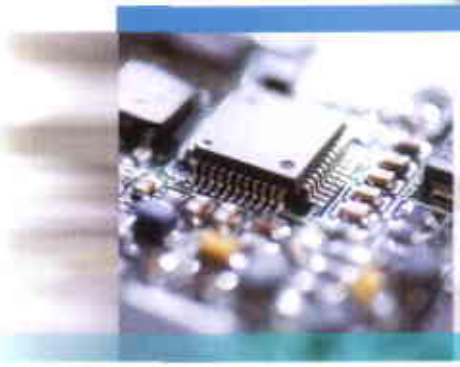
SMC NOW!



SMC

SMC Corporation of America

Technical Development

SMC is recognized as the global technology leader in the pneumatics industry. Our staff of over 1,000 engineers located in technical centers in Japan, the US and Europe provide local support to customers through our local sales group. These local engineers are available to answer detailed technical questions, design customer specific specials and even develop new products and technologies. SMC believes their local presence is critical to our customer-focused product development process.

SMC's Global Engineering Network

The Tsukuba Technical Center has expanded to a new twin-tower building from where it will oversee worldwide technical development.

The Tsukuba Technical Center has expanded into its newly completed twin-tower building. At the center of SMC's research and development division, a staff of 1,000 is engaged in research and development activities for the entire world.

UTC (US Technical Center) U. S. A.

The UTC has been established to meet the project requirements of customers in North America. The UTC has approximately 100 engineers available for customer support.

ETC (European Technical Center) U. K.

The ETC was established in the existing SMC UK factory site in Milton Keynes. Here, approximately 100 experienced engineers from SMC European subsidiaries are scheduled to be gathered to handle projects from their respective countries. This has enabled improved communication, faster and more accurate information, and a higher level of customer satisfaction.

Production & Supply

SMC currently offers over 11,300 basic products with over 560,000 variations. Continuous investment in production and supply chain improvements ensure that these products are available to you when you need them.

The SMC Now! program is an important part of this supply chain system. The program identifies product series and options that are commonly used in the local market. These products are then made available through aggressive local inventory of base components which can be quickly accessorized to offer a broad range of finished product options. Increased local production capabilities ensure that additional products and options as well as sudden increases in demand, are quickly manufactured and shipped.

Overall, this gives SMC the ability to offer and supply the most comprehensive product range available in North America.

Sales & Communication Network

SMC has established subsidiaries in 39 countries worldwide with over 230 sales offices and 3,900 sales people.

SMC believes that maintaining a strong local presence allows us to better understand and service the needs of our customers. In today's rapidly changing markets, increased expectations are the rule. By leveraging our strong local presence and global communication network, SMC helps our customers develop and maintain a competitive edge in some of the most aggressive markets.

Locations in North America

U.S.A. (Indianapolis) SMC Corporation of America

U.S.A. (Los Angeles) SMC Corporation of America

Canada SMC Pneumatics (Canada) Ltd.

- Atlanta
- Austin
- Boston
- Charlotte
- Chicago
- Cincinnati
- Cleveland
- Dallas
- Detroit
- Indianapolis [M]
- Los Angeles [M]
- Milwaukee
- Minneapolis
- Montreal
- Nashville
- New Jersey
- Phoenix
- Portland
- Richmond
- Rochester
- San Francisco
- St. Louis
- Tampa
- Toronto [M]
- Vancouver
- Windsor

[M] = Manufacturing

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Polyurethane & Nylon Tubing

Series TIUB/TU & TIA/T

SMC Offers the Highest Dimensional Accuracy

- Continuous laser inspection of outside diameter during production
- Continuous monitoring of wall thickness

Polyurethane Tubing--Series TIUB/TU

Polyurethane tubing is fast becoming the ideal choice for pneumatic applications. It combines the elasticity of rubber with the chemical resistance normally reserved for plastics. Polyurethane can be put into two classifications, ester based and ether based. SMC offers both.

Ether-based polyurethane is the preferred tubing material for general pneumatic applications due to its immunity to hydrolysis and its higher resistance to fungus and microorganism attacks. The ester-based polyurethane is a stronger compound but tends to hydrolyze with moisture. This hydrolysis process will degrade the material over time.

SMC's primary line of Polyurethane tubing is ether based, made from the highest quality compound available to ensure the longest tubing life.

Properties

- Cut resistant
- Excellent memory
- Wide temperature range
- Low compression set
- Low gas permeability
- Kink resistant
- Tear resistant
- Abrasion resistant
- Extreme flexibility
- Good chemical resistance

Accessories

TK-1 Tube Cutter (13mm tubing or less)
TK-2 Tube Cutter (18mm tubing or less)
TK-3 Tub Cutter (Low Cost)
TG-1 Tube Release Tool (ø4, ø6mm tube)
TG-2 Tube Release Tool (ø1/8", ø1/4" tube)

Nylon Tubing--Series TIA/T

Nylon was developed more than half a century ago and is considered to be the first man-made thermoplastic available. Deemed a rugged engineering plastic, its properties make it an ideal choice for a variety of applications. Nylon does not depend on moisture for flexibility and will not become brittle or swell because of water. Therefore it has excellent low moisture absorption and dimensional stability characteristics.

Nylon tubing for pneumatic applications is primarily made from Nylon 11, and more recently Nylon 12. Nylon 12 has virtually the same physical properties and performance as Nylon 11.

Properties

- Dimensional stability
- Low moisture absorption
- Elastic memory
- High impact resistance
- High thermal resistance
- Light weight
- Wide temperature range
- High abrasion resistance
- Good flexibility
- Broad chemical resistance

SMC Tubing Stand

TB-3VS Vertical Stand

Designed for high capacity and reel size flexibility. This stand comes with two cross bars. A third cross bar can be ordered separately. (TB-3CB)

Dimensions:
36" w x 26" d x 65" h

Polyurethane & Nylon Tubing

How to Order

Polyurethane Tubing

TIUB (Inch)

TIUB 05 BU — 33

Size (Inch)

01	1/8"
See Note*	5/32"
05	3/16"
07	1/4"
See Note*	5/16"
11	3/8"
13	1/2"

* For 5/32" and 5/16" size tubing, please refer to 4mm and 8mm "How to Order" information right.

Length per roll

20	66ft
33	100ft
153	500ft
305	1000ft

Color indication

B	Black	BU3	Med Blue	PU2	TR Purple
BU	Blue	BR1	Brown (solid)	R1	Red (solid)
C	Clear	G1	Green (solid)	R2	TR Red
G	Green	G2	TR Green	S1	Silver
R	Red	G3	Neon Green	Y1	Yellow (solid)
W	White	G4	Dark Green	Y2	TR Yellow
Y	Yellow	GR1	Gray (solid)	Y3	Neon Yellow
YR	Orange	GR2	Lt. Gray (solid)	YR1	TR Orange
BU1	Blue (solid)	P1	Neon Pink	YR2	Neon Orange
BU2	TR Blue	PU1	Purple (solid)		

Blue Area are STANDARD COLORS

* For Non-standard colors, add "U", the end of the part number.

TU (Metric)

TU 0604 BU — 20

Size (mm)

0425	4mm (5/32")
0604	6mm
0805	8mm (5/16")
1065	10mm
1208	12mm

Length per roll

20	20m
33	33m Note 1)
100	100m
153	153m Note 1)
305	305m
500	500m Note 2)

Note1) Available only for 0425 and 0805
Note 2) Available only for 0425 0604 and 0805

Nylon Tubing

TIA (Inch)

TIA 07 B — 33

Tube diameter

01	1/8"
See Note*	5/32"
05	3/16"
07	1/4"
See Note*	5/16"
11	3/8"
13	1/2"

* For 5/32" and 5/16" size tubing, please refer to 4mm (T0425) and 8mm (T0806) "How to Order" information at right.

Length per roll

33	100ft
153	500ft
305	1000ft

Color indication

B	Black
BU	Blue
C	Clear
G	Green
R	Red
W	White
Y	Yellow

T (Metric)

T 0604 B — 20

Tube diameter

0403	4mm
0425	4mm (5/32")
0604	6mm
0645	6mm
0806	8mm (5/16")
1075	10mm
1209	12mm
1613	16mm

Length per roll

20	20m
33	33m Note 1)
100	100m
153	153m Note 1)

Note1) Available only for 0425 and 0806.

Color indication

Blue Area are STANDARD COLORS

* For Non-standard colors, add "U", the end of the part number.

Speed Contoroller with One-touch Fitting

Elbow Type/Universal Type/In-line Type

Minimizes installation time and cost

Reduces the mounting height and enables compact machinery design. Effective area is larger than the former model.

- **Tube swivels 360°**
  Universal type permits 360° piping swivel.
- **Applicable tubing**
  Nylon, soft nylon, and polyurethane tubing are applicable.
  - **Metric size** (Release bushing: White color)
    ø3.2, ø4, ø6, ø8, ø10, ø12
  - **Inch size** (Release bushing: Orange color)
    ø1/8", ø5/32", ø3/16", ø1/4", ø5/16", ø3/8", ø1/2"
- **Maximum operating pressure 1 MPa max.**
- **Retainer prevents accidental loss of needle**
- **Option**
  - **Hexagonal lock nut, Nickel plated option**
  - **Number of needle rotations has been increased (8 to 10 turns)**
    The increased number of needle rotations permits easy control at low speeds.

Elbow Type

Universal Type

In-Line Type

Standard Type (Metal Body)

Elbow Type/In-line Type

Minimizes installation time and cost

Fittings and tubing are not necessary because this type screws directly into the actuator. Thus, piping labor and cost can be eliminated.

- **Body swivels 360°**
  Swivel type allows free setting of piping.
- **Speed may be accurately controlled even at low speeds.**
- **Able to control and set a constant speed easily.**
- **Retainer prevents accidental loss of needle.**

Elbow Type

In-line type

Speed Controller

How to Order

Speed Controller with One-touch Fittings---Elbow Type/Universal Type

AS 2 2 0 1F - N 02 - 07 S

Area code

Nil	USA (New numbering system)
N	USA (Old numbering system)
E	Europe

Body size

1	M3, M5 (10-32 NOM)
2	1/8, 1/4
3	3/8
4	1/2

Type

2	Elbow type
3	Universal type

Control type

0	Meter-out
1	Meter-in

With One-touch fittings

Port thread

Nil	PT
F	PF
N	NPT

Port size

U10/32	10-32UNF
M3	M3 x 0.5
M5	M5 x 0.8
01	1/8
02	1/4
03	3/8
04	1/2

Applicable tube O. D.

Metric		Inch	
23	3.2mm	01	1/8"
04	4mm	03	5/32"
06	6mm	05	3/16"
08	8mm	07	1/4"
10	10mm	09	5/16"
12	12mm	11	3/8"
		13	1/2"

Option

Nil	None
S	Sealant
K	Hexagonal lock nut (Width across flat)
N	Electroless nickel plated

Elbow/Universal type

Elbow type	Universal type	Port size	Applicable tube O.D.												Applicable cylinder bore size (mm)
			Metric size						Inch size						
			3.2	4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"	
AS12□1F-M3	AS13□1F-M3	M3 x 0.5	◉	◉					◉	◉						2.5, 4, 6
AS12□1F-M5	AS13□1F-M5	M5 x 0.8	◉	◉	◉				◉	◉	◉	◉				6, 10, 16, 20
AS12□1F-U10/32	AS13□1F-U10/32	10-32 UNF	◉	◉	◉				◉	◉	◉	◉				6, 10, 16, 20
AS22□1F-01	AS23□1F-01	1/8	◉	◉	◉	◉	◉		◉	◉	●	◉	◉			20, 25, 32
AS22□1F-02	AS23□1F-02	1/4		◉	◉	◉	◉			◉	●	◉	◉	●		20, 25, 32, 40
AS32□1F-02	AS33□1F-02	1/4			◉	◉	◉	◉				◉	◉	●		40, 50, 63
AS32□1F-03	AS33□1F-03	3/8			●	●	●	●				●	●	●		40, 50, 63
AS42□1F-04	AS45□1F-04	1/2					●	●						●	●	63, 80, 100

Note 1) ◉ Elbow type only

Note 2) Meter-out and meter-in types can be visually differentiated by the lock nut.
The lock nut on the meter-out type is electroless nickel plated, while the meter-in type is black zinc chromate plated.

Note 3) ◉Marking is electroless nickel plated, provided as standard. (N specificaitons)

Speed Controller

How to Order

Speed Controller with **One-touch Fittings** In-line Type

[ ] AS [400] 1F - [13] [N]

Area code

Nil	USA (New numbering system)
N	USA (Old numbering system)
E	Europe

Body size

100	M5
200	1/8
205	1/4
300	3/8
400	1/2

Applicable tube O. D.

Metric		Inch	
23	3.2mm	01	1/8"
04	4mm	03	5/32"
06	6mm	05	3/16"
08	8mm	07	1/4"
10	10mm	09	5/16"
12	12mm	11	3/8"
		13	1/2"

Option

Nil	None
K	Hexagonal lock nut (Width across flat)
N	Electroless nickel plated

Model number	Applicable tube O. D.												
	Metric size						Inch size						
	23	04	06	08	10	12	01	03	05	07	09	11	13
AS1001F-*	◉	◉	◉				◉	◉	●	◉			
AS2001F-*		◉	◉					◉	●	◉			
AS2051F-*			◉	◉					●	◉	◉		
AS3001F-*			◉	◉	◉	◉				◉	◉	●	
AS400AF-*					◉	◉						●	●

Note) ◉ Marking is electroless nickel plated provided as standard. (N specification)

Also Available:

Metal elbow type with One-touch Fittings **AS-FG Stainless steel**

Speed Controller
How to Order

Speed Controller **Standard Type (Metal Body)**

Elbow Type

□ AS [2] [2] [0] 0 - [N] [02] - [S]

Area code

Nil	USA (New numbering system)
N	USA (Old numbering system)
E	Europe

Body size

1	M3, M5
2	1/8, 1/4
3	3/8
4	1/2

Type

2	Direct cylinder elbow type
4	Direct cylinder flat elbow type

Control type

0	Meter-out
1*	Meter-in

* Not available on AS1200-M3 and AS1400-M3.

Port thread

Nil	PT
F	PF
N	NPT

Port size

U10/32	10-32UNF
M3	M3 x 0.5
M5	M5 x 0.8
01	1/8
02	1/4
03	3/8
04	1/2

Option

Nil	None
S	Sealant
K	Hexagonal lock nut
N*	Electroless nickel plated

* AS1200, AS1400, and AS22□0 are electroless nickel plated as standard. (N specifications)

In-line Type

□ AS [2] 000 - [N] [02]

Area code

Nil	USA (New numbering system)
N	USA (Old numbering system)
E	Europe

Body size

1	M3, M5
2	1/8, 1/4
3	3/8
4	1/2
5	1/2

Port thread

Nil	PT
F	PF
N	NPT

Port size

M3	M3 x 0.5
M5	M5 x 0.8 (10-32 Nom.)
01	1/8
02	1/4
03	3/8
04	1/2

One-Touch Fitting

Series KQ2

Large Tube Insertion Depth

Space to compensate for tubing that is not cut square, eliminating associated leakage

Easy Fitting and Adjustment

The o-ring and barbed design allows the fitting to rotate into the desired position upon installation

Pre-Applied Sealant

Eliminate the labor and the contamination that may occur when applying sealant

Special Tube Seal Design

Designed to insure positive seal against tubing in rugged applications and easy release vs. a standard o-ring

Large Release Button

The release button ensures easy release of tubing. When depressed the sleeve engages the chuck to release its grip, allowing the tube seal to separate

Stainless Steel Chuck

Allows smooth insertion in one direction and creates excellent gripping the other direction

Male connector | Male elbow | Bulkhead union | Plug | Plug-in reducer | Branch tee | Union "Y" | Male run tee

Other fitting series

Miniature One-touch – KJ

Rotary One-touch Fittings – KS

One-touch Fitting Manifold – KM

Multi-connector – DM

Clean One-touch Fittings – KP

Antistatic One-touch Fittings – KA

Insert Fittings – KF

Miniature Fittings – M

One-Touch Fitting

How to Order

KQ2 **H** **01** - **35** **S** - **X2**

Compact slide table

Prefix	Description
H	Male connector
	Straight union
	Different dia. straight union
K	45º Male elbow
L	Male elbow
	Union elbow
	Plug-in elbow
	Reducer elbow
LE	Bulkhead elbow
LF	Female elbow
LU	Branch union elbow
	Branch elbow
C	Tube cap
	Color cap
D	Delta
	Delta union
E	Bulkhead union
	Bulkhead female union
F	Female connector
N	Nipple
	Different dia. nipple
N	Adaptor
P	Plug
R	Plug-in reducer
S	Hex. socket head male connector
T	Branch tee
TW	Union cross
U	Union "Y"
	Branch "Y"
UD	Double branch
	Different dia. double union "Y"
V	Universal male elbow
VD	Double universal male elbow
VF	Universal female elbow
VS	Hex. socket head universal elbow
VT	Triple universal male elbow
W	Extended male elbow
	Extended plug-in elbow
X	Different dia. branch "Y"
XD	Double branch "Y"
Y	Male run tee
Z	Double branch universal elbow
ZD	Branch universal elbow
ZF	Branch universal female elbow
ZT	Triple branch universal elbow

Tube O.D.

	Inch		Metric
01	1/8"	23	3.2mm
03	5/32"	04	4mm
05	3/16"	06	6mm
07	1/4"	08	8mm
09	5/16"	10	10mm
11	3/8"	12	12mm
13	1/2"	16	16mm

Options

Nil	None
X2	Electroless nickel plating
X13*	Series SUS (inch size only)

* Use Series KG for metric SUS.

Sealant

Nil	Without sealant
S	With sealant (male thread only, except M5)

Connections

Type	"XX"	Description	Prefix
Tube unions	00	Tubing of equal O.D. diameter	H, L, T, U, E
Plug-in	99	Fitting plug-in to fitting of equal O.D.	L, U
Reducer plug-in	03	5/32"	L, R
	05	3/16"	
	07	1/4"	
	09	5/16"	
	11	3/8"	
Tube (rod) Different dia. tube (reducer)	13	1/2"	H, T, U, X, N
	06	6mm	
	08	8mm	
	10	10mm	
	12	12mm	
	16	16mm	
Threaded pipe	32	10-32 UNF Thread	H, L, W, T, Y, U, E
	33	1/16" NPT	
	34	1/8" NPT	
	35	1/4" NPT	
	36	3/8" NPT	
	37	1/2" NPT	
Thread	M5	M5 x 0.8	
	M6	M6 x 1.0	
	01	PT1/8	
	02	PT1/4	
	03	PT3/8	
	04	PT1/2	

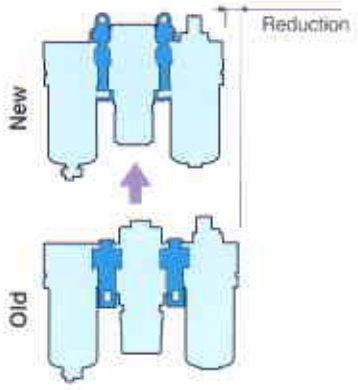
Basic Features

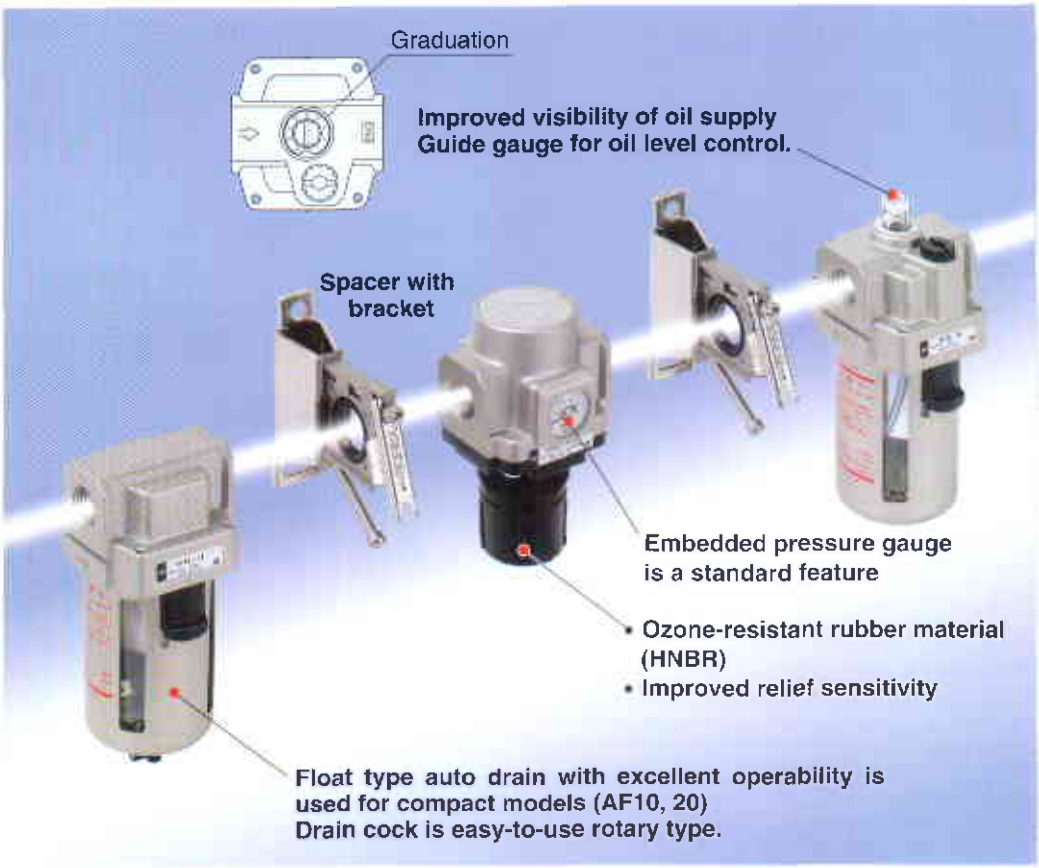
- Improved flow characteristics
- Built-in gauges
- Easier assembly
- Improved ozone resistance
- Larger bowl capacities
- Improved lubricator adjustment
- Better water removal and increased filter life
- Better auto drains

Space-saving Design

The use of compact spacer with bracket reduces the total assembled space.

Model		Reduction (mm)
New	Old	
AC10	AC1000	4
AC20	AC2000	14
AC25	AC2500	14
AC30	AC3000	14
AC40	AC4000	18
AC40-06	AC4000-06	18
AC50	AC5000	18
AC55	AC5500	18
AC60	AC6000	18





Easy to assemble

1. Attach the component into the fitting of the spacer with bracket.
2. Lock the lever pin into the retainer. (temporary installation)
3. Tighten the bolt.

Modular F.R.L. Unit

How to Order

AF **30** – **F** **03** **BD** – **2R**

Air filter

Body size

10	20	30	40	50	60

Thread type

Nil	Metric thread (M5)
	Rc
N Note 1)	NPT
F Note 2)	G

Note 1) Drain guide is NPT1/4 (applicable to AF30 to 60), and the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AF30 to 60).

Note 2) Drain guide is G1/4 (applicable to AF30 to 60).

Optional specifications

Symbol	Description	Applicable models
Nil	—	—
2	Metal bowl	AF10 to 60
5	Nylon bowl	AF10 to 60
8	Metal bowl with level gauge	AF30 to 60
C	With bowl guard	AF20
J Note 1)	Drain guide 1/4	AF30 to 60
R	Flow direction: Right to left	AF10 to 60
W	Drain cock with barb fitting: ø6 x ø4 nylon tube	AF30 to 60
Z Note 2)	Display units for product name plate and caution plate for bowl : PSI, °F	AF10 to 60

* When more than one specification is required, indicate in ascending numerical then alphabetical order.

Note 1) Without a valve function.

Note 2) For thread types M5 and NPT.

Port size

Symbol	Port size	10	20	30	40	50	60
M5	M5	●	–	–	–	–	–
01	1/8	–	●	–	–	–	–
02	1/4	–	●	●	●	–	–
03	3/8	–	–	●	●	–	–
04	1/2	–	–	–	●	–	–
06	3/4	–	–	–	●	●	–
10	1	–	–	–	–	●	●

Accessories

Symbol	Description	Applicable models
Nil	—	—
B	With bracket	AF20 to 60
C	Float type auto drain (N.C.)	AF10 to 60
D	Float type auto drain (N.O.)	AF30 to 60

AL **30** – **F** **03** **B** – **2R**

Lubricator

Body size

10	20	30	40	50	60

Thread type

Nil	Metric thread (M5)
N	NPT
F	G

Optional specifications

Symbol	Description	Applicable models
Nil	—	—
1	1000cm³ tank	AL30 to 60
10	1000cm³ tank with level switch (lowest limit ON)	AL30 to 60
11	1000cm³ tank with level switch (lowest limit OFF)	AL30 to 60
2	Metal bowl	AL10 to 60
3	With drain cock	AL10 to 60
5	Nylon bowl (including sight dome)	AL10 to 60
8	Metal bowl with level gauge	AL30 to 60
C	With bowl guard	AL20
R	Flow direction: Right to left	AL10 to 60
3W	Drain cock with barb fitting: ø6 x ø4 nylon tube	AL30 to 60
Z Note	Display units for product name plate and pressure gauge: PSI, °F	AL10 to 60

* When more than one specification is required, indicate in ascending numerical then alphabetical order.

Note) For M5 and NPT thread types.

Port size

Symbol	Port size	10	20	30	40	50	60
M5	M5	●	–	–	–	–	–
01	1/8	–	●	–	–	–	–
02	1/4	–	●	●	●	–	–
03	3/8	–	–	●	●	–	–
04	1/2	–	–	–	–	–	–
06	3/4	–	–	–	–	●	–
10	1	–	–	–	–	●	●

Accessory

Symbol	Description	Applicable models
Nil	—	—
B	With bracket	AL20 to AL 60

Modular F.R.L Unit

How to Order

AR 30 [ ] – F 03 BE – 1N – X465A

Regulator

Body size

10	20	25	30	40	50	60

Built-in check valve with backflow mechanism

Nil	Standard
K	Backflow mechanism

AR10 comes with a backflow mechanism as a standard feature.

Thread type

Nil	Metric thread (M5)
	Rc
N	NPT
F	G

Port size

Symbol	Port size	10	20	25	30	40	50	60
M5	M5	●	–	–	–	–	–	–
01	1/8	–	●	–	–	–	–	–
02	1/4	–	●	●	●	●	–	–
03	3/8	–	–	●	●	●	–	–
04	1/2	–	–	–	–	●	–	–
06	3/4	–	–	–	–	●	●	–
10	1	–	–	–	–	–	●	●

With digital pressure switch with display (ISE30-01-□□ ML)

Symbol	Output specifications
Nil	—
X465A	NPN output
X465B	PNP output
X465C	1 to 5V output
X465D	4 to 20mA output
X430	Low temperature
X440	High temperature
X425	High pressure

Note) X465 only available with Bracket (B)
X465 not available AR10 and "N" or "F" thread type
X430/X440 only bracket and gauge option available
X430/X440 only available with Bracket (B) and Gauge (G)

Optional specifications

Symbol	Description	Applicable models
Nil	—	—
1 (Note 1)	0.02 to 0.2MPa setting	AR10 to 60, AR20K to 60K
N	Non-relieving	AR10 to 60, AR20K to 60K
R	Flow direction: Right to left	AR10 to 60, AR20K to 60K
Y	Regulator handle "UP" position	AR10 to 60, AR20K to 60K
Z (Note 2)	Display units for product name plate and pressure gauge: PSI, °F	AR10 to 60, AR20K to 60K

* When more than one specification is required, indicate in ascending numerical then alphabetical order.

Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.

Note 2) For M5 and NPT thread types.

Accessories

Symbol	Description	Applicable models
Nil	—	—
B (Note 1)	With bracket	AR10 to 60, AR20K to 60K
E	With square embedded type pressure gauge (with limit indicator)	AR20 to 60, AR20K to 60K
G (Note 2)	With round pressure gauge (without limit indicator)	AR10
	With round pressure gauge (with limit indicator)	AR20 to 60, AR20K to 60K
H	Panel mount (with set nut)	AR10 to 40, AR20K to 40K

Note 1) Bracket assembly is not mounted at the time of shipment, but rather packaged together with the regulator.

Note 2) Mounting threads for pressure gauge: AR10–1/16; AR20 to 30–1/8; AR40 to 60–1/4
Pressure gauge is not mounted at the time of shipment, but rather packaged together with the regulator.

Modular F.R.L. Unit

How to Order

AW **30** **□** – **F** **03** **BE** – **1N** – **X465A**

Filter regulator

Body size

10	20	30	40

With back flow mechanism

Nil	Standard
K	Backflow mechanism

Note) AW10 comes with a back flow mechanism as a standard feature. If the set pressure is below 0.15MPa, back flow may not occur. When a back flow mechanism is required with a set pressure of less than 0.15MPa, contact SMC.

Thread type

Nil	Rc
N (Note 1)	NPT
F (Note 2)	G

Note 1) Drain guide is NPT 1/4 (applicable to AW30K and 40K), and the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AW30K and AW40K).

Note 2) Drain guide is G 1/4 (applicable to AW30K and AW40K).

