

**ATEX Compliant**

# Air Cylinder/Standard/Double Acting Series 55-CS1

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



95 °C (T5) Ta 0 °C to 40 °C  
115 °C (T4) Ta 40 °C to 60 °C

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

## How to Order

**55-CDS1** **L** **N** **160** **300** **R**

**ATEX category 2**

**Build in magnet**

-	Ø 125~Ø 300	Without magnet
<b>D</b>	Ø 125~Ø 200	Built in magnet*

\*(Aluminium tube)

**Rod type**

-	Single rod
<b>W</b>	Double rod

**Mounting**

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

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

**Non-lube**

**Tube material**

Symbol	Bore size	Tube material
-	Ø 125 to Ø 160	Aluminium tube
-	Ø 180 to Ø 300	Steel tube
<b>F</b>	Ø 125 to Ø 160	Steel tube

Table above applies to without magnet type

**Rod boot/Cushion**

Cushion	<b>N</b>	No cushion
	<b>R</b>	With cushion on rod side
	<b>H</b>	With cushion on head side
	-	With both sides cushion

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

**Bore size**

Non-lube	
<b>125</b>	125 mm
<b>140</b>	140 mm
<b>160</b>	160 mm
<b>180</b>	180 mm
<b>200</b>	200 mm
<b>250*</b>	250 mm
<b>300*</b>	300 mm

\* It is not available with auto-switch

## Mounting Bracket Part No.

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

\* Order 2 foot brackets for one cylinder.

\*\* When ordering the double clevis, the clevis pin and the cotter pin (2 pcs.) are attached.

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

Refer to page 86 for applicable auto switches.

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



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

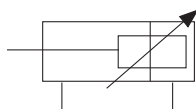
## Specifications

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

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

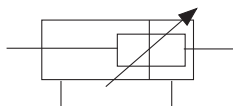
## Symbol

### Double Acting/Single Rod



Air Cushion

### Double Acting/Double Rod



Air Cushion

## Accessories

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


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

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

**ATEX Compliant**

# Compact Cylinder/Standard: Double Acting, Single Rod Series 55-CQ2

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

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

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

## How to Order

<b>Without magnet</b> Ø 12 to Ø 25	<b>55 - CQ2</b>	<b>B</b>	<b>20</b>		<b>-30</b>	<b>D</b>		
<b>Without magnet</b> Ø 32 to Ø 100	<b>55 - CQ2</b>	<b>B</b>	<b>32</b>		<b>-30</b>	<b>D</b>	<b>Z</b>	
<b>With magnet</b>	<b>55 - CDQ2</b>	<b>B</b>	<b>32</b>		<b>-30</b>	<b>D</b>	<b>Z</b>	

**ATEX category 2**

**With magnet**  
(Built-in magnet)

**Mounting bracket**

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

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

**Bore size**

<b>12</b>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

**Port thread type**

-	M thread	Ø 12 to Ø 25
-	Rc	
<b>TF</b>	G	Ø 32 to Ø 100

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

**Made to Order**

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

**Auto switch mounting groove**

<b>Z</b>	Ø 12 to Ø 25	2 surfaces
	Ø 32 to Ø 100	4 surfaces

**Body option**

-	Standard (Rod end female thread)
<b>C</b>	With rubber bumper
<b>M</b>	Rod end male thread

\* Combination of body options (CM) is available.

**Action**

<b>D</b>	Double acting
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**Cylinder stroke (mm)**

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

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

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

**Refer to page 86 for applicable auto switches.**

**ATEX Compliant**

# Compact Cylinder/Standard: Double Acting, Double Rod Series 55-CQ2W

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

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

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

## How to Order

**Without magnet**  
Ø 12 to Ø 25

**Without magnet**  
Ø 32 to Ø 100

**With magnet**

ATEX category 2 •

With magnet •  
(Built-in magnet)

**Mounting bracket •**

<b>B</b>	Through-hole (Standard)
<b>A</b>	Both ends tapped
<b>L</b>	Foot
<b>F</b>	Flange

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

**Bore size •**

<b>12</b>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

**Port thread type •**

-	M thread	Ø 12 to Ø 25
	Rc	Ø 32 to Ø 100
<b>TF</b>	G	

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

**Made to Order**

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

**Auto switch mounting groove**

<b>Z</b>	Ø 12 to Ø 25	2 surfaces
	Ø 32 to Ø 100	4 surfaces

**Body option**

-	Standard (Rod end female thread)
<b>C</b>	With rubber bumper
<b>M</b>	Rod end male thread

\* Combination of body options (CM) is available.

**Action**

<b>D</b>	Double acting
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**Cylinder stroke (mm)**

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

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

Refer to page 86 for applicable auto switches.

# ATEX Compliant

## Compact Cylinder/Long stroke: Double Acting, Single Rod Series 55-CQ2

Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

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

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

### How to Order

Without magnet **55-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

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

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

#### Bore size

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

#### Port thread type

-	Rc
<b>TF</b>	G

#### Made to Order

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

#### Auto switch mounting groove

<b>Z</b>	4 surfaces
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#### Body option

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

#### Cushion

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

<b>D</b>	Double acting
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#### Cylinder stroke (mm)

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


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

Refer to page 86 for applicable auto switches.

# ATEX Compliant

## Compact Cylinder/Large Bore Size: Double Acting, Single Rod *Series 55-CQ2*

Ø 125, Ø 140, Ø 160, Ø 180, Ø 200

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

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

### How to Order

**Without magnet** 55 - CQ2B 125 [ ] - 30 DC [ ] Z - [ ]

**With magnet** 55 - CDQ2B 125 [ ] - 30 DC [ ] Z - [ ]

**ATEX category 2**

**Built-in magnet for auto switch**

**Mounting bracket**

<b>B</b>	Standard (Through-hole/Both ends tapped common)
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\* Cylinder mounting bolts are not included.

**Bore size**

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

**Port thread type**

-	Rc
<b>TF</b>	G

**Made to Order**

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

**Auto switch mounting groove**

<b>Z</b>	4 surfaces
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**Body option**

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

**Cushion**

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

<b>D</b>	Double acting
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**Cylinder stroke (mm)**

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

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

Refer to page 86 for applicable auto switches.

# Series 55-CQ2

## Style

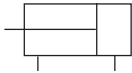
Bore size (mm)		12	16	20	25	32	40	50	63	80	100	125	140	160	180	200	
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Both ends tapped	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Built-in magnet		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Piping	Screw-in style	M5	M5	M5	M5	M5 <sup>(1)</sup> G 1/8	G 1/8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

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

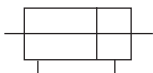
Note 2) Rubber bumper is standard for bore sizes over Ø 125.

### JIS Symbol

Double Acting: Single Rod



Double Acting: Double Rod



## Specifications

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

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






**ATEX Compliant**

# Dual Rod Cylinder Series 55-CXS/55-CXSW

Ø 6, Ø 10, Ø 15, Ø 20, Ø 25, Ø 32

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

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

## How to Order

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

ATEX category 2

Dual rod cylinder

Type

-	Single rod
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	-XB11
Ø 6	10, 20, 30, 40, 50	-
Ø 10	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75	80, 90, 100, 110, 120, 125, 150
Ø 15		100, 120, 125, 150
Ø 20	10, 15, 20, 25, 30, 35, 40, 45,	
Ø 25	50, 60, 70, 75, 80, 90, 100	110, 120, 125, 150, 175, 200
Ø 32		

CXSW

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

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

Refer to page 86 for applicable auto switches.

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



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



## CXS Specifications

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


## CXSW Specifications

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

**ATEX Compliant**

# Mechanically Jointed Rodless Cylinder Series 55-MY1B

Basic Type/Ø 10, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

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

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

## How to Order

**Basic Type**

**55-MY1B 25**   **300** **XB11**

ATEX category 2

Basic type

Bore size

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

Piping thread

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

Stroke

Refer to the standard stroke table below.

Special

-	Standard type
XB11	Long Stroke type

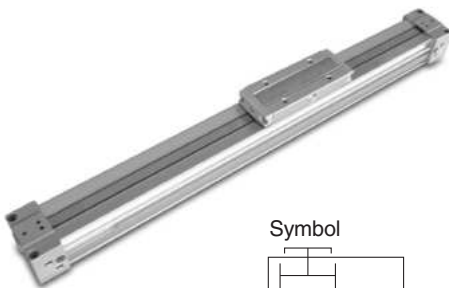
Piping

-	Standard type
G	Centralized piping type

## Standard strokes

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

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



Symbol



## Specifications

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

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

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

Refer to page 86 for applicable auto switches.



**ATEX Compliant**

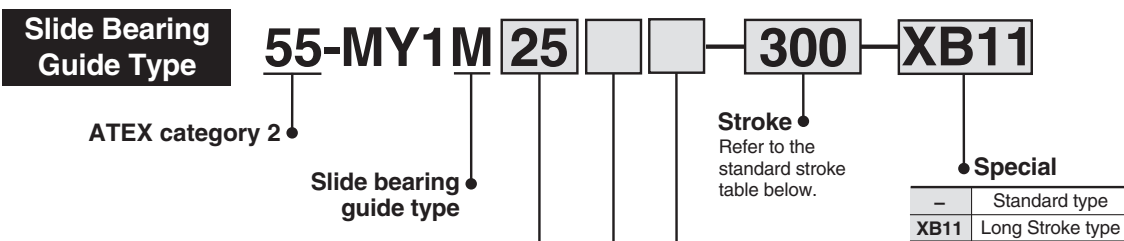
# Mechanically Jointed Rodless Cylinder Series 55-MY1M

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

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

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

## How to Order



### Standard strokes

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

**Bore size**

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

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



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

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

**Piping**

-	Standard type
G	Centralized piping type

**Special**

-	Standard type
XB11	Long Stroke type

**Port thread types**

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

### Standard strokes

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


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

Refer to page 86 for applicable auto switches.

**ATEX Compliant**

# Mechanically Jointed Rodless Cylinder Series 55-MY1H

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

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

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

## How to Order

**55-MY1H** **25** **300** **XB10**

ATEX category 2

Linear guide type

Bore size

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

Stroke

Refer to the standard stroke table below.

Piping

-	Standard type
G	Centralized piping type

Special

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

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

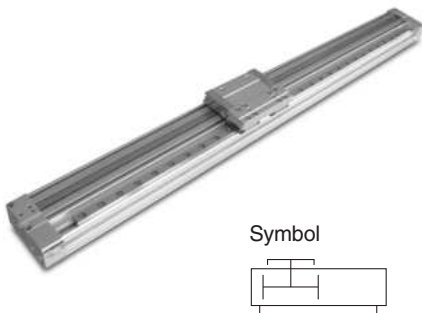
## Standard strokes

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

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

Port thread types

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



Symbol

## Specifications

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

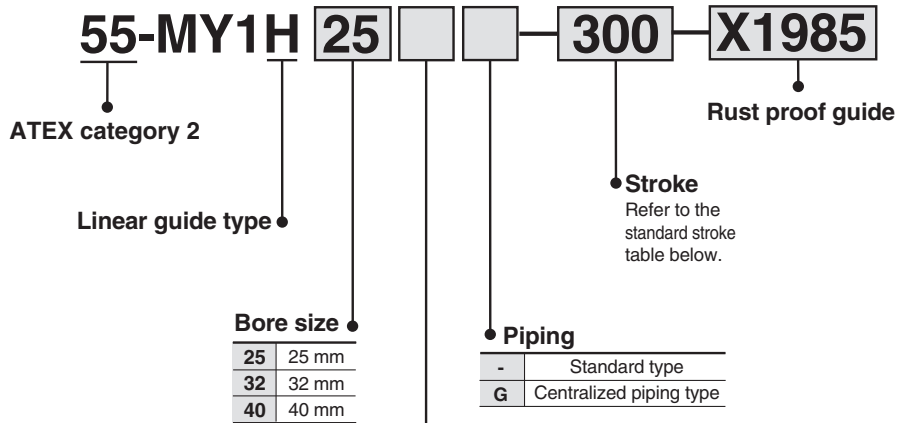
Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

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

Refer to page 86 for applicable auto switches.

# Mechanically jointed Rodless Cylinder *Series 55-MY1H*

## How to Order



### Port thread types

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

### Standard strokes

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

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

# ATEX Compliant Auto Switch Applicable Cylinder List

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

( ): Cylinder size

Note 1) 55-C85 Band mounting all sizes, and Rail mounting for 8 to 16 only.

Note 2) 55-C85 Band mounting only.

Note 3) 55-C85 Rail mounting only.

Note 4) 55-C85 Rail mounting only.

Note 5) 55-C85 Rail mounting only, for 16 to 25 only.

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

**ATEX Compliant**

**ATEX Compliant Solid-state Switch / Direct Mounting**

**D-M9N(V)-588·D-M9P(V)-588·D-M9B(V)-588**



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

**Grommet**



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

**Auto Switch Specifications**

PLC: Programmable Logic Controller

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

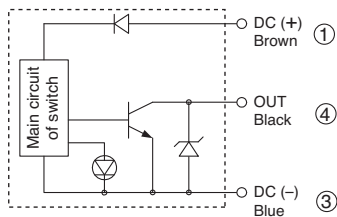
• This category 3 type autoswitch can only be used in zones 2 and 22.

**Oilproof Heavy-duty Lead Wire Specifications**

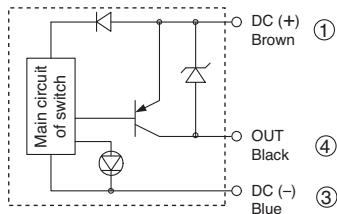
Auto switch model		D-M9N□	D-M9P□	D-M9B□
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	Ø 0.9		
Conductor	Cross section [mm <sup>2</sup> ]	0.15		
	Strand diameter [mm]	Ø 0.05		
Minimum bending radius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

**Auto Switch Internal Circuit**

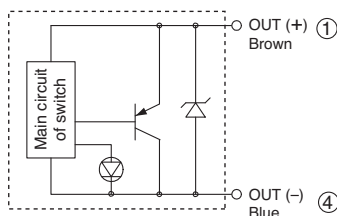
**D-M9N, D-M9NV**



**D-M9P, D-M9PV**



**D-M9B, D-M9BV**



**How to Order**

**Standard Model Number**

**D-M9 N V L -588**

Auto switch part number

Wiring and output

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

Electrical entry

—	In-line
V	Perpendicular

Suffix for ATEX certified category 3

Lead wire length

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

**Connector Specifications**

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



**ATEX Compliant**

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



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

## Grommet



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

## Auto Switch Specifications

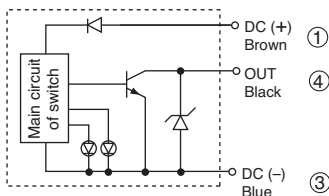
PLC: Programmable Logic Controller

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

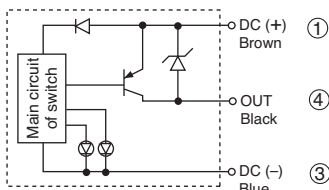
• This category 3 type autoswitch can only be used in zones 2 and 22.

