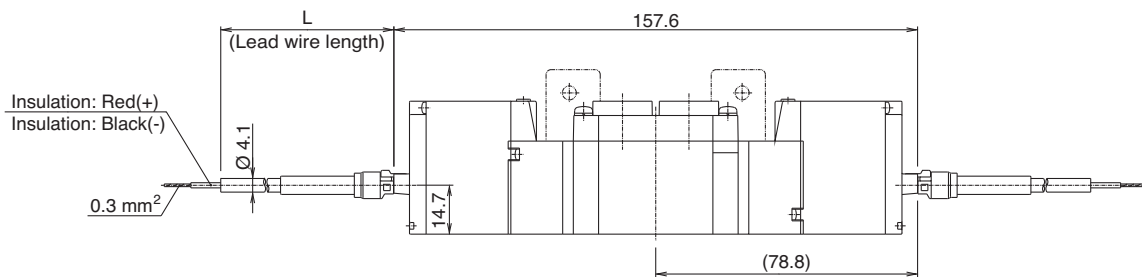


Dimensions

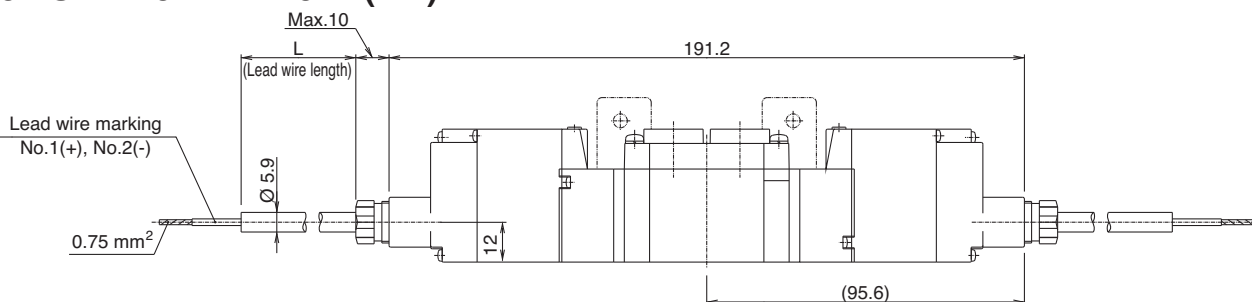
Body ported type
 Dimensions/Series 52-SY7000
 2-position double
 Plug connector type (L)
 52-SY7220-L□□-02□(-F2)



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



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



Series 52-SY

Dimensions

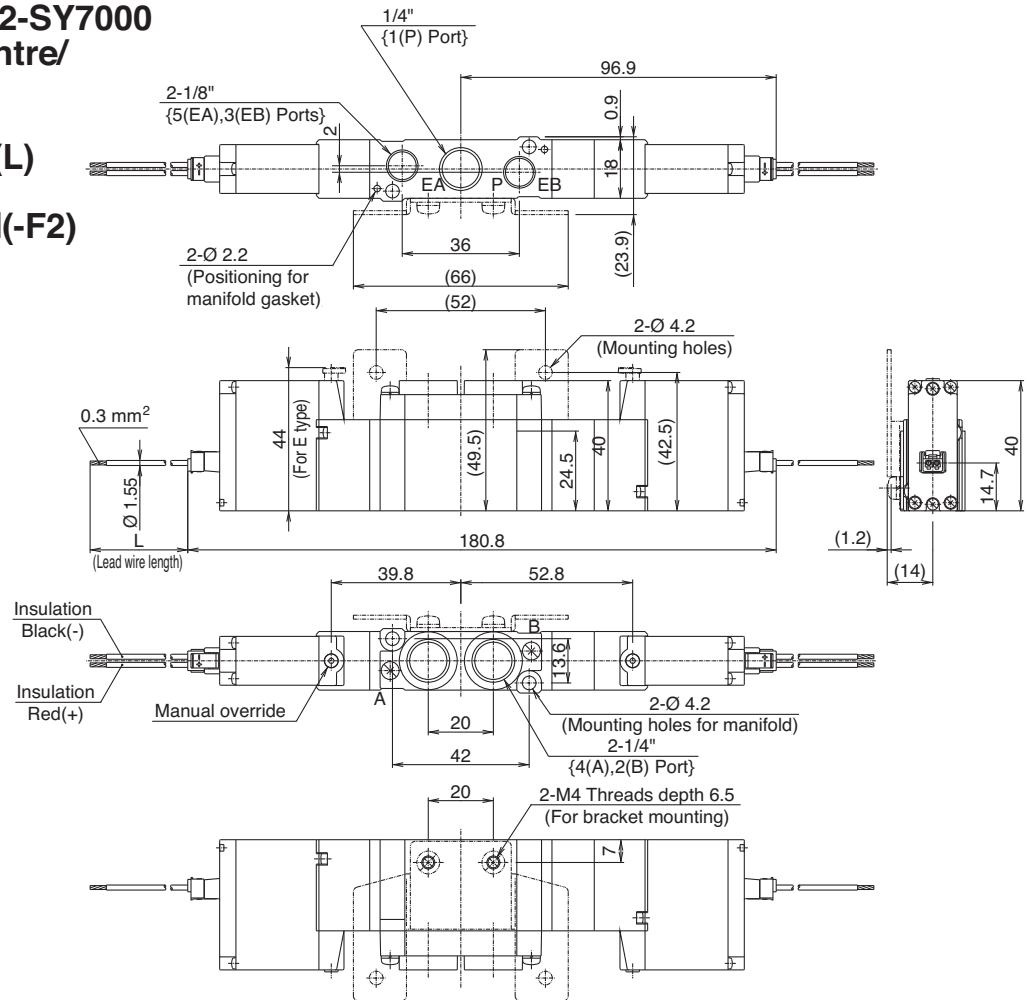
Body ported type

Dimensions/Series 52-SY7000

3-position closed centre/ exhaust centre/ pressure centre

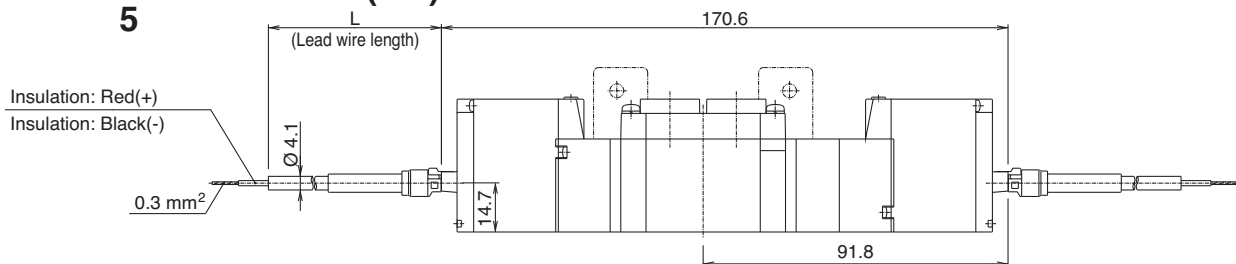
Plug connector type (L)

3
52-SY7420-L□□-02□(-F2)
5



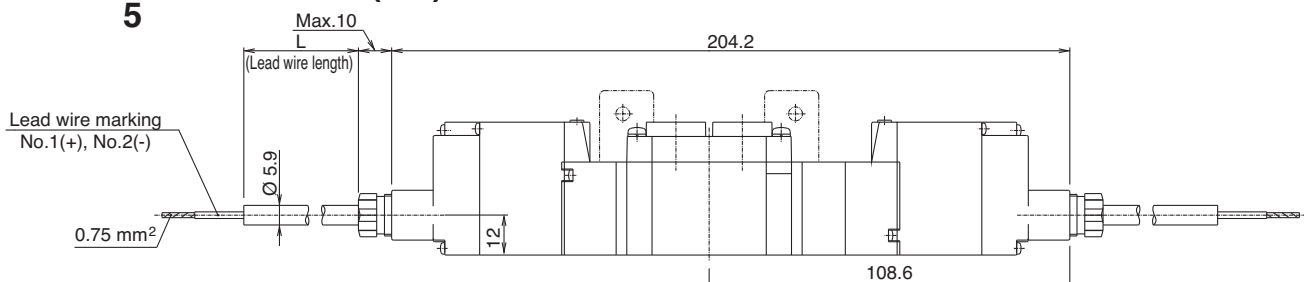
Plug connector with cover type (LL)

3
52-SY7420-LL□□-02□(-F2)
5



Terminal type (TT)

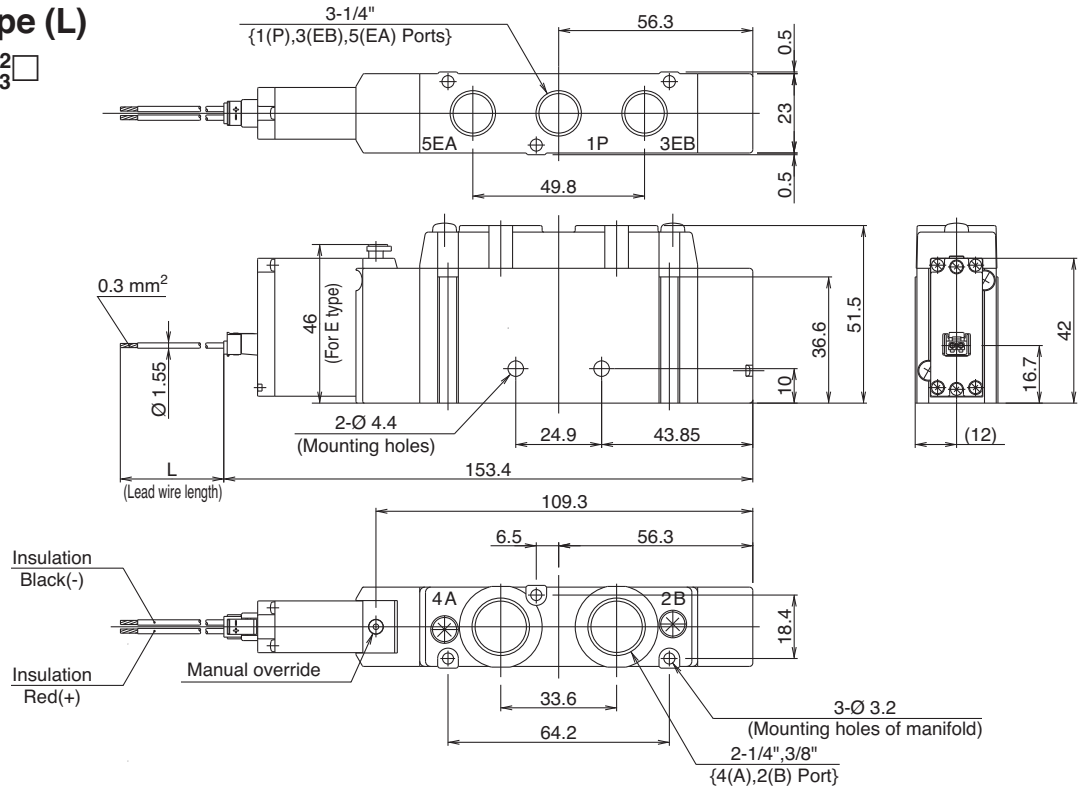
3
52-SY7420-TT□□-02□(-F2)
5



Dimensions

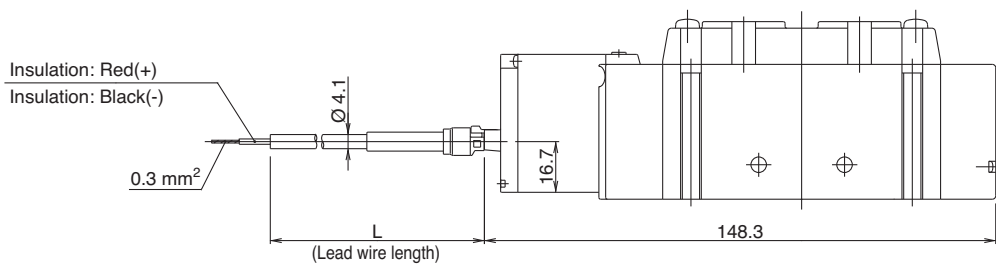
Body ported type
 Dimensions/Series 52-SY9000
 2-position single
 Plug connector type (L)

52-SY9120-L -02
 03



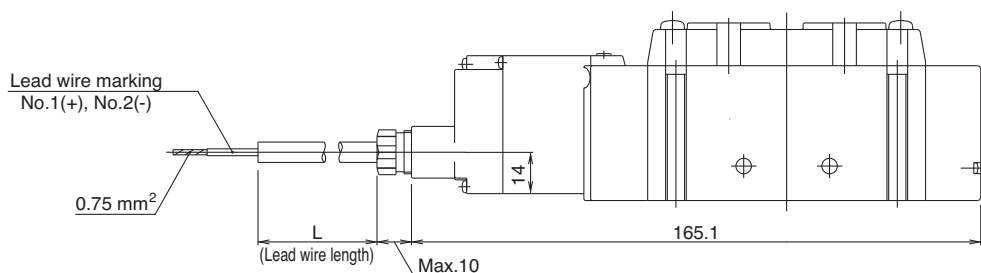
Plug connector with cover type (LL)

52-SY9120-LL -02
 03



Terminal (TT)

52-SY9120-TT -02
 03

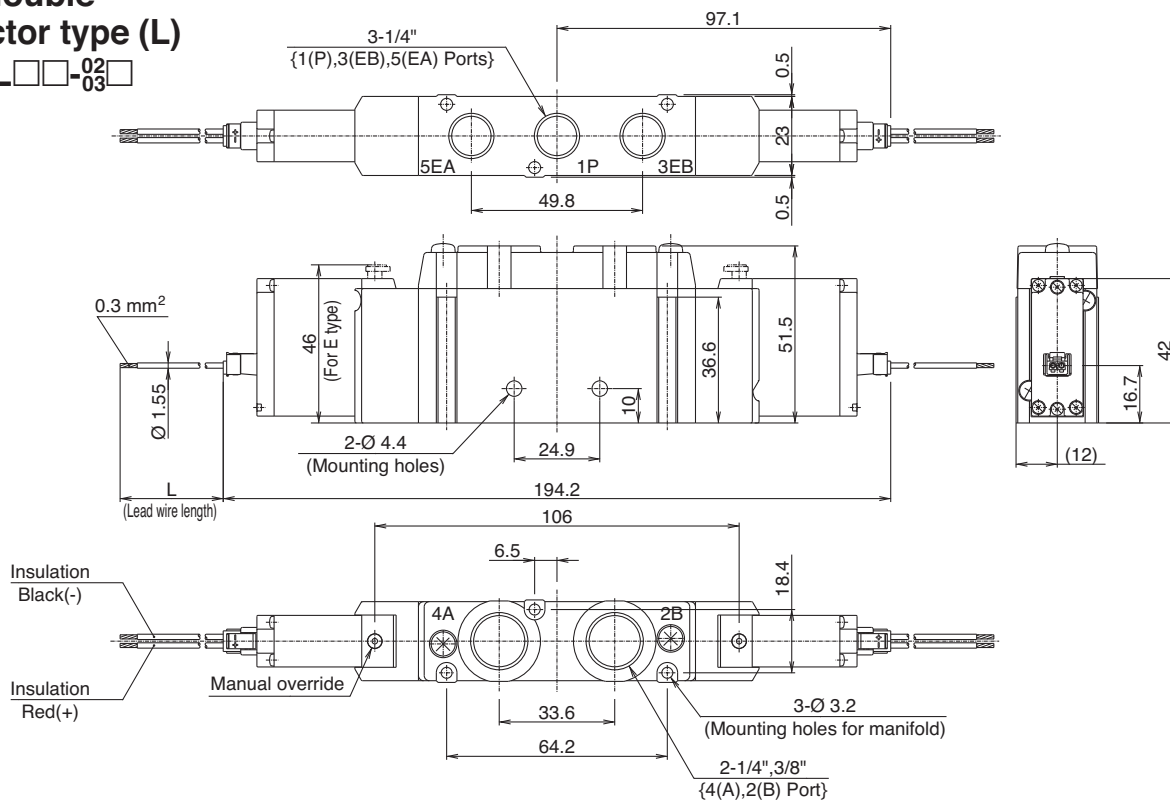


Series 52-SY

Dimensions

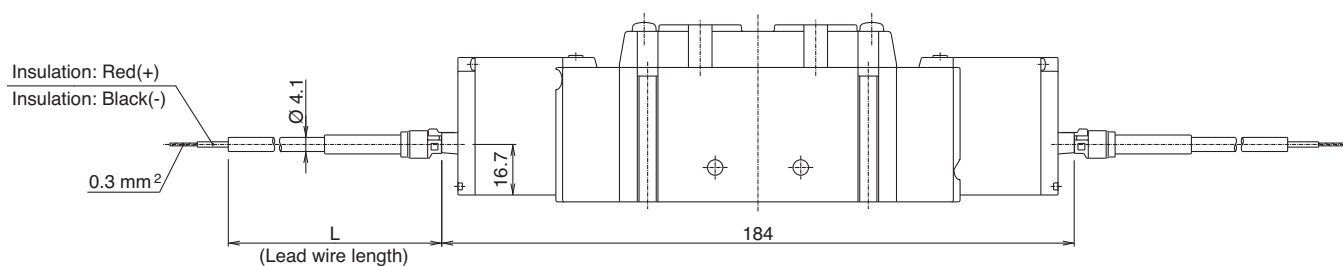
Body ported type Dimensions/Series 52-SY9000 2-position double Plug connector type (L)

52-SY9220-L□□-02□
03□



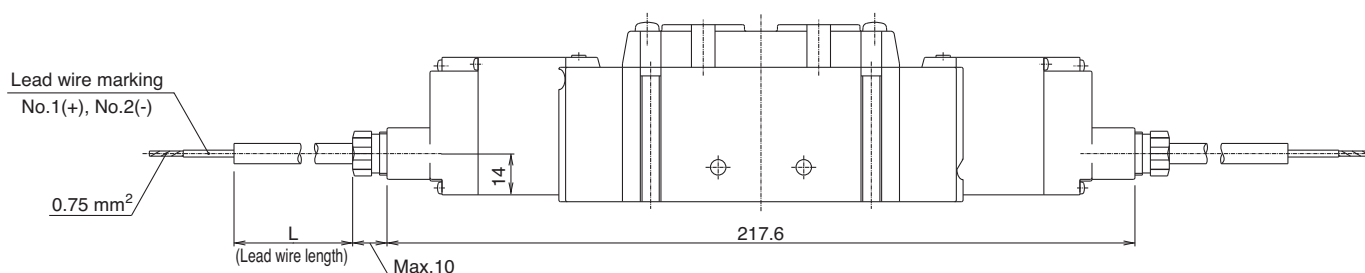
Plug connector with cover type (LL)

52-SY9220-LL□□-02□
03□



Terminal type (TT)

52-SY9220-TT□□-02□
03□



Dimensions

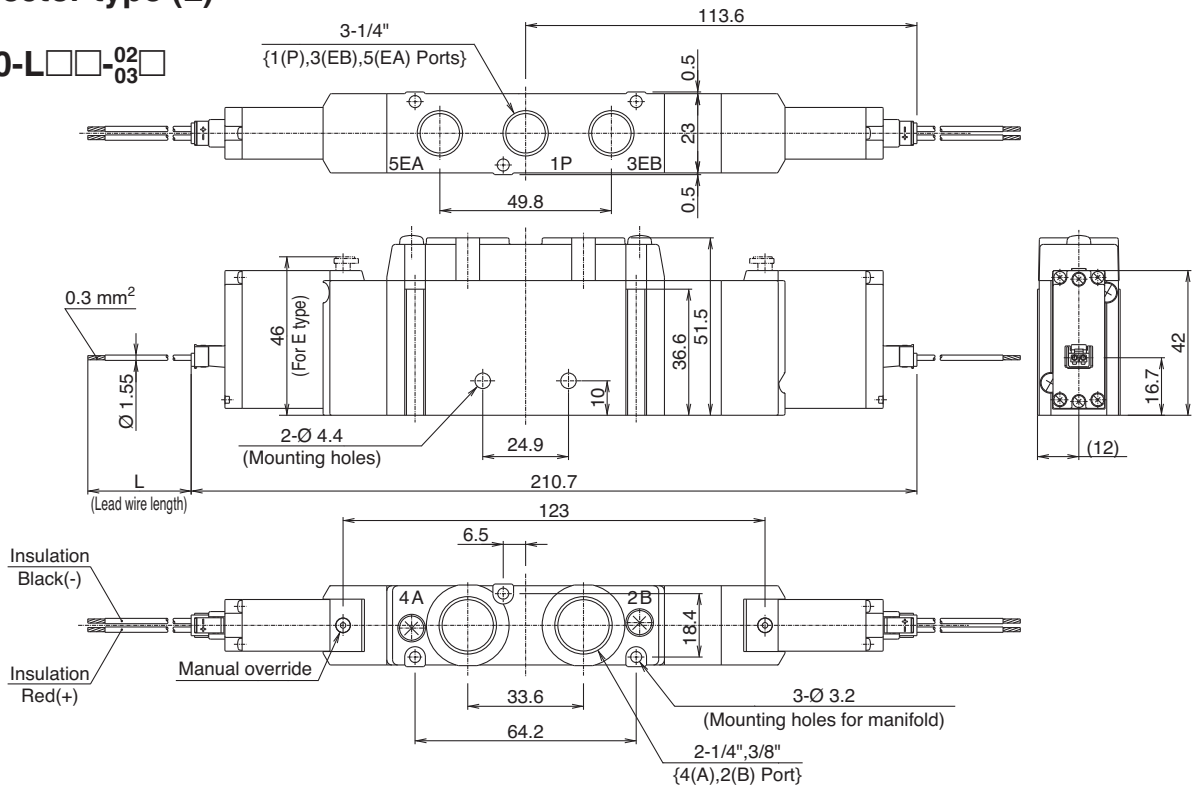
Body ported type

Dimensions/Series 52-SY9000

3-position closed centre/exhaust centre/pressure centre

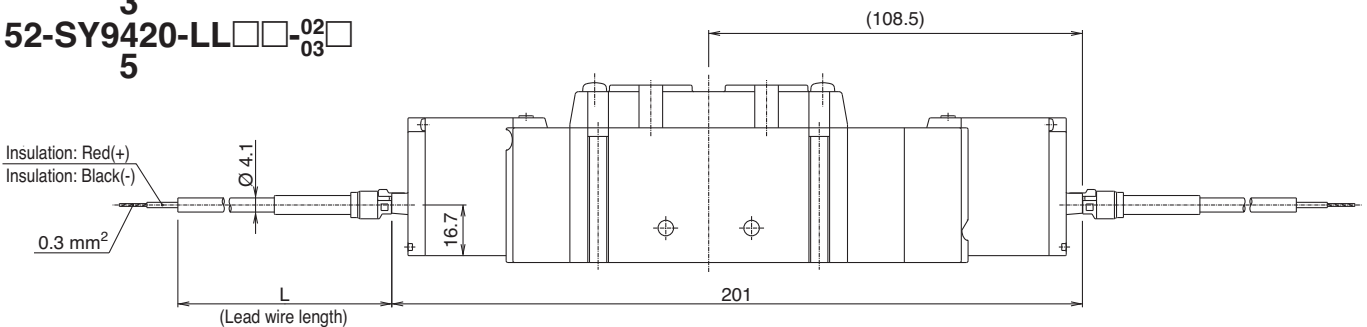
Plug connector type (L)

3
52-SY9420-L□□-02□
5



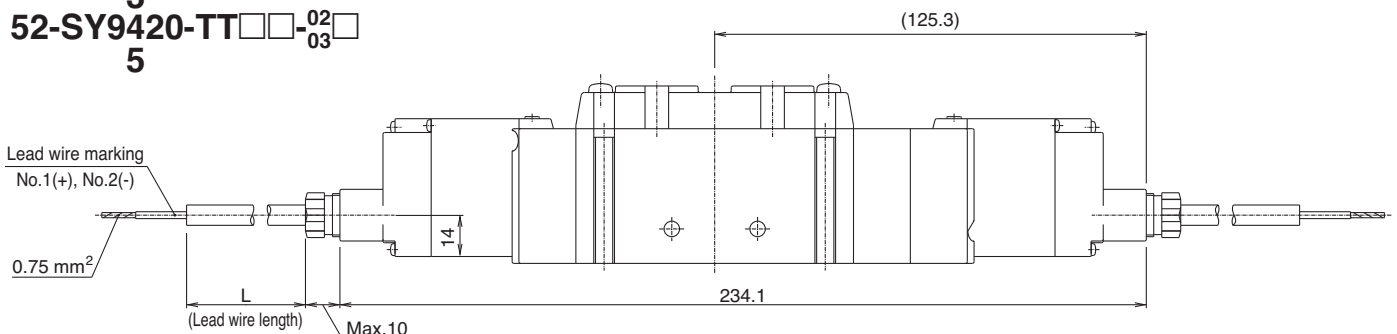
Plug connector with cover type (LL)

3
52-SY9420-LL□□-02□
5



Terminal type (TT)

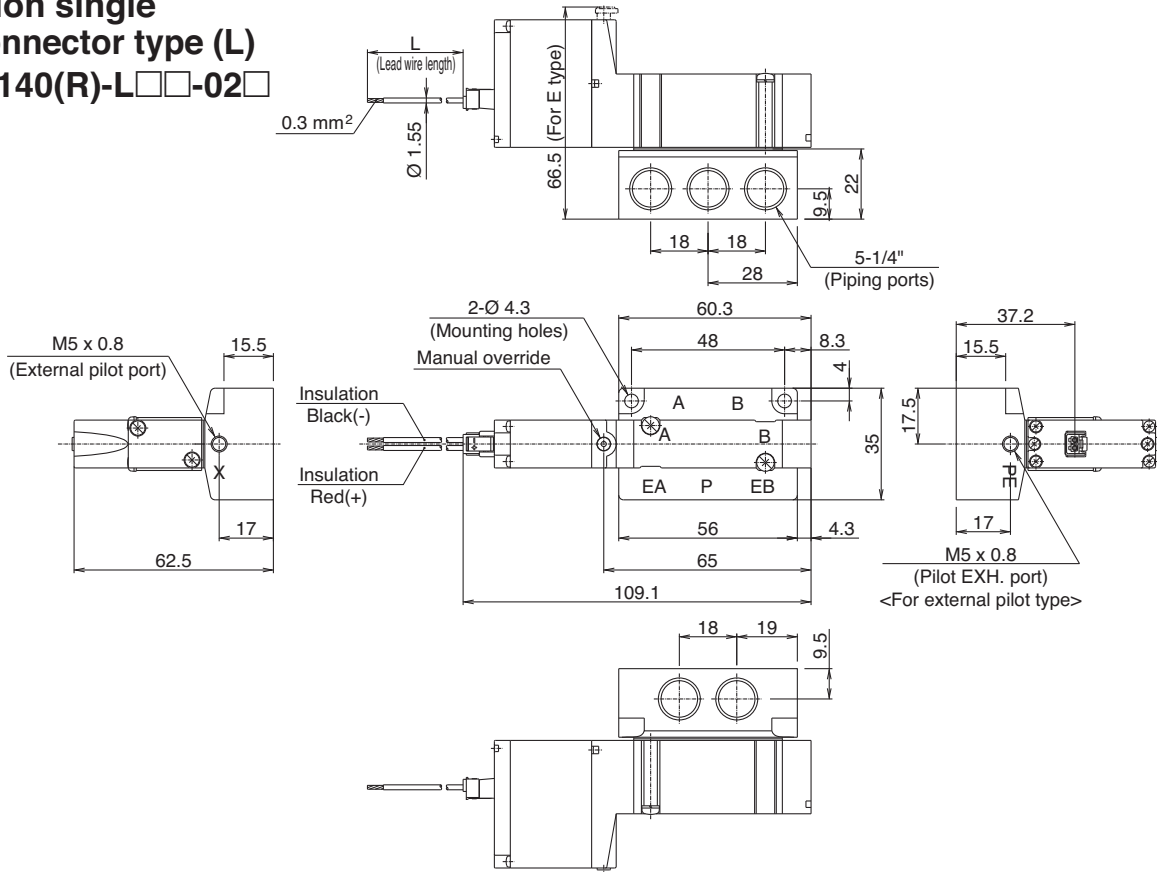
3
52-SY9420-TT□□-02□
5



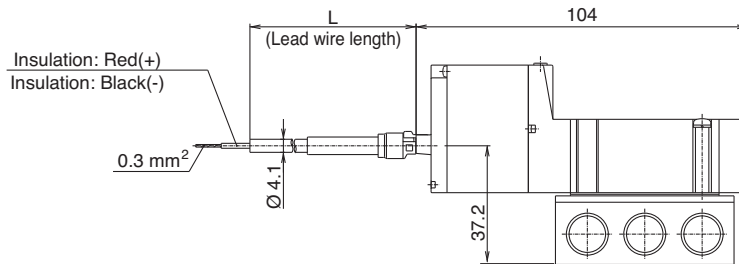
Series 52-SY

Dimensions

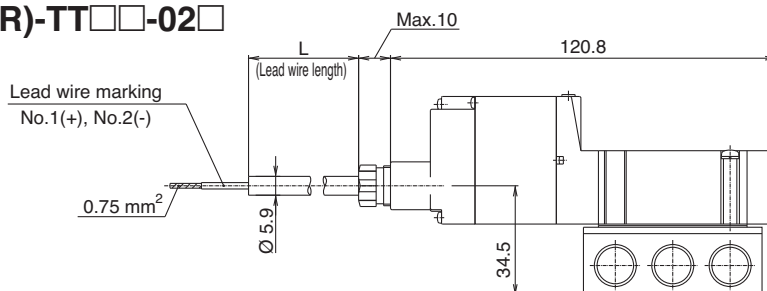
Base mounted type
 Dimensions/Series 52-SY5000
 2-position single
 Plug connector type (L)
 52-SY5140(R)-L□□-02□



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

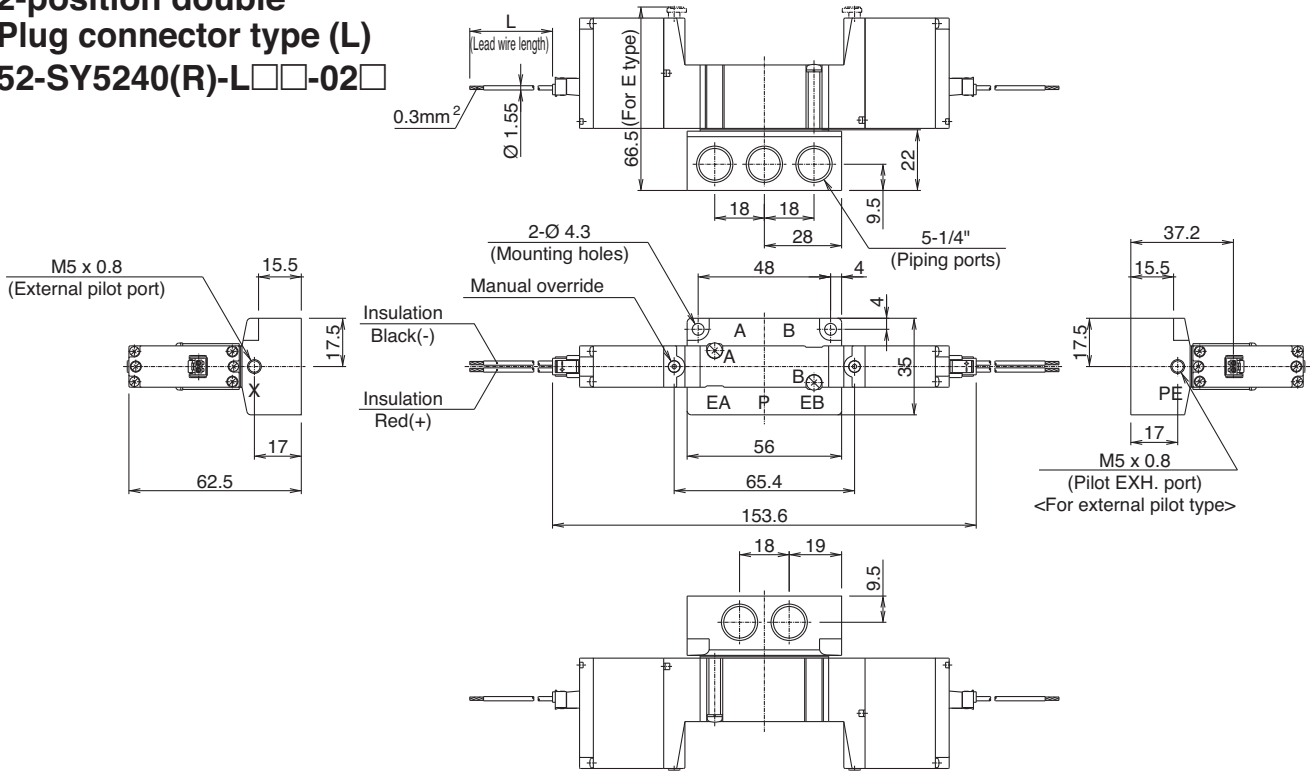


Terminal type (TT)
 52-SY5140(R)-TT□□-02□

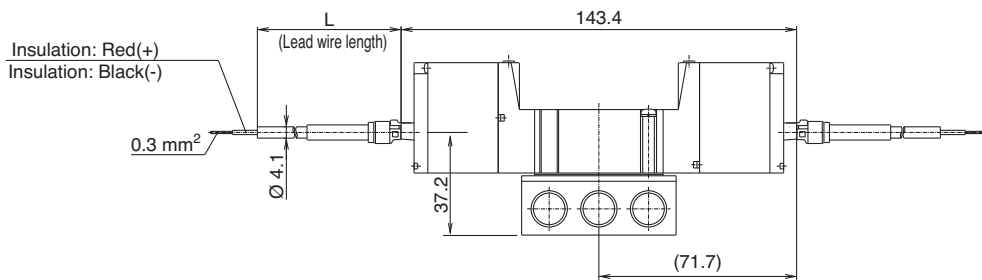


Dimensions

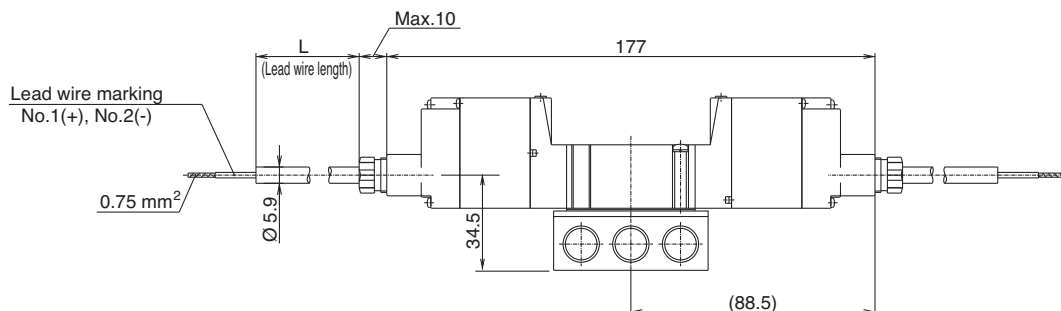
Base mounted type
 Dimensions/Series 52-SY5000
 2-position double
 Plug connector type (L)
 52-SY5240(R)-L□□-02□



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



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



Series 52-SY

Dimensions

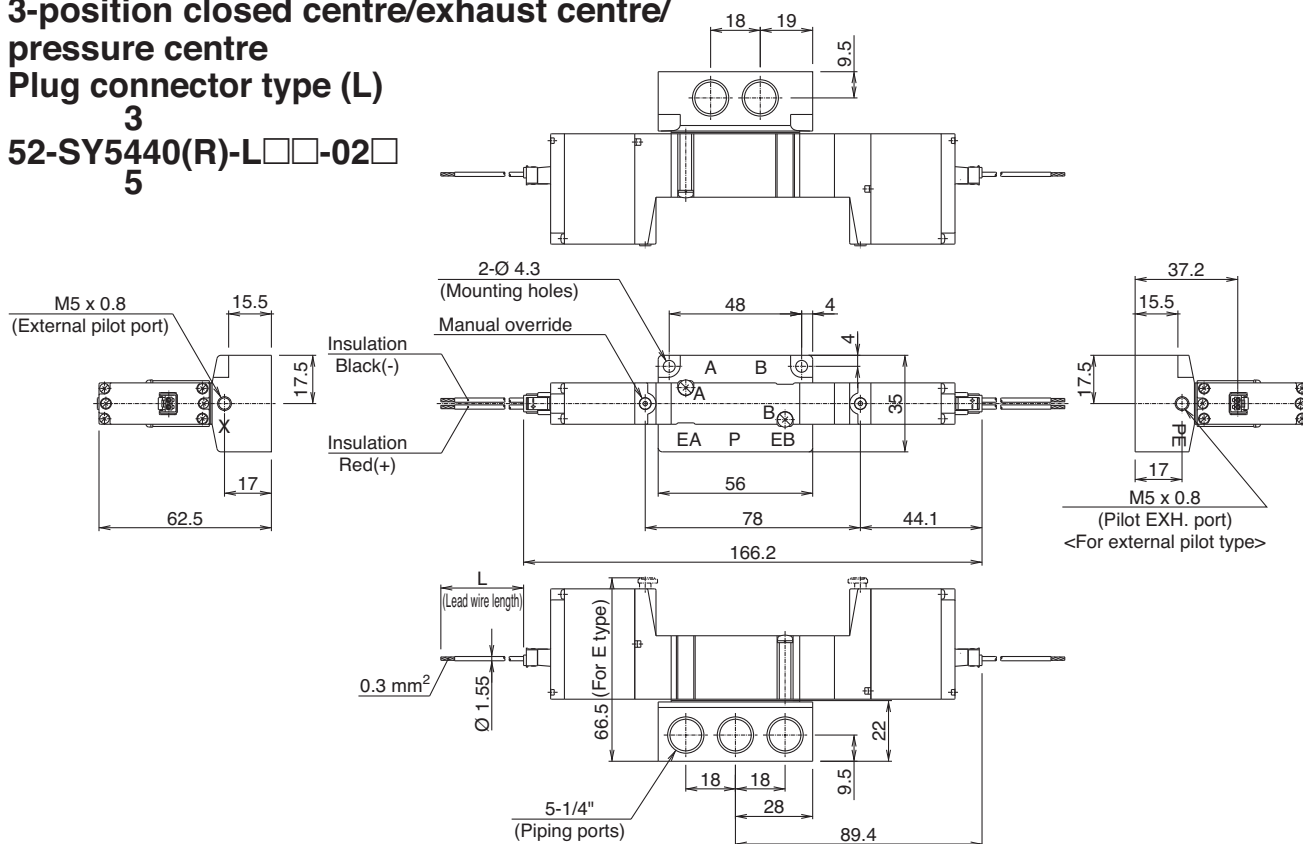
Base mounted type

Dimensions/Series 52-SY5000

3-position closed centre/exhaust centre/ pressure centre

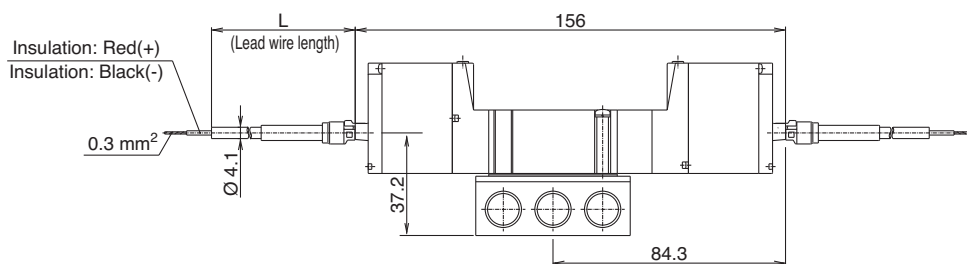
Plug connector type (L)

3
52-SY5440(R)-L□□-02□
5



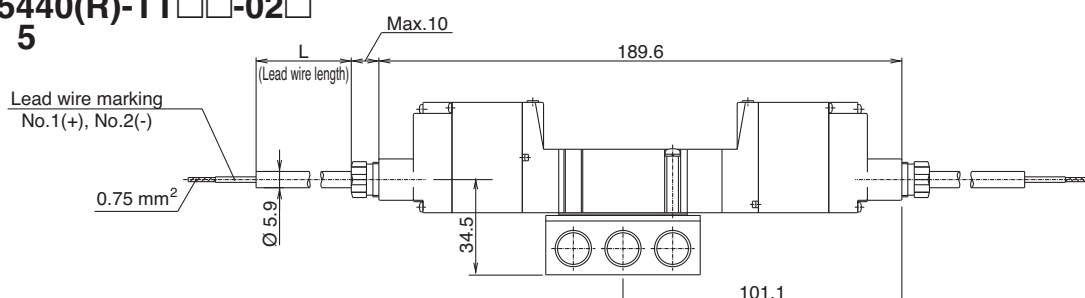
Plug connector with cover type (LL)

3
52-SY5440(R)-LL□□-02□
5



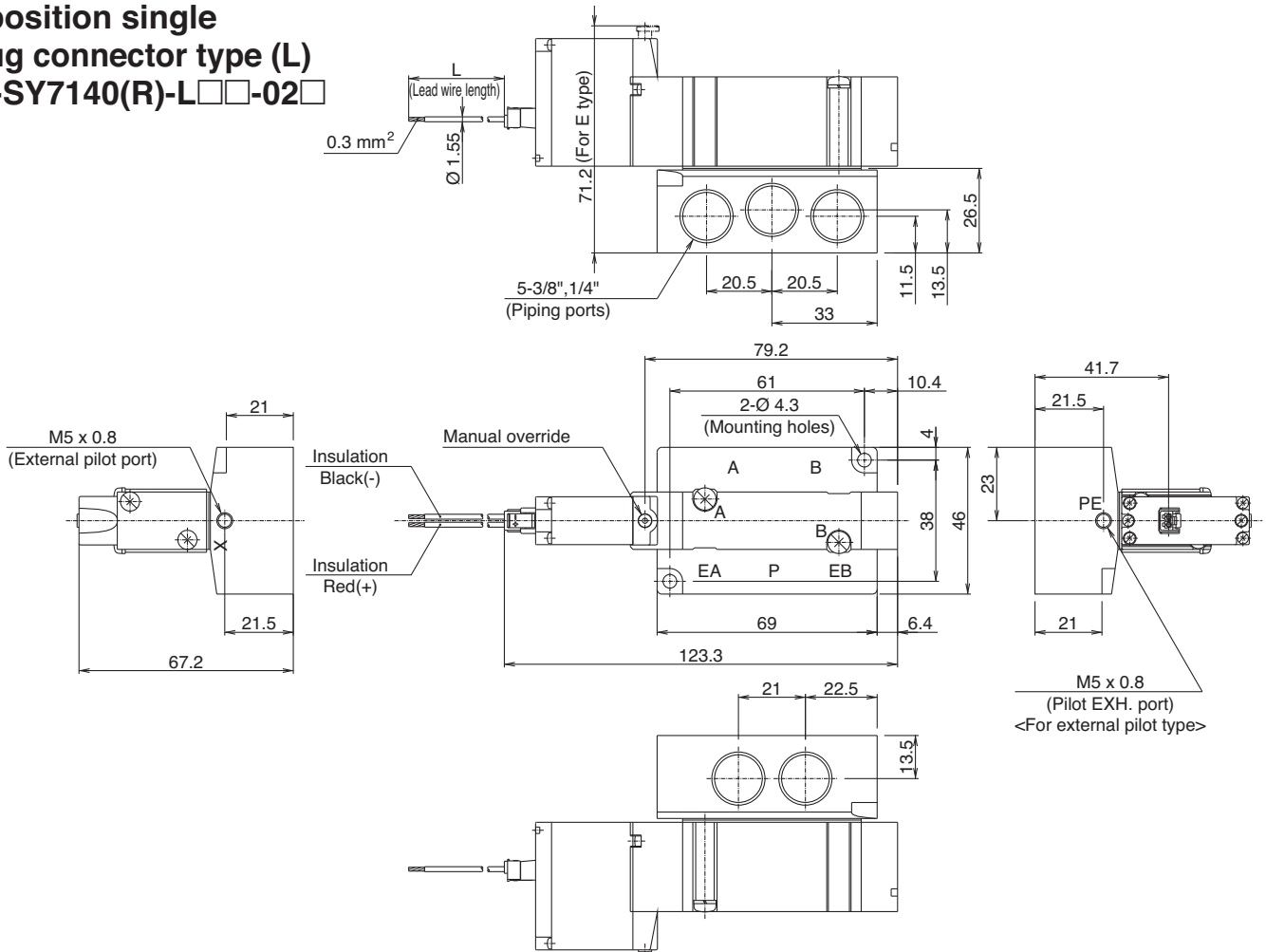
Terminal type (TT)

3
52-SY5440(R)-TT□□-02□
5

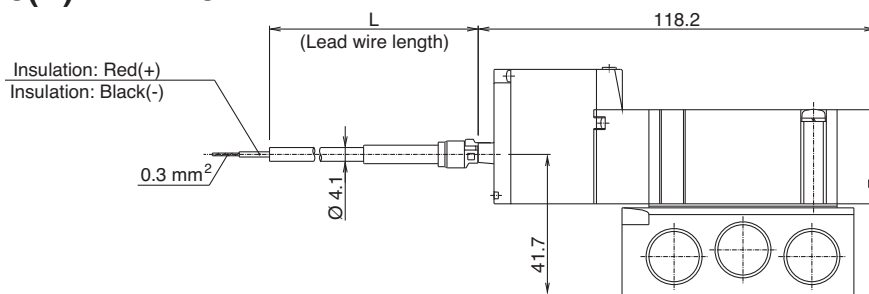


Dimensions

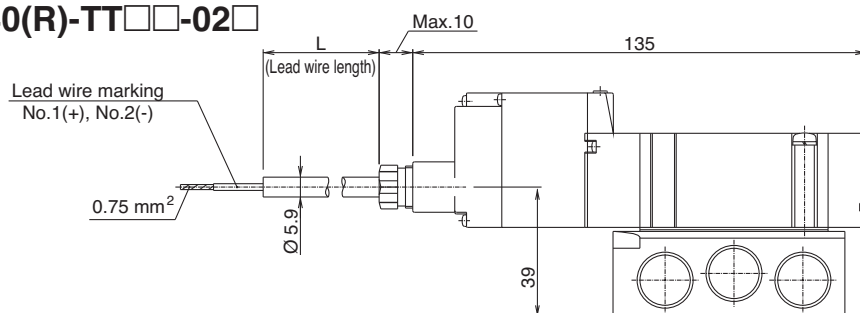
Base mounted type
Dimensions/Series 52-SY7000
2-position single
Plug connector type (L)
52-SY7140(R)-L□□-02□