Port size

Symbol	Port size	10	20	30	40
M5	M5	●	–	–	–
01	1/8	–	●	–	–
02	1/4	–	●	●	●
03	3/8	–	–	●	●
04	1/2	–	–	–	●
06	3/4	–	–	–	●

With digital pressure switch with display

(ISE30-01-□□-*ML*)

Symbol	Output specifications
Nil	—
X465A	NPN output
X465B	PNP output
X465C	1 to 5V output
X465D	4 to 20mA output
X430	Low temperature
X440	High temperature
X425	High pressure

Note) X465 only available with (B) Bracket
X465 not available AW10 and "N" or "F" thread type
X430/X440/X425 only brankel and gauge option available
X430/X440 not available with AW10 and AW20

Optional specifications

Symbol	Description	Applicable models
Nil	—	—
1 (Note 1)	0.02 to 0.2MPa setting	AW10, AW20 (K) to 40 (K)
2	Metal bowl	AW10, AW20 (K) to 40 (K)
5	Nylon bowl	AW10, AW20 (K) to 40 (K)
8	Metal bowl with level gauge	AW30 (K), 40 (K)
C	With bowl guard	AW20 (K)
J (Note 2)	Drain guide 1/4	AW30 (K), 40 (K)
N	Non-relieving	AW10, AW20 (K) to 40 (K)
R	Flow direction: Right to left	AW10, AW20 (K) to 40 (K)
W	Drain cock with barb fitting: ø6 x ø4 nylon tube	AW30 (K), 40 (K)
Z (Note 3)	Display units for product name plate, caution plate for bowl, and pressure gauge: PSI, °F	AW10, AW20 (K) to 40 (K)

* When more than one specification is required, indicate in ascending numerical then alphabetical order.

Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.

Note 2) Without a valve function.

Note 3) For M5 and NPT thread type

Accessories

Symbol	Description	Applicable models
Nil	—	—
B (Note 1)	With bracket	AW10, AW20 (K) to 40 (K)
C	Float type auto drain (N.C.)	AW10, AW20 (K) to 40 (K)
D	Float type auto drain (N.O.)	AW30 (K), 40 (K)
E	With square embedded type pressure gauge (with limit indicator)	AW20 (K) to 40 (K)
G (Note 2)	With round pressure gauge (without limit indicator)	AW10
	With round pressure gauge (with limit indicator)	AW20 (K) to 40 (K)
H	Panel mount (with set nut)	AW10, AW20 (K) to 40 (K)

Note 1) Bracket assembly is not mounted at the time of shipment, but rather packaged together with the filter regulator for shipment.

Note 2) Mounting threads for pressure gauge: AW20K to 30K–1/8; AW40K–1/4. Pressure gauge is not mounted at the time of shipment, but rather packaged together with the filter regulator for shipment.

Modular F.R.L. Unit

How to Order

AFD **30** — **F** **03** **BD** — **2R**

Micro-mist separator

Body size

20	30	40

Thread type

Nil	Rc
N Note 1)	NPT
F Note 2)	G

Note 1) Drain guide is NPT1/4 (applicable to AFD30 and 40), and the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AFD30 and 40).

Note 2) Drain guide is G1/4 (applicable to AFD30 and 40).

Port size

Symbol	Port size	20	30	40
01	1/8	●	–	–
02	1/4	●	●	●
03	3/8	–	●	●
04	1/2	–	–	●
06	3/4	–	–	●

Accessories

Symbol	Description	Applicable models
Nil	—	—
B	With bracket	AFD20 to 40
C	Float type auto drain (N.C.)	AFD20 to 40
D	Float type auto drain (N.O.)	AFD30, 40

Optional specifications

Symbol	Description	Applicable models
Nil	—	—
2	Metal bowl	AFD20 to 40
6	Nylon bowl	AFD20 to 40
8	Metal bowl with level gauge	AFD30, 40
C	With bowl guard	AFD20
J Note 1)	Drain guide 1/4	AFD30, 40
R	Flow direction: Right to left	AFD20 to 40
W	Drain cock with barb fitting: ø6 x ø4 nylon tube	AFD30, 40
Z Note 2)	Display units for product name plate and caution plate for bowl: PSI, °F	AFD20 to 40

[1] When more than one specification is required, indicate in ascending numerical then alphabetical order.

Note 1) Without a valve function.

Note 2) For NPT thread type.

Modular F.R.L. Unit

How to Order

AFM 30 – F 03 BD – 2R

- AFM: Mist separator
- 30: Body size — 20, 30, 40
- F: Thread type
- 03: Port size
- BD: Accessories
- 2R: Optional specifications

Thread type

Nil	Rc
N (Note 1)	NPT
F (Note 2)	G

Note 1) Drain guide is NPT1/4 (applicable to AFM30 and 40), and the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AFM30 and 40).

Note 2) Drain guide is G1/4 (applicable to AFM30 and 40).

Port size

Symbol	Port size	20	30	40
01	1/8	●	–	–
02	1/4	●	●	●
03	3/8	–	●	●
04	1/2	–	–	●
06	3/4	–	–	●

* Bracket is not assembled and is supplied loose at the time of shipment.

Accessories

Symbol	Description	Applicable models
Nil	—	—
B	With bracket	AFM20 to 40
C	Float type auto drain (N.C.)	AFM20 to 40
D	Float type auto drain (N.O.)	AFM30, 40

Optional specifications

Symbol	Description	Applicable models
2	Metal bowl	AFM20 to 40
6	Nylon bowl	AFM20 to 40
8	Metal bowl with level gauge	AFM30, 40
C	With bowl guard	AFM20
J (Note 2)	Drain guide 1/4	AFM30, 40
R	Flow direction: Right to left	AFM20 to 40
W	Drain cock with barb fitting: ø6 x ø4 nylon tube	AFM30, 40
Z (Note 2)	Display units for product name plate and caution plate for bowl: PSI, °F	AFM20 to 40

* When more than one specification is required, indicate in ascending numerical then alphabetical order.

Note 1) Without a valve function.

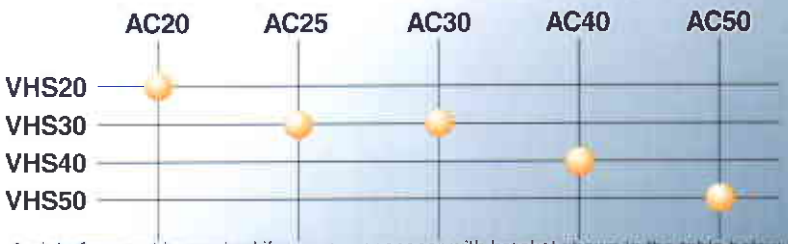
Note 2) For NPT thread type.

Conforming to OSHA Standard
Pressure Relief 3 Port Valve with Locking Holes

VHS 20/30/40/50

Combination with a modular style FRL

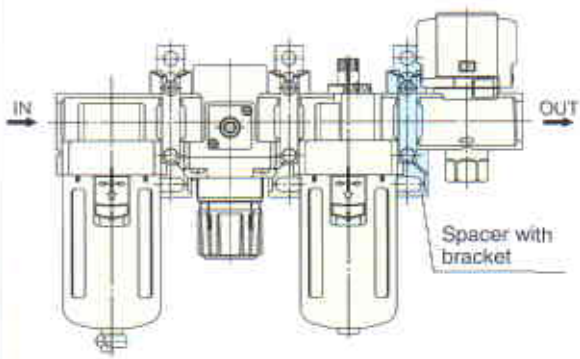
Combination with a modular style FRL is possible.



An interface part is required if a spacer or spacer with bracket shown in the table below is attached to a modular FRL.

Pressure relief 3 port valve	Interface P/N	Spacer with bracket P/N	Applicable air preparation equipment
VHS20	Y200	Y200T	AC20
VHS30	Y300	Y300T	AC25, AC30
VHS40	Y400	Y400T	AC40
VHS40-06	Y500	Y500T	AC40-06
VHS50	Y600	Y600T	AC50, AC60 Note)

Note) Although connection to AC60 is possible, the flow rate may decrease due to the mounting position.



Pressure Relief 3 Port Valve with Locking Holes

How to Order

VHS **30** – ■ **03** – **RZ**

Pressure relief 3-port valve

Body size

20	1/8
30	3/8
40	1/2
50	3/4

Port thread

Nil	Rc
N	NPT
F	G

Nil	None
B	Knob color: Black
R	Flow direction: Right to left
Z[Note1]	PSI as unit displayed on label

Note1) Only for the NPT thread

Size combination

Symbol	Thread size	Body size			
		20	30	40	50
01	1/8	●	–	–	–
02	1/4	●	●	●	–
03	3/8	–	●	●	–
04	1/2	–	–	●	–
06	3/4	–	–	●	●
10	1	–	–	–	●

Large knob
Utilizes an oversized knob for simple operation.

Key hole for locking out knob
Attaching a key or tag locks out air supply.

Manually operated valve can be used to prevent accidents caused by residual pressure in pneumatic lines.

The supply/exhaust status of the air flow can be verified at a glance in the indicating window.

SUP : Supply

EXH : Exhaust

Can prevent accidents due to inadvertent air supply.

When in the exhaust position, the valve may be padlock secured. Prevents accidental start-ups while personnel are cleaning or servicing equipment.

OSHA standard (Occupational Safety and Health Administration Department of Labor)

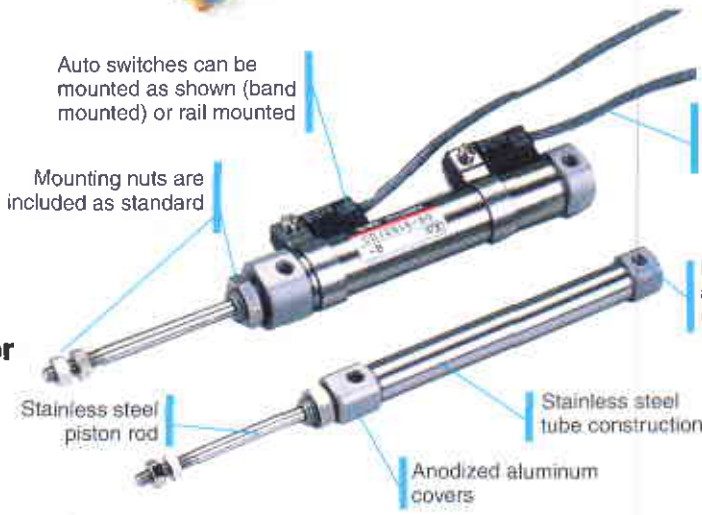
For safety control, OSHA rule requires energy sources for certain equipment be turned off or disconnected and that the device either be locked or labelled with a warning tag.

Miniature Cylinder

Series NCJ2/CJ2

Bore sizes: 6mm, 10mm, 16mm

- **High accuracy mounting**
- **Small bore cylinder for light duty applications**
- **Compact and light weight**
- **Non-rotating piston rod optional**
- **Available with urethane bumper or air cushion.**



How to Order

Without auto switch	NCJ2		L	16	100		R				
With auto switch	NCDJ2		L	16	100		R	C73	S		

Built-in magnet

Type

Nil	Single rod
K*	Non-rotating rod
W	Double rod

* Not available on double rod or 6mm bore size.

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
D	Double clevis style (Except for ø6)

Bore size

6	6 mm
10	10 mm
16	16 mm

Standard stroke (100ths of an inch)

Bore size (mm)	Double acting/Single rod
6	50, 100, 150, 200
10	50, 100, 150, 200, 300, 400, 500, 600
16	50, 100, 150, 200, 300, 400, 500, 600, 700, 800

Bore size (mm)	Single acting/Single rod
6	50, 100, 150, 200
10	
16	50, 100, 150, 200, 300, 400, 500, 600

* See Catalog N301 for standard stroke lengths on types other than single rod.
* Intermediate strokes can be manufactured upon receipt of order and are available in 1/100th of an inch increments.

Port location on head cover

Bore size (mm) / Symbol	6	10, 16
Nil	—	Perpendicular to axis
R	Axial foot style	Axial foot style

Action

Nil	Double acting
S	Single acting spring return
T	Single acting spring extend

Auto switch

B	Built-in magnet, Band mounting style

* See catalog N301 for available auto switches.

Number of auto switches

Nil	2 pcs.
S	1 pc.

Options

XB6	Heat resistant cylinder (150°C)
XB7	Cold resistant cylinder
XB9	Low speed cylinder (10 to 50mm/s)
XB13	Low speed cylinder (5 to 50mm/s)
XC22	Fluoro rubber seals

Miniature Cylinder

Series NCJ2/CJ2

Also Available:

Series CJ1	Series CJP/NCJP	Series CJ5	Series CLJ2
Mini Cylinder ø2.5 and ø4mm Miniature cylinder with brass construction.	**Pin Cylinder ø6 to ø15mm** Direct mount auto switches attach directly to cylinder body.	**Stainless Steel Cylinder ø10 and ø16mm** Stainless steel external parts for use in corrosive environments.	**Fine Lock Cylinder ø16mm** Ideal for intermediate stops, emergency stops, and drop prevention.

How to Order

Without auto switch: **CJ2** [ ] **L** **16** – **60** **A** [ ] **R** [ ]

With auto switch: **CDJ2** [ ] **L** **16** – **60** **A** [ ] **R** – **J79W** [ ] [ ]

Built-in magnet

Type

Nil	Single rod
K*	Non-rotating rod
W	Double rod
Z*	Flow control
Q*	Low friction

* Not available on 6mm bore size.

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
D*	Double clevis style
RA*	Direct mount

* Not available with double rod or 6mm bore size.

Bore size

6	6 mm
10	10 mm
16	16 mm

Standard stroke (mm)

Bore size (mm)	Double acting/Single rod
6	15, 30, 45, 60
10	15, 30, 45, 60, 75, 100, 125, 150
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

Bore size (mm)	Single acting/Single rod
6	15, 30, 45, 60
10	
16	15, 30, 45, 60, 75, 100, 125, 150

* See Best Pneumatics Volume 6 for standard stroke lengths on types other than single rod.

Cushion

Nil	Rubber bumper
A*	Air cushion

* Air cushion is not available with non-rotating rod, single acting cylinder or 6mm bore size.

Action

Nil	Double acting
S	Single acting spring return
T	Single acting spring extend

Port location on head cover

Bore size (mm) / Symbol	6	10, 16
Nil	—	Perpendicular to axis
R	Axial foot style	Axial foot style

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Options

XB6	Heat resistant cylinder (150°C)
XB7	Cold resistant cylinder
XB9	Low speed cylinder (10 to 50mm/s)
XB13	Low speed cylinder (5 to 50mm/s)
XC3	Special port location
XC8	Adjustable stroke extend
XC9	Adjustable stroke retract
XC10	Dual stroke/Double rod
XC11	Dual stroke/Single rod
XC22	Fluoro rubber seals
XC51	With hose nipple

* Refer to Best Pneumatics, Volume 6 for options compatibility and detailed How-to-Order information.

Auto switch

A	Built-in magnet, Rail mounting style
B	Built-in magnet, Band mounting style

* See Best Pneumatics Volume 6 for available auto switches.

Crimp Cylinder

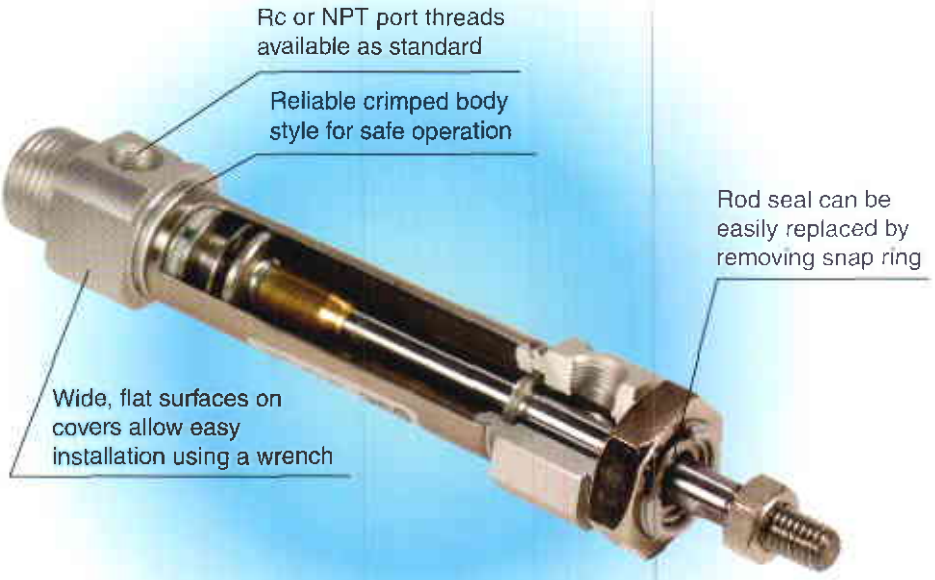
Series CM2

C16

Bore sizes:
20mm, 25mm, 32mm, 40mm

- Many popular made-to-order options are available such as high temperature, rod boot, adjustable stroke, and many others.
- Special shaped rod seal provides excellent dust resistance and extends cylinder life.

- Semi-repairable cylinder with precision component design.
- 14 mounting styles available including foot mount, flange mount, and integrated clevis type.
- Available with urethane bumper or air cushion.



Also Available:

Series CM2X	Series CM2□R/V	Series CM2□P	Series CLM2
Low Speed Cylinder ø20 to ø40mm Stable operation at extremely low speeds (0.02 in/sec).	**Splash Proof ø20 to ø40mm** For use in environments where the cylinder is in direct contact with water or liquid.	**Cylinder w/Axial Piping ø20 to ø40mm** Allows piping at head end only.	**Fine Lock Cylinder ø20 to ø40mm** Ideal for intermediate stops, emergency stops and drop prevention.

Crimp Cylinder

How to Order

Without auto switch CM2

With auto switch CDM2

Built-in magnet

		L	40		150	A						
		L	40		150	A			G59WL	S		

Type

Nil	Single rod
K	Non-rotating rod
W	Double rod
Q	Low friction

Style

Nil	Pneumatic
H	Air Hydro

Mounting

B	Basic Type
L	Foot Type
F	Rod side flange type
G	Head side flange type[1]
C	Single clevis type[2]
D	Double clevis type[2]
T	Head side trunnion type[2]
U	Rod side trunnion type
E	Integrated clevis type[2]
BZ	Boss-cut basic type[2]
FZ	Boss-cut flange type[2]
UZ	Boss-cut trunnion type[2]
RA	Block mount bottom type
RB	Block mount front type

[1] Available for single rod or double rod XC38 version

[2] Not available with double rod option

Bore size

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

Stroke (mm)

Port

Nil	Standard threaded port
F	With built in One-touch fitting (Rubber cushion only)

Cushion

Nil	Rubber bumper
A	Air cushion

Action

Nil	Double acting
S	Single acting spring return
T	Single acting, spring extend

With rod boot

Nil	No rod boot
J	Nylon tarpaulin boot
K	Heat resistant tarpaulin boot

Auto Switch

See catalog E208 for available auto switches.

No. of Switches

Nil	2 pcs.
S	1 pc

Options

XB6	High temperature
XB7	Low temperature
XB13	Low speed
XC3	Special port location
XC4	Heavy duty scraper
XC5	Stainless steel piston rod
XC8	Adjustable stroke – extend**
XC9	Adjustable stroke – return**
XC10	Dual stroke/Double rod**
XC11	Dual stroke/Single rod**
XC12	Tandem type
XC13	Rail mounted auto switch
XC18	NPT ports
XC20	Axial port on head cover
XC22	Fluoro rubber seals
XC35	Metal coil scraper
XC52	Mounting nut with set screw

** See catalog E208 for detailed how to order information.

Stainless Steel Body Cylinder

Series NCM

- SMC's NCM series: The non-repairable cylinder that is designed to last!
- "Permanent Lube" design requires no additional lubrication for cylinder.
- Directly interchangeable with other manufacturers' round body series.

5 Actuation Options Available:

- Double Acting – Single Rod
- Double Acting – Double Rod
- Non-rotating Rod
- Single Acting – Spring Return
- Single Acting– Spring Extend

Seal, wear ring, and polished tube work together to absorb side load and decrease overall friction, ensuring long lasting service life.

Chromated aluminum piston improves corrosion resistance.

Other Products:

Series C85
ISO Cylinder
ø8 to ø25mm
Conforms to ISO 6432 and CETOP RP52P.

Series CU
Free Mount Cylinder
ø6 to ø32mm
A space-saving cylinder with multiple mounting surfaces.

Series RB
Shock Absorber
Dampening to meet the high speed requirements of the modern world.

Series JS
Stainless Steel Floating Joint
Prevents cylinder misalignments with superior corrosion resistance.

Stainless Steel Body Cylinder

How to Order

Without auto switch NCM ☐ B 075 – 02 00 C ☐ ☐ ☐ ☐ ☐

With auto switch NCDM ☐ B 075 – 02 00 C ☐ ☐ ☐ ☐ ☐

Built-in magnet

Type

Nil	Standard cylinder
K	Non-rotating rod

Mounting

B	Front nose mount
C	Rear pivot [3]
E	Double end
R	Block mount [2, 3]
W	Double rod, Double end [1]

[1] Double -acting only
[2] Block mount (R) not available with non-rotating (K) option
[3] Not available on 2" bore size

Bore Size

075	3/4"
088	7/8"
106	1-1/16"
125	1-1/4"
150	1-1/2"
200	2"

Stroke
Stroke/inch

Stroke
Stroke/Hundredths of an inch

Cushion

Nil	Without rubber bumper
C	Rubber bumper

Actuation

Nil	Double acting
S	Spring return
T	Spring extend

Rod boot [1, 2]

Nil	Without
J	Nylon boot
K	Neoprene boot

[1] Not offered with block mount
[2] Not offered on 2" bore

Auto switch
See catalog N302 for available auto switches

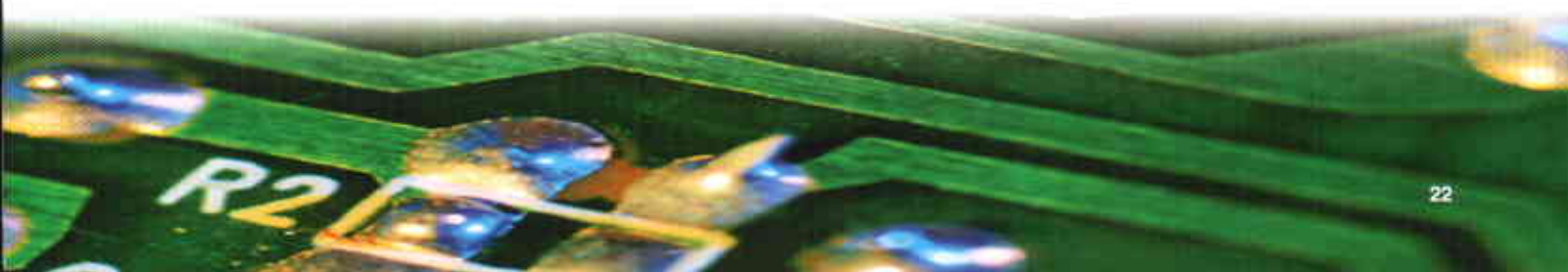
Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Options

XB6	High temperature [2]
XB7	Low temperature [2]
XB9	Low friction [2]
XC6	Stainless steel piston rod & nut
X103US	Rotated ports [1, 2]
X142US	Long stroke
X155US	Rear pivot mount (C) without clevis pin
X169US	Dimensional interchange to other manufacturer's magnetic reed switch cylinders

[1] Available only with B or C mounting
[2] Not offered on 2" bore size

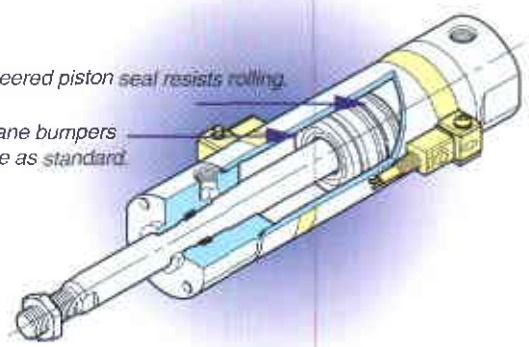


Repairable Round Body Cylinder

Series NGG/CGT

Bore sizes: 20mm, 25mm, 32mm, 40mm, 50mm, 63mm, 80mm, 100mm

- **Repairable round body cylinder allowing high speed operation up to 40in/sec.**
  (Note: Maximum speed for 80 & 100mm bore size is 28 in/sec.)
- **Available in 8 bore sizes and 9 different mounting styles.**
- **Cylinder can be integrated with linear guide unit (Series MGG and MGC).**



Also Available:

Series CG5
Stainless Steel Cylinder
ø20 to ø100mm
Stainless steel external parts for use in corrosive environments.

Series RHC
High Power Cylinder
ø20 to ø100mm
Can absorb 10 to 20 times more energy than general purpose cylinders.

Series MGG
Guided Cylinder
ø20 to ø100mm
Guided linear transfer unit with high lateral load resistance.

Series MGC
Guided Cylinder
ø20 to ø50mm
Compact version of linear transfer unit.

Repairable Round Body Cylinder

How to Order

NCG

Without auto switch: NCG

With auto switch: NCDG

	NCG	NCDG
Series		①
Inch rod thread, NPT ports		
② Type	L	L
③ Mounting	N	N
④ Cushion	25	25
⑤ Bore size (Nominal size)	04	04
⑥ Stroke/Inch	00	00
⑦ Stroke/Hundredths of an Inch		B73
⑧ Auto switch		S
⑨ No. of switches		
⑩ Options		

① Built-in magnet

② Type

Nil	Single rod
K*	Non-rotating rod
W*	Double rod

* Not available with nose mount.

③ Mounting

B	Basic
C	Single Clevis
L	Foot
F	Front flange
G	Rear flange
U	Front trunnion
T	Rear trunnion
D	Double clevis
N	Front nose mount

④ Cushion

N	Urethane cushion
**A	Adjustable air cushion

** Nose mount not available with air cushion (ø20 & 25 bore).

⑤ Bore size (Nominal size)

20	20mm (3/4")
25	25mm (1")
32	32mm (1-1/4")
40	40mm (1-1/2")
50	50mm (2")
63	63mm (2-1/2")

⑥ Stroke/Inch

⑦ Stroke/Hundredths of an Inch

* Note)
Stroke length must be indicated as 4 digits.
First and second digit: Stroke/Inch
Third and fourth digit: Stroke/ Hundredth of an inch
Example) 0525 = 5.25 (5-1/4) inch stroke

⑧ Auto switch

See catalog N303 for available auto switches.

⑨ No. of switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

⑩ Options

XB6	Stainless steel piston rod
XB7	High temperature
XC6	Low temperature
XC8	Adjustable stroke--Extend**
XC9	Adjustable stroke--Retract**
XC10	Dual stroke/Double rod**
XC11	Dual stroke/Single rod**
XC37	Enlarged port orifice

**See catalog N303 for "How to Order" information.

Refer to Catalog N303 for details and option compatibility.

CG1

Without auto switch: CG1

With auto switch: CDG1

	CG1	CDG1
Series		①
Metric rod thread, PT ports		
② Type	L	L
③ Mounting	N	N
④ Cushion	25	25
⑤ Bore Size	100	100
⑥ Cylinder stroke (mm)		
⑦ Action		
⑧ Rod Boot		H7BW
⑨ Auto switch		S
⑩ No. of switches		
⑪ Options		

① Built-in magnet

② Type

Nil	Single rod
K	Non-rotating rod
W	Double rod

Note) Non-rotating available 20mm to 63mm only.

③ Mounting

B	Basic
L	Foot
F	Front flange
G	Rear flange
U*	Front trunnion
T*	Rear trunnion
D	Double clevis
R*	Direct mount

* Not available for bore size ø80 and 100.

④ Cushion

N	Urethane cushion
A	Adjustable air cushion

⑤ Bore Size

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

⑥ Cylinder stroke (mm)

⑦ Action

Nil	Double acting
S	Single acting, Spring return
T	Single acting, Spring extend

Note) Single acting available 20 to 40mm only.

⑧ Rod Boot

	Nil	Without rod boot
One end	J	Nylon tarpaulin
	K	Heat resistant tarpaulin
Both ends	JJ	Nylon tarpaulin
	KK	Heat resistant tarpaulin

⑨ Auto switch

See catalog E216 for available auto switches.

⑩ No. of switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

⑪ Options

-XB6	High temperature
-XB7	Low temperature
-XB13	Low speed cylinder
-XC4	Heavy duty scraper
-XC6	Stainless steel piston rod
-XC8	Adjustable stroke--Extend**
-XC9	Adjustable stroke--Retract**
-XC10	Dual stroke/Double rod**
-XC11	Dual stroke/Single rod**
-XC12	Tandem type
-XC13	Auto switch rail mounting
-XC18	NPT ports
-XC22	Fluoro rubber seals
-XC35	Metal coil scraper
-XC37	Enlarged port orifice
-XC42	Built-in rear shock absorber

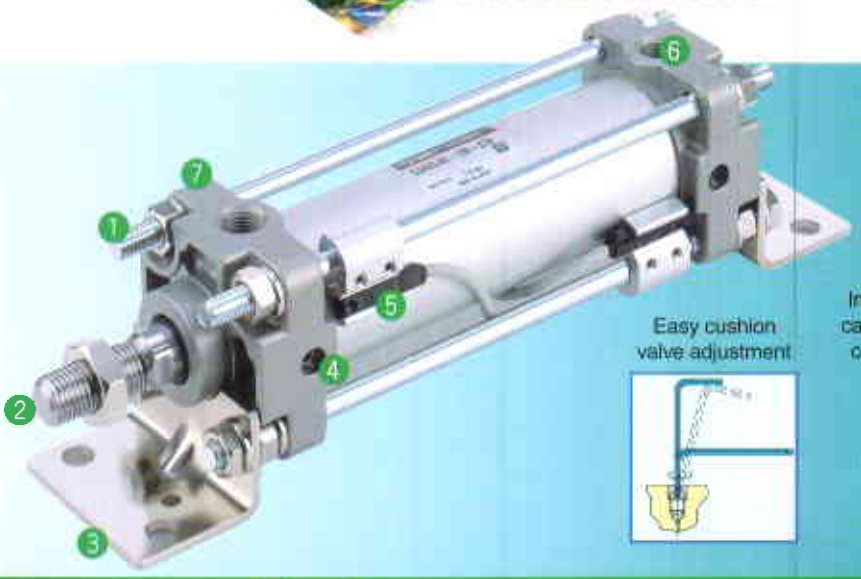
**See catalog E216 for "How to Order" information.