## Auto Switch Internal Circuit

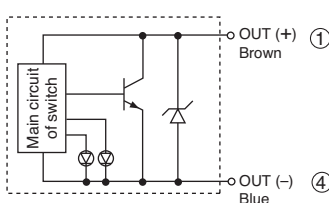
### D-M9NW, D-M9NWV



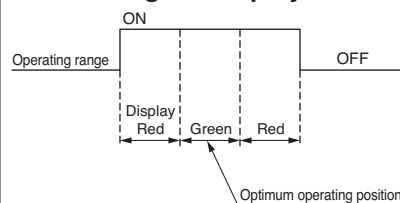
### D-M9PW, D-M9PWV



### D-M9BW, D-M9BWV



## Indicator light / Display method



## Oilproof Heavy-duty Lead Wire Specifications

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

## How to Order

**D-M9 N W V L -588**

- Auto switch part number**: D-M9
- Wiring/Output type**: N (3-wire NPN), P (3-wire PNP), B (2-wire)
- Electrical entry direction**: - (In-line), V (Perpendicular)
- 2 colour display**: W
- Suffix for ATEX certified category 3**: L
- Lead wire length**: - (0.5 m), M (1 m), L (3 m), Z (5 m)
- Connector types**: SAPC (0.5 m + M8 - 3 pins pre-wired connector), MAPC (1 m + M8 - 3 pins pre-wired connector), SBPC (0.5 m + M8 - 4 pins pre-wired connector), MBPC (1 m + M8 - 4 pins pre-wired connector), SDPC (0.5 m + M12 - 4 pins pre-wired connector), MDPC (1 m + M12 - 4 pins pre-wired connector)

## Connector Specifications

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

**ATEX Compliant**

# ATEX Compliant Solid State Switch/Band Mounting

## D-H7A2-588



PLC: Programmable Logic Controller

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

### Grommet



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

### Specifications

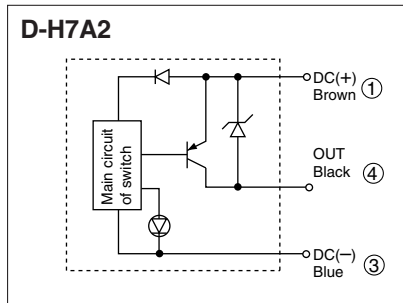
D-H7 (With indicator light)	
Auto switch model number	<b>D-H7A2</b>
<b>Wiring</b>	3 wire
<b>Output</b>	PNP
<b>Application</b>	IC circuit/Relay/PLC
<b>Power voltage</b>	5/12/24 V DC (4.5 to 28 V DC)
<b>Current consumption</b>	10 mA or less
<b>Load current</b>	80 mA or less
<b>Internal voltage drop</b>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

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

### Oilproof Heavy-duty Lead Wire Specifications

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

### Internal Circuit



### How to order

**D-H7A2**   **-588**

Auto switch part number

Suffix for ATEX certified category 3

Lead wire length

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

### Connector Specifications

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



# ATEX Compliant

## ATEX Compliant Solid State Switch/Rail Mounting

# D-F7P(V)-588



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

### Grommet



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

### Specifications

PLC: Programmable Logic Controller

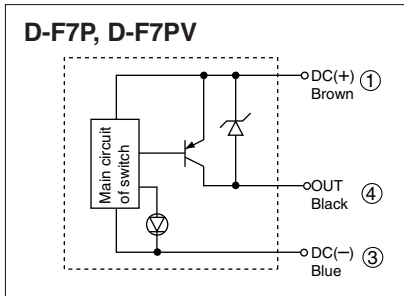
D-F7P, D-F7PV (With indicator light)		
Auto switch model number	D-F7P	D-F7PV
Electrical entry	In-line	Perpendicular
Wiring	3 wire	
Output	PNP	
Application	IC circuit/Relay/PLC	
Power voltage	5/12/24 V DC (4.5 to 28 V DC)	
Current consumption	10 mA or less	
Load current	80 mA or less	
Internal voltage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

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

### Oilproof Heavy-duty Lead Wire Specifications

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

### Internal Circuit



### How to order

**D-F7P** □ □ **-588**

Auto switch part number

Suffix for ATEX certified category 3

Lead wire length

Electrical entry	
-	In Line
V	Perpendicular

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

### Connector Specifications

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

# ATEX Compliant

## ATEX Compliant Solid State Switch/Tie-rod Mounting **D-F5P-588**



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

### Grommet



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

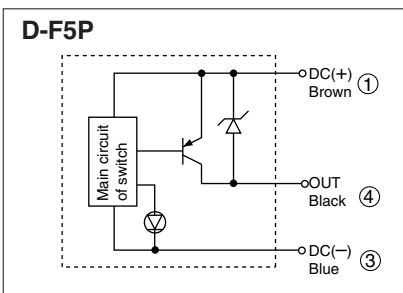
### Specifications

PLC: Programmable Logic Controller

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

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

### Internal Circuit



### Oilproof Heavy-duty Lead Wire Specifications

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

### How to order

**D-F5P**    **-588**

Auto switch part number

Suffix for ATEX certified category 3

Lead wire length

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

### Connector Specifications

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

**ATEX Compliant**

**ATEX Compliant Solid State Switch/Direct Mounting**

**D-Y7P(V)-588**



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

**Specifications**

PLC: Programmable Logic Controller

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

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

**Grommet**



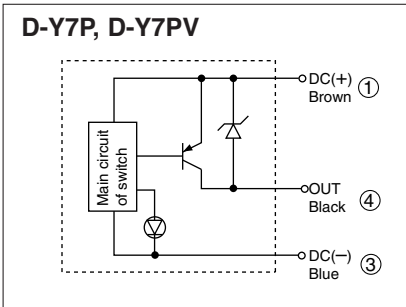
Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

**Oilproof Heavy-duty Lead Wire Specifications**

Auto switch model		D-Y7P□
Sheath	Outside diameter [mm]	∅ 3.4
	Number of cores	3 cores (Brown/Blue/Black)
Insulator	Outside diameter [mm]	∅ 1.0
	Cross section [mm <sup>2</sup> ]	0.15
Conductor	Strand diameter [mm]	∅ 0.05
	Minimum bending radius [mm] (Reference)	21

**Internal Circuit**

D-Y7P, D-Y7PV



**How to order**

**D-Y7P** **-588**

Auto switch part number

Suffix for ATEX certified category 3

Electrical entry

-	In-Line
V	Perpendicular

Lead wire length

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

**Connector Specifications**

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

**ATEX Compliant**

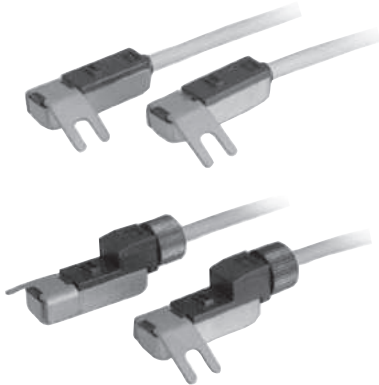
# ATEX Compliant Solid State Switch / Direct Mounting

## D-S7P-588

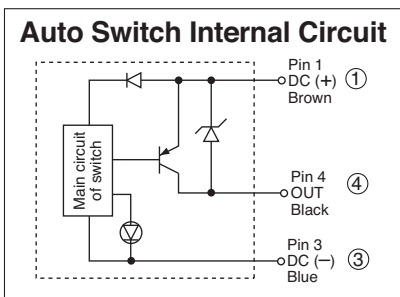
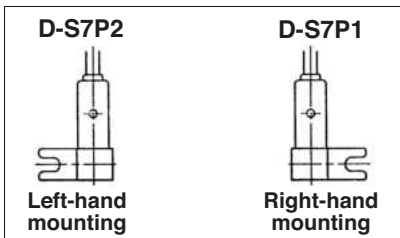


CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

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



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



### Specifications

PLC: Programmable Logic Controller

#### D-S7P1/D-S7P2 (With indicator light)

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

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

### Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-Y7P□
Sheath	Outside diameter [mm]	∅ 3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	∅ 1.1
Conductor	Cross section [mm <sup>2</sup> ]	0.2
	Strand diameter [mm]	∅ 0.08
Minimum bending radius [mm] (Reference)		21

### How to order

**D-S7P**     **-588**

Auto switch part number

Suffix for ATEX certified category 3

Mounting

1	Right hand mounting
2	Left hand mounting

Lead wire length

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

### Connector Specifications

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

**ATEX Compliant**

# ATEX Compliant Solid State Switch/Direct Mounting

## D-S9P-588



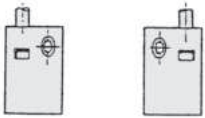
CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

### Grommet



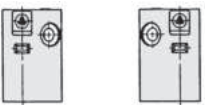
Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

#### D-S9P2 D-S9P1



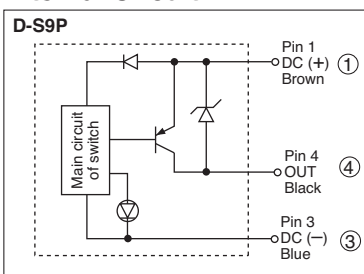
Left-hand mounting Right-hand mounting

#### D-S9PV2 D-S9PV1



Left-hand mounting Right-hand mounting

### Internal Circuit



### Specifications

PLC: Programmable Logic Controller

#### D-S9P/D-S9PV (With indicator light)

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

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

### Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-Y7P□
Sheath	Outside diameter [mm]	∅ 3.4
Insulator	Number of cores	3 cores (Brown/Blue/Black)
	Outside diameter [mm]	∅ 1.1
Conductor	Cross section [mm <sup>2</sup> ]	0.2
	Strand diameter [mm]	∅ 0.08
Minimum bending radius [mm] (Reference)		21

### How to order

## D-S9P □ □ □ -588

Auto switch part number

Electrical entry

-	In-Line
V	Perpendicular

Mounting

1	Right hand mounting
2	Left hand mounting

Suffix for ATEX certified category 3

Lead wire length

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

### Connector Specifications

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



**ATEX Compliant**

# ATEX Compliant Solid-state Switch / Direct Mounting

## D-F6P-588



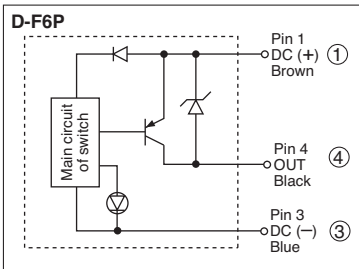
CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

### Grommet



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

### Internal Circuit



### Specifications

PLC: Programmable Logic Controller

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

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

### Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		<b>D-F6P</b>
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)
	Number of cores	3 cores (Brown/Blue/Black)
Insulator	Outside diameter [mm]	∅ 0.9
	Cross section [mm <sup>2</sup> ]	0.15
Conductor	Strand diameter [mm]	∅ 0.05
	Minimum bending radius [mm] (Reference)	20

### How to order

**D-F6P**   **-588**

Auto switch part no.

Suffix for ATEX certified category 3

Lead wire length

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

### Connector Specifications

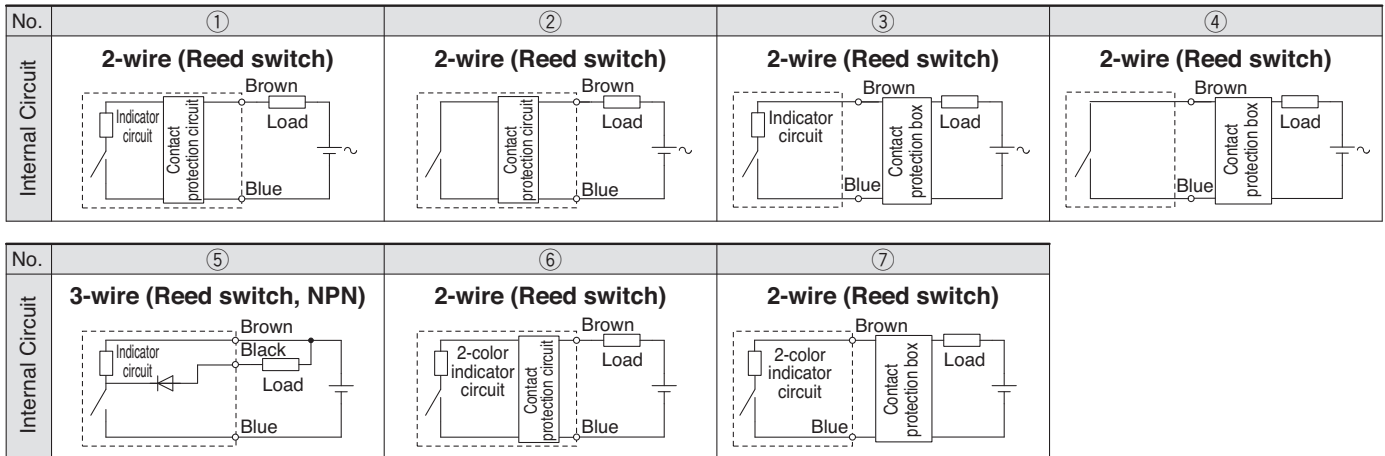
Connector type	M8-3 pins	M8-4 pins	M12-4 pins
Pin arrangement			



# Prior to Use

## Auto Switch/Internal Circuit

### Reed Auto Switch



### Contact Protection Box: CD-P12

**<Applicable switch models>**

D-A73/A8, D-A73H/A80H, D-C73/C8, D-E73A/E80A, D-Z73/Z8, 9□A, and D-A9/A9□V type

The auto switches above do not have a built-in contact protection circuit. A contact protection box is not required for solid state auto switches due to their construction.

- ① Where the operation load is an inductive load.
- ② Where the wiring length to load is greater than 5 m.

Therefore, use a contact protection box with the switch for any of the above cases:

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

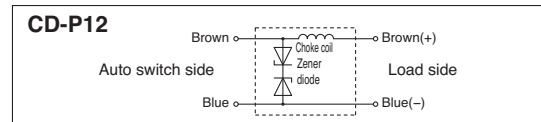
#### Contact Protection Box Specifications

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

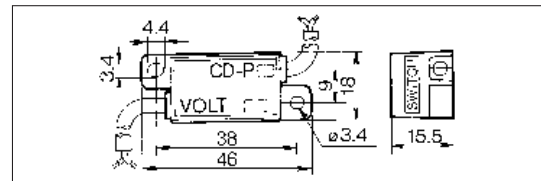


\* Lead wire length — Auto switch connection side 0.5 m  
Load connection side 0.5 m

#### Contact Protection Box Internal Circuit



#### Contact Protection Box/Dimensions



### Contact Protection Box Connection

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

# ATEX Compliant

## ATEX Compliant Reed Switch/Band Mounting D-C73/D-C80-588



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

### Grommet



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

### Specifications

PLC: Programmable Logic Controller

D-C7 (With indicator light)	
Auto switch model number	<b>D-C73</b>
Applicable load	Relay/PLC
Load voltage	24 V DC
Max. load current and range	5 to 40 mA
Internal Circuit *	③
Contact protection circuit	None
Internal voltage drop	2.4 V or less
Indicator light	Red LED illuminates when turned ON

D-C8 (Without indicator light)	
Auto switch model number	<b>D-C80</b>
Applicable load	Relay/PLC/IC circuit
Load voltage	24 V <sup>AC</sup> / <sub>DC</sub> or less
Max. load current	50 mA
Internal Circuit *	④
Contact protection circuit	None
Internal resistance	1 Ω or less (Including 3 m lead wire)

\* For internal circuit, refer to the Internal Circuit No. on page 96.

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

### Oilproof Heavy-duty Lead Wire Specifications

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

### How to order

D-C [ ] [ ] -588

• Suffix for ATEX certified category 3

Auto switch model number

73	With indicator lamp
80	Without indicator lamp

• Lead wire length

-	0.5 m
L	3 m
Z	5 m (Except D-C80)

**ATEX Compliant**

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



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

**Grommet**  
Electrical entry: Perpendicular



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

## Specifications

PLC: Programmable Logic Controller

D-A73, D-A73H (With indicator light)	
Auto switch model number	D-A73/D-A73H
Applicable load	Relay/PLC
Load voltage	24 V DC
Load current range	5 to 40 mA
Internal Circuit *	③
Contact protection circuit	None
Internal voltage drop	2.4 V or less
Indicator light	Red LED illuminates when turned ON

D-A80, D-A80H (Without indicator light)		
Auto switch model number	D-A80/D-A80H	
Applicable load	Relay/IC circuit/PLC	
Load voltage	24 V AC or less DC	48 V AC DC
Max. load current	50 mA	40 mA
Internal Circuit *	④	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

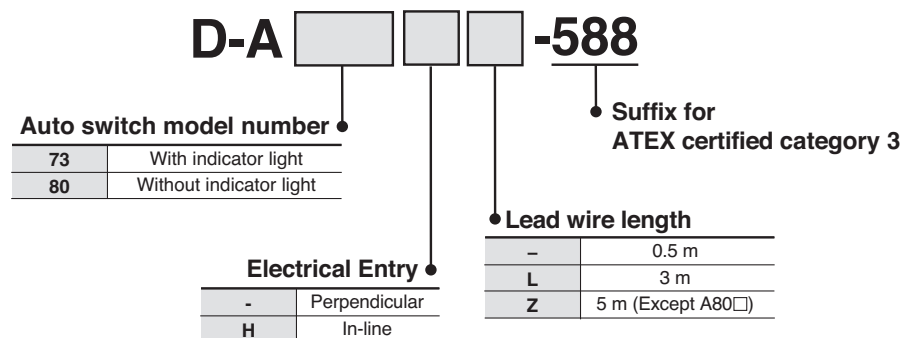
\* For internal circuit, refer to the Internal Circuit No. on page 96.

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

## Oilproof Heavy-duty Lead Wire Specifications

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

## How to order



# ATEX Compliant

## ATEX Compliant Reed Switch/Tie-rod Mounting D-A54/D-A67-588



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

### Grommet



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

### Specifications

PLC: Programmable Logic Controller

D-A54 (With indicator light)	
Auto switch model number	<b>D-A54</b>
Applicable load	Relay/PLC
Load voltage	24 V DC
Max. load current and range	5 to 50 mA
Internal Circuit *	①
Contact protection circuit	Built-in
Internal voltage drop	2.4 V or less (up to 20 mA) / 3.5 V or less (up to 50 mA)
Indicator light	Red LED illuminates when turned ON

D-A67 (Without indicator light)	
Auto switch model number	<b>D-A67</b>
Applicable load	PLC/IC circuit
Load voltage	MAX. 24 V DC
Max. load current and range	30 mA
Internal Circuit *	④
Contact protection circuit	None
Internal resistance	1 Ω or less (Including 3 m lead wire)

\* For internal circuit, refer to the Internal Circuit No. on page 96.

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

### Oilproof Heavy-duty Lead Wire Specifications

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

### How to Order

D - A     - 588

● ATEX category 3

Auto switch model number ●

54	With indicator light
67	Without indicator light

● Lead wire length

-	0.5 m
L	3 m
Z	5 m (Except D-A67)

# ATEX Compliant

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



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

### Specifications

PLC: Programmable Logic Controller

#### Grommet



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

D-A90, D-A90V (Without indicator light)	
Auto switch model number	D-A90/D-A90V
Applicable load	IC circuit/Relay/PLC
Load voltage	24 V <sup>AC</sup> <sub>DC</sub> or less
Max. load current	50 mA
Internal Circuit *	④
Contact protection circuit	None
Internal resistance	1 Ω or less (Including 3 m lead wire)
D-A93, D-A93V (With indicator light)	
Auto switch model number	D-A93/D-A93V
Applicable load	Relay/PLC
Load voltage	24 V DC
Max. load current and load current range	5 to 40 mA
Internal Circuit *	③
Contact protection circuit	None
Internal voltage drop	D-A 93 — 2.4 V or less (up to 20 mA)/3 V or less (up to 40 mA) D-A 93V — 2.7 V or less
Indicator light	Red LED illuminates when turned ON

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

### Oilproof Heavy-duty Lead Wire Specifications

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

### How to order

D-A [ ] [ ] [ ] -588

Auto switch model number ●

93	With indicator light
90	Without indicator light

Electrical entry ●

-	In line
V	Perpendicular

● Suffix for ATEX certified category 3

● Lead wire length

-	0.5 m
L	3 m
Z	5 m (Except D-A90□)

# ATEX Compliant

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



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

**Grommet**  
Lead wire: Heavy-duty cord



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

### Specifications

PLC: Programmable Logic Controller

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

\* For internal circuit, refer to the Internal Circuit No. on page 96.

