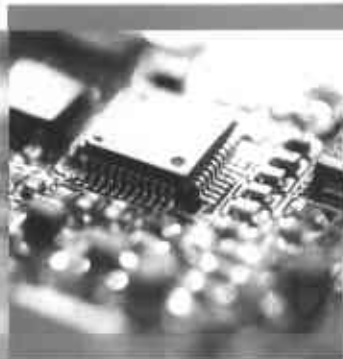
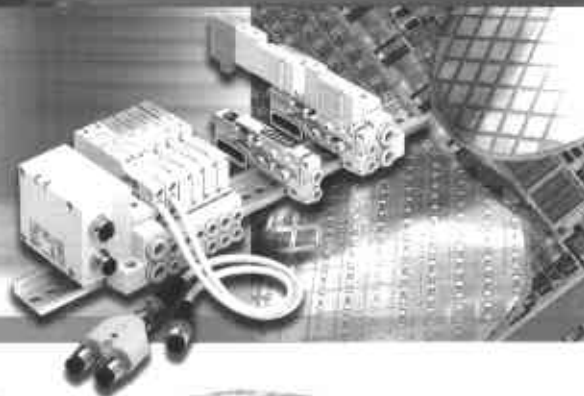
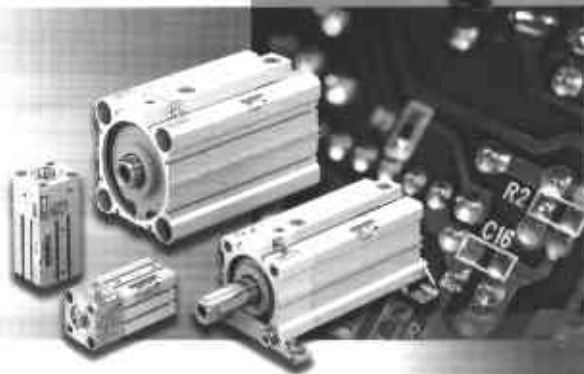


SMC! NOW!



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



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.

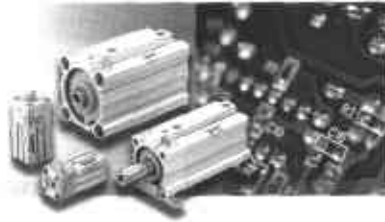


ETC (European Technical Center) U. K.

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.

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.



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



SMC NOW! – Table of Contents

Air Preparation Units

Polyurethane and Nylon Tubing	<i>TIUB/TU & TIA/T</i>	Page 1 to 2
Speed Controller	<i>AS</i>	Page 3 to 6
One-Touch Fitting	<i>KQ2</i>	Page 7 to 8
Modular F.R.L. Unit	<i>AC</i>	Page 9 to 14
Pressure Relief 3 Port Valve with Locking Holes	<i>VHS</i>	Page 15 to 16

Cylinder/Actuator

Miniature Cylinder	<i>NCJ2/CJ2</i>	Page 17 to 18
Crimp Style Cylinder	<i>CM2</i>	Page 19 to 20
Stainless Steel Body Cylinder	<i>NCM</i>	Page 21 to 22
Repairable Round Body Cylinder	<i>NCG/CG1</i>	Page 23 to 24
Tie Rod Cylinder	<i>CA2</i>	Page 25 to 26
NFPA Interchangeable Air Cylinder	<i>NCA1</i>	Page 27 to 28
Compact Cylinder	<i>NCQ8</i>	Page 29 to 30
Compact Cylinder	<i>NCQ2/CQ2</i>	Page 31 to 32
Compact Guide Cylinder	<i>MGP</i>	Page 33 to 34
Slide Table	<i>MX</i>	Page 35 to 36
Dual-Rod Cylinder	<i>CXS</i>	Page 37 to 38
Parallel Grippers	<i>MH</i>	Page 39 to 44
Angular Grippers	<i>MH</i>	Page 45 to 48
Rotary Table/Rack-and-Pinion Type	<i>MSQ</i>	Page 49 to 50
Auto Switch	<i>D**</i>	Page 51 to 52

Valves & Manifolds

5-port Solenoid Valve	<i>SY</i>	Page 53 to 54
5-port Solenoid Valve	<i>VQC</i>	Page 55 to 60
5-port Solenoid Valve	<i>SV</i>	Page 61 to 70
3/5-port Solenoid Valve	<i>VQZ</i>	Page 71 to 78