Refer to Best Pneumatic volume 6 for details and options compatibility.

Tie Rod Cylinder
Series CA2

Bore sizes:
40mm, 50mm,
63mm, 80mm, 100mm

1. Rolled tie-rod threads for increased tensile strength
2. Minimal piston rod defection
3. Mounting accessories available separately or assembled at factory
4. Recessed cushion needle for easy air cushion adjustment
5. Direct mount auto switches available
6. Rc, NPT or G port threads available as standard
7. Die cast aluminum covers for reduced weight



Easy cushion valve adjustment

Improved cushioning capacity with "floating" cushion seal design

Features

5 to 15% reduction in weight
By using die-cast cover, this model is 5 to 15% lighter than Series CA1.

Able to absorb 30% more kinetic energy
The absorption of kinetic energy has been increased by nearly 30% through increased cushion volume and the use of a new cushion seal. Also, the cushion seal life has been increased by nearly 5 times.

Improved cushion capacity
"Floating" cushion seal design eliminates piston rod "bouncing" due to cracking pressure at beginning of stroke.

Easy cushion valve adjustment
Use of an allen wrench in cushion valve adjustment makes fine adjustment easy. The cushion valve does not protrude from the surface of the cover.

Piston rod deflection reduced by 5 to 10%
Piston rod deflection is reduced by the improved accuracy of bushing and piston rod, which minimizes the clearance between these components.

Mounting dimensions are the same as those of Series CA1.

NPT thread and G thread are standardized.

Also Available:

Double Rod
Series CA2W

ø40 to ø100mm
Allows various workload connections. Also, increase side load capability.

Smooth Cylinder
Series CA2Y

ø40 to ø100mm
Maintains smooth operation at low pressure and low speed.

End Lock
Series CBA2

ø40 to ø100mm
Mechanically locks the cylinder position at end of stroke.

Locking Cylinder
Series CNA

ø40 to ø100mm
Ideal for intermediate stops, emergency stops and drop prevention.

Tie Rod Cylinder

How to Order

Without auto switch CA2 [ ] L [ ] [ ] 40 [ ] 200 [ ] JN [ ]

With auto switch CDA2 [ ] L [ ] 40 [ ] 200 [ ] JN Y7BW [ ] [ ]

Built-in magnet

Type

Nil	Single rod
K*	Non-rotating rod
W	Double rod
KW*	Non-rotating, double rod

* Only available on 40, 50 and 63mm bore sizes.

Mounting

B	Basic
L	Axial foot
F	Front flange
G	Rear flange
C	Single clevis
D	Double clevis
T	Center trunnion

Low friction

Nil	Without low friction
Q	With low friction

Cylinder stroke (mm)

Auto Switch

See catalog ES20-176 for available auto switches.

Tube material

Nil	Aluminum tube
F*	Steel tube

* Not available with auto switch.

Bore size

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

Port thread type

Nil	Rc
TN	NPT
TF	G

Direction of low friction

Nil	Without low friction
B	With pressure at rod side
F	With pressure at head side

Number of auto switches

Nil	2 pcs.
S	1 pc.
3	3 pcs.
n	"n" pcs.

Cylinder suffix

One end rod boot	Nil	Without rod boot
	J	Nylon tarpaulin
	K	Heat resistant tarpaulin
Cushion	Nil	With cushion on both sides
	N	Without cushion

* When more than one symbol is to be specified, indicate them in alphabetical order.

Options

-XB5	Oversized piston rod
-XB6	Heat resistant (150°C)
-XC3	Special port positions
-XC4	With heavy duty scraper
-XC5	Heat resistant (110°C)
-XC6	Piston rod and rod end nut made of stainless steel
-XC7	Tie-rod, cushion valve, and tie-rod nut and similar parts made of stainless steel
-XC8	Adjustable stroke/Extension
-XC9	Adjustable stroke/Retraction
-XC10	Dual stroke/Double rod
-XC11	Dual stroke/Single rod
-XC12	Tandem type
-XC22	Fluoro rubber seal
-XC27	Double clevis pin and double knuckle pin made of stainless steel
-XC28	Compact flange made of SS400
-XC29	Double knuckle joint with spring pin
-XC30	Front trunnion
-XC35	Metal coil scraper
-XC58	Water resistant/Built-in hard plastic magnet
-XC59	Fluoro rubber seal/Built-in hard plastic magnet

Refer to catalog ES20-176 for details and option compatibility.

Cylinders with built-in magnets

If built-in magnet type is ordered without auto switch, leave the field for the auto switch type blank.
(Example) CDA2L40-100

NFPA Interchangeable Air Cylinder

Series NCA1

Bore sizes:
ø1.5", ø2", ø2.5", ø3.25", ø4"

❶Improved cushion capacity
"Floating" cushion seal design eliminates piston rod "bouncing" due to cracking pressure at beginning of stroke.

❷Compact and lightweight design
The square covers are made of an aluminum die casting and provide a lower cost, lighter weight product.

❸Increased kinetic energy absorption
The absorption of kinetic energy has been increased by nearly 30% through increased cushion volume and the use of a new cushion seal.

❹Full port design
Allows for improved piston breakaway.

❺Piston Rod
Piston rod available as hard chrome plated carbon steel or stainless steel.

❻Rolled piston rod threads
Rolled piston rod threads for increased tensile strength.

❼Replaceable rod seal
Engineered rod seal can be replaced without disassembling the cylinder

❽Piston and cushion ring
Piston and cushion ring are mechanically crimped to the piston rod

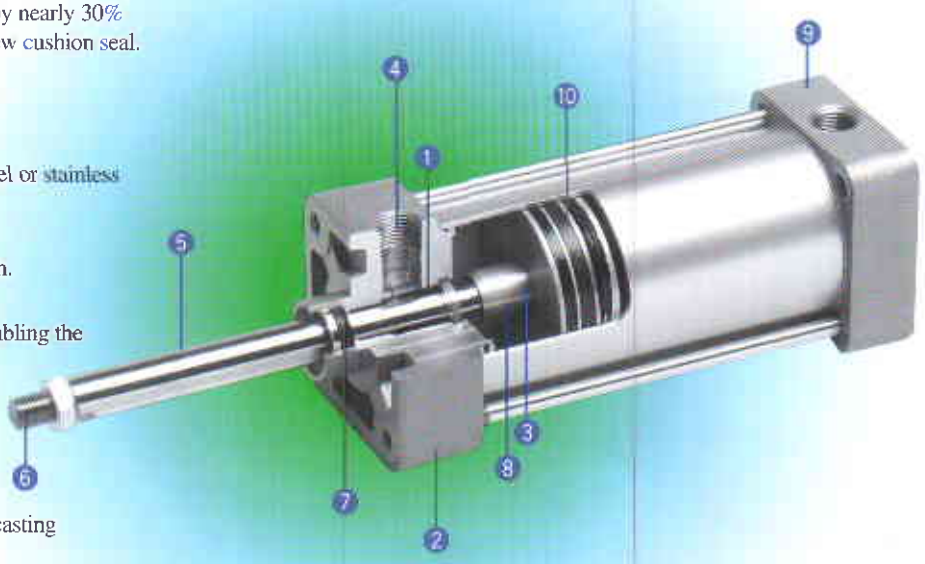
❾Rugged square covers
Rugged square covers are made of an aluminum die casting

❿Magnetic piston available

Full range of NFPA interchangeable mounting configurations
Mounting Dimensions are in accordance with ANSI (NFPA) T3.6.7 R2-1996, Fluid Power Systems and products-Square Head Industrial Cylinders-Mounting Dimensions.

Expanded bore sizes available up to 14" (See catalog N304 -EX)

Make to Order options are available.



Also available : ISO/VDMA Interchangeable Series

Series C95
ISO/VDMA Cylinder
ø32 to ø250mm
Comforms to ISO 6431, CETOP RP43P and VDMA 24562.

Series CP95
Profile Tube
ø32 to ø100mm
Profile design with enclosed tie-rods.

Series C95N
Locking Cylinder
ø32 to ø100mm
Ideal for intermediate stops, emergency stops and drop prevention.

Series HYC
Hygienic Cylinder
ø32 to ø63mm
Water resistant cylinder with easy cleaning configuration.

NFPA Interchangeable Air Cylinder

How to Order

Without auto switch NCA1 ☐ B 150 – 04 00 ☐ ☐ ——— ☐

With auto switch NC D A1 ☐ B 150 – 04 00 ☐ ☐ – A53 ☐ – ☐

Built-in magnet

Type

Nil	Standard
K	Non-rotating rod
W	Double rod
M	Male rod stud

Non-rotating rod only available for 150, 200 and 250 bore sizes

Mounting style

B	MX0	Basic
L	MS1	Foot
F	MF1	Front flange
G	MF2	Rear flange
R	MS4	Side tapped
D	MP2	Double detachable rear clevis
T	MT4	Center trunnion
C	MP4	Single detachable rear clevis
X	MP1	Double rear clevis
S	MS2	Side lug
U	MT1	Rod side trunnion
J	MT2	Head side trunnion

Bore size

150	1-1/2"
200	2"
250	2-1/2"
325	3-1/4"
400	4"

Up to 14" bore size available. Refer to CAT. N304-EX

Stroke (inches)
(Example: 04 = 4 inch stroke)

Stroke (Hundredths of an inch)
(Example: 25 = 0.25 (1/4) inch stroke)

Cushion

Nil	Both ends
N	None
H	Head end
R	Rod end

Rod Boot

Nil	Without rod boot
J	Nylon rod boot
K	Neoprene rod boot

Auto Switch
See catalog N304 for available auto switches.

No. of Switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Options

XB5	Oversize rod
XB6	High temperature
XB7	Low temperature
XB9	Low speed
XC6	Stainless steel piston rod
XC8	Adjustable stroke extend**
XC9	Adjustable stroke return**
XC10	Dual operation double rod**
XC11	Dual operation single rod**
XC22	Viton seals
XC35	Metal coil scraper
X46US	Special trunnion location**
X119US	Non-rotating oversize rod
X130US	Stainless steel piston rod Tie rods & nuts, Cushion needle

** Refer to Catalog N304 individual section for "How to Order".

Refer to catalog N304 for details and option compatibility.

Compact Cylinder

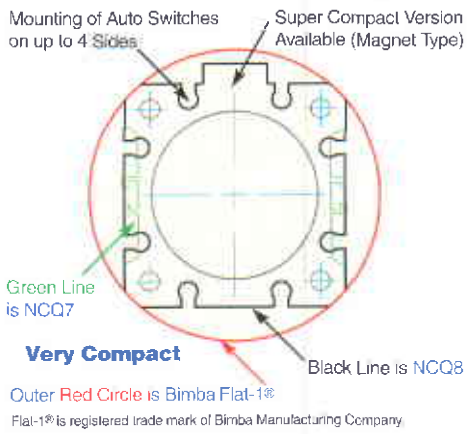
Series NCQ8

Bore Sizes:
056 (9/16"), 075 (3/4"), 106 (1-1/16"), 150 (1-1/2"), 200 (2"), 250 (2-1/2")

- Auto switches can be mounted on multiple sides and do not protrude from the cylinder body
- Hard anodized, extruded aluminum body
- Snap ring design allows for quick and easy seal maintenance
- Female rod thread or male rod thread stud
- Thru-hole or tapped hole mountings
- The NCQ8 has many of the unique design features of SMC's CQS and CQ2 compact series.
- Available as double acting or single acting.

NCQ8 Design Features

square body allows for close center-to-cener mounting



Flat-1® is registered trade mark of Bimba Manufacturing Company.

Super Compact Type offers a 3/8" to 5/8" shorter overall length than the standard type.
The standard type matches the overall length of competitor's cylinders as well as the NCQ7 series.

NCDQ8□
With auto switch, Standard type

Difference in dimension (in)

NCDQ8□Z
With auto switch, Super compact type

Also Available:

Series CQS
Square Profile

ø12 to ø25 mm
Square body profile is ideal for space-saving applications.

Series C55
Compact ISO Cylinder

ø20 to ø63 mm
Conforms to ISO 21287

Series CQM
Guide Rod Type

ø12 to ø100 mm
Provides high non-rotating accuracy and lateral load resistance.

Series MU
Plate Cylinder

ø25 to ø63 mm
Elliptical piston design allows space-savings.

Compact Cylinder

How to Order

Without auto switch: **NCQ8** A 150 – 100 S – Y7BW

With auto switch: **NCDQ8** A 150 – 100 S – Y7BW

Rod style

Nil	Single rod
W	Double rod

Options

Nil	Standard
XB6	High temp. seals Note)
XC4	Heavy duty rod scraper

Note) Not available W/magnet

Built-in magnet

Mounting options

	Standard overall length
A	Both ends tapped
B	Basic model-Through holes with c-bores
C	Rear clevis [3]
E	Front screw clearance hole
M	Rear screw clearance hole [3]
N	Through hole clearance hole
	Super compact overall length [1,2]
AZ	Both ends tapped
BZ	Basic model-Through holes with c-bores
CZ	Rear clevis
EZ	Front screw clearance hole
MZ	Rear screw clearance hole
NZ	Through hole clearance hole

Nominal bore size

006	9/16"
075	3/4"
106	1-1/16"
150	1-1/2"
200	2"
250	2-1/2"

Cylinder stroke [4,5]

Single acting			
012	1/8"	087	7/8"
025	1/4"	100	1"
037	3/8"	125	1-1/4"
050	1/2"	150	1-1/2"
062	5/8"	175	1-3/4"
075	3/4"	200	2"
Double acting			
012	1/8"	125	1-1/4"
025	1/4"	150	1-1/2"
037	3/8"	175	1-3/4"
050	1/2"	200	2"
062	5/8"	250	2-1/2"
075	3/4"	300	3"
087	7/8"	350	3-1/2"
100	1"	400	4"

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

See catalog IBD20-1A for available auto switches

Body options

Nil	Standard (Female rod end)
C	Rubber Bumper [2]
M	Male rod end

- Stroke will be reduced by 0.05" for rubber bumper type
- Body option combination is available (CM)

Actuation

Nil	Double acting
S	Single acting spring return
T	Single acting spring extend

[1] Not available without auto switch.
[2] Not available with Double rod (W).
[3] Not available with spring return or spring extend, or with super compact type (Z).
[4] For non-standard stroke length, inquire with SMC.
[5] Minimum stroke for auto switch type is 0.25".

* Refer to Catalog CAT. IBD20-1A for details.

Compact Cylinder
Series NCQ2/CQ2

Bore Sizes:
12mm, 16mm, 20mm, 25mm, 32mm, 40mm, 50mm, 63mm 80mm, 100mm, 125mm, 140mm, 160mm, 180mm, 200mm

- **The industry's most comprehensive line of compact cylinders**
- **Compact, lightweight and space-saving design**
- **Simple construction minimizes repair time**

Also Available:

Series **RQ**
With Air Cushion
ø20 to ø100mm
Utilizes compact & innovative air cushion mechanism.

Series **CBQ2**
End Lock
ø20 to ø100mm
Mechanically locks the cylinder position at end of stroke.

Series **CLQ**
With Lock
ø20 to ø100mm
Provides drop prevention in one direction during system pressure loss.

Series **CQSY/CQ2Y**
Smooth Cylinder
ø12 to ø100mm
Maintains smooth operation at low pressure and low speed.

Variations

Series	Action	Style	Bore size (mm)
Standard	Double acting	Single rod (N)CQ2	12, 16, 20, 25, 32, 40, 50, 63, 80, 100
		Double rod (N)CQ2W	12, 16, 20, 25, 32, 40, 50, 63, 80, 100
	Single acting	Spring return /extend (N)CQ2	12, 16, 20, 25, 32, 40, 50
Non-rotating rod	Double acting	Single rod (N)CQ2K	12, 16, 20, 25, 32, 40, 50, 63
		Double rod (N)CQ2KW	12, 16, 20, 25, 32, 40, 50, 63
Axial piping (Centralized piping)	Double acting	Single rod CQP2	12, 16, 20, 25, 32, 40, 50, 63, 80, 100
	Single acting	Spring return /extend CQP2	12, 16, 20, 25, 32, 40, 50
Large bore size	Double acting	Single rod CQ2	125, 140, 160, 180, 200
		Double rod CQ2W	125, 140, 160, 180, 200
Long stroke	Double acting	Single rod (N)CQ2	32, 40, 50, 63, 80, 100
Anti-lateral load	Double acting	Single rod CQ2□S	32, 40, 50, 63, 80, 100

Basic
Built-in magnet
Mounting female thread (A)
Rod end male thread
With rubber bumper
Rear boss mount
With One-touch fitting (Bore size ø32 to ø63)
Foot and flange
Double clevis
Compact type
Air-hydro (Bore ø20 to ø100)
Clean series (Bore ø12 to ø63)

Compact Cylinder

How to Order

Without auto switch	NCQ2		B		20		5	D					
With auto switch	NCDQ2		B		20		5	D					
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬

① Series

Nil	Metric rod threads & PT ports
N	Inch rod threads & NPT ports

② Built-in magnet

③ Type

Nil	Single rod
W	Double rod
K	Non-rotating rod
KW	Non-rotating, double rod

④ Mounting type

B	Through holes (Standard type) [1, 2]
A	Both ends tapped
L	Foot
F	Front flange
G	Rear flange [3]
D	Double clevis [3]

⑤ Model

Nil	Pneumatic
H	Air-hydro type
S	Anti-lateral load

⑥ Bore size

12	12mm (1/2")	80	80mm (3-1/4")
16	16mm (5/8")	100	100mm (4")
20	20mm (3/4")	125	125mm (5")
25	25mm (1")	140	140mm (5-1/2")
32	32mm (1-1/4")	160	160mm (6-1/4")
40	40mm (1-1/2")	180	180mm (7-1/8")
50	50mm (2")	200	200mm (8")
63	63mm (2-1/2")		

Refer to variation table on other side for detail.

⑦ Piping

Nil	Threaded ports
F	Built-in one-touch fitting [1, 2]

⑧ Cylinder stroke

Refer to table left.

⑨ Actuation

D	Double acting
S	Single acting spring return
T	Single acting spring extend

⑩ Body options

Nil	Standard
C	Rubber cushion
M	Rod end male thread
F	Head end boss [1]

⑪ Auto switch

See catalog N320 for available auto switches.

⑫ Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

⑬ Options

Option	Description	Bore
-XB6	High temperature	12 to 100
-XB7	Low temperature	12 to 40
-XB9	Low speed (10 to 50mm/s)	12 to 100
-XB13	Low speed cylinder (5 to 50mm/s)	12 to 100
-XB14	Heat resistant auto switch	16 to 63
-XC4	Heavy duty scraper	20 to 100
-XC6	Stainless steel piston rod and rod nut	12 to 100
-XC8	Adjustable stroke extend	12 to 100
-XC9	Adjustable stroke retract	12 to 100
-XC10	Dual stroke, dual rod	12 to 100
-XC11	Dual stroke, single rod	12 to 100
-XC18	NPT Port (1)	32 to 160
-XC35	Metal coil scraper	32 to 100
-XC36	With front guide boss (1)	12 to 100
-XC38	Hollow piston rod	20 to 100
-X149US	Inch-size wrench flats	12 to 100

(1) Not available on NCQ2 series.

Cylinder Stroke

Standard
Double acting
Single rod
ø12, ø16/5 to 30
ø20 ø25/5 to 50
ø32, ø40/5 to 100
ø50 to ø100/10 to 100
Double rod
ø12, ø16/5 to 30
ø20, ø25/5 to 50
ø32, ø40/5 to 100
ø50 to ø100/10 to 100
Single acting
Spring return/extend
ø12 to ø40/5, 10
ø50/10, 20

Non-rotating rod
Double acting
Single rod
ø12, ø16/5 to 30
ø20, ø25/5 to 50
ø32, ø40/5 to 100
ø50, ø63/10 to 100
Double rod
ø12, ø16/5 to 30
ø20 to ø40/5 to 50
ø50, ø63/10 to 50

Axial piping
(Centralized piping)
Double acting
Single rod
ø12, ø16/5 to 30
ø20, ø25/5 to 50
ø32, ø40/5 to 100
ø50 to ø100/10 to 100
Single acting
Spring return/extend
ø12 to ø40/5, 10
ø50/10, 20

Large bore size
Double acting
Single rod10 to 300
Double rod 10 to 300

Long stroke
Double acting
Single rod125 to 300

Anti-lateral load
Double acting
Single rod
ø32 to ø40/5 to 100
ø50 to ø100/10 to 100

Mounting type
1. Not available for Long Stroke cylinder.
2. Only "Through holes" available for Large Bore cylinder.
3. Not available for Double Acting Double Rod cylinder.

* Mounting brackets shipped together (but not assembled)

Model
* Bore size ø20 to ø100 available for Air-hydro model.

Piping
1. Built-in one-touch fitting is available for bore size ø32 to ø63. Not applicable for Air-hydro model.
2. Not available for Large Bore cylinder and Long Stroke cylinder.

Body Option
* Body option combination is available: CM, FC, FM, and FCM
1. Not available for Double Rod cylinder.

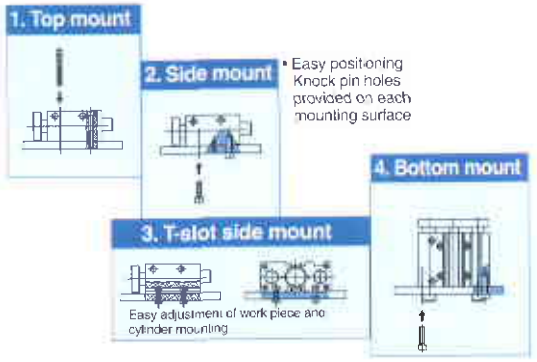
* Refer to catalog N320 and Best Pneumatics Vol. 7 2004 for details.

Compact Guide Cylinder

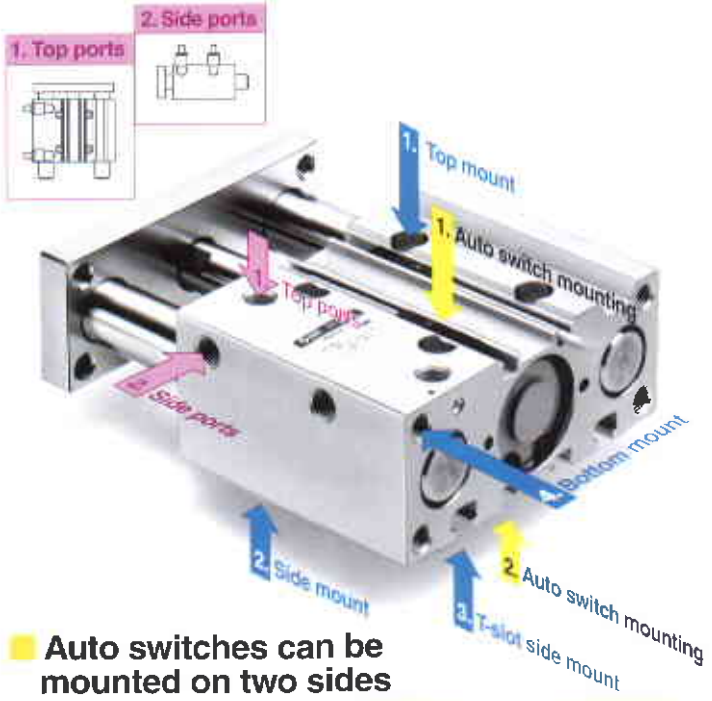
Series MGP

The MGP guided actuator is designed for high side load applications. The actuator utilizes an ultra compact design by incorporating the cylinder as part of the guide body. As the stroke length increases, so does the bearing length. This enhances the cylinder's load capacity. Conventionally designed guided cylinders have a set bearing length resulting in dramatic decreases in side load capacity as stroke lengths increase. The MGP guided actuator offers a vast array of options to suit your automation needs!

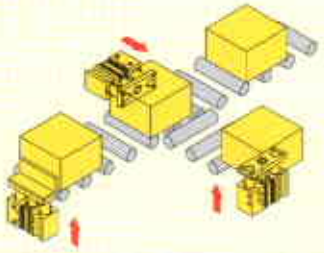
Four mounting types provided



Piping is possible from two directions



Auto switches can be mounted on two sides



Two types of guide rod bearing to accommodate various applications

Slide bearing

The lateral withstand load is more than twice that of a conventional stopper cylinder (round bar type), and is suitable for use with lateral loads accompanied by impact, as in stoppers.

Ball bushing

Suitable for use as a pusher and lifter.

Series Variations

Series				
Standard type	With air cushion	With end lock	Heavy duty guide rod type	High precision ball bushing type
MGP	MGP	MGP	MGPS	MGPA

Bearing type		
Slide bearing Ball bushing	Slide bearing	High precision ball bushing bearing

Bore size (mm)	Slide bearing Ball bushing	Slide bearing	High precision ball bushing bearing
12	●	●	●
16	●	●	●
20	●	●	●
25	●	●	●
32	●	●	●
40	●	●	●
50	●	●	●
63	●	●	●
80	●	●	●
100	●	●	●

- Clean room series: ø12 to ø63
- Water resistant type: ø20 to ø100 Note)
- Copper-free specification: ø12 to ø100

Note) Available with ø20 to ø100 slide bearing type only

Copper-free (20-)

For mid position locking, also check out the MLGP locking guided cylinder. Ask for catalog ES20-154A.

Compact Guide Cylinder

How to Order

Stroke Variations

Long strokes up to 400mm standardized.

Bearing type		
MGPM Slide bearing	MGPL Ball bushing	MGPA High precision ball bushing

Stroke (mm)	Bore size (mm)									
	12	16	20	25	32	40	50	63	80	100
10	●	●								
20	●	●	●	●						
25	●	●	●	●	●	●	●	●	●	●
30	●	●	●	●						
40	●	●	●	●	●	●	●	●	●	●
50	●	●	●	●						
75	●	●	●	●	●	●	●	●	●	●
100	●	●	●	●	●	●	●	●	●	●
125	●	●	●	●	●	●	●	●	●	●
150	●	●	●	●	●	●	●	●	●	●
175	●	●	●	●	●	●	●	●	●	●
200	●	●	●	●	●	●	●	●	●	●
250	●	●	●	●	●	●	●	●	●	●
300	●	●	●	●	●	●	●	●	●	●
350	●	●	●	●	●	●	●	●	●	●
400	●	●	●	●	●	●	●	●	●	●

Intermediate strokes

Spacer type available in stroke increments of 1mm & 5mm.	Special body type (-XB10) available in stroke increments of 1mm.

Made to order (X-Options)

XB6	Heat resistant (150°)
XB10	Intermediate stroke (Exclusive body use)
XB13	Low speed (5 to 50mm/s)
XC4	With heavy duty scraper **
XC6	Stainless steel piston rod plate, etc.
XC8	Variable stroke cylinder adjustable extension type **
XC9	Variable stroke cylinder adjustable retraction type **
XC19	Intermediate stroke (spacer type)
XC22	Fluorine rubber seals XC35 With coil scraper **
XC69	With shock absorber

MGP **M** **32** **□** – **100** **A** – **H** **N** – **Z73** **□** – **XB10**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ Options

① Compact guide cylinder

② Bearing/Guide type

M	Slide bearing
L	Ball bushing
S	Heavy duty guide rod type w/slide bearing
A	High precision ball bushing type

③ Bore size

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

Refer to table at left for details.

④ Port type

Nil	M5 x 0.8/Rc
N	NPT
TF	G

* For bore sizes 12 & 16, only M5 x 0.8 is available.

⑤ Cylinder stroke (mm)

Refer to Stroke Variations table to the left for details.

⑥ Air cushion

Nil	Without air cushion
A	With air cushion

With air cushion applicable for M & L type only.

⑦ Lock position

Nil	Without end lock
H	Rear lock
R	Front lock

⑧ Manual release type

Nil	Without end lock
N	Non-locking type
L	Locking type

⑨ Auto switch type

Nil	Without auto switch (built-in magnet cylinder)

* Refer to Catalog and Best Pneumatics for details.

⑩ Number of auto switches

Nil	2 pcs.
S	1 pc.

⑪ Options

Refer to "Made to Order" section to the left for details.

* Refer to catalog ES20-117C, ES20-181A and Best Pneumatics 2004 Volume. 8 for details.