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

### Oilproof Heavy-duty Lead Wire Specifications

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

### How to order

D-   A   -588

● Suffix for ATEX certified category 3

● Auto switch model number

93	With indicator light
90	Without indicator light

● Lead wire length

-	0.5 m
L	3 m
Z	5 m

**ATEX Compliant**

# ATEX Compliant Reed Switch/Direct Mounting

## D-Z73/D-Z80-588



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

### Specifications

PLC: Programmable Logic Controller

#### Grommet



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

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

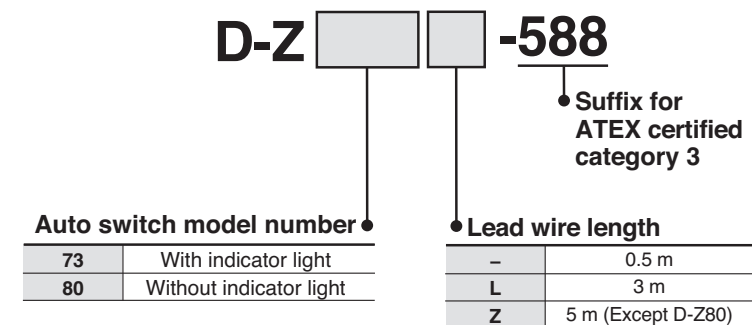
\* For internal circuit, refer to the Internal Circuit No. on page 96.

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

### Oilproof Heavy-duty Lead Wire Specifications

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

### How to order



**ATEX Compliant**

# ATEX Compliant Reed Switch/Direct Mounting

## D-E73A/D-E80A-588



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

### Specifications

PLC: Programmable Logic Controller

#### Grommet



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

#### D-E73A (With indicator light)

Auto switch model number	<b>D-E73A</b>
Applicable load	Relay/PLC
Load voltage	24 V DC
Max. load current and range	5 to 40 mA
Internal Circuit *	③
Contact protection circuit	None
Internal voltage drop	2.4 V or less

Indicator light Red LED illuminates when turned ON

#### D-E80A (Without indicator light)

Auto switch model number	<b>D-E80A</b>	
Applicable load	Relay/PLC/IC circuit	
Load voltage	24 V <sup>AC</sup> DC or less	48 V <sup>AC</sup> DC
Max. load current	50 mA	40 mA
Internal Circuit *	④	
Contact protection circuit	None	
Internal resistance	1 Ω or less (Including 3 m lead wire)	

\* For internal circuit, refer to the Internal Circuit No. on page 96.

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

### Oilproof Heavy-duty Lead Wire Specifications

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

### How to order

D-E [ ] A [ ] -588

Auto switch model number

73	With indicator light
80	Without indicator light

Lead wire length

-	0.5 m
L	3 m

Suffix for ATEX certified category 3

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



# ATEX Compliant

## ATEX Compliant Reed Switch/Direct Mounting D-R73/D-R80-588

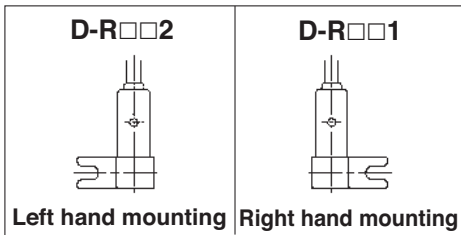


CE Ex II 3G Ex nA II T5 X -10 °C ≤ Ta ≤ +60 °C  
II 3D Ex tD A22 IP67 T93 °C X

**Grommet  
Electrical entry: In-line**



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



### Specifications

PLC: Programmable Logic Controller

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

\* For internal circuit, refer to the Internal Circuit No. on page 96.

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

### Oilproof Heavy-duty Lead Wire Specifications

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

● Suffix for ATEX certified category 3

● Lead wire length

-	0.5 m
L	3 m
Z	5 m

● Mounting

1	Right hand mounting
2	Left hand mounting





**ATEX Compliant**

# Rotary Actuator: Vane Type

## Series 55-CRB1/56-CRB1

Sizes: 50, 63, 80, 100

### How to Order

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

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

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

ATEX category 2

**Mounting**

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

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

**Size**

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

**Thread Port**

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

**Connecting port position**

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

Table 1: Foot assembly part no.

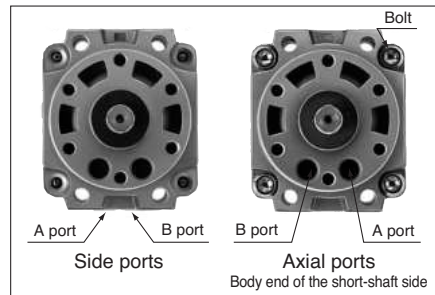
Model	Unit part no.
<b>CRB1LW 50</b>	P411020-5
<b>CRB1LW 63</b>	P411030-5
<b>CRB1LW 80</b>	P411040-5
<b>CRB1LW100</b>	P411050-5

**Shaft type**

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

**Rotation**

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



**Vane type**

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

### How to Order

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

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

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

ATEX category 3

**With auto switch unit**

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

**Mounting**

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

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

**Size**

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

**Thread Port**

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

**Connecting port position**

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

Table 1: Foot assembly part no.

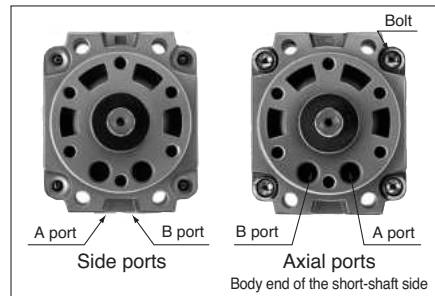
Model	Unit part no.
<b>CRB1LW 50</b>	P411020-5
<b>CRB1LW 63</b>	P411030-5
<b>CRB1LW 80</b>	P411040-5
<b>CRB1LW100</b>	P411050-5

**Shaft type**

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

**Rotation**

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



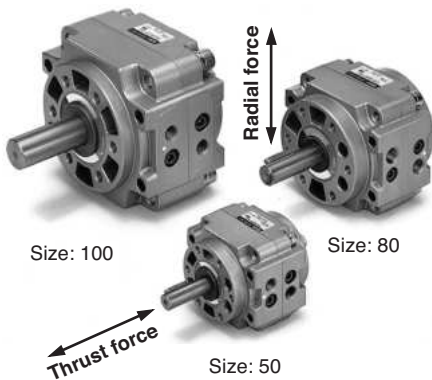
**Vane type**

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

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

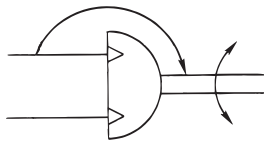
Refer to page 86 for applicable auto switches.

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



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

## JIS symbol



## Specifications

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



130 °C (T4) Ta 5 °C to 40 °C  
150 °C (T3) Ta 40 °C to 60 °C

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

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

**ATEX category 2**

**Mounting**

<b>B</b>	Basic type
<b>F<sup>1)</sup></b>	Flange type

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

**Size**

10
15
20
30
40

**Vane type**

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

**Rotation**

Vane type	Symbol	Rotation
Single vane	<b>90</b>	90°
	<b>180</b>	180°
	<b>270</b>	270°
Double vane	<b>90</b>	90°
	<b>100</b>	100°

**Connecting port position**

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

**Shaft type**

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

**Flange Assembly Part No.**

Model	Assembly part no.
<b>CRB2FW10</b>	P211070-2
<b>CRB2FW15</b>	P211090-2
<b>CRB2FW20</b>	P211060-2
<b>CRB2FW30</b>	P211080-2

### How to Order



100 °C (T5) Ta 5 °C to 40 °C  
120 °C (T4) Ta 40 °C to 60 °C

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

**56-CDRB2** **B** **W** **180** **S** **Z**

**ATEX category 3**

**With auto switch unit**

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

**Mounting**

<b>B</b>	Basic type
<b>F<sup>1)</sup></b>	Flange type

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

**Size**

10
15
20
30
40

**Vane type**

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

**Rotation**

Vane type	Symbol	Rotation
Single vane	<b>90</b>	90°
	<b>180</b>	180°
	<b>270</b>	270°
Double vane	<b>90</b>	90°
	<b>100</b>	100°

**Connecting port position**

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

\* E not possible with switch unit

**Shaft type**

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

\* Cannot be selected when mounting an auto switch

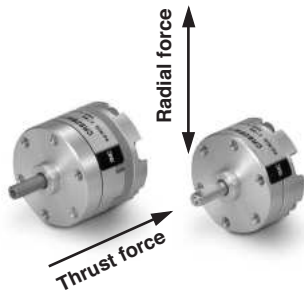
**Flange Assembly Part No.**

Model	Assembly part no.
<b>CRB2FW10</b>	P211070-2
<b>CRB2FW15</b>	P211090-2
<b>CRB2FW20</b>	P211060-2
<b>CRB2FW30</b>	P211080-2

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

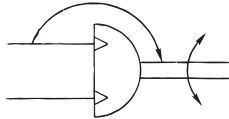
Refer to page 86 for applicable auto switches.

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



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

## JIS symbol



## Single Vane Specifications

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

## Double Vane Specifications

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

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

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

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


**ATEX Compliant**

# Rotary Actuator: Free-Mounting Type

## Series 55-CRBU2/56-CRBU2

Sizes: 10, 15, 20, 30, 40

### How to Order

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

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

**55-CRBU2 W**   **180** **S** **E** **Z**

**ATEX category 2**

**Free-mounting**

**Shaft type**

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

**Size**

10
15
20
30
40

**Rotation**

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


**Connecting port position**

-	Side ports
E	Axial ports

**Vane type**

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

### How to Order

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

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

**56-CDRBU2 W**   **180** **S** **E** **Z**

**ATEX category 3**

**With auto switch unit**

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

**Free-mounting**

**Shaft type**

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

**Size**

10
15
20
30
40

**Rotation**

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

**Connecting port position**

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

\* E not possible with switch unit

**Vane type**

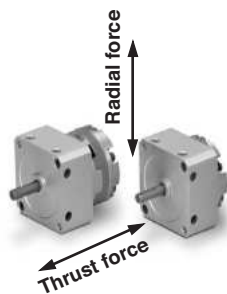
<b>S</b>	Single vane
<b>D</b>	Double vane

\* Cannot be selected when mounting an auto switch

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

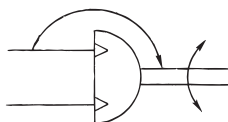
**Refer to page 86 for applicable auto switches.**

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



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

## JIS symbol



## Single Vane Specifications

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

## Double Vane Specifications

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

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


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

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



**ATEX Compliant**

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

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

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

## How to Order

**55-CDRQ2B S 20 90**

**ATEX category 2**

**Built-in magnet**

-	None
D	Magnet

**Shaft type**

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

**Size**

10
15
20
30
40

**Port thread type**

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

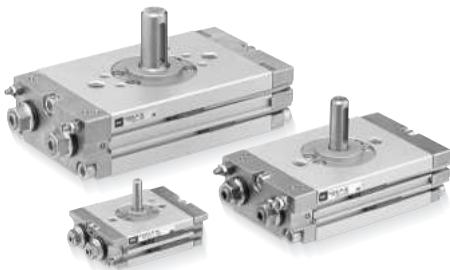
**Air cushion**

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

**Rotation**

90	80° to 100°
180	170° to 190°

## Specifications



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

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

## Allowable Kinetic Energy and Rotation Time Adjustment Range

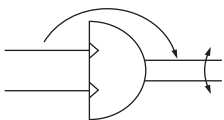
Size	Allowable kinetic energy				Stable operational rotation time adjustment range
	Allowable kinetic energy (J)			Cushion angle	
	Without cushion	Rubber bumper	With air cushion *		Rotation time (s/90°)
10	—	0.25 x 10 <sup>-3</sup>	—	—	0.2 to 0.7
15	—	0.39 x 10 <sup>-3</sup>	—	—	0.2 to 0.7
20	0.025	—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

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

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

Refer to page 86 for applicable auto switches.

JIS symbol





**ATEX Compliant**

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

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

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

## How to Order

**Without magnet** 56-CRQ2B S 20 [ ] - 90 [ ]

**With magnet** 56-CDRQ2B S 20 [ ] - 90 [ ]

ATEX category 3

Built-in magnet for auto switch

**Shaft type**

S	Single shaft
W	Double shaft

**Size**

10
15
20
30
40

**Port thread**

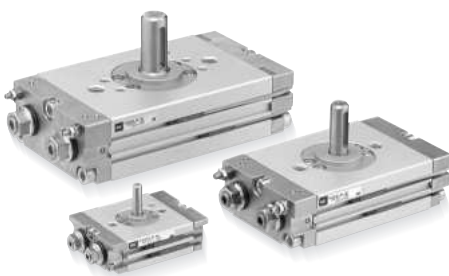
Size	Port thread	
10, 15	—	M5
	—	Rc 1/8
20, 30, 40	TF	G 1/8
	TN	NPT 1/8
	TT	NPTF 1/8

**Cushion**

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

**Rotation**

90	80° to 100°
180	170° to 190°

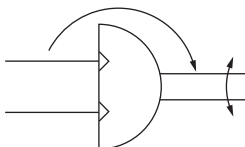


Note) All other specifications (dimensions, drawings, etc.) are the same as the non ATEX type.

## Specifications

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

Refer to page 86 for applicable auto switches.

ATEX Compliant

# Booster Regulator Series 56-VBA10A to 43A

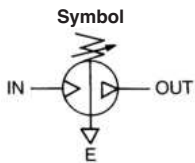
CE  II 3 GD c T6 Ta 2 °C to 50 °C

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

## How to Order

Series VBA 10A  
2□A  
4□A

**56** - **VBA** 40A -   04 **GN** -  



• ATEX category 3

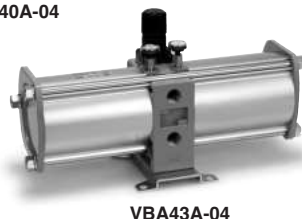
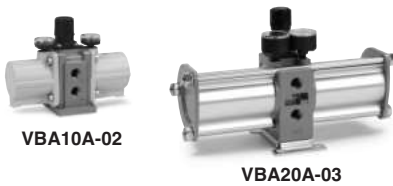
• Body size

• Semi-standard

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

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

Body size	Pressure increase ratio
10A	1/4, Handle-operated type
11A	1/4, Handle-operated type
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 <sup>Note)</sup>

Symbol	Thread type
—	Rc
F	G
N	NPT
T	NPTF

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

• Options

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

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

• Port size

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

### Combination of Thread Type and Options

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

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

## Standard Specifications

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

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

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

## Options/Part No.

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

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

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

Note 2) KT-VBA22A-7 is a pressure gauge with fittings. (Please order two units when using with IN and OUT.)

Note 3) Pressure unit of pressure gauge: MPa.

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

Model	VBA10A-N02 *	VBA20A-N03 *	VBA40A-N04 *	VBA22A-N03 *	VBA42A-N04 *	VBA43A-N04 *	VBA1111-N02*	
Description	VBA10A-T02 *	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 <sup>Note 5)</sup>	G	G27-20-01	G36-10-N01		KT-VBA22A-7N	G36-10-N01	G27-20-N01	G27-20-01
Pressure gauge *: when "-Z" <sup>Note 4)</sup>	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

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

### How to Order

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

**ATEX category 3**

**Piping specifications**

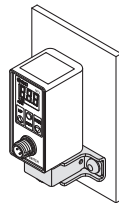
<b>02</b>	Rc 1/4
<b>N02</b>	NPT 1/4
<b>F02</b>	G 1/4 (ISO1179)

**Output specifications**

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

**Option 2**

—	None
<b>A</b>	With bracket



**Option 1**

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

**Unit specifications**

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

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

### Specifications

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

Follow the instructions given below when handling the pressure switch.


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

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

**ATEX Compliant**

# Digital Pressure Switch for General Fluids

## Series 56-ISE75/75H

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

### How to Order

**10 MPa**    **56-ISE75** - **02** - **43** - **M** □ □

**15 MPa**    **56-ISE75H** - **02** - **43** - **M** □ □

ATEX category 3 ●

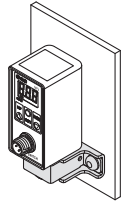
**Piping specifications ●**

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

**Output specifications ●**

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

**Option 2 ●**

—	None
<b>A</b>	With bracket  Note) Mounting screws are not included.

**Option 1 ●**

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

**Unit specifications ●**

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

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

Note 2) Fixed unit: Mpa

### Specifications

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

Follow the instructions given below when handling the pressure switch.

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

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

**ATEX Compliant**

# Pressure Switch: Reed Switch Type

## Series 56-IS10



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



For details about certified products conforming to international standards, visit us at [www.smcworld.com](http://www.smcworld.com).