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



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

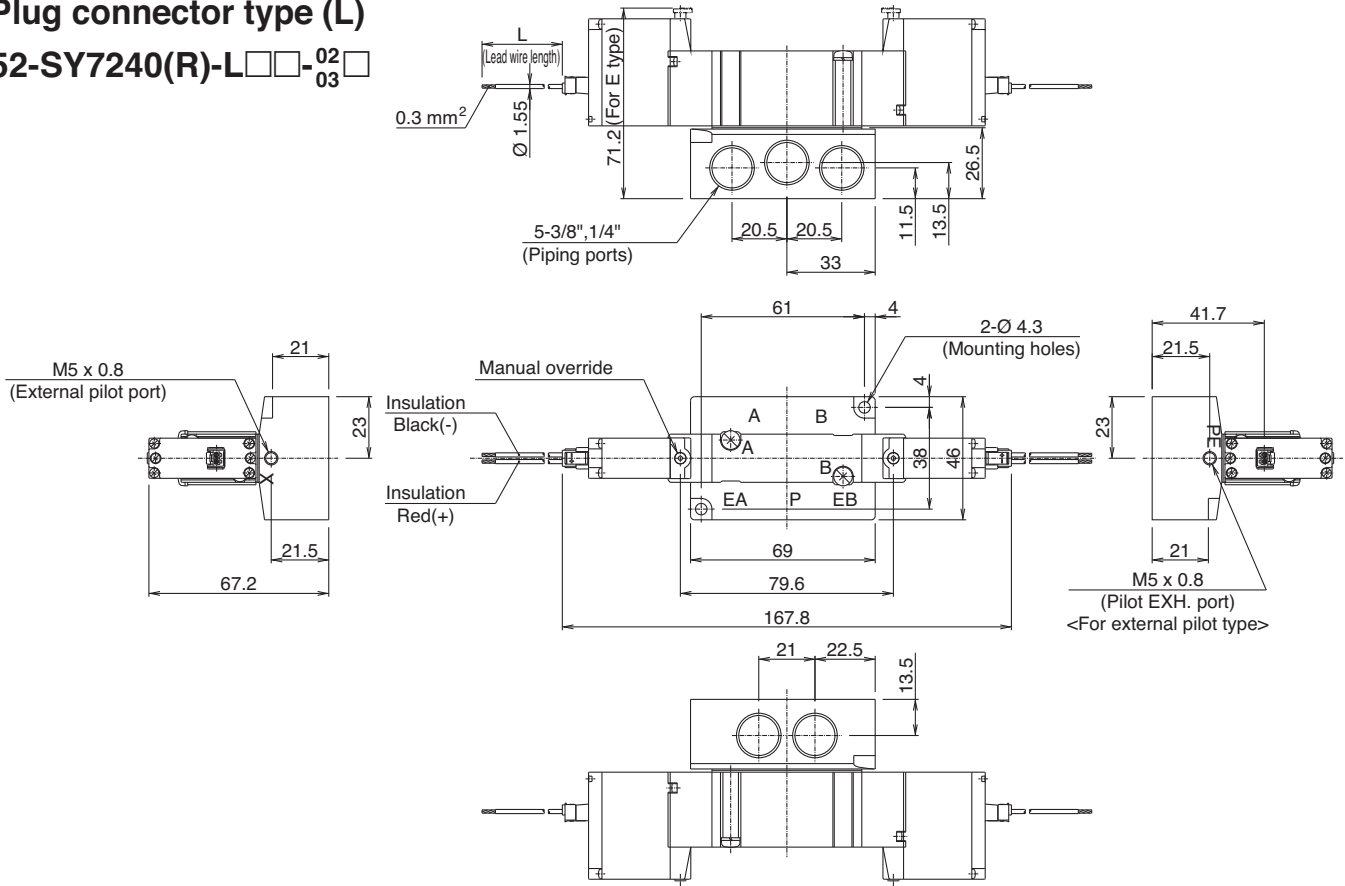


Series 52-SY

Dimensions

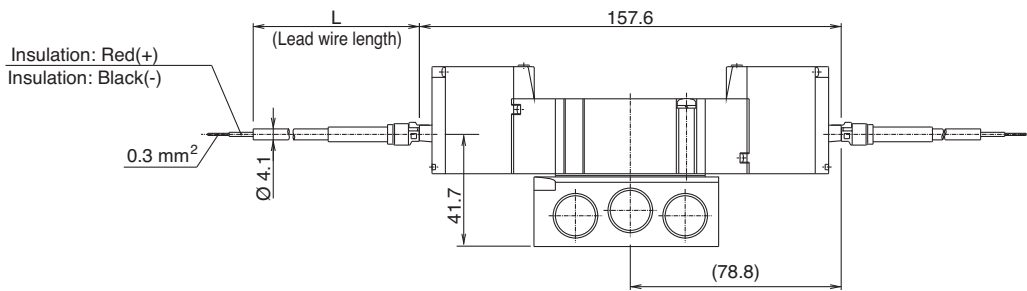
Base mounted type
 Dimensions/Series 52-SY7000
 2-position double
 Plug connector type (L)

52-SY7240(R)-L□□-02□
 03□



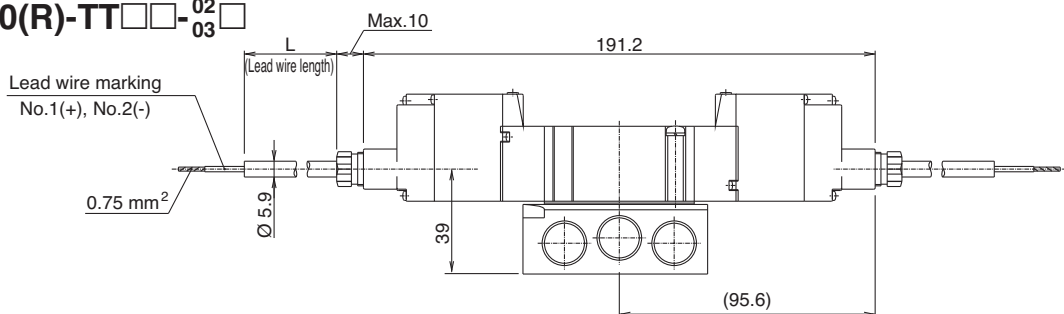
Plug connector with cover type (LL)

52-SY7240(R)-LL□□-02□
 03□



Terminal type (TT)

52-SY7240(R)-TT□□-02□
 03□



Series 52-SY

Dimensions

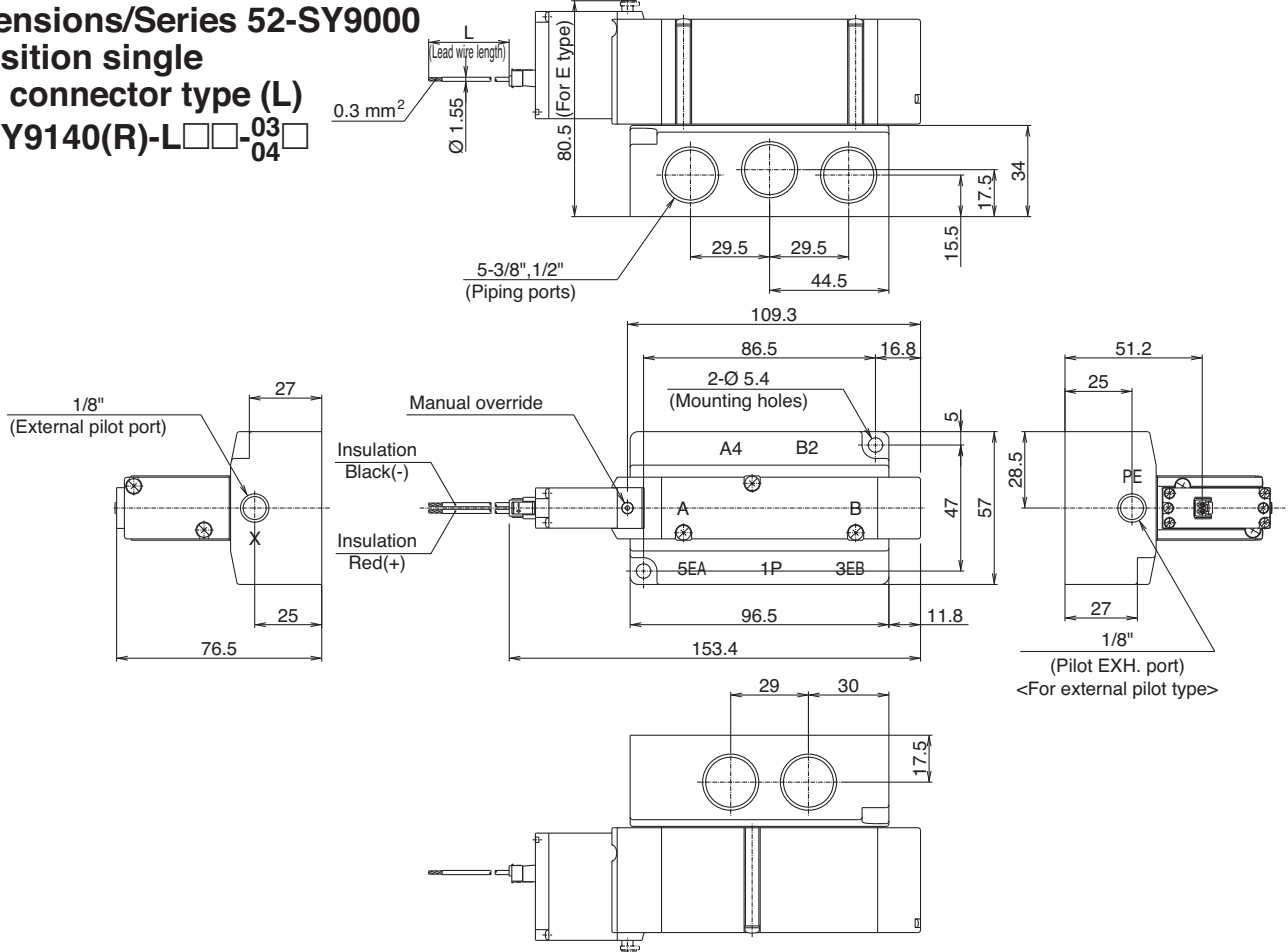
Base mounted type

Dimensions/Series 52-SY9000

2-position single

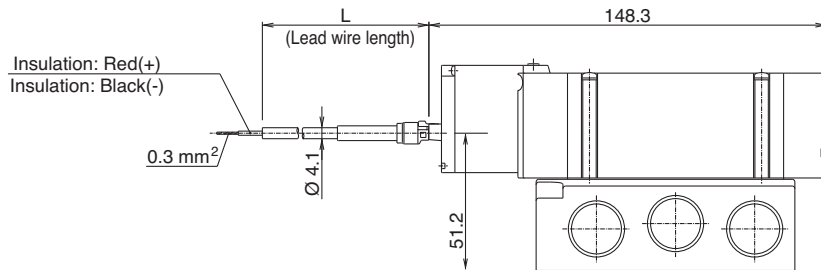
Plug connector type (L)

52-SY9140(R)-L□□-03□
04□



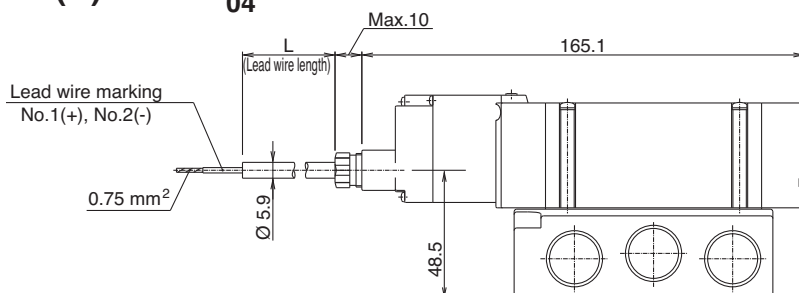
Plug connector with cover type (LL)

52-SY9140(R)-LL□□-03□
04□



Terminal type (TT)

52-SY9140(R)-TT□□-03□
04□



Dimensions

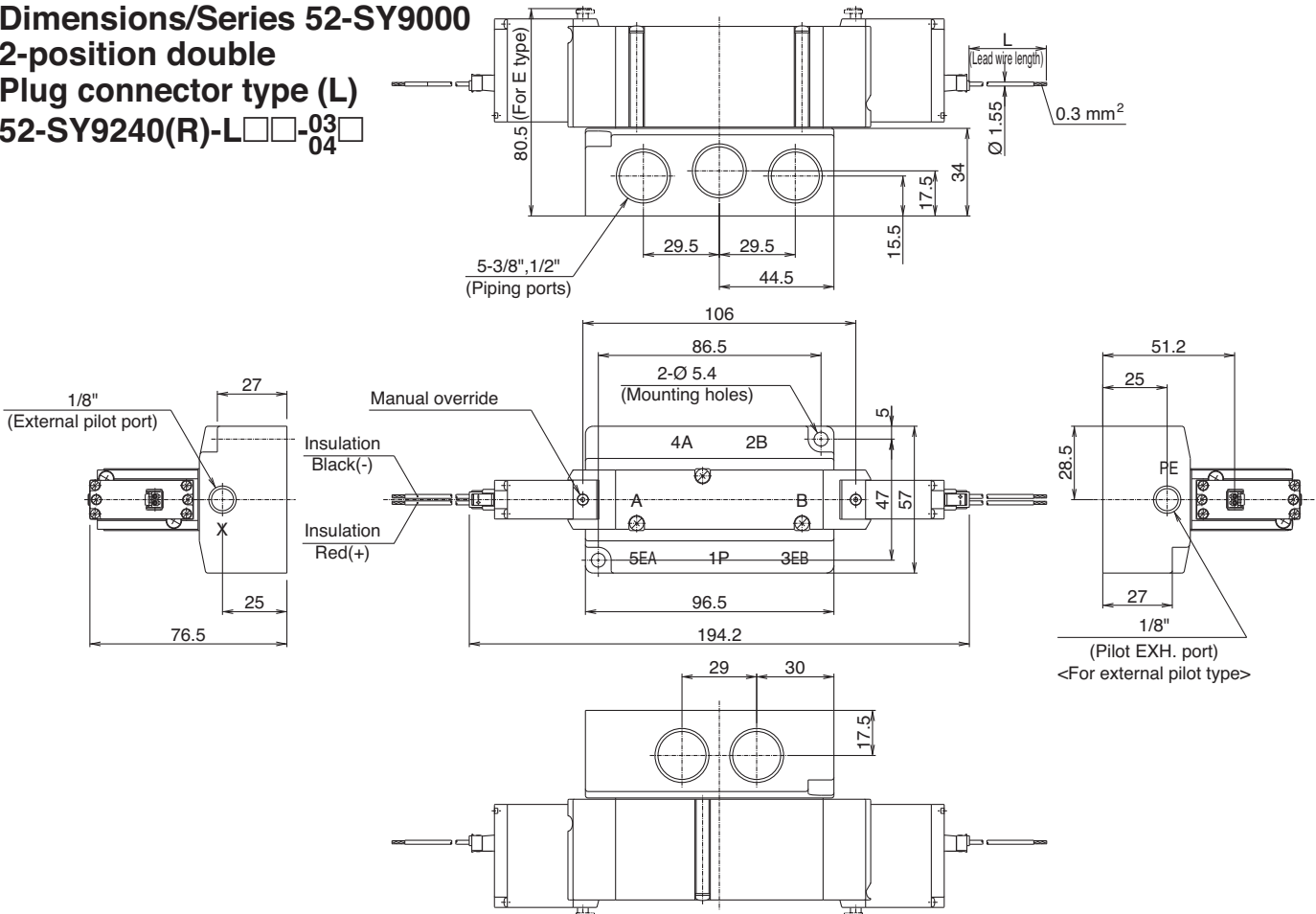
Base mounted type

Dimensions/Series 52-SY9000

2-position double

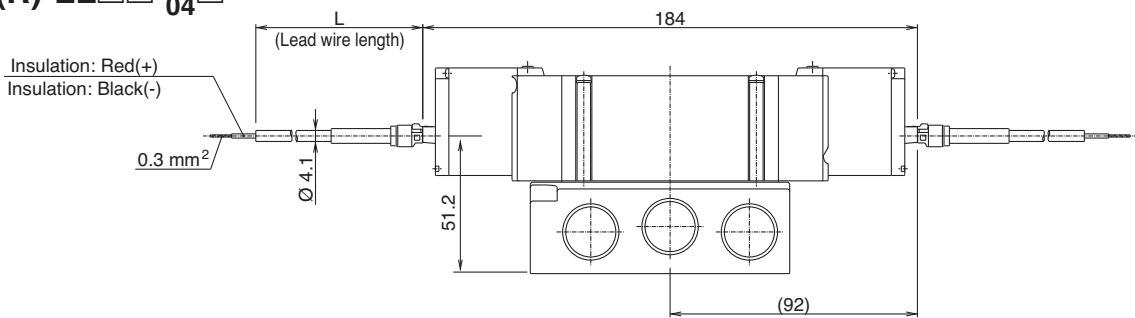
Plug connector type (L)

52-SY9240(R)-L□□-03□
04



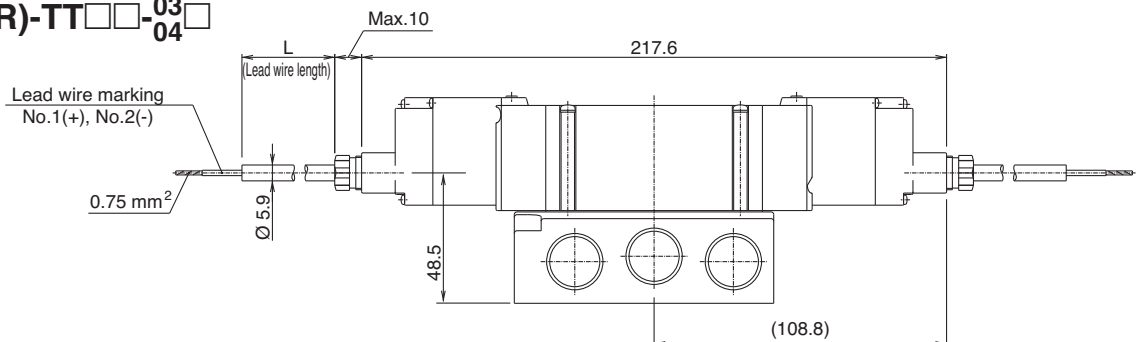
Plug connector with cover type (LL)

52-SY9240(R)-LL□□-03□
04



Terminal type (TT)

52-SY9240(R)-TT□□-03□
04



Series 52-SY

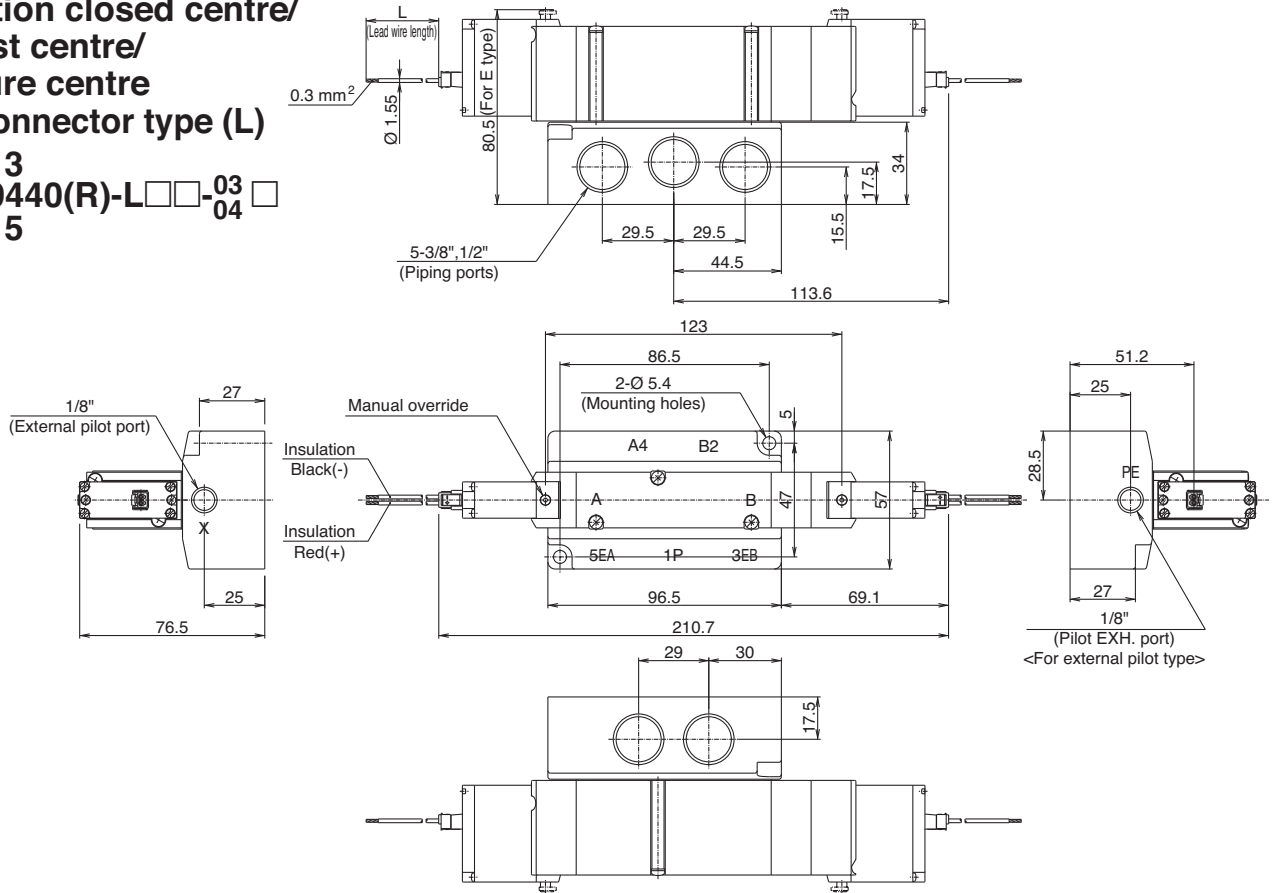
Dimensions

Base mounted type

Dimensions/Series 52-SY9000

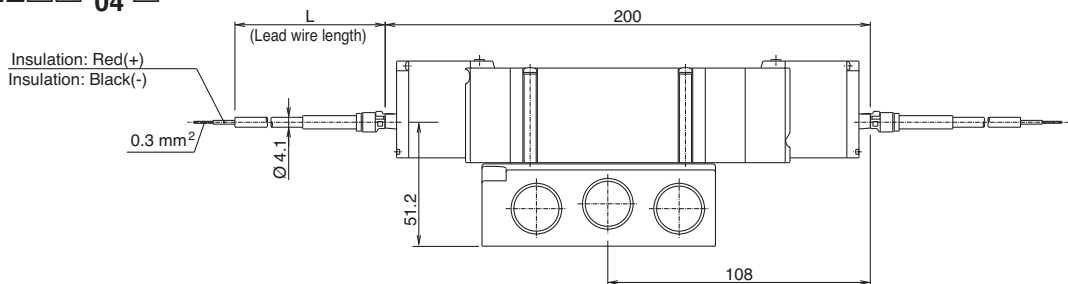
3-position closed centre/
exhaust centre/
pressure centre
Plug connector type (L)

3
52-SY9440(R)-L□□-03□
5



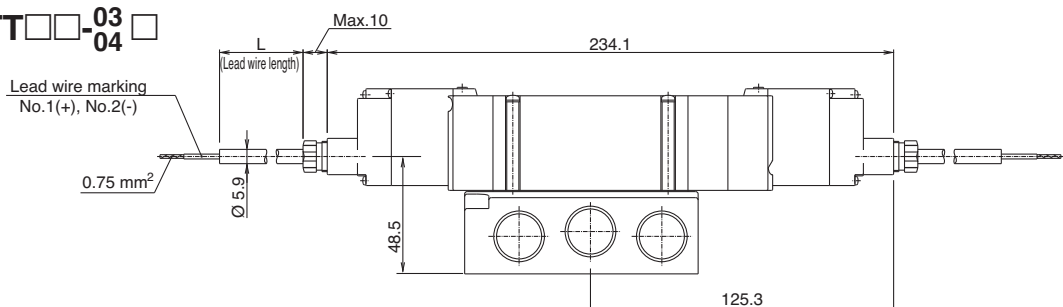
Plug connector with cover type (LL)

3
52-SY9440(R)-LL□□-03□
5



Terminal type (TT)

3
52-SY9440(R)-TT□□-03□
5




ATEX Compliant

Pilot Operated 5-Port Solenoid Valve

50-VFE3000-X60 Series

50-VFE5000-X60 Series




 II 2G Ex db IIC T5 Gb Ta: -10°C TO +50°C
 II 2G Ex db IIC T6 Gb Ta: -10°C TO +40°C
 II 2D Ex tb IIIC T100°C Db Ta: -10°C TO +50°C
 II 2D Ex tb IIIC T85°C Db Ta: -10°C TO +50°C
 IP6X
 [Certification no.: KEMA09ATEX0024X]

Specifications

Series		50-VFE3000-X60	50-VFE5000-X60
Fluid		Air	
Operating pressure range	2-position single/3-position	0.15 to 0.9 MPa	
	2-position double	0.1 to 0.9 MPa	
Ambient and fluid temperatures		T5: -10 °C to 50 °C T6: -10 °C to 40 °C	
Response time	2-position single/double	45 ms or less*1	45 ms or less*1
	3-position	60 ms or less*1	70 ms or less*1
Max. operating frequency	2-position single/double	1 Hz	1 Hz
	3-position	1 Hz	1 Hz
Lubrication		Not required	
Manual override		Non-locking push type, Push-turn locking type D	
Mounting orientation		Unrestricted	
Pilot valve exhaust method		Individual exhaust, Main/Pilot valve common exhaust	Individual exhaust Pilot common exhaust

*1 Based on dynamic performance test, JIS B 8419: 2010. (0.5 MPa, at rated voltage.)

Solenoid Specifications

External wiring connection		Flameproof threaded-joint metal conduit	
Coil rated voltage	AC (% Hz)	100, 200, 12, 24, 48, 110, 220, 240 V	
	DC	24, 6, 12, 48, 110 V	
Allowable voltage fluctuation		-15 % to +10 % of rated voltage	
Apparent power	AC	Starting	9.1 VA (50 Hz) 7.8 VA (60 Hz)
		Holding	6.2 VA (50 Hz) 4.6 VA (60 Hz)
Power consumption	DC	3.5 W (Coil rated voltage: 6, 12, 24 V)*2	
Coil Insulation type		Class B	

*2 The other voltage: 4 W

Option

Description	Part no.	Applicable
Bracket (With mounting screw)	VF3000-16-1A	50-VFE3□3□
	VF5000-7-1A	50-VFE5□20

Option

Valve model*4	Type of actuation		Port size		Flow rate characteristics*3						Weight kg
					1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → R1/R2)			
					C	b	Cv	C	b	Cv	
50-VFE3□30-01-X60	2-position	Single	1/8	1/8	3.0	0.38	0.78	2.8	0.30	0.67	0.85
		Double			3.0	0.38	0.78	2.8	0.30	0.67	1.58
	3-position	Closed center			2.4	0.31	0.64	1.8	0.37	0.46	1.67
		Exhaust center			2.6	0.37	0.70	3.0	0.32	0.76	
		Pressure center			3.0	0.42	0.83	2.4	0.27	0.59	
					1.4	0.44	0.39	2.5	0.28	0.62	
50-VFE3□30-02-X60	2-position	Single	1/4	1/8	4.0	0.36	1.0	3.1	0.32	0.75	0.85
		Double			4.0	0.36	1.0	3.1	0.32	0.75	1.58
	3-position	Closed center			2.4	0.45	0.68	1.9	0.37	0.47	1.67
		Exhaust center			3.0	0.42	0.82	3.1	0.36	0.79	
		Pressure center			5.5	0.37	1.4	2.6	0.32	0.64	
					1.4	0.50	0.40	2.7	0.29	0.66	
50-VFE5□20-02-X60	2-position	Single	1/4	1/4	7.1	0.46	1.9	7.7	0.51	2.2	1.01
		Double			7.1	0.46	1.9	7.7	0.51	2.2	1.7
	3-position	Closed center			6.7	0.46	1.8	6.6	0.41	1.8	1.84
		Exhaust center			7.1	0.42	1.9	8.0	0.45	2.2	
		Pressure center			6.8	0.51	2.0	5.7	0.37	1.4	
					2.7	0.50	0.78	7.4	0.47	2.1	
50-VFE5□20-03-X60	2-position	Single	3/8	3/8	8.8	0.44	2.4	10.0	0.49	2.9	1.01
		Double			8.8	0.44	2.4	10.0	0.49	2.9	1.7
	3-position	Closed center			7.5	0.43	2.0	7.5	0.38	1.9	1.84
		Exhaust center			8.3	0.40	2.2	10.0	0.48	3.0	
		Pressure center			9.2	0.50	2.6	6.1	0.35	1.6	
					3.0	0.49	0.85	8.7	0.46	2.4	

*3 []: denotes the normal position.

*4 For the main/pilot valve common exhaust type, select 50-VFE3□3□.

*5 Weight for the flameproof threaded-joint metal conduit type

* As the product is body ported, it can be connected to a manifold base as is.

Pilot Air Exhaust Port (PE Port)

There is a pilot air exhaust port (PE port) at the bottom of all pilot valves, excluding the common exhaust type.

Please refrain from blocking this port as failure to do so may result in valve malfunction.

In addition, if there is a possibility that the hazard classification will change due to the exhaust air, be sure to connect piping to this port and exhaust it to a safe location.

Explosion Proof Precautions

- The zones of this valve are as follows.
Gas: Zone 1 or 2
Dust: Zone 21 or 22
- The external ground cable has a 4 to 6.64 mm² conductor cross section, so be sure to protect it from bending or excessive force.
- When using a cable gland, be sure to use a product with ATEX certification.
- Be sure to implement measures to prevent static electricity from charging the non-metal parts on the external surface of the valve.
- As air is also exhausted from the valve PE port (pilot valve exhaust passage), be sure to confirm whether this will affect the ambient environment before use.
- Be sure to either use antistatic fittings or to implement static electricity prevention measures.

50-VFE3000/5000-X60 Series

Manifold

Model	Manifold type			
	Type	EXH type	A/B(CYL) port piping	
50-VFE3□30-□□ ⁰¹ / ₀₂ -X60	B mount	Type 30	Common	Valve
50-VFE3□40-□□-X60		Type 40	Common	Base
50-VFE3□50-□□-X60		Type 50	Individual	Base
50-VFE3□90-□□-X60	NAMUR Interface	Type 90	Individual	Base
50-VFE5□20-□□ ⁰² / ₀₃ -X60	B mount	Type 20	Common	Valve
		Type 21	Common	Valve
		Type 40	Common	Base

* Select 50-VFE3□33 or 50-VFE3□43 for the main/pilot valve common exhaust type.

How to Order

50 - VFE 3 1 3 0 - 5 T □ M - 02 □ - F - X60

Explosion-proof

50	Flameproof, dustproof construction
----	------------------------------------

Body type

Symbol	Body type, Applicable series	
	50-VFE3000	50-VFE5000
3	●	—
5	—	●

Symbol

1	Single solenoid
2	Double solenoid
3	Closed center
4	Exhaust center
5	Pressure center

Body model

Symbol	Body model	Applicable series	
		50-VFE3000	50-VFE5000
2	Body ported (For manifold type 20)	—	●
3	Body ported (For manifold type 30)	●	—
4	Base mounted (For manifold type 40)	●	●
5	For manifold type 50	●	—

Body option

Symbol	Body model	Applicable series	
		50-VFE3000	50-VFE5000
0	Standard	50-VFE3□ ³⁰ / ₄₀ / ₅₀	50-VFE5□20
3*1	Common exhaust type for main and pilot valve	50-VFE3□ ³³ / ₄₃	—
4	Centralized piping type for pilot exhaust	—	50-VFE5□44

*1 Semi-standard

Rated voltage

AC (50/60 Hz)		DC	
1	100 VAC	5	24 VDC
2	200 VAC	6	12 VDC
3	110 VAC	V	6 VDC
4	220 VAC	Y	48 VDC
7	240 VAC	Z	110 VDC
8	48 VAC		
A	12 VAC		
B	24 VAC		

Option

—	None
F	With bracket

* Available only for 50-VFE3□30/33 or 50-VFE□5□20 (The bracket will be shipped unattached.)

Thread type (Port size)

—	Rc
F	G
N	NPT
T	NPTF

Port size (P, A, B)

Symbol	Port size	Applicable series	
		50-VFE3000	50-VFE5000
—	None	50-VFE3□ ⁴⁰ / ₄₃ / ₅₀	50-VFE5□44
01	1/8	50-VFE3□ ³⁰ / ₃₃	—
02	1/4	50-VFE3□ ³⁰ / ₃₃	50-VFE5□20
03	3/8	—	50-VFE5□20

Electrical connection port

Symbol	Thread type
M	M20 x 1.5
N	NPT1/2

Manual override

—	Non-locking push type
D	Push-turn locking type D (slotted type)

External wire connection

T	Metal conduit threaded type Flameproof enclosure cable gland (not supplied) type*2
---	---

*2 Please use a commercially available cable gland with ATEX certification if a product is used as a flameproof enclosure cable gland type.

2-position

Single
50-VFE3130-3133
(B)2 4(A)

Double
50-VFE3230-3233
(B)2 4(A)

Single
50-VFE3140-3143-3150
50-VFE5120-5144
(A)4 2(B)

Double
50-VFE3240-3243-3250
50-VFE5220-5244
(A)4 2(B)

3-position

Closed center
50-VFE3330-3333
(B)2 4(A)

Closed center
50-VFE3340-3343-3350
50-VFE5320-5344
(A)4 2(B)

Exhaust center
50-VFE3430-3433
(B)2 4(A)

Exhaust center
50-VFE3440-3443-3450
50-VFE5420-5444
(A)4 2(B)

Pressure center
50-VFE3530-3533
(B)2 4(A)

Pressure center
50-VFE3540-3543-3550
50-VFE5520-5544
(A)4 2(B)

NAMUR Interface 5-Port Solenoid Valve How to Order

50-VFE3 1 90-5 T M-00F - - X60

Explosion-proof
50 Flameproof, dustproof construction

Symbol

1	Single solenoid
2	Double solenoid

AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC
4	220 VAC
7	240 VAC
8	48 VAC
A	12 VAC
B	24 VAC

Rated voltage

5	24 VDC
6	12 VDC
V	6 VDC
Y	48 VDC
Z	110 VDC

Option

Symbol	Option
—	Without spacer assembly
1	With spacer assembly

Pilot valve mounting position (Single only)

Symbol	Pilot valve mounting position
—	Standard
R	Port 2(B) side

Thread type

Symbol	Thread type
—	Rc
00F	G
00N	NPT
00T	NPTF

External wire connection

T	Metal conduit threaded type Flameproof enclosure cable gland (not supplied) type*1
---	---

*1 Please use a commercially available cable gland with ATEX certification if a product is used as a flameproof enclosure cable gland type.

Electrical connection port

Symbol	Thread type
M	M20 x 1.5
N	NPT1/2

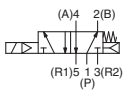
Manual override

—	Non-locking push type
D	Push-turn locking type D (slotted type)

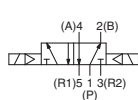
Symbol

2-position

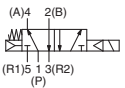
Single
50-VFE3190-X60



Double
50-VFE3290-X60



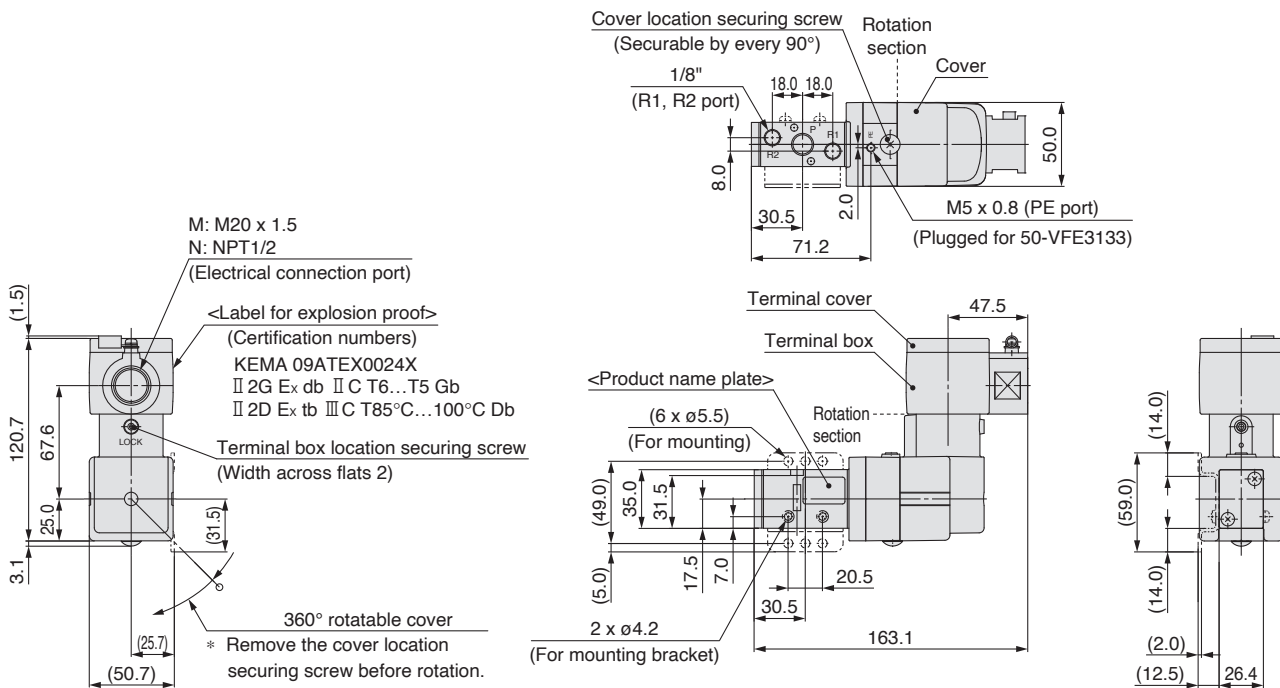
50-VFE3190-R-X60



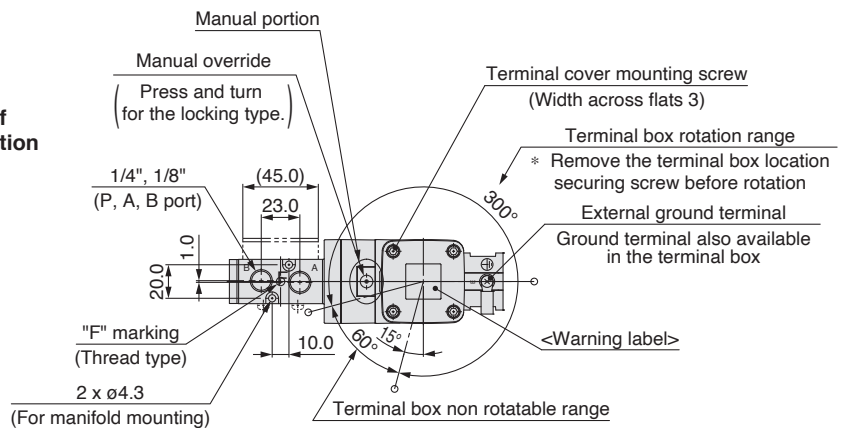
50-VFE3000/5000-X60 Series

50-VFE3000 Body Ported/2-Position Single

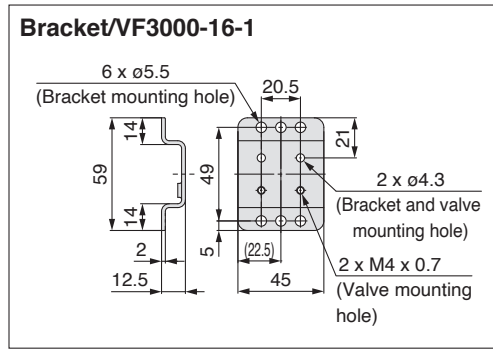
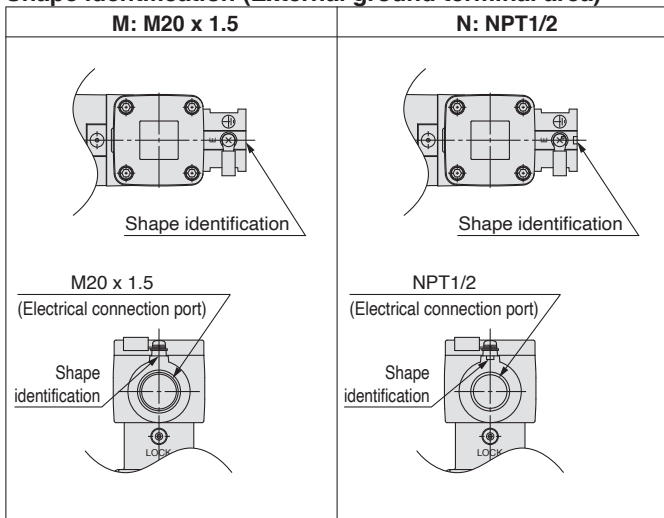
Metal conduit threaded type/50-VFE3130-□T(M, N)-□□(-F)-X60



Details of Manual Portion Type D



Shape identification (External ground terminal area)

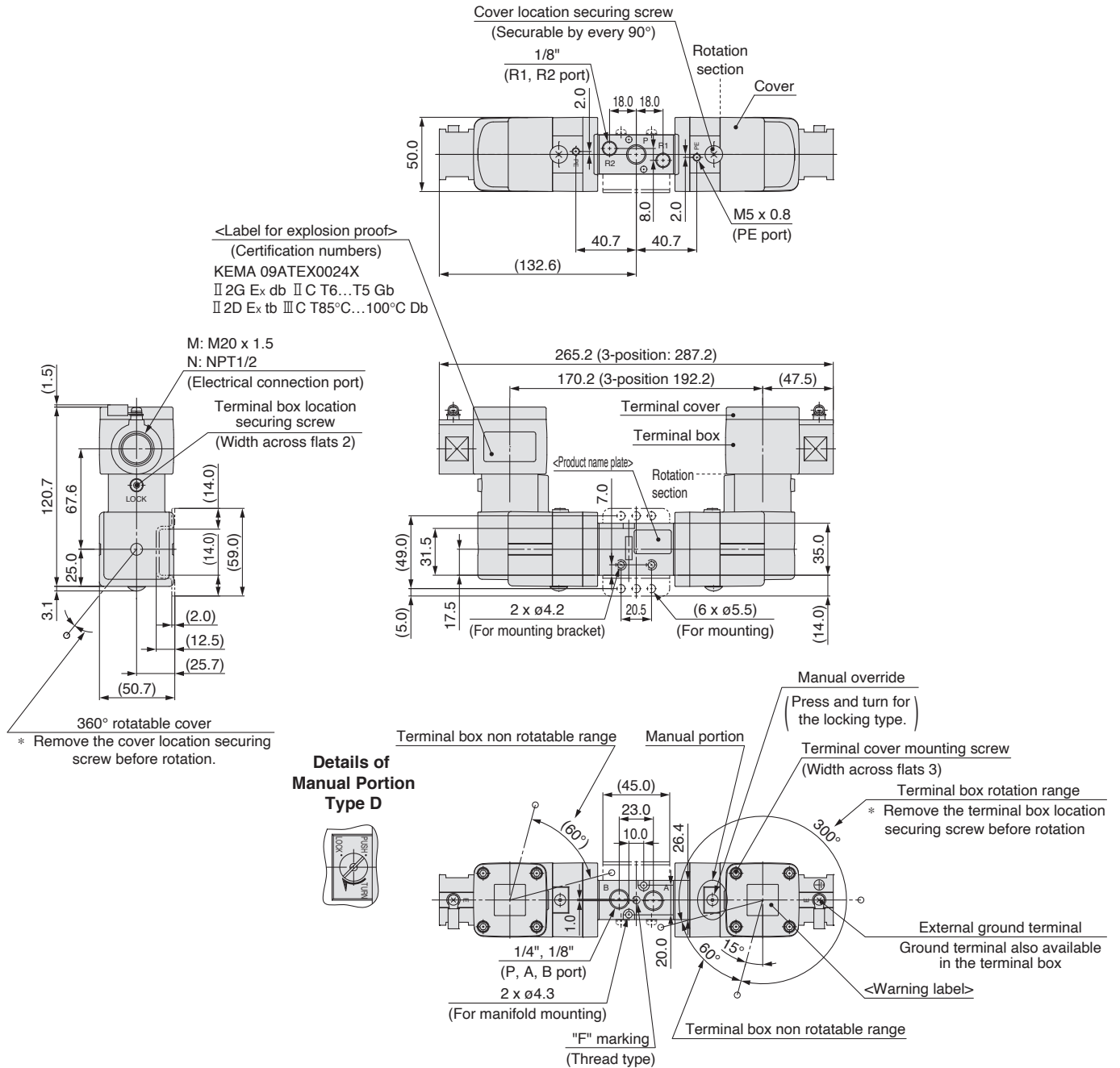


Screw part number: AC00297 (M4 x 32, With spring washer)

* The shape identification is the same for the 50-VFE3000 and 5000.