Slide Table

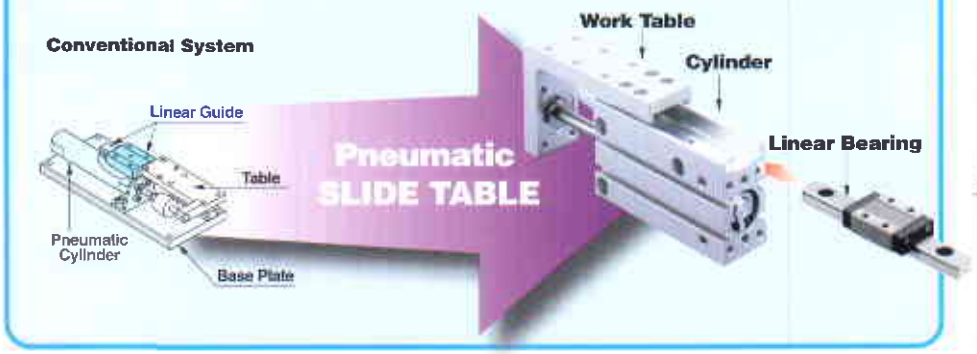
Series MX

C16

SMC has pioneered the development of compact integration of pneumatic cylinders and guided slide tables. The result is the widest range of pneumatically actuated slide tables in the industry, the MX family. The MX slides are available in eight styles to meet a variety of application needs. Series MXS, MXQ, and MXW utilize a twin piston design providing two times the output force for a given bore size.

Unmatched Versatility from The leader in Pneumatics

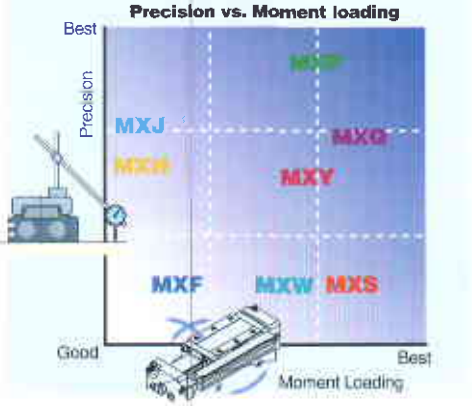
SLIDE TABLE Technology



Performance

Precision and strength in configurations to meet most applications

Precision vs. Moment loading



MXY — **Long Stroke Slide Table**
Long stroke with high precision

MXJ — **Air Slide Table**
Miniature slide with many options

MXH — **Universal Mount Slide Table**
Multiple mounting options

MXS — **Slide Table**
Good precision & many options

MXQ — **Precision Slide Table**
Better precision & more options

MXF — **Low Profile Slide Table**
Suitable for applications with limited space

MXW — **Long Stroke Slide Table**
Ideal for transfer & Pressing applications

MXP — **Compact Slide Table**
Extreme precision

Standard Stroke (mm)

Letters below table indicate the last letter of MX series.

Bore Size (mm)	5	10	15	20	25	30	40	50	60	75	100	125	150	175	200	225	250	275	300	350	400
4.5	J	J																			
6	JHP	JHS QFP	JH	HSQ	H	HS QF	HSQ	YH SQ	H		Y		Y		Y						
8	JH	JS QP	JH	JS QP	W	SQ	SQ	YW SQ		SQW	YW	W	YW		Y		Y		Y		
10		HP	H	HFP	H	HF	H	YHF	H												
12		SQ	P	SQ	P	SQ	SQ	YW SQ		SQW	YS QW	W	YW		Y		Y		Y	Y	Y
16		H	HSQ	H	HS QP	H	HSQ FP	HSQ	HS QF	H	SQ FW	SQW	SQW	W	W	W					
20		H	HSQ	H	HSQ	H	HS QF	HSQ	HS QF	H	SQF	SQ FW	SQW	SQW	W	W	W	W			
25		SQ		SQ		SQ	SQ	SQ		SQ	SQW	SQW	SQW	W	W	W	W	W	W		

Slide Table

How to Order

MX Q 12 L — 50 AT FR N — F9N S — ____

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Slide Table

Q	Slide table
S	Precision slide table
J	Air slide table

③ Symmetric style

Nil	Standard
L	Symmetric

②&④ Bore size/Stroke

Please see table to the left for reference

⑤ Stroke adjuster options

Nil	No adjustment
AS	With adjuster at front end
AT	With adjuster at rear end
A	With adjuster at both ends
BS	With shock absorber at front end*
BT	With shock absorber at rear end*
B	With shock absorber at both ends*
CS	Metal stopper on extension end
CT	Metal stopper in retraction end
C	Metal stopper on both ends

*Shock absorber options is not available for MXS6.

⑥ Function option

Nil	Without option
F	With buffer
R	With end lock*
P	Axial piping
FR	With buffer, end lock*
FP	With buffer, axial piping

* End lock option is not available for MXS6.
Note1) For combination with adjuster option, refer to the table at above. Functional options not available with symmetric type (L) version.

⑦ Switch rail

Nil	With magnet and switch rail
N	Without magnet and switch rail

⑧ Auto switch

See catalogs for switch selection.

⑨ No. of auto switches

Nil	2pcs.
S	1pc.
n	n pcs.

⑩ Adjust range

Nil	5mm (Standard)
X11	15mm
X12	25mm

Cylinder/Actuator

Compact precision Air slide table

MX PJ 6 — 10

MX P 12 — 15 ____ ____ — M9BV S

① ② ③ ④ ⑤ ⑥ ⑦

① Slide table

F	Low profile slide table
H	Compact slide table
P	Precision slide table
W/Y	Long stroke slide table

②&③ Bore – Stroke

Please see table to the left for reference.

④ Adjuster option*

Nil	Rubber stopper
B**	Shock absorber
C	Metal stopper

* Available only one side for MXP6.
** Shock absorber not available with MXP6 and MXP8.

* Auto switch not available with MXPJ6.

⑤ One side centralized piping, switch rail

Nil	One side centralized piping, with switch rail
N*	One side centralized piping, without switch rail

* Not applicable to mount auto switch without magnet and rail.

⑥ Auto switch number

Nil	Without auto switch

* Please select the applicable auto switch model from the table in catalog.

⑦ Number of auto switches

Nil	2 pcs.
S	1 pc.
n	n pcs.

* If the MXP6-5 is ordered with 2 switches, the D-M9□ or D-M9□V must be used because of space restrictions.

Refer to catalogs

MXF	E242
MXH	E276A
MXJ	ES20-185A
MXP	ES20-125B
MXQ	ES20-132B
MXS	E235C
MXW	E243
MXY	ES20-167A

Dual-Rod Cylinder

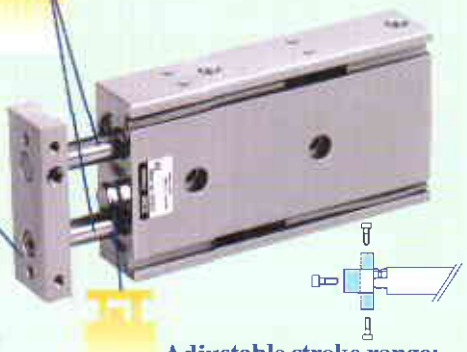
Series CXS

Like the MX series, CXS slide units are intended to replace a custom assembly consisting of many components with one integrated and reliable component. CX offers excellent value when the accuracy and moment capabilities of the MX slide are not required. The CX has very good non-rotating accuracy and intermediate to high loading capabilities. The twin piston design provides twice the thrust for a given bore size.

Dual-Rod Cylinder
with guide function for pick-and-place applications

Non-rotating accuracy: 0.1

3-side work piece mounting is a reality.



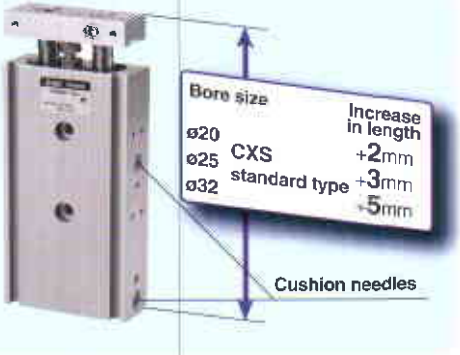
Ball bushing bearings and slide bearings are standard for all series.
Dimensions for ball bushing bearings and slide bearings are the same.

Adjustable stroke range: 0 to –5mm

Dual-rod cylinder range is better than ever.
Air cushion type
Series CXS: ø20, ø25, ø32

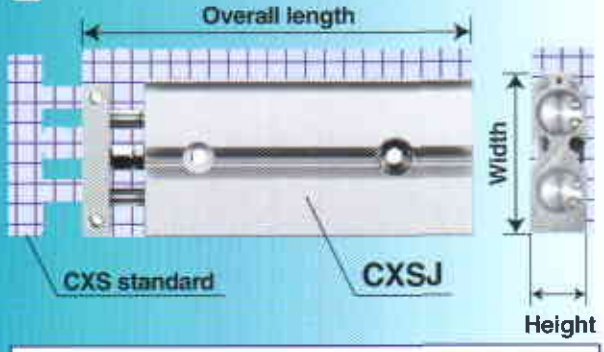
Air cushion only minimally adds to overall length, compared with the standard type cylinder.

- Improved allowable kinetic energy: Two to three times that of the standard type
- Improved noise reduction: Reduction of more than 6dB is possible.

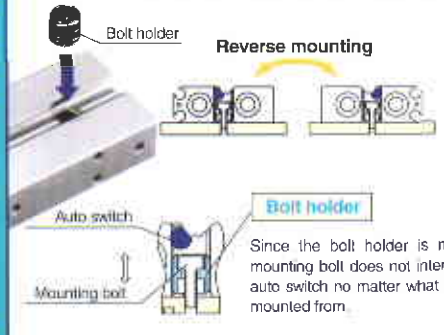


Compact Type Series CXSJ: ø6, ø10, ø15, ø20, ø25, ø32

Smaller and lightweight



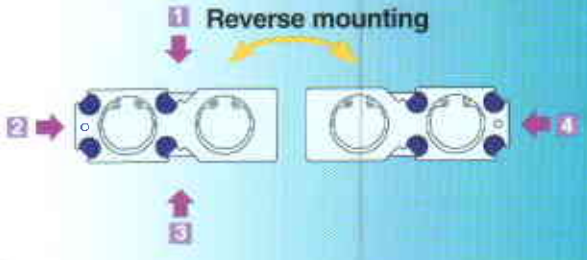
Reverse mounting mechanism



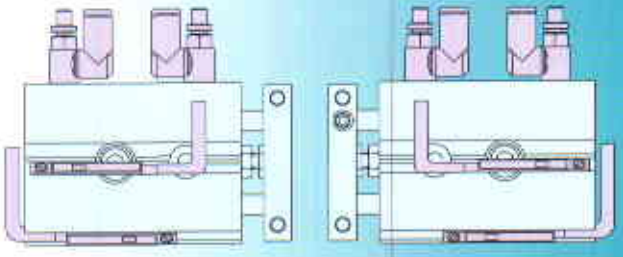
Since the bolt holder is movable, the mounting bolt does not interfere with the auto switch no matter what direction it is mounted from.

Superior mounting options

1 Auto switches can be installed from 4 directions.



2 Symmetric mounting



Dual-Rod Cylinder

How to Order

CXS W M 20 ▢ – 100 A – Y7BW S – ▢

Cylinder type

Nil	Dual-rod cylinder (Basic type)
W	Dual-double-rod cylinder
J	Compact type

Bearing type

M	Slide bearing
L	Ball bushing bearing

Bore size/Stroke for basic type

Bore sizes	Standard strokes (mm)
6	10, 20, 30, 40, 50
10	10, 15, 20, 25, 30, 40, 45, 50, 60, 70, 75
15, 20, 25, 32	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100

For dual-double-rod type, compact type & end-lock type

Bore sizes	Standard strokes (mm)
6, 10, 15	10, 20, 30, 40, 50
20, 25, 32	10, 20, 30, 40, 50, 75, 100

For air cushion type

Bore sizes	Standard strokes (mm)
20	20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100
25, 32	25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100

Port thread type

Symbol	Type	CXS Bore sizes	CXSJ Bore sizes
Nil	M	ø6 to ø20	ø6 to ø25
	Rc	ø25, ø32	ø32
TN	NPT		
TF	G		

* Refer to catalog ES20-53E, ES20-174A and Best Pneumatics 2004 Volume 8 for details.

Cushion or end lock

Nil	No air cushion and no end lock
A	Air cushion
R	Rear end lock type

Auto switch type

Nil	Without auto switch (with built-in magnet)

See catalog for available auto switches.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Options

–XB6	Heat resistant cylinder (150C)
–XB9	Low speed cylinder (10 to 50mm/s)
–XB11	Long stroke type
–XB13	Low speed cylinder (5 to 50 mm/s)
–XB19	High speed cylinder
–XC18	NPT finish piping port
–XC22	Fluoro rubber seals

XB11: Long stroke

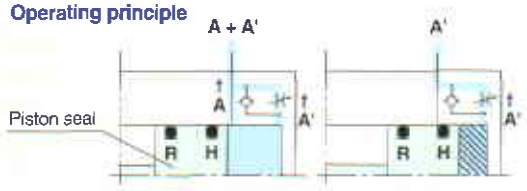
Bore sizes	XB11: Long strokes (mm)
10	80, 90, 100, 110, 120, 125, 150
15	110, 120, 125, 150
20, 25, 32	110, 120, 125, 150, 175, 200

Available for basic type only

Unique air cushion mechanism with no cushion ring

Elimination of the cushion ring used in conventional type air cushions has made it possible to reduce the overall length of the cylinder while retaining all the advantages of a compact profile.

Operating principle

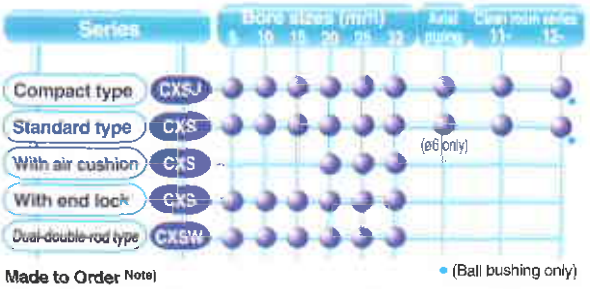


① When the piston is retracting, air is exhausted through both A and A' until piston seal H passes air passage A.

② After piston seal H has passed air passage A, air is exhausted only through A'. The section marked with slanted lines becomes a cushion chamber, and an air cushion effect is achieved.

③ When air is supplied for the piston extension, the check seal opens and the piston extends with no delay.

Variations



Made to Order Note)

XB6	Heat-resistant cylinder
XB9	Low-speed cylinder: 10 to 50mm/s
XB13	Low-speed cylinder: 5 to 10mm/s
XB19	High-speed cylinder
XB11	Long-stroke cylinder
XC18	NPT finish piping port
XC22	Fluoro rubber seal
X593	Without plate

Note) Made to Order options are available for Series CXS standard type only. (Long stroke option XB11 is also available for CXSW.) Refer to catalog ES20-53E and Best Pneumatics 2004 Vol 8 for details

Parallel Grippers

Series MH

C16

MHZ2 – High Precision – Many options – Ideal general purpose gripper

Refer to catalog ES20-140D

The MHZ2 Parallel Grippers are available in several sizes with many options to choose from. High quality, precision, durability, and outstanding value are the hallmark of this gripper.

Series Variations

Series	Bore size (mm)	Action	Body option: Basic type – Side ported	Body option: End boss type – Side ported	Body option: End boss type – With One-touch fitting (axial type)	Body option: End boss type – With One-touch fitting	Body option: End boss type – With M5 port	Body option: End boss type – With M5 port	Body option: End boss type – With boss nipple	Finger option: Basic type (tapped in open/close direction)	Finger option: Side tapped	Finger option: Through-hole in open/close direction	Finger option: Flat type finger
Compact series													
Standard *MHZA2-6*	6	Double acting	●	●		●	●	●	●	●	●	●	●
		Single acting (Normally open)	●	●		●	●	●	●	●	●	●	●
		Single acting (Normally closed)	●	●		●	●	●	●	●	●	●	●
With dust cover *MHZAJ2-6*	6	Double acting	●	●		●	●	●	●				
		Single acting (Normally open)	●	●		●	●	●	●				
		Single acting (Normally closed)	●	●		●	●	●	●				
Standard *MHZ2*	6	Double acting	●	●		●	●	●	●	●	●	●	●
		Single acting (Normally open)	●	●		●	●	●	●	●	●	●	●
		Single acting (Normally closed)	●	●		●	●	●	●	●	●	●	●
	10, 16, 20, 25	Double acting	●	●	●	●	●	●	●	●	●	●	●
		Single acting (Normally open)	●	●	●	●	●	●	●	●	●	●	●
		Single acting (Normally closed)	●	●	●	●	●	●	●	●	●	●	●
	32, 40	Double acting	●	●		●	●	●	●	●	●	●	●
		Single acting (Normally open)	●	●		●	●	●	●	●	●	●	●
		Single acting (Normally closed)	●	●		●	●	●	●	●	●	●	●
Long stroke *MHZL2*	10, 16, 20, 25	Double acting	●	●	●	●	●	●	●	●	●	●	●
		Single acting (Normally open)	●	●	●	●	●	●	●	●	●	●	●
		Single acting (Normally closed)	●	●	●	●	●	●	●	●	●	●	●
With dust cover *MHZJ2*	6	Double acting	●	●		●	●	●	●				
		Single acting (Normally open)	●	●		●	●	●	●				
		Single acting (Normally closed)	●	●		●	●	●	●				
	10, 16, 20, 25	Double acting	●	●	●	●	●	●	●	●	●	●	●
		Single acting (Normally open)	●	●	●	●	●	●	●	●	●	●	●
		Single acting (Normally closed)	●	●	●	●	●	●	●	●	●	●	●

MHS2/3/4/

High grip force – Available with two, three, or four fingers – Good for gripping round or square parts.

MHS Grippers utilize a wedge cam design to minimize their size yet retain a high holding force. The high ratio of force to size makes these grippers well suited for end of arm or space constrained pick and place applications. The two finger MHS2 is good for general purpose gripping. The three finger design of the MHS3 is ideal for round parts. Round or square objects work well with the four finger MHS4.

Refer to catalog ES20-104F

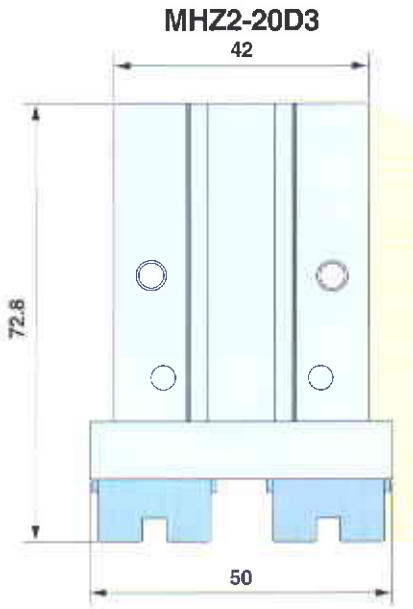
Series Variations

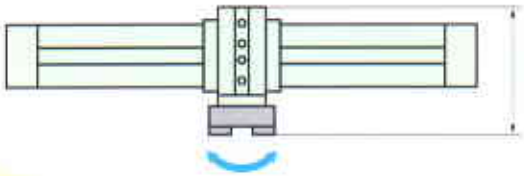
Bore size (mm): 16, 20, 25, 32, 40, 50, 63, 80, 100, 125

2 Finger		***Series MHS2***	**Gripping of diverse workpieces**
3 Finger		***Series MHS3***	***Axial gripping of cylindrical workpieces***
3 Finger		Long stroke ***Series MHSL3***	***Accommodates a wide range of workpiece diameters***
4 Finger		***Series MHS4***	**Positioning of square workpieces**

MHF2 – Very low profile – Reduced height saves space minimizes bending moments in pick and place systems

The MHF2 Low Profile Air Gripper uses a low profile design to save space and reduce bending moments. The height is approximately 1/3 that of conventional air grippers with equivalent gripping force. The gripper jaws are guides using high precision and high rigidity ball bearing guides. A double air piston construction achieves compact design and strong holding force.

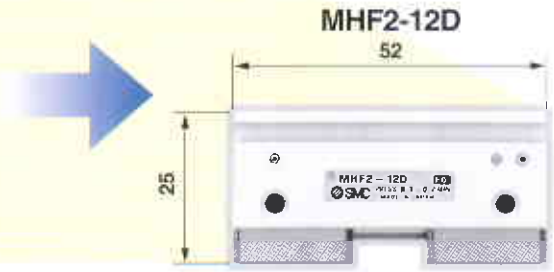




Reduced bending moment and vibration

(mm)

Bore size	Height
8	19
12	25
16	33
20	41



- The low profile design saves space and reduces bending moments.
- Improved accuracy with smooth operation

Height is approximately 1/3 the size of an equivalent Series MHZ2.

Refer to catalog ES20-166A

MHL2 –Long stroke and wide opening – Great gripping large parts of various sizes

Series MHL air grippers are designed for applications that require a wide travel range of the gripper fingers. The MHL is good for gripping many different sized parts. Finger motion is synchronized by a rack and pinion mechanism. The double piston construction creates large holding forces.

- **One unit can handle workpieces with various diameters**
- **A large amount of gripping force is provided through the use of a double piston mechanism, while maintaining a compact design**
- **Double end type oil impregnated resin bearings with a metal backing are used for all shafts**
- **Fingers synchronized by a rack and pinion mechanism**
- **Built-in dust-protection mechanism**
- **A high degree of freedom for mounting**
- **Auto switch mountable**

Specifications

Bore size (mm)	10	16	20	25	32	40
Fluid	Air					
Action	Double acting					
Operating pressure (MPa)	0.15 to 0.6	0.1 to 0.6				
Ambient and fluid temperature	–10 to 60C					
Repeatability	0.1					
Lubrication	Not required					
Effective gripping force (N) at 0.5 MPa	14	45	74	131	228	396

Note) Gripping point = Bore size 10, 16, 20, 25: 40 mm, Bore size 32, 40: 80 mm

Refer to catalog E245A

Standard Body ø6 to ø40mm Bore

Parallel Gripper – Series MHZ2

Size 6:	MHZ	2	–	6	D			–	F9PV	
Sizes 10 to 25:	MHZ	2	–	16	D			–	F9PV	
Sizes 32 & 40:	MHZ	2	–	32	D			–	F9PV	

Number of fingers

Bore size

6	6mm
10	10mm
16	16mm
20	20mm
25	25mm
32	32mm
40	40mm

Action

D	Double acting
S	Single acting (N.O.)
C	Single acting (N.C.)

Finger option

Nil	Basic type
1	Side tapped mounting
2	Through holes
3	Flat finger
N	Basic type*
N1	Side tapped mounting*
N2	Through holes*

* MHQ2 compatible: ø10 to ø25mm bore sizes only

Body option

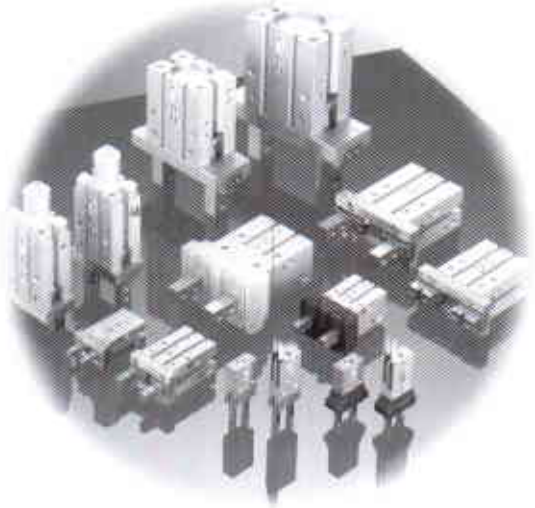
Nil	Basic type
E	End boss side ported*
K	End boss axial one-touch fitting[1] **
M	End boss axial M5 port[1]
W	End boss axial coaxial fitting[2] **

[1] Single-acting only
[2] Double-acting only
* D, S action, basic and N type finges only
** *basic and N type fingers only*

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch model
Refer to catalog for switch selection.



Compact Body ø6mm Bore

Parallel Gripper – Series MHZA(J)2

MHZA 2 – 6 D ☐ ☐ ☐

MHZAJ 2 – 6 D ☐ ☐

With dust cover

Number of fingers

ø6mm bore

Action

D	Double acting
S	Single acting (N.O.)
C	Single acting (N.C.)

Finger option

Nil	Basic type
1	Side tapped mounting
2	Through holes
3	Flat finger

Body option

Nil	Basic type
E	End boss side ported*
H	End boss sxial hose nipple[1]
K	End boss axial one-touch fitting[1] *
M	End boss axial M5 port[1]

[1] Single-acting only
* E and K option with basic fingers only on SMC Now Program

Dust cover

Nil	Chloroprene rubber (CR)
F	Fluorene rubber (FKM)
S	Silicon rubber (S)

* See page 2502.040 for replacement covers.

Cylinder/Actuator

Parallel Gripper – Series MHZJ2

MHZJ 2 – 16 D ☐ ☐ – F9PV ☐

Number of fingers

Bore size

6	6mm
10	10mm
16	16mm
20	20mm
25	25mm

Action

D	Double acting
S	Single acting (N.O.)
C	Single acting (N.C.)

Body option

Nil	Basic type
E	End boss side ported
K	End boss axial one-touch fitting[1]
M	End boss axial M5 port[1]
W	End boss axial coaxial fitting[2]

[1] Single-acting only
[2] Double-acting only

Dust cover

Nil	Chloroprene rubber (CR)
F	Fluorene rubber (FKM)
S	Silicon rubber (S)

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch model
Refer to page 4572.010 for switch selection.

Parallel Grippers

How to Order

2/3/4 Finger Air Gripper

Wedge Cam Gripper – Series MHS/MHSL

MHS L 3 – 20 D – [ ] S

Stroke

Nil	Standard
L	Long stroke*

* MHS3 only.

Number of fingers

2	2 fingers
3	3 fingers
4	4 fingers

Bore size

16	16mm	50	50mm
20	20mm	63	63mm
25	25mm	80	80mm
32	32mm	100	100mm
40	40mm	125	125mm

Double acting

Auto switch model
Refer to catalog for available auto switches.

Number of auto switches

Nil	2 pcs.
S	1 pc.

3 Finger Air Gripper with Center Pusher/Dust Cover

Gripper with Boot and Pusher – Series MHSH3/MHSJ3

MHS HJ 3 – 32 D [ ] [ ] – [ ] [ ]

Configuration

H	Through hole
J	Dust cover
HJ*	Through hole + Dust cover

* Not available on ø16, ø20, and ø25mm bore sizes.

Number of fingers

3	3 fingers

Bore size

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

Double acting

Center pusher type*

Nil	Without center pusher
A	Cylinder type
B	Spring type

* *Through hole H, HJ types only; not available on ø16, ø20, and ø25mm bores.*

Dust cover type*

Nil	Chloroprene rubber (CR)
F	Fluoro rubber (FKM)
S	Silicon rubber (Si)

* Dust cover J, HJ type only.

Auto switch model
Refer to page 4572.010 for switch selection.

Number of auto switches

Nil	2 pcs.
S	1 pc.

Low Profile Air Gripper

Rack and Pinion Gripper – Series MHF2

MHF2 – 12 D ☐ ☐ – F9B ☐

Bore size

8	8mm
12	12mm
16	16mm
20	20mm

Stroke length

Nil	Short stroke
1	Middle stroke
2	Long stroke

Body option

Nil	End ports
R	Side ports

Auto switch model
Refer to catalog for available auto switches.

Number of auto switches

Nil	2 pcs.
S	1 pc.

Wide Opening Gripper – Series MHL2

MHL 2 - 16 D 2 - ☐ S

Wide opening gripper

Number of fingers

2	2 fingers

Bore size

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

Acting

D	Double acting

Opening/Closing stroke (mm)

Symbol	ø10	ø16	ø20	ø25	ø32	ø40
Nil	20	30	40	50	70	100
1	40	60	80	100	120	160
2	60	80	100	120	160	200

Applicable auto switch
See catalog for applicable switches.

Number of auto switches

Nil	2 pcs.
S	1 pc.

Angular Grippers

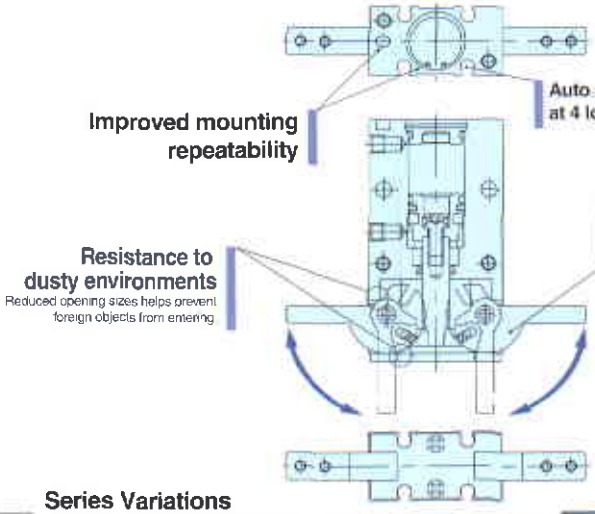
Series MH

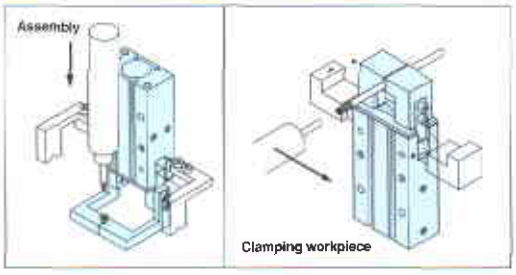
MHY2/MHW2 180° Angular Grippers

The MHY2 and MHW2 grippers are perfect for applications where space saving is a necessity. In addition to its compact size, each of the two fingers, synchronized by a rack *and pinion mechanism, rotates* back perpendicular to the gripper body. In this position, the gripper will only require clearance for the body allowing for X-Y movement without an additional Z-axis linear actuator.