**Long service life:  
5 million cycles**



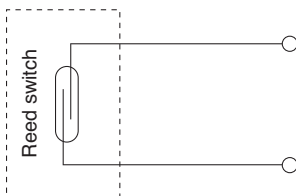
56-IS10

### Specifications

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

### Electrical Circuit

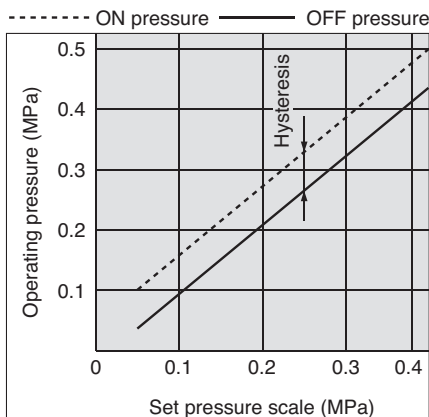
Up to 48 V AC/DC



### Switch Characteristics

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

### Operating Pressure Range



### How to Order

**56-IS10 - N 01 S -**

Atex Category 3

Therad size

-	R 1/8
N	NPT 1/8

Seal

-	None
S	With seal

Semi-standard

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


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

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



**ATEX Compliant**

# ATEX Compliant 2 Port Steam Valve Series 56-VND

CE  II 3G TX  
-5 °C ≤ Ta ≤ 60 °C

## How to Order

**Air operated** **ATEX category 3**

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

**Body option**

-	Standard (Copper alloy)
S*	Stainless steel body

\* Threaded type only

**Thread type**

-	Rc
F	G
N	NPT
T	NPTF

**Valve size**

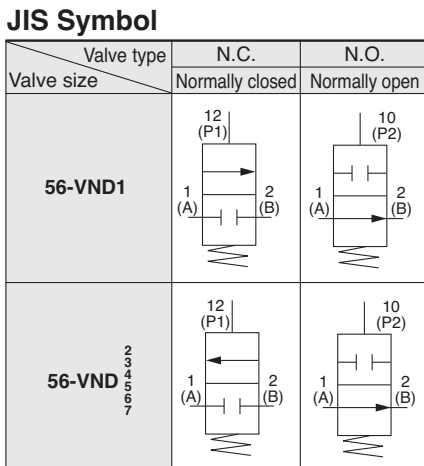
Symbol	Orifice dia. (mm)	Symbol			Symbol	Port size Rc
		0	2	4		
1	Ø 7	—	●	●	6A	1/8
		—	●	●	8A	1/4
		—	●	●	10A	3/8
2	Ø 15	●	●	—	10A	3/8
		●	●	—	15A	1/2
3	Ø 20	●	●	—	20A	3/4
4	Ø 25	●	●	—	25A	1
5	Ø 32	●	●	—	32A	1 1/4
		●	●	—	32F	1 1/4 B Flange
6	Ø 40	●	●	—	40A	1 1/2
		●	●	—	40F	1 1/2 B Flange
7	Ø 50	●	●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

**Option**

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

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

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

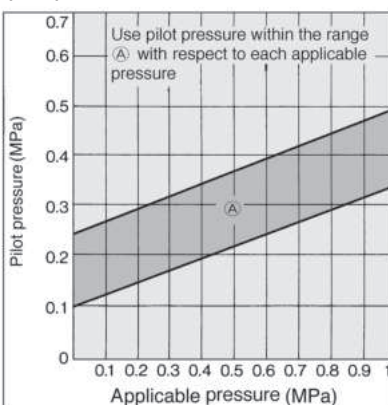


## Model


Model	Port size		Orifice dia. Ø (mm)	Flow characteristics Av x 10 <sup>-6</sup> m <sup>2</sup>	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


<b>Fluid (Main piping)</b>	Steam	
<b>Fluid temperature</b>	-5 to 180 °C (Note 1)	
<b>Ambient temperature</b>	-5 to 60 °C (Note 1)	
<b>Proof pressure</b>	1.5 MPa	
<b>Operating pressure range</b>	0 to 0.97 MPa	
<b>External pilot air</b>	<b>Pressure</b>	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)".
	<b>Lubrication</b>	Not required
	<b>Temperature</b>	-5 °C to 60 °C
<b>ATEX Category</b>	CE  II 3G TX -5 °C ≤ Ta ≤ 60 °C	
<b>Seal material</b>	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**

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

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

● **Port size**

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

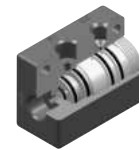
Note) Part number for sub-base  
For 2 port: VCC12-S-<sup>02</sup> [Rc 1/4] / <sup>02F</sup> [G 1/4]  
For 3 port: VCC13-S-<sup>02</sup> [Rc 1/4] / <sup>02F</sup> [G 1/4]



VCC12(D)-00



VCC13-00



VCC12(D)-02(F)



VCC13-02(F)

### Manifold

**Standard**

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

● **Type (Passage number)**

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

● **Pilot port fitting size**

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

● **2 port valve mountable number**

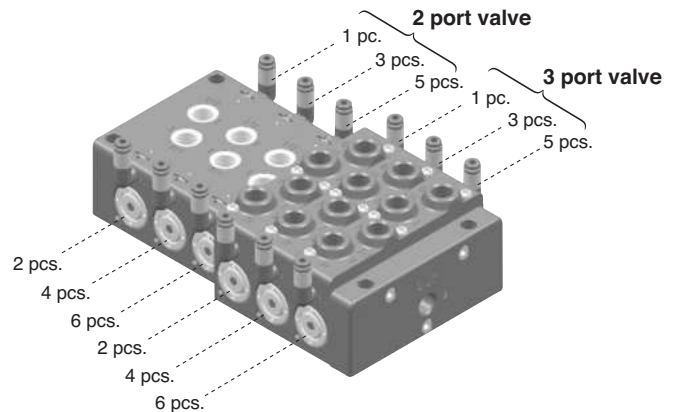
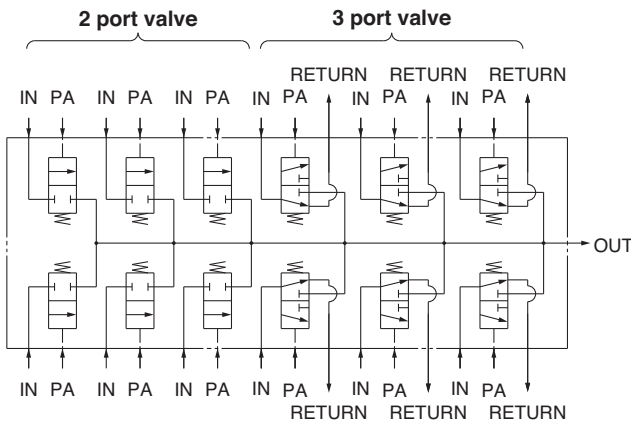
<b>00</b>	No 2 port valves used
<b>02</b>	2 pcs. (colours)
<b>04</b>	4 pcs. (colours)
⋮	⋮

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

● **3 port valve mountable number**

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

### 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

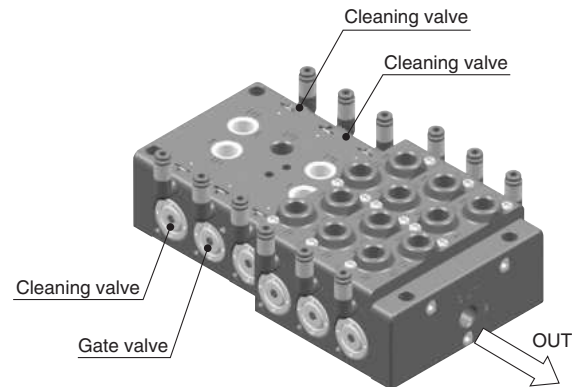
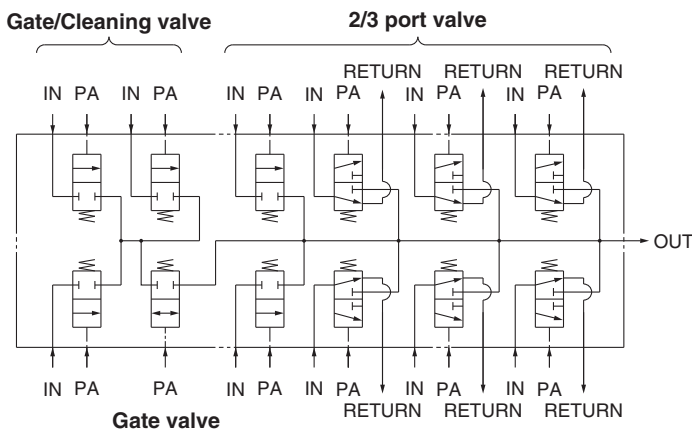
02	Cleaning valve (2 port valve): 1 pc. + Gate valve: 1 pc.
04	Cleaning valve (2 port valve): 3 pcs. + Gate valve: 1 pc.
06	Cleaning valve (2 port valve): 5 pcs. + Gate valve: 1 pc.

#### Pilot port fitting size

C4	∅ 4 one-touch fitting (Antistatic)
C6	∅ 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 <sup>2</sup> ]	6		
Fluid temperature [°C]	5 to 50		
Ambient temperature [°C]	5 to 50		
Explosion proof construction	Explosion protection $\text{C} \text{E} \text{II} \text{2GD} \text{c} \text{75} \text{ } ^\circ\text{C} \text{(T6X)}, 5 \text{ } ^\circ\text{C} \leq \text{Ta} \leq 80 \text{ } ^\circ\text{C}$		
Lubrication	Not possible (Default lubricant: White vaseline)		
Mounting orientation	Unrestricted		
Valve leakage (cm <sup>3</sup> /min)	1 or less (3 port valve IN → RETURN: 20 or less) <sup>Note 1)</sup>		1 or less <sup>Note 2)</sup>

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

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

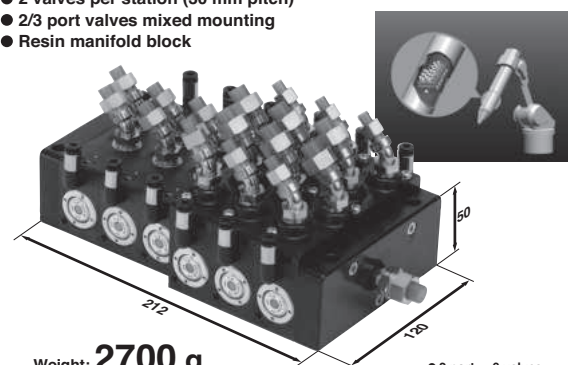
## SUS316L Stainless Steel Fitting Specifications

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

## Weight

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

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



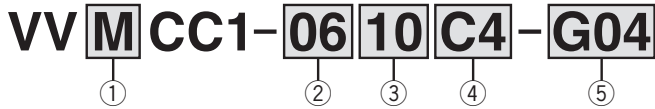
Weight: **2700 g**  
ATEX Explosion protection

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

## Manifold Specifications

### Series VCC

#### 1. How to Order a Manifold



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

#### ① Type (Passage number)

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

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

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

#### ④ Pilot port fitting size

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

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

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

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

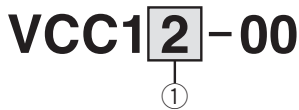
-	Without gate valve <small>Note 3)</small>
<b>G02</b>	Cleaning valve: 1 pc. + Gate valve: 1 pc.
<b>G04</b>	Cleaning valve: 3 pcs. + Gate valve: 1 pc.
<b>G06</b>	Cleaning valve: 5 pcs. + Gate valve: 1 pc.

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

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

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

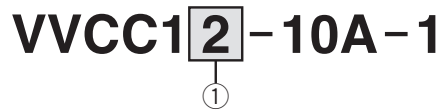
#### 2. How to Order a Valve



#### ① Type (Passage number)

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

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

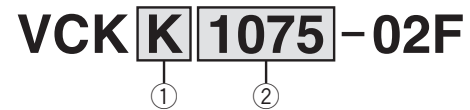


#### ① Type (Passage number)

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

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

#### 4. How to Order the SUS316L Stainless Steel Fitting

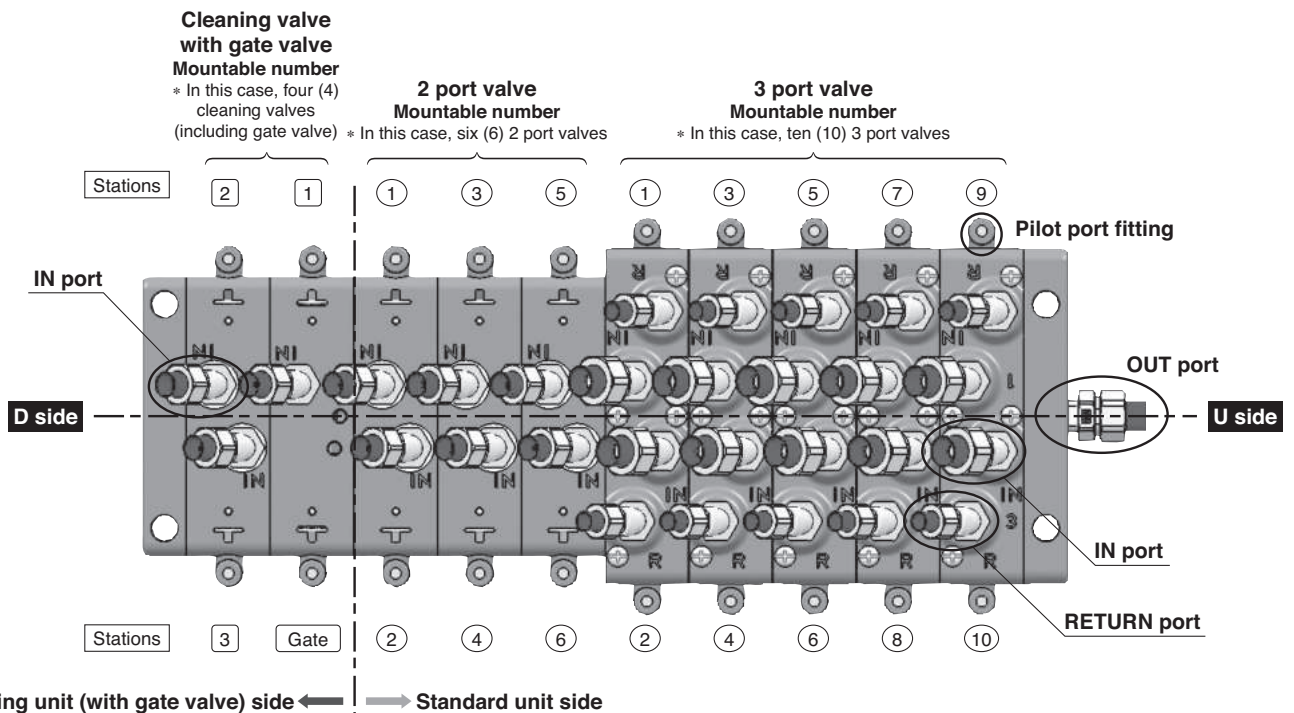


#### ① Type (Shape)

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

#### ② Piping port

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



ATEX Compliant

# High Purity Chemical Valve Series 55-LVA

55-LVA10 and 55-LVA12  
 II 2G c IIB T6 X Ta 0 °C to +50 °C  
 II 2G c IIB TXX Ta 0 °C to +60 °C  
 Special condition X "Protect from impact"

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

Note) The manifold type is not available with ATEX certification

## How to Order Valves (Single Type)

55-LVA 2 0 - 02 - A

### Body class

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

### Valve type

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

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

### Port size

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

### Option

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

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

### Material

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

## Specifications

Model		55-LVA10	55-LVA20	55-LVA30	55-LVA40	55-LVA50	55-LVA60
Fluid temperature (°C)	Temperature class T6	0 to 50					
	Temperature class TX	0 to 100					
Ambient temperature (°C)	Temperature class T6	0 to 50					
	Temperature class TX	0 to 60					

### Thread type

Symbol	Thread type
-	Rc
N	NPT
F	G

## Variations

Type	Symbol	Model	Orifice diameter											
			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.	—	—	—	—	○	—	○	—	○	—	
Body material Only PFA			Double acting	—	—	—	—	○	—	○	—	○	—	
With flow rate adjustment & by-pass			N.C.	—	—	—	—	○	—	○	—	○	—	
Body material Only PFA			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. <sup>Note 2)</sup>	0.15 or less	0.3 or less		0.2 or less		
	Double acting	0.3 or less	0.4 or less		0.3 or less		
Valve leakage [cm <sup>3</sup> /min]	0 (with water pressure)						
Pilot air pressure [MPa]	0.3 to 0.5						
Pilot port size	M5 X 0.8		Rc 1/8, NPT 1/8, G 1/8				
Fluid temperature [°C]	Temperature class T6	0 to 50					
	Temperature class TX	0 to 100 <sup>Note 1)</sup>					
Ambient temperature [°C]	Temperature class T6	0 to 50					
	Temperature class TX	0 to 60					
Weight [kg]	Stainless steel (SUS)	0.12	0.18	0.44	0.86	1.67	1.96
	PPS	0.05	0.08	0.18	0.32	—	—
	PFA	—	0.09	0.20	0.35	—	—