50-VFE3000 Body Ported/2-Pposition Double, 3-Position Closed Center, Exhaust Center, Pressure Center

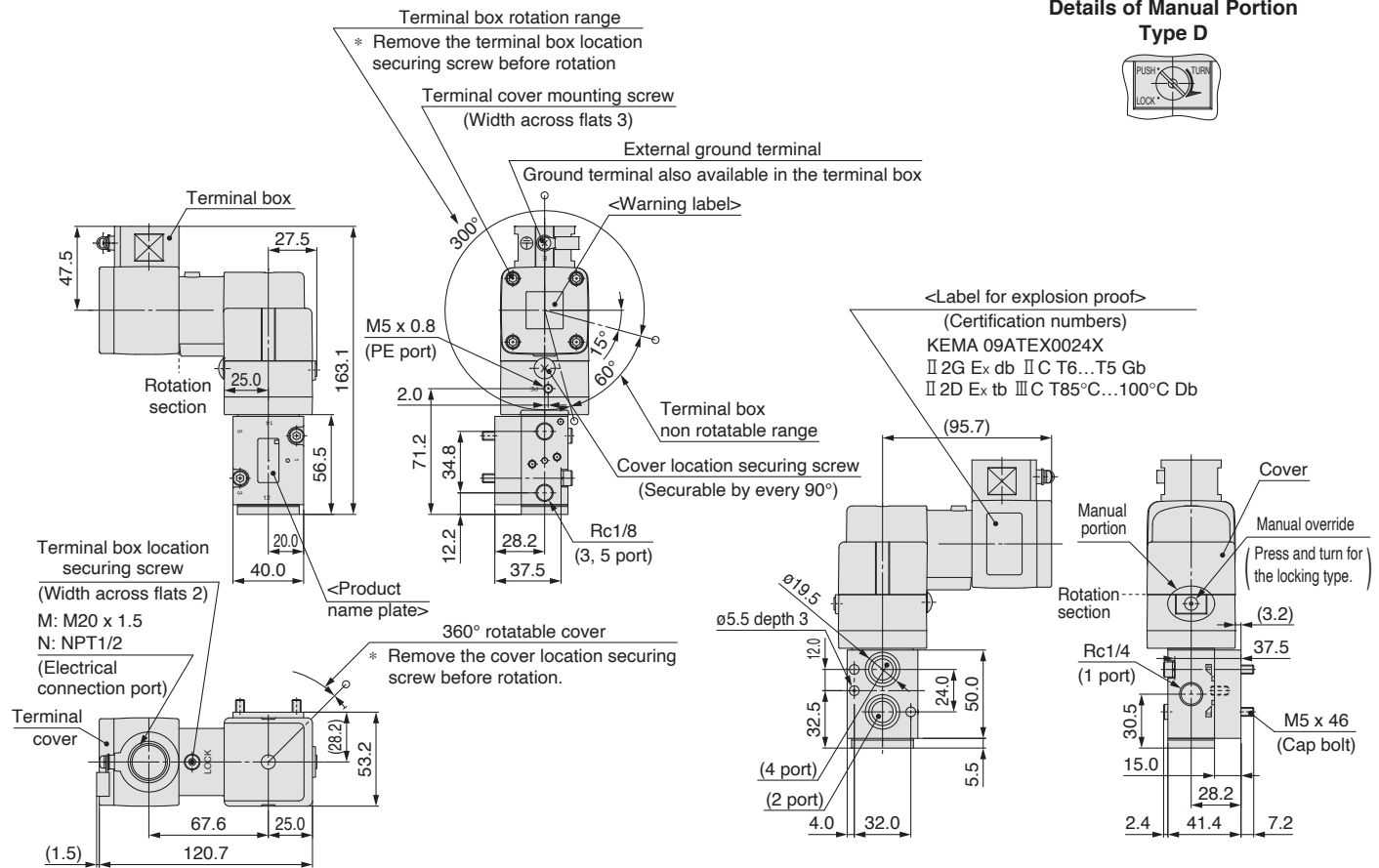
Metal conduit threaded type/50-VFE3□30-□T(M, N)-□□(-F)-X60



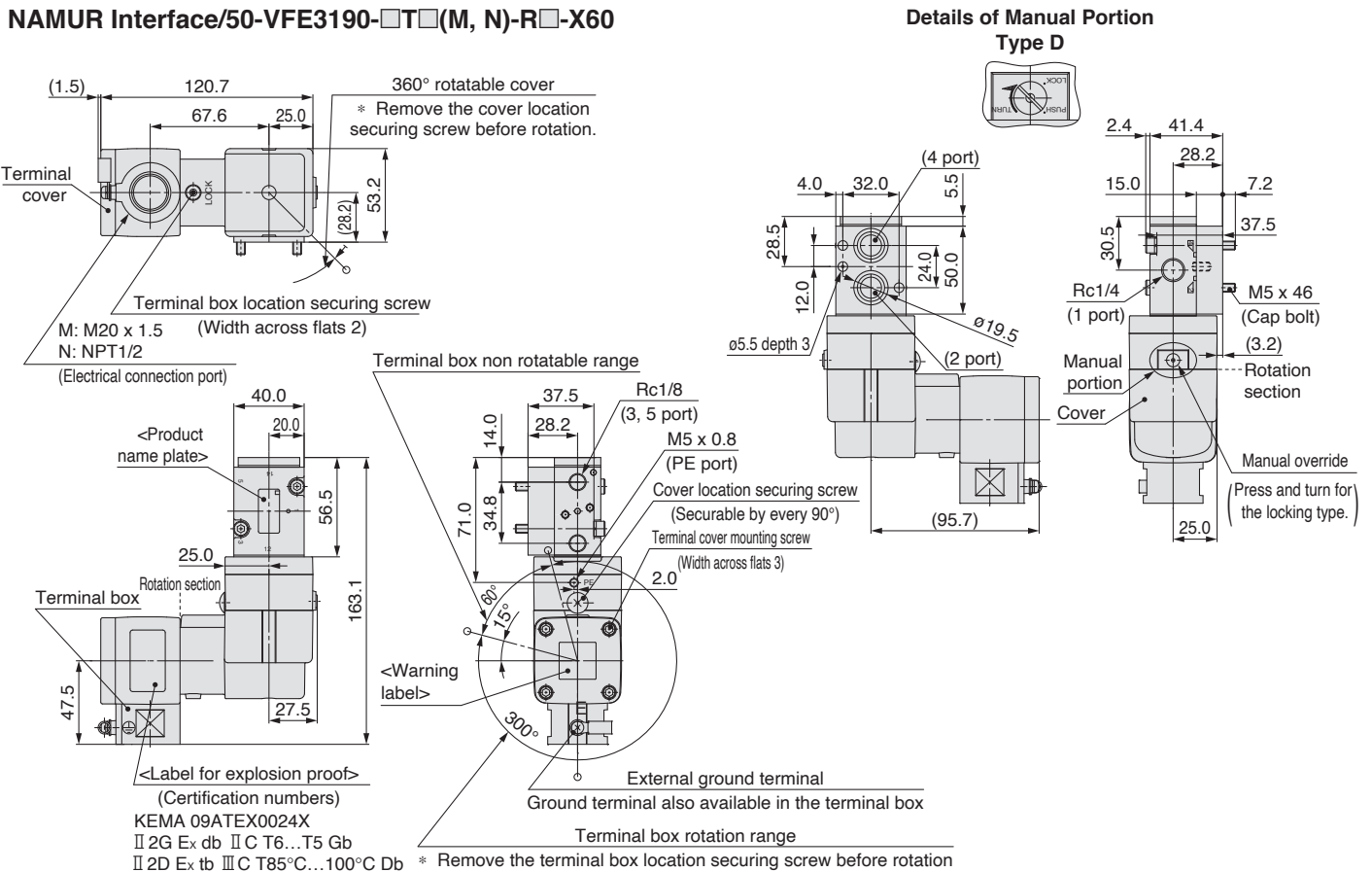
50-VFE3000/5000-X60 Series

50-VFE3000 Body Ported/2-Pposition Double, 3-Position Closed Center, Exhaust Center, Pressure Center

NAMUR Interface/50-VFE3190-□T□(M, N)-□-□-X60



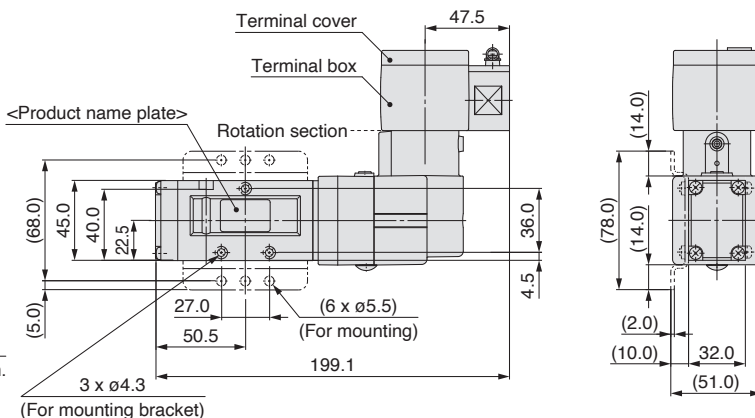
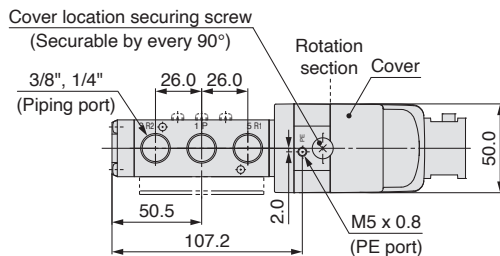
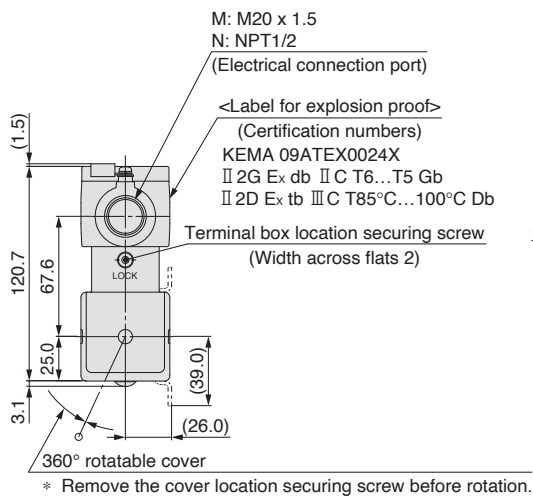
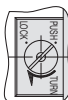
NAMUR Interface/50-VFE3190-□T□(M, N)-□-□-X60



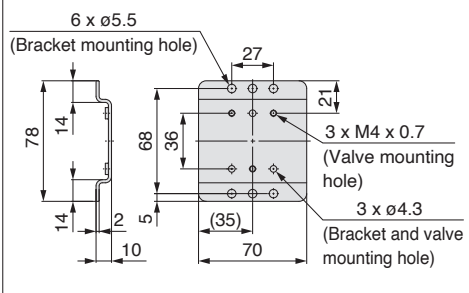
50-VFE5000 Body Ported/2-Position Single

Metal conduit threaded type/50-VFE5120-□□(M, N)-□□(-F)-X60

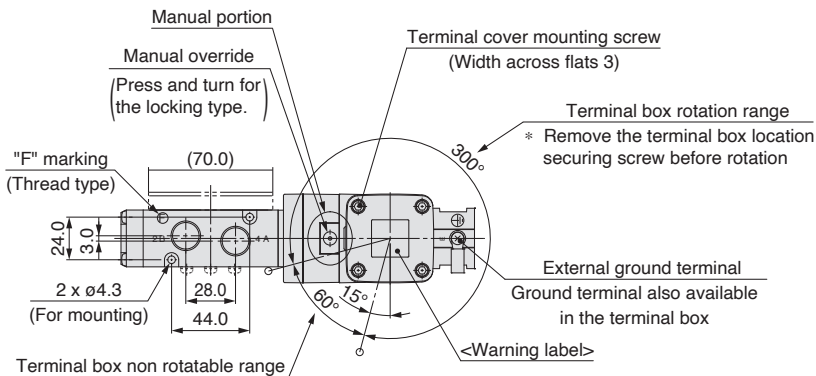
Details of Manual Portion Type D



Bracket/VF5000-7-1



Screw part number: VF5000-17-1(M4 x 37, With spring washer)

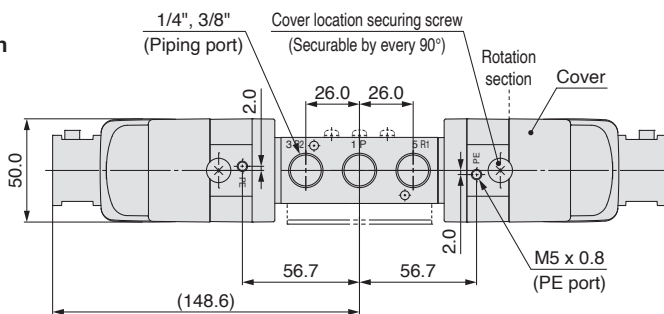
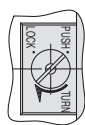


50-VFE3000/5000-X60 Series

50-VFE5000 Body Ported/2-Pposition Double, 3-Position Closed Center, Exhaust Center, Pressure Center

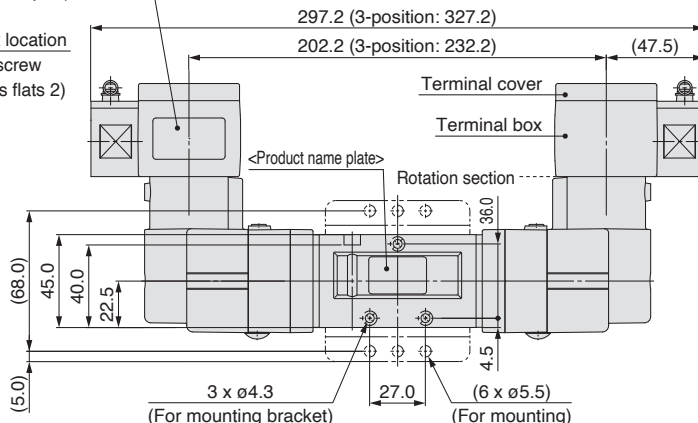
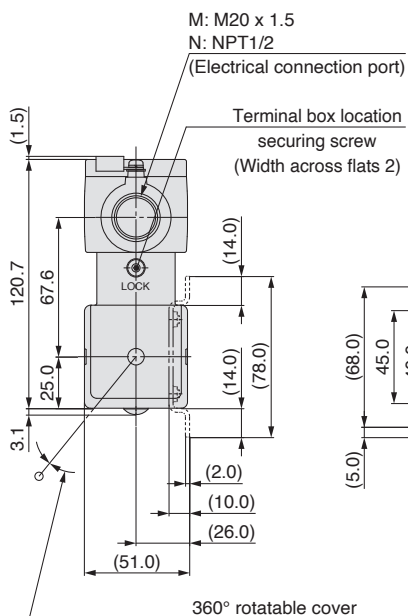
Metal conduit threaded type/50-VFE5□2□-□T(M, N)-□□(-F)-X60

Details of Manual Portion Type D

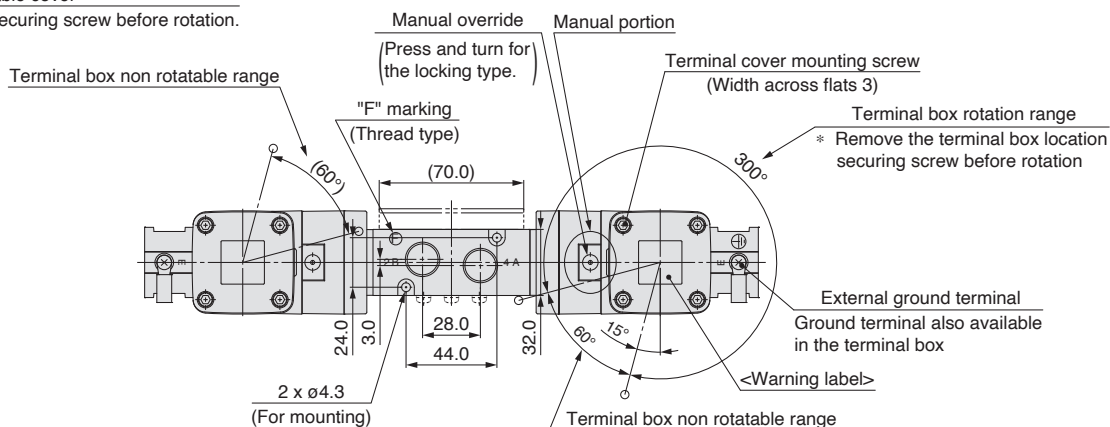


<Label for explosion proof>
(Certification numbers)

KEMA 09ATEX0024X
II 2G Ex db II C T6...T5 Gb
II 2D Ex tb III C T85°C...100°C Db



* Remove the cover location securing screw before rotation.



ATEX Compliant

Pilot Operated 3-Port Solenoid Valve

50-VPE500/700-X60 Series

 II 2G Ex db IIC T5 Gb Ta: -10°C TO +50°C
 II 2G Ex db IIC T6 Gb Ta: -10°C TO +40°C
 II 2D Ex tb IIIC T100°C Db Ta: -10°C TO +50°C
 II 2D Ex tb IIIC T85°C Db Ta: -10°C TO +50°C
 IP6X
 [Certification no. KEMA09ATEX0024X]

Specifications

Fluid	Air		
Type of actuation	N.C. or N.O. (Convertible)		
Pilot type	Internal pilot	External pilot	
Operating pressure range	0.2 to 0.8 MPa	Supply pressure	-101.2 kPa to 0.8 MPa
		External pilot pressure	0.2 to 0.8 MPa
Ambient and fluid temperatures	T5: -10 °C to 50 °C T6: -10 °C to 40 °C		
Response time	45 ms or less (at 0.5 MPa)*1		
Max. operating frequency	1 Hz		
Lubrication	Not required		
Manual override	Non-locking push type		
	Push-turn locking type D		
Mounting orientation	Unrestricted		

*1 Based on dynamic performance test, JIS B 8419: 2010. (0.5 MPa, at rated voltage.)

Solenoid Specifications

External wiring connection		Flameproof threaded-joint metal conduit		
Coil rated voltage	AC (% Hz)	100, 200, 12, 24, 48, 110, 220, 240 V		
	DC	24, 6, 12, 48, 110 V		
Allowable voltage fluctuation		-15 % to +10 % of rated voltage		
Coil Insulation type		Class B		
Apparent power	AC	Starting	9.1 VA (50 Hz) 7.8 VA (60 Hz)	
		Holding	6.2 VA (50 Hz) 4.6 VA (60 Hz)	
Power consumption	DC	3.5 W (Coil rated voltage: 6, 12, 24 V)*2		

*2 The other voltage: 4 W

Option

Description	Part no.	Applicable
Bracket (With mounting screw)	VP500-27-3A	50-VPE542
	VP700-27-2A	50-VPE742

Flow Rate Characteristics

Piping	Model	Port size	Flow rate characteristics												Weight ^{*3} kg
			1 → 2 (P → A)			2 → 3 (A → R)			3 → 2 (R → A)			2 → 1 (A → P)			
			C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv	
Body ported	50-VPE542-□□-02-03-X60	1/4	6.6	0.35	1.6	7.4	0.41	2.0	6.9	0.34	1.7	7.5	0.42	2.0	1.0
		3/8	9.1	0.42	2.4	9	0.43	2.4	8.8	0.36	2.2	9.3	0.43	2.5	
	50-VPE742-□□-03-04-X60	3/8	12	0.29	2.9	12	0.36	3.1	12	0.31	3.1	13	0.36	3.4	1.28
		1/2	15	0.23	3.8	14	0.25	3.8	15	0.22	3.7	16	0.29	4	

*3 Weight for the flameproof threaded-joint metal conduit type

Pilot Air Exhaust Port (PE Port)

There is a pilot air exhaust port (PE port) at the bottom of all pilot valves, excluding the common exhaust type.

Please refrain from blocking this port as failure to do so may result in valve malfunction.

In addition, if there is a possibility that the hazard classification will change due to the exhaust air, be sure to connect piping to this port and exhaust it to a safe location.

Explosion Proof Precautions

- The zones of this valve are as follows.
Gas: Zone 1 or 2
Dust: Zone 21 or 22
- The external ground cable has a 4 to 6.64 mm² conductor cross section, so be sure to protect it from bending or excessive force.
- When using a cable gland, be sure to use a product with ATEX certification.
- Be sure to implement measures to prevent static electricity from charging the non-metal parts on the external surface of the valve.
- As air is also exhausted from the valve PE port (pilot valve exhaust passage), be sure to confirm whether this will affect the ambient environment before use.
- Be sure to either use antistatic fittings or to implement static electricity prevention measures.

50-VPE500/700-X60 Series

How to Order

50-VPE 5 4 2 - 5 T D M - 02 A - F - X60

Explosion-proof

50	Flameproof, dustproof construction
----	------------------------------------

Body type

Symbol	Body type, Applicable series	
	50-VFE500	50-VFE700
5	●	—
7	—	●

Type of valve actuation

4	In common between N.C. and N.O. (Pilot type)
---	--

Body model

2	Body ported
---	-------------

Body option

—	Standard (Internal pilot)
R	External pilot

Rated voltage

AC (50/60 Hz)		DC	
1	100 VAC	5	24 VDC
2	200 VAC	6	12 VDC
3	110 VAC	V	6 VDC
4	220 VAC	Y	48 VDC
7	240 VAC	Z	110 VDC
8	48 VAC		
A	12 VAC		
B	24 VAC		

Symbol

Type	N.C	N.O
Internal pilot (Standard)		
External pilot	Universal	

Option

—	None
F	With bracket

* The bracket will be shipped unattached.

Symbol

A	Normally closed
B	Normally open

Thread type (Port size)

—	Rc
F	G
N	NPT
T	NPTF

Port size (P, A, B)

Symbol	Port size	Applicable series	
		50-VFE500	50-VFE700
02	1/4	●	—
03	3/8	●	●
04	1/2	—	●

Electrical connection port

Symbol	Thread type
M	M20 x 1.5
N	NPT1/2

Manual override

—	Non-locking push type
D	Push-turn locking type D (slotted type)

External wire connection

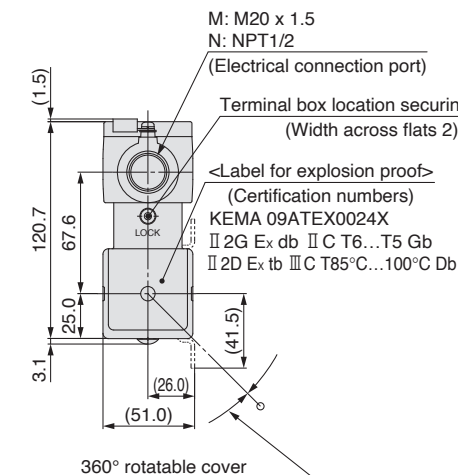
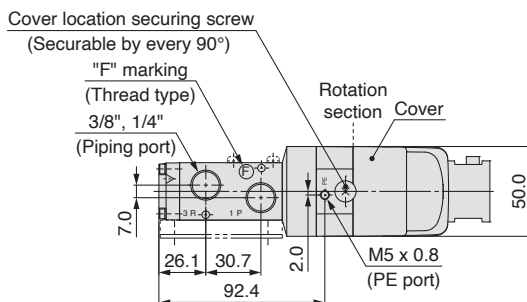
T	Metal conduit threaded type Flameproof enclosure cable gland (not supplied) type*1
---	---

*1 Please use a commercially available cable gland with ATEX certification if a product is used as a flameproof enclosure cable gland type.

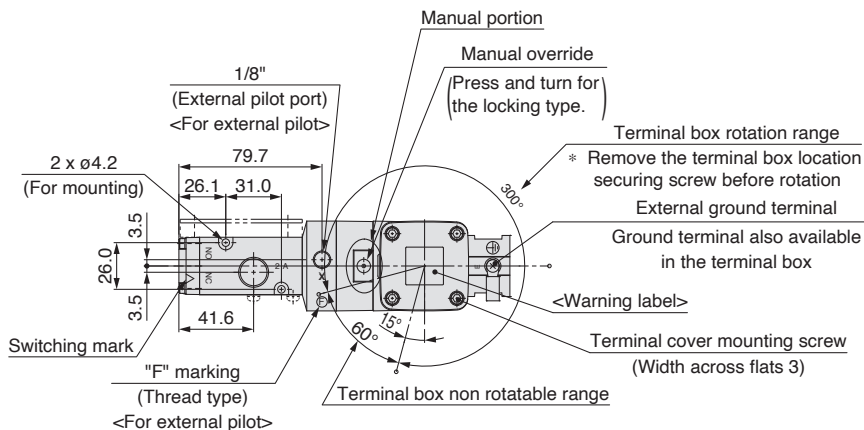
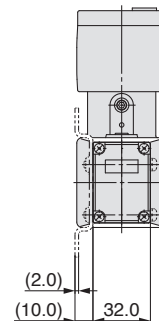
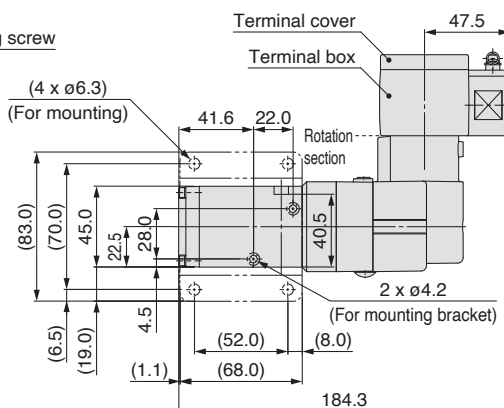
Body Ported/50-VPE500

Metal conduit threaded type/50-VPE542(R)-□T(M, N)-□□(-F)-X60

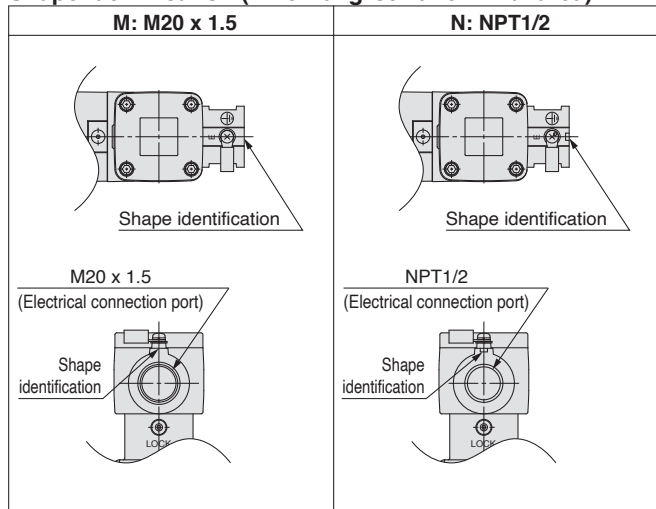
Details of Manual Portion Type D



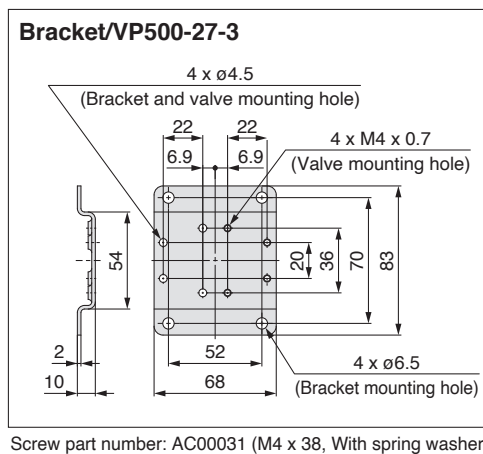
* Remove the cover location securing screw before rotation.



Shape identification (External ground terminal area)



* The shape identification is the same for the 50-VPE500 and 700.



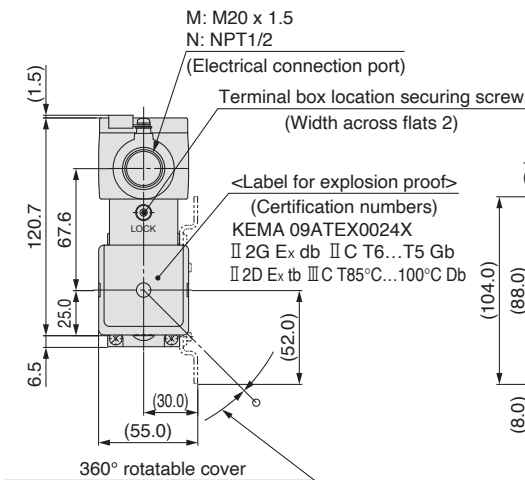
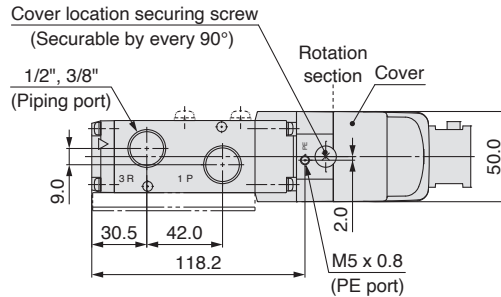
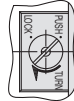
Screw part number: AC00031 (M4 x 38, With spring washer)

50-VPE500/700-X60 Series

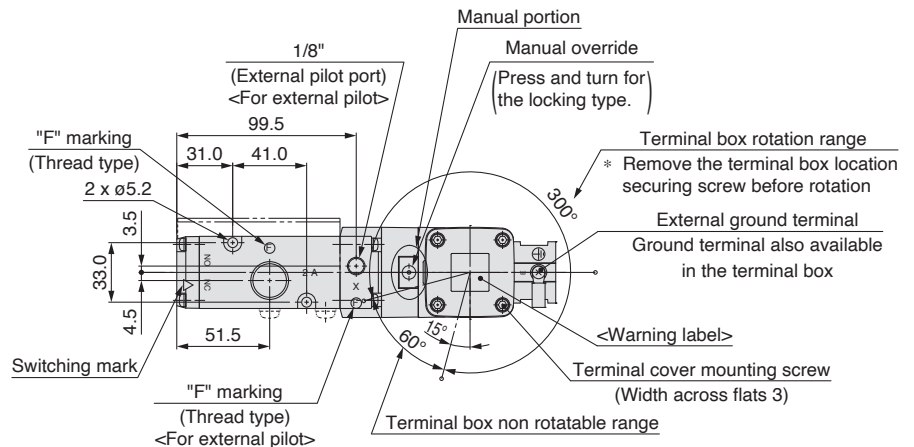
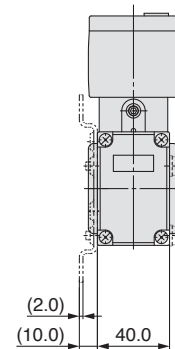
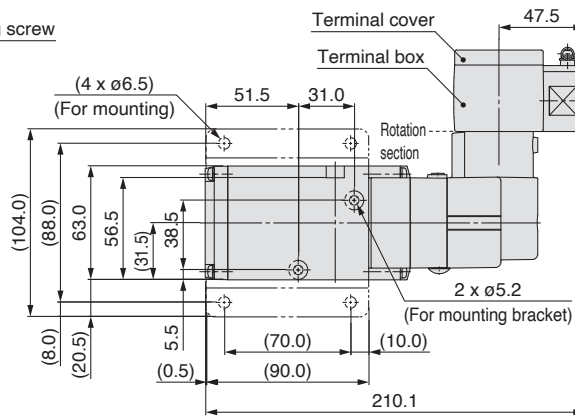
Body Ported/50-VPE700

Metal conduit threaded type/50-VPE742(R)-□T(M, N)-□□(-F)-X60

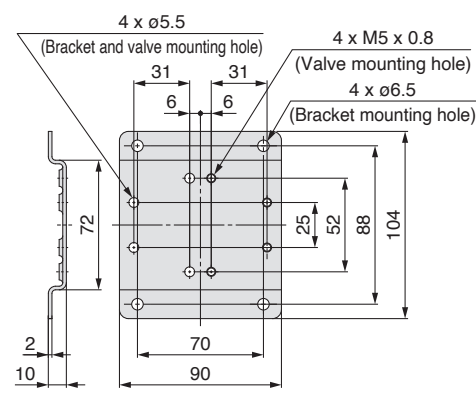
Details of Manual Portion Type D



* Remove the cover location securing screw before rotation.



Bracket/VP700-27-2



Screw part number: AA00115 (M5 x 48, With spring washer)

Specific Product Precautions

Precautions on 50-VPE500/50-VPE700

Piping

If the P port size of this valve is excessively reduced, a malfunction may occur due to the resulting pressure drop. We recommend using a size 10 or larger (fitting inner diameter) for the 50-VPE542 and a size 12 or larger (fitting inner diameter) for the 50-VPE742, with a piping length of 3 m or less. In addition, when the P port size is reduced, please use an external pilot type valve.

Special Applications

It can't be used in special applications such as using as a non-leakage valve.

External Pilot

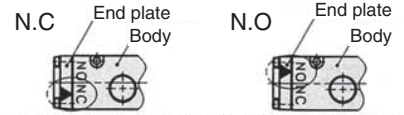
Use external pilot type in the following cases:

- For vacuum or for low pressure 0.2 MPa or less
- When having P port downsized in diameter
- When using A port as the atmospheric releasing port, e.g. air blower

Change of Actuation

It is possible to switch this valve between normally closed (N.C.) and normally open (N.O.).

Body ported



When changing the actuation from normally closed type to normally open type, remove the body from the sub-plate and reset the "▼" mark on the body corresponding to the "NO" mark on the sub-plate as shown in the above.

Refer to the following table for piping.

Actuation \ Port	P	A	R
N.C.	Inlet	Outlet	Exhaust side
N.O.	Exhaust side	Outlet	Inlet

Pag. 63, 71, 74

Grease for food processing equipment

Pag. 67, 77, 79

Made to Order

—	Standard
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel

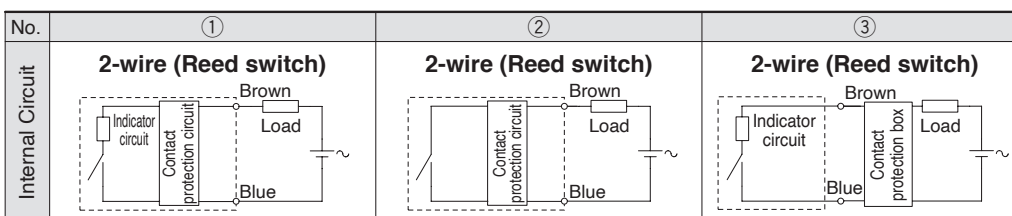
Pag. 96

Made to order

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

Pag. 111

Reed Auto Switch



Pag. 151, 157, 165

Note) For temperature classification, refer to the specifications.

Specifications

Classification	Ambient temperature range		
	Low temperature	Standard	High temperature
	55-IP5□00-□□□L□-□	55-IP5□00-□□□□-□	55-IP5□00-□□□T□-□

All other specifications are the same as the standard products Series IP5000/5100.

Pag. 161

Note 3) For side mounting, select "W" and check the control position by viewing the LCD display value.



ATEX Compliant

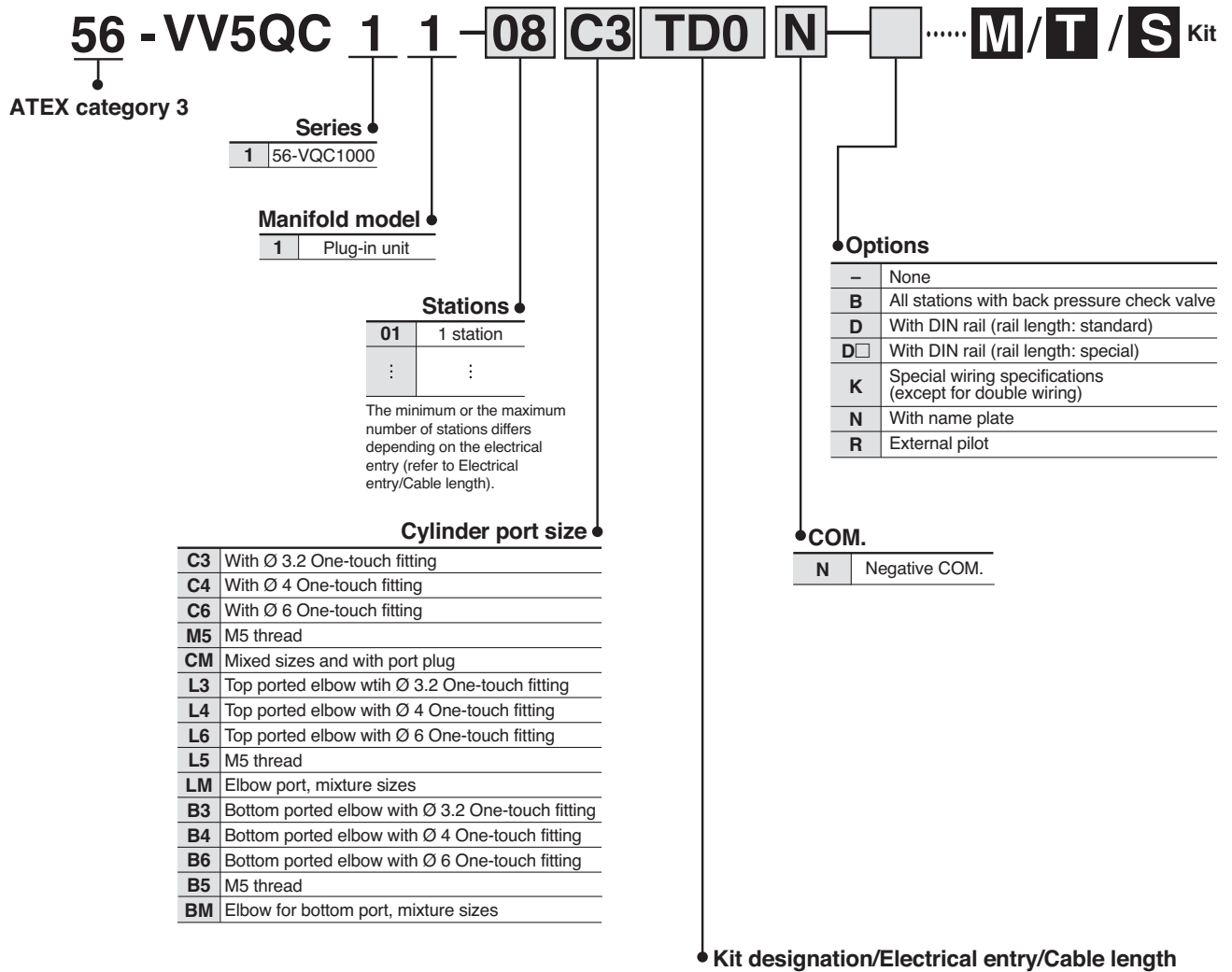
5-Port Solenoid Valve Series 56-VQC1000

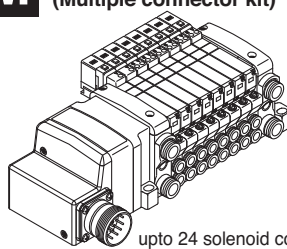
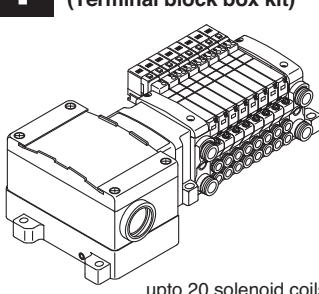
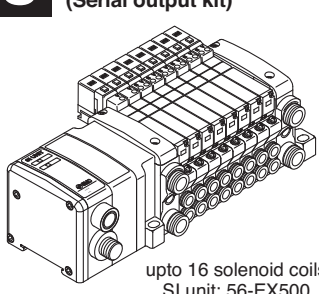


Manifold with M- or T- kit
II 3G Ex nA IIB T5 Gc
II 3D Ex tc IIIC T80°C Dc

Note) Refer to Serial transmission system on page 30 for the S kit.

How to Order Manifolds



M Kit (Multiple connector kit)	T Kit (Terminal block box kit)	S Kit (Serial output kit)															
 upto 24 solenoid coils	 upto 20 solenoid coils	 upto 16 solenoid coils SI unit: 56-EX500															
<table border="1"> <tr> <td>MD0</td> <td>Multiple connector kit (26P) without cable</td> <td rowspan="4" style="vertical-align: middle;">1 to 12 stations (24 stations)</td> </tr> <tr> <td>MD1</td> <td>Multiple connector kit (26P) with 1.5 m cable</td> </tr> <tr> <td>MD2</td> <td>Multiple connector kit (26P) with 3.0 m cable</td> </tr> <tr> <td>MD3</td> <td>Multiple connector kit (26P) with 5.0 m cable</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	<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)	<table border="1"> <tr> <td>SDA2</td> <td>Serial kit for PROFIBUS DP</td> <td>1 to 8 stations (16 stations)</td> </tr> </table>	SDA2	Serial kit for PROFIBUS DP	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	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 Configuration		Metal seal	Rubber seal	
Fluid		Air/Inert gas		
Valve specifications	56-VQC1000/2000	Max. operating pressure		
		0.7 MPa		
	Min. operating pressure	Single	0.1 MPa	0.15 MPa
		Double	0.1 MPa	
		3-position	0.1 MPa	0.2 MPa
4-position	-	0.15 MPa		
56-VQC4000	Max. operating pressure		1.0 MPa	
	Min. operating pressure	Single	0.15 MPa	0.2 MPa
		Double	0.15 MPa	
		3-position	0.15 MPa	0.2 MPa
Proof pressure		1.5 MPa		
Fluid temperature		-10 to 50 °C Note 1)		
Lubrication		Not required		
Manual override		Push type/Locking type (tool required)/Locking type Note 2)/Slide locking type Note 2)		
Impact resistance/Vibration resistance		150/30 m/s ² Note 3)		
Enclosure		Dust proof (conforms to IP67)		
Electrical specifications	Rated coil voltage		24 V DC	
	Allowable voltage fluctuation		10 % of rated voltage	
	Coil insulation type		Equivalent to B type	
	Power consumption (Current) Note 4)	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.

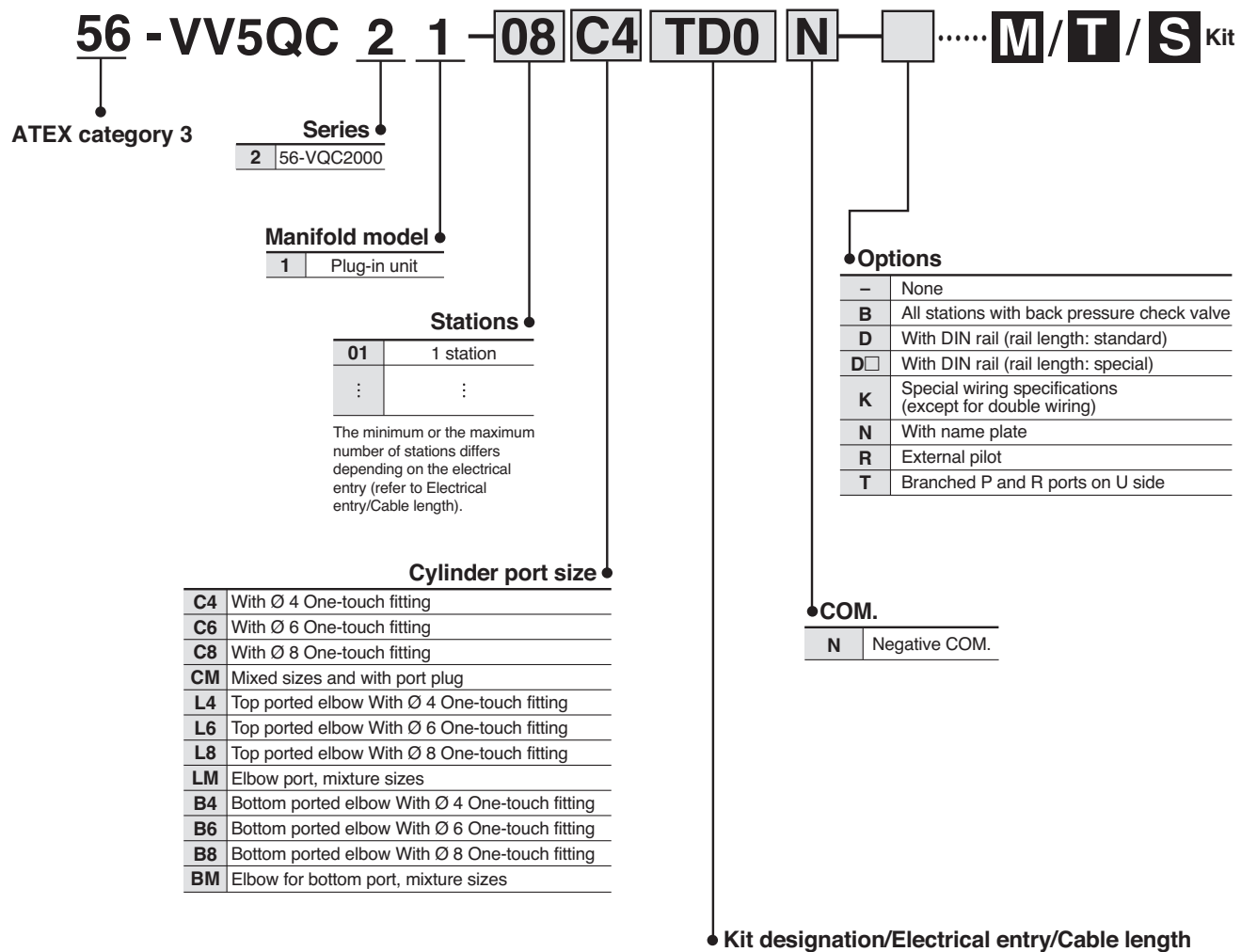
Note 4) The power-saving unit is included in the manifold.

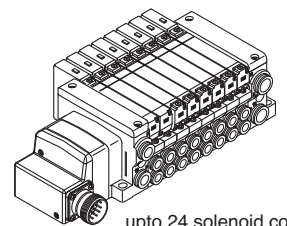
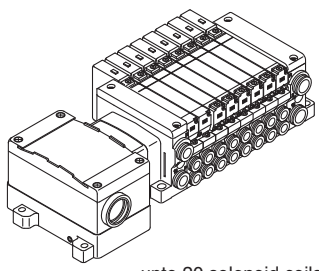
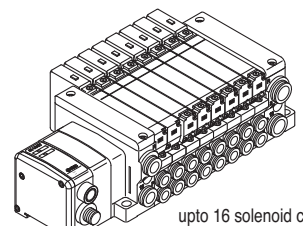
ATEX Compliant

5-Port Solenoid Valve Series 56-VQC2000

Manifold with M- or T- kit
 II 3G Ex nA IIB T5 Gc
 II 3D Ex tc IIIC T80°C Dc
 (Note) Refer to Serial transmission system on page 30 for the S Kit.

How to Order Manifolds



M Kit (Multiple connector kit)	T Kit (Terminal block box kit)	S 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																		
<table border="1"> <tr><td>MD0</td><td>Multiple connector kit (26P) without cable</td><td></td></tr> <tr><td>MD1</td><td>Multiple connector kit (26P) with 1.5 m cable</td><td>1 to 12 stations (24 stations)</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		MD1	Multiple connector kit (26P) with 1.5 m cable	1 to 12 stations (24 stations)	MD2	Multiple connector kit (26P) with 3.0 m cable		MD3	Multiple connector kit (26P) with 5.0 m cable		<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)	<table border="1"> <tr><td>SDA2</td><td>Serial kit for PROFIBUS DP</td><td>1 to 8 stations (16 stations)</td></tr> </table>	SDA2	Serial kit for PROFIBUS DP	1 to 8 stations (16 stations)
MD0	Multiple connector kit (26P) without cable																			
MD1	Multiple connector kit (26P) with 1.5 m cable	1 to 12 stations (24 stations)																		
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	1 to 8 stations (16 stations)																		

Contact SMC for 56-EX250 with Profibus DP

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

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

How to Order Valves

56 - VQC 2 1 0 0 [] - 5 []

ATEX category 3 (points to '56')

Series (points to '2')

2	56-VQC2000
---	------------

Type of actuation (points to '1')

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

Note) For rubber seal type only.

Coil voltage (points to '5')

5	24 V DC
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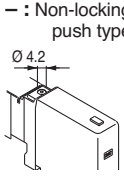
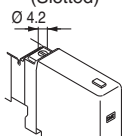
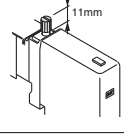
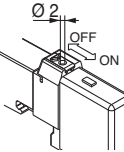
Function (points to '[]')

-	Standard type
R	External pilot

Seal type (points to '0')

0	Metal seal
1	Rubber seal


Manual override (points to '[]')

- : Non-locking push type

- B: Locking type (Slotted)

- C: Locking type (Manual)

- D: Slide locking type (Manual)


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

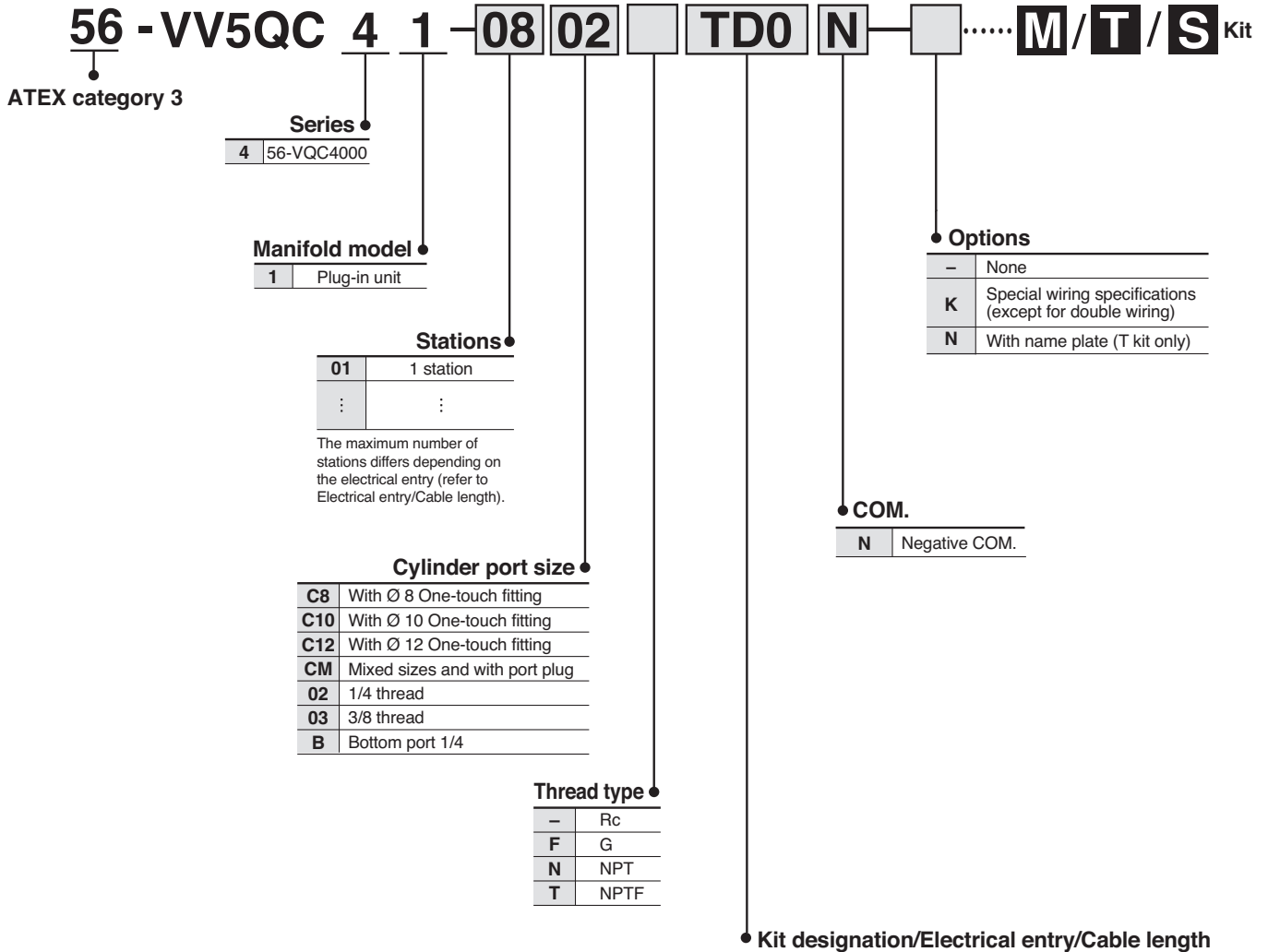
ATEX Compliant

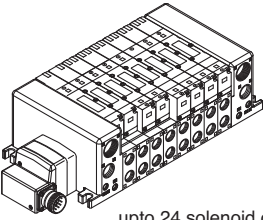
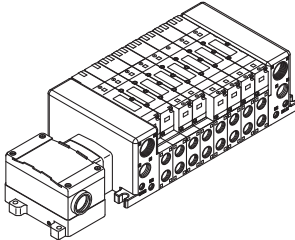
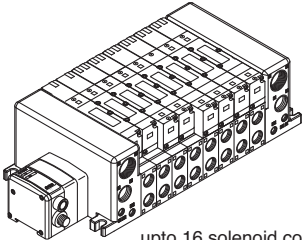
5-Port Solenoid Valve Series 56-VQC4000

CE  Manufactured with M- or T- kit
II 3G Ex nA IIB T5 Gc
II 3D Ex tc IIIC T80°C Dc

Note) Refer to Serial transmission system on page 30 for the S kit.