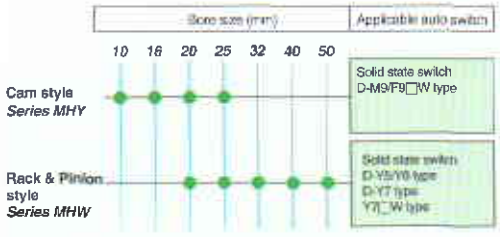
Refer to catalog N366

Cam Style —— Light and compact size in small bore sizes





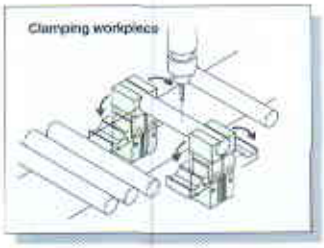
Series Variations

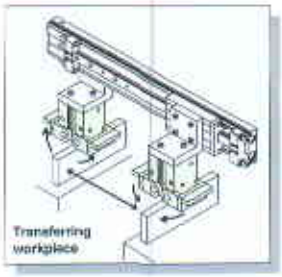


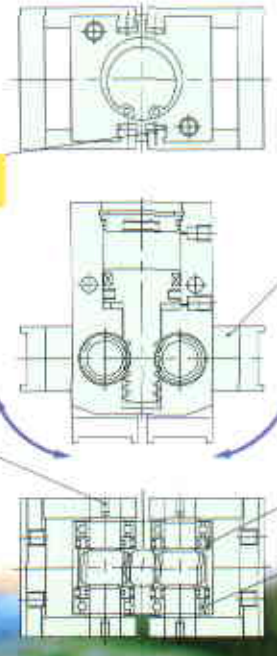
Model	Bore size (mm)	Gripping moment (N·m)	Over length L (mm)	Weight (g)
MHY2-10D	10	0.16	71	70
MHY2-16D	16	0.54	84	150
MHY2-20D	20	1.10	106	320
MHY2-25D	25	2.28	131	560

MHW2 *Rack Style*

Unique seal design allows shorter total length construction and constant Grippng force when opening and closing fingers. (PAT.PEND)



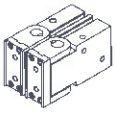




Auto switch mounting *at 4 locations*

Two finger styles available.

Flat finger type



Right angle finger type

Key connection is ideal for impact *resistance.*

Key connection between finger and shaft prevents finger angle slippage during impact.

Dust proof construction

Seal arrangement protects gripper from harsh dusty environments.

Bearings are standard.

Model	Bore size (mm)	Gripping moment* (N·m)	Over length L (mm)	Weight (g)
MHW2-20D	20	0.30	66	300
MHW2-25D	25	0.73	78	510
MHW2-32D	32	1.61	93.5	906
MHW2-40D	40	3.70	117.5	2136
MHW2-50D	50	8.27	154	5100

*At the pressure of 0.5 MPa

Angular Grippers

Series MH

Angular Grippers
MHC2 –Compact size and lowest cost gripper

The MHC2 gripper offers opening angle ranging form 30 to –10degrees. Speed adjustments and heat-treated carbon steel fingers are standard.

MHC2-6□

MHCA2-6□
Axial ported
(With hose nipple)

MHCA2-6□

MHC2-16S

MHC2-10D

Refer to catalog ES20-162A and Best Pneumatics 2004 Volume 12

Model/Specifications

Fluid		Air
Operating pressure	Double acting	0.15 to 0.6 MPa
	Single acting: Normally open	0.3 to 0.6 MPa
Ambient and fluid temperature		–10 to 60°C
Repeatability		±0.02 mm
Maximum operating frequency		180 c.p.m
Lubrication		Non-lube
Action		Double acting, Single acting (Normally open)
Auto switch (Option) Note)		Solid state switch (3-wire, 2-wire)

Note) Refer to Best Pneumatics Vol.12 page 12-13-1 for further information on auto switches.

Action	Model	Bore size (mm)	Gripping moment (N·m) (Effective value) [1]	Opening/closing angle (Both sides)	Weight [2] (g)
Double acting	MHC2-10D	10	0.10	30 to –10	39
	MHC2-16D	16	0.39		91
	MHC2-20D	20	0.70		180
	MHC2-25D	25	1.36		311
Single acting	MHC2-10S	10	0.070	30 to –10	39
	MHC2-16S	16	0.31		92
	MHC2-20S	20	0.54		183
	MHC2-25S	25	1.08		316

Note 1) At the pressure of 0.5 MPa.
Refer to "Effective Gripping Force" data on page 12-8-3 for gripping force of each gripping point.
Note 2) Except auto switch.

Action	Model	Cylinder bore (mm)	Gripping moment [1] (Effective value) N·m	Opening/Closing angle (Both sides)	Weight [2] g
Double acting	MHC2-6D	6	0.038	30° to –10°	22
	MHCA2-6D	6			19
Single acting (Normally open)	MHC2-6S	6	0.024	30° to –10°	22
	MHCA2-6S	6			19

Note 1) At the pressure of 0.5 MPa
Note 2) Excluding the auto switch weight.

MHT Toggle gripper
Toggle mechanism provides strong and stable holding force – Gripper holds firm even when air pressure is lost.

The MHT Toggle gripper is designed to give reliable gripping support. The toggle mechanism holds even when air pressure drops. When the gripper fingers are closed, the toggle mechanism and all external parts are treated to resist corrosion.

Refer to catalog E241A

Model/Specifications

Model	MHT2-32D	MHT2-40D	MHT2-50D	MHT2-63D
Bore size (mm)	32	40	50	63
Action	Double acting			
Fluid	Air			
Operating pressure	0.1 to 0.6 MPa			
Ambient and fluid temperature	5 to 60C			
Lubrication	Not required			
Finger opening angle (Total)	–0 to 28°	–3 to 27°	–2 to 23°	–2 to 23°
Weight (kg)	0.90	1.09	1.93	2.8
Gripping moment Note) (Effective value) (N·m)	12.4	36.0	63.0	106

Note) At the pressure of 0.5 MPa

Angular Grippers

How to Order

Angular Gripper – Series MHC2

MHC2 - 20 D - [ ] S

Angular type

Bore size

10	10mm
16	16mm
20	20mm
25	25mm

Action

D	Double acting
S	Single acting (N.O.)

Applicable auto switch

See catalog for available auto switches.

Number of auto swiches

Nil	2 pcs.
S	1 pc.

180º Opening Gripper – Series MHY2

MHY 2 — 16 D 2 — M9NL S

2 2 fingers

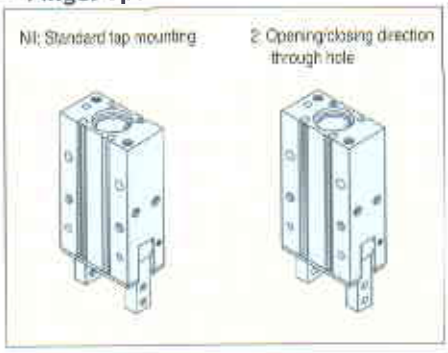
Bore size

10	10mm
16	16mm
20	20mm
25	25mm

Action

D	Double acting

Finger option



Auto switch

Nil	Without auto switch

See catalog for available auto switches.

Number of auto switches

Nil	2 pcs.
S	1 pc.

180º Opening Gripper – Series MHW2

MHW **2** - **20** **D** **1** - **[ ]** **S**

Number of fingers

2	2 fingers

Bore size

20	20mm
25	25mm
32	32mm
40	40mm
50	50mm

Action

D	Double acting

Finger option

Nil	Flat finger type (standard)
1	Right angle finger type

Auto switch model
See catalog for available auto switches.

Number of auto switches

Nil	2 pcs.
S	1 pc.

Toggle Gripper – Series MHT2

MHT **2** - **32** **D** - **[ ]** **S**

Toggle type gripper

Number of fingers

2	2 fingers

Body size

32	32mm
40	40mm
50	50mm
63	63mm

Action

D	Double acting

Auto switch model number

Nil	Without auto switch (Cylinder with built-in magnet)

See catalog for available auto switches.

Number of auto switches

Nil	2 pcs.
S	1 pc.

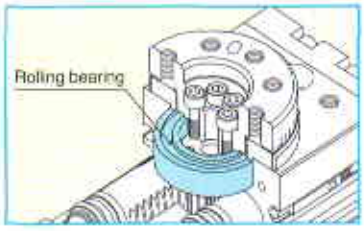
Rotary Table/Rack-and-Pinion Type

Series MSQ

SMC's MSQ Series Rotary Actuator is a rack and pinion style rotary actuator with a table supported by a special bearing which allows for radial and moment loading. MSQ Rotary actuators are perfect for pick and place automation!

Large rolling element bearing

3 to 4 times higher axial load
(compared with series CRQ)



Pivoting angle adjustment range: 0 to 190°

With internal shock absorber

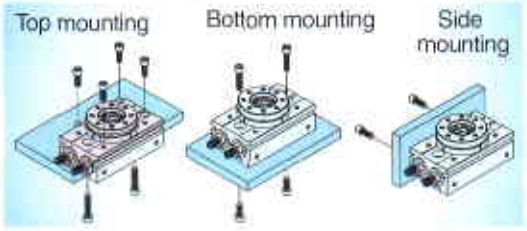
2 to 5 times more kinetic energy
(compared with an adjustment bolt)

Basic type
MSQB

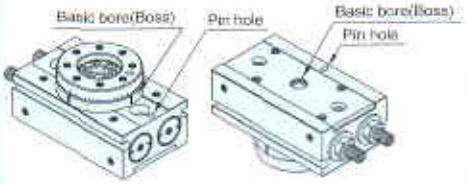
Flexible mounting

Compact design also saves space for wiring and piping.

Free mounting

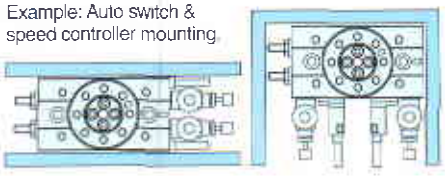


Easy alignment for mounting



Wiring and piping direction can be selected depending on mounting conditions.

Example: Auto switch & speed controller mounting

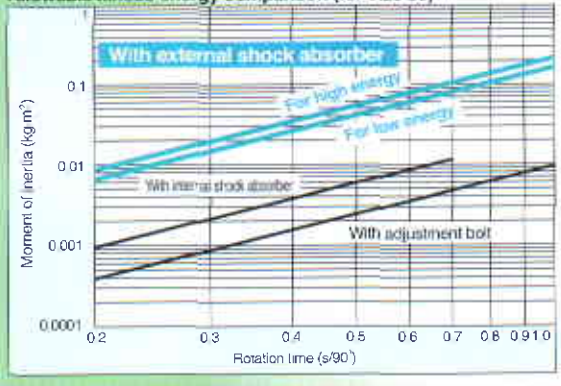


External shock absorber types

4 to 10 times more allowable kinetic energy
(Compared with internal shock absorber type)

2 types of shock absorbers are available, for low energy and high energy.

Allowable kinetic energy comparison (for size 30)



Total length shortened

Longitudinal mounting space is reduced because there is no protrusion from adjustment bolts or internal shock absorbers.

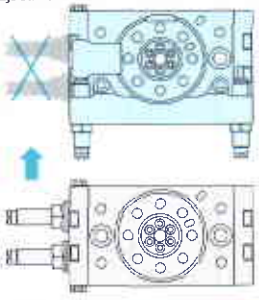
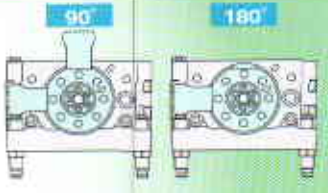
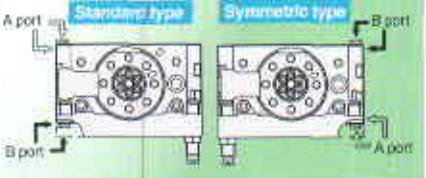


Table height is the same for both types with adjustment bolts or internal shock absorbers.

Rotation angle: 90°, 180°



Left / Right symmetric type



Rotary Table/Rack-and-Pinion Type

How to Order

MSQ | B | 10 | L | 2 | M9B | L | S | XN

Table type

A	High precision type
B	Basic type

Body size

1	6mm	30	21mm
2	8mm	50	25mm
3	10mm	70	28mm
7	12mm	100	32mm
10	15mm	200	40mm
20	18mm		

Rotation stop

A	Stopper bolts
AE*	Stopper bolts and axial connection ports
H	External high-energy sock absorbers
L	External low-energy shock absorbers
R	Internal shock absorbers

* MSQA/B 1, 2, 3, & 7 only.

Connection port position & rotation angle*

Nil	Leave blank if not external shock absorber type
2	180° standard type
3	90° standard type
4	180° symmetrical type
5	90° symmetrical type

* Leave blank for A stopper bolt type and R internal shock absorber type.

Applicable Auto Switch
Refer to catalog for available auto switches.

Lead wire length

Nil	0.5m
L	3m
Z	5m

No. of Switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Options

Nil	PT ports
XN	NPT ports

* Except size 1, 2, 3, 7, 10 and 20

Refer to catalog E20-92F

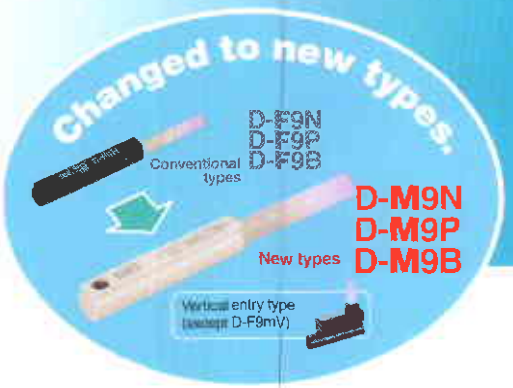
Lead Free Solder

Dimensions and the most sensitive positions are same as the conventional types.

D-M9N (3-wire, NPN output)

D-M9P (3-wire, PNP output)

D-M9B (2-wire)



Range of load current:

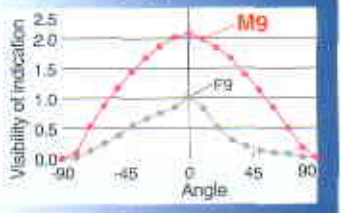
2.5 to 40mA (2-wire)

New types D-M9B	Conventional types D-F9B
2.5 to 40mA	5 to 40mA

Indicator Light:

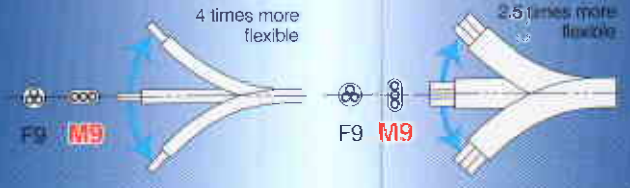
Twice the brightness

Control point brightness improved at 0° angle compared to the previous F9 series.



Improved lead wire : 4 times the flexibility

Flexible lead wire is available as standard.



Pre-wired connector

Solid State Auto Switch

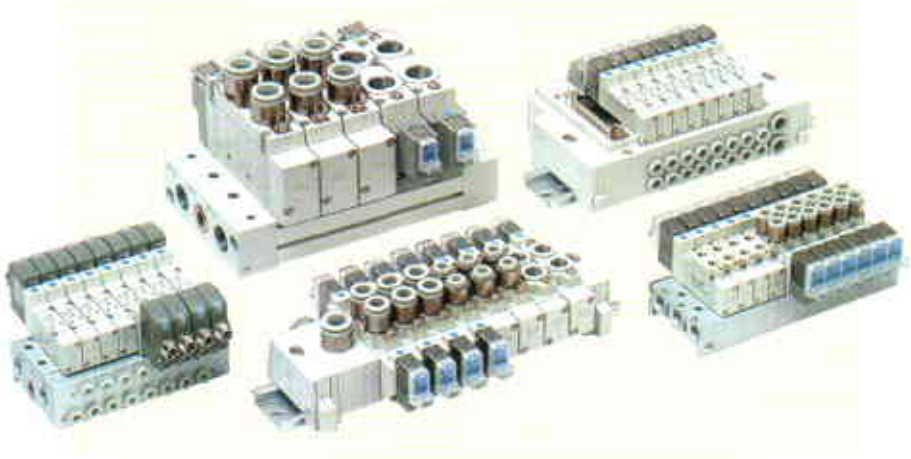
Series D***

Switch Model	Circuit Type	0.5m lead	1m lead	3m lead	5m lead	mounting	# indicators	# wires	Relay applications	PLC applications	IC applications	AC voltage	DC voltage	CE marked	Water Resistant	NPN output	PNP output	CA2	CG1	CJ2	CM2	CQ2	CXS	MGP	MH	MSQ	MX	NCA1	NCG	NCJ2	NCM	NCQ2	NCQ8	Comments
D-A33	R	•				B	1	2	•	•			•	•				•															1
D-A34	R	•				B	1	2	•	•		•	•	•				•																1
D-A44	R	•				B	2	2	•	•		•	•	•				•																1
D-A53	R	•		•	•	TR	2	2		•		•	•	•				•										•						
D-A54	5S	•		•	•	TR	2	2		•		•	•	•				•										•						
D-A73	R	•		•	•	R	2	3	•	•			•	•						•		•			•				•		•			5
D-A73C	R	•		•		R	2	3	•	•				•						•		•							•		•			5
D-A73H	R	•		•	•	R	2	3	•	•		•		•						•		•									•			5
D-A79W	R	•		•		R	2	3			•			•						•		•									•			
D-A80	R	•		•		R	1	2	•	•	•			•								•									•			5
D-A80H	R	•		•		R	1	2	•	•	•			•								•									•			5
D-A90	R	•		•		D	1	3	•	•	•			•											•	•	•							5
D-A93	R	•		•		D	2	3	•	•				•								•			•	•	•				•	•		5
D-A93V	R	•		•		D	2	3	•	•				•								•			•	•	•				•	•		5
D-A96	R			•		D	2	3			•			•													•				•	•		
D-B53	R	•		•		B	2	2		•				•				•	•		•								•		•			
D-B54	R	•		•	•	B	2	2	•	•		•	•	•				•	•		•								•		•			
D-B64	R	•		•		B	1	2	•	•		•	•	•				•	•		•								•		•			
D-B73	R	•		•		B	1	2	•	•		•	•						•	•	•								•		•			5
D-C73	R	•		•		B	2	2	•	•		•	•	•					•	•	•								•	•	•			5
D-C73C	R	•		•		B	2	2	•	•				•					•	•	•								•	•	•			5
D-C80	R	•		•		R	1	2	•	•	•	•		•						•	•								•	•	•			5
D-F59	5S	•		•		TR	2	3	•	•	•			•		•		•										•						
D-F59AL	5S			•		TR	2	2	•	•				•	•			•										•						
D-F5P	5S	•		•		TR	2	3	•	•	•			•			•		•									•						
D-F5PSAPC	5S		•			TR	2	3	•	•	•			•			•	•										•						
D-F5PTL	5S			•		D	1	4	•	•	•			•			•											•						6
D-F79	5S	•		•		R	2	3	•	•	•			•		•				•		•			•						•			
D-F79SAPC	5S		•			R	2	3	•	•	•			•		•				•		•									•			
D-F79W	5S	•				R	2	3	•	•	•			•		•						•									•			
D-F7BAL	5S			•		R	2	2	•	•				•	•							•									•			
D-F7BV	5S	•		•		R	2	2	•	•				•								•									•			
D-F7DWSC	5S					R	2	2	•	•				•								•									•			3, 7
D-F7NV	5S	•		•		R	2	3	•	•	•			•		•				•		•									•			
D-F7F	5S	•		•		R	2	3	•	•	•			•			•			•		•									•			
D-F7PSAPC	5S		•			R	2	3	•	•	•			•			•			•		•			•						•			
D-F7PV	5S	•		•		R	2	3	•	•	•			•			•			•		•									•			
D-F7PVSAPC	5S		•			R	2	3	•	•	•			•			•					•									•			
D-F7PW	5S	•		•		R	2	3	•	•	•			•			•					•									•			
D-F7PWSAPC	5S		•			R	2	3	•	•	•			•			•					•									•			
D-F9BW	5S			•		D	2	2	•	•				•								•			•	•	•				•			
D-F9NW	5S			•		D	3	3	•	•	•			•		•						•			•	•	•				•			
D-F9PW	5S			•		D	3	3	•	•	•			•			•					•			•	•	•				•			
D-F9PWSAPC	5S		•			R	3	3	•	•	•			•			•					•			•	•	•				•			
D-G59	5S	•		•		R	2	3	•	•	•			•		•		•	•										•		•			
D-G5BAL	5S			•		B	2	2	•	•				•	•				•		•								•					
D-G5P	5S	•		•	•	B	2	3	•	•	•			•			•		•										•		•			
D-G5PW	5S			•		B	2	3	•	•	•			•			•		•										•						
D-G79	5S	•		•		B	1	3	•	•	•			•					•	•	•								•	•	•				
D-H7A1	5S	•		•		B	2	3	•	•	•			•		•			•	•	•								•	•	•				
D-H7A1SAPC	5S		•			B	2	3	•	•	•			•		•			•	•	•								•	•	•				
D-H7A2	5S	•		•		B	2	3	•	•	•			•			•		•	•	•								•	•	•				
D-H7A2SAPC	5S	•				B	2	3	•	•	•			•			•		•	•	•								•	•	•				
D-H7B	5S	•		•		B	2	2	•	•				•					•	•	•								•	•	•				
D-H7BAL	5S			•		B	2	2	•	•				•	•				•	•	•								•		•				
D-H7BW	5S	•		•		B	2	2	•	•				•					•	•	•														
D-H7PW	5S			•		D	3	3	•	•	•			•			•		•	•	•								•		•				
D-J59	5S	•		•		TR	2	2	•	•				•				•										•						
D-J59W	5S			•		TR	2	2	•	•				•				•										•						
D-J59W-111G	5S					TR	2	2	•	•				•				•										•						4, 2
D-J59WSAPC	5S		•			TR	2	2	•	•				•				•										•						
D-J79	5S	•		•		R	2	2	•	•				•						•		•			•						•			
D-J79C	5S	•		•		R	2	2	•	•				•						•		•									•			
D-J79SAPC	5S		•			TR	2	2	•	•				•						•		•									•			
D-J79W	5S	•		•		R	2	2	•	•				•						•		•									•			
D-J79W-111G	5S					R	2	2	•	•				•								•									•			4, 2
D-K59	5S	•		•		B	2	2	•	•				•															•		•			
D-K59SAPC	5S		•			B	2	2	•	•				•																	•			
D-K59W	5S			•		B	2	2	•	•				•					•		•										•			
D-K59W-111G	5S					B	2	2	•	•				•					•		•										•			4, 2
D-K79	5S			•		B	1	2	•	•				•					•	•	•								•	•	•				
D-M9B	5S	•		•	•	D	1	2	•	•				•	•							•			•	•	•				•	•		
D-M9BSAPC	5S		•			D	1	2	•	•				•								•			•	•	•				•	•		
D-M9BV	5S	•		•		D	1	2	•	•				•								•			•	•	•				•	•		
D-M9N	5S	•		•		D	1	3	•	•	•			•		•						•			•	•	•				•	•		
D-M9NSAPC	5S		•			D	1	3	•	•	•			•		•						•			•	•	•				•	•		
D-M9NV	5S	•		•		D	1	3	•	•	•			•		•						•			•	•	•				•	•		
D-M9NVSAPC	5S		•			D	1	3	•	•	•			•		•						•			•	•	•				•	•		
D-M9P	5S	•		•		D	1	3	•	•	•			•			•					•			•	•	•				•	•		
D-M9PSAPC	5S		•			D	1	3	•	•	•			•			•					•			•	•	•				•	•		
D-M9PV	5S	•		•		D	1	3	•	•	•			•			•					•			•	•	•				•	•		
D-M9PVSAPC	5S		•			D	1	3	•	•	•			•			•					•			•	•	•				•	•		
D-P5DWL	5S			•		R	2	3	•	•				•					•			•		•											7, 9
D-P5DWSC	5S					R	2	3	•	•				•					•			•		•											3, 7, 9
D-P74-65G	R	•				B	2	3	•	•				•					•			•													9, 10, 12
D-Y59A	5S	•		•		D	2	3	•	•	•			•		•							•	•	•										11
D-Y59B	5S	•		•		D	2	3	•	•				•					•				•	•	•										
D-Y59A	5S	•		•		D	2	3	•	•	•			•		•							•	•	•										11
D-Y59B	5S	•		•		D	2	2	•	•				•					•				•	•	•										
D-Y7BAL	5S			•		D	2	2	•	•				•	•								•	•	•										
D-Y7BW	5S	•		•		D	2	2	•	•				•					•				•	•	•										
D-Y7NW	5S	•		•		D	2	3	•	•	•			•		•							•	•	•										
D-Y7P	5S	•		•		D	2	3	•	•	•			•			•						•	•	•										
D-Y7PSAPC	5S		•			D	2	3	•	•	•			•			•	•					•	•	•										
D-Y7PV	5S	•		•		D	2	3	•	•	•			•			•						•	•	•										
D-Y7PW	5S	•		•		D	2	3	•	•	•			•			•						•	•											
D-Z73	R	•		•	•	D	2	2	•	•		•		•									•	•											9, 11
D-Z76	R	•		•		D	2	3			•	•		•									•	•											11
D-Z80	R	•				D	1	2	•	•	•	•		•									•	•											9, 11

1. User supplies lead wires
2. 150mm leads
3. 300mm leads
4. M12 connector, pin 1 NEG pin 4 POS
5. Use CD-P11 or CD-P12
6. Use CD-P12
7. Non-polar wiring
8. Built-in timer
9. EMF resistant
10. Heat resistant
11. Can also be tie rod mounted using hardware
12. HONDA special product

5-port Solenoid Valve

Series SY

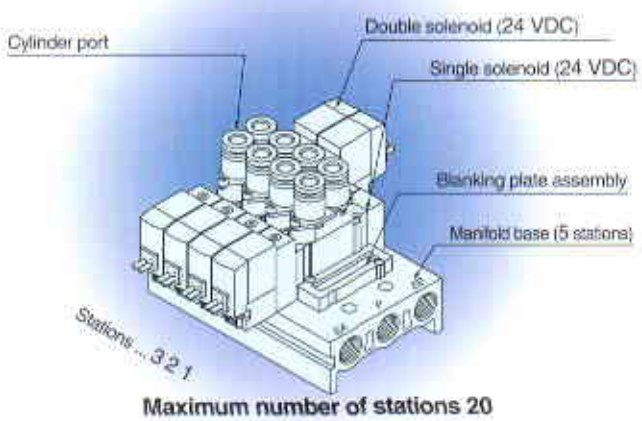


Improved pilot valve performance

- Power consumption: 0.35W (standard) and 0.10W (with power saving circuit)
- Improved pilot valve strength by use of stainless steel pilot valve cover

Body Ported

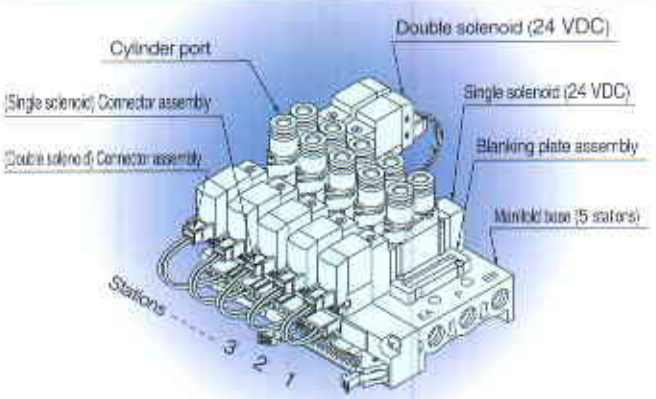
Bar Stock Base/Individual Wiring



Maximum number of stations 20

Body Ported

Bar Stock Type/Flat Ribbon Cable



Maximum number of stations 20

Large flow capacity

Model	Manifold pitch (mm)	Flow Cv	Applicable Cylinder size
SY3000	10.5	0.29	Up to ø63
SY5000	16.0	0.90	Up to ø80
SY7000	19.0	1.40	Up to ø100
SY9000	24.0	2.50	Up to ø140

Also available – SY manifold with gateway type SI unit

Bar stock type

- SY manifold with EX510 SI unit and gateway module for decentralized control of manifold valves. EX510 SI unit is compatible with DeviceNet and CC-Link protocols and is capable to handle 128 I/O points.