Instrumentation

Digital Pressure and Vacuum Switches	<i>ISE & ZSE</i>	Page 79 to 80
Electro-Pneumatic Regulator	<i>ITV</i>	Page 81 to 82





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 28" 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"

Length per roll

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

Color indication

- B Black
- BU Blue
- C Clear
- G Green
- R Red
- W White
- Y Yellow
- YR Orange
- BU1 Blue (solid)
- BU2 TR Blue

- BU3 Med Blue
- BR1 Brown (solid)
- G1 Green (solid)
- G2 TR Green
- G3 Neon Green
- G4 Dark Green
- GR1 Gray (solid)
- GR2 Lt Gray (solid)
- P1 Neon Pink
- PU1 Purple (solid)

Color indication

- PU2 TR Purple
- R1 Red (solid)
- R2 TR Red
- S1 Silver
- Y1 Yellow (solid)
- Y2 TR Yellow
- Y3 Neon Yellow
- YR1 TR Orange
- YR2 Neon Orange

* For 5/32" and 5/16" size tubing, please refer to 4mm and 6mm "How to Order" information right.

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")
1085	10mm
1200	12mm

Length per roll

20	20m
33	33m ^{Note 1)}
100	100m
153	153m ^{Note 1)}
305	305m
500	500m ^{Note 1)}

Note 1) 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"

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

Color indication

T (Metric)

T 0604 B — 20

Tube diameter

0403	4mm
0425	4mm (5/32")
0604	6mm
0645	6mm
0805	8mm (5/16")
1075	10mm
1209	12mm
1613	16mm

Length per roll

20	20m
33	33m ^{Note 1)}
100	100m
153	153m ^{Note 1)}

Note 1) Available only for 0425 and 0806.

Blue Area are **STANDARD COLORS**

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



Speed Controller 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)
 $\phi 3.2$, $\phi 4$, $\phi 6$, $\phi 8$, $\phi 10$, $\phi 12$
- **Inch size** (Release bushing: Orange color)
 $\phi 1/8$ ", $\phi 5/32$ ", $\phi 3/16$ ", $\phi 1/4$ ", $\phi 5/16$ ", $\phi 3/8$ ", $\phi 1/2$ "

■ **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 with One-touch Fittings—Elbow Type/Universal Type

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

Area code

NII	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

NII	PT
F	PF
N	NPT

Option

NII	None
S	Sealant
K	Hexagonal lock nut (Width across flats)
N	Electroless nickel plated

Applicable tube O. D.

Metric		Inch	
23	3.2mm	01	1/8"
04	4mm	00	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"

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

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"	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	AS43□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 specifications)



Speed Controller

How to Order

Speed Controller with One-touch Fittings In-line Type

AS 400 1F - 13 N

Area code

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

Option

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

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"

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 Standard Type (Metal Body)

Elbow Type

AS 2 2 0 0 - N 02 - S

Area code

NII	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.

Option

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

* AS1200, AS1400, and AS2210 are electroless nickel plated as standard. (N specifications)

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

Port thread

NII	PT
F	PF
N	NPT

In-line Type

AS 2 000 - N 02

Area code

NII	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

NII	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

Special Tube Seal Design

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

Easy Fitting and Adjustment

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

Large Release Button

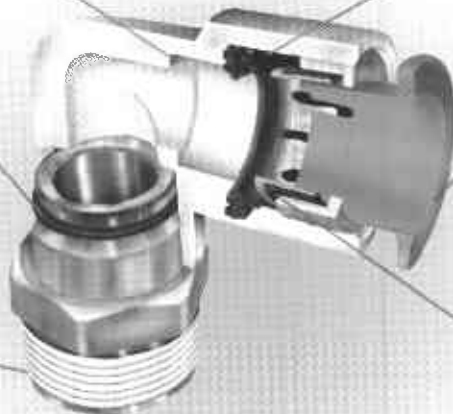
The release button ensures easy release of tubing. When depressed the sleeve engages the chuck to release its grip, allowing the tube seal to separate