How to Order Manifolds



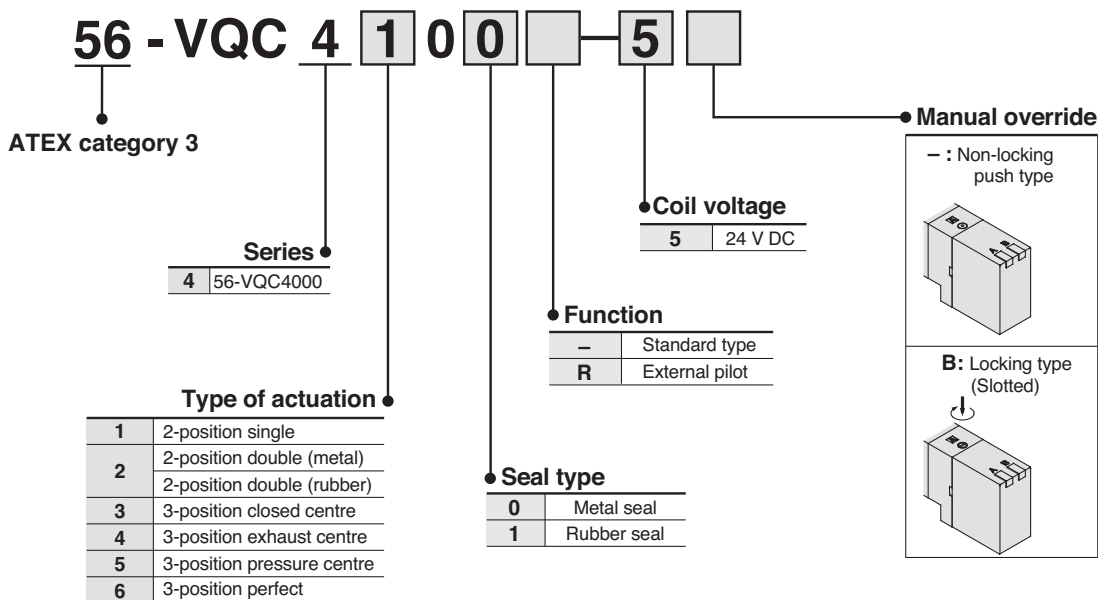
M	Kit (Multiple connector kit)	T	Kit (Terminal block box kit)	S	Kit (Serial output kit)
					
upto 24 solenoid coils		upto 20 solenoid coils		upto 16 solenoid coils SI unit: 56-EX500	
MD0	Multiple connector kit (26P) without cable	TD0	Terminal block box kit	SDA2	Serial kit for PROFIBUS-DP
MD1	Multiple connector kit (26P) with 1.5 m cable				
MD2	Multiple connector kit (26P) with 3.0 m cable		1 to 10 stations (20 stations)		1 to 8 stations (16 stations)
MD3	Multiple connector kit (26P) with 5.0 m cable				

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

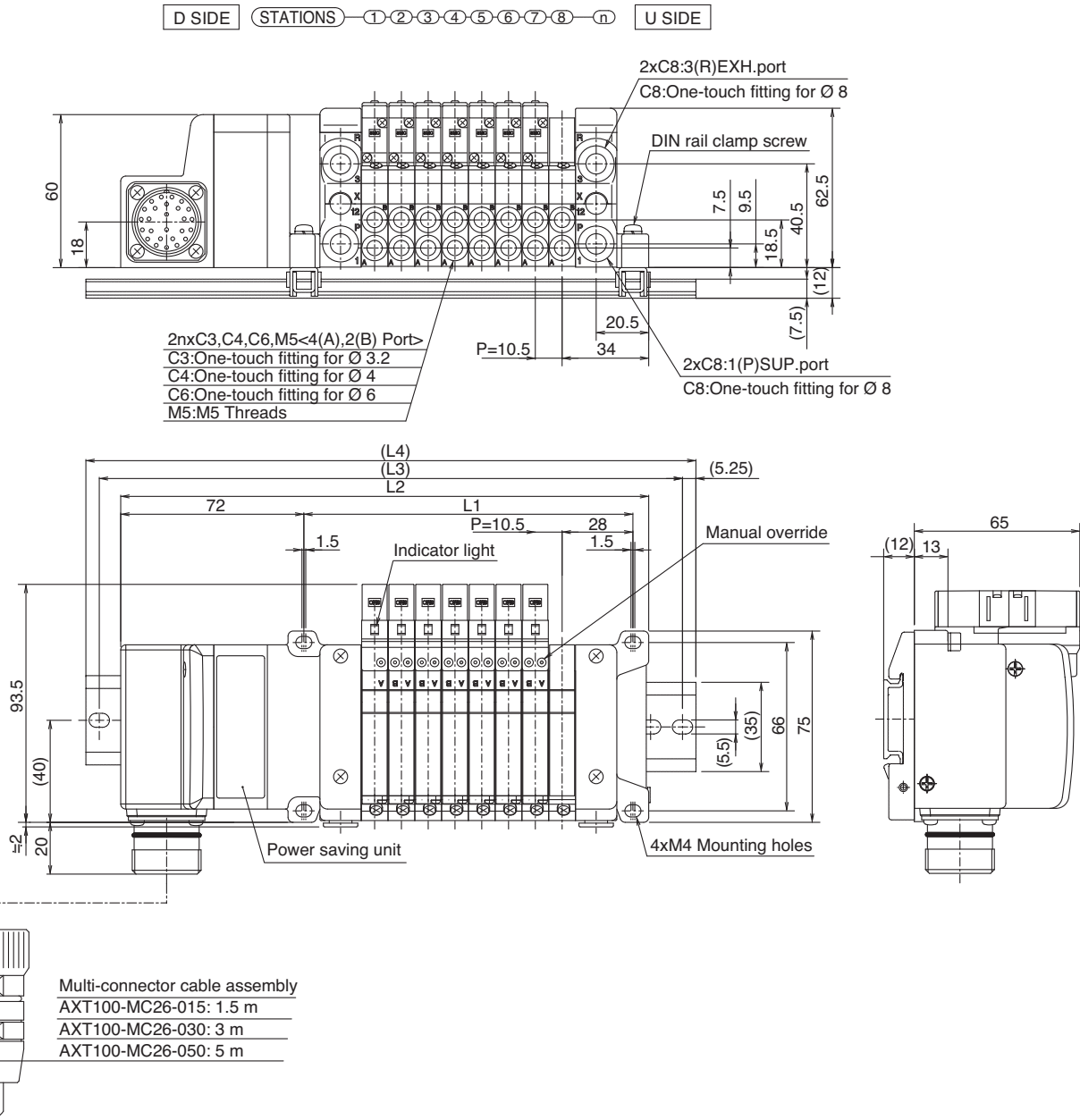
Name	56-VQC1000	56-VQC2000	56-VQC4000
Blanking plate assembly	VVQ1000-10A-1	VVQ2000-10A-1	VVQ4000-10A-1
Individual SUP spacer	VVQ1000-P-1-C6	VVQ2000-P-1-C8	VVQ4000-P-1-□□
Individual EXH spacer	VVQ1000-R-1-C6	VVQ2000-R-1-C8	VVQ4000-R-1-□□
SUP block plate	VVQ1000-16A	VVQ2000-16A	VVQ4000-16A
EXH block plate	-	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

$$L1 = 10.5n + 45$$

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

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

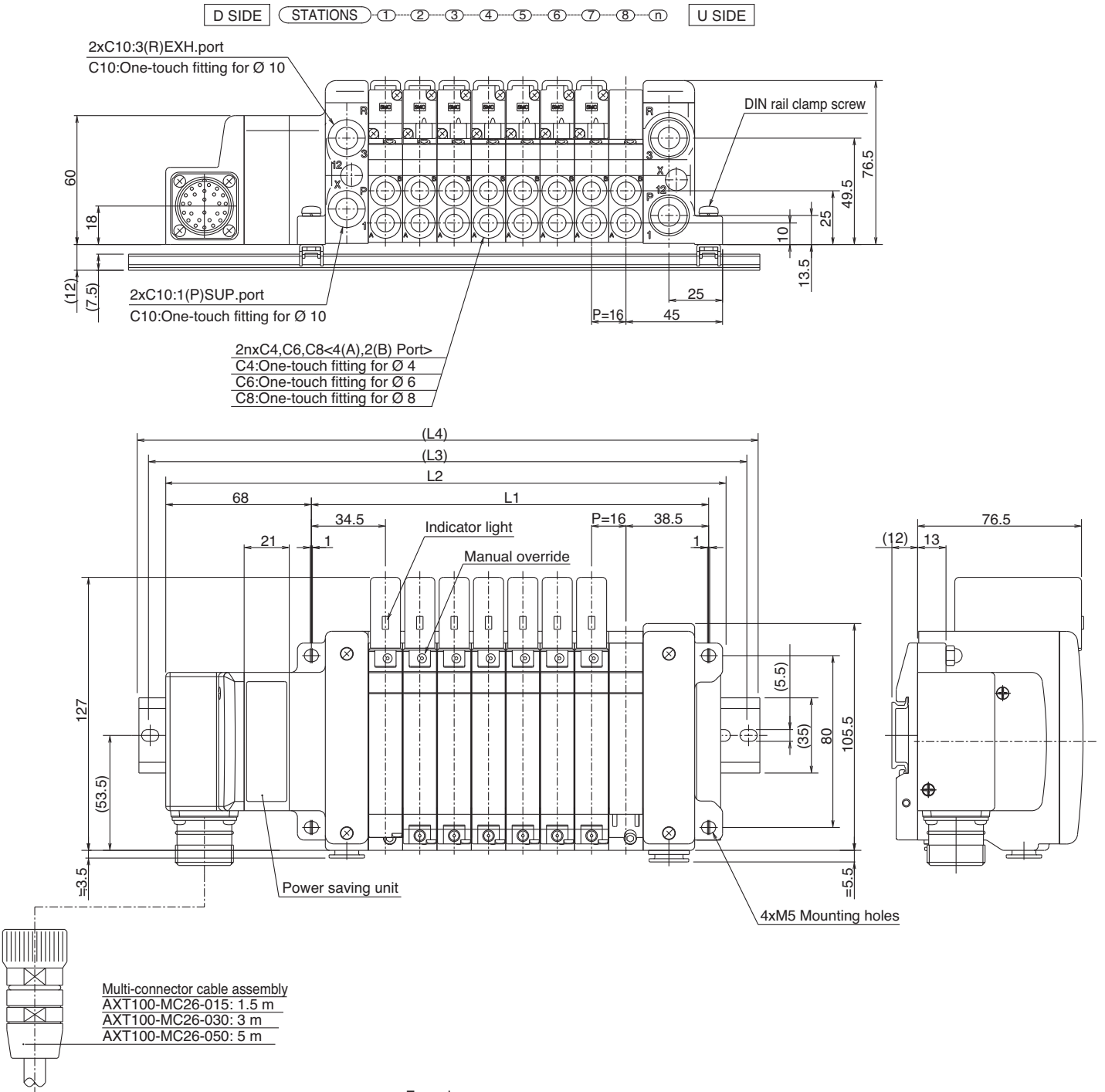
n: Stations (Max. 24 single wire stations)

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

M 56-VQC2000

Kit (Multiple Connector Kit)

56-VV5QC21



Formulas

$L1 = 16n + 57$

$L2 = 16n + 131.5$ (1 power saving unit for 1 to 12 solenoids)

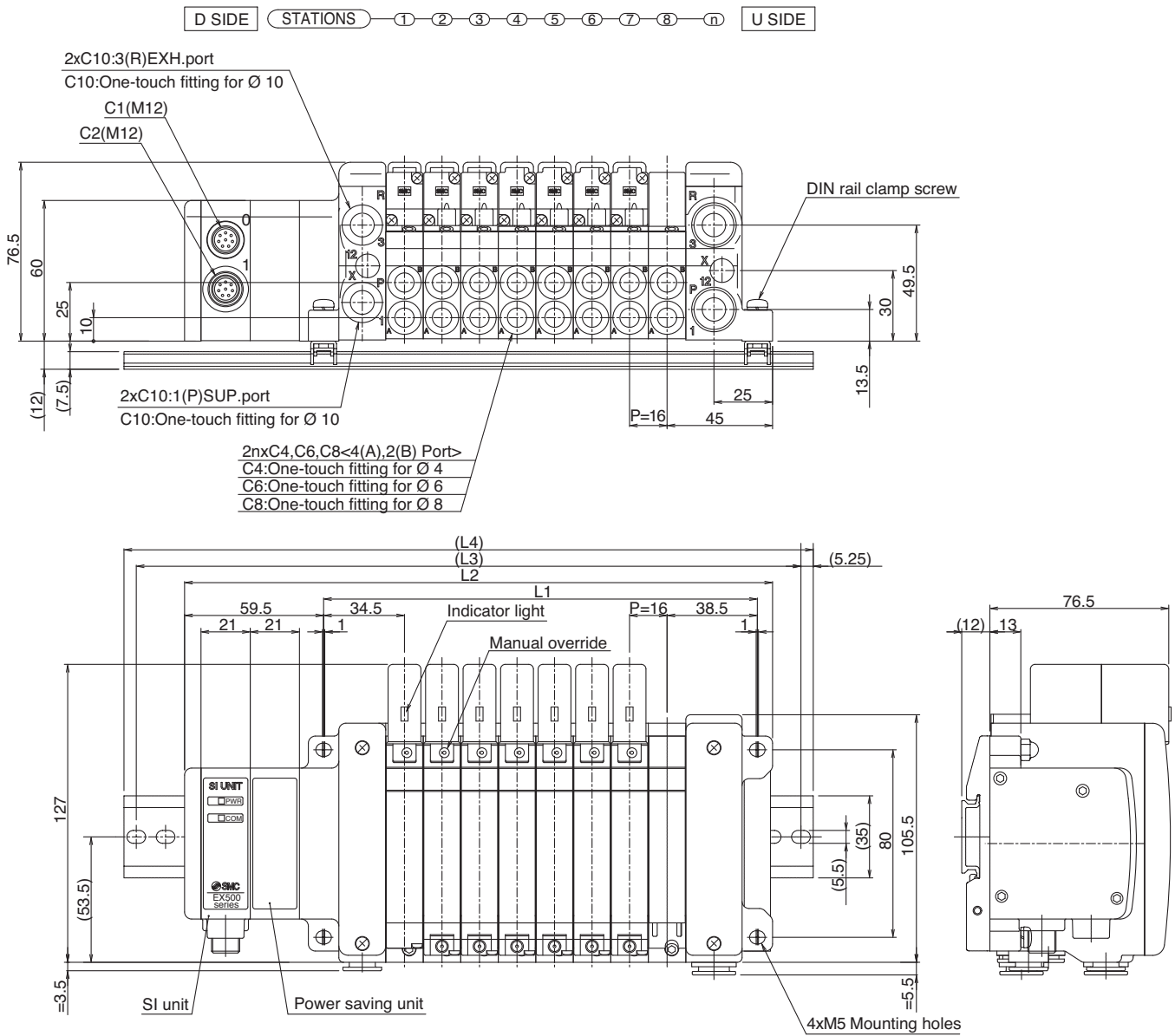
$L2 = 16n + 152.5$ (2 power saving units for 13 to 24 solenoids) n: Stations (Max. 24 single wire stations)

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

S 56-VQC2000

Kit (Serial Transmission Kit) Decentralised Serial wiring

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



Formulas

$$L1 = 16n + 57$$

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

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

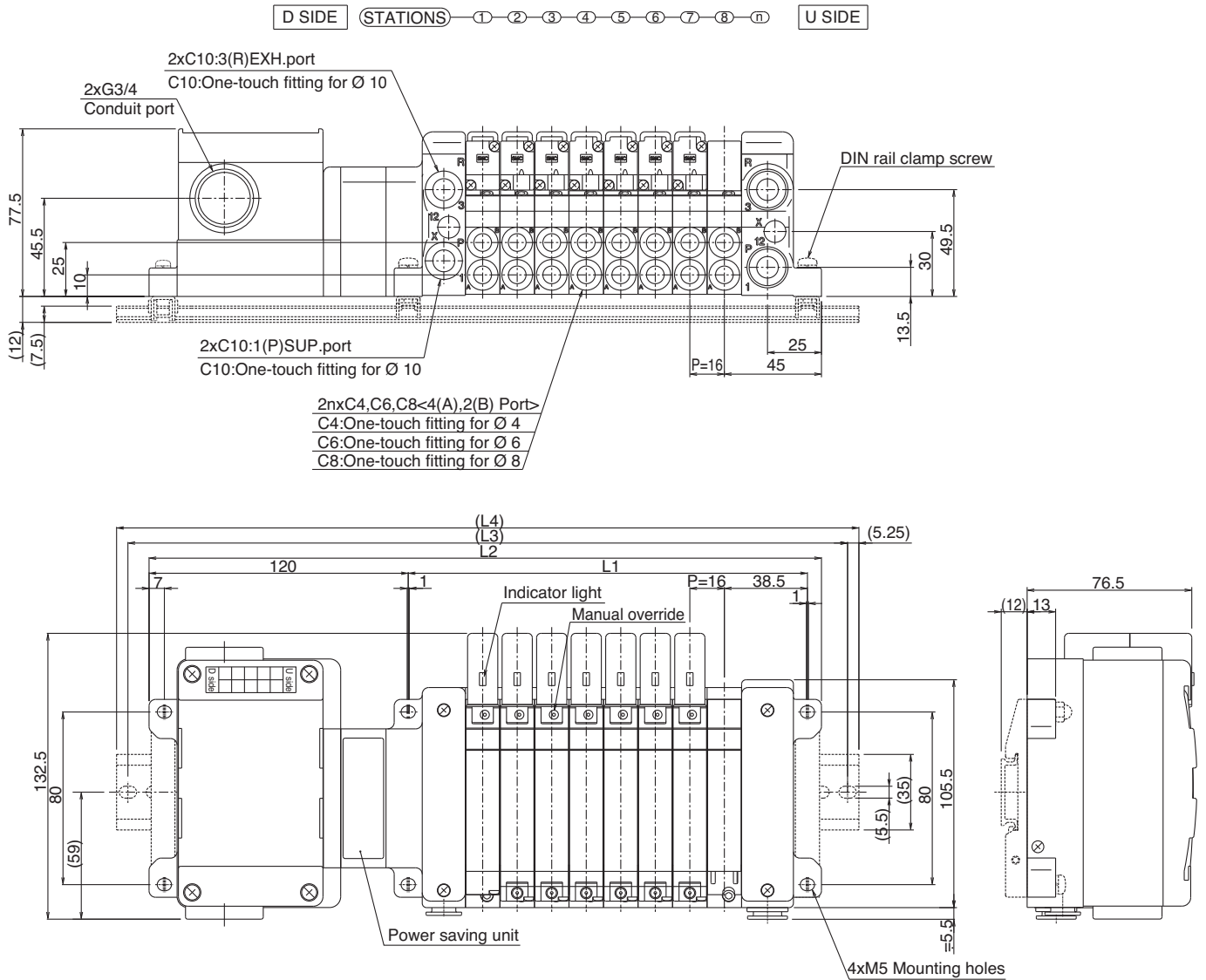
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313
L2	139	155	171	187	203	219	235	251	267	283	299	315	352	368	384	400
L3	162.5	175	200	212.5	225	250	262.5	275	287.5	312.5	325	337.5	375	387.5	412.5	425
L4	173	185.5	210.5	223	235.5	260.5	273	285.5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

$$L1 = 16n + 45$$

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

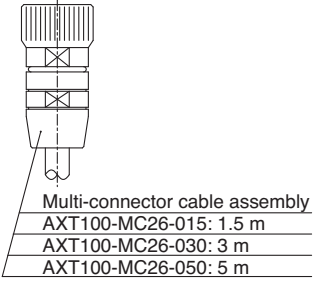
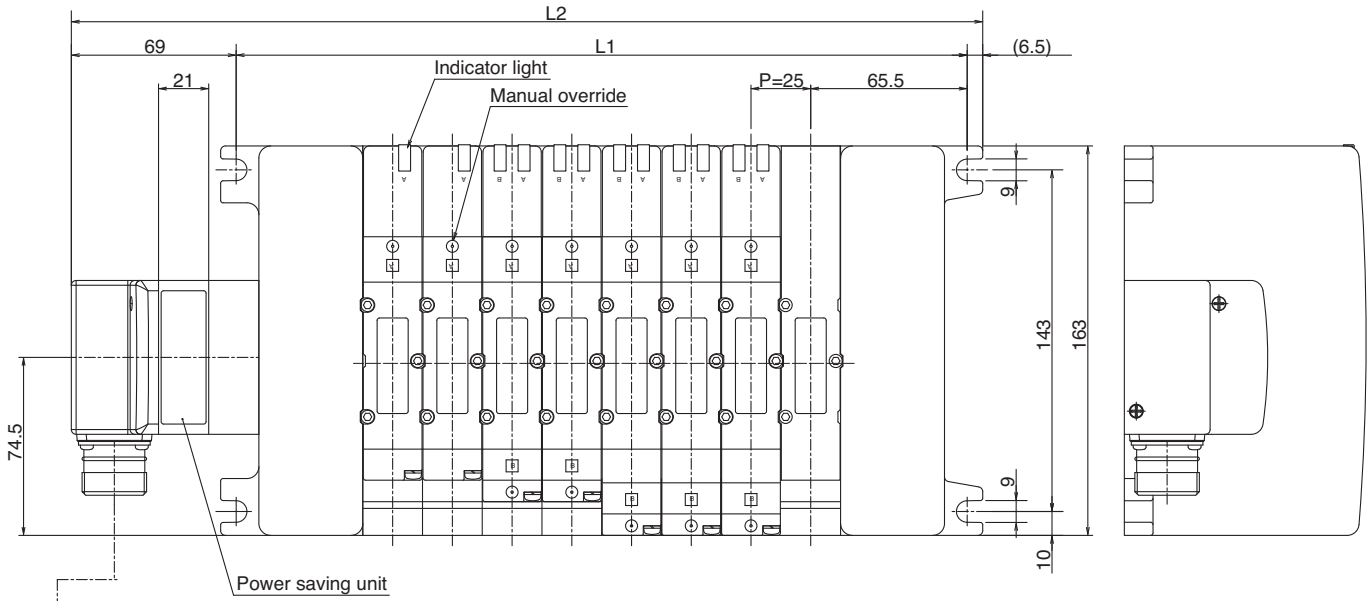
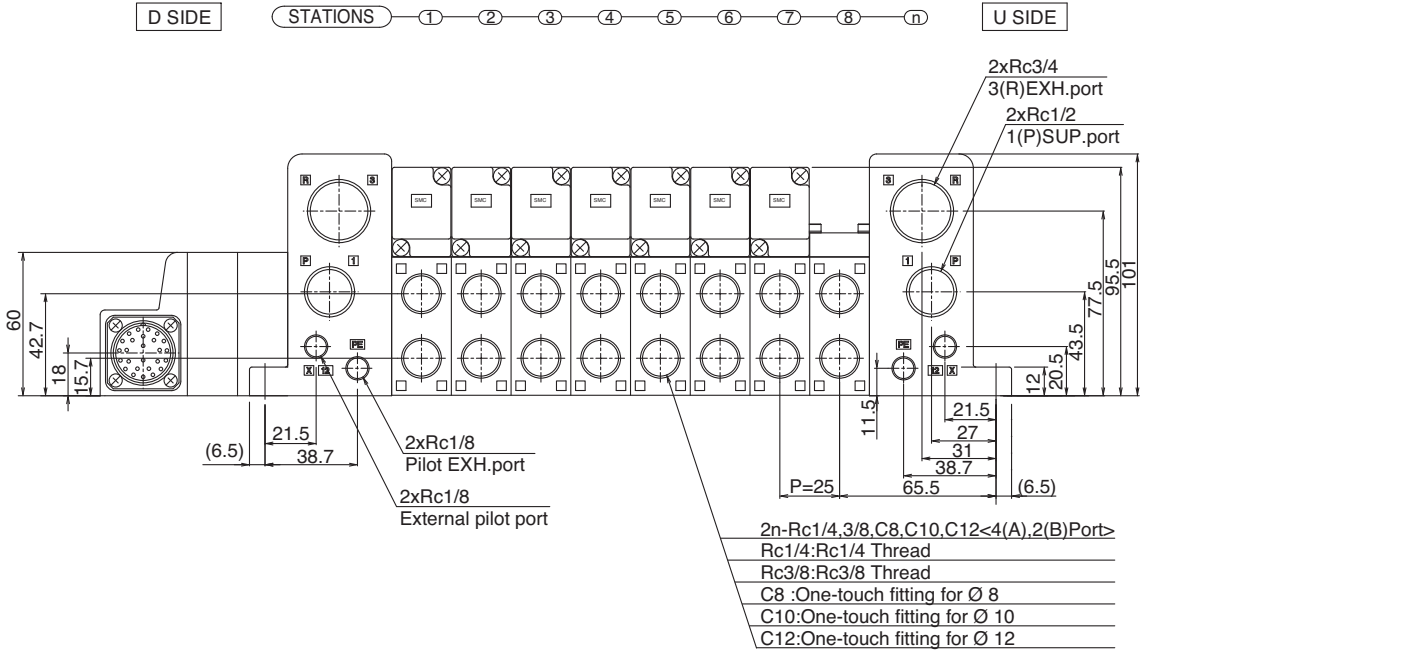
$$L2 = 16n + 205 \quad (2 \text{ power saving units for 13 to 20 solenoids}) \quad n: \text{Stations (Max. 20 single wire stations)}$$

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

M 56-VQC4000

Kit (Multiple Connector Kit)

56-VV5QC41



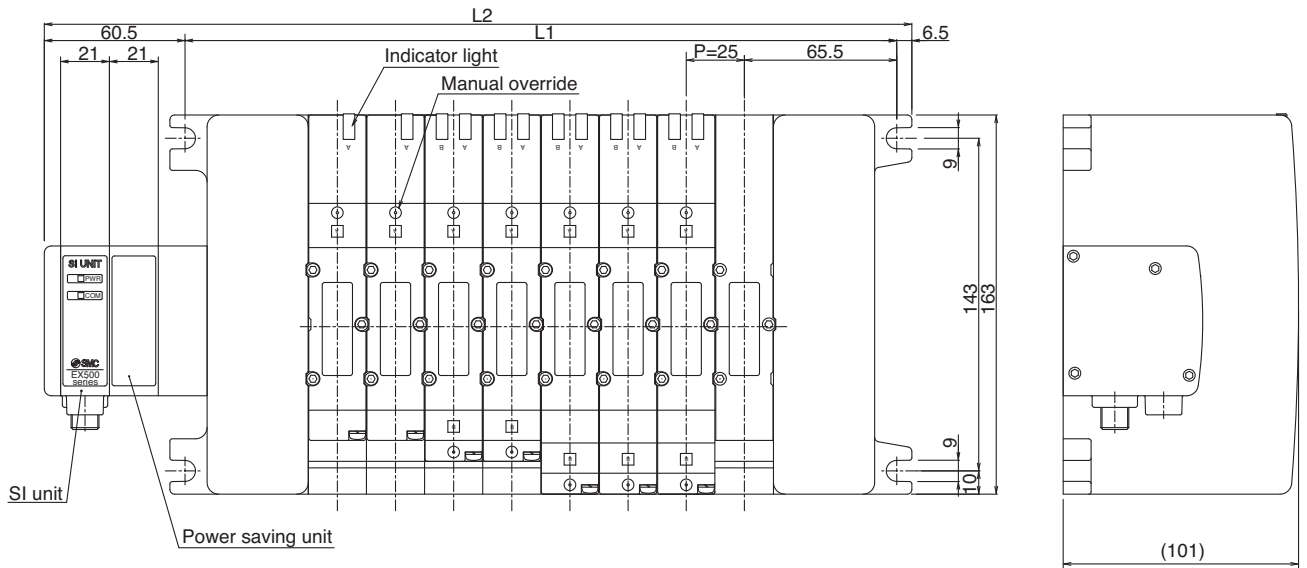
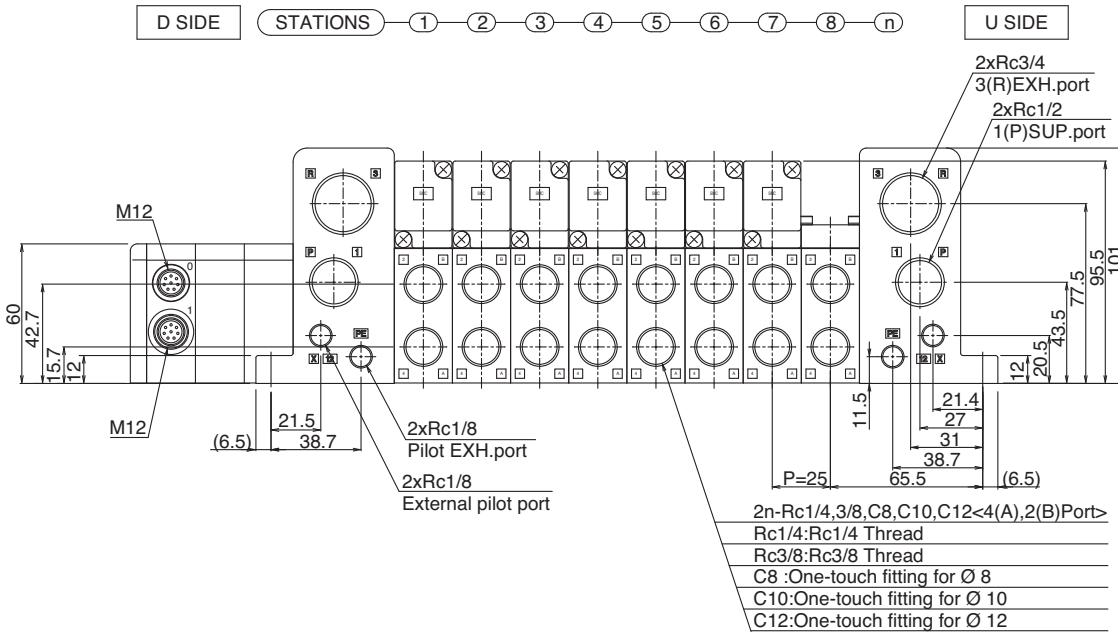
Formulas
 $L1 = 25n + 106$
 $L2 = 25n + 181.5$ (1 power saving unit for 1 to 12 solenoids)
 $L2 = 25n + 202.5$ (2 power saving units for 13 to 16 solenoids) n: Stations (Max. 16 single wire stations)

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

S 56-VQC4000

Kit (Serial Transmission Kit) Decentralised Serial wiring

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



Formulas

$$L1 = 25n + 106$$

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

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

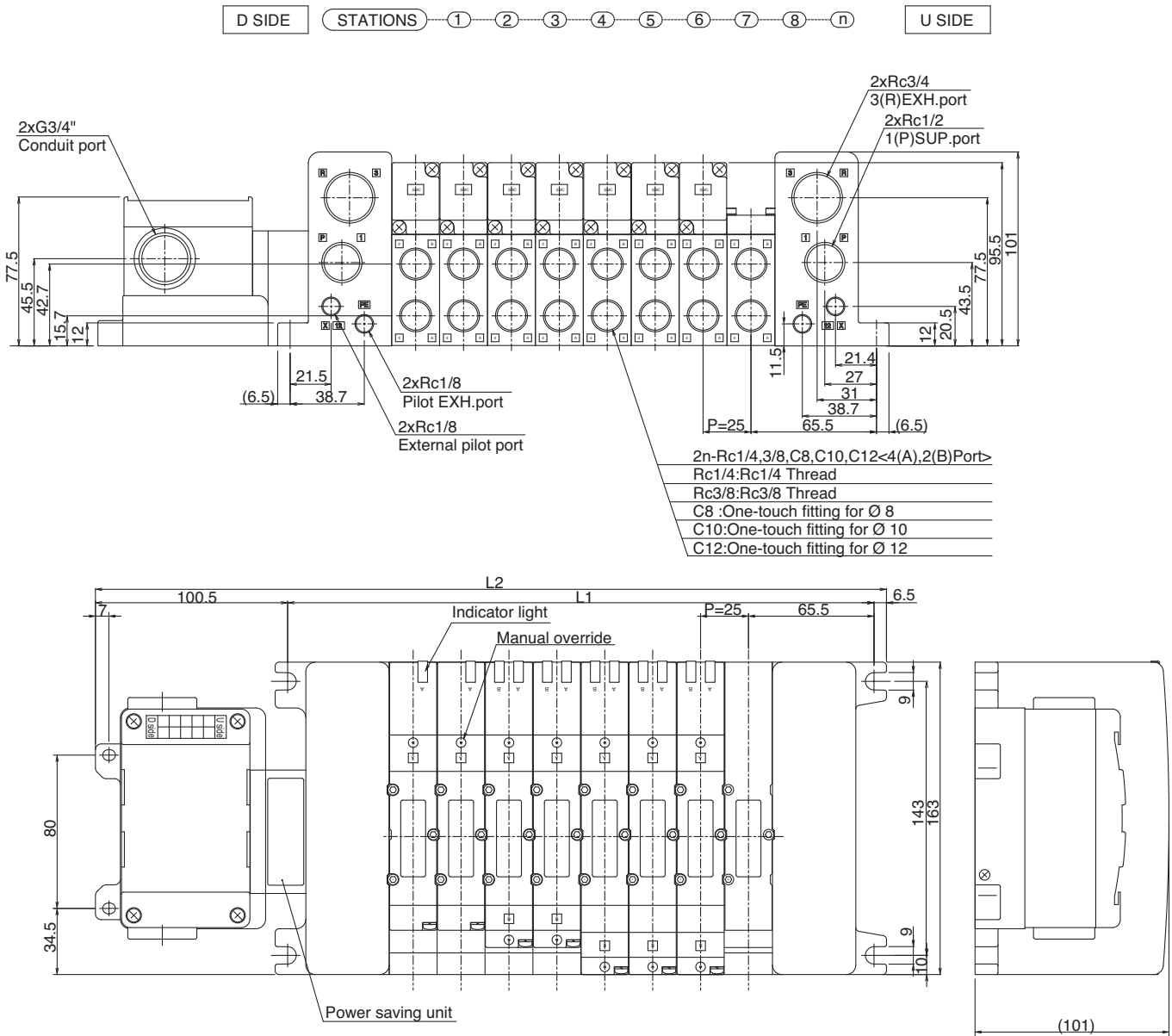
n: Stations (Max. 16 single wire stations)

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

$L1 = 25n + 106$

$L2 = 25n + 213$ (1 power saving unit for 1 to 12 solenoids)

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

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

ATEX Compliant

For Output

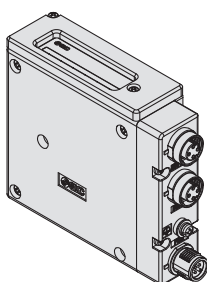
56-EX260 Series

How to Order

56-EX260-S **EC1** -X42

ATEX category 3

Communication protocol



EC1	EtherCAT
PN1	PROFINET
EN1	EtherNet/IP™
PR1	PROFIBUS DP

 II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T58°C Dc IP67

(56-EX260-SEC1-X42)

 II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T69°C Dc IP67

(56-EX260-SEN1-X42)

 II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T62°C Dc IP67

(56-EX260-SPN1-X42)

 II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T61°C Dc IP67

(56-EX260-SPR1-X42)

Specifications

Model		56-EX260-SEC1-X42	56-EX260-SPN1-X42	56-EX260-SEN1-X42	56-EX260-SPR1-X42
Applicable system	Protocol	EtherCAT*2	PROFINET*2	EtherNet/IP™*2	PROFIBUS DP
	Version*1	Conformance Test Record V.1.1	PROFINET Specification Version 2.2	Volume1 (Edition3.17) Volume2 (Edition1.18)	DP-VO
	Configuration file*3	XML file	GSD file	EDS file	GSD file
I/O occupation area (Inputs/Outputs)		0/32			
Communication speed		100 Mbps*2		10 M/100 Mbps*2	(9.6/19.2/45.45/93.75/187.5/500 Kbps), (1.5/3/6/12 Mbps)
Power supply for control	Power supply voltage	21.6 to 26.4 VDC			
	Internal current consumption	100 mA or less			
Valve power supply	Power supply voltage	22.8 to 26.4 VDC			
Communication connector specification		M12			
Terminating resistor switch		None (Not required)			
Output specifications	Output type	Source/PNP (Negative common)			
	Number of outputs	32 points			
	Load	Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC)	Solenoid valve with surge voltage suppressor 24 VDC, 1.0 W or less (SMC)	Solenoid valve with surge voltage suppressor 24 VDC, 1.5 W or less (SMC)	
	Supplied voltage	24 VDC			
	Supplied current	Max. 2.0 A			
Environmental resistance	Enclosure	IP67			
	Operating temperature range	-10 to 50°C			
	Operating humidity range	35 to 85%RH (No condensation)			
	Withstand voltage	500 VAC for 1 minute between terminals and housing			
Insulation resistance		10 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing			
Weight		260 g			
Accessories	Accessories	2 pcs.			
	Seal cap (for M12 connector socket)	EX9-AWTS (1 pc.)			

*1 Please note that the version is subject to change.

*2 Use a CAT5 or higher communication cable.

*3 Each file can be downloaded from the SMC website, <http://www.smc.eu>

ATEX Compliant

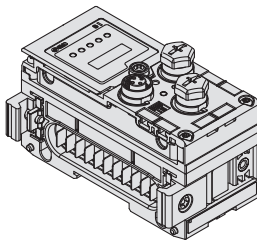
Fieldbus System Series 56-EX600



How to Order

SI Unit

56-EX600-S **PN1** -X10



Protocol

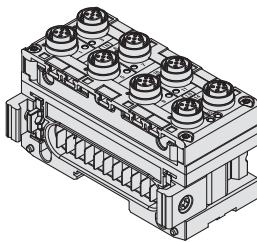
Symbol	Description
PR1A	PROFIBUS DP
PN1	PROFINET

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

Ⓒ Ⓔ II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T82°C Dc IP67 (56-EX600-SPN1-X10)

Digital Input Unit

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



Input type PNP

Number of Inputs, Open circuit detection, and Connector

Symbol	Number of inputs	Open circuit detection	Connector
B	8 inputs	No	M12 connector (5 pins) 4 pcs.
C	8 inputs	No	M8 connector (3 pins) 8 pcs.
D	16 inputs	No	M12 connector (5 pins) 8 pcs.

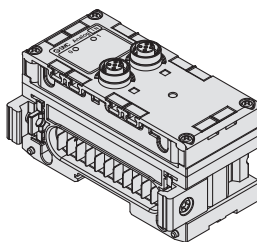
Ⓒ Ⓔ II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T82°C Dc IP67 (56-EX600-DXPB-X10)

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

Ⓒ Ⓔ II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T86°C Dc IP67 (56-EX600-DXPD-X10)

Analog Input Unit

56-EX600-**AX A** -X10



Analog input

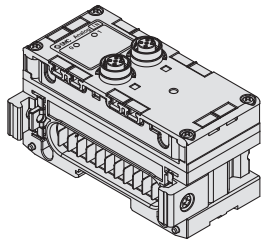
Number of Input channels and Connector

Symbol	Number of input channels	Connector
A	2 channels	M12 connector (5 pins) 2 pcs.

Ⓒ Ⓔ II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T66°C Dc IP67

How to Order

Analog Output Unit 56-EX600-AY A-X10



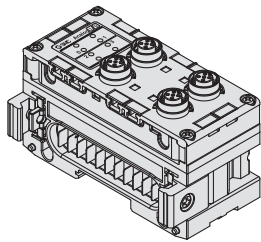
Analog output

Number of Output channels and Connector

Symbol	Number of output channels	Connector
A	2 channels	M12 connector (5 pins) 2 pcs.

Ⓒ Ⓔ II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T67°C Dc IP67

Analog Input/Output Unit 56-EX600-AM B-X10



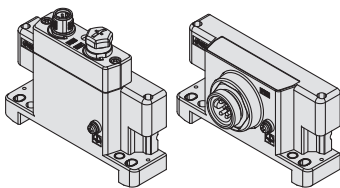
Analog input/output

Number of Input/Output channels and Connector

Symbol	Number of input channels	Number of output channels	Connector
B	2 channels	2 channels	M12 connector (5 pins) 4 pcs.

Ⓒ Ⓔ II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T76°C Dc IP67

End Plate 56-EX600-ED 2-2-X10



For M12

For 7/8 inch

End plate

End plate mounting position: D side

Power supply connector

Symbol	Power supply connector	Specifications
2	M12 (5 pins) B-coded	IN
3	7/8 inch (5 pins)	IN

Mounting method

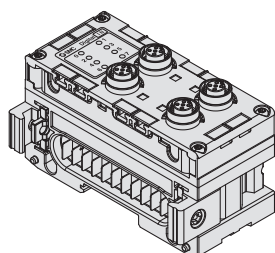
Symbol	Description	Note
—	Without DIN rail mounting bracket	—
2	With DIN rail mounting bracket	For SV, S0700, VQC series

Ⓒ Ⓔ II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C (56-EX600-ED2-X10)
II 3D Ex tc IIIC T72°C Dc IP67

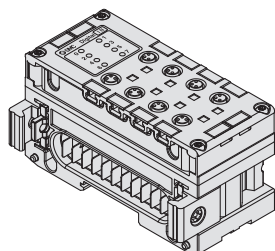
Ⓒ Ⓔ II 3G Ex ec IIC T4 Gc -10°C ≤ Ta ≤ 50°C (56-EX600-ED3-X10)
II 3D Ex tc IIIC T77°C Dc IP67

Series EX600

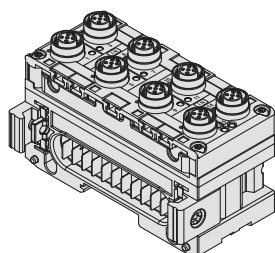
Specifications



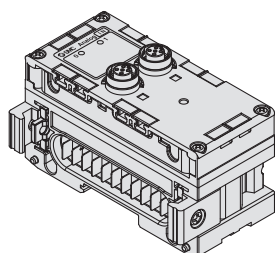
56-EX600-DXPB-X10



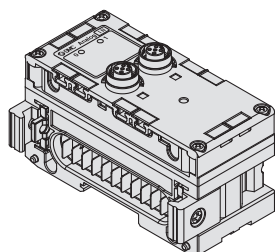
56-EX600-DXPC-X10



56-EX600-DXPD-X10



56-EX600-AXA-X10



56-EX600-AYA-X10

Digital Input Unit

Model		56-EX600-DXPB-X10	56-EX600-DXPC-X10	56-EX600-DXPD-X10
Input	Input type	PNP		
	Input connector	M12 (5-pin) socket*1	M8 (3-pin) socket*2	M12 (5-pin) socket*1
	Number of inputs	8 inputs (2 inputs/Connector)	8 inputs (1 input/Connector)	16 inputs (2 inputs/Connector)
	Supplied voltage	24 VDC		
	Max. supplied current	0.5 A/Connector 2 A/Unit	0.25 A/Connector 2 A/Unit	0.5 A/Connector 2 A/Unit
	Protection	Short-circuit protection		
	Input current (at 24 VDC)	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	50 mA or less	55 mA or less	70 mA or less
Enclosure	IP67 (Manifold assembly)			
Weight	300 g	275 g	340 g	

*1 M12 (4-pin) connector can be connected.

*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.

Analog Input Unit

Model		56-EX600-AXA-X10		
Input	Input type	Voltage input	Current input	
	Input connector	M12 (5-pin) socket*1		
	Input channel	2 channels (1 channel/Connector)		
	Supplied voltage	24 VDC		
	Max. supplied current	0.5 A/Connector		
	Protection	Short-circuit protection		
	Input signal range	12 bit resolution	0 to 10 V, 1 to 5 V, 0 to 5 V	0 to 20 mA, 4 to 20 mA
		16 bit resolution	-10 to 10 V, -5 to 5 V	-20 to 20 mA
	Max. rated input signal	±15 V	±22 mA*2	
	Input impedance	100 kΩ	50 Ω	
	Linearity (25°C)	±0.05% F.S.		
	Repeatability (25°C)	±0.15% F.S.		
	Absolute accuracy (25°C)	±0.5% F.S.	±0.6% F.S.	
Current consumption	70 mA or less			
Enclosure	IP67 (Manifold assembly)			
Weight	290 g			

*1 M12 (4-pin) connector can be connected.

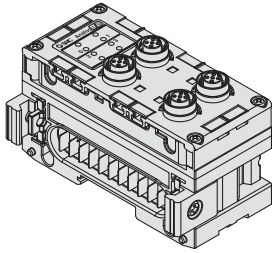
*2 When input signal exceeds 22 mA, the protection function activates and the input signal is interrupted.

Analog Output Unit

Model		56-EX600-AYA-X10		
Output	Output type	Voltage output	Current output	
	Output connector	M12 (5-pin) socket*1		
	Output channel	2 channels (1 channel/Connector)		
	Supplied voltage	24 VDC		
	Max. load current	0.5 A/Connector		
	Protection	Short-circuit protection		
	Output signal range	12 bit resolution	0 to 10 V, 1 to 5 V, 0 to 5 V	0 to 20 mA, 4 to 20 mA
	Load impedance	1 kΩ or more	600 Ω or less	
	Linearity (25°C)	±0.05% F.S.		
	Repeatability (25°C)	±0.15% F.S.		
	Absolute accuracy (25°C)	±0.5% F.S.	±0.6% F.S.	
	Current consumption	70 mA or less		
Enclosure	IP67 (Manifold assembly)			
Weight	290 g			

*1 M12 (4-pin) connector can be connected.