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

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

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

### Piping

## ⚠ Caution

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

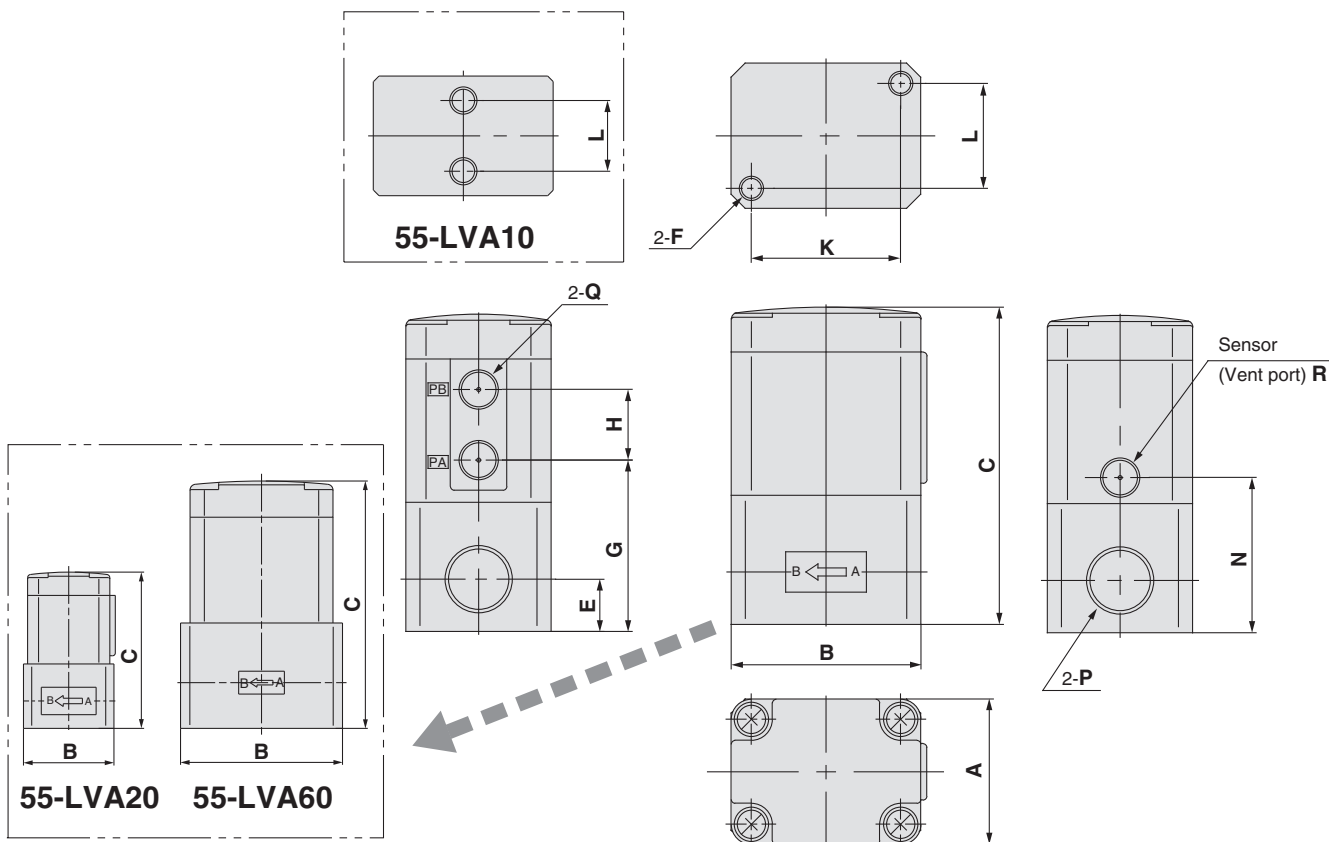
This can cause damage to the valve body.

# Series 55-LVA

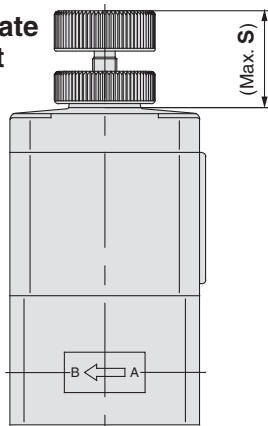
## Dimensions

Body material: Stainless steel

Basic type



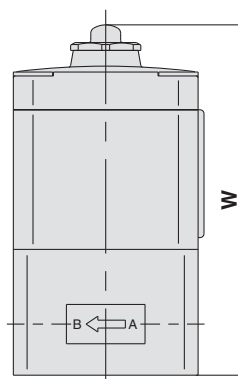
With flow rate adjustment



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)

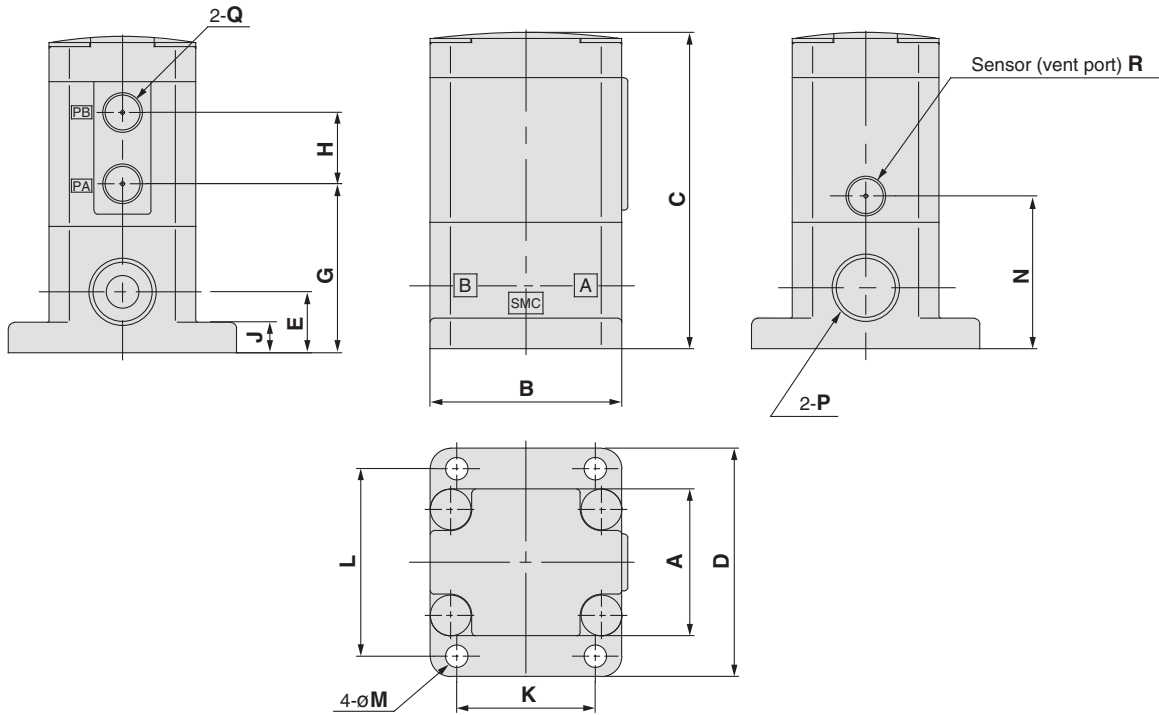
Model	A	B	C	E	F	G	H	K	L	N	P	Q	R
55-LVA1□	20	33	49.5	10	M5 X 0.8 X 4	27.5	11	—	13	27.5	Rc 1/8, 1/4 NPT 1/8, 1/4 G 1/8, 1/4	M5 X 0.8	Ø 4.2
55-LVA2□	30	33	57	10	M X 0.8 X 5	31	13	22	22	26			M3 x 0.5
55-LVA3□	36	47	78.6	13	M6 X 1.0 X 8	42.5	17.5	37	26	38.5	Rc 1/4, 3/8 NPT 1/4, 3/8 G 1/4, 3/8		
55-LVA4□	46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

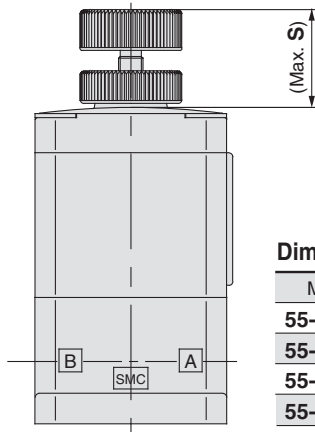
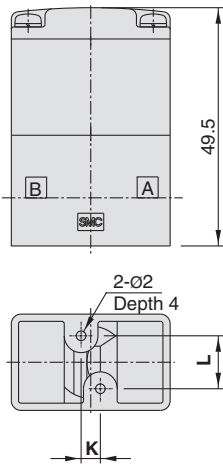
Basic type



### 55-LVA10

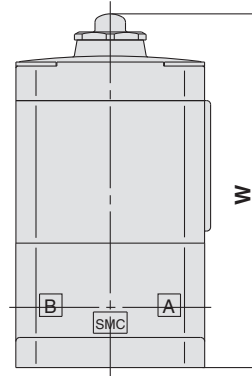
### With flow rate adjustment

### 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 <sub>1</sub> / <sub>2</sub>	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

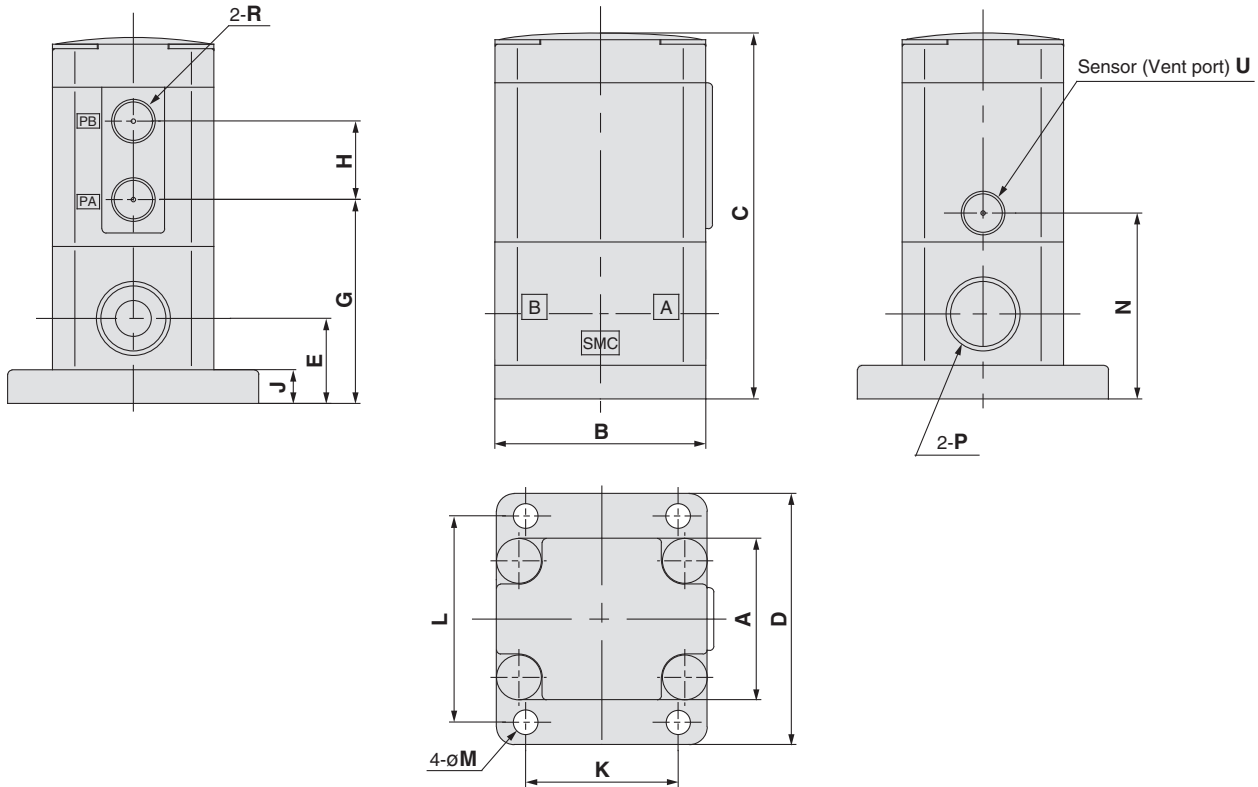


# Series 55-LVA

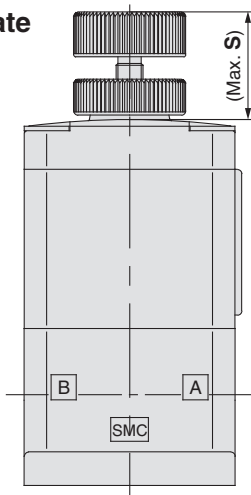
## Dimensions

Body material: PFA

Basic type



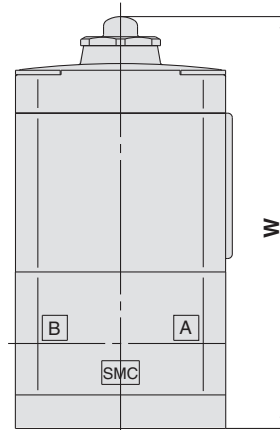
With flow rate adjustment



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

Note) The manifold type is not available with ATEX certification



## Standard Specifications

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

## How to Order Valve

**55-LVA 2 0 0 - 02 □ - C**

**Body class**

Symbol	Body class	Orifice dia.
2	2	Ø 4

**Valve type**

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

**Thread type**

Symbol	Thread type
-	Rc
N	NPT

**Port size**

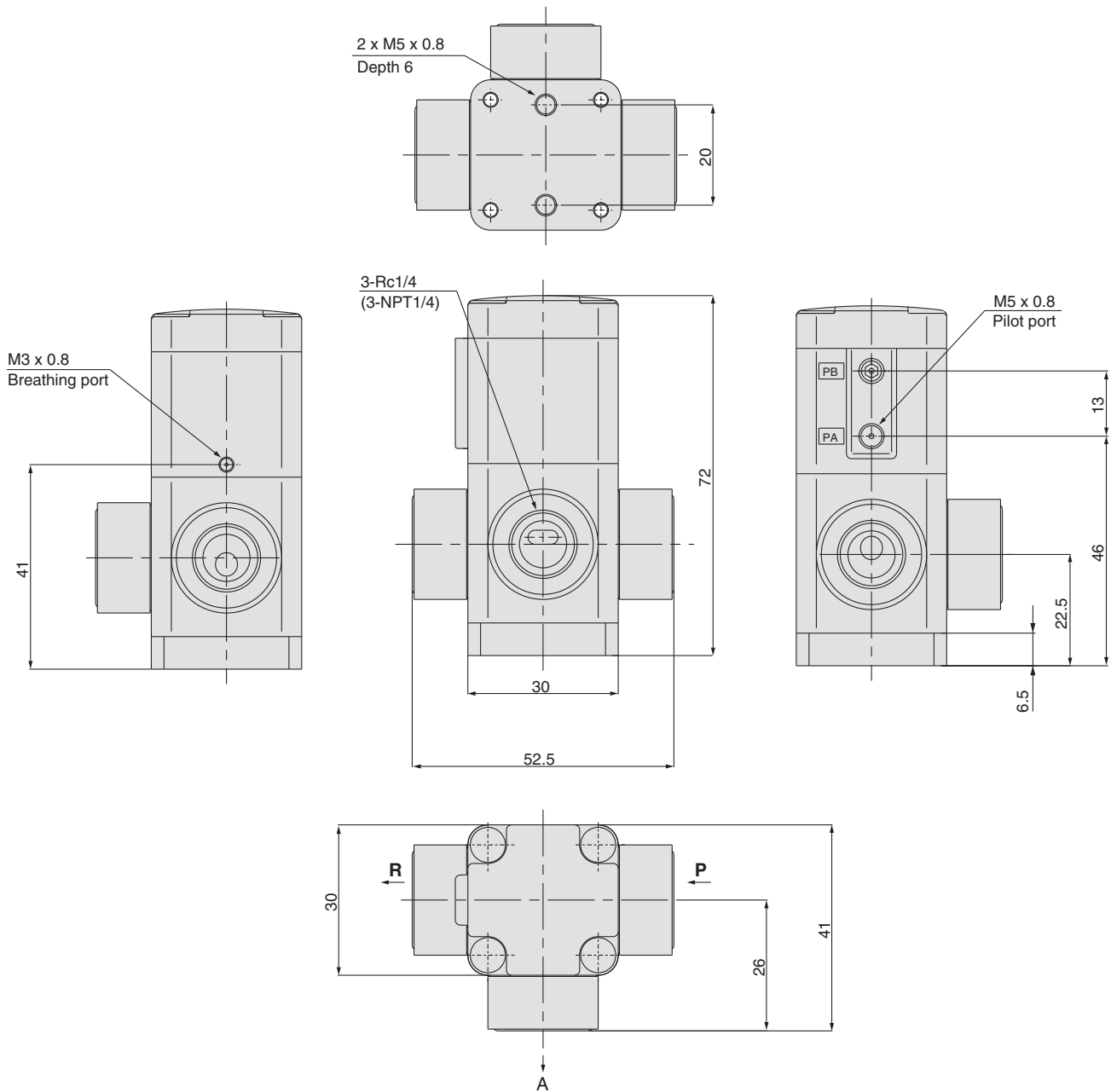
Symbol	Port size
02	1/4

**Material**

Symbol	Body	Actuator section	Diaphragm
C	PFA	PPS	PTFE

# Series 55-LVA

## Dimensions



# Process Pump. Automatically operated type Air operated type

## Series 56-PA3000/5000

Automatically operated type (internal switching type)

Air operated type (external switching type)