Pre-Applied Sealant

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

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-Point Fitting How to Order

KQ2 H 01 - 35 S - X2

• Compact slide table •

Prefix	Description
H	Male connector
H	Straight union
H	Different dia. straight union
K	45° Male elbow
L	Male elbow
L	Union elbow
L	Plug-in elbow
L	Reducer elbow
LE	Bulkhead elbow
LF	Female elbow
LU	Branch union elbow
LU	Branch elbow
C	Tube cap
C	Color cap
D	Delta
D	Delta union
E	Bulkhead union
E	Bulkhead female union
F	Female connector
N	Nipple
N	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"
U	Branch "Y"
UD	Double branch
UD	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
W	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"	3.2mm
03	5/32"	4mm
05	3/16"	6mm
07	1/4"	8mm
09	5/16"	10mm
11	3/8"	12mm
13	1/2"	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)	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	
M6		M6 x 1.0	
01		PT1/8	
02		PT1/4	
03		PT3/8	



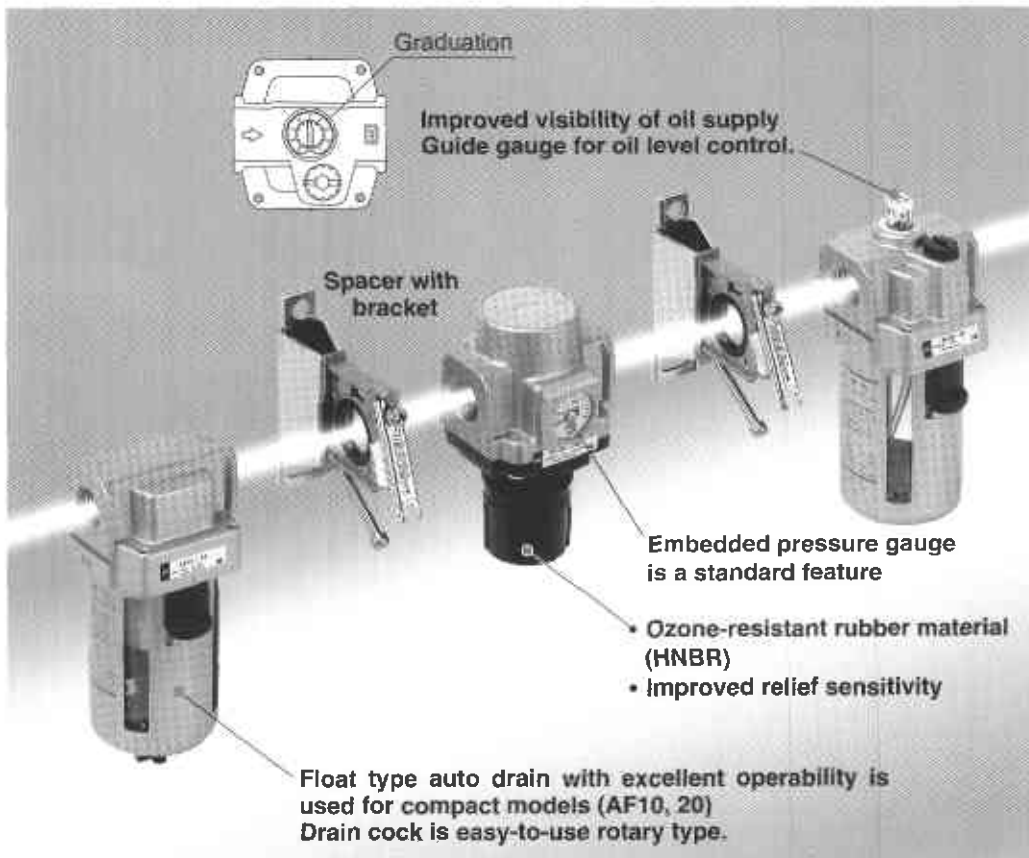
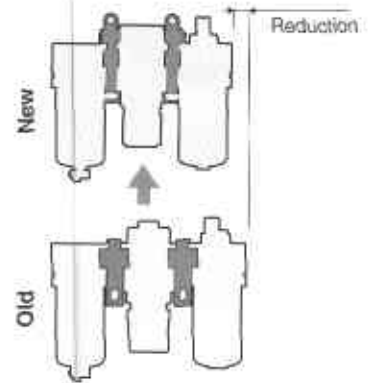
Basic Features