Specifications



56-EX600-AMB-X10

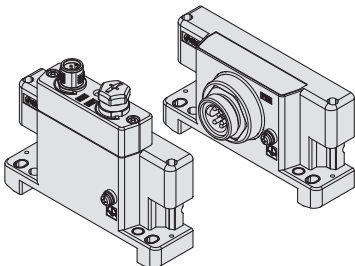
Analog Input/Output Unit

Model		56-EX600-AMB-X10		
Input	Input type	Voltage input	Current input	
	Input connector	M12 (5-pin) socket*1		
	Input channel	2 channels (1 channel/Connector)		
	Supplied voltage	24 VDC		
	Max. supplied current	0.5 A/Connector		
	Protection	Short-circuit protection		
	Input signal range	12 bit resolution 0 to 10 V, 1 to 5 V, 0 to 5 V	0 to 20 mA, 4 to 20 mA	
	Max. rated input signal	15 V	22 mA*2	
	Input impedance	100 kΩ	250 Ω	
	Linearity (25°C)	±0.05% F.S.		
	Repeatability (25°C)	±0.15% F.S.		
	Absolute accuracy (25°C)	±0.5% F.S.	±0.6% F.S.	
	Output	Output type	Voltage output	Current output
		Output connector	M12 (5-pin) socket*1	
Output channel		2 channels (1 channel/Connector)		
Supplied voltage		24 VDC		
Max. load current		0.5 A/Connector		
Protection		Short-circuit protection		
Output signal range		12 bit resolution 0 to 10 V, 1 to 5 V, 0 to 5 V	0 to 20 mA, 4 to 20 mA	
Load impedance		1 kΩ or more	600 Ω or less	
Linearity (25°C)		±0.05% F.S.		
Repeatability (25°C)		±0.15% F.S.		
Absolute accuracy (25°C)		±0.5% F.S.	±0.6% F.S.	
Current consumption		100 mA or less		
Enclosure		IP67 (Manifold assembly)		
Weight		300 g		

*1 M12 (4-pin) connector can be connected.

*2 When input signal exceeds 22 mA, the protection function activates and the input signal is interrupted.

56-EX600-ED3-□-X10



56-EX600-ED2-□-X10

End Plate

Model		56-EX600-ED2-□-X10	56-EX600-ED3-□-X10
Power specifications	Power supply connector	PWR IN M12 (5-pin) plug	PWR OUT 7/8 inch (5-pin) plug
	Rated voltage	Power supply for control/input	24 VDC ±10%
		Power supply for output	24 VDC +10/-5%
	Rated current	Power supply for control/input	Max. 2 A
Power supply for output			
Enclosure	IP67 (Manifold assembly)		
Weight	170 g	175 g	



ATEX Compliant

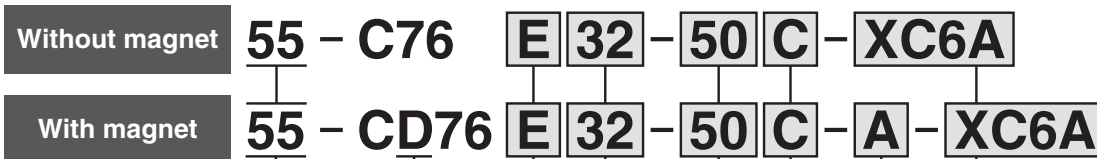
Air cylinder/ Double acting Series 55-C76

Ø 32, Ø 40

CE II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T90°C..T110°C Db

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



ATEX category 2

Built-in magnet for auto switch

Mounting

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

* Except air cushion type.

Bore size

32	32 mm
40	40 mm

Made to Order

—	Standard
XC6A	Stainless steel piston rod and rod-end nut
XC6B	Stainless steel piston rod, rod-end nut and mounting nut
XC22*	Fluororubber seals
XC85	Food grade grease
X2018	Long stroke

* Only with rubber cushion type.

Auto switch mounting

A	Rail mounting
B	Band mounting

Cushion

—	Rubber cushion (Standard)
C	Air cushion (only "E" execution)

Cylinder stroke

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

Refer to page 102 for applicable auto switches.

Mounting Bracket Part No.

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

Mounting Bracket Part No.

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

ATEX Compliant Air Cylinder *Series 55-C76*



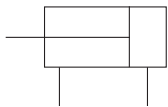
Specifications

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	

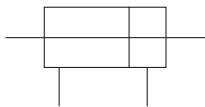
Symbol

Standard: Double Action

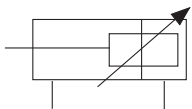
Rubber Cushion
Single Rod



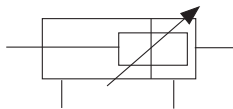
Rubber Cushion
Double Rod



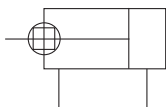
Air Cushion
Single Rod



Air Cushion
Double Rod



Non-rotating rod: Double Acting/Single Rod



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 Air cylinder

Standard: Double Acting, Double Rod

Series 55-C76W

Ø 32, Ø 40

CE II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T90°C..T110°C Db

How to Order

Without magnet 55 - C76 WE 32 - 50 C - XC6A

With magnet 55 - CD76WE 32 - 50 C - A - XC6A

ATEX category 2

Built-in magnet for auto switch

Mounting

E	Double end type
---	-----------------

Bore size

32	32 mm
40	40 mm

Made to Order

—	Standard
XC6A	Stainless steel piston rod and rod-end nut
XC6B	Stainless steel piston rod, rod-end nut and mounting nut
XC22*	Fluororubber seals
XC85	Food grade lubricant
X2018	Long stroke

* Only with rubber cushion type.

Auto switch mounting

A	Rail mounting
B	Band mounting

Cushion

—	Rubber cushion (Standard)
C	Air cushion

Cylinder stroke

Bore size (mm)	Standard stroke	X2018 (Long stroke)
32	10,25,40,50,80,100,125	301 to 500
40	160,200,250,300	

Refer to page 102 for applicable auto switches.

Mounting Bracket Part No.

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

Specifications

Bore size (mm)	Ø 32	Ø 40
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 1000 mm/s	
Stroke tolerance	+1.4 0 mm	
Cushion	Rubber cushion, Air cushion	
Port size	G1/8	G1/4
Mounting	Double end	



ATEX Compliant Air cylinder

Non-rotating Type: Double Acting, Single Rod

Series 55-C76K

Ø 32, Ø 40

CE Ex II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIC T90°C..T110°C Db

How to Order

Without magnet **55 - C76K** **E** **32** - **50** - **XC6A**

With magnet **55 - CD76K** **E** **32** - **50** - **A** - **XC6A**

ATEX category 2

Built-in magnet for auto switch

Mounting

E	Double end
F	Front nose
Y	Front nose in line port

Bore size

32	32 mm
40	40 mm

Made to Order

—	Standard
XC6A	Stainless steel piston rod and rod-end nut
XC6B	Stainless steel piston rod, rod-end nut and mounting nut
X2018	Long stroke

Auto switch mounting

A	Rail mounting
B	Band mounting

Cylinder stroke

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

Mounting Bracket Part No.

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

Refer to page 102 for applicable auto switches.

Specifications

Bore size (mm)	Ø 32	Ø 40
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 1000 mm/s	
Stroke tolerance	+1.4 0 mm	
Cushion	Rubber cushion	
Port size	G1/8	G1/4
Non-rotating accuracy	±0.5°	±0.5°
Mounting	Double end, Front nose, Front nose in line port	



ATEX Compliant

ISO Cylinder/Double Acting Series 55-C85

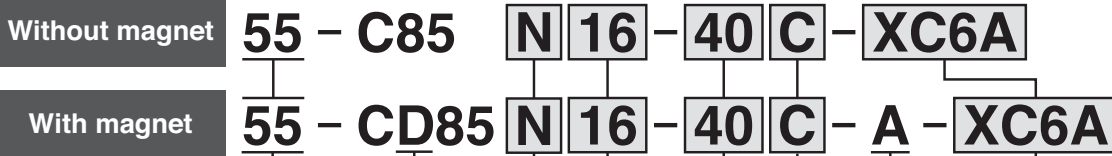
Ø 8, Ø 10, Ø 12, Ø 16, Ø 20, Ø 25



II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T89°C..T109°C Db

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



ATEX category 2

Built-in magnet for auto switch

Mounting

N*	Basic (integrated clevis)
E	Double end
F	Front nose
Y	Front nose in line port

* Air cushion type is available for N type only.

Made to Order

-	Standard
XC6A	Stainless steel piston rod and rod-end nut
XC6B	Stainless steel piston rod, rod-end nut and mounting nut
XC22	Fluororubber seals
X2018	Long stroke

Auto switch mounting type

A	Rail mounting
B	Band mounting

Please order auto switches and bands separately.

Cushion

-	Rubber cushion (Standard)
C	Air cushion (Only "N" execution, bores 10 to 25 mm)

Bore size Cylinder stroke

Bore size (mm)	Standard stroke (mm)**	X2018 (Long stroke)
8*	10, 25, 40, 50, 80, 100	101 to 200
10		101 to 400
12	10, 25, 40, 50, 80, 100 125, 160, 200	201 to 400
16		
20	10, 25, 40, 50, 80, 100 125, 160, 200, 250, 300	301 to 1000
25		

* Not available with air cushion.

** Other strokes available on request.

Refer to page 102 for applicable auto switches.

Specifications

Bore size (mm)	8	10	12	16	20	25
Action	Double Acting, Single Rod					
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)					
Lubrication	Not required (Non-lube)					
Piston speed	Air cushion: 50 to 1000 mm/s, Rubber cushion: 50 to 750 mm/s					
Stroke tolerance			+1.0 0 mm		+1.4 0 mm	
Cushion	Rubber cushion	Rubber cushion, Air cushion				
Port size	M5X0.8			G1/8		
Mounting	Integrated clevis, Double end, Front nose, Front nose in line port					

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)	8	10	12	16	20	25
	Mounting 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			
Accessory	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		



ATEX Compliant

ISO Cylinder [ISO/6432]

Standard: Double Acting, Double Rod Series 55-C85W

Ø 8, Ø 10, Ø 12, Ø 16, Ø 20, Ø 25

CE II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T89°C..T109°C Db

How to Order

Without magnet

55 - C85W E 16 - 40 C - XC6A

With magnet

55 - CD85WE 16 - 40 C - B - XC6A

ATEX category 2

Built-in magnet for auto switch

Mounting

E Double end

Made to Order

—	Standard
XC6A	Stainless steel piston rod and rod-end nut
XC6B	Stainless steel piston rod, rod-end nut and mounting nut
XC22	Fluororubber seals
X2018	Long stroke

Auto switch mounting type

A	Rail mounting
B	Band mounting

Please order auto switches and bands separately.

Cushion

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

Specifications

Bore size (mm)	8	10	12	16	20	25
Action	Double Acting, Double Rod					
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)					
Lubrication	Not required (Non-lube)					
Piston speed	Air cushion: 50 to 1000 mm/s, Rubber cushion: 50 to 750 mm/s					
Stroke tolerance		+1.0 0 mm			+1.4 0 mm	
Cushion	Rubber cushion	Rubber cushion, Air cushion				
Port size	M5X0.8				G1/8	
Mounting	Double end					

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)	8	10	12	16	20	25
		Foot (1 pc.)	C85L10A	C85L16A	C85L25A		
Foot (2 pcs. with mounting nut 1 pc.)	C85L10B	C85L16B	C85L25B				
Flange	C85F10	C85F16	C85F25				
Trunnion	C85T10	C85T16	C85T25				
Clevis	C85C10	C85C16	C85C25				
Accessory	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		

Bore size Cylinder stroke

Bore size (mm)	Standard stroke (mm)**	X2018 (Long stroke)
8*		
10	10, 25, 40, 50, 80, 100	—
12	10, 25, 40, 50, 80, 100	—
16	125, 160, 200	
20	10, 25, 40, 50, 80, 100	
25	125, 160, 200, 250, 300	301 to 500

* Not available with air cushion.

** Other strokes available on request.

Refer to page 102 for applicable auto switches.



ATEX Compliant Air cylinder

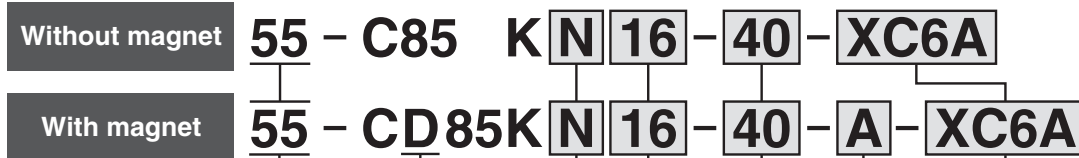
Non-rotating Type: Double Acting, Single Rod

Series 55-C85K

Ø 8, Ø 10, Ø 12, Ø 16, Ø 20, Ø 25

CE Ex II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIC T89°C..T109°C Db

How to Order



ATEX category 2
Built-in magnet for auto switch

Mounting

N	Basic (integrated clevis)
E	Double end
F	Front nose
Y	Front nose in line port

Made to Order

—	Standard
XC6A	Stainless steel piston rod and rod-end nut
XC6B	Stainless steel piston rod, rod-end nut and mounting nut
X2018	Long stroke

Auto switch mounting type

A	Rail mounting
B	Band mounting

Please order auto switches and bands separately.

Specifications

Bore size (mm)	8	10	12	16	20	25
Action	Double Acting, Single Rod					
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)					
Lubrication	Not required (Non-lube)					
Piston speed	Rubber cushion: 50 to 750 mm/s					
Stroke tolerance	+1.0 0 mm			+1.4 0 mm		
Cushion	Rubber cushion					
Port size	M5X0.8			G1/8		
Non-rotating accuracy	±1.5°		±1°		±0.7°	
Mounting	Integrated clevis, Double end, Front nose, Front nose in line port					

Bore size **Cylinder stroke**

Bore size (mm)	Standard stroke (mm)*	X2018 (Long stroke)
8	10, 25, 40, 50, 80, 100	101 to 200
10		101 to 400
12	10, 25, 40, 50, 80, 100 125, 160, 200	201 to 400
16		
20	10, 25, 40, 50, 80, 100 125, 160, 200, 250, 300	301 to 1000
25		

* Other strokes available on request.

Mounting Bracket Part No.

Mounting bracket		Bore size (mm)	8	10	12	16	20	25
Mounting 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	
Accessory	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

All other specifications are the same as the standard products Series C85K.

Refer to page 102 for applicable auto switches.



ATEX Compliant

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

Ø 160, Ø 200, Ø 250



II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIC T91°C..T111°C Db

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

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.

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

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 102 for applicable auto switches.



Mounting Bracket, Mounting Accessories

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

Note 1) Accessories for each mounting bracket are as follows.

Foot, Flange, Single clevis: Mounting bolts

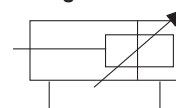
Double clevis: Mounting bolts, Clevis pin

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

Note 3) KJ according to ISO 8139

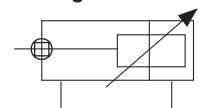
Symbol

Double acting/
Single rod



Non rotating rod:

Double acting/
Single rod





ATEX Compliant

ISO Cylinder/Double Acting, Double Rod Series 55-C95W

Ø 160, Ø 200, Ø 250



II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T91°C..T111°C Db

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
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

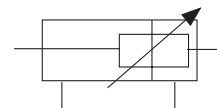
Bore size (mm)	Ø 160	Ø 200	Ø 250
Action	Double Acting, Double Rod		
Fluid	Air		
Proof pressure	1.5 MPa		
Max. operating pressure	1.0 MPa		
Min. operating pressure	0.05 MPa		
Ambient and fluid temperature	-10 to 60 °C (No freezing)		
Lubrication	Not required (Non-lube)		
Piston speed	50 to 500 mm/s		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

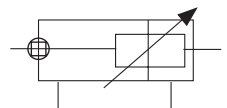
Symbol

Double acting/
Double rod



Non rotating rod:

Double acting/
Double rod





ATEX Compliant ISO Cylinder

Standard: Double Acting

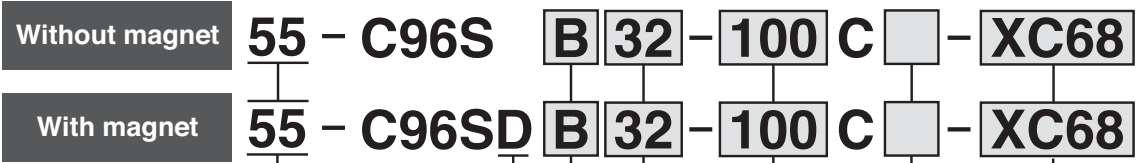
Series 55-C96/55-C96W

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE II 2G Ex h IIC T6..T5 Gb
II 2D Ex h IIIC T80°C..T100°C Db

For the Ø 125, refer to the next page

How to Order



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	1000	1000	1000
	250, 320, 400, 500			1700
40	25, 50, 80, 100, 125, 160, 200	1900		1700
	250, 320, 400, 500			1700
50	25, 50, 80, 100, 125, 160, 200	1900		1700
	250, 320, 400, 500, 600			1700
63	25, 50, 80, 100, 125, 160, 200	1900	1700	
	250, 320, 400, 500, 600		1700	
80	25, 50, 80, 100, 125, 160, 200	1900	1700	
	250, 320, 400, 500, 600, 700, 800		1700	
100	25, 50, 80, 100, 125, 160, 200	1900	1700	
	250, 320, 400, 500, 600, 700, 800		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
XC85	Grease for food processing equipment

* 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 102 for applicable auto switches.



ATEX Compliant ISO Cylinder

Standard: Double Acting, Single Rod

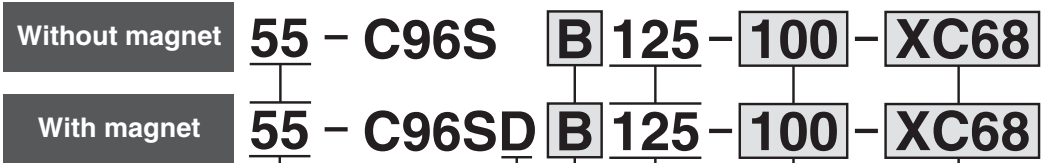
Series 55-C96

Ø 125

CE II 2G h IIC T5..T4 Gb
II 2D h IIIC T86°C..T106°C Db

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

How to Order



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 102 for applicable auto switches.

ATEX Compliant ISO Cylinder

Standard: Double Acting, Double Rod

Series 55-C96W

Ø 125

CE  II 2G h IIC T5..T4 Gb
II 2D h IIIIC T86°C..T106°C Db

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

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*
125 **	1000

Intermediate strokes are available.

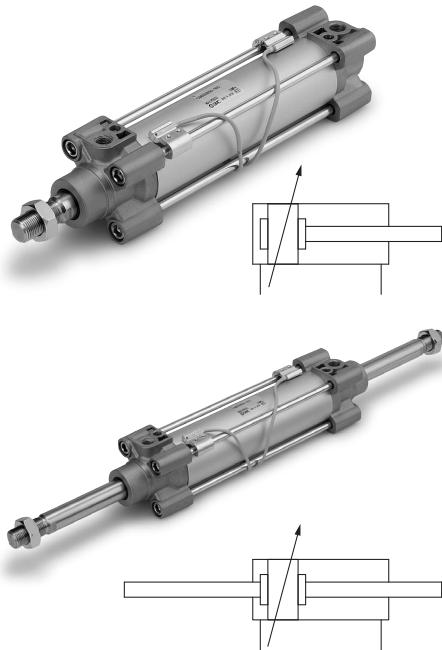
* Please consult with SMC for longer strokes.

** 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 102 for applicable auto switches.

Series C96/C96W



Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting						
Fluid	Air						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Min. operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*						
Lubrication	Not required (Non-lube)						
Operating piston speed	50 to 1000 mm/s						50 to 700 mm/s
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_0$, 251 to 1000 st: $^{+1.4}_0$, 1001 to 1500 st: $^{+1.8}_0$, 1501 to 2000 st: $^{+2.2}_0$						
Cushion	Both ends (Air cushion)						
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion						

* No freezing



ATEX Compliant ISO Cylinder

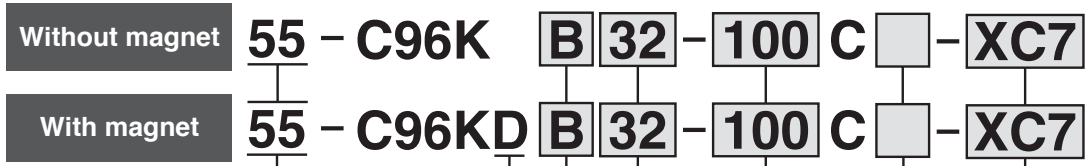
Non-rotating type: Double Acting

Series 55-C96K/55-C96KW

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE II 2G Ex h IIC T6..T5 Gb
II 2D Ex h IIIC T80°C..T100°C Db

How to Order



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

Made to Order

—	Standard
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel

Rod

—	Simple rod
W	Double rod

Cylinder stroke (mm)

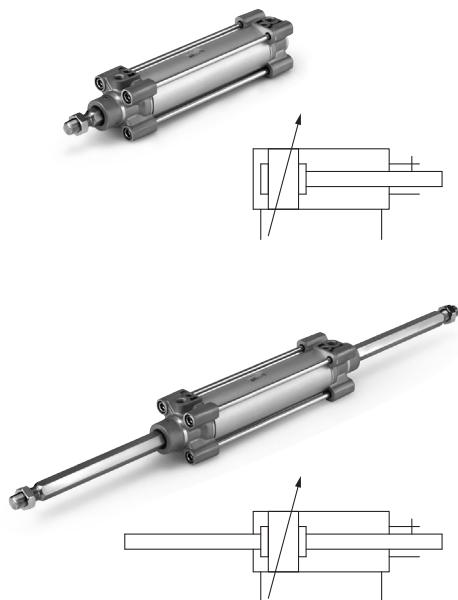
Bore size (mm)	Maximum stroke (mm)
32	500
40	500
50	600
63	600
80	800
100	800

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

Refer to page 102 for applicable auto switches.

Series C96K/C96KW

Specifications



Bore size (mm)	32	40	50	63	80	100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					
Min. operating pressure	0.05 MPa					
Ambient and fluid temperature	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*					
Lubrication	Not required (Non-lube)					
Operating piston speed	50 to 1000 mm/s					
Allowable stroke tolerance	Up to 250 st: ${}^{+1.0}_0$, 251 to 1000 st: ${}^{+1.4}_0$					
Cushion	Both ends (Air cushion)					
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
Non-rotating accuracy	±0.5°		±0.5°		±0.3°	
Allowable rotating torque Nm max.	0.25	0.45	0.64		0.79	

* No freezing



ATEX Compliant ISO Cylinder Smooth Cylinder/Double Acting, Single Rod Series 55-C96Y

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE Ex II 2G Ex h IIC T6..T5 Gb
II 2D Ex h IIIC T80°C..T100°C Db

How to Order

Without magnet **55 - C96Y B 32 - 100 C**

With magnet **55 - C96YD B 32 - 100 C**

ATEX category 2

Built-in magnet for auto switch

Mounting

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

Bore size

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

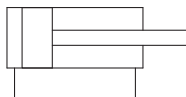
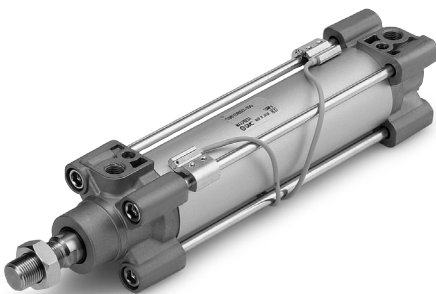
Cylinder stroke (mm)

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

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

Refer to page 102 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

Smooth Cylinder: Double Acting, Single Rod *Series 55-C96Y*

Ø 125

CE II 2G h IIC T5..T4 Gb
II 2D h IIIIC T86°C..T106°C Db

How to Order

Without magnet 55 - C96Y B 125 - 100

With magnet 55 - C96YD B 125 - 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

Cylinder stroke (mm)

Bore size (mm)	Maximum stroke (mm)
125	1000

Bore size

125	125 mm
------------	--------

All other specifications are the same as the standard products Series C96.

Refer to page 102 for applicable auto switches.



ATEX Compliant ISO Cylinder

Standard: Double Acting, Single Rod

Series 55-CP96

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE II 2G h IIC T6..T5 Gb
II 2D h IIIC T80°C..T100°C Db

For the Ø 125, refer to the next page

How to Order

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

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

ATEX category 2

Built-in magnet for auto switch

Mounting

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

Bore size

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

Cylinder stroke (mm)

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

Intermediate strokes are available.

* Please consult with SMC for longer strokes.

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
XC85	Grease for food processing equipment

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

Refer to page 102 for applicable auto switches.



ATEX Compliant ISO Cylinder

Standard: Double Acting, Single Rod

Series 55-CP96

Ø 125

CE II 2G h IIC T5..T4 Gb
II 2D h IIC T86°C..T106°C Db

For the Ø 32, Ø 40, Ø 50,
Ø 63, Ø 80, and Ø 100,
refer to page 71.

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.

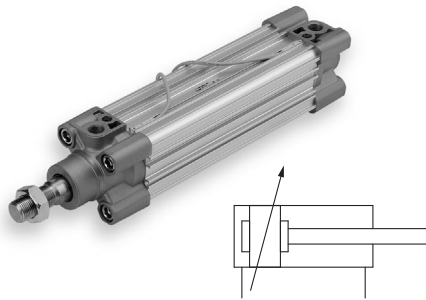
Made to Order

	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 102 for applicable auto switches.

ISO Cylinder: Standard Double Acting, Single Rod *Series CP96*



Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting						
Fluid	Air						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Min. operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*						
Lubrication	Not required (Non-lube)						
Operating piston speed	50 to 1000 mm/s						50 to 700 mm/s
Allowable stroke tolerance	Up to 250 st: ${}^{+1.0}_0$, 251 to 1000 st: ${}^{+1.4}_0$, 1001 to 1500 st: ${}^{+1.8}_0$, 1501 to 2000 st: ${}^{+2.2}_0$						
Cushion	Both ends (Air cushion)						
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion						

* No freezing



ATEX Compliant ISO Cylinder

Standard: Double Acting, Double Rod

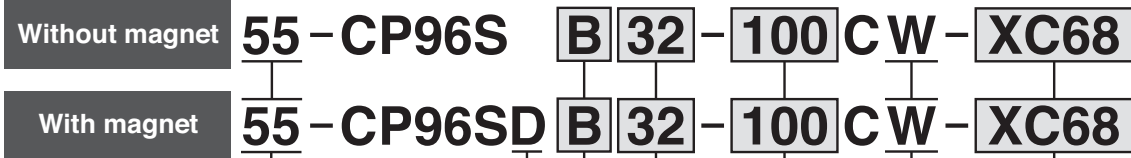
Series 55-CP96W

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE II 2G h IIC T6..T5 Gb
II 2D h IIC T80°C..T100°C Db

For the Ø 125, refer to the next page

How to Order



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
XC85	Grease for food processing equipment

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 102 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

CE II 2G h IIC T5..T4 Gb
II 2D h IIIC T86°C..T106°C Db

For the Ø 32, Ø 40, Ø 50,
Ø 63, Ø 80, and Ø 100,
refer to page 74.

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.

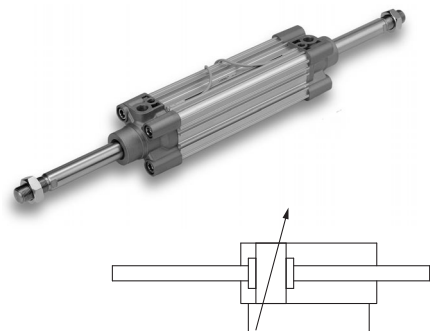
* Please consult with SMC for longer strokes.

** 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 102 for applicable auto switches.

Series CP96W



Specifications

Bore size (mm)	32	40	50	63	80	100	125
Action	Double acting						
Fluid	Air						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Min. operating pressure	0.05 MPa						
Ambient and fluid temperature	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*						
Lubrication	Not required (Non-lube)						
Operating piston speed	50 to 1000 mm/s					50 to 700 mm/s	
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_0$, 251 to 1000 st: $^{+1.4}_0$, 1001 to 1500 st: $^{+1.8}_0$, 1501 to 2000 st: $^{+2.2}_0$						
Cushion	Both ends (Air cushion)						
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion						

* No freezing



ATEX Compliant ISO Cylinder

Non-rotating Type: Double Acting, Single Rod

Series 55-CP96K

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE II 2G h IIC T6..T5 Gb
II 2D h IIIC T80°C..T100°C Db

How to Order

Without magnet **55 - CP96K** **B** **32** - **100** **C** - **XC7**

With magnet **55 - CP96KD** **B** **32** - **100** **C** - **XC7**

ATEX category 2

Built-in magnet for auto switch

Mounting

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

Bore size

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

Made to Order

—	Standard
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel

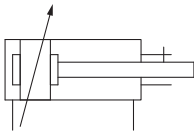
Cylinder stroke (mm)

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

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

Refer to page 102 for applicable auto switches.

Series CP96K



Specifications

Bore size (mm)	32	40	50	63	80	100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					
Min. operating pressure	0.05 MPa					
Ambient and fluid temperature	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*					
Lubrication	Not required (Non-lube)					
Operating piston speed	50 to 1000 mm/s					
Allowable stroke tolerance	Up to 250 st: ${}^+1.0_0$; 251 to 1000 st: ${}^+1.4_0$					
Cushion	Both ends (Air cushion)					
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
Non-rotating accuracy	±0.5°		±0.5°		±0.3°	
Allowable rotating torque Nm max.	0.25	0.45	0.64		0.79	


* No freezing

ATEX Compliant ISO Cylinder

Non-rotating Type: Double Acting, Double Rod

Series 55-CP96KW

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

CE  II 2G h IIC T6..T5 Gb
II 2D h IIIC T80°C..T100°C Db

How to Order

Without magnet **55 - CP96K** **B** **32** - **100** **C** **W** - **XC7**

With magnet **55 - CP96KD** **B** **32** - **100** **C** **W** - **XC7**

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
XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel

Rod

W	Double rod
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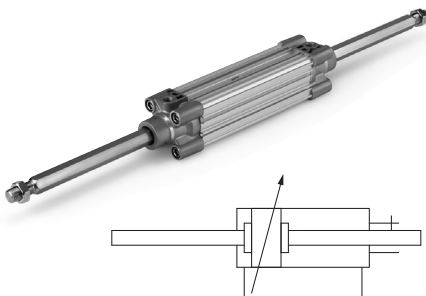
Cylinder stroke (mm)

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 102 for applicable auto switches.

Specifications



Bore size (mm)	32	40	50	63	80	100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					
Min. operating pressure	0.05 MPa					
Ambient and fluid temperature	Without auto switch: -20 to 70 °C* With auto switch: -10 to 60 °C*					
Lubrication	Not required (Non-lube)					
Operating piston speed	50 to 1000 mm/s					
Allowable stroke tolerance	Up to 250 st: $^{+1.0}_0$, 251 to 1000 st: $^{+1.4}_0$					
Cushion	Both ends (Air cushion)					
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
Mounting	Basic, Axial foot, Rod end flange, Head end flange, Single clevis, Double clevis, Centre trunnion					
Non-rotating accuracy	±0.5°		±0.5°		±0.3°	
Allowable rotating torque Nm max.	0.25	0.45	0.64	0.79		

* No freezing



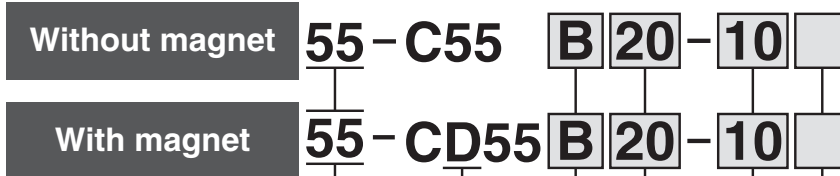
ATEX Compliant

ISO Standards/Compact Cylinder Series 55-C55

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

CE II 2G Ex h IIC T6..T4 Gb
II 2D Ex h IIIC T84°C..T104°C Db

How to Order



ATEX category 2

Built-in magnet for auto switch

Mounting

B	Through-hole/Both ends tapped common (Standard)
L	Foot
F	Rod side flange
G	Head side 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

Body option

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

Cylinder stroke (mm)

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

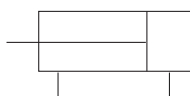
All other specifications are the same as the standard products Series C55. For details, refer to **the WEB catalogue**.

Refer to page 102 for applicable auto switches.



Symbol

Double Acting/Single Rod



Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Type	Pneumatic (Non-lube)							
Action	Double acting, Single rod							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.05 MPa						0.03 MPa	
Ambient and fluid temperature	-10 to 60 °C (No freezing)							
Cushion	Rubber bumper on both end							
Stroke length tolerance	+1.0 mm 0							
Mounting	Through-hole/Both ends tapped common							
Piston speed	50 to 500 mm/s						50 to 300 mm/s	

Standard Stroke

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

Mounting Bracket Part No.

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

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

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

ATEX Compliant

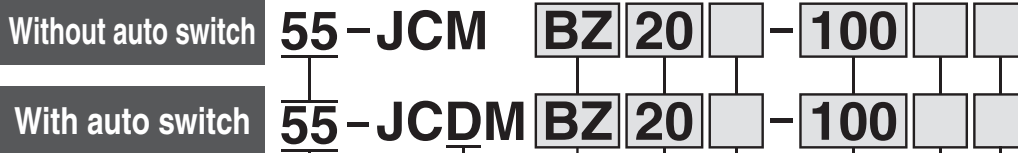
Air Cylinder/Double acting, Single rod Series 55-JCM

Ø 20, Ø 25, Ø 32, Ø 40



II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIC T99°C..T119°C Db

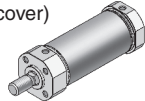
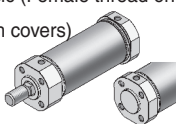
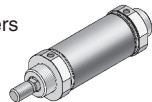
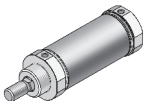
How to Order



ATEX category 2

With auto switch
(Built-in magnet)

Mounting

BZ	Basic (Female thread on rod cover) 
B	Basic (Female thread on both covers) 
M	Male thread on both covers 
MZ	Male thread on rod cover 

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm

Port thread type

—	M5
TR	Rc1/8
TN	NPT1/8

Cylinder stroke (mm)

Refer to "Standard Strokes" on the table below.

Rod end thread

—	Male thread
F	Female thread

Mounting nut

—	None
D	With mounting nut (1 pc.)*1

*1 For M and MZ only.
Mounting nut is shipped together with the product, but not assembled.

Mounting nut



Rod end nut is provided as standard.

Standard Strokes

Bore size (mm)	Standard stroke (mm) ^{Note)}
20	25, 50, 75, 100, 125, 150, 200, 250, 300
25	
32	
40	

Note) Intermediate strokes not listed above are produced upon receipt of order.
The minimum stroke is 25 mm.

All other specifications are the same as the standard products Series JCM.
For details, refer to the [WEB catalogue](#).

ATEX Compliant

Air Cylinder/Standard type: Double acting, Single rod Series 55-CG1

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



II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T94°C..T114°C Db

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-CG1** **L** **N** **25** **□** - **100** **□** **Z** - **XC85**

With magnet **55-CDG1** **L** **N** **25** **□** - **100** **□** **Z** - **XC85**

ATEX category 2

Built-in magnet for auto switch

Mounting

B	Basic
L	Axial foot
F	Rod side flange
G	Head side flange
U*	Rod side trunnion
T*	Head side trunnion
D	Clevis

* Not available for Ø 80 or Ø 100.
Note) Mounting brackets are shipped together, (but not assembled).

Cushion

N	Rubber cushion
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

Port thread type

Rubber cushion			Air cushion		
—	Rc	Ø 20 to Ø 100	—	M5 x 0.8	Ø 20, Ø 25
TN	NPT	Ø 20 to Ø 100	—	Rc	Ø 32 to Ø 100
TF	M5 x 0.8	Ø 20, Ø 25	TN	M5 x 0.8	Ø 20, Ø 25
	G	Ø 32 to Ø 100		NPT	Ø 32 to Ø 100
TF	G	Ø 32 to Ø 100	TF	M5 x 0.8	Ø 20, Ø 25
				G	Ø 32 to Ø 100

Standard stroke (mm)

Bore size	Standard stroke ^{Note 1)}	Max. manufacturable stroke ^{Note 2)}
20	25, 50, 75, 100, 125, 150, 200	1500
25		
32		
40		
50		
63		
80		
100		
	25, 50, 75, 100, 125, 150, 200 250, 300	

Note 1) Intermediate strokes not listed above are produced upon receipt of order.
The manufacturing of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

Note 2) Applicable strokes should be confirmed according to the usage. For details, refer to the "Air Cylinders Model Selection" on www.smc.eu

Made to Order

—	Standard
XA □□	Change of rod end shape
XC6	Made of stainless steel
XC10	Dual stroke cylinder/Double rod
XC11	Dual stroke cylinder/Single rod
XC37	Larger throttle diameter of connection port
XC85	Grease for food processing equipment

Note 1) "How to Order" for XC10, and XC11 are different from the above. Refer to the catalogue on www.smc.eu

Note 2) XC10 and XC11 are not applicable to XC85.

Rod end thread

—	Male rod end
F	Female rod end

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

Refer to page 102 for applicable auto switches.

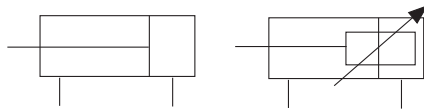
Series 55-CG1



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

Symbol

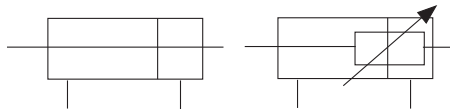
Double Acting/Single Rod



Rubber Bumper

Air Cushion

Double Acting/Double Rod



Rubber Bumper

Air Cushion

Specifications

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

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

Accessories

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

* Pivot bracket is not available for bore sizes Ø 80 and Ø 100.

** Pins and snap rings for double knuckle joint are included, not mounted.

Mounting Bracket Part No.

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

* Order two foot brackets per cylinder.

** Clevis pins, snap rings and mounting bolts are attached for the clevis.

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

ATEX Compliant

Air Cylinder/Standard type: Double acting, Double rod

Series 55-CG1W CE

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

II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T94°C..T114°C Db

How to Order

Without magnet

55-CG1 W L N 25 - **100** **Z** - **XC85**

With magnet

55-CDG1W L N 25 - **100** **Z** - **XC85**

ATEX category 2

Built-in magnet for auto switch

Double Acting/Double Rod

Mounting

B	Basic
L	Axial foot
F	Flange
U*	Centre trunnion

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

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

Cushion

N	Rubber cushion
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

Port thread type

Rubber cushion			Air cushion		
—	Rc	Ø 20 to Ø 100	—	M5 x 0.8	Ø 20, Ø 25
TN	NPT	Ø 20 to Ø 100	—	Rc	Ø 32 to Ø 100
TF	M5 x 0.8	Ø 20, Ø 25	TN	M5 x 0.8	Ø 20, Ø 25
	G	Ø 32 to Ø 100	TF	NPT	Ø 32 to Ø 100
			TF	M5 x 0.8	Ø 20, Ø 25
				G	Ø 32 to Ø 100

Made to Order

—	Standard
XC85	Food grade grease

Rod end thread

—	Male rod end
F	Female rod end

Standard stroke (mm)

Bore size	Standard stroke ^{Note 1)}	Max. manufacturable stroke ^{Note 2)}
20	25, 50, 75, 100, 125, 150, 200	1500
25		
32		
40		
50	25, 50, 75, 100, 125, 150, 200	
63	250, 300	
80		
100		

Note 1) Intermediate strokes not listed above are produced upon receipt of order. The manufacturing of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

Note 2) Applicable strokes should be confirmed according to the usage. For details, refer to the "Air Cylinders Model Selection" on front matter pages of the Best Pneumatics No. 2 or the **Web Catalogue**.

All other specifications are the same as the standard products Series CG1W.

Refer to page 102 for applicable auto switches.

ATEX Compliant

Stainless Steel Cylinder/Standard Type: Double Acting, Single Rod **Series 55-CG5-S**

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

II 2G Ex h IIC T4..T3 Gb
II 2D Ex h IIIC T135°C..T155°C Db

How to Order

● Stainless steel cylinder

55 - CG5 L N 25 [] S R - 100

With magnet 55 - CDG5 L N 25 [] S R - 100

ATEX category 2 ●

Built-in magnet for auto switch ●

Mounting type ●

B	Basic type
L	Axial foot type
F	Rod side flange type
G	Head side flange type
E	Clevis integrated type

Type ●

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

Port thread type ●

Rubber bumper			Air cushion		
—	Rc	Ø 20 to Ø 100	—	M5 x 0.8	Ø 20, Ø 25
				Rc	Ø 32 to Ø 100
TN	NPT	Ø 20 to Ø 100	TN	M5 x 0.8	Ø 20, Ø 25
				NPT	Ø 32 to Ø 100
TF	M5 x 0.8	Ø 20, Ø 25	TF	M5 x 0.8	Ø 20, Ø 25
	G	Ø 32 to Ø 100		G	Ø 32 to Ø 100

Standard stroke [mm]

Bore size	Standard stroke*1	Maximum manufacturable stroke*2
20	25, 50, 75, 100, 125, 150, 200	1500
25		
32		
40		
50		
63		
80		
100	25, 50, 75, 100, 125, 150, 200, 250, 300	

*1 Intermediate strokes not listed above are produced upon receipt of order. The manufacturing of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

*2 Applicable strokes should be confirmed according to the usage. For details, refer to the "Air Cylinders Model Selection".

Seal material

R	NBR
V	FKM

All other specifications are the same as the standard products Series CG5. For details refer to the WEB catalogue.

ATEX Compliant

Air Cylinder/Standard type: Non-lube Series 55-CS1

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



II 2G Ex h IIB T5..T4 Gb
II 2D Ex h IIIC T91°C..T111°C Db

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-CS1 **L** **N** **160** - **300**

ATEX category 2

Mounting

B	Basic
L	Foot
F	Rod side flange
G	Head side flange
C	Single clevis
D	Double clevis
T	Centre trunnion

Cushion

Cushion	N	Without cushion
	R	With cushion in rod side
	H	With cushion in head side
	—	With cushion in both sides

* If specifying more than one symbol, indicate them alphabetically.

Tubing material

Symbol	Bore size (mm)	Tubing material	Stroke range (mm)
—	125, 140	Aluminum	1000 or less
	160		1200 or less
	125, 140	Steel	1001 or more
160	1201 or more		
F	180 to 300	Steel	All strokes
	125, 140		1000 or less
	160		1200 or less

Bore size

Non-lube type	
125	125 mm
140	140 mm
160	160 mm
180	180 mm
200	200 mm
250	250 mm
300	300 mm

Type

N	Non-lube type
----------	---------------

Cylinder stroke (mm)

Bore size	Tubing material	Aluminum	Steel	
	Mounting bracket	Basic, Head side flange, Single clevis, Double clevis, Centre trunnion, Foot, Rod side flange	Basic, Head side flange, Single clevis, Double clevis, Centre trunnion	Foot Rod side flange
125		1000 or less	1000 or less	1600 or less
140		1000 or less	1200 or less	1600 or less
160		1200 or less	1200 or less	1600 or less
180		—	1200 or less	2000 or less
200		—	1200 or less	2000 or less
250		—	1200 or less	2400 or less
300		—	1200 or less	2400 or less

Class 2 Pressure Vessel

The cylinder with a stroke exceeding the level shown below that is applicable to the Class 2 Pressure Vessel Act cannot be installed or used in Japan.

Bore size (mm)	Cylinder stroke (mm)
200	998
250	813
300	564

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

Refer to page 102 for applicable auto switches.

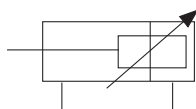
Series 55-CS1



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

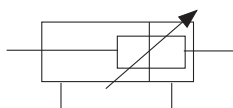
Symbol

Double Acting/Single Rod



Air Cushion

Double Acting/Double Rod



Air Cushion

Specifications

Style	Non-lube
Fluid	Air (Non-lube)
Proof pressure ¹⁾	1.57 MPa
Max. operating pressure ¹⁾	0.97 MPa
Min. operating pressure	0.05 MPa
Piston speed	50 to 500 mm/s
Cushion	None, air cushion
Ambient and fluid temperature	0 to 60 °C (No freezing)
Stroke length tolerance (mm)	250 or less: $+1.0_0$, 251 to 1,000: $+1.4_0$, 1,001 to 1,500: $+1.8_0$ 1501 to 2000: $+2.2_0$
Mounting	Basic, Foot, Front flange, Rear flange, Single clevis, Double clevis, Centre trunnion

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

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	
	Aluminium alloy	Carbon steel tube		Aluminium alloy	
Mounting bracket	Basic Rear flange Single clevis Double clevis Centre trunnion Foot Front flange	Basic Rear flange Single clevis Double clevis	Foot Front flange	B, G, C, D, T	L, F *
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

Air Cylinder Series 55-CDS1

Ø 125, Ø 140, Ø 160, Ø 180, Ø 200

CE II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIC T91°C..T111°C Db

How to Order

With magnet 55-CDS1 L N 160-300

ATEX category 2

Built-in magnet for auto switch

Mounting

B	Basic
L	Foot
F	Rod side flange
G	Head side flange
C	Single clevis
D	Double clevis
T	Centre trunnion

Type

N	Non-lube type
----------	---------------

Bore size

Non-lube type	
125	125 mm
140	140 mm
160	160 mm
180	180 mm
200	200 mm

Cushion

Cushion	N	Without cushion
	R	With cushion in rod side
	H	With cushion in head side
	—	With cushion in both sides

* If specifying more than one symbol, indicate them alphabetically.

Cylinder stroke (mm)

Bore size (mm)	Maximum Stroke	
	Basic, Head side flange, Single clevis, Double clevis, Centre trunnion	Foot, Rod side flange
125, 140	1000 or less	1400 or less
160	1200 or less	1400 or less
180	1200 or less	1500 or less
200	998 or less	998 or less

Class 2 Pressure Vessel

The cylinder with a stroke exceeding the level shown below that is applicable to the Class 2 Pressure Vessel Act cannot be installed or used in Japan.

Bore size (mm)	Cylinder stroke (mm)
200	998


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

Refer to page 102 for applicable auto switches.

ATEX Compliant

Air Cylinder: Double Rod Type Series 55-CS1W

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

CE  II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T91°C..T111°C Db

How to Order

Without magnet **55-CS1 W L**  **N 125-100** 

With magnet **55-CDS1W L**  **N 125-100** 

ATEX category 2

Built-in magnet for auto switch

Double rod

Mounting

B	Basic
L	Foot
F	Rod side flange
T	Centre trunnion

Tubing material

Symbol	Bore size (mm)	Tubing material
—	125, 140	Aluminum
	160	
	180	
—	200	Steel
	250, 300	
	—	
F	125, 140 160	Steel

Bore size

Non-lube type	
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.

Type

N	Non-lube type
----------	---------------

Cushion

Cushion	N	Without cushion
	R	With cushion in rod side
	H	With cushion in head side
	—	With cushion in both sides

* If specifying more than one symbol, indicate them alphabetically.

Cylinder stroke (mm)

Tubing material	Aluminum		Steel
	Without magnet	With magnet	Without magnet
Bore size (mm) \ Mounting bracket	Basic, Foot, Rod side flange, Centre trunnion		
125, 140	1000 or less	1000 or less	1000 or less
160	1200 or less	1200 or less	1200 or less
180	—	1200 or less	1200 or less
200	—	998 or less	1200 or less
250, 300	—	—	1200 or less

Class 2 Pressure Vessel

The cylinder with a stroke exceeding the level shown below that is applicable to the Class 2 Pressure Vessel Act cannot be installed or used in Japan.

Bore size (mm)	Cylinder stroke (mm)
200	998
250	813
300	564

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

Refer to page 102 for applicable auto switches.

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



II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIC T92°C..T112°C Db

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 -

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.