5-port Solenoid Valve

How to Order

Valve

SY **5** **1** 20 — **5** **L** **Z** **■** — **01T** — **■**

Valve Series

3	SY3000
5	SY5000
7	SY7000

Type of Actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position open center
5	3 position press. center

Operating Voltage

1	100VAC
2	200VAC
5	24VDC
6	12VDC
3	110VAC/115VAC
4	220VAC/230VAC

Electrical Entry

D	DIN connector (5000, 7000 only)
G	Grommet (300mm lead)
H	Grommet (600mm lead)
L	L type plug connector (300mm lead)
LN	L type without lead wire
LO	L type without connector
LP	L type plug connector (300mm lead wire with cover)
M	M type plug connector (300mm lead)
MN	M type without lead wire
MO	M type without connector
MP	M type plug connector (300mm lead wire with cover)

Option

Nil	None
S	Surge suppressor (DC only)
Z	Indicator light with surge suppressor
U	Indicator light with surge suppressor for non-polar type (12, 24VDC) (U not available with DIN entry)

Manual Override

Nil	Standard non locking push type
D	Slotted locking type (Tool required)
E	Locking lever type

Port Size (A&B)

3000	5000	7000
C4	01	02
	C6	C8
M5	C8	C10
N3	01T	02T
N7	N7T	N9T
	N9T	N11T

Bracket

Nil	None
F1	Foot (Single solenoid only)
F2	Side

Manifold

SS5Y **5** — 20 **■** — **05** — **00T**

Valve Series

3	SY3000
5	SY5000
7	SY7000

Electrical Connection

Nil	Individual electrical wiring
P	Flat ribbon cable connector

No. of Stations

Type 20*	2 through 20 stations
Type 20P	4 through 12 (3000)
	3 through 12 (5000, 7000)

* Stacked up to 12 stations

P, R, Ports

Nil	PT
00T	NPT

5-port Solenoid Valve

Series VQC

Lateral Plug-in Style Manifold

Series VQC1000/2000/4000

Compact size with large flow

Model	Manifold pitch (mm)	Metal seal Cv	Rubber seal Cv	Applicable cylinder size (mm)
VQC1000	10.5	0.18	0.25	up to ø50
VQC2000	16.0	0.60	0.80	up to ø80
VQC4000	25.0	1.70	2.00	up to ø140

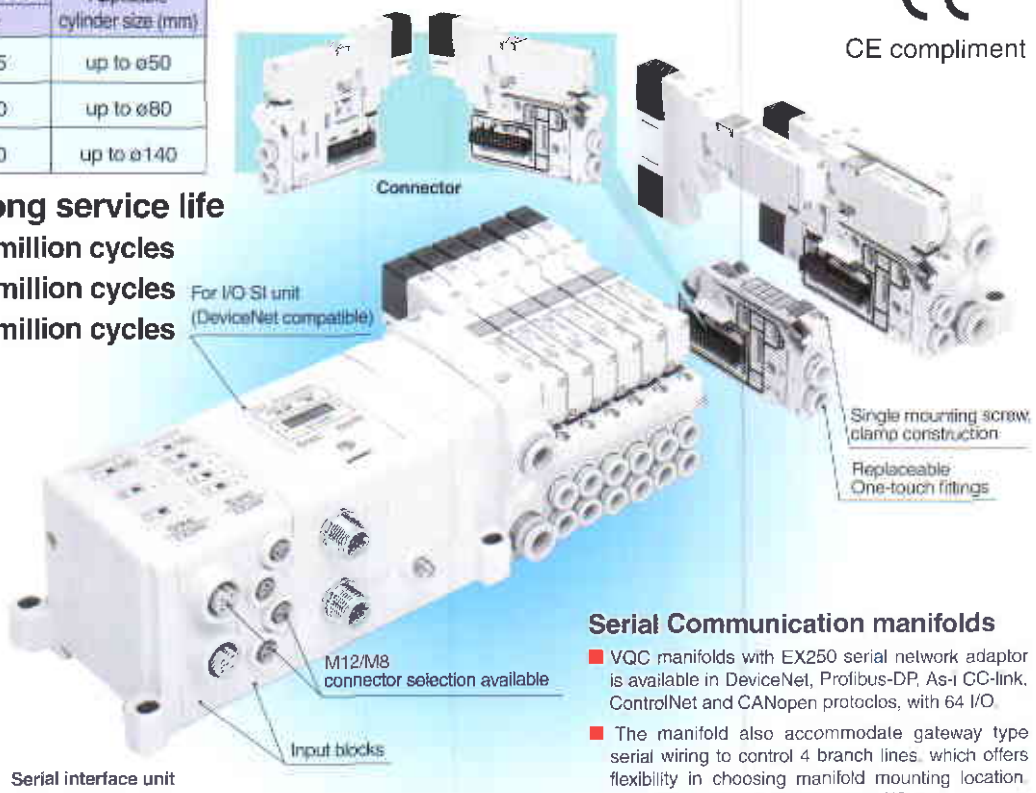
CE compliment

Fast response times and long service life

VQC1100: 10 ms 2 ms; 200 million cycles

VQC2100: 20 ms 2 ms; 200 million cycles

VQC4100: 17 ms 3 ms; 100 million cycles

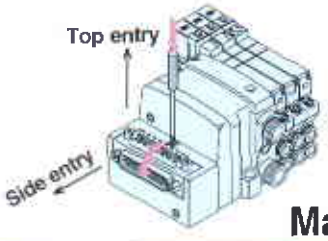


4-position dual 3-port valves for independent control of A & B ports

Availabe configurations [N.C./N.C.], [N.O./N.O.], and [N.C./N.O.].

F kit & P kit Connector entry direction can be changed with ease

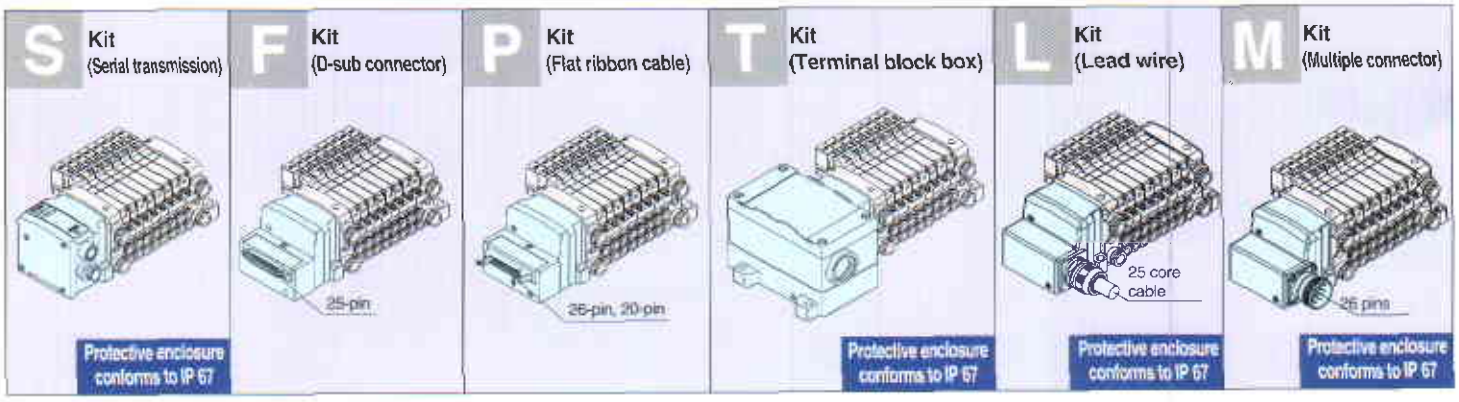
Connector entry direction can be changed from the top to the side by simply pressing the manual release button.



Serial Communication manifolds

- VQC manifolds with EX250 serial network adaptor is available in DeviceNet, Profibus-DP, As-i CC-link, ControlNet and CANopen protocols, with 64 I/O.
- The manifold also accommodate gateway type serial wiring to control 4 branch lines, which offers flexibility in choosing manifold mounting location. The Gateway unit features 128 I/O and supports DeviceNet, Profibus-DP and Remote I/O protocols.

Manifolds with a wide variety of wiring options



5-port Solenoid Valve

How to Order

Valve

VQC 1 1 0 0 ■ — 5 ■ ■

Series

1	VQC1000
2	VQC2000

Type of actuation

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

Note) For rubber seal type only.

Seal type

0	Metal seal
1	Rubber seal

Function

Nil	Standard type (1W)
K Note 1)	High voltage type (1.0MPa)
NRY	Negative COM
	External pilot
	Low-wattage type (0.5W)

Note 1) For metal seal type only.

Note 2) When specifying more than one option, enter symbols in alphabetical order.

Note 3) R option not available for 4 position dual 3 port valves. (Type of actuation A, B, C)

Coil voltage

5	24VDC
6	12VDC

Light/Surge voltage suppressor

Nil	With
E	Without Note)

Note) Not applicable to S Kit.

Manual override

Nil: Non-locking push type (Slotted)

B: Locking type (Slotted)

C: Locking type (Manual)

Also available VQ5000 manifold

Compact large flow (Cv 4.4) manifold valve to drive cylinder size up to ø180mm

Dual 3 port valves, 4 positions

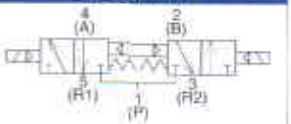
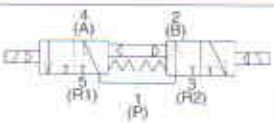
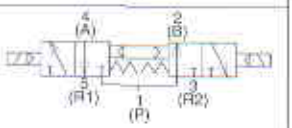
VQC1000/2000 (Rubber seal type only)

- Two 3 port valves built into one body.
- The 3 port valves on the A and B sides can operate independently.
- When used as 3 port valves, only half the number of stations is required.
- Can also be used as a 4 position, 5 port type valve.

R1 A P B R2

Exhaust center : **VQC1A01, VQC2A01**

Pressure center: **VQC1B01, VQC2B01**

Model	A side	B side	JIS Symbol
VQC1A01 VQC2A01	N.C. valve	N.C. valve	
VQC1B01 VQC2B01	N.O. valve	N.O. valve	
VQC1C01 VQC2C01	N.C. valve	N.O. valve	

5-port Solenoid Valve

Series VQC

Valve

VQC 4 1 0 0 ■ — 5 ■ ■

Series

4	VQC4000

Type of actuation

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

Seal type

0	Metal seal
1	Rubber seal

Function

Nil	Standard type (1W)
R	External pilot
Y	Low wattage type (0.5W)

Note) When specifying more than one option, enter symbols in alphabetical order.

Coil voltage

5	24VDC
6	12VDC

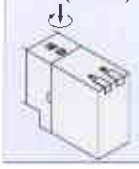
Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

Nil: Non-locking push type (Slotted)

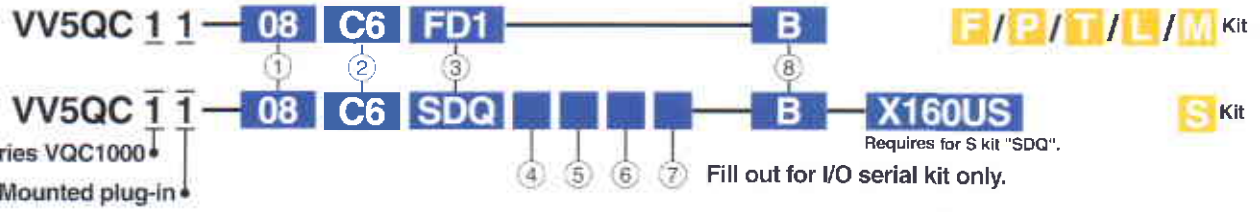
B: Locking type (Slotted)



Manifold

Series VQC1000: Base-Mounted Type/Plug-in Unit

1 How to order manifolds



① Stations

01	1 station
⋮	⋮

The maximum number of stations differs depending on the electrical entry. Refer to ③.

② Cylinder port size

C3	With ø3.2 One-touch fitting
C4	With ø4 One-touch fitting
C6	With ø6 One-touch fitting
M5	M5 thread
CM	Mixed sizes and with port plug
L3	Top ported elbow With ø3.2 One-touch fitting
L4	Top ported elbow With ø4 One-touch fitting
L6	Top ported elbow With ø6 One-touch fitting
L5	M5 thread
B3	Bottom ported elbow With ø3.2 One-touch fitting
B4	Bottom ported elbow With ø4 One-touch fitting
B6	Bottom ported elbow With ø6 One-touch fitting
B5	M5 thread
LM	Elbow port, mixed sizes

Note 1) Indicate the size in the specification sheet in the case of CM and LM.

Note 2) Symbols for inch sizes are as follows:

<For One-touch fittings>
N1: ø1/8"
N3: ø5/32"
N7: ø1/4"
NM: Mixed

The top ported elbow is LN☐ and the bottom ported elbow is BN ☐.

③ Electrical entry/Cable length

	D-side entry	Kit, Cable length	Stations Note 2)
F Kit	FD0	D-sub connector kit (25P) without cable	1 to 12 (24)
	FD1	D-sub connector kit (25P) with 1.5m cable	
	FD2	D-sub connector kit (25P) with 3.0m cable	
	FD3	D-sub connector kit (25P) with 5.0m cable	
P Kit	PD0	Flat ribbon cable kit (26P) without cable	1 to 12 (24)
	PD1	Flat ribbon cable kit (26P) with 1.5m cable	
	PD2	Flat ribbon cable kit (26P) with 3.0m cable	
	PD3	Flat ribbon cable kit (26P) with 5.0m cable	
	PDC	Flat ribbon cable kit (20P) without cable Note 1)	1 to 9 (18)
T Kit	TD0	Terminal block box kit	1 to 10 (20)
L Kit	LD0	Lead wire kit with 0.6m lead wire	1 to 12 (24)
	LD1	Lead wire kit with 1.5m lead wire	
	LD2	Lead wire kit with 3.0m lead wire	
M Kit	MD0	Multi-Connector kit without cable	1 to 12 (24)
	MD1	Multi-Connector kit with 1.5m cable	
	MD2	Multi-Connector kit with 3.0m cable	
	MD3	Multi-Connector kit with 5.0m cable	
S Kit		Input/Output serial kit (EX250)	1 to 12 (24)
	SD0	Serial kit without SI unit	
	SDQ	Serial kit DeviceNet compatible	
	SDN	Serial kit PROFIBUS-DP compatible	
	SDV	CC-link compatible	
	SDTA	AS-Interface 8in/8out 31 slave mode 2 isolated common type	1 to 4 (8)
	SDTB	AS-Interface 4in/4out 31 slave mode 2 isolated common type	1 to 2 (4)
	SDTC	AS-Interface 8in/8out 31 slave mode 1 isolated common type	1 to 4 (8)
	SDTD	AS-Interface 4in/4out 31 slave mode 1 isolated common type	1 to 2 (4)
	SDZCN	ControlNET compatible	1 to 12 (24)
	SDY	CANopen compatible	
		Decentralized wiring serial kit (EX500)	1 to 8 (16)
	SDA1	Serial kit for Remote I/O	
	SDA2	Serial kit DeviceNet/PROFIBUS-DP compatible	

Note 1) P Kit: Order the cable assembly separately for the type 20P.

Note 2) Numbers inside ( ) indicate the maximum number of solenoids for mixed single and double wiring. The maximum number of stations is determined by the total number of solenoids. In the case of mixed wiring, use the option symbol "-K".

⑧ Options

Nil	None
B	All stations with back pressure check valve Note 1)
D	With DIN rail (rail length: standard)
D☐	With DIN rail (rail length: special) Note 2)
K	Special wiring specifications Note 3) (except for double wiring)
N	With name plate
R	External pilot Note 4)
S	Direct exhaust with built-in silencer Note 5)

* When specifying two or more options, list symbols in alphabetical order. Example: -BRS

Note 1) When using the back pressure check valve for the necessary stations only, enter the back pressure check valve part no. and indicate the number of manifold stations in the specification sheet.

Note 2) For special DIN rail length, indicate "D☐" (Enter the number of stations inside ☐).
Example: -D08
In this case, stations will be mounted on a DIN rail for 8 stations regardless of the actual number of manifold stations.
Indicate "-D0" for the option without DIN rail.

Note 3) Be sure to indicate the wiring specifications in the specification sheet.

Note 4) For external pilot option, "-R", indicate the external pilot specification "R" for the applicable valves as well.

Note 5) The built-in silencer type does not satisfy the IP67 standard.

⑤ Input block (Fill out for I/O unit only)

Nil	Without SI unit/input block (SD0)
0	Without input block
1	With 1 input block
⋮	⋮
8	With 8 input blocks

⑦ Input block COM (Fill out for I/O unit only)

Nil	PNP (+) or without SI unit/input block (SD0)
N	NPN (–)

④ SI unit COM

SI unit COM		EX250		EX500		
		DeviceNet	PROFIBUS-DP	DeviceNet	PROFIBUS-DP	Remote I/O
Nil	+COM	—	—	○	○	○
N	-COM	○	○	○	○	○

Note) Leave the box blank for the SI unit COM without input block (SD0).

⑥ Input block type (Fill out for I/O unit only)

Nil	Without input block
1	M12, 2 inputs
2	M12, 4 inputs
3	M8, 4 inputs (3 pins)

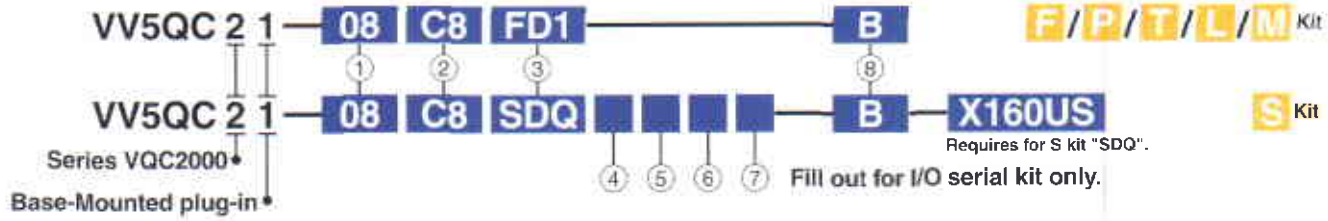
5-port Solenoid Valve

Series VQC

Manifold

Series VQC2000: Base-Mounted Type/Plug-in Unit

❶ How to order manifolds



① Stations

01	1 station
↓	↓

The maximum number of stations *differs depending on the electrical entry.* Refer to ③.

② Cylinder port size

C4	With ø4 One-touch fitting
C6	With ø6 One-touch fitting
C8	With ø8 One-touch fitting
CM	Mixed or with port plug
L4	Top ported elbow With ø4 One-touch fitting
L6	Top ported elbow With ø6 One-touch fitting
L8	Top ported elbow With ø8 One-touch fitting
B4	Bottom ported elbow With ø4 One-touch fitting
B6	Bottom ported elbow With ø6 One-touch fitting
B8	Bottom ported elbow With ø8 One-touch fitting
LM	Elbow port: mixed sizes

Note 1) Indicate the size in the specification sheet in the case of CM and LM.

Note 2) Symbols for inch sizes are as follows.

<For One-touch fittings>

N3: ø5/32"
N7: ø1/4"
N9: ø5/16"
NM: Mixed

The top ported elbow is LN□ and the bottom ported elbow is BN□.

③ Electrical entry/Cable length

	D-side entry	Kit, Cable length	Stations Note 2)
F Kit	FD0	D-sub connector kit (25P) without cable	1 to 12 (24)
	FD1	D-sub connector kit (25P) with 1.5m cable	
	FD2	D-sub connector kit (25P) with 3.0m cable	
	FD3	D-sub connector kit (25P) with 5.0m cable	
P Kit	PD0	Flat ribbon cable kit (26P) without cable	1 to 12 (24)
	PD1	Flat ribbon cable kit (26P) with 1.5m cable	
	PD2	Flat ribbon cable kit (26P) with 3.0m cable	
	PD3	Flat ribbon cable kit (26P) with 5.0m cable	
	PDC	Flat ribbon cable kit (20P) without cable Note 1)	1 to 9 (16)
T Kit	TD0	Terminal block box kit	1 to 10 (20)
L Kit	LD0	Lead wire kit with 0.6m lead wire	1 to 12 (24)
	LD1	Lead wire kit with 1.5m lead wire	
	LD2	Lead wire kit with 3.0m lead wire	
M Kit	MD0	Multi-Connector kit without cable	1 to 12 (24)
	MD1	Multi-Connector kit with 1.5m cable	
	MD2	Multi-Connector kit with 3.0m cable	
	MD3	Multi-Connector kit with 5.0m cable	
S Kit		**Input/Output serial kit (EX250)**	1 to 12 (24)
	SD0	Serial kit without SI unit	
	SDQ	Serial kit DeviceNet compatible	
	SDN	Serial kit PROFIBUS-DP compatible	
	SDV	CC-link compatible	
	SDTA	AS-Interface 8in/8out 31 slave mode 2 isolated common type	1 to 4 (8)
	SDTB	AS-Interface 4in/4out 31 slave mode 2 isolated common type	1 to 2 (4)
	SDTC	AS-Interface 8in/8out 31 slave mode 1 isolated common type	1 to 4 (8)
	SDTD	AS-Interface 4in/4out 31 slave mode 1 isolated common type	1 to 2 (4)
	SDZCN	ControlNET compatible	1 to 12 (24)
	SDY	CANopen compatible	
		Decentralized wiring serial kit (EX500)	1 to 8 (16)
	SDA1	Serial kit for Remote I/O	
	SDA2	Serial kit DeviceNet/PROFIBUS-DP compatible	

Note 1) P Kit: Order the cable assembly separately for type 20P.

Note 2) Numbers inside ( ) indicate the maximum number of solenoids for mixed single and double wiring. The maximum number of stations is determined by the total number of solenoids. In the case of mixed wiring, use the option symbol '-K'.

⑧ Options

Nil	None
B	All stations with back pressure check valve Note 1)
D	With DIN rail (rail length: standard)
D□	With DIN rail (rail length: special) Note 2)
K	Special wiring specifications Note 3) (except for double wiring)
N	With name plate
R	External pilot Note 4)
S	Direct exhaust with built-in silencer Note 5)

When specifying two or more options, list symbols in alphabetical order. Example: -BRS

Note 1) When using the back pressure check valve for the necessary stations only, enter the back pressure check valve part no. and indicate the number of manifold stations in the specification sheet.

Note 2) For special DIN rail length, indicate "D□" (Enter the number of stations inside □.)
Example: -D08
In this case, stations will be mounted on a DIN rail for 8 stations regardless of the actual number of manifold stations.
Indicate "-D0" for the option without DIN rail.

Note 3) Be sure to indicate the wiring specifications in the specification sheet.

Note 4) For external pilot option, "-R", indicate the external pilot specification "R" for the applicable valves as well.

Note 5) The built-in silencer type does not satisfy the IP67 standard.

⑤ Input block (Fill out for I/O unit only)

Nil	Without SI unit/input block (SD0)
0	Without input block
1	With 1 input block
↓	↓
8	With 8 input blocks

⑦ Input block COM
(Fill out for I/O unit only)

Nil	PNP (+) or without SI unit/input block (SD0)
N	NPN (–)

④ SI unit COM

SI unit COM		EX250		EX500		
		DeviceNet	PROFIBUS-DP	DeviceNet	PROFIBUS-DP	Remote I/O
Nil	+COM	—	—	○	○	○
N	–COM	○	○	○	○	○

Note) Leave the box blank for the SI unit COM without input block (SD0).

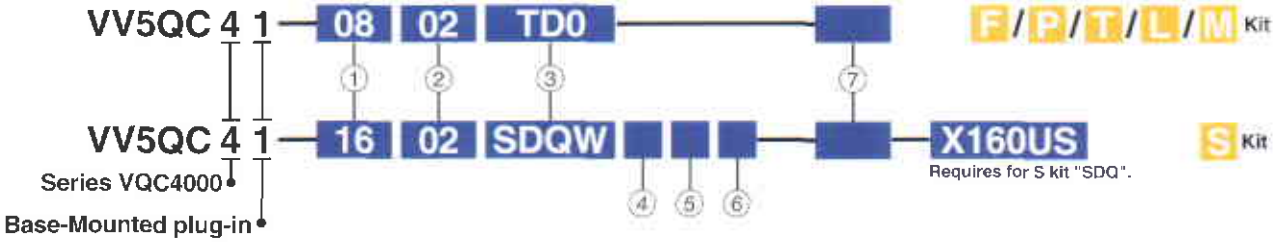
⑥ Input block type
(Fill out for I/O unit only)

Nil	Without input block
1	M12, 2 inputs
2	M12, 4 inputs
3	M8, 4 inputs (3 pins)

Manifold

Series VQC4000: Base-Mounted Type/Plug-in Unit

1 How to order manifolds



① Stations

01	1 station
↕	↕

The maximum number of stations differs depending on the electrical entry. Refer to ③.

② Cylinder port size

C8	With ø8 One-touch fitting
C10	With ø10 One-touch fitting
C12	With ø12 One-touch fitting
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

Note 1) Indicate the size in the specification order sheet in the case of CM.
Note 2) Symbols for inch sizes are as follows.
<For One-touch fittings>
N7: ø1/4"
N9: ø5/16"
N11: ø3/8"
NM: Mixed

<For threads> P, R, A, B port

VV5QC41-0803 □ TD0

Cylinder port •

Thread type •

Nil	Rc
F	G
T	NPT/NPTF

Note) P and R ports use the same type of threads.

③ Electrical entry

	D-side entry	Kit	Stations Note 1)
F Kit	FD0	D-sub connector kit (25P) without cable	1 to 12 (24)
	FD1	D-sub connector kit (25P) with 1.5m cable	
	FD2	D-sub connector kit (25P) with 3.0m cable	
	FD3	D-sub connector kit (25P) with 5.0m cable	
P Kit	PD0	Flat ribbon cable kit (26P) without cable	1 to 12 (24)
	PD1	**Flat ribbon cable kit (26P) with 1.5m cable**	
	PD2	Flat ribbon cable kit (26P) with 3.0m cable	
	PD3	**Flat ribbon cable kit (26P) with 5.0m cable**	
	PDC	Flat ribbon cable kit (20P) without cable Note1)	1 to 9 (18)
T Kit	TD0	Terminal block box kit	1 to 10 (20)
L Kit	LD0	Lead wire kit with 0.6m lead wire	1 to 12 (24)
	LD1	Lead wire kit with 1.5m lead wire	
	LD2	Lead wire kit with 3.0m lead wire	
M Kit	MD0	Multi-Connector kit without cable	1 to 12 (24)
	MD1	Multi-Connector kit with 1.5m cable	
	MD2	Multi-Connector kit with 3.0m cable	
	MD3	Multi-Connector kit with 5.0m cable	
S Kit		**Decentralized wiring serial kit (EX500)**	1 to 8 (16)
	SD0A	Serial kit without SI unit	
	SDA1	Serial kit for Remote I/O	
	SDA2	Serial kit PROFIBUS-DP compatible	
		Input/Output serial kit (EX250)	1 to 12 (24)
	SD0	Serial kit without SI unit	
	SDQ	Serial kit DeviceNet compatible	
	SDN	Serial kit PROFIBUS-DP compatible	
	SDV	CC-link compatible	
	SDTA	*AS-Interface 8in/8out 31 slave mode 2 isolated common type*	1 to 4 (8)
	SDTB	AS-Interface 4in/4out 31 slave mode 2 isolated common type	1 to 2 (4)
	SDTC	AS-Interface 8in/8out 31 slave mode 1 isolated common type	1 to 4 (8)
	SDTD	AS-Interface 4in/4out 31 slave mode 1 isolated common type	1 to 2 (4)
	SDZCN	ControlNET compatible	1 to 12 (24)
	SDY	CANopen compatible	
		Input/Output serial kit (EX240)	1 to 12 (16)
	SD0W	Serial kit without SI unit	
	SDQW	Serial kit DeviceNet compatible	
	SDNW	Serial kit PROFIBUS-DP compatible	

Note 1) Numbers inside ( ) indicate the maximum number of solenoids for mixed single and double wiring. The maximum number of stations is determined by the total number of solenoids. In the case of mixed wiring, use the option symbol "-K."

④ SI unit COM

SI unit COM.		DeviceNet (SDQW)	PROFIBUS-DP (SDNW)
Nil	+COM	○	—
N	-COM	—	○

Note) Leave the box blank for the SI unit COM without input block (SD0).

⑤ Input block

Nil	Without SI unit/input block (SD0)
0	Without input block
1	With 1 input block
2	With 2 input blocks
3	With 3 input blocks
4	With 4 input blocks

⑥ Input block COM

Nil	PNP (+) or without SI unit/input block (SD0)
N	NPN (−)

⑦ Options

Nil	None
K	Special wiring specifications Note 1) (except for double wiring)
N	With name plate Note 2) (available for T Kit only)

* When specifying two or more options, list symbols in alphabetical order. Example: -KN

Note 1) Be sure to indicate the wiring specifications in the specification order sheet.

Note 2) The mounting position of the name plate is on the top face of the cover for the terminal block box.