- 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

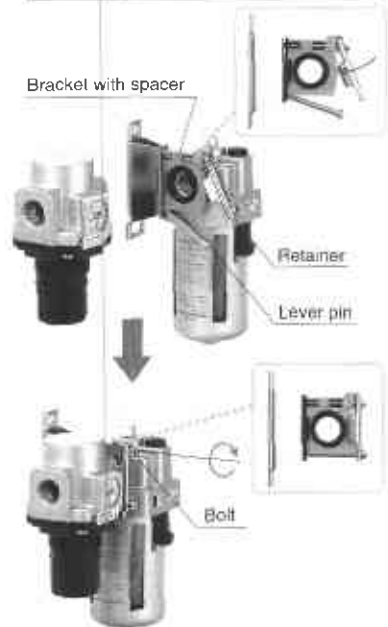
Space-saving Design

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.



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
6	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	—	—	—	●	—	—
05	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)
	Rc
N	NPT
F	G

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	—	—	—	●	—	—
05	3/4	—	—	—	—	●	—
10	1	—	—	—	—	●	●

Optional specifications

Symbol	Description	Applicable models
Nil	—	—
1	1000cm ³ tank	AL30 to 60
10	1000cm ³ tank with level switch (lowest limit ON)	AL30 to 60
11	1000cm ³ tank with level switch (lowest limit OFF)	AL30 to 60
2	Metal bowl	AL10 to 60
3	With drain cock	AL10 to 60
6	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.

Accessory

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

Modular Pressure 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	-	-	-	-	●	-	-
05	3/4	-	-	-	-	-	●	-
10	1	-	-	-	-	-	●	●



With digital pressure switch with display

Symbol	Output specifications	(ISE30-01-□□ ML)
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	-	-
Y (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
G	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 Filter Units

How to Order

AW 30 [] F 03 BE 1N X465A

Filter regulator

Body size

10	20	30	40
----	----	----	----

With back flow mechanism

NII	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

NII	Rc
N (1/8 to 1/2)	NPT
F (1/8 to 1/2)	G

Note 1) Drain guide is NPT 1/4 (applicable to AW30K and 40K), and the exhaust port for auto drain comes with $\phi 3/8$ " 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
NII	—
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 bracket and gauge option available

X430/X440 not available with AW10 and AW20

Optional specifications

Symbol	Description	Applicable models
NII	—	—
1 ^(Note 1)	0.02 to 0.2MPa setting	AW10, AW20 (K) to 40 (K)
2	Metal bowl	AW10, AW20 (K) to 40 (K)
6	Nylon bowl	AW10, AW20 (K) to 40 (K)
B	Metal bowl with level gauge	AW30 (K), 40 (K)
C	With bowl guard	AW20 (K)
J ^(Note 1)	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; $\phi 6 \times \phi 4$ 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
NII	—	—
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.

Module F.A. Unit

How to Order



Body size

20	30	40
----	----	----

Thread type

NII	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	—	—	●

Optional specifications

Symbol	Description	Applicable models
NII	—	—
2	Metal bowl	AFD20 to 40
6	Nylon bowl	AFD20 to 40
B	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

* 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.

Accessories

Symbol	Description	Applicable models
NII	—	—
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



Modular Filter Unit

How to Order

AFM 30 F 03 BD 2R

Mist separator

Body size

20	30	40
----	----	----

Thread type

Nil	Rc
N (NPT)	NPT
G (G1/4)	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

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 ^{1/4"}	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	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.

Accessories

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



Pressure Relief 3 Port Valve with Locking Holes

Series **VHS**

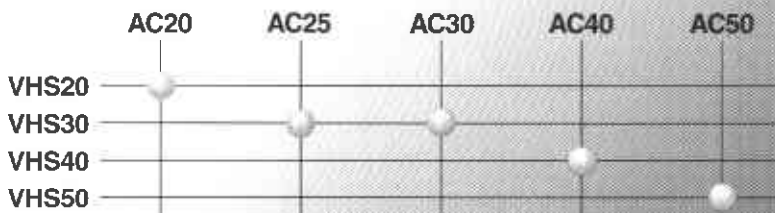
Conforming to OSHA Standard Pressure Relief 3 Port Valve with Locking Holes