ATEX category 2

With magnet
(Built-in magnet)

Mounting bracket

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

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

Bore size

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

Port thread type

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

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

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

Refer to page 102 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



II 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIC T92°C..T112°C Db

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

How to Order

Without magnet Ø 12 to Ø 25	55 - CQ2W	B	20		-	30	D		-	
Without magnet Ø 32 to Ø 100	55 - CQ2W	B	32		-	30	D		Z	
With magnet	55 - CDQ2W	B	32		-	30	D		Z	

ATEX category 2

With magnet
(Built-in magnet)

Mounting bracket

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

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

Bore size

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

Port thread type

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

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

Made to Order

-	Standard
XC85	With food grade grease

Auto switch mounting groove

Z	Ø 12 to Ø 25	2 surfaces
Z	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 102 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 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T92°C..T112°C Db

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

How to Order

Without magnet **55 - CQ2** **A** **32** **□** - **200** **DC** **□** **Z** - **□**

With magnet **55 - CDQ2** **A** **32** **□** - **200** **DC** **□** **Z** - **□**

ATEX category 2

Built-in magnet for auto switch

Mounting bracket

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

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

Bore size

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

Port thread type

-	Rc
TF	G

Made to Order

-	Standard
XC85	With food grade grease

Auto switch mounting groove

Z	4 surfaces
----------	------------

Body option

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

Cushion

C	Rubber cushion
----------	----------------

Action

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

Cylinder stroke (mm)

Bore size	Standard stroke
32, 40, 50 63, 80, 100	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 102 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 2G Ex h IIC T5..T4 Gb
II 2D Ex h IIIC T92°C..T112°C Db

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

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

Port thread type

-	Rc
TF	G

Made to Order

-	Standard
XC85	With food grade grease

Auto switch mounting groove

Z	4 surfaces
---	------------

Body option

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

Cushion

C	Rubber cushion
---	----------------

Action

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

Cylinder stroke (mm)

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

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

Refer to page 102 for applicable auto switches.

Style

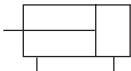
Bore size (mm)		12	16	20	25	32	40	50	63	80	100	125	140	160	180	200		
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		Both ends tapped	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Built-in magnet		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Piping	Screw-in style	M5	M5	M5	M5	M5 ⁽¹⁾ G 1/8	G 1/8	G 1/4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

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

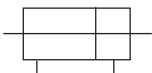
Note 2) Rubber bumper is standard for bore sizes over Ø 125.

JIS Symbol

Double Acting: Single Rod



Double Acting: Double Rod



Specifications

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

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

ATEX Compliant

Dual Rod Cylinder Series 55-CXS/55-CXSW

Ø 6, Ø 10, Ø 15, Ø 20, Ø 25, Ø 32



II 2G Ex h IIC T6..T5 Gb
II 2D Ex h IIIC T78°C..T98°C Db

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

How to Order

55-CXS **W** **M** **20** **100**

ATEX category 2

Dual rod cylinder

Type

-	Single rod
W	Double rod

Bearing

M	Slide bearing
L	Ball bushing bearing

Bore size

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

Port thread type

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

Made to order

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

Standard Strokes

CXS

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

CXSW

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

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

Refer to page 102 for applicable auto switches.

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

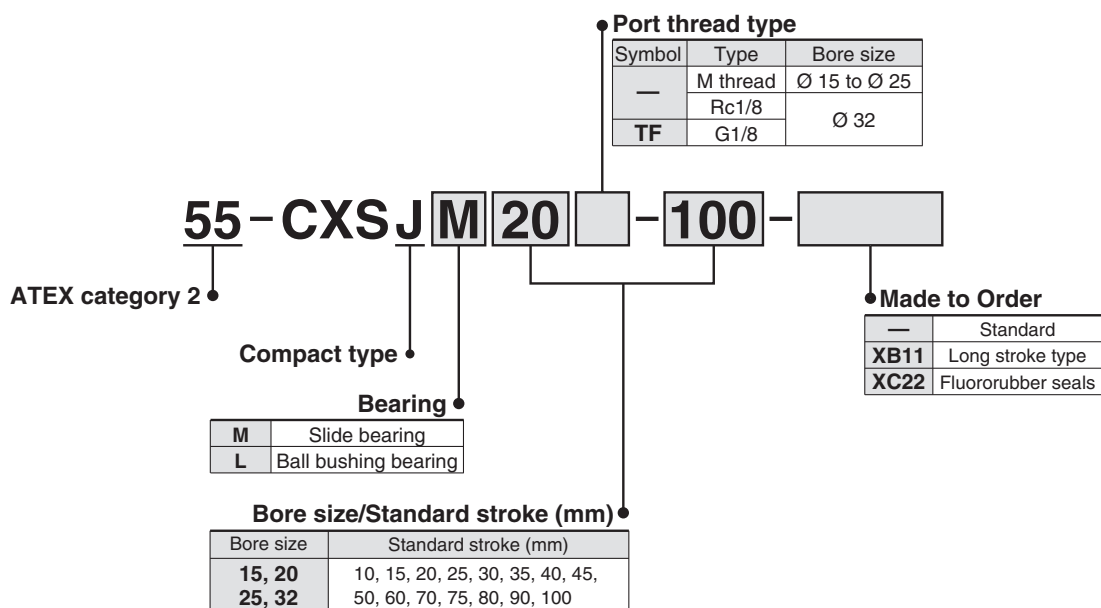
Dual Rod Cylinder/Basic type *Series 55-CXSJ*

Ø 15, Ø 20, Ø 25, Ø 32



II 2G Ex h IIC T6..T5 Gb
II 2D Ex h IIIC T78°C..T98°C Db

How to Order



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

Refer to page 102 for applicable auto switches.

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 2G Ex h IIC T6..T5 Gb

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



ATEX category 2

Basic

Cylinder stroke (mm)

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

Port thread type

Symbol	Type	Bore size
—	M thread	Ø 10, Ø 16, Ø 20
	Rc	Ø 25, Ø 32, Ø 40,
TN	NPT	Ø 50, Ø 63, Ø 80,
TF	G	Ø 100

Piping

—	Standard
G	Centralized piping type

Note) For Ø 10, only G is available.

Bore size	Standard stroke*	Long stroke	Maximum manufacturable stroke
10, 16	100, 200, 300, 400 500, 600, 700, 800 900, 1000, 1200 1400, 1600, 1800 2000	Strokes of 2001 to 3000 mm (1 mm increments) exceeding the standard stroke	3000
20, 25, 32 40, 50, 63 80, 100	* The stroke can be manufactured in 1 mm increments from 1 mm stroke.	Strokes of 2001 to 5000 mm (1 mm increments) exceeding the standard stroke	5000

Ordering example

* Long stroke can be ordered the same as the standard stroke. 55-MY1B20-3000

* Please be advised that with a stroke of 49 mm or less, there are cases where auto switch mounting is not possible, and the performance of the air cushion may decline.

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

Refer to page 102 for applicable auto switches.



ATEX Compliant

Mechanically Jointed Rodless Cylinder Series 55-MY1M

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

CE Ex II 2G Ex h IIC T6..T5 Gb

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

How to Order

Slide bearing guide type **55** – **MY1M** **20** **G** – **300**

ATEX category 2

Slide bearing guide type

Bore size

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

Port thread type

Symbol	Type	Bore size
—	M thread	Ø 16, Ø 20
	Rc	Ø 25, Ø 32,
TN	NPT	Ø 40, Ø 50,
TF	G	Ø 63

Piping

—	Standard
G	Centralized piping type

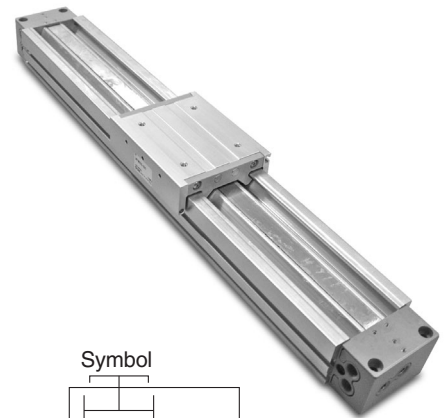
Cylinder stroke (mm)

Bore size	Standard stroke*	Long stroke	Maximum manufacturable stroke
16	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000	Strokes of 2001 to 3000 mm (1 mm increments) exceeding the standard stroke	3000
20, 25, 32, 40, 50, 63	* The stroke can be manufactured in 1 mm increments from 1 mm stroke.	Strokes of 2001 to 5000 mm (1 mm increments) exceeding the standard stroke	5000

Ordering example

* Long stroke can be ordered the same as the standard stroke. 55-MY1M20-3000

* Please be advised that with a stroke of 49 mm or less, there are cases where auto switch mounting is not possible, and the performance of the air cushion may decline.



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 MY1M. For details, refer to the **WEB catalogue**.

Refer to page 102 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 2G Ex h IIC T6..T5 Gb

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



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

Port thread type

Symbol	Type	Bore size
—	M thread	Ø 10, Ø 16, Ø 20
	Rc	
TN	NPT	Ø 25, Ø 32, Ø 40
TF	G	

Piping

—	Standard
G	Centralized piping type

* For Ø 10, only G is available.

Cylinder stroke (mm)

Bore size	Standard stroke	Intermediate stroke	Long stroke	Maximum manufacturable stroke
10	50, 100 150, 200	Strokes of 60 to 590 mm (10 mm increments) other than standard strokes	—	—
16, 20	250, 300 350, 400 450, 500	Strokes of 51 to 599 mm (1 mm increments) other than standard strokes	Strokes of 601 to 1000 mm (1 mm increments) exceeding the standard stroke	1000
25, 32, 40	550, 600		Strokes of 601 to 1500 mm (1 mm increments) exceeding the standard stroke	1500

* Long stroke is not available for MY1H10.

Ordering example

* Intermediate stroke can be ordered the same as the standard stroke.

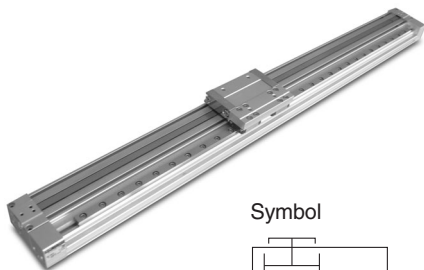
55-MY1H10-60-M9BW

* Long stroke can be ordered the same as the standard stroke.

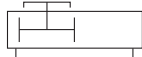
55-MY1H20-800L-M9BW

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

Refer to page 102 for applicable auto switches.



Symbol



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

ATEX Compliant Auto Switch Applicable Cylinder List

Model Switch type	55- C76	55- C85	55- C95	55- C96	55- CP96	55- C55	55- JCM	55- CG1	55- CS1	55- CQ2(Z)	55- CXSW	55- MY1B	55- MY1M	55- MY1H	56- CRB1	56- CRB2	56- CRBU2	55- CRQ2
D-M9□-588	●	Note 1) ●		●	●	●	●	● (20 to 63)	● (125 to 200)	●		● (Except 50)	●	●				●
D-M9□V-588		Note 2) ●		●	●	●	●		● (125 to 200)	●		● (Except 50)	●	●				●
D-M9□W-588	●	Note 1) ●		●	●	●	●	● (20 to 63)	● (125 to 200)	●		● (Except 50)	●	●				●
D-M9□WV-588		Note 2) ●		●	●	●	●		● (125 to 200)	●		● (Except 50)	●	●				●
D-H7A2-588	●	Note 3) ●						● (20 to 63)										
D-F7P-588	●	Note 4) ●								● (12 to 160)								
D-F7PV-588	●	Note 4) ●								● (12 to 160)								
D-F5P-588			● (160 to 250)	●					● (125 to 200)									
D-Y7P-588			● (160 to 200)	●					● (125 to 200)		●	● (50 to 100)	● (25 to 63)					
D-Y7PV-588			● (160 to 200)	●					● (125 to 200)		●	● (50 to 100)	● (25 to 63)					
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-C73-588 D-C80-588	●	Note 3) ●						● (20 to 63)										
D-A73-588 D-A80-588	●	Note 4) ●								● (12 to 160)								
D-A73H-588 D-A80H-588	●	Note 4) ●								● (12 to 160)								
D-A54-588 D-A67-588			● (160 to 250)	●					● (125 to 200)									
D-A90-588 D-A93-588	●	● (16 to 25)		●	●	●		● (20 to 63)	● (125 to 200)	●		● (10 to 40)	● (16, 20)	●				●
D-A90V-588 D-A93V-588		Note 5) ●		●	●	●			● (125 to 200)	●		● (10 to 40)	● (16, 20)	●				●
D-90A-588 D-93A-588									● (125 to 200)							● (10, 15)	● (10, 15)	
D-Z73-588 D-Z80-588			● (160 to 200)	●					● (125 to 200)		●	● (50 to 100)	● (25 to 63)					
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.



ATEX Compliant

Solid State Switch/Direct Mounting

D-M9N(V)·D-M9P(V)·D-M9B(V)-588 C €

II 3G Ex ec IIC T5 Gc -10 °C ≤ Ta ≤ +60 °C
II 3D Ex tc IIIC T93 °C Dc IP67

Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Using flexible cable as standard spec.



Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

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	5/12/24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28V)	
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 VDC				0.8 mA or less	
Indicator light	Red LED illuminates when turned ON.					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Sheath	Outside diameter [mm]	2.6		
	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
Insulator	Outside diameter [mm]	0.88		
	Cross section [mm ²]	0.15		
Conductor	Strand diameter [mm]	0.05		
	Minimum bending radius [mm] (Reference)	17		

How to Order

D - M9 N V L - 588

Auto switch part no. ●

Wiring and output ●

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

Electrical entry direction ●

—	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

● ATEX category 3

* This category 3 type auto switch can only be used in zones 2 and 22.

Connector Specifications

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



ATEX Compliant

2-Colour Solid State Switch/Direct Mounting D-M9NW(V)·D-M9PW(V)·D-M9BW(V)-588



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

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 VDC relay, PLC	
Power supply	5/12/24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28V)	
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 VDC				0.8 mA or less	
Indicator light	Operating position Red LED illuminates. Optimum operating position Green LED illuminates.					
Standard	CE marking (EMC directive/RoHS directive)					

Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Using flexible cable as standard spec.



Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Sheath	Outside diameter [mm]	2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	0.88		
Conductor	Cross section [mm ²]	0.15		
	Strand diameter [mm]	0.05		
Minimum bending radius [mm] (Reference)		17		

Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

How to Order

D - M9 N W V L - 588

Auto switch part no. ●

Wiring and output ●

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

2 colour display ●

Electrical entry direction ●

—	In-line
V	Perpendicular

Lead wire length ●

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

● ATEX category 3

* This category 3 type auto switch can only be used in zones 2 and 22.

Connector Specifications

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



ATEX Compliant

Solid State Switch/Band Mounting D-H7A2-588



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Grommet



Auto Switch Specifications

PLC: Programmable Logic Controller

D-H7 A2 (With indicator light)	
Auto switch part no.	D-H7A2
Wiring type	3-wire
Output type	PNP
Applicable load	IC circuit/Relay/PLC
Power supply	5/12/24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load current	80 mA or less
Internal voltage drop	0.8 V or less
Leakage current	100 μA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.
Standard	CE marking (EMC directive/RoHS directive)

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-H7A2
Sheath	Outside diameter [mm]	∅ 3.4
	Number of cores	3 cores (Brown/Blue/Black)
Insulator	Outside diameter [mm]	∅ 1.1
	Cross section [mm ²]	0.2
Conductor	Strand diameter [mm]	∅ 0.08
	Minimum bending radius [mm] (Reference)	21

How to Order

D-H7A2 **-588**

Auto switch part no.

• **ATEX category 3**

* This category 3 type auto switch can only be used in zones 2 and 22.

Lead wire length

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

Connector Specifications

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

ATEX Compliant

Solid State Switch/Rail Mounting D-F7P(V)-588



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
 II 3D Ex tc IIIC T93°C Dc IP67

Grommet



Auto Switch Specifications

PLC: Programmable Logic Controller

D-F7P, D-F7PV (With indicator light)		
Auto switch part no.	D-F7P	D-F7PV
Wiring type	3-wire	
Output type	PNP	
Applicable load	IC circuit/Relay/PLC	
Power supply	5/12/24 VDC (4.5 to 28 VDC)	
Current consumption	10 mA or less	
Load current	80 mA or less	
Internal voltage drop	0.8 V or less	
Leakage current	100 μA or less at 24 VDC	
Indicator light	Red LED illuminates when turned ON.	
Standard	CE marking (EMC directive/RoHS directive)	

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F7P(V)
Sheath	Outside diameter [mm]	Ø 3.4
	Number of cores	3 cores (Brown/Blue/Black)
Insulator	Outside diameter [mm]	Ø 1.1
	Cross section [mm ²]	0.2
Conductor	Strand diameter [mm]	Ø 0.08
	Minimum bending radius [mm] (Reference)	21

How to Order

D-F7P **-588**

Auto switch part no. ●

Electrical entry direction ●

—	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

● **ATEX category 3**

* This category 3 type auto switch can only be used in zones 2 and 22.

Connector Specifications

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

ATEX Compliant

Solid State Switch/Tie-rod Mounting D-F5P-588



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Grommet



Auto Switch Specifications

PLC: Programmable Logic Controller

D-F5P (With indicator light)	
Auto switch part no.	D-F5P
Wiring type	3-wire
Output type	PNP
Applicable load	IC circuit/Relay/PLC
Power supply	5/12/24 VDC (4.5 to 28 VDC)
Current consumption	10 mA or less
Load current	80 mA or less
Internal voltage drop	0.8 V or less
Leakage current	100 μA or less at 24 VDC
Indicator light	Red LED illuminates when turned ON.
Standard	CE marking (EMC directive/RoHS directive)

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-F5P
Sheath	Outside diameter [mm]	∅ 4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	∅ 1.22
Conductor	Cross section [mm ²]	0.3
	Strand diameter [mm]	∅ 0.08
Minimum bending radius [mm] (Reference)		24

How to Order

D-F5P **-588**

Auto switch part no.

Lead wire length

• **ATEX category 3**

* This category 3 type auto switch can only be used in zones 2 and 22.

—	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



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
 II 3D Ex tc IIIC T93°C Dc IP67

Auto Switch Specifications

PLC: Programmable Logic Controller

D-Y7P/D-Y7PV (With indicator light)		
Auto switch part no.	D-Y7P	D-Y7PV
Electrical entry direction	In-line	Perpendicular
Wiring type	3-wire	
Output type	PNP	
Applicable load	IC circuit/Relay/PLC	
Power supply	5/12/24 VDC (4.5 to 28 VDC)	
Current consumption	10 mA or less	
Load current	80 mA or less	
Internal voltage drop	0.8 V or less	
Leakage current	100 µA or less at 24 VDC	
Indicator light	Red LED illuminates when turned ON.	
Standard	CE marking (EMC directive/RoHS directive)	

Grommet



Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-Y7P(V)
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 ²]	0.15
	Strand diameter [mm]	Ø 0.05
Minimum bending radius [mm] (Reference)		21

How to Order

D - Y7P [] [] - 588

Auto switch part no.

Electrical entry direction

—	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	0.5m + M12 - 4 pins pre-wired connector
MDPC	1m + M12 - 4 pins pre-wired connector

• ATEX category 3

* This category 3 type auto switch can only be used in zones 2 and 22.

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



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

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



Auto Switch Specifications

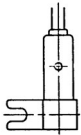
PLC: Programmable Logic Controller

D-S7P1/D-S7P2 (With indicator light)		
Auto switch part no.	D-S7P1	D-S7P2
Wiring type	3-wire	
Output type	PNP	
Applicable load	IC circuit/Relay/PLC	
Power supply	5/12/24 VDC (4.5 to 28 VDC)	
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)	
Leakage current	100 μA or less at 24 VDC	
Indicator light	Red LED illuminates when turned ON.	
Standard	CE marking (EMC directive/RoHS directive)	

Oilproof Heavy-duty Lead Wire Specifications

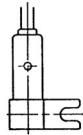
Auto switch model		D-S7P(V)
Sheath	Outside diameter [mm]	Ø 3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	Ø 1.1
Conductor	Cross section [mm ²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

D-S7P2



Left hand mounting

D-S7P1



Right hand mounting

How to Order

D - S7P **- 588**

Auto switch part no.

Mounting

1	Right hand mounting
2	Left hand mounting

ATEX category 3

* This category 3 type auto switch can only be used in zones 2 and 22.

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



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Auto Switch Specifications

PLC: Programmable Logic Controller

D-S9P/D-S9PV (With indicator light)		
Auto switch part no.	D-S9P1 D-S9P2	D-S9PV1 D-S9PV2
Electrical entry direction	In-line	Perpendicular
Wiring type	3-wire	
Output type	PNP	
Applicable load	IC circuit/Relay/PLC	
Power supply	5/12/24 VDC (4.5 to 28 VDC)	
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)	
Leakage current	100 μA or less at 24 VDC	
Indicator light	Red LED illuminates when turned ON.	
Standard	CE marking (EMC directive/RoHS directive)	

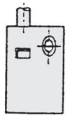
Grommet



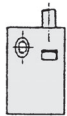
Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-S9P(V)
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 ²]	0.2
	Strand diameter [mm]	Ø 0.08
Minimum bending radius [mm] (Reference)		21

D-S9P2 **D-S9P1**

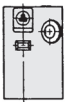


Left-hand
mounting



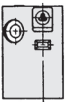
Right-hand
mounting

D-S9PV2



Left-hand
mounting

D-S9PV1



Right-hand
mounting

How to Order

D - S9P [] [] [] - **588**

Auto switch part no. ●

Electrical entry direction ●

—	In-line
V	Perpendicular

Mounting ●

1	Right hand mounting
2	Left hand mounting

Lead wire length ●

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

● **ATEX category 3**

* This category 3 type auto switch can only be used in zones 2 and 22.

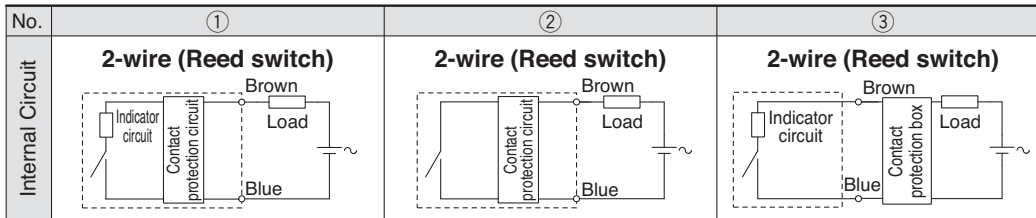
Connector Specifications

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.**

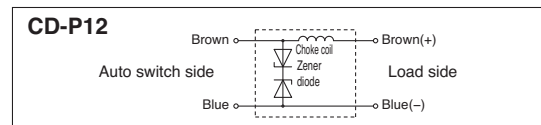
Contact Protection Box Specifications

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

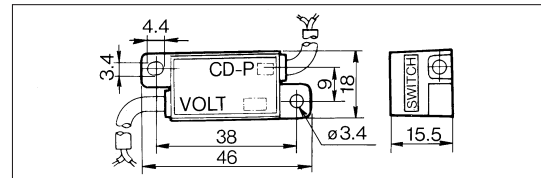


* Lead wire length — Auto switch connection side 0.5 m
Load connection side 0.5 m

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



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Grommet



Auto Switch Specifications

PLC: Programmable Logic Controller

D-C7 (With indicator light)		
Auto switch model number	D-C73	
Applicable load	Relay/PLC	
Load voltage	24 VDC	
Max. load current and range	5 to 40 mA	
Internal circuit *1	②	
Contact protection circuit	None	
Internal voltage drop	2.4 V or less	
Indicator light	Red LED illuminates when turned ON	
Standards	CE marking	
D-C8 (Without indicator light)		
Auto switch model number	D-C80	
Applicable load	Relay/PLC/IC circuit	
Load voltage	24 V ^{AC} _{DC} or less	48 V ^{AC} _{DC}
Max. load current	50 mA	40 mA
Internal circuit *1	③	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

*1 Refer to the applicable internal circuit diagram (numbers ① to ③) on page 112.

Oilproof Heavy-duty Lead Wire Specifications

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

How to Order

D - C - 588

Auto switch model number

73	With indicator light
80	Without indicator light

• ATEX category 3

* This category 3 type auto switch can only be used in zones 2 and 22.

• Lead wire length

—	0.5 m
L	3 m
Z	5 m (Except D-C80)

ATEX Compliant

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



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Auto Switch 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 VDC
Load current range	5 to 40 mA
Internal circuit *1	②
Contact protection circuit	None
Internal voltage drop	2.4 V or less
Indicator light	Red LED illuminates when turned ON
Standard	CE marking

D-A80, D-A80H (Without indicator light)		
Auto switch model number	D-A80/D-A80H	
Applicable load	Relay/IC circuit/PLC	
Load voltage	24 V ^{AC} _{DC} or less	48 V ^{AC} _{DC}
Max. load current	50 mA	40 mA
Internal circuit *1	③	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

*1 Refer to the applicable internal circuit diagram (numbers ① to ③) on page 112.

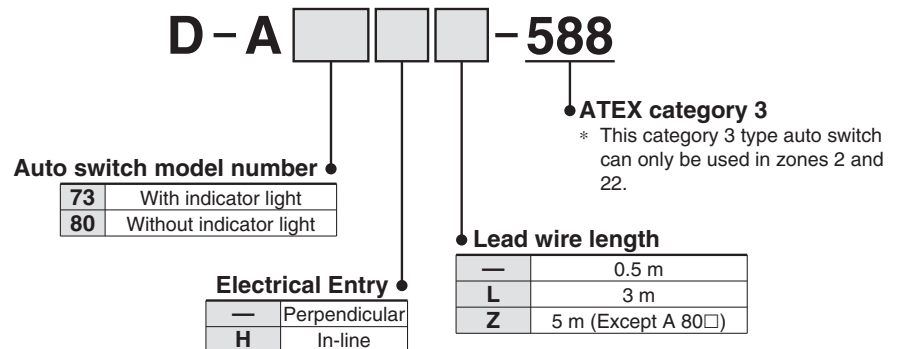
**Grommet
Electrical entry: Perpendicular**



Oilproof Heavy-duty Lead Wire Specifications

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

How to Order



ATEX Compliant

ATEX Compliant Reed Switch/Tie-rod Mounting

D-A54/D-A67-588



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Grommet



Auto Switch Specifications

PLC: Programmable Logic Controller

D-A54 (With indicator light)	
Auto switch model number	D-A54
Applicable load	Relay/PLC
Load voltage	24 VDC
Max. load current and range	5 to 50 mA
Internal circuit *1	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
Standard	CE marking
D-A67 (Without indicator light)	
Auto switch model number	D-A67
Applicable load	PLC/IC circuit
Load voltage	MAX. 24 VDC
Max. load current and range	30 mA
Internal circuit *1	③
Contact protection circuit	None
Internal resistance	1 Ω or less (Including 3 m lead wire)

*1 Refer to the applicable internal circuit diagram (numbers ① to ③) on page 112.

Oilproof Heavy-duty Lead Wire Specifications

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

How to Order

D - A - 588

● **ATEX category 3**

* This category 3 type auto switch can only be used in zones 2 and 22.

● **Auto switch model number**

54	With indicator light
67	Without indicator light

● **Lead wire length**

—	0.5 m
L	3 m
Z	5 m (Except D-A67)

ATEX Compliant

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



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Grommet



Auto Switch Specifications

PLC: Programmable Logic Controller

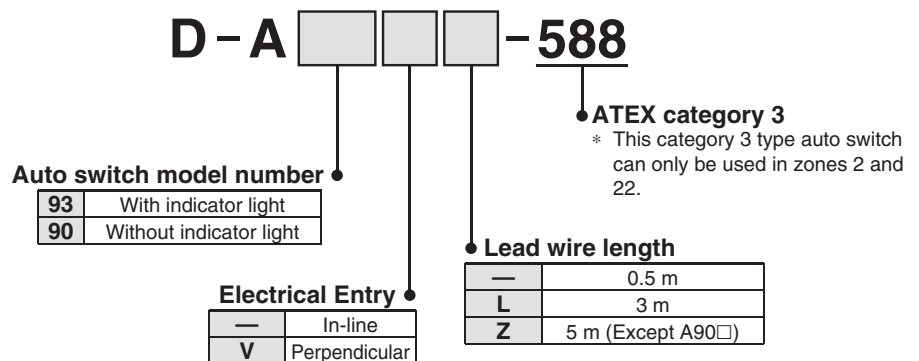
D-A90, D-A90V (Without indicator light)	
Auto switch model number	D-A90/D-A90V
Applicable load	IC circuit/Relay/PLC
Load voltage	24 V _{DC} ^{AC} or less
Max. load current	50 mA
Internal circuit *1	③
Contact protection circuit	None
Internal resistance	1 Ω or less (Including 3 m lead wire)
Standard	CE marking
D-A93, D-A93V (With indicator light)	
Auto switch model number	D-A93/D-A93V
Applicable load	Relay/PLC
Load voltage	24 VDC
Max. load current and load current range	5 to 40 mA
Internal circuit *1	②
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

*1 Refer to the applicable internal circuit diagram (numbers ① to ③) on page 112.

Oilproof Heavy-duty Lead Wire Specifications

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

How to Order



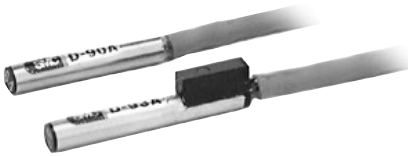
ATEX Compliant

ATEX Compliant Reed Switch/Direct Mounting D-90A/D-93A-588



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Grommet
Lead wire: Heavy-duty cord



Auto Switch Specifications

PLC: Programmable Logic Controller

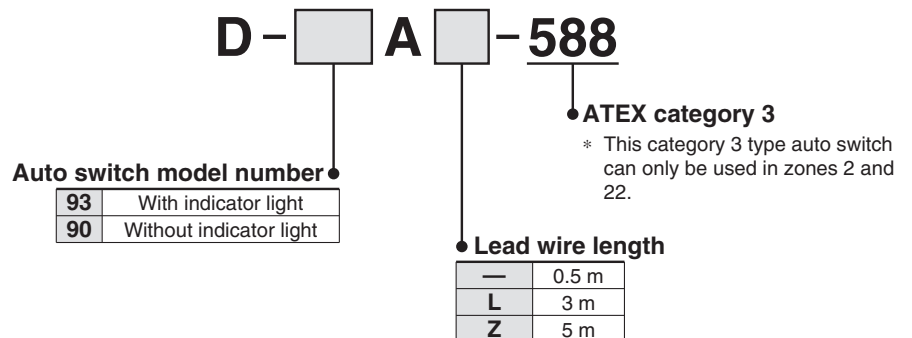
D-90A (Without indicator light)	
Auto switch model number	D-90A
Applicable load	Relay/IC circuit/PLC
Load voltage	24 V ^{AC} DC
Max. load current	50 mA
Internal circuit *1	③
Internal resistance	1 Ω or less (Including 3 m lead wire)
Standard	CE marking
D-93A (With indicator light)	
Auto switch model number	D-93A
Applicable load	Relay/PLC
Load voltage	24 VDC
Load current range	5 to 40 mA
Internal circuit *1	②
Internal voltage drop	2.4V or less
Indicator light	Red LED illuminates when turned ON

*1 Refer to the applicable internal circuit diagram (numbers ① to ③) on page 112.

Oilproof Heavy-duty Lead Wire Specifications

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

How to Order



ATEX Compliant

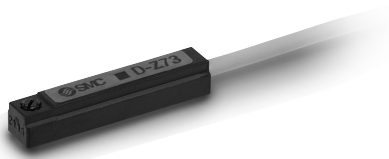
ATEX Compliant Reed Switch/Direct Mounting

D-Z73/D-Z80-588



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

Grommet



Auto Switch Specifications

PLC: Programmable Logic Controller

D-Z73 (With indicator light)	
Auto switch model number	D-Z73
Applicable load	Relay/PLC
Load voltage	24 VDC
Max. load current and range	5 to 40 mA
Internal circuit *1	②
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
Standard	CE marking
D-Z80 (Without indicator light)	
Auto switch model number	D-Z80
Applicable load	Relay/PLC/IC circuit
Load voltage	24 V ^{AC} DC or less 48 V ^{AC} DC
Max. load current	50 mA 40 mA
Internal circuit *1	③
Contact protection circuit	None
Internal resistance	1 Ω or less (Including 3 m lead wire)

*1 Refer to the applicable internal circuit diagram (numbers ① to ③) on page 112.

Oilproof Heavy-duty Lead Wire Specifications

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

How to Order

D - Z **- 588**

• **ATEX category 3**

* This category 3 type auto switch can only be used in zones 2 and 22.

• **Auto switch model number**

73	With indicator light
80	Without indicator light

• **Lead wire length**

—	0.5 m
L	3 m
Z	5 m (Except D-Z80)

ATEX Compliant

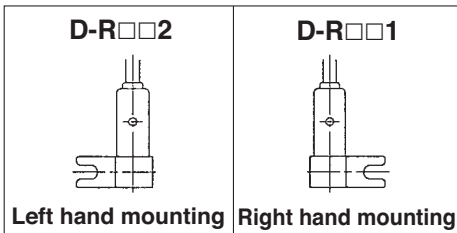
ATEX Compliant Reed Switch/Direct Mounting

D-R73/D-R80-588



II 3G Ex ec IIC T5 Gc -10°C ≤ Ta ≤ +60°C
II 3D Ex tc IIIC T93°C Dc IP67

**Grommet
Electrical entry: In-line**



Auto Switch 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 VDC
Load current range	5 to 40 mA
Internal circuit *1	②
Internal voltage drop	2.4 V or less
Indicator light	Red LED illuminates when turned ON
Standard	CE marking
D-R80□ (Without indicator light)	
Auto switch model number	D-R801/D-R802
Applicable load	Relay/IC circuit/PLC
Load voltage	24 V ^{AC} DC
Max. load current	50 mA
Internal circuit *1	③
Internal resistance	1 Ω or less (Including 3 m lead wire)

*1 Refer to the applicable internal circuit diagram (numbers ① to ③) on page 112.

Oilproof Heavy-duty Lead Wire Specifications

Auto switch type		D-R73□/D-R80□
Sheath	Outside diameter [mm]	∅ 3.4
	Number of cores	2 cores (Brown, Blue)
Insulator	Outside diameter [mm]	∅ 1.1
	Cross section [mm ²]	0.2
Conductor	Strand diameter [mm]	∅ 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
- Mounting**

1	Right hand mounting
2	Left hand mounting
- Lead wire length**

Nil	0.5 m
L	3 m
Z	5 m
- ATEX category 3**
* This category 3 type auto switch can only be used in zones 2 and 22.



ATEX Compliant

Rotary Actuator: Vane Type

Series 55-CRB1/56-CRB1

Sizes: 50, 63, 80, 100

How to Order

CE Ex II 2G Ex h IIC T5..T4 Gb

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

55-CRB1 **B** **W** **80** **90** **S** **□** **□**

ATEX category 2

Mounting

B	Basic type
L*	Foot type

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

Size

50
63
80
100

Thread Port

-	Rc(PT)
XF	G(PF)
XN	NPT

Connecting port position

-	Side ports
E	Axial ports

Table 1: Foot assembly part no.

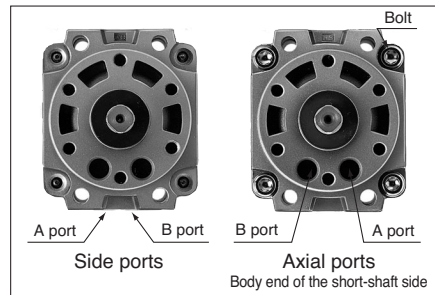
Model	Unit part no.
CRB1LW 50	P411020-5
CRB1LW 63	P411030-5
CRB1LW 80	P411040-5
CRB1LW100	P411050-5

Shaft type

W	Double shaft (long shaft key & four chamfers)
----------	---

Rotation

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



Vane type

S	Single vane
D	Double vane

How to Order

CE Ex II 3G Ex h IIC T6..T4 Gc

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

56-CDRB1 **B** **W** **80** **90** **S** **□** **□**

ATEX category 3

With auto switch unit

-	Without switch unit
D	With switch unit

Mounting

B	Basic type
L*	Foot type

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

Size

50
63
80
100

Thread Port

-	Rc(PT)
XF	G(PF)
XN	NPT

Connecting port position

-	Side ports
E	Axial ports

Table 1: Foot assembly part no.

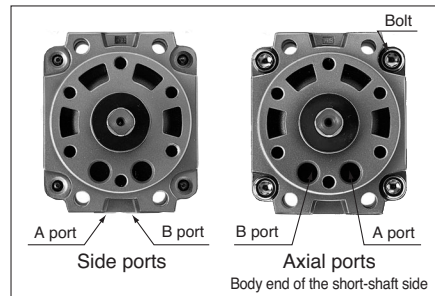
Model	Unit part no.
CRB1LW 50	P411020-5
CRB1LW 63	P411030-5
CRB1LW 80	P411040-5
CRB1LW100	P411050-5

Shaft type

W	Double shaft (long shaft key & four chamfers)
----------	---

Rotation

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



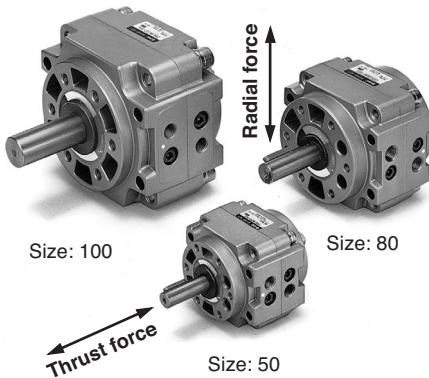
Vane type

S	Single vane
D	Double vane

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

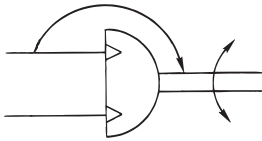
Refer to page 102 for applicable auto switches.

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° ⁺⁴ ₀ , 180° ⁺⁴ ₀ , 270° ⁺⁴ ₀			90° ⁺⁴ ₀				
	Optional	100° ⁺⁴ ₀ , 190° ⁺⁴ ₀ , 280° ⁺⁴ ₀			100° ⁺⁴ ₀				
Fluid	Air (non-lube)								
Proof pressure [MPa]	1.5 MPa								
Ambient and fluid temperature	5 to 60 °C								
Max. operating pressure [MPa]	1.0 MPa								
Min. operating pressure [MPa]	0.15 MPa								
Speed regulation range (sec/90)	0.1 to 1								
Allowable kinetic energy [J]	0.082	0.12	0.398	0.6	0.112	0.16	0.54	0.811	
Shaft load	Allowable radial load [N]	245	390	490	588	245	390	490	588
	Allowable thrust load [N]	196	340	490	539	196	340	490	539
Bearing type	Ball bearing								
Port position	Side ports or axial ports								
Size	Side ports	Rc, NPT, G 1/8	Rc, NPT, G 1/4	Rc, NPT, G 1/8	Rc, NPT, G 1/4	Rc, NPT, G 1/8	Rc, NPT, G 1/4	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	Rc, NPT, G 1/8	Rc, NPT, G 1/4	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 2G Ex h IIC T4..T3 Gb

Standard 55-CRB2 **B** **W** **□** - **180** **S** **E** **Z**

ATEX category 2

Mounting

B	Basic type
F	Flange type

* F: Except size 40

Size

10
15
20
30
40

Connecting port position

—	Side ports
E	Axial ports

Shaft type

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

Vane type

S	Single vane
D	Double vane

Rotation

Symbol	Single vane	Double vane
90	90°	90°
100	—	100°
180	180°	—
270	270°	—

All other specifications are the same as the standard products Series CRB2.

How to Order

II 3G Ex h IIC T5..T4 Gc

Without magnet 56-CRB2 **B** **W** **□** - **180** **S** **E** **Z**

With magnet 56-CDRB2 **B** **W** **□** - **180** **S** **Z**

ATEX category 3

With auto switch unit Built-in magnet

Mounting

B	Basic
F	Flange

* F: Except size 40

Size

10
15
20
30
40

Connecting port position

—	Side ports
E	Axial ports

Vane type

S	Single vane
D	Double vane

Rotation

Symbol	Single vane	Double vane
90	90°	90°
100	—	100°
180	180°	—
270	270°	—

Shaft type

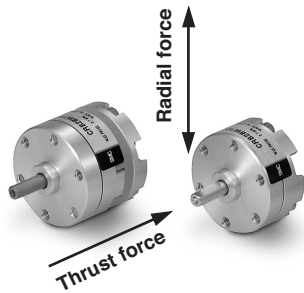
W	Double shaft with single flat (sizes 10 to 30) Long shaft with key, short shaft with single flat (size 40)
S*	Single shaft (Long shaft) with single flat (sizes 10 to 30) Long shaft with key (size 40)

* Cannot be selected when mounting an auto switch

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

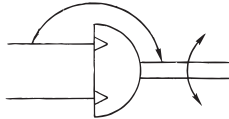
Refer to page 102 for applicable auto switches.

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) ^{Note 2)}	0.03 to 0.3			0.04 to 0.3	0.07 to 0.5	
Allowable kinetic energy [J]	0.00015	0.001	0.003	0.02	0.04	
Shaft load	Allowable radial load [N]	15	15	25	30	60
	Allowable thrust load [N]	10	10	20	25	40
Bearing type	Ball bearing					
Port position	Side ports or axial ports					
Size	Side ports	M5	M3	M5	M3	M5
	Axial ports	M3			M5	
Shaft type	Double shaft (with single flat on both shafts)					Double shaft (Long shaft key & single flat)
Mounting	Basic, Flange				Basic	

Double Vane Specifications

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

* The following notes apply to both Single and Double Vane Specification tables above.

Note 2) Make sure to operate within the speed regulation range.

Exceeding the maximum speed (0.3 sec/90) can cause the unit to stick or not operate.

ATEX Compliant

Rotary Actuator: Free-Mounting Type

Series 55-CRBU2/56-CRBU2

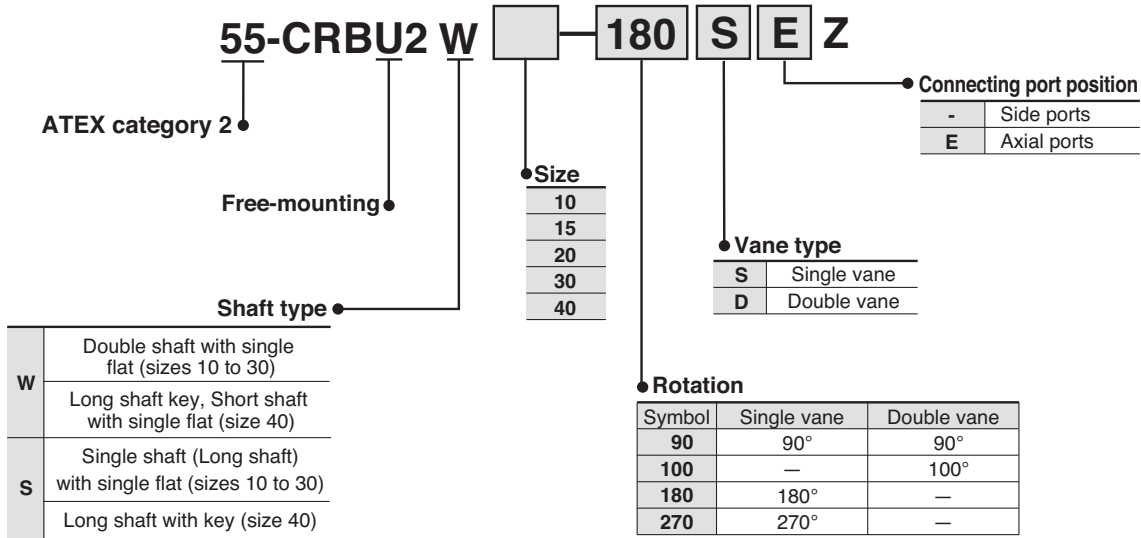
Sizes: 10, 15, 20, 30, 40

How to Order



II 2G Ex h IIC T4..T3 Gb

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

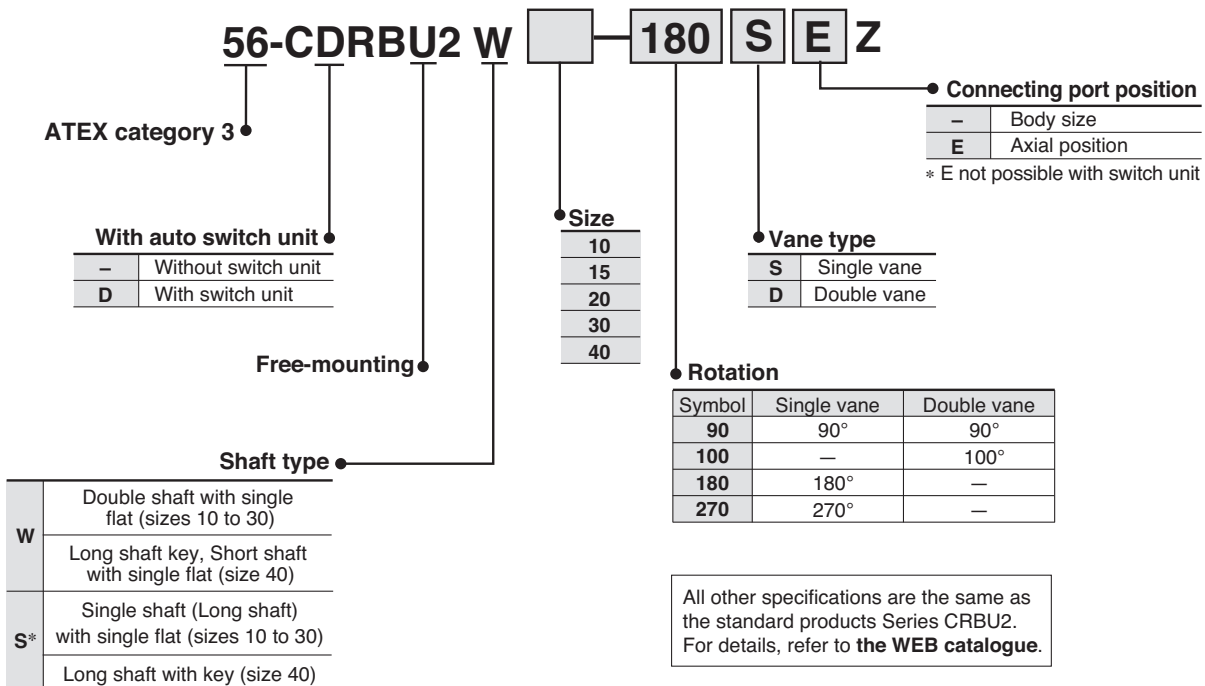


How to Order



II 3G Ex h IIC T5..T4 Gc

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

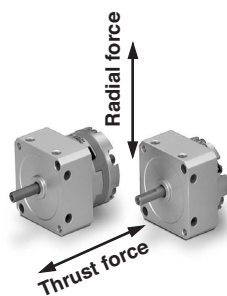


All other specifications are the same as the standard products Series CRBU2. For details, refer to **the WEB catalogue**.

Refer to page 102 for applicable auto switches.

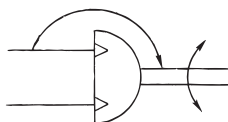
* Cannot be selected when mounting an auto switch

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) ^{Note 1)}	0.03 to 0.3			0.04 to 0.3	0.07 to 0.5
Allowable kinetic energy [J]	0.00015	0.001	0.003	0.02	0.04
Shaft load	Allowable radial load [N]	15	25	30	60
	Allowable thrust load [N]	10	20	25	40
Bearing type	Ball bearing				
Port position	Side ports or axial ports				
Port size	Side ports	M5			
	Axial ports	M3		M5	
Shaft type	Double shaft (Double shaft with single flat on both shafts)				Double shaft (Long shaft key & Single flat)

Double Vane Specifications

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

* The following notes apply to both Single and Double Vane Specification tables above.

Note 1) Make sure to operate within the speed regulation range.

Exceeding the maximum speeds can cause the unit to stick or not operate.