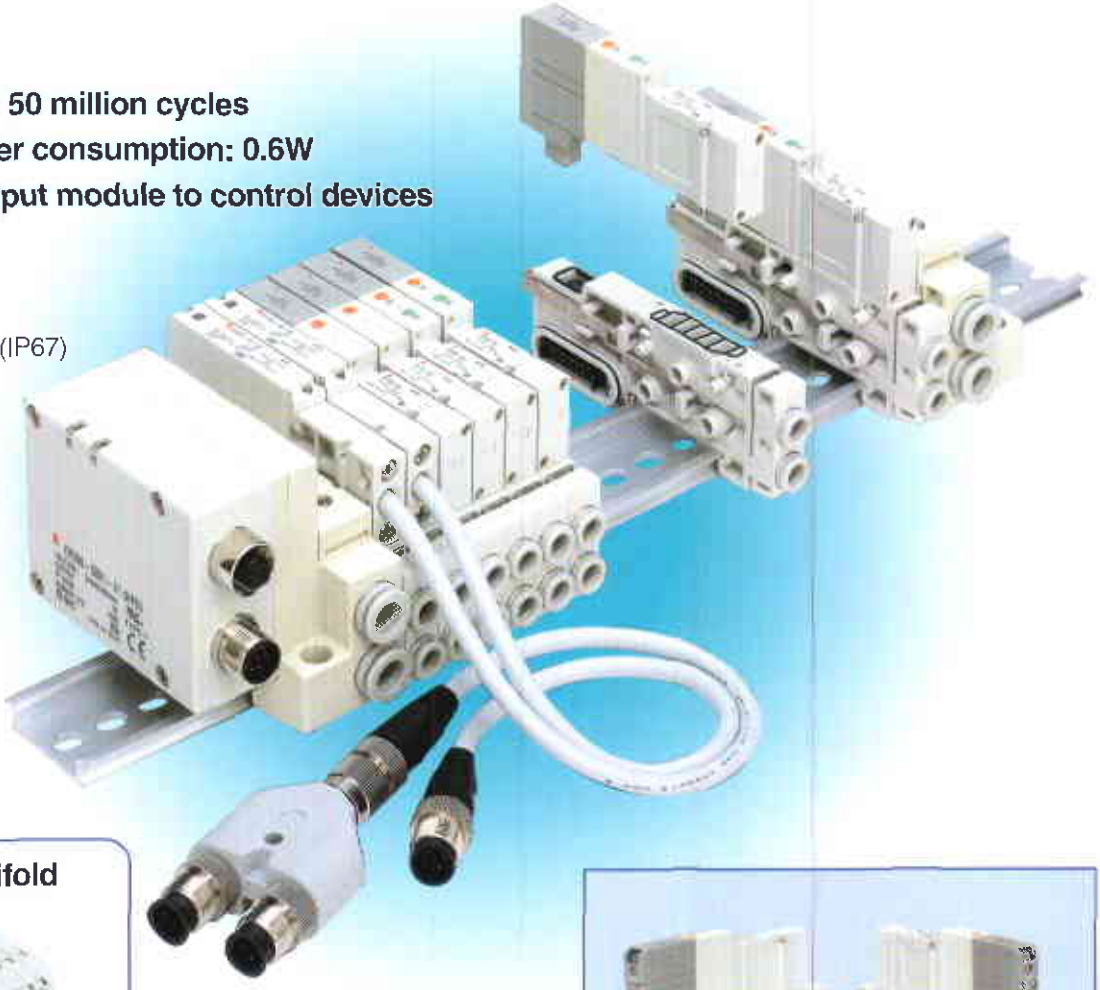
5-port Solenoid Valve

Series SV

Lateral Plug in Style Manifold
Series SV1000/2000/3000/4000

The use of multi-pin connectors to replace wiring inside manifold blocks provides flexibility when adding stations or changing manifold configuration.

Long life: 50 million cycles
Low power consumption: 0.6W
Relay output module to control devices

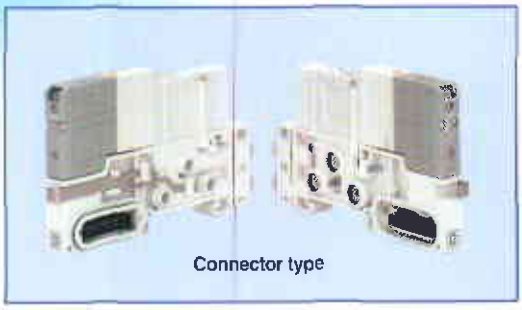


Electrical wiring

Decentralized Serial Wiring (IP67)
Serial Wiring (IP67)
Circular Connector (IP67)
D-sub Connector
Flat Ribbon Connector

Also available SJ manifold

Compact low profile cassette manifold valves uses V060 (SJ2000) and V100 (SJ3000) pilot valves for low power consumption



Connector type

5-port Solenoid Valve

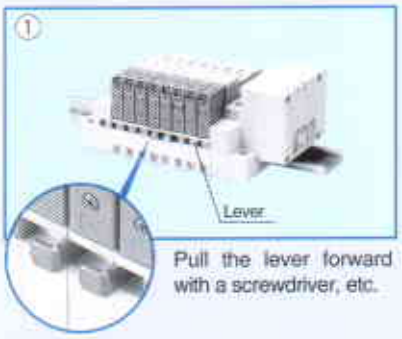
Series SV

Two Type of Manifold Options

Cassette base type manifold

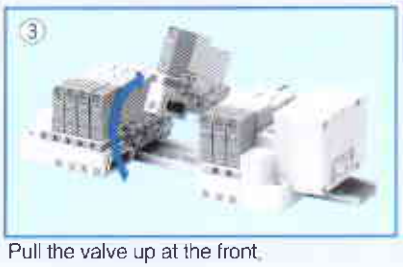
(*Series* SV1000/2000)

Cassette base type manifolds offer the ultimate in flexibility.
Manifold sections can be added using a simple release mechanism.



Pull the lever forward with a screwdriver, etc.

Loosen the screws that hold the DIN rail at both sides and separate the manifold to the right and left.



Pull the valve up at the front.

Tie-rod base manifold

(*Series* SV1000/2000/3000/4000)

Conventional tie-rod base type manifolds with 34 pins connector allows up to 16 stations with double solenoids.

Compact size with large flow

Model (Series)	Manifold pitch (mm)	Rubber seal Cv	Appicable cylinder size (mm)
SV1000	10.5	0.28	Up to ø50
SV2000	16.0	0.48	Up to ø80
SV3000	20.5	0.93	Up to ø100
SV4000	24.0	1.60	Up to ø125

Interface regulator

To regulate pressure of A or B ports depending on application

4-position dual 3-port valves option for Series SV1000/2000

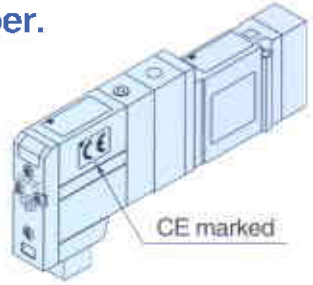
Available configurations [N.C./N.C.], [N.O./N.O.], and [N.C./N.O.].

Serial Communication Manifolds

- SV manifolds with EX250 serial network adaptor are available for DeviceNet, Profibus-DP, As-i, CC-link, ContrilNet and CANopen protocols, with 64 I/O.
- These manifolds also accommodate gateway type serial wiring to control 4 branch lines, which offers flexibility in choosing manifold mounting location. The Gateway unit features 128 I/O and supports DeviceNet, Profibus-DP and Remote I/O protocols.

Product is CE compliant with standard part number.

CE



5-port Solenoid Valve

How to Order

Valve

SV [1] [1] 00 [ ] [ ] – [5] F [ ] [ ] [ ] [ ] – [ ]

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Type of actuation

1	2-position single solenoid
2	2-position double solenoid
3	3-position closed center
4	3-position exhaust center
5	3-position pressure center
A*	4-position dual 3-way NC/NC
B*	4-position dual 3-way NO/NO
C*	4-position dual 3-way NC/NO

* Availabel only for SV1000/2000.

Pilot specification

Nil	Internal pilot
R	External pilot

* External pilot specification is not available for 4 position dual 3-way valves.

Back pressure check valve

Nil	None
K	Built-in

Rated voltage

5	24VDC
6	12VDC*

* Excepl EX500, EX250, and EX120 serial manifolds

Light/Surge suppressor

U	With light and surge suppressor
R	With surge supressor only

Manual Override

Nil	Non-locking push type
D	Slotted locking type

Manifold block type

Nil	Without
C	Cassette base type 16
T	Tie-rod base type 10

Manifold wiring specification (with manifold block only)

Nil	Double wiring
S	Single wiring

A, B port size (with manifold block only)
Select from port table below.

A, B port size (metric)

Symbol	A, B ports	P, E ports	Applicable series
C3	3.2mm one-touch fitting	8mm one-touch fitting	SV1000
C4	4mm one-touch fitting		
C6	6mm one-touch fitting		
C4	4mm one-touch fitting	10mm one-touch fitting	SV2000
C6	6mm one-touch fitting		
C8	8mm one-touch fitting		
C6	6mm one-touch fitting	12mm one-touch fitting	SV3000
C8	8mm one-touch fitting		
C10	10mm one-touch fitting		
C8	8mm one-touch fitting	12mm one-touch fitting	SV4000
C10	10mm one-touch fitting		
C12	12mm one-touch fitting		
02	Rc 1/4	Rc 3/8	
03	Rc 3/8		
02F	G 1/4	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

A, B port size (inch)

Symbol	A, B ports	P, E ports	Applicable series
N1	1/8" one-touch fitting	5/16" one-touch fitting	SV1000
N3	5/32" one-touch fitting		
N7	1/4" one-touch fitting		
N3	5/32" one-touch fitting	3/8" one-touch fitting	SV2000
N7	1/4" one-touch fitting		
N9	5/16" one-touch fitting		
N7	1/4" one-touch fitting	3/8" one-touch fitting	SV3000
N9	5/16" one-touch fitting		
N11	3/8" one-touch fitting		
N9	5/16" one-touch fitting	3/8" one-touch fitting	SV4000
N11	3/8" one-touch fitting		
02N	NPT 1/4	NPT 3/8	
03N	NPT 3/8		
02T	NPTF 1/4	NPTF 3/8	
03T	NPTF 3/8		
M	A, B ports mixed		

*In case of mixed specification (M), indicate separately on a manifold specification sheet.

Manifold – EX500 Decentralized Serial Wiring

Mounting

Nil	Direct mount	
D	DIN rail mount (with DIN rail)	
D0 Note	DIN rail mount (without DIN rail)	
D3	For 3 stations	When a DIN rail longer than the specified stations is required. (Specify a rail longer than the standard length.)
⋮	⋮	
D20	For 20 stations	

Note) In case of D0, only DIN rail fittings are attached.

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

• Tie-rod base

SS5V 1 — W 10S A1W D — 05 U ■ — ■ — ■

• Cassette base

SS5V 1 — W 16S A1W D — 05 U ■ — ■ — ■

Series

1	SV1000
2	SV2000

Enclosure
IP67 specification

SI unit specification

A1W	For remote I/O
A2W	For DeviceNet/ PROFIBUS-DP
0	Without SI unit

DIN rail length

Nil	Standard length	
3	For 3 stations	Specify a rail longer than the standard length.
⋮	⋮	
20	For 20 stations	

Valve stations

Symbol	Stations	Note
02	2 stations	Note 1) Double wiring specification
⋮	⋮	
08	8 stations	
02	2 stations	Note 2) Specified layout (Up to 16 solenoids possible.)
⋮	⋮	
16	16 stations	

Note 1) Double wiring specification: Single, double and 3 position solenoid valves can be used on all manifold stations.
Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on a *manifold specification sheet*.
(Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

P, E port position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

Supply/Exhaust block assembly specification

Nil	Internal pilot specification
S*	Internal pilot/Built-in silencer
R	External pilot specification
RS*	External pilot/Built-in silencer

*When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C3	ø3.2 One-touch fitting	ø8 One-touch fitting	SV1000
C4	ø4 One-touch fitting		
C6	ø6 One-touch fitting		
C4	ø4 One-touch fitting	ø10 One-touch fitting	SV2000
C6	ø6 One-touch fitting		
C8	ø8 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV3000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting		
C8	ø8 One-touch fitting	ø12 One-touch fitting	SV4000
C10	ø10 One-touch fitting		
C12	ø12 One-touch fitting		
02	Rc 1/4	Rc 3/8	
03	Rc 3/8		
02F	G 1/4	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

A, B port size (inch)

Symbol	A, B port	P, E port	Applicable series
N1	ø1/8" One-touch fitting	ø5/16" One-touch fitting	SV1000
N3	ø5/32" One-touch fitting		
N7	ø1/4" One-touch fitting		
N3	ø5/32" One-touch fitting	ø3/8" One-touch fitting	SV2000
N7	ø1/4" One-touch fitting		
N9	ø5/16" One-touch fitting		
N7	ø1/4" One-touch fitting	ø3/8" One-touch fitting	SV3000
N9	ø5/16" One-touch fitting		
N11	ø3/8" One-touch fitting		
N9	ø5/16" One-touch fitting	ø3/8" One-touch fitting	SV4000
N11	ø3/8" One-touch fitting		
02N	NPT 1/4	NPT 3/8	
03N	NPT 3/8		
02T	NPTF 1/4	NPTF 3/8	
03T	NPTF 3/8		
M	A, B ports mixed		

*In case of mixed specification (M), indicate separately on a manifold specification sheet.

How to Order

Manifold – EX250 Serial Wiring with Input/Output Unit

• Tie-rod base

SS5V **1** – **W** **10S1** **QW** □ □ □ **D** – **05** **U** □ – □ – □ – **X160US**

*Required for SI unit "QW" option.

Series

1	SV1000
2	SV2000
3	SV3000

Enclosure

IP67 specification

SI unit specification

QW	For DeviceNet
NW	For PROFIBUS-DP
VW	For CC-Link
TAW	For AS-interface 8in/8out, 31 slave mode, 2 insolated common type
TBW	For AS-interface 4in/4out, 31 slave mode, 2 insolated common type
TCW	For AS-interface 8in/8out, 31 slave mode, 1 common type
TDW	For AS-interface 4in/4out, 31 slave mode, 1 common type
ZCN	ControlNET
YW	CANopen
0	Without SI unit

• Input blocks cannot be mounted without SI unit.

• When the DIN rail is included without an SI unit, the DIN rail length will accommodate an SI unit and one input block.

Input block stations

Nil	None
1	1 station
⋮	⋮
8	8 stations

Note) Without SI unit, the symbol is nil.

Input block type

Nil	Without input block
1	M12: 2 inputs
2	M12: 4 inputs
3	M8: 4 inputs (3 pins)

Note) Without SI unit, the symbol is nil.

Input block common specification

Nil	+COM
N	-COM

Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring specification (Note 1)
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout (Up to 32 solenoids possible.) (Note 2)
⋮	⋮	
20	20 stations	

Note 1) Double wiring specification: Single, double and 3 position solenoid valves can be used on all manifold stations.
Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on a manifold specification sheet.
(Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

P, E port position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 20 stations)

Supply/Exhaust block assembly specification

Nil	Internal pilot specification
S*	Internal pilot/Built-in silencer
R	External pilot specification
RS*	External pilot/Built-in silencer

* When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

Mounting

Nil	Direct mount
D	DIN rail mount (with DIN rail)
D0 [Note]	DIN rail mount (without DIN rail)
D3	For 3 stations
⋮	⋮
D20	For 20 stations

Specify a rail longer than the standard length.

Note) In case of D0, only DIN rail fittings are attached.

A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C3	ø3.2 One-touch fitting	ø8 One-touch fitting	SV1000
C4	ø4 One-touch fitting		
C6	ø6 One-touch fitting		
C4	ø4 One-touch fitting	ø10 One-touch fitting	SV2000
C6	ø6 One-touch fitting		
C8	ø8 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV3000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting		
M	A, B ports mixed		

A, B port size (inch)

Symbol	A, B port	P, E port	Applicable series
N1	ø1/8" One-touch fitting	ø5/16" One-touch fitting	SV1000
N3	ø5/32" One-touch fitting		
N7	ø1/4" One-touch fitting		
N3	ø5/32" One-touch fitting	ø3/8" One-touch fitting	SV2000
N7	ø1/4" One-touch fitting		
N9	ø5/16" One-touch fitting		
N7	ø1/4" One-touch fitting	ø3/8" One-touch fitting	SV3000
N9	ø5/16" One-touch fitting		
N11	ø3/8" One-touch fitting		
M	A, B ports mixed		

* In case of mixed specification (M), indicate separately on a manifold specification sheet.

Manifold – EX120 Dedicated Serieal Wiring

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Mounting

Nil	Direct mount	
D	DIN rail mount (with DIN rail)	
D0 (Note)	DIN rail mount (without DIN rail)	
D3	For 3 stations	When a DIN rail longer than the specified stations is required. (Specify a rail longer than the standard length.)
⋮	⋮	
D20	For 20 stations	

Note) In case of D0, only DIN rail fittings are attached.

- Tie-rod base

SS5V 1 — 10S3 A D — 05 U □ — □ — □

- Cassette base

SS5V 1 — 16S3 A D — 05 U □ — □ — □

Series

1	SV1000
2	SV2000

SI unit specification

Symbol	Specification
0	Without SI unit
A*	General purpose type: Series EX300
B	Mitsubishi Electric Corporation: MELSECNET/MINI-S3 Data Link System
C	OMRON Corporation: SYSBUS Wire System
D	SHARP Corporation: Satellite I/O Link System
E	Matsushita Electric Works: MEWNET-F System
F1	NKE Corporation: Uni-wire System (16 outputs)
G	Rockwell Automation: Remote I/O (RIO) System
H	NKE Corporation: Uni-wire H System
J1	SUNX Corporation: S-LINK System (16 outputs)
J2	SUNX Corporation: S-LINK System (8 outputs)
K	Fuji Electric Co., Ltd.: T Link Mini System
Q	DeviceNet: OMRON Corporation: CompoBus/D
R1	OMRON Corporation: CompoBus/S (16 outputs)
R2	OMRON Corporation: CompoBus/S (8 outputs)
U	JEMANET (JPCN-1)
V	Mitsubishi Electric Corporation: CC-Link

* For the general purpose type, a transmission unit is required on the CPU side.

Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring specification (Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout (Up to 16 solenoids possible.) (Note 2)
⋮	⋮	
16	16 stations	

- Since J2 and R2 type SI units have 8 outputs, note that up to 8 solenoids can be accommodated.
- This also includes the number of blanking plate assemblies.

Note 1) Double wiring specification: Single, double and 3 position solenoid valves can be used on all manifold stations.
Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on a manifold specification sheet.
(Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

Supply/Exhaust block assembly specification

Nil	Internal pilot specification
S	Internal pilot/Built-in silencer
R	External pilot specification
RS	External pilot/Built-in silencer

P, E port position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

DIN rail length

Nil	Standard length	
3	For 3 stations	Specify a rail longer than the standard length.
⋮	⋮	
20	For 20 stations	

A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C3	ø3.2 One-touch fitting	ø8 One-touch fitting	SV1000
C4	ø4 One-touch fitting		
C6	ø6 One-touch fitting		
C4	ø4 One-touch fitting	ø10 One-touch fitting	SV2000
C6	ø6 One-touch fitting		
C8	ø8 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV3000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting		
M	A, B ports mixed		

A, B port size (inch)

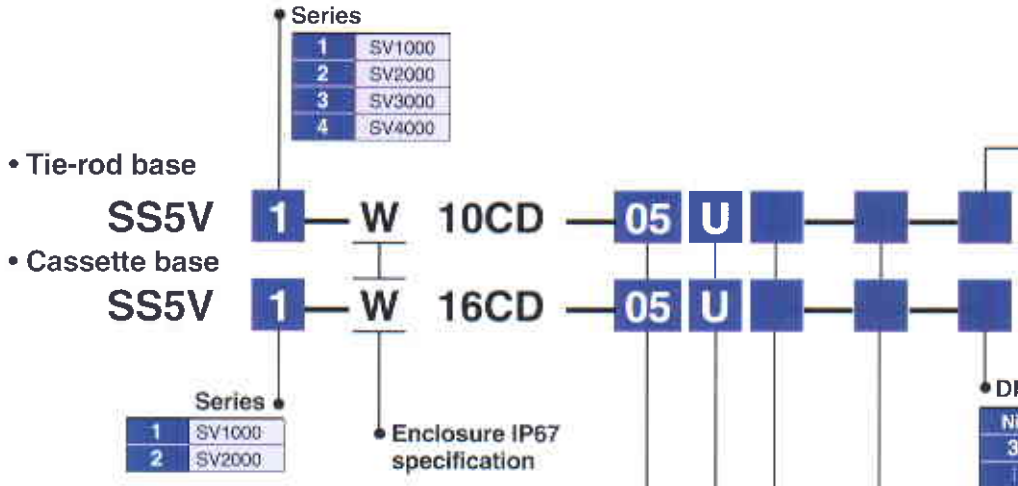
Symbol	A, B port	P, E port	Applicable series
N1	ø1/8" One-touch fitting	ø5/16" One-touch fitting	SV1000
N3	ø5/32" One-touch fitting		
N7	ø1/4" One-touch fitting		
N3	ø5/32" One-touch fitting	ø3/8" One-touch fitting	SV2000
N7	ø1/4" One-touch fitting		
N9	ø5/16" One-touch fitting		
N7	ø1/4" One-touch fitting	ø3/8" One-touch fitting	SV3000
N9	ø5/16" One-touch fitting		
N11	ø3/8" One-touch fitting		
M	A, B ports mixed		

* In case of mixed specification (M), indicate separately on a manifold specification sheet.

5-port Solenoid Valve

How to Order

Manifold – Circular Connector



Note 1)
Double wiring specification
Single, double and 3 position solenoid valves can be used on all manifold stations.

Note 2)
Specified layout
Indicate wiring specifications on a manifold specification sheet. Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.

Series	Double wiring specification Note1)	
	Tie-rod type 10	Cassette type 16
SV1000	2 to 12	2 to 9
SV2000	2 to 12	2 to 12
SV3000	2 to 12	N/A
SV4000	2 to 12	N/A

Series	Double wiring specification Note2)	
	Tie-rod type 10	Cassette type 16
SV1000	2 to 20**	2 to 18*
SV2000	2 to 20**	2 to 20**
SV3000	2 to 20**	N/A
SV4000	2 to 20**	N/A

*up to 18 solenoids possible.
**up to 24 solenoids possible.

Supply/Exhaust block assembly specification

Nil	Internal pilot specification
S*	Internal pilot/Built-in silencer
R	External pilot specification
RS*	External pilot/Built-in silencer

* When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

P, E port position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 20 stations)

A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C3	ø3.2 One-touch fitting	ø8 One-touch fitting	SV1000
C4	ø4 One-touch fitting		
C6	ø6 One-touch fitting		
C4	ø4 One-touch fitting	ø10 One-touch fitting	SV2000
C6	ø6 One-touch fitting		
C8	ø8 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV3000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting		
C8	ø8 One-touch fitting	ø12 One-touch fitting	SV4000
C10	ø10 One-touch fitting		
C12	ø12 One-touch fitting		
02	Rc 1/4	Rc 3/8	
03	Rc 3/8		
02F	G 1/4	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

A, B port size (inch)

Symbol	A, B port	P, E port	Applicable series
N1	ø1/8" One-touch fitting	ø5/16" One-touch fitting	SV1000
N3	ø5/32" One-touch fitting		
N7	ø1/4" One-touch fitting		
N3	ø5/32" One-touch fitting	ø3/8" One-touch fitting	SV2000
N7	ø1/4" One-touch fitting		
N9	ø5/16" One-touch fitting		
N7	ø1/4" One-touch fitting	ø3/8" One-touch fitting	SV3000
N9	ø5/16" One-touch fitting		
N11	ø3/8" One-touch fitting		
N9	ø5/16" One-touch fitting	ø3/8" One-touch fitting	SV4000
N11	ø3/8" One-touch fitting		
02N	NPT 1/4	NPT 3/8	
03N	NPT 3/8		
02T	NPTF 1/4	NPTF 3/8	
03T	NPTF 3/8		
M	A, B ports mixed		

* In case of mixed specification (M), indicate separately on a manifold specification sheet.

Manifold – D-sub Connector

• Tie-rod base

SS5V **1** — **10FD** **1** — **05** **U** ■ — ■ — ■

• Cassette base

SS5V **1** — **16FD** **1** — **05** **U** ■ — ■ — ■

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Series

1	SV1000
2	SV2000

Connector entry direction

1	Upward
2	Lateral

Valve stations

Series	Double wiring specification (Note1)	
	Tie-rod type 10	Cassette type 16
SV1000	2 to 11	2 to 9
SV2000	2 to 11	2 to 11
SV3000	2 to 11	N/A
SV4000	2 to 11	N/A

Series	Double wiring specification (Note2)	
	Tie-rod type 10	Cassette type 16
SV1000	2 to 20**	2 to 18*
SV2000	2 to 20**	2 to 20**
SV3000	2 to 20**	N/A
SV4000	2 to 20**	N/A

*up to 16 solenoids possible.
**up to 24 solenoids possible.

Note 1)
Double wiring specification: Single, double and 3 position solenoid valves can be used on all manifold stations.

Note 2)
Specified layout: Indicate wiring specifications on a manifold specification sheet. Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.

Mounting

Nil	Direct mount	
D	DIN rail mount (with DIN rail)	
D0 (Note)	DIN rail mount (without DIN rail)	
D3	For 3 stations	When a DIN rail longer than the specified stations is required. (Specify a rail longer than the standard length.)
⋮	⋮	
D20	For 20 stations	

Note) In case of D0, only DIN rail fittings are attached.

DIN rail length

Nil	Standard length	
3	For 3 stations	Specify a rail longer than the standard length.
⋮	⋮	
20	For 20 stations	

Pilot specification

Nil	Internal pilot specification
S	Internal pilot/Built-in silencer
R	External pilot specification
RS	External pilot/Built-in silencer

P, E port position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 20 stations)

A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C3	ø3.2 One-touch fitting	ø8 One-touch fitting	SV1000
C4	ø4 One-touch fitting		
C6	ø6 One-touch fitting		
C4	ø4 One-touch fitting	ø10 One-touch fitting	SV2000
C6	ø6 One-touch fitting		
C8	ø8 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV3000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting		
C8	ø8 One-touch fitting	ø12 One-touch fitting	SV4000
C10	ø10 One-touch fitting		
C12	ø12 One-touch fitting		
02	Rc 1/4	Rc 3/8	
03	Rc 3/8		
02F	G 1/4	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

A, B port size (inch)

Symbol	A, B port	P, E port	Applicable series
N1	ø1/8" One-touch fitting	ø5/16" One-touch fitting	SV1000
N3	ø5/32" One-touch fitting		
N7	ø1/4" One-touch fitting		
N3	ø5/32" One-touch fitting	ø3/8" One-touch fitting	SV2000
N7	ø1/4" One-touch fitting		
N9	ø5/16" One-touch fitting		
N7	ø1/4" One-touch fitting	ø3/8" One-touch fitting	SV3000
N9	ø5/16" One-touch fitting		
N11	ø3/8" One-touch fitting		
N9	ø5/16" One-touch fitting	ø3/8" One-touch fitting	SV4000
N11	ø3/8" One-touch fitting		
02N	NPT 1/4	NPT 3/8	
03N	NPT 3/8		
02T	NPTF 1/4	NPTF 3/8	
03T	NPTF 3/8		
M	A, B ports mixed		

* In case of mixed specification (M), indicate separately on a manifold specification sheet.

5-port Solenoid Valve

How to Order

Manifold – Flat Ribbon Cable Connector

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Connector type

P	Flat ribbon cable connector: 26 pins
PG	Flat ribbon cable connector: 20 pins
PH	Flat ribbon cable connector: 10 pins

- Tie-rod base

SS5V 1 — 10 P D 1 — 05 U □ □ □

- Cassette base

SS5V 1 — 16 P D 1 — 05 U □ □ □

Mounting

Nil	Direct mount	
D	DIN rail mount (with DIN rail)	
D0 (Note)	DIN rail mount (without DIN rail)	
D3	For 3 stations	When a DIN rail longer than the specified stations is required. (Specify a rail longer than the standard length.)
⋮	⋮	
D20	For 20 stations	

Note) In case of D0, only DIN rail fittings are attached.

Series

1	SV1000
2	SV2000

Connector entry direction

1	Upward
2	Lateral

Valve stations

Note 1)
Double wiring specification: Single, double and 3 position solenoid valves can be used on all manifold stations.

Note 2)
Specified layout: Indicate wiring specifications on a manifold specification sheet. Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.

Series	Double wiring specification (Note1)					
	Tie-rod type 10			Cassette type 16		
	Connector:			Connector:		
	P	PG	PH	P	PG	PH
SV1000	2 to 12	2 to 9	2 to 4	2 to 9	2 to 9	2 to 4
SV2000	2 to 12	2 to 9	2 to 4	2 to 12	2 to 9	2 to 4
SV3000	2 to 12	2 to 9	2 to 4	N/A	N/A	N/A
SV4000	2 to 12	2 to 9	2 to 4	N/A	N/A	N/A

Series	Double wiring specification (Note2)					
	Tie-rod type 10			Cassette type 16		
	Connector:			Connector:		
	P	PG	PH	P	PG	PH
SV1000	2 to 20	2 to 18	2 to 8	2 to 18	2 to 18	2 to 8
SV2000	2 to 20	2 to 18	2 to 8	2 to 20	2 to 18	2 to 8
SV3000	2 to 20	2 to 18	2 to 8	N/A	N/A	N/A
SV4000	2 to 20	2 to 18	2 to 8	N/A	N/A	N/A

Maximum number of solenoids possible varies; see catalog for details.