VHS 20/30/40/50

Combination with a modular style FRL



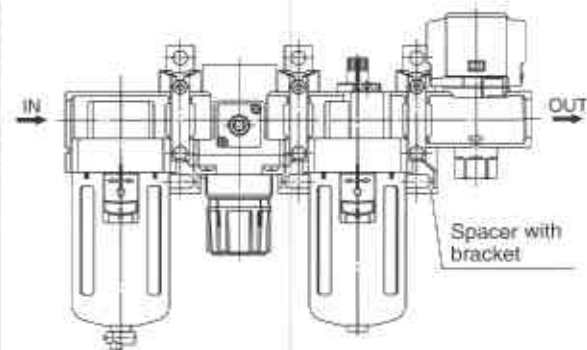
Combination with a modular style FRL is possible.



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 <small>Note)</small>

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	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	—	—	●	—
05	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.

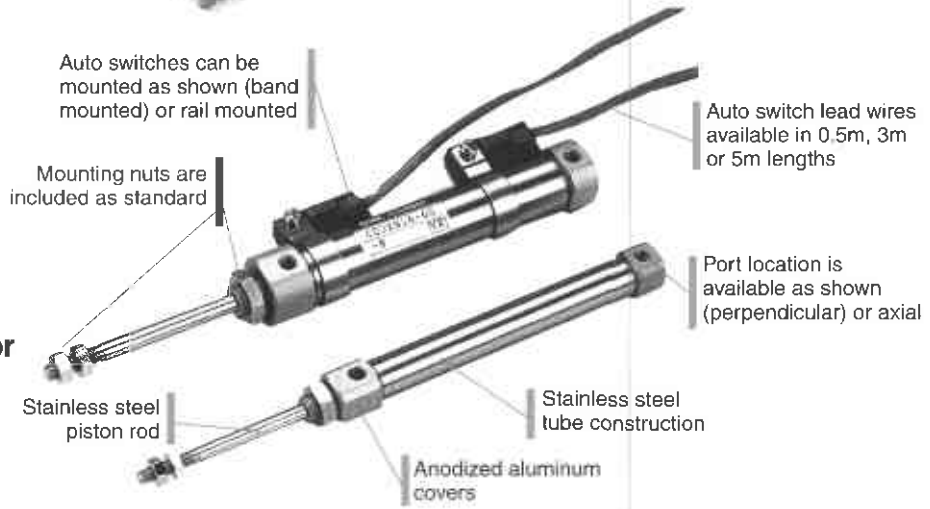


Miniature Cylinder

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	50, 100, 150, 200, 300, 400, 500, 600
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.

Options

XB6	Hest 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

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch

B Built-in magnet, Band mounting style

* See catalog N301 for available auto switches.

Port location on head cover

Bore size (mm)	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

Miniature Cylinder

Series NCJ2CJ2
C16

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	15, 30, 45, 60
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

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)
XB10	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