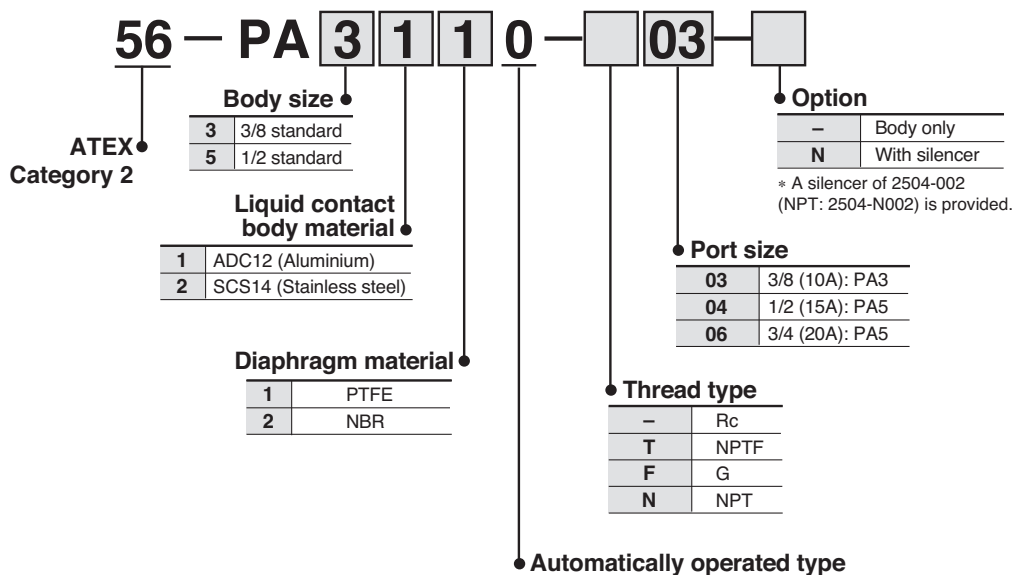
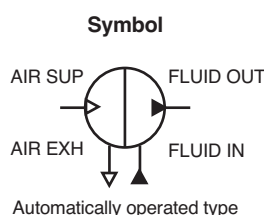
For 55-PA3□□0: II 2 GD c T6 Ta 0 °C to +60 °C  
 For 55-PA3□□3: II 2 GD c T5 Ta 0 °C to +60 °C  
 For 55-PA5□□□: II 2 GD c T6 Ta 0 °C to +60 °C  
 For 55-PA5□□3: II 2 GD c T6 Ta 0 °C to +60 °C



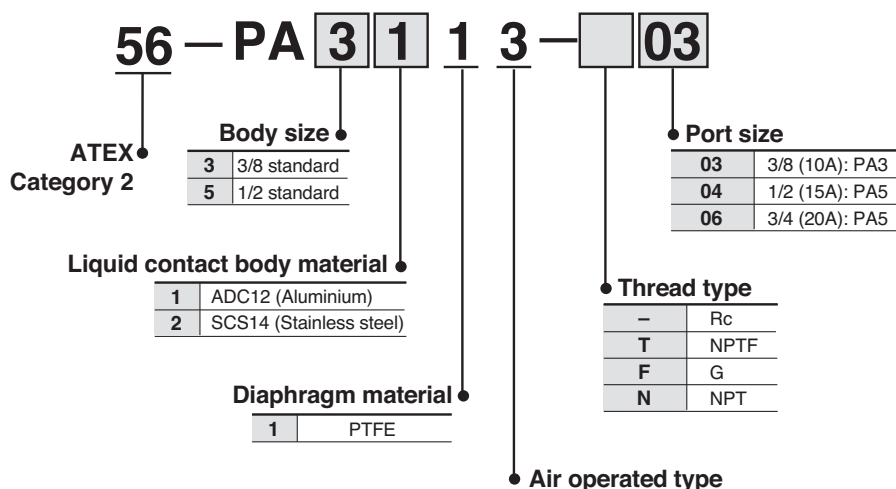
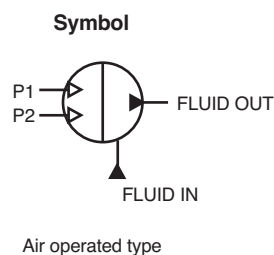
For more details, other specifications, dimensions, see the specific catalogue.

### How to Order

#### Automatically operated type (internal switching type)



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




# Process Pump. Automatically operated type Air operated type

## Series 56-PA3000/5000

Automatically operated type (internal switching type)  
Air operated type (external switching type)

CE  II 3 GD c T6 Ta 0 °C to +60 °C

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

### How to Order

#### Automatically operated type (internal switching type)

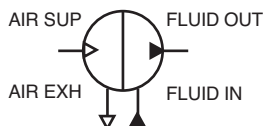
56-PA3000



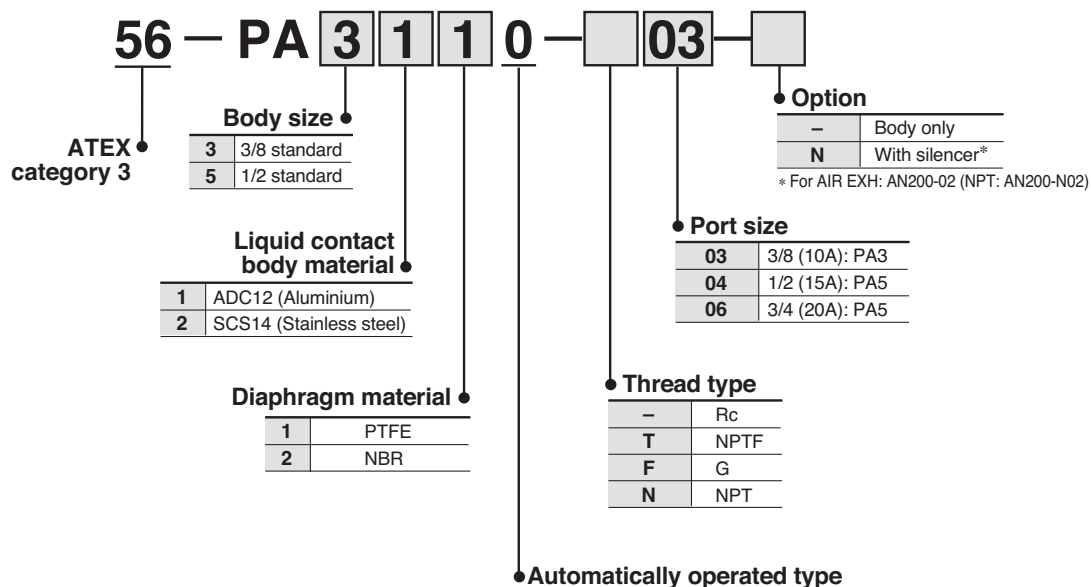
56-PA5000



Symbol



Automatically operated type



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

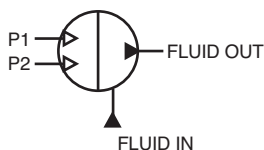
56-PA3000



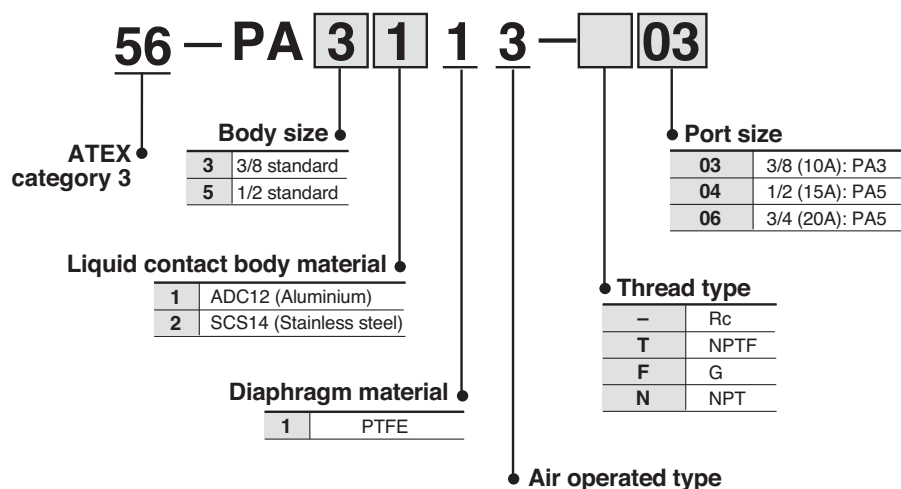
56-PA5000



Symbol



Air operated type





**ATEX Compliant**

# Pneumatic-Pneumatic Positioner

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

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

CE  II 2GDc T4-T6  
II 3GDc T4-T6

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

### How to Order

**56-IP5 000-0 1 0**      

**ATEX category**

55	2
56	3

**Positioner type**

000	Lever type
100	Rotary type

**Input pressure**

0	0.2 to 1.0 MPa (Standard)
1	1/2 split, 0.02 to 0.06, 0.06 to 0.1 MPa

**Pressure gauge (SUP, OUT1)**

0	Not provided
1	0.2 MPa
2	0.3 MPa
3	1.0 MPa

**Indication of opening** Note 1)

0	Not provided
1	Indicated

Note 1) 55/56-IP5000 is available only with option "0" (no indication).

**Ambient temperature**

-	-20 to 80 °C (Standard)
T	High temperature -5 to 100 °C
L	Low temperature -30 to 60 °C

Note ) Please refer to table below

**Accessories** Note 1)

-	Without accessory (standard)	With standard lever (10 to 85 mm stroke) for 55/56-IP5000
A	With Ø 0.7 output restrictor integrated pilot valve	Common to 55/56-IP5000 and 55/56-IP5100 small capacity actuators
B	With Ø 1.0 output restrictor integrated pilot valve	
C	With fork lever type fitting M	Only for 55/56-IP5100
D	With fork lever type fitting S	
E	With lever unit for a 35 to 100 mm stroke	Only for 55/56-IP5000 <small>Note 2)</small>
F	With lever unit for a 50 to 140 mm stroke	

Note 1) If multiple accessories are required, they should be indicated in alphabetical order.  
ex. 55-IP5000-010-AD  
Note 2) For "E" and "F", standard lever is not provided.

**Pressure gauge / Air port**

-	Rc (Standard)
N	NPT
F	G

# Series 55-/56-IP5000/5100

## Specifications

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

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

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


**ATEX Compliant**

# Electro-Pneumatic Positioner

## Series IP8000 (Lever type)

## Series IP8100 (Rotary type)

CE  II 2G Ex ib IIC T5/T6

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

### How to Order

**ATEX Directive Intrinsically Safe Explosion Proof**

**IP8 000-0 0 0- X14-L**

**Positioner type**

000	Lever type
100	Rotary type

**Pressure gauge (SUP, OUT1)**

0	Not provided
1	0.2 MPa (R 1/8)
2	0.3 MPa (R 1/8)
3	1.0 MPa (R 1/8)

**Option** Note 7)

Symbol	Option	Applicable model	
		IP8000-X14	IP8100-X14
—	—	●	●
L	Low temperature (-40 to 60 °C)	●	●
W	With internal position indicator	—	●

**ATEX directive compliance and connection**

<b>X14</b>	ATEX directive category 2 Intrinsically safe explosion-proof equipment Air connection port: 1/4 NPT Conduit connection port: M20 x 1.5 With blue cable gland
------------	--

**Accessories** Note 1)

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

Note 1) If multiple accessories are required, they should be indicated in alphabetical order.  
ex. IP8100-010-AG

Note 2) "A" is applied to approx 90 cm<sup>3</sup>-capacity actuator.

"B" is applied to approx 180 cm<sup>3</sup>-capacity actuator.

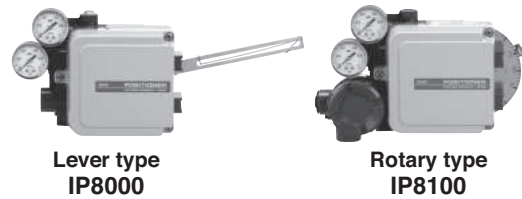
Note 3) Fork lever-type fitting MX (Connection thread: M6 x 1) for IP8100-0□0-□-X14.

Note 4) Fork lever-type fitting SX (Connection thread: M6 x 1) for IP8100-0□0-□-X14.



Note 5) Standard lever is not attached.

Note 6) It is to be used together with "A" or "B" when tending to overshoot by the use of "A" or "B". It is mounted to the body as a replacement of the standard compensation spring.

Note 7) Combination of "L" and "W" is not available.



### Specifications

Item	Type	IP8000		IP8100	
		Lever type lever feedback	Rotary type cam feedback	Single acting	Double acting
Input current		4 to 20 mA DC (standard) <small>Note 1)</small>			
Input resistance		235 ohms (4 to 20 mA DC)			
Supply air pressure		0.14 to 0.7 MPa			
Standard stroke		10 to 85 mm (Deflection angle 10 to 30)		60 to 100 <small>Note 2)</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.			
Coefficient of temperature		Within 0.1 % F.S. / C			
Output flow rate		80 l/min (ANR) or more (SUP = 0.14 MPa) <small>Note 3)</small>			
Air consumption		Within 5 l/min (ANR) or less (SUP = 0.14 MPa)			
Ambient fluid temperature		Standard type: -20 to 80 °C (T5) / -20 to 60 °C (T6) Low temperature type: -40 to 60 °C (T6)			
Explosion protected construction		Intrinsic safety type of explosion protection (CE 0344  II 2G Ex ib IIC T5/T6) Approval no. KEMA 03 ATEX1119			
Air connection port		1/4 NPT female screw			
Electrical wiring connection		M20 x 1.5			
Material		Aluminum diecast body			
Weight		Approx. 2.4 kg			
Classification of degree of protection		JISF8007, IP65 (conforms to IEC 60529)			
Parameters		Ui ≤ 28 V, Ii ≤ 125 mA, Pi ≤ 1.2 W, Ci ≤ 0nF, Li ≤ 0mH			

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

Note 2) The stroke is adjustable in 0 to 60 °C and 0 to 100 °C

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

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



# Series IP8000/8100

## Accessory / Option

### Pilot valve with output restriction (IP8000, 8100 type)

In general, mounting on a small-size actuator may cause hunting. For prevention, a pilot valve with a built-in output restriction is available. The restriction is removable.

(Ambient temperature: Standard)

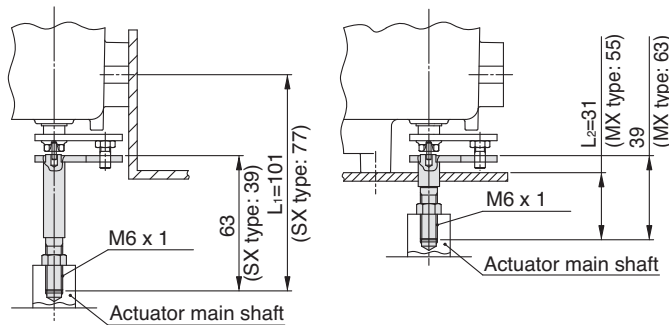
Actuator Capacity	Orifice size	Part number	Pilot unit part number
90 cm <sup>3</sup>	Ø 0.7	P36801080	P565010-18
180 cm <sup>3</sup>	Ø 1	P36801081	P565010-19

### Fork lever joints (IP8100 type)

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

This is recommended because it can absorb off-centering, compared with direct mounting type.

Part name	Part number
Fork lever assembly MX	P368010-36
Fork lever assembly SX	P368010-37



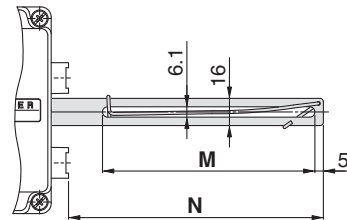
Side mounting with the fork lever assembly MX

Rear mounting with the fork lever assembly SX

### External feedback lever (IP8000 type)

Different feedback levers are available dependent upon valve strokes. Consult with SMC in case of 10 mm or less stroke.