DIN rail length

Nil	Standard length	
3	For 3 stations	Specify a rail longer than the standard length.
⋮	⋮	
20	For 20 stations	

Pilot specification

Nil	Internal pilot specification
S	Internal pilot/Built-in silencer
R	External pilot specification
RS	External pilot/Built-in silencer

P, E port position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 20 stations)

A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C3	ø3.2 One-touch fitting	ø8 One-touch fitting	SV1000
C4	ø4 One-touch fitting		
C6	ø6 One-touch fitting		
C4	ø4 One-touch fitting	ø10 One-touch fitting	SV2000
C6	ø6 One-touch fitting		
C8	ø8 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV3000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting		
C8	ø8 One-touch fitting	ø12 One-touch fitting	SV4000
C10	ø10 One-touch fitting		
C12	ø12 One-touch fitting		
02	Rc 1/4	Rc 3/8	
03	Rc 3/8		
02F	G 1/4	G 3/8	
03F	G 3/8		
M	A, B ports mixed		

A, B port size (inch)

Symbol	A, B port	P, E port	Applicable series
N1	ø1/8" One-touch fitting	ø5/16" One-touch fitting	SV1000
N3	ø5/32" One-touch fitting		
N7	ø1/4" One-touch fitting		
N3	ø5/32" One-touch fitting	ø3/8" One-touch fitting	SV2000
N7	ø1/4" One-touch fitting		
N9	ø5/16" One-touch fitting		
N7	ø1/4" One-touch fitting	ø3/8" One-touch fitting	SV3000
N9	ø5/16" One-touch fitting		
N11	ø3/8" One-touch fitting		
N9	ø5/16" One-touch fitting	ø3/8" One-touch fitting	SV4000
N11	ø3/8" One-touch fitting		
02N	NPT 1/4	NPT 3/8	
03N	NPT 3/8		
02T	NPTF 1/4	NPTF 3/8	
03T	NPTF 3/8		
M	A, B ports mixed		

* In case of mixed specification (M), indicate separately on a manifold specification sheet.

How to Order

Interface regulator

Series SV1000

SV1 **0** 00 — **05** — **P**

Applicable valve

0	For single and double
3	For 3-position

Option

	For odd no. station
N5	With PSI pressure gauge
05	With metric pressure gauge
	For even no. station
N6	With PSI pressure gauge
06	With metric pressure gauge
M1	Without pressure gauge

Regulator port

P	P port
A1	A port (P port control type A port regulated)
B1	B port (P port control type B port regulated)

Note) Note that a part number for Series SV1000 with pressure gauge differs depending on the position of the station (odd no. or even no.) on which the manifold is mounted to prevent the pressure gauges from interfering each other.

Note) Note that a part number of the valve for single/double and 3-position differs due to the difference in length of the solenoid valve. When 3-position valve is used on the same manifold, all valves must be a 3-position valve.

Series SV2000, 3000, 4000

SV **2** 000 — **00** — **P**

Series

2	SV2000
3	SV3000
4	SV4000

Option

N0	With PSI pressure gauge
00	With metric pressure gauge
M1	Without pressure gauge

Regulator port

P	P port
A1	A port (P port control type A port regulated)
B1	B port (P port control type B port regulated)

Individual SUP/EXH spacer assembly

Series SV1000

SV1000 — **38** — 1A — **C6**

Port size

C3	ø3.2 One-touch fitting
C4	ø4 One-touch fitting
C6	ø6 One-touch fitting
N1	ø1/8" One-touch fitting
N3	ø5/32" One-touch fitting
N7	ø1/4" One-touch fitting

Spacer type

38	Individual SUP spacer

Series SV2000/3000/4000

SV **2** 000 — **38** — 1 **□** A

Series

2	SV2000
3	SV3000
4	SV4000

Thread type*

Nil	Rc
F	G
N	NPT
T	NPTF

Accessory

Series	Round head combination screw	Gasket
SV1000	SX3000-22-9 (M2 x 39.5)	SX3000-57-4
SV2000	SV2000-21-6 (M3 x 46)	SY5000-11-15
SV3000	SV3000-21-3 (M4 x 53)	SY7000-11-11
SV4000	SV2000-21-5 (M3 x 60)	SY9000-11-2

*Port size for Series SV2000/3000/4000

Series	Port size
SV2000	1/8
SV3000	1/4
SV4000	

3/5-port Solenoid Valve

Series VQZ

5 Port Solenoid Valve Metal Seal/Rubber Seal Body Ported

Compact design with large flow capacity

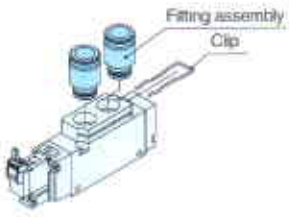
Model	Manifold pitch (mm)	Flow Cv		Applicable cylinder size
		Metal seal	Rubber seal	
VQZ1000	10	0.13	0.19	Up to ø50
VQZ2000	15	0.35	0.44	Up to ø80
VQZ3000	18	0.56	0.81	Up to ø100

DIN terminal is available with IP65 enclosure.

Built-in One-touch fittings for easier piping.

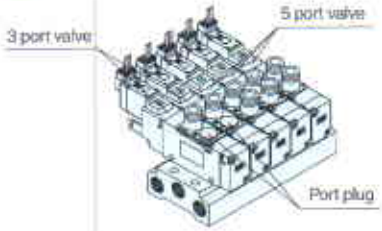
Integral One-touch fittings save on installation time and labor and can be easily removed if necessary.

VQZ1000/2000



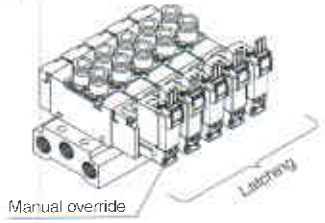
VQZ3000

Both 3 and 5 port valves can be mounted on the same manifold.



All solenoids on one side

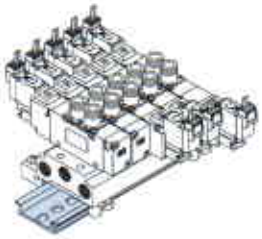
Optional latching coil valve operates the same as a 2 position/double solenoid valve but uses only one solenoid. This saves space and wiring costs.



High speed and long service life

Response time	Life	
VQZ1000 10 ms VQZ2000 12 ms VQZ3000 15 ms	200 million cycles	Metal seal, single solenoid with light/surge voltage suppressor, according to SMC life test conditions.

DIN rail mounting



5 Port Solenoid Valve Metal Seal/Rubber Seal Base Mounted

Model	Manifold pitch (mm)	Flow Cv		Cylinder size
		Metal seal	Rubber seal	
VQZ1000	10	0.17	0.32	Up to ø63
VQZ2000	15	0.40	0.53	Up to ø100
VQZ3000	18	0.74	1.20	Up to ø100

3 Port Solenoid Valve Metal Seal/Rubber Seal

Model	Valve Construction	Type/Seal	Flow Cv	
			P to A port	A to R port
VQZ100	N.C. Valve	Poppet	0.17	0.14
VQZ200	N.C. Valve	Metal	0.30	0.33
		Rubber	0.39	0.45
	N.O. Valve	Metal	0.31	0.31
		Rubber	0.40	0.45
VQZ300	N.C. Valve	Metal	0.62	0.56
		Rubber	0.87	0.72
	N.O. Valve	Metal	0.59	0.49
		Rubber	0.88	0.69

Base Mounted

Body Ported

3/5-port Solenoid Valve

How to Order

3-port Base Mounted Valve

VQZ 1 1 5 ■ - 5 L ■ - CP

Series

1	VQZ100 Body width 10mm

Symbol

1	N.C.

Pilot valve specifications

Nil	Standard 1W coil
H*	High pressure type, 1.5W coil
R	External pilot, 1W coil
Y*	Low watt type, 0.5W coil

* DC voltages only.

Coil voltages

3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9*	Other voltages

* Consult SMC for available voltages.

Electrical entry

Symbol	Description	Light	Surge suppressor
G	Grommet (DC voltage only)	Without	Without
L	L type plug connector with 300mm lead wire	With	With
LO	L type plug terminal without lead wire	With	With
M	M type plug connector with 300mm lead wire	With	With
MO	M tpe plug terminal without lead wire	With	With

Manual override

Nil	Non locking push type
B	Slotted locking type (Tool type)

Sub plate (A port)

CP	Without sub plate
01T	1/8" NPTF
01	1/8" PT

Also Available S0700/S070 Manifolds

7mm width compact 3 and 5 port valves with low power consumption of 0.35W (0.1W with power saving circuit)

Series S0700

Series S070

Manifold

VV3QZ 1 5 - 08 N7T C - ■

Series

1	VQZ100

Manifold type

5	Base mounted

Number of stations*

02	2 stations
20	20 stations

* Stacked up to 12 stations.

Port size (A port)

N1T	One-touch fitting for 1/8"
N3T	One-touch fitting for 5/32"
N7T	One-touch fitting for 1/4"
M5T	10-32 nom thread
C3	One-touch fitting for 3.2mm
C4	One-touch fitting for 4.0mm
C6	One-touch fitting for 6.0mm
M5	M5 thread

Option

Nil	None
D	DIN rail mounting
DO	DIN rail mounting without rail
R	External pilot

3/5-port Solenoid Valve

How to Order

3-port Body Ported Valve

VQZ ☐ ☐ 5 ☐ - 5 L ☐ - N7 - PR ☐

Series

1	VQZ100 Body width 10mm

Symbol

1	N.C.

Pilot valve specifications

Nil	Standard 1W coil
H*	High pressure type, 1.5W coil
R	External pilot, 1W coil
Y*	Low watt type, 0.5W coil

* DC voltages only.

Coil voltages

3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9*	Other voltages

* Consult SMC for available voltages.

Manual override

Nil	Non locking push type (Tool type)
B	Slotted locking type (Tool type)

Electrical entry

Symbol	Description	Light	Surge suppressor
G	Grommet (DC voltage only)	Without	Without
L	L type plug connector with 300mm lead wire	With	With
LO	L type plug terminal without lead wire	With	With
M	M type plug connector with 300mm lead wire	With	With
MO	M type plug terminal without lead wire	With	With

Port size (A port)

N1	One-touch fitting for 1/8"
N3	One-touch fitting for 5/32"
N7	One-touch fitting for 1/4"
C3	One-touch fitting for 3.2mm
C4	One-touch fitting for 4.0mm
C6	One-touch fitting for 6.0mm

Porting option

Nil	Manifold mounting
PR	Body ported

Bracket

Nil	Without bracket
F	With bracket

Manifold

VV3QZ 1 2 - 08 C - 00T - D

Series

1	VQZ100

Manifold type

2	Body ported

Number of stations*

02	2 stations
⋮	⋮
20	20 stations

* Stocked up to 12 stations

P, R port threads

Nil	PT threads
00T	NPTF threads

DIN rail mount

Nil	None
D	DIN rail mounting
DO	DIN rail mounting without rail

3/5-port Solenoid Valve

How to Order

3-port Base Mounted Valve

VQZ 2 1 5 ■ - 5 L ■ ■ - 01T

Series

2	VQZ200 body width 15mm
3	VQZ300 body width 18mm

Symbol

1	Metal seal N.C.
2	Metal seal N.O.
3	Rubber seal N.C.
4	Rubber seal N.O.

Pilot valve specifications

Nil	Standard 1W coil
H*	High pressure type, 1.5W coil
R	External pilot, 1W coil
Y*	Low watt type, 0.5W coil

* DC voltages only.

Coil voltages

3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9*	Other voltages

* Consult SMC for available voltages.

Electrical entry

Symbol	Description	Light	Surge suppressor
G	Grommet (DC voltage only)	Without	Without
L	L type plug connector with 300mm lead wire	With	With
LO	L type plug terminal without lead wire	With	With
M	M type plug connector with 300mm lead wire	With	With
MO	M type plug terminal without lead wire	With	With
Y	DIN connector	Without	Without
YZ	DIN connector	With	With

Manual override

Nil	Non locking push type (Tool type)
B	Slotted locking type (Tool type)

IP65 option (Y, YZ only)

Nil	Standard
W	IP65 rated

Sub plate (A port)

Symbol	Description	VQZ200	VQZ300
Nil	Without sub-plate	○	○
01T	1/8" NPTF	○	—
02T	1/4" NPTF	○	○
03T	3/8" NPTF	—	○
01	1/8 PT	○	—
02	1/4PT	○	○
03	3/8PT	—	○

Manifold

VV3QZ 2 5 - 08 N7T C - D

Series

2	VQZ200
3	VQZ300

Manifold type

5	Base mounted

Number of stations*

02	2 stations
:	:
20	20 stations

* Stocked up to 12 stations.

Sub plate (A port)

Symbol	Description	VQZ200	VQZ300
N3T	One-touch fitting for 5/32"	○	—
N7T	One-touch fitting for 1/4"	○	○
N9T	One-touch fitting for 5/16"	○	○
N11T	One-touch fitting for 3/8"	—	○
01T	1/8" NPTF	○	—
02T	1/4" NPTF	—	○
C4	One-touch fitting for 4.0mm	○	—
C6	One-touch fitting for 6.0mm	○	○
C8	One-touch fitting for 8.0mm	○	○
C10	One-touch fitting for 10.0mm	—	○
01	1/8 PT thread	○	—
02	1/4PT thread	—	○

Option

Nil	None
D	DIN rail mounting
DO	DIN rail mounting without rail
R	External pilot

3/5-port Solenoid Valve

How to Order

3-port Body Ported Valve

VQZ 2 1 2 ■ - 5 L ■ ■ - N7T - ■

Series

2	VQZ200 body width 15mm
3	VQZ300 body width 18mm

Symbol

1	Metal seal N.C.
2	Metal seal N.O.
3	Rubber seal N.C.
4	Rubber seal N.O.

Pilot valve specifications

Nil	Standard 1W coil
H*	High pressure type, 1.5W coil
R	External pilot, 1W coil
Y*	Low watt type, 0.5W coil

* DC voltages only.

Coil voltages

3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9*	Other voltages

* Consult SMC for available voltages

Electrical entry

Symbol	Description	Light	Surge suppressor
G	Grommet (DC voltage only)	Without	Without
L	L type plug connector with 300mm lead wire	With	With
LO	L type plug terminal without lead wire	With	With
M	M type plug connector with 300mm lead wire	With	With
MO	M type plug terminal without lead wire	With	With
Y	DIN connector	Without	Without
YZ	DIN connector	With	With

Manual override

Nil	Non locking push type (Tool type)
B	Slotted locking type (Tool type)

IP65 option (Y, YZ only)

Nil	Standard
W	IP65 rated

Sub plate (A port)

Symbol	Description	VQZ200	VQZ300
N3T	One-touch fitting for 5/32"	○	—
N7T	One-touch fitting for 1/4"	○	○
N9T	One-touch fitting for 5/16"	○	○
N11T	One-touch fitting for 3/8"	—	○
M5T	M5 thread (10-32 Nom.)	○	—
02T	1/4" NPTF	—	○
C4	One-touch fitting for 4.0mm	○	—
C6	One-touch fitting for 6.0mm	○	○
C8	One-touch fitting for 8.0mm	○	○
C10	One-touch fitting for 10.0mm	—	○
M5	M5 thread (10-32 Nom.)	○	—
02	1/4PT thread	—	○

Bracket

Nil	Without bracket
F	With bracket

Manifold

VV3QZ 2 2 - 08 C - 00T - D

Series

2	VQZ200
3	VQZ300

Manifold type

2	Body ported

Number of stations*

02	2 stations
↕	↕
20	20 stations

P, R port threads

Nil	PT threads
00T	NPTF threads

DIN rail mount

Nil	None
D	DIN rail mounting
DO	DIN rail mounting without rail

How to Order

5-port Base Mounted Valve

VQZ 1 1 5 1 ■ - 5 L ■ ■ - 01T

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5*	3 position pressure center

* Not available on VQZ1000 metal seal.

Seal type

0	Metal seal
1	Rubber seal

Pilot valve specifications

Nil	Standard 1W coil
H*	High pressure type, 1.5W coil
L**	Latching type
R	External pilot, 1W coil
Y*	Low watt type, 0.5W coil

* DC voltages only.
** Available on 2 position double solenoid only and requires the "B" type manual override. Cannot combine with "H" or "Y" options.

Coil voltages

3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9*	Other voltages

* Consult SMC for available voltages.

Electrical entry

Symbol	Description	Light	Surge suppressor
G	Grommet (DC voltage only)	Without	Without
L	L type plug connector with 300mm lead wire	With	With
LO	L type plug terminal without lead wire	With	With
M	M type plug connector with 300mm lead wire	With	With
MO	M type plug terminal without lead wire	With	With
Y	DIN connector	Without	Without
YZ*	DIN connector	With	With

* DIN connectors available on VQZ2000, 3000 only.

Manual override

Nil	Non locking push type (Tool type)
B	Slotted locking type (Tool type)

IP65 option (Y, YZ only)

Nil	Standard
W	IP65 rated

Sub plate (A port)

Symbol	Description	VQZ1000	VQZ2000	VQZ3000
Nil	Without sub-plate	○	○	○
01T	1/8" NPTF	○	○	—
02T	1/4" NPTF	—	○	○
03T	3/8" NPTF	—	—	○
01	1/8 PT	○	○	—
02	1/4PT	—	○	○
03	3/8PT	—	—	○

Manifold

VV5QZ 1 5 - 08 N3T C - D

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Manifold type

5	Base mounted

Number of stations*

02	2 stations
⋮	⋮
20	20 stations

* Stocked up to 12 stations

Port size (A, B port)

VQZ1000	VQZ2000	VQZ3000
M5T	01T	02T
N1T	N3T	N7T
N3T	N7T	N9T
N7T	N9T	N11T
M5	01	02
C3	C4	C6
C4	C6	C8
C6	C8	C10

Option

Nil	None
D	DIN rail mounting
N	Name plate (VQZ2000/3000 only)
R	External pilot

3/5-port Solenoid Valve

How to Order

5-port Body Ported Valve

VQZ [1] [1] 2 [1] [ ] - [5] [L] [ ] [ ] - [N7] - [ ]

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5*	3 position pressure center

* Not available on VQZ1000 metal seal.

Seal type

0	Metal seal
1	Rubber seal

Pilot valve specifications

Nil	Standard 1W coil
H*	High pressure type, 1.5W coil
L**	Latching type
R	External pilot, 1W coil
Y*	Low watt type, 0.5W coil

* DC voltages only.
** Available on 2 position double solenoid only and requires the "B" type manual override. Cannot combine with "H" or "Y" options.

Coil voltages

3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9*	Other voltages

* Consult SMC for available voltages.

Electrical entry

Symbol	Description	Light	Surge suppressor
G	Grommet (DC voltage only)	Without	Without
L	L type plug connector with 300mm lead wire	With	With
LO	L type plug terminal without lead wire	With	With
M	M type plug connector with 300mm lead wire	With	With
MO	M type plug terminal without lead wire	With	With
Y*	DIN connector	Without	Without
YZ*	DIN connector	With	With

* DIN connectors available on VQZ2000, 3000 only.

Manual override

Nil	Non locking push type
B	Slotted locking type (Tool type)

IP65 option (Y, YZ only)

Nil	Standard
W	IP65 rated

Port size (A, B port)

VQZ1000	VQZ2000	VQZ3000
M5	M5	02
N1	M5T	02T
N3	N3T	N7T
N7	N7T	N9T
C3	C4	N11T
C4	C6	C6
C6		C8
		C10

Bracket

Nil	Without bracket
F	With bracket (single sol. only)

3/5-port Solenoid Valve

How to Order

5-port Body Ported Manifold

VV5QZ 1 2 - 08 C - D - 00T

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Manifold type

2	Body ported type

Number of stations*

02	2 stations
⋮	⋮
20	20 stations

* Stocked up to 12 stations

DIN rail mount

Nil	None
D	DIN rail mounting

P, R port threads

Nil	PT threads
00T	NPTF threads

Digital Pressure & Vacuum Switches

Series ISE & ZSE

CE

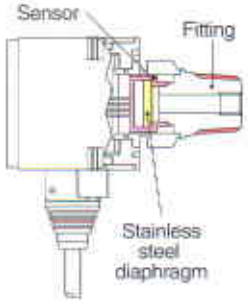
Dual-Color Red & Green Display

Bright Low-Watt Transmission Type LCD

NPN, PNP, or Analog Output

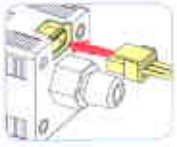
Easy-to-Operate Rubber Pushbuttons

Water-resistant Model



More user-friendly controls

Raised rubber button controls are clearly set apart, simple to operate, soft to the touch.



Plug-type connectors take the burden out of wiring work and maintenance.

Many advanced, functions, including adjustable response, calibrate-to-others function, automatic preset, and more.

For vacuum and low pressure
ZSE30 Series

For positive pressure
ISE30 Series

Compact side-by-side mountable

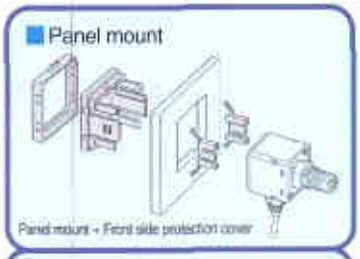
Just one panel opening is required for stackable displays, which can be mounted either horizontally or vertically.

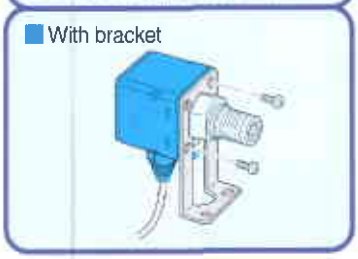
With one-touch fitting

Straight type Elbow type

(ø4, ø6, ø5/32", ø1/4")

Panel-mount and Angle Brackets Available





Protective Face Cover

Non-display Model

Remote Sensor Model

Digital Pressure & Vacuum Switches

How to Order

Series ISE30/ZSE30

Positive Pressure	ISE30	01	25	M	L		
Vacuum	ZSE30	01	25	M		A	

Pipe specification

01	R1/8" (M5 female thread)
T1	NPT1/8" (M5 female thread)
C4H	ø4 straight one-touch fitting
C6H	ø6 straight one-touch fitting
N7H	ø1/4" straight one-touch fitting
C4L	ø4 elbow one-touch fitting
C6L	ø6 elbow one-touch fitting
N7L	ø1/4" elbow one-touch fitting

Output type

25	NPN digital
65	PNP digital
26	1 to 5VDC analog
28	4 to 20mA analog

Unit specification

Nil	Changeable unit
M	Fixed SI unit ISE30: MPa ZSE30: kPa

Option

Nil	None
A	L bracket
B	Panel mount
D	IP66 cover

Lead wires

Nil	No lead wires
L	2m lead wire with connector

Series ISE40, ZSE40

Positive Pressure	ISE40	T1	22	L			
Vacuum	ZSE40		T1	22	L		

Range

Nil	10.0 to −101.3kPa vacuum
F	−100.0 to 100.0kPa compound pressure

Port thread

01	R1/8 (M5 female)
T1	NPT1/8 (M5 female)
C4*	4mm one-touch fitting
C6*	6mm one-touch fitting
W1	R1/8 double rear
WF1*	G1/8 double rear
M5*	M5 female

Input/Output specification

22	2 NPN outputs + 1 analog output
30	2 NPN outputs + 1 auto-shift input
62*	2 PNP outputs + 1 analog output
70	2 PNP outputs + 1 auto-shift input

* Made to order

Lead length

Nil	0.6m
L	0.3m

Display units

Nil	Switchable
M	Fixed

Option

		Part number	Port limitations
Nil	None		
A	Bracket A	ZS-24-A	Except C4, C6, M5
B	Bracket B	ZS-24-B	W1, WF1 only
D	Bracket D	ZS-24-D	Except C4, C5, M5
E	Panel mount	ZS-22-A	None
F	Panel mount w/cover	ZS-24-C	None

Electro-Pneumatic Regulator

Series ITV

ITV000
Low-flow Compact Models

- Built-in One-touch fitting
- With error indication LED
- Brackets
  Flat and L brackets are available.

Cable connectors
Straight type and right angle type are available.

1. Easy connection
2. High performance (linearity ±1% FS)
3. Threaded ports and modular FRL flange
4. IP65 rated
5. Bright red LED display
6. Built-in pressure sensor
7. No bleed at idle
8. Optional angle or foot mounting bracket

ITV1000
Digital Input Model

100ms high-speed response model

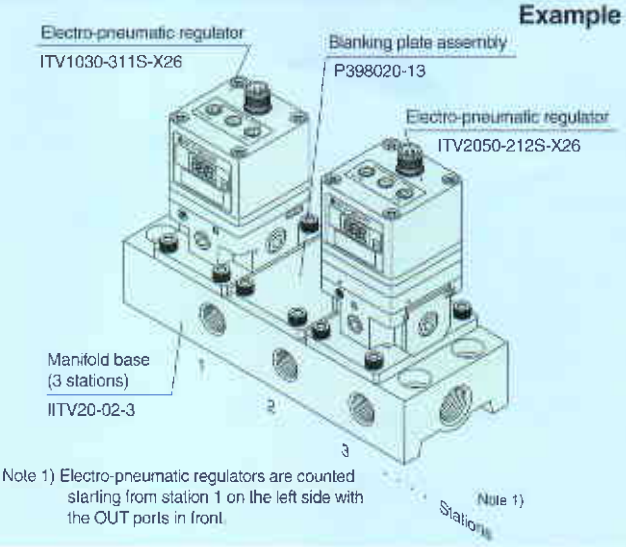
DeviceNet compatible

Vacuum control model

Manifolds available
IITV20

How to Order Manifold Assemblies

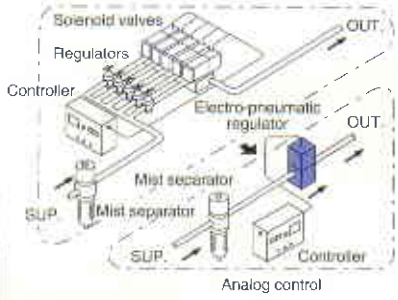
Example



Note 1) Electro-pneumatic regulators are counted starting from station 1 on the left side with the OUT ports in front.

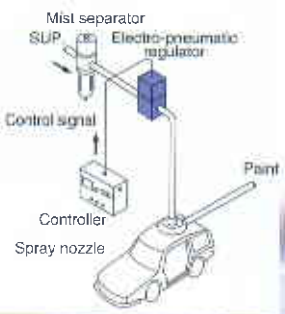
Application example

Analog multistage control



Analog control

Control of electro-static spraying



Electro-Pneumatic Regulator

How to Order

ITV 1/2/3 0 [1] [0] — [01] [ ] [2] [ ] [S] [ ] — [ ]

Pressure Range

1	0.1MPa (45.5 PSI)
3	0.005 to 0.5MPa (72.5 PSI)
5	0.005 to 0.9MPa (130.5 PSI)
9	–80kPa (–23.6inHg) (ITV2000 only)

Supply Voltage

0	24VDC
1	12 to 15VDC

I/O code

I/O code	Input signal	Output signal
01	4 to 20mADC	1 to 5VDC
02	4 to 20mADC	NPN
03	4 to 20mADC	PNP
04	4 to 20mADC	4 to 20mADC
11	0 to 20mADC	1 to 5VDC
12	0 to 20mADC	NPN
13	0 to 20mADC	PNP
14	0 to 20mADC	4 to 20mADC
21	0 to 5VDC	1 to 5VDC
22	0 to 5VDC	NPN
23	0 to 5VDC	PNP
24	0 to 5VDC	4 to 20mADC
31	0 to 10VDC	1 to 5VDC
32	0 to 10VDC	NPN
33	0 to 10VDC	PNP
34	0 to 10VDC	4 to 20mADC
40	Preset input	N/A

Port Thread

Nil	Rc
N	NPT*
T	NPTF*
F	G*

*Made to order

Port Size

		1000	2000	3000
1	1/8"	●		
2	1/4"	●	●	●
3	3/8"		●*	●
4	1/2"			●

*Not available ITV209□

Bracket

Nil	Without bracket
B	Flat bracket*
C	L bracket*

*Made to order or purchase separately

Cable

S	Straight type 3m
L	Right angle type 3m*
N	No cable connector*

*Made to order

Display Units

Nil	MPa†
2	kgf/cm²*†
3	bar*†
4	PSI*†
5	kPa

†Not available ITV209□
*Made to order

Optional Specifications

Nil	Standard specification	—
Q	CE marked	1, 17, 18, 19
X26	For manifold mounting	2, 3, 15
X37	CE marked DeviceNet compatible	4, 5, 6, 8, 14
X38	CE marked 16 preset type	4, 5, 7, 10
X80	DeviceNet compatible	5, 6, 8, 14
X81	16 preset type	5, 7,10, 16
X88	0.1s high speed response	2, 3
X93	Digital input type	5, 6, 9, 11
X102	Reverse output	12, 13
X153	CE marked for manifold mounting	3, 15
X154	CE marked 0.1s high speed response	3
X155	CE marked DeviceNet compatible	4, 5, 6, 8, 14
X156	CE marked 16 preset type	3, 5, 7, 10
X157	CE marked digital input type	3, 5, 6, 11

NOTES

1 No charge for CE marking.
2 ITV1000 only
3 ITV2000 only (except ITV209□)
4 ITV3000 only
5 Input code 4 only
6 Output code 0 only
7 Output code 2 or 3 only
8 No pressure display
9 Straight connectors
10 4-bit input gives 16 pressure presets
11 10-bit parallel input
12 Not available with preset input type
13 100% output at 0% input; 0% output at 100% input
14 MPa dispaly units only
15 Port size 2 (1/4") only
16 Right angle L cable not available
17 Not available with monitor output 4
18 Not available with pressure range
19 "–40" input - output combination not available