ATEX Compliant

Compact Rotary Actuator: Rack-and-Pinion Type Series 55-CRQ2

CE  II 2G Ex h IIC T6..T5 Gb

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** • **Cushion** • **Rotation** • **Port thread type**

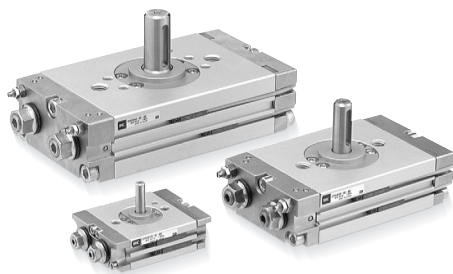
-	None
D	Magnet

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

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

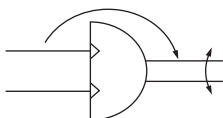
Size	Port thread
10	M5
15	Rc 1/8
20	G 1/8
30	NPT 1/8
40	NPTF 1/8

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



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

JIS symbol



Specifications

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

Allowable Kinetic Energy and Rotation Time Adjustment Range

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

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

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

Refer to page 102 for applicable auto switches.



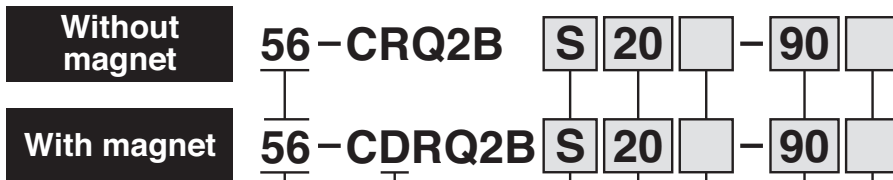
ATEX Compliant

Compact Rotary Actuator: Rack-and-Pinion Type Series 56-CRQ2

CE II 3G Ex h IIC T6..T6 Gc

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



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

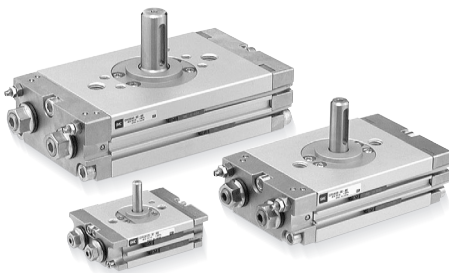
Size	Port thread	
10, 15	—	M5
	—	Rc 1/8
20, 30, 40	TF	G 1/8
	TN	NPT 1/8
	TT	NPTF 1/8

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°

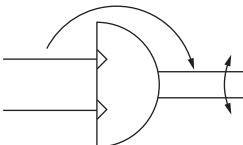


Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

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 102 for applicable auto switches.

ATEX Compliant

Booster Regulator Series 56-VBA10A to 43A

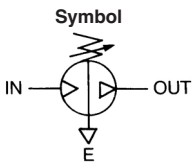
CE  II 3G Ex h IIB T6 Gc
II 3D Ex h IIIC T71°C Dc

 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** -



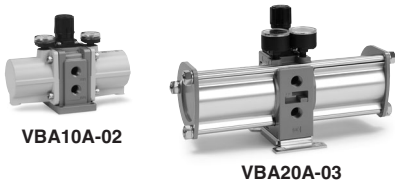
• ATEX category 3

• Body size

• Semi-standard

Symbol	Specifications
—	Standard product
Z	Pressure unit on the product name label: psi Pressure unit on the pressure gauge: MPa and psi

Body size	Pressure increase ratio
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
22A	3/8, Air-operated type
42A	1/2, Air-operated type
43A	1/2, Max. operating pressure 1.6 Mpa



• Thread type ^{Note)}

Symbol	Thread type
—	Rc
F	G
N	NPT
T	NPTF

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



• Options

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

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

• 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 ^{Note 1)}			Air-operated		Handle-operated with relief mechanism ^{Note 1)}	
Max. flow rate ^{Note 2)} [l/min (ANR)]	230	1000	1900	1000	1900	1600	70
Set pressure range [MPa]	0.2 to 2.0	0.2 to 1.0		0.2 to 1.0		0.2 to 1.6	0.2 to 2.0
Supply pressure range [MPa]	0.1 to 1.0						
Proof pressure [MPa]	3	1.5		1.5		2.4	3
Port size (IN/OUT/EXH: 3 locations) [Rc]	1/4	3/8	1/2	3/8	1/2	1/2	1/4
Pressure gauge port size (IN/OUT: 2 locations) [Rc]	1/8	1/8	1/8	1/8	1/8	1/8	1/16
Ambient and fluid temperature [°C]	2 to 50 (No freezing)						
Installation	Horizontal						
Lubrication	Grease (Non-lube)						
Weight [kg]	0.84	3.9	8.6	3.9	8.6	8.6	0.98

Note 1) If the OUT pressure is higher than the set pressure by the handle, excessive pressure is exhausted from the back of the handle.

Note 2) Flow rate at IN= OUT= 0.5 MPa. The pressure varies depending on the operating conditions.

Options/Part No.

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

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

Note 1) In the case of option GN, two pressure gauges and one silencer are included as accessories.

Note 2) KT-VBA22A-7N, KT-VBA22A-8N are pressure gauges with fittings. (Please order two units when using with IN and OUT.)

Note 3) Under the new measurement law, the pressure unit of "psi" on the pressure gauges cannot be used in Japan.

Note 4) Pressure unit of pressure gauge: psi

Note 5) Pressure unit of pressure gauge: MPa.

ATEX Compliant

Digital Pressure Switch for Air

Series 56-ISE70

II 3G Ex ec IIC T5 Gc 0°C ≤ Ta ≤ 50°C
II 3D Ex tC IIIC T53°C Dc IP67



How to Order

1MPa **56-ISE70-02-43-M**

ATEX category 3

Piping specifications

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

Output specifications

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

Unit specifications

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

Option 2

—	None
A	With bracket

Option 1

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

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-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 catalogue**.

ATEX Compliant

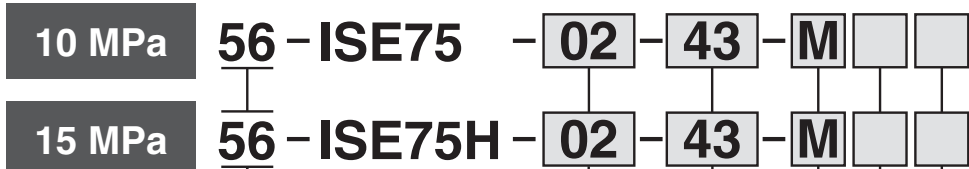
Digital Pressure Switch for General Fluids

Series 56-ISE75/75H

II 3G Ex ec IIC T4 Gc -5°C ≤ Ta ≤ 50°C
II 3D Ex tc IIIC T54°C Dc IP67



How to Order



ATEX category 3

Piping specifications

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

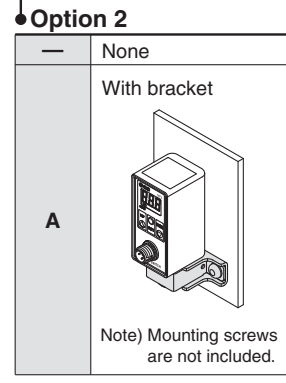
Output specifications

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

Unit specifications

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

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



Option 1

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

Specifications

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

Follow the instructions given below when handling the pressure switch.

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

All other specifications are the same as the standard products Series ISE75/ISE75H. For details, refer to **the WEB catalogue**.



ATEX Compliant

Pressure Switch/Reed Switch Type

Series 56-IS10



II 3G Ex h ec IIB T5 Gc -5°C ≤ Ta ≤ +60°C
II 3D Ex h tc IIIB T90°C Dc

How to Order



	Symbol	Description	
1	—	R	
	N	NPT	
+			
2	—	None	
	S	With seal	
+			
3	a	—	0.1 to 0.4 MPa
		6 ^{Note 1)}	0.1 to 0.6 MPa
	+		
	b	—	0.5 m
		L	3 m
		Z	5 m
+			
c	—	MPa	
	P ^{Note 1)}	Both MPa and psi	

Semi-standard: Select one option each in a through c. Place them in alphanumerical order.

Example) 56-IS10-N01-6PZ

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.)

Specifications

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

Switch Characteristics

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

All other specifications are the same as the standard products Series IS10.

Pressure Switch for series AC-D

Pressure Switch

56-IS10M-30- -D

• ATEX category 3 ① ②



Body type: Standard
(56-IS10M-□□-D)

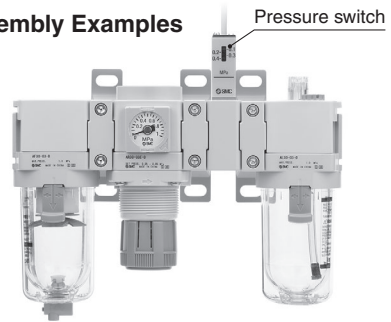
Body type: Slim
(56-IS10M-□□-1-D)



· Semi-standard: Select one each for **a** to **d**.
· Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) 56-IS10M-30-6LP-D

		Symbol	Description	①					
				Body size [Applicable AC size]					
				20 [AC20]	30 [AC30]	40 [AC40]	50 [AC40-06]	60 [AC50, AC60]	
②	a	Set pressure range	—	0.1 to 0.4 MPa	●	●	●	●	●
			6*1	0.1 to 0.6 MPa	○	○	○	○	○
			+						
	b	Lead wire length	—	0.5 m	●	●	●	●	●
			L	3 m	●	●	●	●	●
			Z	5 m	●	●	●	●	●
			+						
	c	Pressure unit of the scale plate	—	MPa	●	●	●	●	●
			P*2	MPa/psi dual scale	○	○	○	○	○
			+						
d	Body type	—	Standard	●	●	●	●	●	
		1	Slim	●	●	●	●	●	

Assembly Examples



●: Without restrictions
○: With restrictions (Refer to *1 and *2.)

*1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
*2 This product is for overseas use only according to the New Measurement Act.
(The SI unit type is provided for use in Japan.)

Caution on Mounting

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

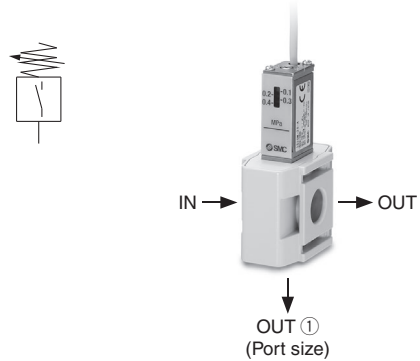
Pressure Switch for Series AC-D

Pressure Switch with T-Spacer

56-IS10T-**30**-**03**-**03**-**D**

① ② ③ ④

• ATEX category 3

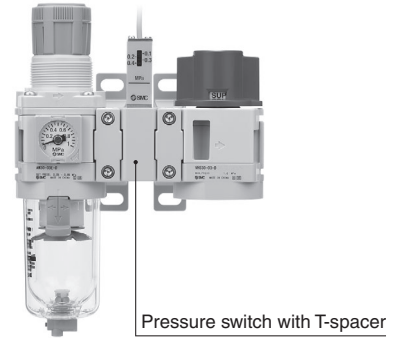


· Semi-standard: Select one each for **a** to **c**.
 · Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
 Example) 56-IS10T-30-N03-6LP-D

		Symbol	Description	①						
				Body size [Applicable AC size]						
				20	30	40	50	60		
				[AC20]	[AC30]	[AC40]	[AC40-06]	[AC50, AC60]		
②	Pipe thread type	—	Rc	●	●	●	●	●		
		N	NPT	●	●	●	●	●		
		F	G	●	●	●	●	●		
③	Port size (OUT①)	+								
		01	1/8	●	●	—	—	—		
		02	1/4	●	●	●	●	—		
		03	3/8	—	●	●	●	●		
		04	1/2	—	—	●	●	●		
④	Semi-standard	+								
		a	Set pressure range	—	0.1 to 0.4 MPa	●	●	●	●	●
			6*1	0.1 to 0.6 MPa	○	○	○	○	○	
		b	Lead wire length	+						
				—	0.5 m	●	●	●	●	●
L	3 m			●	●	●	●	●		
Z	5 m	●	●	●	●	●				
c	Pressure unit of the scale plate	—	MPa	●	●	●	●	●		
		P*2	MPa/psi dual scale	○	○	○	○	○		

	Port size
IN	—
OUT	—
OUT ①	③

Assembly Examples



●: Without restrictions
 ○: With restrictions (Refer to *1 and *2.)

*1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
 *2 For the pipe thread type: NPT only
 This product is for overseas use only according to the New Measurement Act.
 (The SI unit type is provided for use in Japan.)

Caution on Mounting

- Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
- The backflow of oil may occur when a spacer is used on the inlet side of the lubricator. Attach a check valve between the lubricator and the product to prevent backflow.

Pressure Switch for Series AC-D

Pressure Switch with L-Shaped Piping Adapter

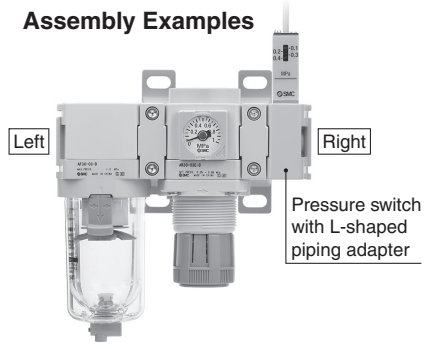
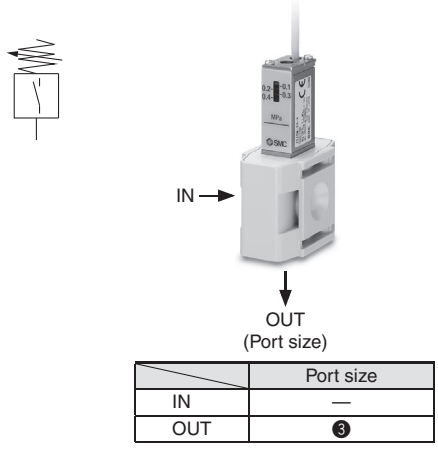
56-IS10L-30-□-03-□-D

● ATEX category 3
①
②
③
④

· Semi-standard: Select one each for a to d.
· Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) 56-IS10L-30-N03-6LP-D

		Symbol	Description	①					
				Body size [Applicable AC size]					
				20 [AC20]	30 [AC30]	40 [AC40]	50 [AC40-06]	60 [AC50, AC60]	
②	Pipe thread type	—	Rc	●	●	●	●	●	
		N	NPT	●	●	●	●	●	
		F	G	●	●	●	●	●	
+									
③	Port size (OUT)	01	1/8	●	●	—	—	—	
		02	1/4	●	●	●	—	—	
		03	3/8	—	●	●	—	—	
		04	1/2	—	—	●	●	●	
		06	3/4	—	—	—	●	●	
		10	1	—	—	—	—	●	
+									
④	a	Set pressure range	—	0.1 to 0.4 MPa	●	●	●	●	●
		6*1	0.1 to 0.6 MPa	○	○	○	○	○	
	+								
	b	Lead wire length	—	0.5 m	●	●	●	●	●
			L	3 m	●	●	●	●	●
			Z	5 m	●	●	●	●	●
	+								
	c	Pressure unit of the scale plate	—	MPa	●	●	●	●	●
			P*2	MPa/psi dual scale	○	○	○	○	○
	+								
	d	Mounting position	—	Right	●	●	●	●	●
			R	Left	●	●	●	●	●

*1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
*2 For the pipe thread type: NPT only
This product is for overseas use only according to the New Measurement Act.
(The SI unit type is provided for use in Japan.)



Caution on Mounting

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

Pressure Switch for Series AC-D

Pressure Switch with Piping Adapter

56-IS10E-30-□-03-□-D

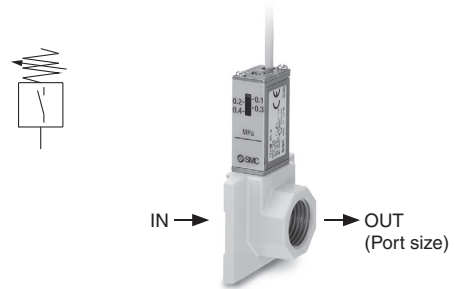
● ATEX category 3
①
②
③
④

· Semi-standard: Select one each for **a** to **d**.
 · Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
 Example) 56-IS10E-30-N03-6LP-D

		Symbol	Description	①					
				Body size [Applicable AC size]					
				20	30	40	50	60	
				[AC20]	[AC30]	[AC40]	[AC40-06]	[AC50, AC60]	
②	Pipe thread type	—	Rc	●	●	●	●	●	
		N	NPT	●	●	●	●	●	
		F	G	●	●	●	●	●	
③	Port size (OUT)	+							
		01	1/8	●	—	—	—	—	
		02	1/4	●	●	●	—	—	
		03	3/8	●	●	●	—	—	
		04	1/2	—	●	●	—	—	
		06	3/4	—	—	●	●	●	
④	a	Set pressure range	—	0.1 to 0.4 MPa	●	●	●	●	●
			6*1	0.1 to 0.6 MPa	○	○	○	○	○
	b	Lead wire length	+						
			—	0.5 m	●	●	●	●	●
			L	3 m	●	●	●	●	●
	Z	5 m	●	●	●	●	●		
c	Pressure unit of the scale plate	—	MPa	●	●	●	●	●	
		P*2	MPa/psi dual scale	○	○	○	○	○	
d	Mounting position	—	Right	●	●	●	●	●	
		R	Left	●	●	●	●	●	

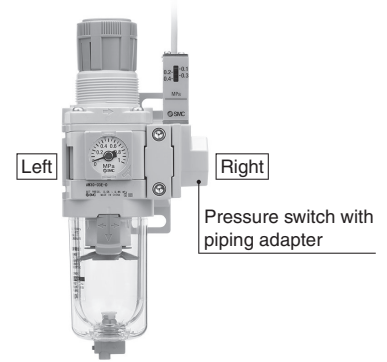
●: Without restrictions
 ○: With restrictions (Refer to *1 and *2.)

*1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
 *2 For the pipe thread type: NPT only
 This product is for overseas use only according to the New Measurement Act.
 (The SI unit type is provided for use in Japan.)



		Port size
IN		—
OUT		③

Assembly Examples




Caution on Mounting

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

ATEX Compliant

ATEX Compliant 2 Port Steam Valve Series 56-VND

CE  II3G Ex h IIB T3 Gc
-5°C ≤ Ta ≤ +60°C

How to Order

Body option

-	Standard (Copper alloy)
S*	Stainless steel body

* Threaded type only

Thread type

-	Rc
F	G
N	NPT
T	NPTF

Air operated **ATEX category 3**

56-VND 2 0 D S - 15A -

Valve size **Valve type** **Port size** **Option**

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

-	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

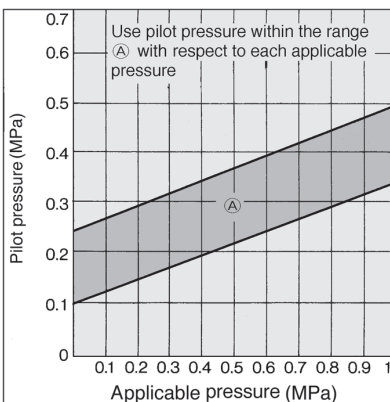
Valve size	Valve type	
	N.C. Normally closed	N.O. Normally open
56-VND1		
56-VND 2 3 4 5 6 7		

Model


Model	Port size		Orifice dia. Ø (mm)	Flow characteristics Av x 10 ⁻⁶ m ²	Mass (kg)
	Rc	Flange (Note)			
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	—		380	
56-VND50□D-32A	1 1/4	—	32	440	2.3
56-VND50□D-32F	—	32		5.5	
56-VND60□D-40A	1 1/2	—	40	920	3.6
56-VND60□D-40F	—	40		7.2	
56-VND70□D-50A	2	—	50	1500	5.7
56-VND70□D-50F	—	50		10.8	

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

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




Valve Specifications

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

Note 1) No freezing

ATEX Compliant

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

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

How to Order

Valve

VCC1 **2** - **00**

● **Passage number**

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

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

● **Port size**

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

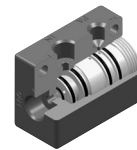
Note) Part number for sub-base
For 2 port: VCC12-S-⁰² [Rc 1/4] / ^{02F} [G 1/4]
For 3 port: VCC13-S-⁰² [Rc 1/4] / ^{02F} [G 1/4]



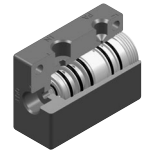
VCC12(D)-00



VCC13-00



VCC12(D)-02(F)



VCC13-02(F)

Manifold

Standard

VV **M** **CC1** - **06** **06** **C4**

● **Type (Passage number)**

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

● **Pilot port fitting size**

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

● **2 port valve mountable number**

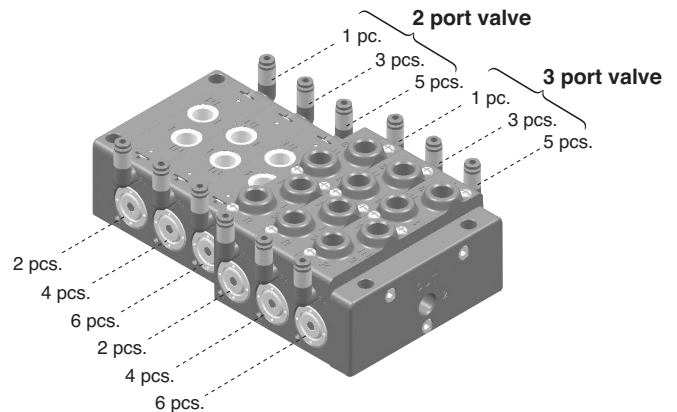
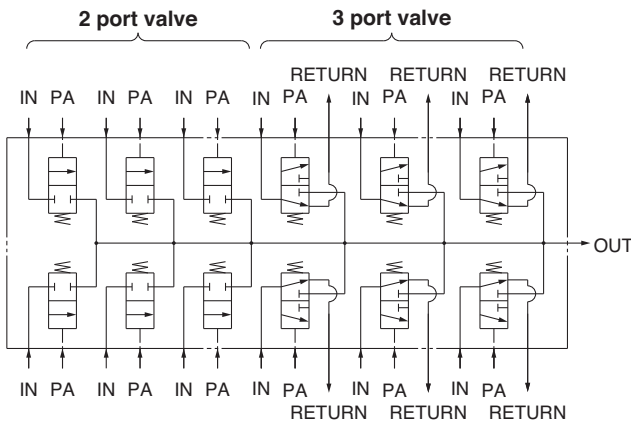
00	No 2 port valves used
02	2 pcs. (colours)
04	4 pcs. (colours)
⋮	⋮

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

● **3 port valve mountable number**

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

Circuit example



How to Order

Manifold

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

Passage number

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

2 port valve mountable number

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

3 port valve mountable number

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

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

Gate valve and cleaning valve mountable number

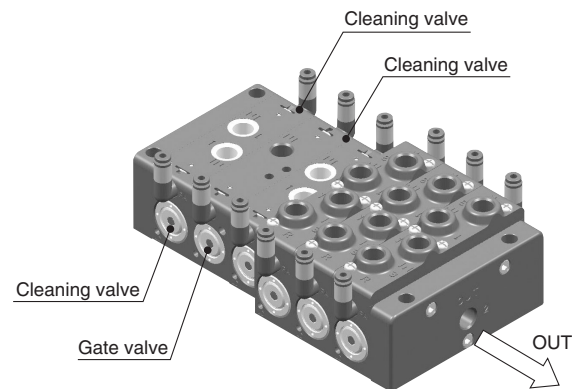
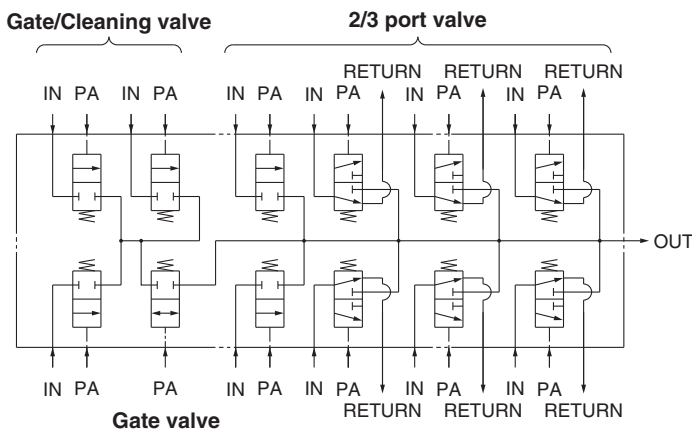
02	Cleaning valve (2 port valve): 1 pc. + Gate valve: 1 pc.
04	Cleaning valve (2 port valve): 3 pcs. + Gate valve: 1 pc.
06	Cleaning valve (2 port valve): 5 pcs. + Gate valve: 1 pc.

Pilot port fitting size

C4	Ø 4 one-touch fitting (Antistatic)
C6	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

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

Port size

02F	G 1/4
-----	-------

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

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

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



Option

Blanking Plug Assembly

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



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

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

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

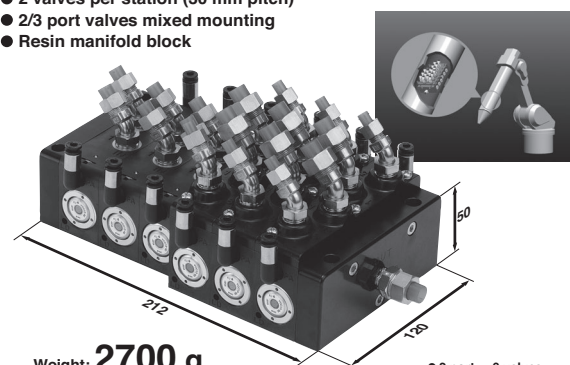
SUS316L Stainless Steel Fitting Specifications

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

Weight

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

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



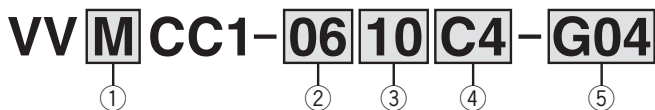
Weight: **2700 g**
ATEX Explosion protection

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

Manifold Specifications

Series VCC

1. How to Order a Manifold



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

① Type (Passage number)

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

② 2 port valve mountable number Note 1)

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

④ Pilot port fitting size

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

③ 3 port valve mountable number Note 1)

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

⑤ Gate valve and cleaning valve mountable number Note 1)

-	Without gate valve <small>Note 3)</small>
G02	Cleaning valve: 1 pc. + Gate valve: 1 pc.
G04	Cleaning valve: 3 pcs. + Gate valve: 1 pc.
G06	Cleaning valve: 5 pcs. + Gate valve: 1 pc.

Note 1) Two valves can be installed per manifold block. Total valve number must be an even number.

Note 2) Maximum valve number is forty (40) valves (colours) by a total of ② + ③ + ⑤.

Note 3) When "Without gate valve" is selected, use 2 port valve of ② as a cleaning valve.

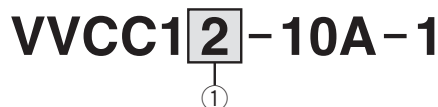
2. How to Order a Valve



① Type (Passage number)

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

3. How to Order the Blanking Plug

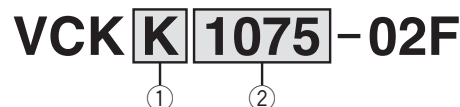


① Type (Passage number)

2	For 2 port valves
3	For 3 port valves

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

4. How to Order the SUS316L Stainless Steel Fitting

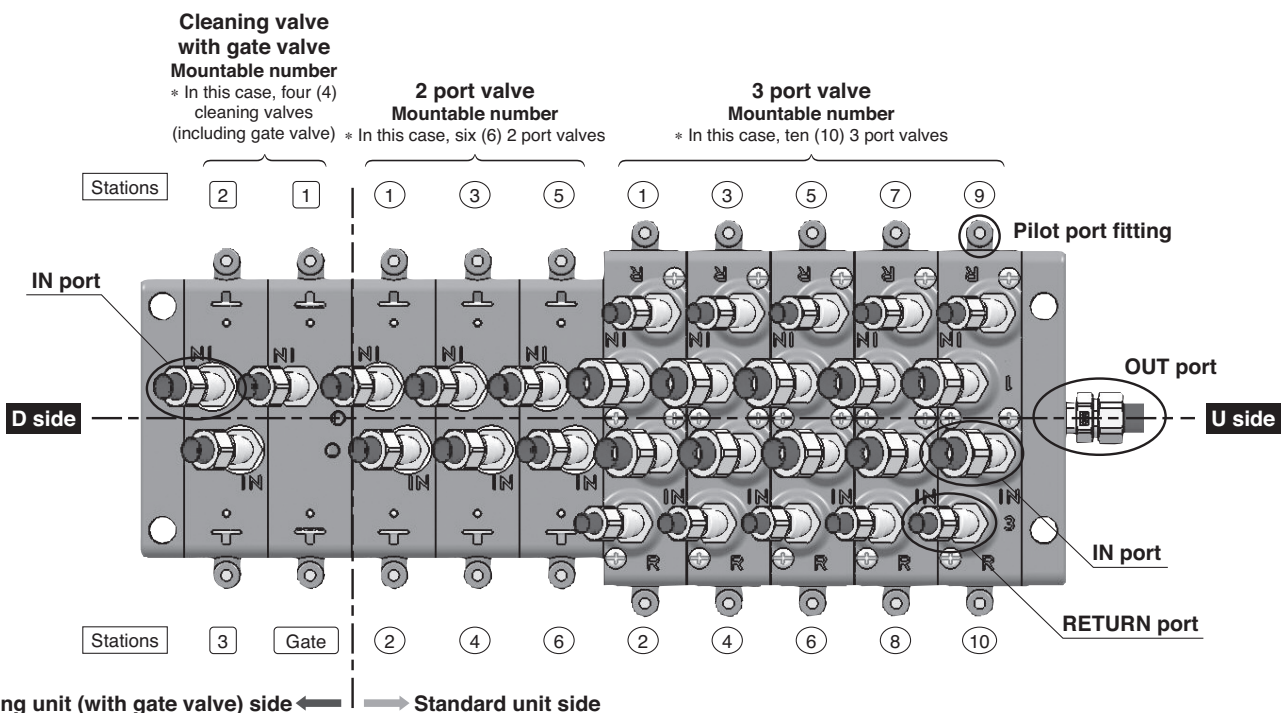


① Type (Shape)

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

② Piping port

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



ATEX Compliant

High Purity Chemical Valve Series 55-LVA



55-LVA10 and 55-LVA12
II2G Ex h IIB T5..T4 Gb
0°C ≤ Ta ≤ +60°C

55-LVA2□, 55-LVA3□, 55-LVA4□, 55-LVA5□,
55-LVA6□ and 55-LVA200
II2G Ex h IIB T5..T4 Gb
II2D Ex h IIB T85..T125°C Db
0°C ≤ Ta ≤ +60°C

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										
			55-LVA10		55-LVA20		55-LVA30		55-LVA40		55-LVA50		55-LVA60
			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
			Body material (Note 1)										
			Stainless steel (SUS316)										
			PPS										
			PFA										
			Valve type										
			N.C.										
			N.O.										
			Double acting										
Basic type			N.C.										
			N.O.										
			Double acting										
With flow rate adjustment			N.C.										
			Double acting										
With by-pass			N.C.										
			Double acting										
With flow rate adjustment & by-pass			N.C.										
			Double acting										
With indicator			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	$Av \times 10^{-6}m^2$	1.7	8.4	40.8	79.2	144	192
	Cv	0.07	0.35	1.7	3.3	6	8
Withstand pressure [MPa]	1						
Operating pressure [MPa]	0 to 0.5				0 to 0.4		
Back pressure [MPa]	N.C./N.O. ^{Note 2)}	0.15 or less	0.3 or less		0.2 or less		
	Double acting	0.3 or less	0.4 or less		0.3 or less		
Valve leakage [cm ³ /min]	0 (with water pressure)						
Pilot air pressure [MPa]	0.3 to 0.5						
Pilot port size	M5 X 0.8		Rc 1/8, NPT 1/8, G 1/8				
Fluid temperature [°C]	Temperature class T6	0 to 50					
	Temperature class TX	0 to 100 ^{Note 1)}					
Ambient temperature [°C]	Temperature class T6	0 to 50					
	Temperature class TX	0 to 60					
Weight [kg]	Stainless steel (SUS)	0.12	0.18	0.44	0.86	1.67	1.96
	PPS	0.05	0.08	0.18	0.32	—	—
	PFA	—	0.09	0.20	0.35	—	—

Note 1) 0 to 60 °C when the diaphragm is NBR or EPR.

Note 2) The N.O. type is not available for 55-LVA10.

Note 3) Contact SMC if the valve will be used with vacuum and B → A flow.

Piping

⚠ Caution

1. Avoid using metal fittings with a resin body (taper threads).

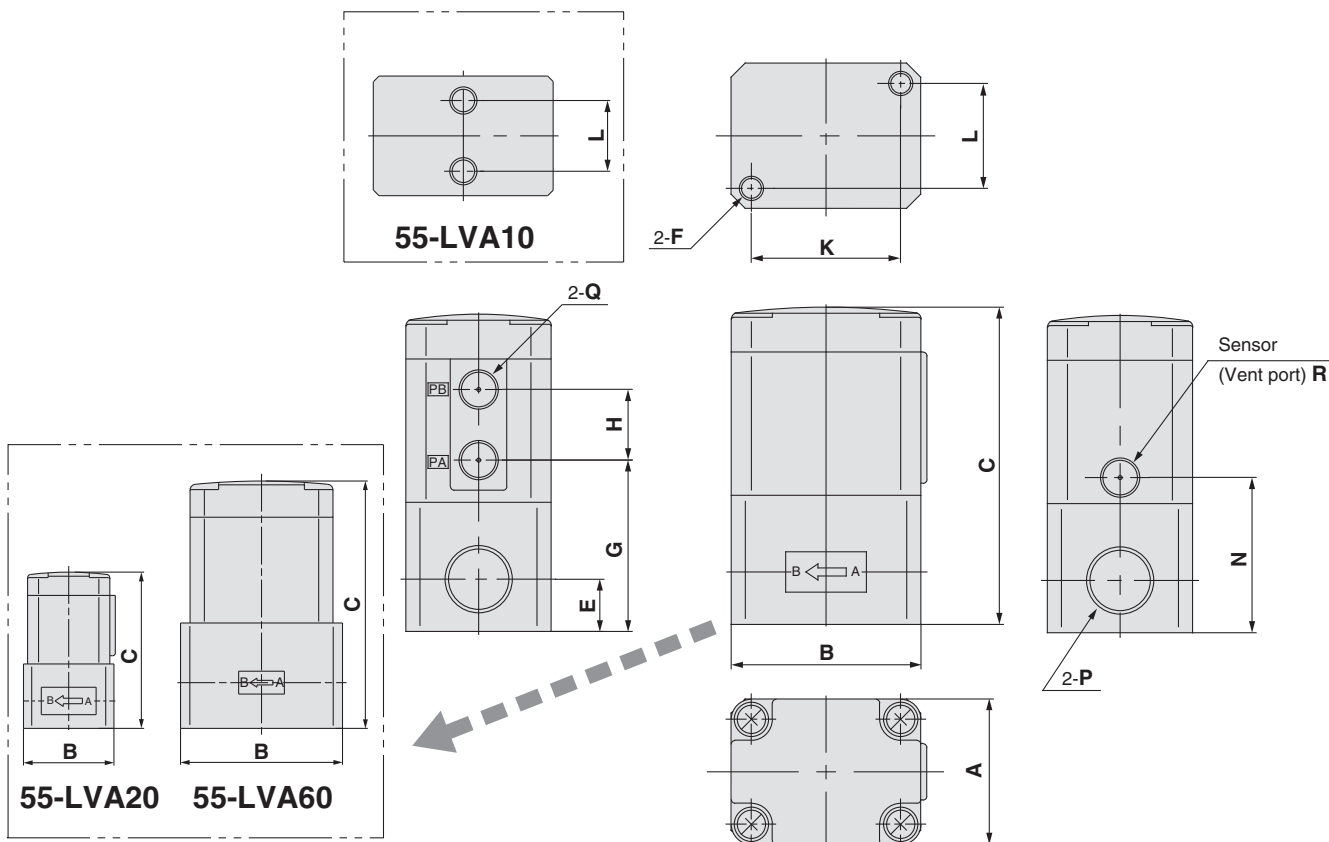
This can cause damage to the valve body.

Series 55-LVA

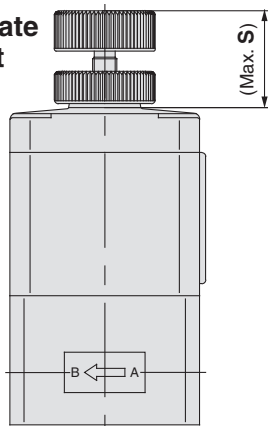
Dimensions

Body material: Stainless steel

Basic type



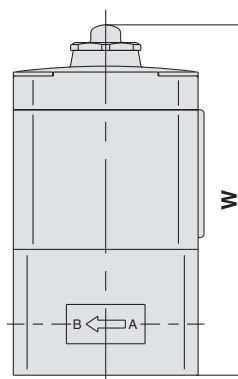
With flow rate adjustment



Dimensions (mm)

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

With indicator



Dimensions (mm)

Model	W
55-LVA20	63.7
55-LVA30	89.1
55-LVA40	109.9
55-LVA50	140.5
55-LVA60	147.8

Dimensions

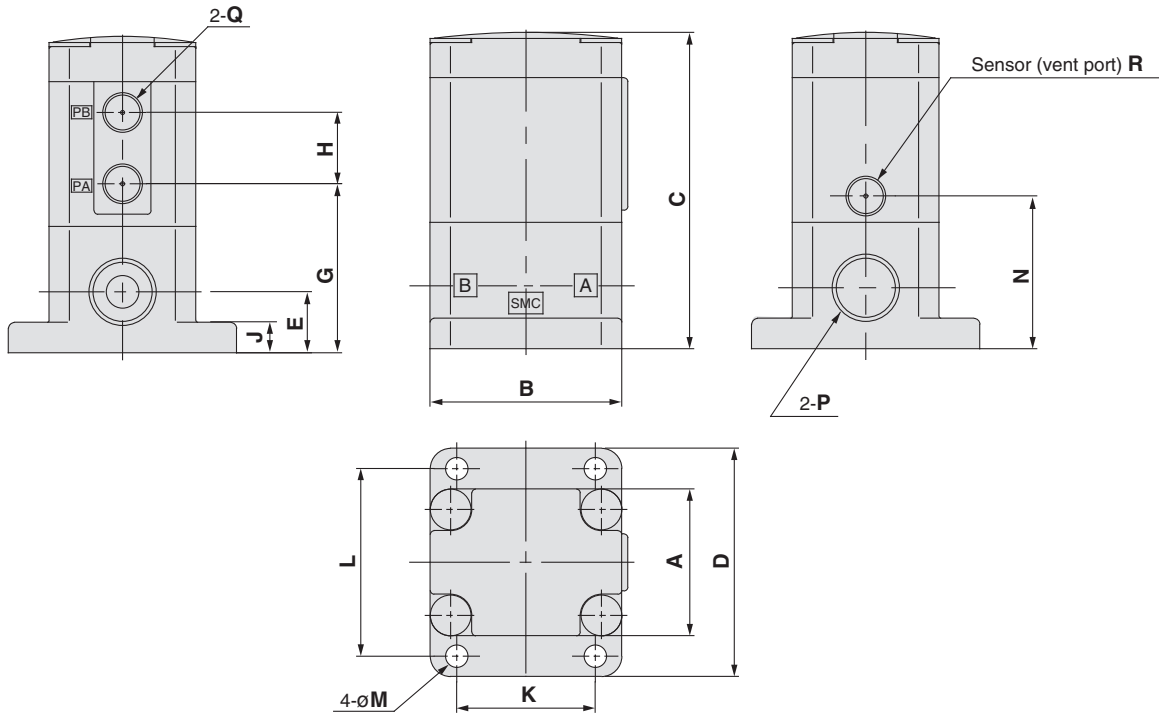
(mm)

Model	A	B	C	E	F	G	H	K	L	N	P	Q	R
55-LVA1□	20	33	49.5	10	M5 X 0.8 X 4	27.5	11	—	13	27.5	Rc 1/8, 1/4 NPT 1/8, 1/4 G 1/8, 1/4	M5 X 0.8	Ø 4.2
55-LVA2□	30	33	57	10	M X 0.8 X 5	31	13	22	22	26			M3 x 0.5
55-LVA3□	36	47	78.6	13	M6 X 1.0 X 8	42.5	17.5	37	26	38.5	Rc 1/4, 3/8 NPT 1/4, 3/8 G 1/4, 3/8		
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	Rc 1/8 NPT 1/8 G 1/8	Rc 1/8 NPT 1/8 G 1/8
55-LVA5□	58	75	122.5	19	M8 X 1.25 X 10	61.5	27.5	60	43	55.5	Rc 1/2, 3/4 NPT 1/2, 3/4 G 1/2, 3/4		
55-LVA6□	58	85	129.8	24	M8 X 1.25 X 10	69	27.5	60	43	62.8	Rc 1 NPT 1 G1		

Dimensions

Body material: PPS

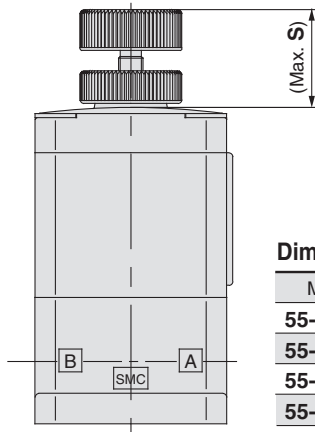
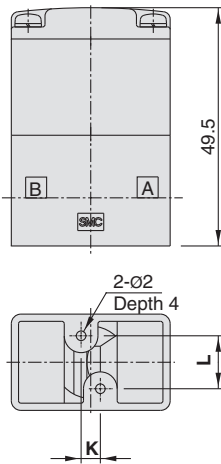
Basic type



55-LVA10

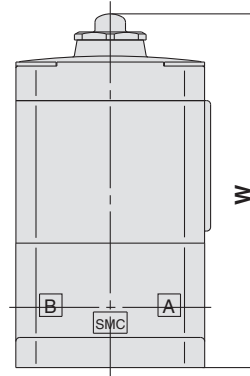
With flow rate adjustment

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)

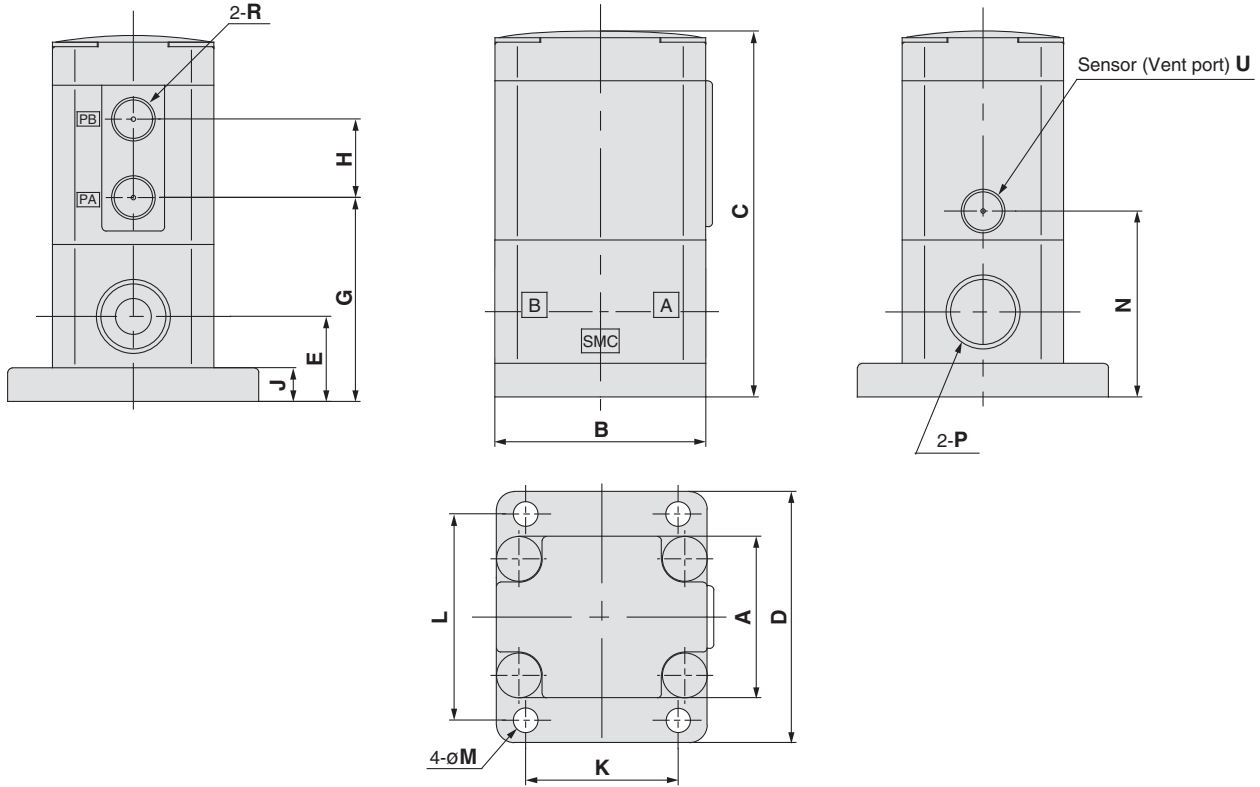
Model	A	B	C	D	E	G	H	J	K	L	M	N	O	P	Q	R
55-LVA1□	20	33	49.5	—	10	27.5	11	—	4	11	—	27.5	—	Rc 1/8, 1/4 NPT 1/8, 1/4 G 1/8, 1/4	M5 X 0.8	Ø 4.2
55-LVA20	30	36	54.7	44	11	32	—	4	20	37	3.5	27	14.8	Rc 1/4 NPT 1/4 G 1/4	Rc 1/8 NPT 1/8 G 1/8	Ø 2.4
55-LVA2 ₁ 2	30	36	57.5	44	11	31.5	13	4	20	37	3.5	26.5	—	Rc 1/2 NPT 1/2 G 1/2	M5 X 0.8	M3 X 0.5
55-LVA3□	36	47	77.6	56	15	41.5	17.5	7.5	34	46	5.5	37.5	—	Rc 3/8 NPT 3/8 G 3/8	Rc 1/8 NPT 1/8 G 1/8	Rc 1/8 NPT 1/8 G 1/8
55-LVA4□	46	60	95.9	68	22	55	18	8	42	57	5.5	48	—	Rc 1/2 NPT 1/2 G 1/2	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

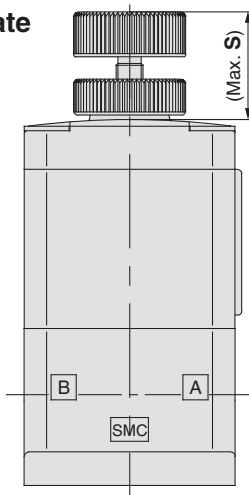
Dimensions

Body material: PFA

Basic type



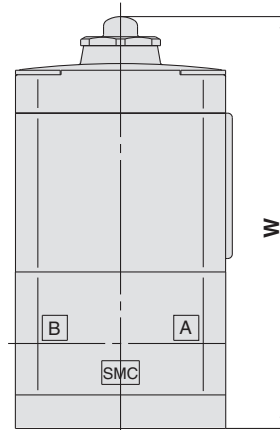
With flow rate adjustment



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
II2G Ex h IIB T5..T4 Gb
0°C ≤ Ta ≤ +60°C

55-LVA2□, 55-LVA3□, 55-LVA4□, 55-LVA5□,
55-LVA6□ and 55-LVA200
II2G Ex h IIB T5..T4 Gb
II2D Ex h IIIB T85..T125°C Db
0°C ≤ Ta ≤ +60°C

Note) The manifold type is not available with ATEX certification



Standard Specifications

Model		55-LVA200
Orifice diameter		Ø 4
Port size		1/4
Flow characteristics	Av x 10 ⁻⁶ m ²	7.2
	Cv	0.3
Withstand pressure [MPa]		1
Operating pressure [MPa]		0 to 0.5
Valve leakage [cm ³ /min]		0 (with water pressure)
Pilot air pressure [MPa]		0.4 to 0.5
Pilot port size		M5 X 0.8
Max. operating frequency [Hz]		1.0
Fluid temperature [°C]	Temperature class T6	0 to +50
	Temperature class TX	0 to +100
Ambient temperature [°C]	Temperature class T6	0 to +50
	Temperature class TX	0 to +60
Weight [kg]		0.162

How to Order Valve

55-LVA 2 0 0 - 02 □ - C

Body class

Symbol	Body class	Orifice dia.
2	2	Ø 4

Valve type

0	N.C.
---	------

Thread type

Symbol	Thread type
-	Rc
N	NPT

Port size

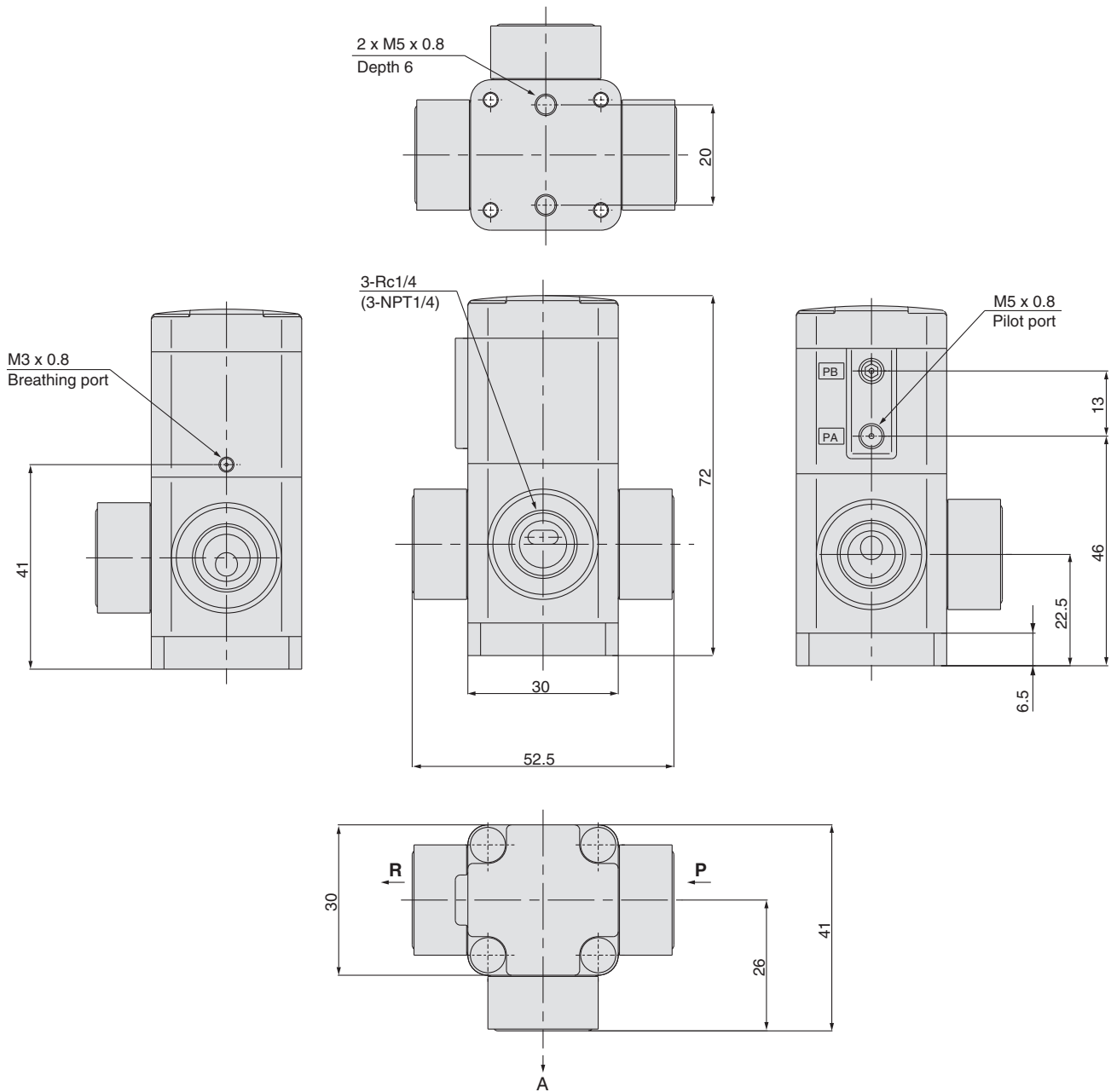
Symbol	Port size
02	1/4

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: II2G Ex h IIB T6 Gb
II2D Ex h IIIB T68°C Db
For 55-PA3□□3: II2G Ex h IIB T5 Gb
II2D Ex h IIIB T89°C Db
For 55-PA5□□0: II2G Ex h IIB T6 Gb
II2D Ex h IIIB T68°C Db
For 55-PA5□□3: II2G Ex h IIB T6 Gb
II2D Ex h IIIB T78°C Db
0°C ≤ Ta ≤ +60°C

How to Order

55-PA 3 1 1 0 - 03 -

ATEX category 2

Body size

Symbol	Body size
3	3/8 standard
5	1/2 standard

Liquid contact body material

Symbol	Body material
1	ADC12 (Aluminum)
2	SCS14 (Stainless steel)

Diaphragm material

Symbol	Diaphragm material	Applicable actuation	
		Automatically operated type	Air operated type
1	PTFE	●	●
2	NBR	●	—

* Dimensions are the same as the standard products.