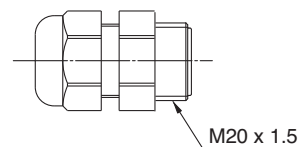
Stroke	Unit number	Size M	Size N
10 to 85 mm (standard)	P368010-20	125	150
35 to 100 mm (Accessory "E")	P368010-21	110	195
50 to 140 mm (Accessory "F")	P368010-22	110	275



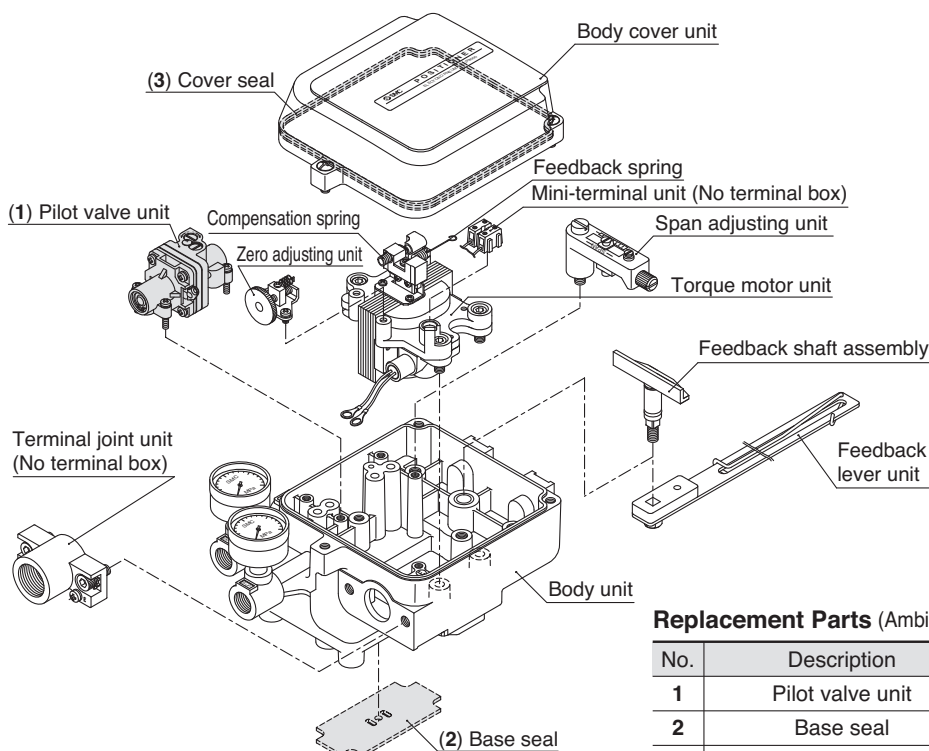
### Cable gland (for -X14)

#### Cable gland

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



## Exploded View



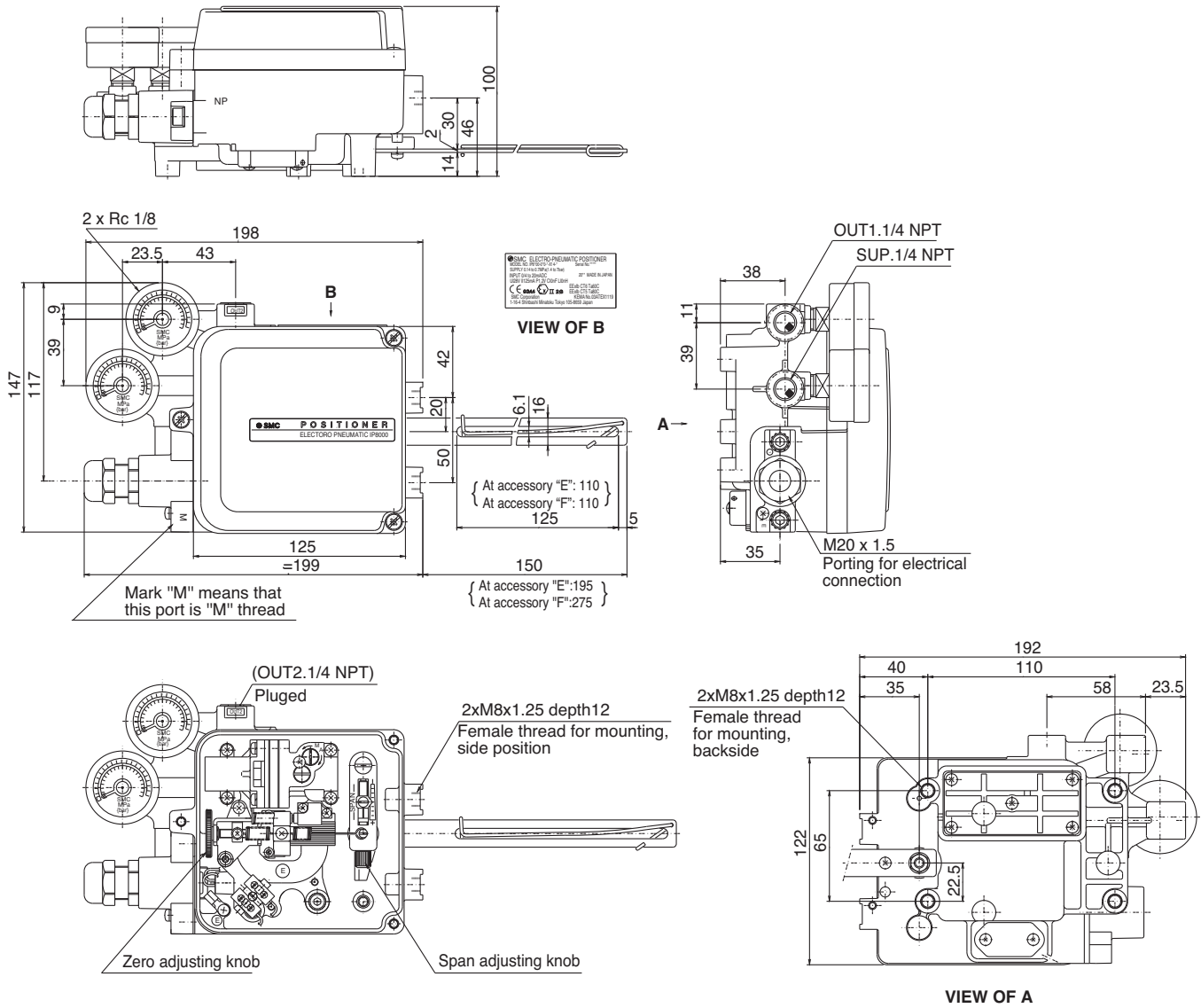
### Replacement Parts (Ambient temperature: Standard)

No.	Description	Part no.	Note
1	Pilot valve unit	P565010-7	
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

CE Ex II 1 G Ex ia IIC T4/T5/T6 Ga  
T4/T5: Ta = -20 °C to 80 °C T6: Ta = -20 °C to 60 °C

## How to Order

### Specifications

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

### ATEX directive compliance

52 ATEX directive category 1  
Intrinsically safe explosion-proof

ATEX Directive Intrinsically Safe Explosion proof

52-IP8001-034-□-□-□



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 <sup>Note)</sup>	Rc 1/4	M20 x 1.5
N	Rc 1/4	1/2 NPT
1	1/4 NPT	G 1/2
2 <sup>Note)</sup>	1/4 NPT	M20 x 1.5
3	1/4 NPT	1/2 NPT
4	G 1/4	G 1/2
5 <sup>Note)</sup>	G 1/4	M20 x 1.5
6	G 1/4	1/2 NPT

Note) When the symbol is M, 2, or 5 for 52-ATEX directive items, a blue cable gland is included with the electrical connection.

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

Symbol	Accessories	Applicable model	
		IP8001	IP8101
—	None (Standard)	●	●
C	Fork lever-type fitting M	—	●
D	Fork lever-type fitting S	—	●
E	For stroke 35 to 100 mm with lever unit <sup>Note 2)</sup>	●	—
F	For stroke 50 to 140 mm with lever unit <sup>Note 2)</sup>	●	—
H	With external scale plate	—	●
W	Body with LCD window	●	●

Note 1) If two or more accessories are required, the part numbers should be given in alphabetical order. (ex. 52-IP8101-034-CH)

Note 2) Standard lever is not attached.

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

# Series 52-IP8001/8101

## Specifications Note 1)

Item	Type	IP8001	IP8101
		Smart Positioner	
		Lever type	Rotary type
		Single action / Double action	
<b>Input current</b>	4 to 20 mA DC (Standard) <small>Note 2)</small>		
<b>Min. operating current</b>	3.85 mA DC or more		
<b>Intra-terminal voltage</b>	12 V DC (equivalent to 600 Ω input resistance, at 20 mA DC)		
<b>Max. supplied power</b>	1 W (Imax: 100 mA DC, Vmax: 28 V DC)		
<b>Supply air pressure</b>	0.14 to 0.7 MPa	0.3 to 0.7 MPa	
<b>Standard stroke</b>	10 to 85 mm (Allowable deflection angle 10 to 30°)	60 to 100°	
<b>Sensitivity</b> <small>Note 3)</small>	Within 0.2 % F.S.		
<b>Linearity</b> <small>Note 3)</small>	Within ±1 % F.S.		
<b>Hysteresis</b> <small>Note 3)</small>	Within 0.5 % F.S.		
<b>Repeatability</b> <small>Note 3)</small>	Within ±0.5 % F.S.		
<b>Coefficient of temperature</b>	Within 0.05 % F.S./C		
<b>Supply pressure fluctuation</b>	— <small>Note 4)</small>		
<b>Output flow</b> <small>Note 5)</small>	80 l/min (ANR) or more (SUP = 0.14 MPa)	200 l/min (ANR) or more (SUP = 0.4 MPa)	
<b>Air consumption</b> <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)	
<b>Ambient and fluid temperature</b>	-20 °C to 80 °C (T4/T5) -20 °C to 60 °C (T6)		
<b>Explosion proof construction</b> <small>Note 6)</small>	ATEX intrinsically safe explosion-proof construction (II 1G Ex ia IIC T4/T5/T6)		
<b>ATEX intrinsically safe explosion-proof parameter (current circuit)</b>	Ui ≤ 28 V, Ii ≤ 100 mA, Pi ≤ 0.7 W, Ci ≤ 12.5 nF, Li ≤ 1.5 mH		
<b>Enclosure Protection Rating</b>	JISF8007, IP65 (conforms to IEC Pub.60529)		
<b>Communication method</b> <small>Note 6)</small>	HART transmission		
<b>Air connection port</b> <small>Note 7)</small>	Rc 1/4 female thread, NPT 1/4 female thread, G 1/4 female thread		
<b>Electrical connection port</b> <small>Note 7)</small>	G 1/2 female thread, M20 x 1.5 female thread, NPT 1/2 female thread		
<b>Material/coating</b>	Aluminum diecast body/baking finish with denatured epoxy resin		
<b>Weight</b>	2.6 kg		

Note 1) Specification values are given at normal temperature (20 °C).

Note 2) 1/2 Split range (Standard)

Note 3) Characteristics relating to accuracy differ depending on combination with other constituent loop equipment, such as positioners and actuators.

Note 4) While there is no output changes due to pressure fluctuations, when the pressure supply setting is changed following calibration, once again adjust balance current and perform calibration.

Note 5) (ANR) indicates JIS B0120 standard air.

Note 6) Model selection required for explosion proof construction and HART transmission.

Note 7) Thread type can be specified by model selection.

## Optional Specifications

Item	Type	52-IP8□01-0□4
		Smart Positioner
Analogue output	<b>Wiring</b>	2-wire
	<b>Output signal</b>	4 to 20 mA DC
	<b>Power supply voltage</b>	10 to 28 V DC
	<b>Load resistance</b>	0 to 750 Ω
	<b>Accuracy</b>	±0.5 % F.S. or less <small>Note 1)</small>
Alarm output 1, 2	<b>Wiring</b>	2-wire
	<b>Applicable standards</b>	DIN19234/NAMUR Standard
	<b>Power supply voltage</b>	5 to 28 V DC
	<b>Load resistance</b>	(Constant current output)
	<b>Alarm ON</b>	≥2.1 mA DC
	<b>Alarm OFF (Leakage current)</b>	≤1.2 mA DC
	<b>Response time</b>	50 msec or less

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

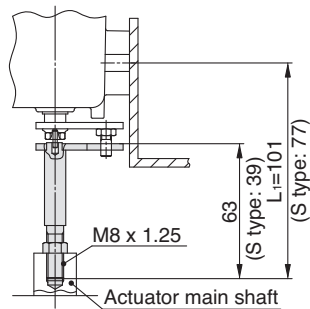
# Electro-Pneumatic Positioner Smart Positioner Series 52-IP8001/8101

## Accessory / Option

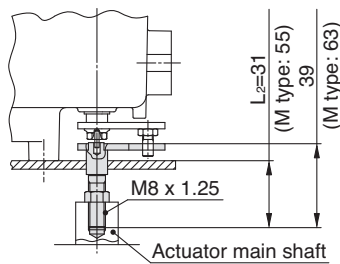
### Fork lever-type fittings (8101)

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



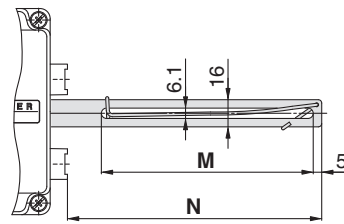
Rear mounting with the fork lever assembly S

### External feedback lever (IP8001)

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

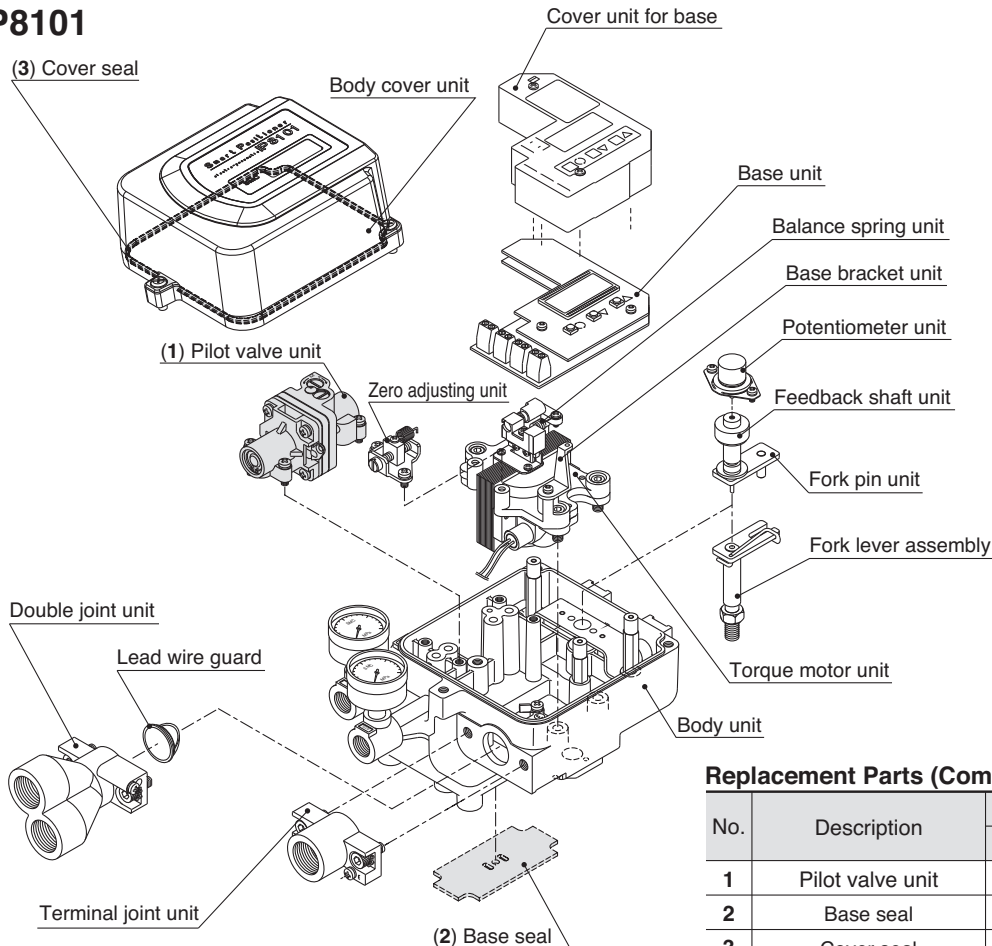
#### Feedback lever types

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



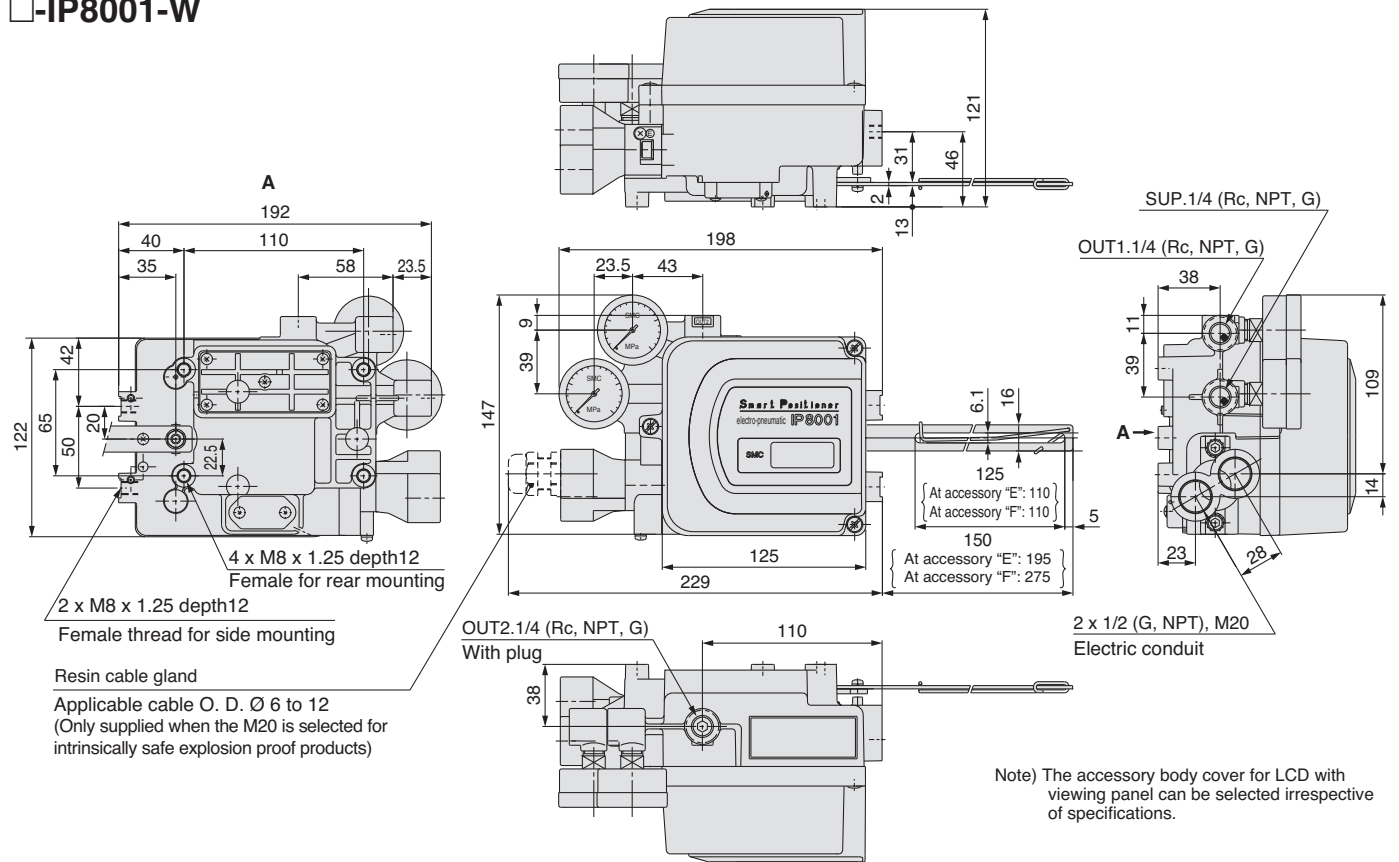
#### Replacement Parts (Common for IP8001/8101)

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

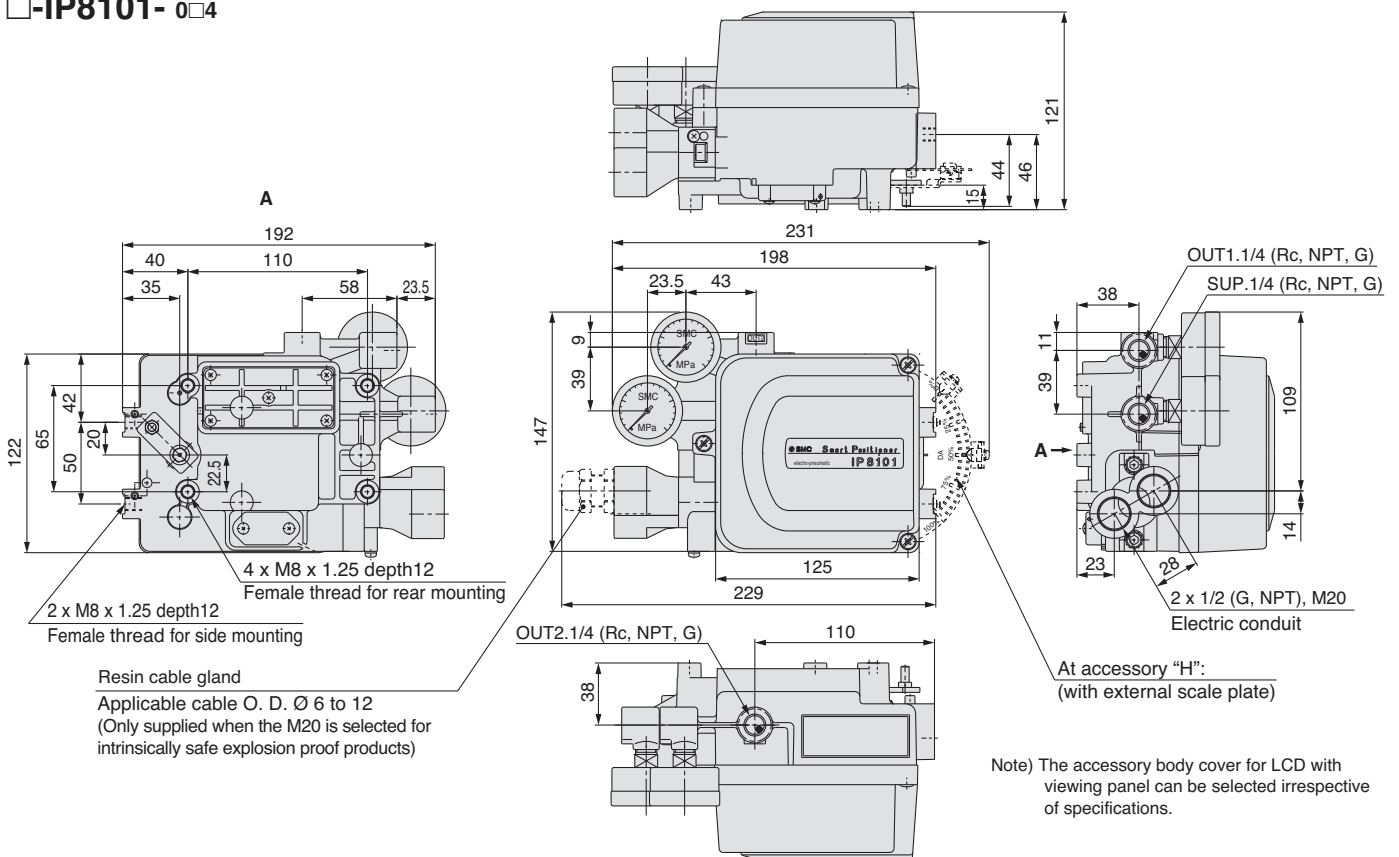
## Dimensions / IP8001 (Lever type)

### □-IP8001-W



## Dimensions / IP8101 (Rotary type)

### □-IP8101- □□□





**ATEX Compliant**

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

CE  II 3GD T5...T6

## How to Order



**56** - **IP2** **0** **0** -    -   

Conform to ATEX directive category 3

Stroke 25 to 300 mm

Model

Temperature and Material

<b>0</b>	Standard
<b>1</b>	Outside tube fixed to the main body

<b>-</b>	Standard	-5 to 60 °C
<b>T</b>	High	-5 to 100 °C
<b>L</b>	Low	-30 to 60 °C
<b>S</b>	Feedback spring and zero adjuster screw made of stainless steel	

## Specifications

Classification	Ambient temperature range		
	Low temp. model 56-IP20□-□-□-□	Standard model 56-IP20□-□-□-□	High temp. model 56-IP20□-□-□-□
II 3GD c T5	—	—	-5 °C to 100 °C
II 3GD c T5	—	—	-5 °C to 80 °C
II 3GD c T6	-30 °C to 60 °C	-5 °C to 60 °C	-5 °C to 60 °C

<b>Supply pressure</b>	0.3 ~ 0.7 MPa
<b>Signal pressure</b>	0.02 ~ 0.1 MPa
<b>Port size</b>	Rc 1/4 (standard)
<b>Pressure gauge port type</b>	Rc 1/8
<b>Linearity</b>	Less than +/- 2 % F.S.
<b>Hysteresis</b>	Less than 1 % F.S.
<b>Repeatability</b>	Less than 1 % F.S.
<b>Sensitivity</b>	Less than 0.5 % F.S.
<b>Air consumption</b>	18 l/min (ANR) or less (at 0.5 MPa supply)
<b>Max. air flow</b>	200 l/min (ANR) or less (at 0.5 MPa supply)
<b>Applicable cylinder [mm]</b>	50 ~ 300 bore sizes / 25 ~ 300 mm stroke
<b>Operating temperature</b>	-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

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

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

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

### Warning

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

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

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

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

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

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

#### 4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

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

### Caution

**We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.**

**Use in non-manufacturing industries is not covered.**

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

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

## Limited warranty and Disclaimer/Compliance Requirements

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

### Limited warranty and Disclaimer

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

## Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.



# Common Precautions

Be sure to read before handling.

## Selection

### Warning

#### 1. Confirm specifications.

Products represented in this catalogue are designed for use in compressed air applications only (including vacuum), unless otherwise indicated. Do not use the products outside of their designed parameters. Contact SMC when using the product with fluids other than compressed air (including vacuum).

## Installation

### Warning

#### 1. Do not install unless the safety instructions have been read and understood.

Keep this catalogue on file for future reference.

#### 2. Maintenance

When installing the product, allow for maintenance access.

#### 3. Tightening torque

When installing the product, follow the torque specification.

## Piping

### Caution

#### 1. Before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

#### 2. Sealant tape

When installing piping or a fitting into a port, make sure that the sealant material does not clog the pressure port. Leave the first 1.5 to 2 thread turns exposed at the end of the pipe/fitting when using sealant tape.

## Air Supply

### Warning

#### 1. Operation fluid

Consult with SMC when using the product in applications which use fluids other than compressed air (including vacuum).

Regarding products for general fluids, consult with SMC regarding applicable fluids.

#### 2. Large amount of drainage.

Compressed air containing larger amount of drainage can cause malfunction of pneumatic equipment.

Please installation of an air dryer and mist separator (Drain Catch) before air filter.

#### 3. Drain

If condensation in the air filter is not emptied on a regular basis, condensation that flows to the outlet side can cause a malfunction. If it is difficult to check and remove, installation of a filter with an auto-drain function is recommended. Refer to Best Pneumatics for details on compressed air quality.

#### 4. Use clean air

Do not use compressed air which includes chemicals, synthetic oils containing organic solvents, salt, or corrosive gases, etc., as this can cause damage or malfunction.

## Environment

### Warning

1. Do not use in an environment where the product is directly exposed to corrosive gases, chemicals, sea water, water or steam.

2. In locations which receive direct sunlight, provide a protective cover, etc.

3. Do not operate in locations where vibration or impact occurs.

4. Do not use in locations where radiated heat will be received from nearby heat sources.

5. Avoid striking the product with a metallic object.

6. Avoid using this product in a non-explosive environment which can become explosive due to air leakage.

## Maintenance

### Warning

1. Maintenance procedures are outlined in the operation manual.

Failure to follow proper procedures can result in product malfunction and or lead to damage to the equipment or machine.

#### 2. Maintenance

If handled improperly, compressed air can be dangerous. Assembly, handling and repair of pneumatic systems should only be performed by qualified personnel.

#### 3. Drain

Remove condensation from the filter bowl on a regular basis.

#### 4. Shut down before maintenance

Before attempting any kind of maintenance confirm that the supply pressure is shut off and all residual air pressure is released from the system to be worked on.

#### 5. Start-up after maintenance

Apply operating pressure and power to the equipment, then check for proper operation and possible air leaks. If operation is abnormal, verify product set-up parameters.

6. Do not make any modification to the product.

# SMC products “out of scope” of the ATEX Directive

Products that are out of scope of the ATEX Directive do not need a declaration of conformity to ATEX for use in potentially explosive atmospheres. These products can be used in ATEX zones as specified.

SMC products which are out of scope of the ATEX Directive match part of the definitions of components or equipment (see ATEX Directive Article 1(3)).

See below for definitions of components and equipment.

For “equipment out of scope” and also equipment within the scope, the user has the responsibility for hazards arising from the assembly of several products. For “components out of scope”, the user has the responsibility to assess the suitability of using these products in an explosive atmosphere and in his application.

## Equipment out of scope

**Equipment** is defined by the ATEX Directive as “*machines, apparatus, fixed or mobile devices, control components and instrumentation thereof and detection or prevention systems which, separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy and/or the processing of material and which are capable of causing an explosion through their own potential sources of ignition.*” (Article 1(3))

### Out of scope

Equipment in scope of the ATEX directive has an autonomous function in a process and an ignition source of its own.

Products that fit the definition of equipment but do not have an ignition source of their own are “out of scope”.

Therefore products such as hand valves, pressure gauges, pressure regulators etc are “out of scope” if an Ignition Hazard Assessment shows that they do not have any ignition sources of their own. This does not include ignition hazards that arise from the assembly of these products in a circuit. An example for this is heat due to adiabatic compression, which can occur in a dead ended pipe when the pressure cycles but also at a closed valve or in a pressure gauge.

SMC can supply a declaration confirming that “equipment out of scope” does not have any ignition sources of their own for use in given zones. Please contact SMC if you require a declaration.

**Table 1: SMC products (equipment), which are out of scope because they do not have any potential ignition source of their own.**

Product description	Series	Out of scope for zone:	Note
Heavy duty Auto Drain	ADH4000	1, 2	1
Air filters	AF10/20/30/40/50/60	1, 2, 21, 22	1
Main line filters	AFF2B~AFF75B	1, 2, 21, 22	1
Mist separators	AM150~850	1, 2, 21, 22	1
Micro mist separators	AMD150~850, AMD801	1, 2, 21, 22	1
Super mist separators	AME150~850	1, 2, 21, 22	1
Odour removal filters	AMF150~850, AMF801	1, 2, 21, 22	1
Water separators	AMG150~850	1, 2, 21, 22	1
Micro mist separator with pre-filter	AMH150~850	1, 2, 21, 22	1
Clean gas filter	SFA, SFB, SFC	1, 2, 21, 22	1
Micro mist separator	AFD20/30/40	1, 2, 21, 22	1
Mist separator	AFM20/30/40	1, 2, 21, 22	1
Lubricator	AL10/20/30/40/50/60	1, 2, 21, 22	1, 2
Large flow lubricator	AL800/900	1, 2, 21, 22	1, 2
MR Unit	AMR3000~6000	1, 2	1
Regulator	AR10/20/25/20/30/40/50/60	1, 2, 21, 22	1, 2
Pilot operated regulator	AR425 to 935	1, 2, 21, 22	1
Miniature regulator	ARJ	1, 2, 21, 22	1
Manifold regulator	ARM5, ARM10/11, ARM1000/2000/2500/3000	1, 2, 21, 22	1, 2, 3
Precision regulator	ARP20~40	1, 2, 21, 22	1, 2
Regulator for 2 MPa	ARX	1, 2, 21, 22	1
Filter regulator	AW10/20/30/40/60	1, 2, 21, 22	1, 2
Clean regulator	SRH, SRP11#1	1, 2, 21, 22	1
Air hydro Converter	CCT	1, 2	1
Pressure Gauges	G(A)14/15/27/33/36/46/46E, GZ46, GC3, GD40	1, 2, 21, 22	1
Booster relay	IL100	1, 2	1
Lock up valve	IL201/211/220	1, 2	1
Precision regulator	IR1000/2000/3000	1, 2	1
Vacuum regulator	IRV1000/2000/3000, IRV10/20	1, 2	1
Filter regulator	IW212~217	1, 2	1
Hand valve	VH200/201/400/401	1, 2, 21, 22	1
Finger valve	VHK2	1, 2	1

Product description	Series	Out of scope for zone:	Note
2 Port Micro Mechanical Valve	VM11□□-4N(U)-□□□	1, 2, 21, 22	1, 4, 5, 6
2/3 Port Mechanical Valve	VM12□-□□□-□□□, VM131-□□□-35□ VM220-□02-□□□, VM230-□02-35□	1, 2, 21, 22	1, 4, 5, 6
3 port mechanical valve	VM430-□01-□□□, VM830-□01-□□	1, 2, 21, 22	1, 5, 6
5 port mechanical valves	VZM45□-□01-□□□-(F), VZM55□-□01-□□□-(F) VFM35□-□02-□□□-(F), VFM25□-□02-□□□-(F)	1, 2, 21, 22	1, 5, 6
3 port residual pressure release valve	VHS20/30/40/50	1, 2, 21, 22	1
Multistage ejector	ZL	1, 2	1, 2

Note 1:

- Limited to explosive atmospheres types IIA, IIB
- It is the circuit designer's responsibility to ensure significant heat generation due to compression of operating gas does not occur.
- The explosive atmosphere is not allowed to enter the pneumatic circuit, even in case of expected malfunction.
- The product is not intended for use in an environment where stray electric currents can be induced or where cathodic corrosion protection is used.
- Exhaust air or leakage should not be allowed to whirl up gathered dust and create a potentially explosive dust atmosphere.

Note 2:

Excluding options with electrical pressure/vacuum/level switch or electrical valve

Note 3:

For ARM10/11, ARM5: Excluding options with 3-way valve.

Note 4:

2 port only, 3 port excluded: for 3-position twist selector (VM100, 200): 3 port only, 5 port excluded.

Note 5:

For types with roller, the friction between roller and its axle must be assessed with the assembly the valve is used for.

Note 6:

The valves must not be actuated beyond the total travel given in the documentation, even in the case of expected malfunction.

Note 7:

Excluding option Z: with miniature indicator.

## Components

"Components" are defined by the ATEX Directive as "any item essential to the safe functioning of equipment and protective systems but with no autonomous function." (Article 1(3))

It is the users' responsibility to assess components when he assembles them into equipment or protective systems covered by the ATEX Directive.

### Out of scope

Products that do not have an autonomous function and are not essential to the safe functioning of ATEX equipment and protective systems are out of scope of the ATEX Directive.

SMC products which are out of scope as they do not have an autonomous function and which SMC does not explicitly intend for the safe functioning of ATEX equipment and protective systems are listed in Table 2. These have to be assessed by the user, when he carries out the Ignition Hazard Assessment of his assembly.

**Table 2: SMC products without autonomous function (components), which are out of scope because they are not (intended to be) essential to the safe functioning of ATEX equipment and protective systems**

Product description	Series	Product description	Series
Check valve	AK, AKB, AKH	Multi holder	TM, TMA
Silencers	AN□, 25□□	Holder	TMH
Quick exhaust valve	AQ	Shuttle valve	VR12□□, VR12□□F
Speed controller	AS, ASP, ASD	Cross interface	Y24~Y54
Multi-connector	DM, KDM	Vacuum pads	ZP
Self align fittings	H, DL, L, LL	Valve for Water and Chemical-base Fluids, for manifold mounting	VCC12(D)-00
Floating joint	JA, JB, JS	Brackets	Mounting brackets for cylinders, FRL, valves and so on when sold on their own.
Insert fittings	KF, KFG	Manifold base	SS5Y5-20-□□-(□□□) SS5Y5-41-□□-□□(□) SS5Y5-42-□□-□□(□) SS5Y7-20-□□-(□□□) SS5Y7-42-□□-□□(□)
S Couplers	KK, KKA, KK130		
Fittings	KQ, KQ2, KP, KA, KG, KJ, KM, KR, KW		
Miniature fittings	M, MS		
Tubing	T, TS, TU, TUS, TUH, TRB, TRS, TRBU, TA, TPH, TPS		

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



Expertise – Passion – Automation

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