Actuation

Symbol	Actuation
0	Automatically operated type
3	Air operated type

Options

Symbol	Options	Applicable actuation	
		Automatically operated type	Air operated type
—	None	●	●
N	With silencer	●	—

* A silencer of 2504-002 (NPT: 2504-N002) is provided.

Port size

Symbol	Port size	Applicable model	
		PA3000	PA5000
03	3/8"	●	—
04	1/2"	—	●
06	3/4"	—	●

Thread type

Symbol	Type
—	Rc
N	NPT
F	G
T	NPTF

All other specifications are the same as the standard products Series PA3000/5000.
For details, refer to the **WEB catalogue**.



ATEX Compliant Process Pump

Automatically operated type (Internal switching type)/ Air operated type (External switching type)

Series 56-PA3000/5000

CE	Ex	For 56-PA3□□0: II3G Ex h IIB T6 Gc II3D Ex h IIIB T68°C Dc
		For 56-PA3□□3: II3G Ex h IIB T5 Gc II3D Ex h IIIB T89°C Dc
		For 56-PA5 ₁ □0: II3G Ex h IIB T6 Gc II3D Ex h IIIB T68°C Dc
		For 56-PA5 ₁ □3: II3G Ex h IIB T6 Gc II3D Ex h IIIB T78°C Dc
		For 56-PA501□: II3G Ex h IIB T6 Gc II3D Ex h IIIB T78°C Dc
		0°C ≤ Ta ≤ +60°C

How to Order

● Fluid contact body material: Aluminum, Stainless steel

56-PA 3 1 1 0 - 03 -

ATEX category 3

Symbol	Body size
3	3/8 standard
5	1/2 standard

Body size

Symbol	Body material
1	ADC12 (Aluminum)
2	SCS14 (Stainless steel)

Liquid contact body material

Symbol	Diaphragm material	Automatically operated type	Air operated type
1	PTFE	●	●
2	NBR	●	—

Diaphragm material

Symbol	Options	Automatically operated type	Air operated type
—	None	●	●
N	With silencer	●	—

Options

Symbol	Port size	PA3000	PA5000
03	3/8"	●	—
04	1/2"	—	●
06	3/4"	—	●

Port size

Symbol	Type
—	Rc
N	NPT
F	G
T	NPTF

Thread type

Symbol	Actuation
0	Automatically operated type
3	Air operated type

Actuation

* Dimensions are the same as the standard products.

● Fluid contact body material: Polypropylene

56-PA 5 0 1 0 - 04 -

ATEX category 3

Symbol	Body size
5	1/2 standard

Body size

Symbol	Fluid contact body material
0	PP (Polypropylene)

Fluid contact body material

Symbol	Diaphragm material	Automatically operated	Air operated
1	PTFE	●	●

Diaphragm material

Symbol	Option	Automatically operated	Air operated
—	None	●	●
N	With silencer*1	●	—

Option

*1 For AIR EXH: AN20-□02
(For thread types, leave the □ box blank or enter N.)

Symbol	Port size
04	1/2"
06	3/4"

Port size

Symbol	Type
—	Rc
N	NPT
F	G

Thread type

Symbol	Actuation
0	Automatically operated
3	Air operated

Actuation


All other specifications are the same as the standard products Series PA3000/5000.


ATEX Compliant

Pneumatic-Pneumatic Positioner

Series 55/56-IP5000 (Lever type)

Series 55/56-IP5100 (Rotary type)

CE  II 2G Ex h IIC T6..T4 Gb
II 2D Ex h IIIC T65°C..T105°C Db

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

Note) For temperature classification, refer to the specifications.

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

Specifications

Classification	Ambient temperature range		
	Low temperature 55-IP5□□0-□□□L□-□	Standard 55-IP5□□0-□□□□-□	High temperature 55-IP5□□0-□□□T□-□
II 2GD Ex h IIC T4 Gb Ex h IIIC T105°C Db	-	-	-5°C ≤ Ta ≤ 100°C
II 2GD Ex h IIC T6 Gb Ex h IIIC T65°C..T85°C Db	-30°C ≤ Ta ≤ 60°C	-20°C ≤ Ta ≤ 80°C	-5°C ≤ Ta ≤ 80°C

All other specifications are the same as the standard products Series IP5000/5100.
[Click here](#) for details.

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

Item	Type	55/56-IP5000		55/56-IP5100	
		Lever type lever feedback		Rotary type cam feedback	
		Single action	Double action	Single action	Double action
Supply pressure		0.14~0.7 MPa			
Input pressure		0.02~0.1 MPa			
Standard stroke		10~85mm		60~100	
Sensitivity		Within 0.1 % F.S.		Within 0.5 % F.S.	
Linearity		Within ±1 % F.S.		Within ±2 % F.S.	
Hysteresis		Within 0.75 % F.S.		Within 1 % F.S.	
Repeatability		Within 0.5 % F.S.			
Output flow rate		80 l/min (ANR) or more (SUP.=0.14 MPa)			
		200 l/min (ANR) or more (SUP.=0.4 MPa)			
Air consumption		Within 5 l/min (ANR) (SUP.=0.14 MPa)			
		Within 11 l/min (ANR) (SUP.=0.4 MPa)			
Ambient and using fluid Temperature		-20 °C~80 °C (Standard model) -30 °C~60 °C (Low Temp.) -5 °C~100 °C (High Temp.)			
Thermal coefficient		Within 0.1 % F.S./C			
Air connection port		Rc 1/4 (Standard)			
Material		Aluminium diecast, Stainless steel, Brass, Nitrile rubber			
Mass		Approx. 1.4 kg		Approx. 1.2 kg	
Size		118 x 102 x 86 (Body)		118 x 92 x 77.5 (Body)	


Note) Standard air temperature: 20, Absolute pressure: 101.3 kPa.
Relative humidity: 65 %

Electro-Pneumatic Positioner

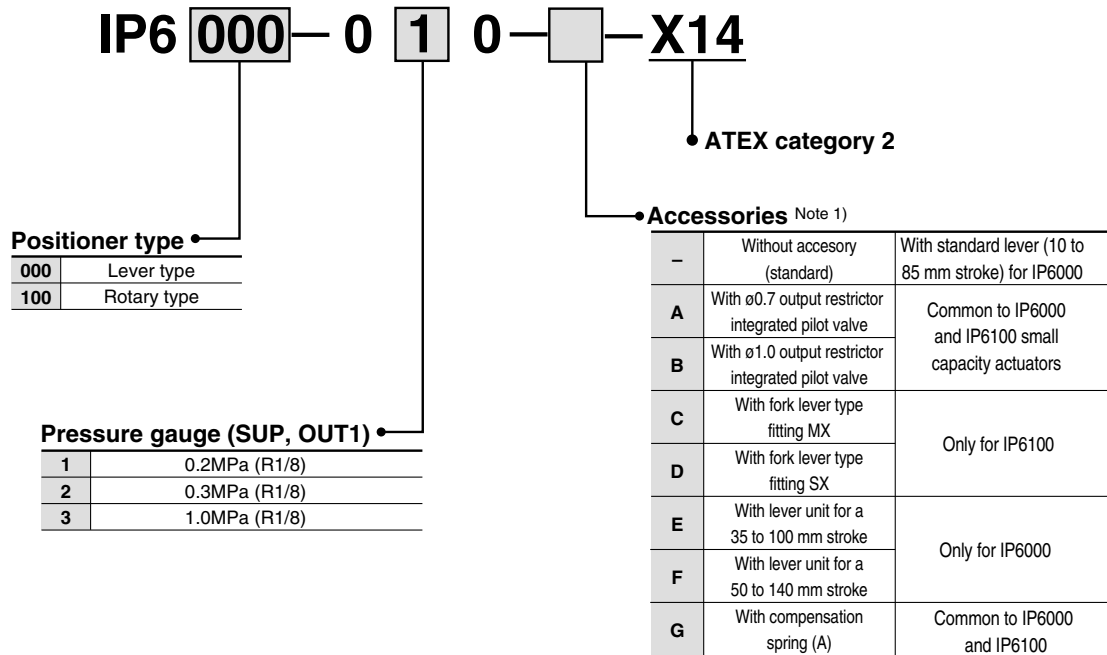
Series IP6000 (Lever type)

Series IP6100 (Rotary type)

CE  II 2G Ex ib IIC T5/T6



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

How to Order



Note 1) If multiple accessories are required, they should be indicated in alphabetical order.

Specifications

Item	Type	IP6000		IP6100		
		Lever type lever		Rotary type cam		
		Single action	Double action	Single action	Double action	
Input current	4~20mADC (Standard) <small>Note1</small>					
Input resistance	235 ± 15Ω (4~20mADC)					
Supply air pressure	0.14~0.7Mpa					
Standard stroke	10~85mm (External lever allowable runout angle 10°~30°)		60°~100° <small>Note2</small>			
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.					
Thermal coefficient	Within 0.1%F.S./°C					
Output flow rate	80 l/min (ANR) or more (SUP.=0.14MPa) <small>Note3</small>					
Air consumption	Within 5 l/min (ANR) (SUP.=0.4MPa)					
Ambient and using fluid	-20°C~80°C (T5)					
Temperature	-20°C~60°C (T6)					
Explosion protected Construction	Intrinsic safety type of explosion protection ( 0344 ) II 2G Ex ib IIC T5/T6 Approval No. KEMA No.03 ATEX1119					
Air connection port	1/4NPT female screw					
Electric wiring connection port	M20 x 1.5					
Material	Aluminium diecast for the body					
Mass	Approx. 2.4kg					
Classification of degree of protection	JISF8007 IP55 (Conform to IEC 60529)					
Parameters (Current circuit)	Ui ≤ 28V, Ii ≤ 125mA, Pi ≤ 1.2W, Ci ≤ OnF, Li ≤ OmH					

Note 1) 1/2 split range is possible with the standard type (by adjusting the span).

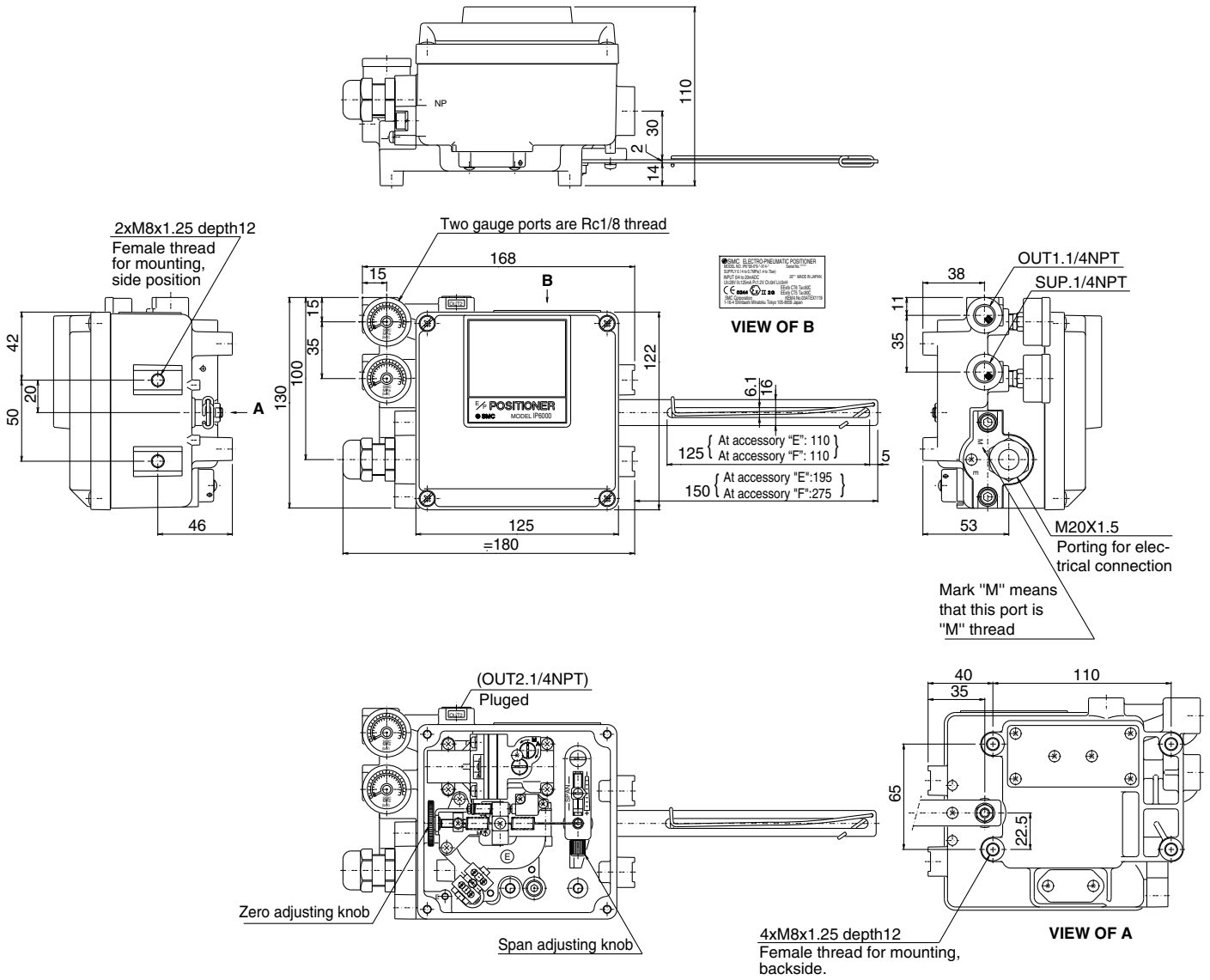
Note 2) The stroke is adjustable in 0~60 and 0~100.

Note 3) Standard air (JIS B0120): temp. 20°C, absolute press. 760mmHg, ratio humidity 65%.

Series IP6000/6100

Dimensions / IP6000


IP6000-0□0-□-X14 (lever type)




ATEX Compliant

Electro-Pneumatic Positioner

Series IP8000 (Lever type)
Series IP8100 (Rotary type)

 II 2G Ex ib IIC T5..T6 Gb

 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
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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 cm³-capacity actuator.
"B" is applied to approx 180 cm³-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

Classification	Ambient temperature range	
	IP8□00-X14/X14-W	IP8□00-X14-L
II 2G Ex h ib IIC T5 Gb	-20°C ≤ Ta ≤ +80°C	—
II 2G Ex h ib IIC T6 Gb	-20°C ≤ Ta ≤ +60°C	-40°C ≤ Ta ≤ +60°C

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)

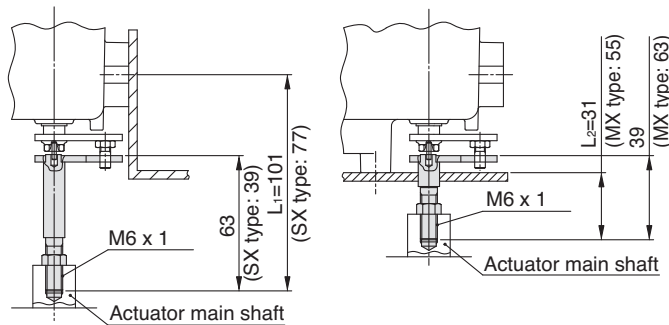
Actuator Capacity	Orifice size	Part number	Pilot unit part number
90 cm ³	Ø 0.7	P36801080	P565010-18
180 cm ³	Ø 1	P36801081	P565010-19

Fork lever joints (IP8100 type)

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

This is recommended because it can absorb off-centering, compared with direct mounting type.

Part name	Part number
Fork lever assembly MX	P368010-36
Fork lever assembly SX	P368010-37



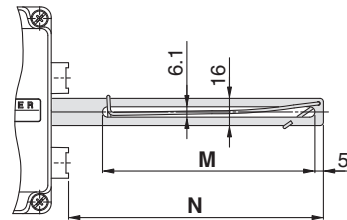
Side mounting with the fork lever assembly MX

Rear mounting with the fork lever assembly SX

External feedback lever (IP8000 type)

Different feedback levers are available dependent upon valve strokes. Consult with SMC in case of 10 mm or less stroke.

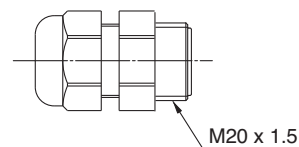
Stroke	Unit number	Size M	Size N
10 to 85 mm (standard)	P368010-20	125	150
35 to 100 mm (Accessory "E")	P368010-21	110	195
50 to 140 mm (Accessory "F")	P368010-22	110	275



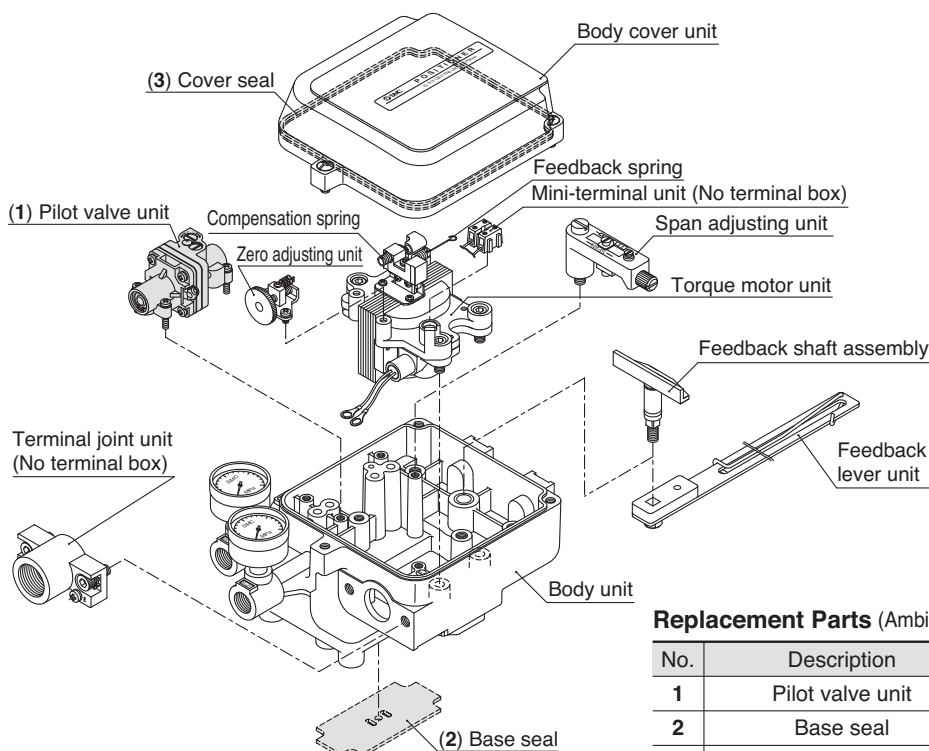
Cable gland (for -X14)

Cable gland

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



Exploded View



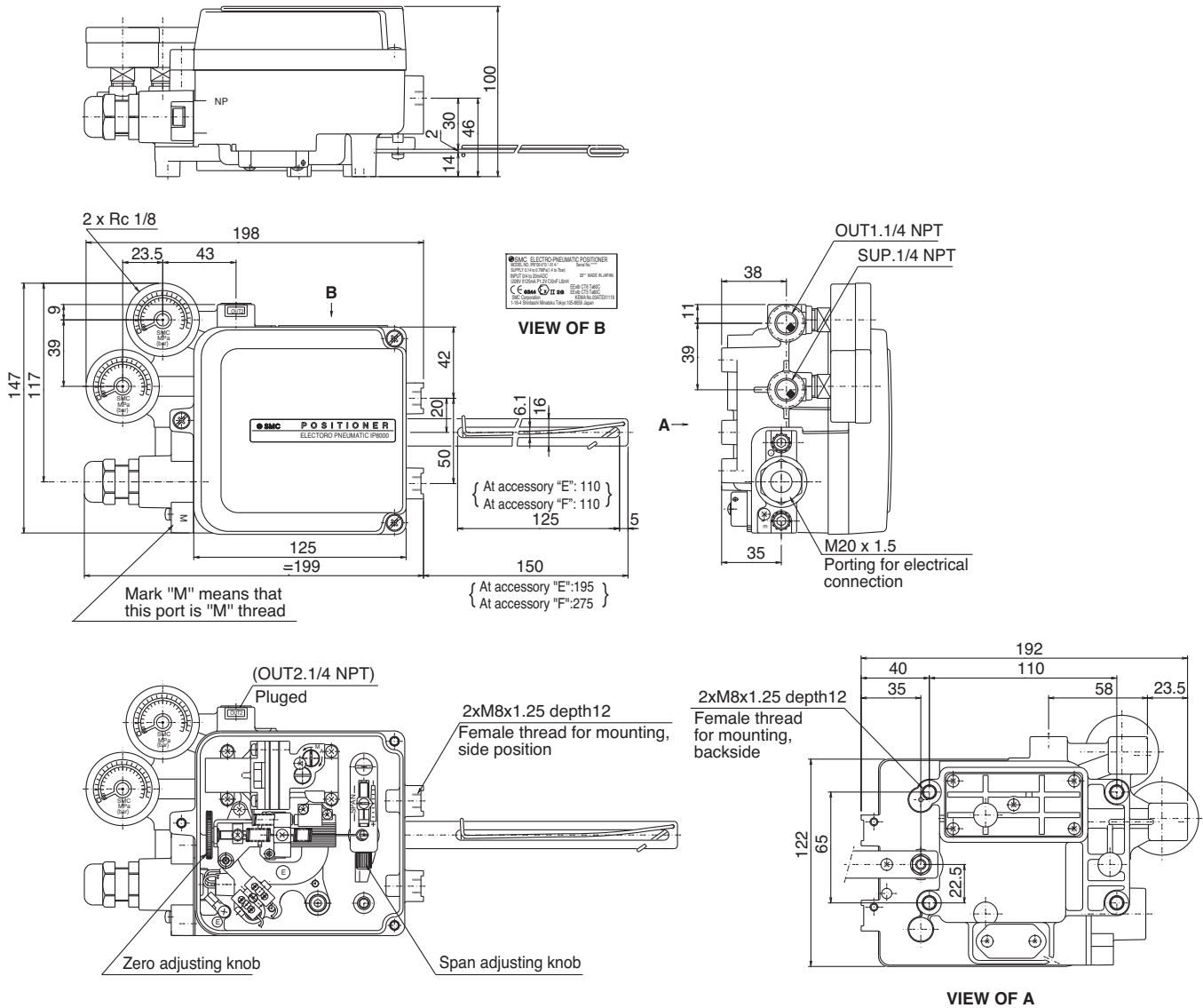
Replacement Parts (Ambient temperature: Standard)

No.	Description	Part no.	Note
1	Pilot valve unit	P565010-7	
2	Base seal	P56501012-3	IP8000/8100
3	Cover seal	P56501013	

Electro-Pneumatic Positioner *Series IP8000/8100*

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

ATEX directive compliance

52	ATEX directive category 1 Intrinsically safe explosion-proof
----	---

Specifications

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

ATEX Directive Intrinsically
Safe Explosion proof

52-IP8001-034-□-□-□



Lever type
IP8001

Rotary type
IP8101

Type

001	Smart Lever type
101	Smart Rotary type

Pressure gauge

Symbol	Pressure gauge	Applicable model	
		IP8001	IP8101
1	0.2 MPa	●	—
2	0.3 MPa	●	—
3	1.0 MPa	●	●

ATEX temperature

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

Connection

Symbol	Air	Electric
—	Rc 1/4	G 1/2
M ^{Note)}	Rc 1/4	M20 x 1.5
N	Rc 1/4	1/2 NPT
1	1/4 NPT	G 1/2
2 ^{Note)}	1/4 NPT	M20 x 1.5
3	1/4 NPT	1/2 NPT
4	G 1/4	G 1/2
5 ^{Note)}	G 1/4	M20 x 1.5
6	G 1/4	1/2 NPT

Note) When the symbol is M, 2, or 5 for 52-ATEX directive items, a blue cable gland is included with the electrical connection.

Accessories ^{Note 1)}

Symbol	Accessories	Applicable model	
		IP8001	IP8101
—	None (Standard)	●	●
C	Fork lever-type fitting M	—	●
D	Fork lever-type fitting S	—	●
E	For stroke 35 to 100 mm with lever unit ^{Note 2)}	●	—
F	For stroke 50 to 140 mm with lever unit ^{Note 2)}	●	—
H	With external scale plate ^{Note 3)}	—	●
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.

Note 3) For side mounting, select "W" and check the control position by viewing the LCD display value.

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

Specifications

Classification	Ambient temperature range	
	52-IP8□01	52-IP8□01-T6
II 1G Ex h ia IIC T4 Ga	-20°C ≤ Ta ≤ +80°C	—
II 1G Ex h ia IIC T5 Ga	—	-20°C ≤ Ta ≤ +80°C
II 1G Ex h ia IIC T6 Ga	—	-20°C ≤ Ta ≤ +60°C

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) <small>Note 2)</small>		
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 <small>Note 3)</small>	Within 0.2 % F.S.		
Linearity <small>Note 3)</small>	Within ±1 % F.S.		
Hysteresis <small>Note 3)</small>	Within 0.5 % F.S.		
Repeatability <small>Note 3)</small>	Within ±0.5 % F.S.		
Coefficient of temperature	Within 0.05 % F.S./C		
Supply pressure fluctuation	— <small>Note 4)</small>		
Output flow <small>Note 5)</small>	80 l/min (ANR) or more (SUP = 0.14 MPa)	200 l/min (ANR) or more (SUP = 0.4 MPa)	
Air consumption <small>Note 5)</small>	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 <small>Note 6)</small>	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 <small>Note 6)</small>	HART transmission		
Air connection port <small>Note 7)</small>	Rc 1/4 female thread, NPT 1/4 female thread, G 1/4 female thread		
Electrical connection port <small>Note 7)</small>	G 1/2 female thread, M20 x 1.5 female thread, NPT 1/2 female thread		
Material/coating	Aluminum diecast body/baking finish with denatured epoxy resin		
Weight	2.6 kg		

Note 1) Specification values are given at normal temperature (20 °C).

Note 2) 1/2 Split range (Standard)

Note 3) Characteristics relating to accuracy differ depending on combination with other constituent loop equipment, such as positioners and actuators.

Note 4) While there is no output changes due to pressure fluctuations, when the pressure supply setting is changed following calibration, once again adjust balance current and perform calibration.

Note 5) (ANR) indicates JIS B0120 standard air.

Note 6) Model selection required for explosion proof construction and HART transmission.

Note 7) Thread type can be specified by model selection.

Optional Specifications

Item	Type	52-IP8□01-0□4
		Smart Positioner
Analogue output	Wiring	2-wire
	Output signal	4 to 20 mA DC
	Power supply voltage	10 to 28 V DC
	Load resistance	0 to 750 Ω
	Accuracy	±0.5 % F.S. or less <small>Note 1)</small>
Alarm output 1, 2	Wiring	2-wire
	Applicable standards	DIN19234/NAMUR Standard
	Power supply voltage	5 to 28 V DC
	Load resistance	(Constant current output)
	Alarm ON	≥2.1 mA DC
	Alarm OFF (Leakage current)	≤1.2 mA DC
	Response time	50 msec or less

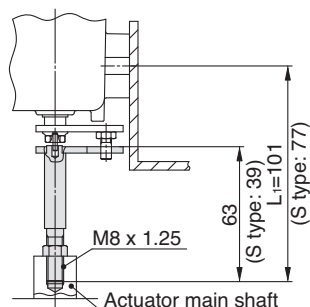
Note 1) Indicates analogue output accuracy with respect to LCD display position value (P value).

Accessory / Option

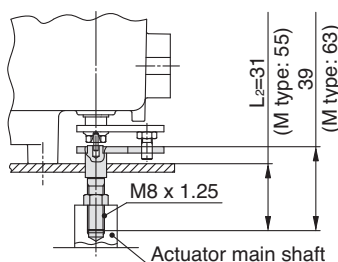
Fork lever-type fittings (8101)

2 types of rotary type IP8101 fork lever-type fittings, that differ by installation dimensions dependent on bracket installation method, and 2 types of installation portion thread sizes, are available. When installing on the side surface, using fork lever assembly M provides interchangeability with the installation dimensions of SMC IP610 positioner. When installing on the rear surface, using fork lever assembly S also provides interchangeability with the installation dimensions of SMC IP610 positioner.

Part name	Unit number	Installation portion thread size	Model selection accessory
Fork lever assembly M	P368010-24	M8 x 1.25	C
Fork lever assembly S	P368010-25		D



Side mounting with the fork lever assembly M



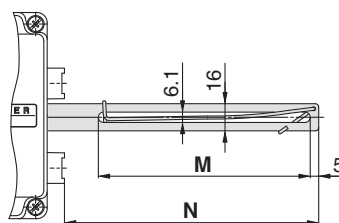
Rear mounting with the fork lever assembly S

External feedback lever (IP8001)

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

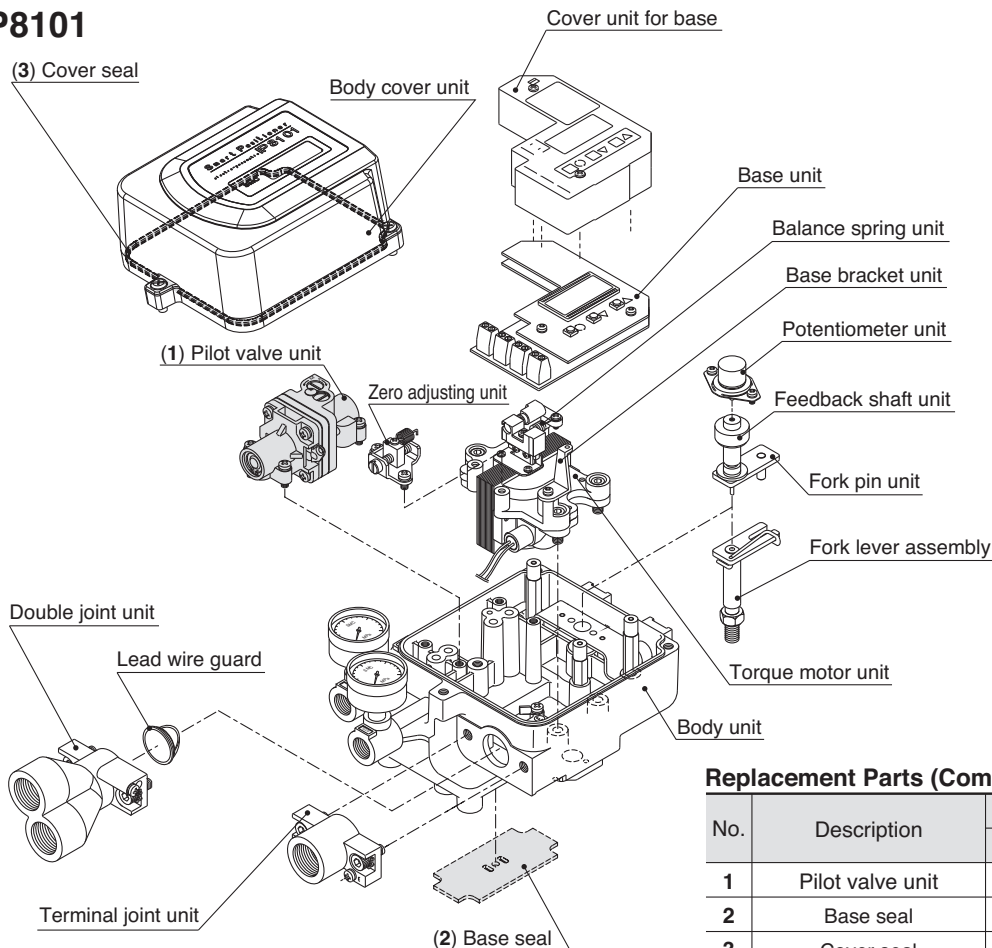
Feedback lever types

Stroke	Unit number	Size M	Size N	Model selection accessory
	IP8001			
10 to 85 mm	P565010-323	125	150	Standard accessory
35 to 100 mm	P565010-324	110	195	E
50 to 140 mm	P565010-325	110	275	F
6 to 12 mm	P565010-329	75	75	Available as special order



Exploded View

IP8101



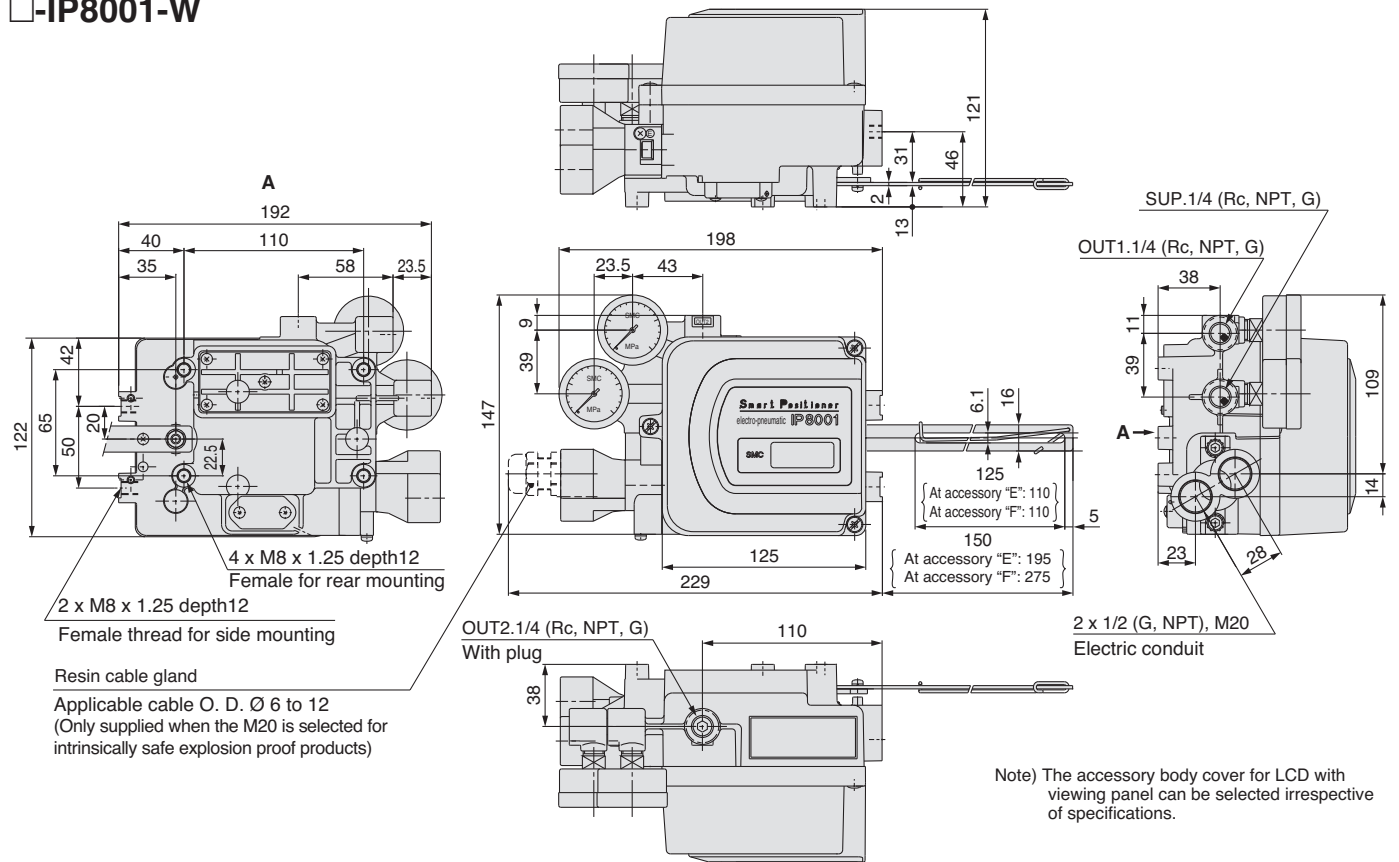
Replacement Parts (Common for IP8001/8101)

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

Series 52-IP8001/8101

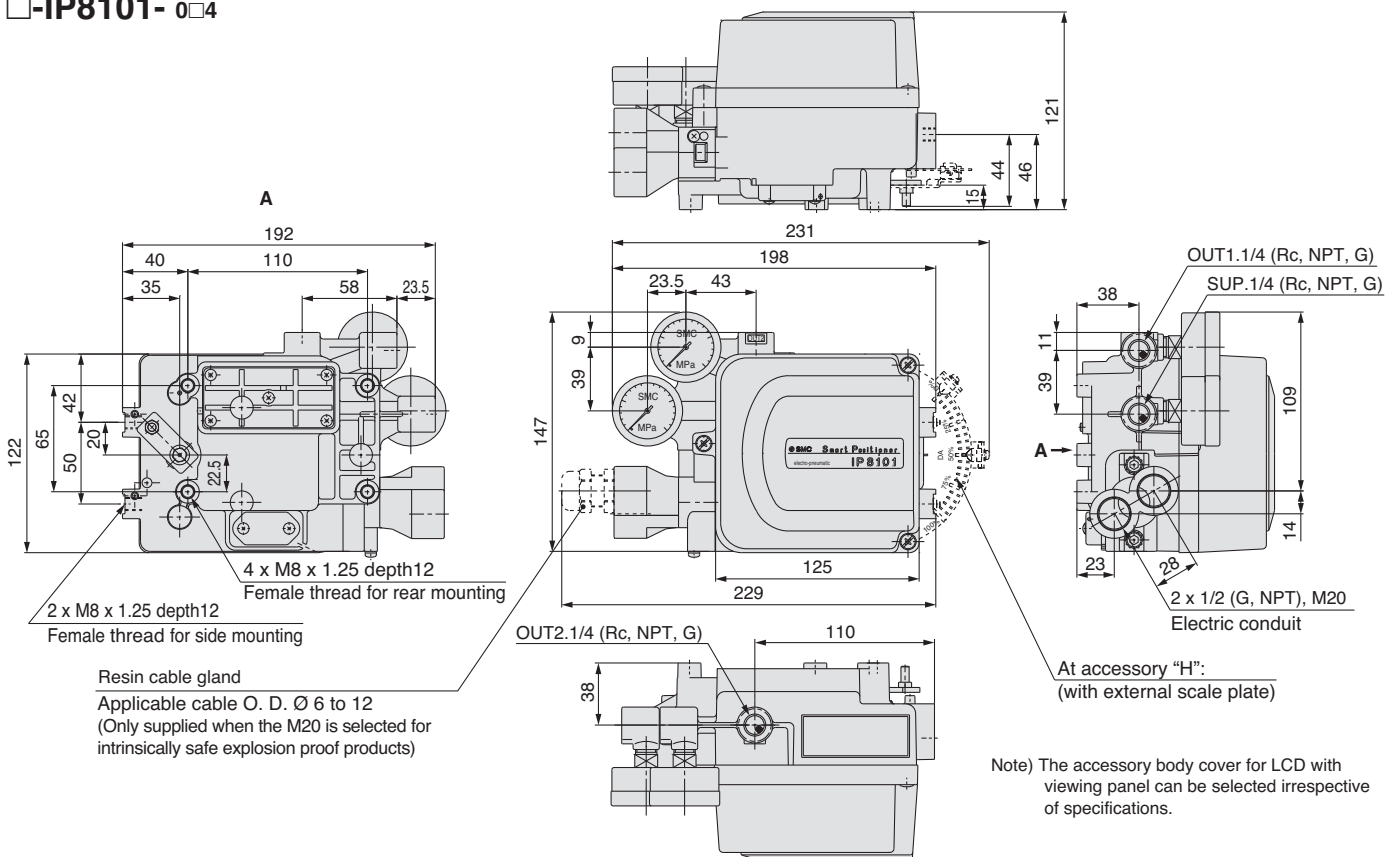
Dimensions / IP8001 (Lever type)

□-IP8001-W



Dimensions / IP8101 (Rotary type)

□-IP8101- □□□






ATEX Compliant

Pneumatic Cylinder Positioner Series 56-IP200/56-IP210

II 3G Ex h IIC T6..T4 Gc
II 3D Ex h IIIC T65°C..T105°C Dc

Note) For temperature classification, refer to the specifications.

How to Order



56 - IP2 0 0 - [] - []

- 56 - IP2**: Conform to ATEX directive category 3
- 0 0**: Model

0	Standard
1	Outside tube fixed to the main body
- []**: Stroke 25 to 300 mm
- []**: Temperature and Material

-	Standard	-5 to 60 °C
T	High	-5 to 100 °C
L	Low	-30 to 60 °C
S	Feedback spring and zero adjuster screw made of stainless steel	

Specifications

Classification	Ambient temperature range		
	Low temp. model 56-IP2□0-□-L	Standard model 56-IP2□0-□	High temp. model 56-IP2□0-□-T
II 3GD Ex h IIC T4 Gc Ex h IIIC T105°C Dc	—	—	-5°C ≤ Ta ≤ 100°C
II 3GD Ex h IIC T6 Gc Ex h IIIC T65°C..T85°C Dc	-30°C ≤ Ta ≤ 60°C	-5°C ≤ Ta ≤ 60°C	-5°C ≤ Ta ≤ 80°C

Supply pressure	0.3 ~ 0.7 MPa
Signal pressure	0.02 ~ 0.1 MPa
Port size	Rc 1/4 (standard)
Pressure gauge port type	Rc 1/8
Linearity	Less than ± 2 % F.S.
Hysteresis	Less than 1 % F.S.
Repeatability	Less than ± 1 % F.S.
Sensitivity	Less than 0.5 % F.S.
Air consumption	18 l/min (ANR) or less (at 0.5 MPa supply)
Max. air flow	200 l/min (ANR) or less (at 0.5 MPa supply)
Applicable cylinder [mm]	50 ~ 300 bore sizes / 25 ~ 300 mm stroke
Operating temperature	-5 °C ~ 60 °C (Standard)
	-30 °C ~ 60 °C (Low Temperature)
	-5 °C ~ 100 °C (High Temperature)

Note) Standard air temperature: 20, Absolute pressure: 101.3 kPa. Relative humidity: 65 %


All other specifications are the same as the standard products Series IP200. For details, refer to the **WEB catalogue**.





Safety Instructions

Safety Instructions

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

 **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

 **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 **Danger:** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
etc.

Warning

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

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

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

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

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

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

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

Limited warranty and Disclaimer

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

*2) 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	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

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	VCC12(D)-00
Floating joint	JA, JB, JS	Brackets	Mounting brackets for cylinders, FRL, valves and so on when
Insert fittings	KF, KFG	Manifold base	SS5Y5-20-□□-(□□□) SS5Y5-41-□□-□□(□) SS5Y5-42-□□-□□(□) SS5Y7-20-□□-(□□□)
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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