Port location on head cover

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

Crimp Cylinder

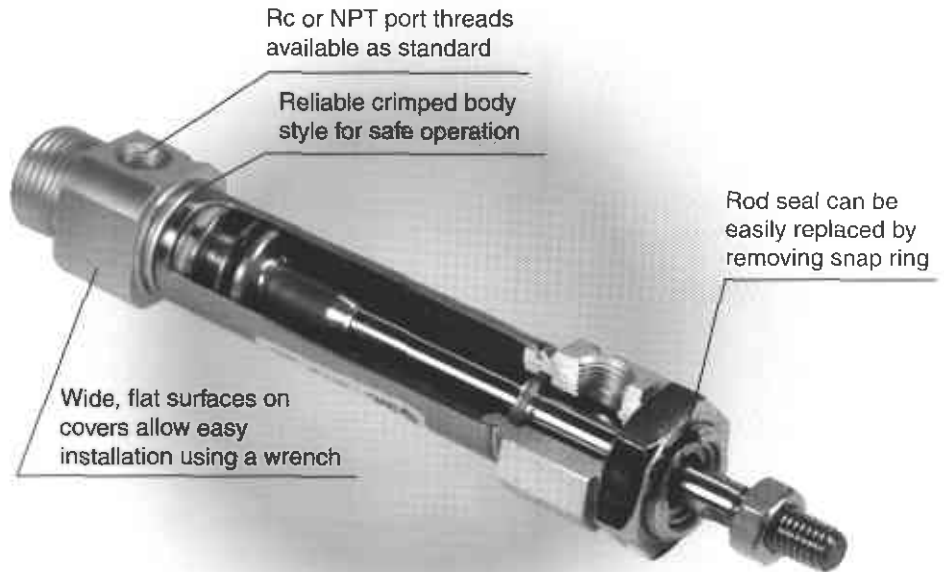
Series **CM2**

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

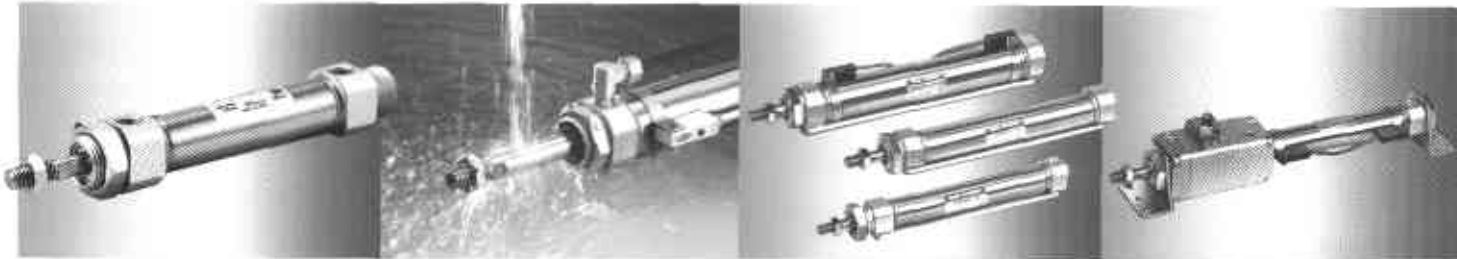
- Many popular made-to-order options are available such as high temperature, rod boot, adjustable stroke, and many others.
- Special shaped rod seal provides excellent dust resistance and extends cylinder life.



- 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**

Low Speed Cylinder ø20 to ø40mm

Stable operation at extremely low speeds (0.02 in/sec).

Series **CM2 R/V**

Splash Proof ø20 to ø40mm

For use in environments where the cylinder is in direct contact with water or liquid.

Series **CM2 P**

Cylinder w/Axial Piping ø20 to ø40mm

Allows piping at head end only.

Series **CLM2**

Fine Lock Cylinder ø20 to ø40mm

Ideal for intermediate stops, emergency stops and drop prevention.

Crimp Cylinder

How to Order

Without auto switch

CM2

CM2 L 40 150 A

With auto switch

CDM2

CDM2 L 40 150 A G59WL S

Built-in magnet

Type

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

Style

NII	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

Port

NII	Standard threaded port
F	With built In One-touch fitting (Rubber cushion only)

No. of Switches

NII	2 pcs.
S	1 pc.

Auto Switch

See catalog E208 for available auto switches.

With rod boot

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

Action

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

Cushion

NII	Rubber bumper
A	Air cushion

Options

XB6	High temperature
XB7	Low temperature
XB13	Low speed
XC3	Special port location
XC4	Heavy duty scraper
XC6	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**

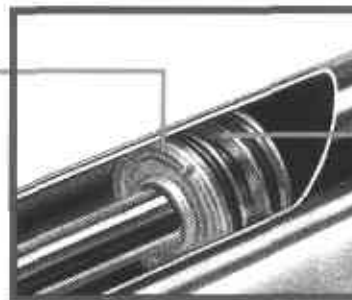
- SMC's NCM series:
The non-repairable cylinder that is designed to last!
- "Permanent Lube" design requires no additional lubrication for cylinder.
- Directly interchangeable with other manufacturers' round body series.



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 ²
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

Number of auto switches

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

Auto switch

See catalog N302 for available auto switches.

Rod boot^{1, 2}

Nil	Without
J	Nylon boot
K	Neoprene boot

¹ Not offered with block mount.

² Not offered on 2" bore.

Actuation

Nil	Double acting
S	Spring return
T	Spring extend

Cushion

Nil	Without rubber bumper
C	Rubber bumper

Options

XB6	High temperature ²
XB7	Low temperature ²
XB9	Low friction ²
XC8	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/CG1**

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

■ **Repairable round body cylinder allowing high speed operation up to 40in/sec.**

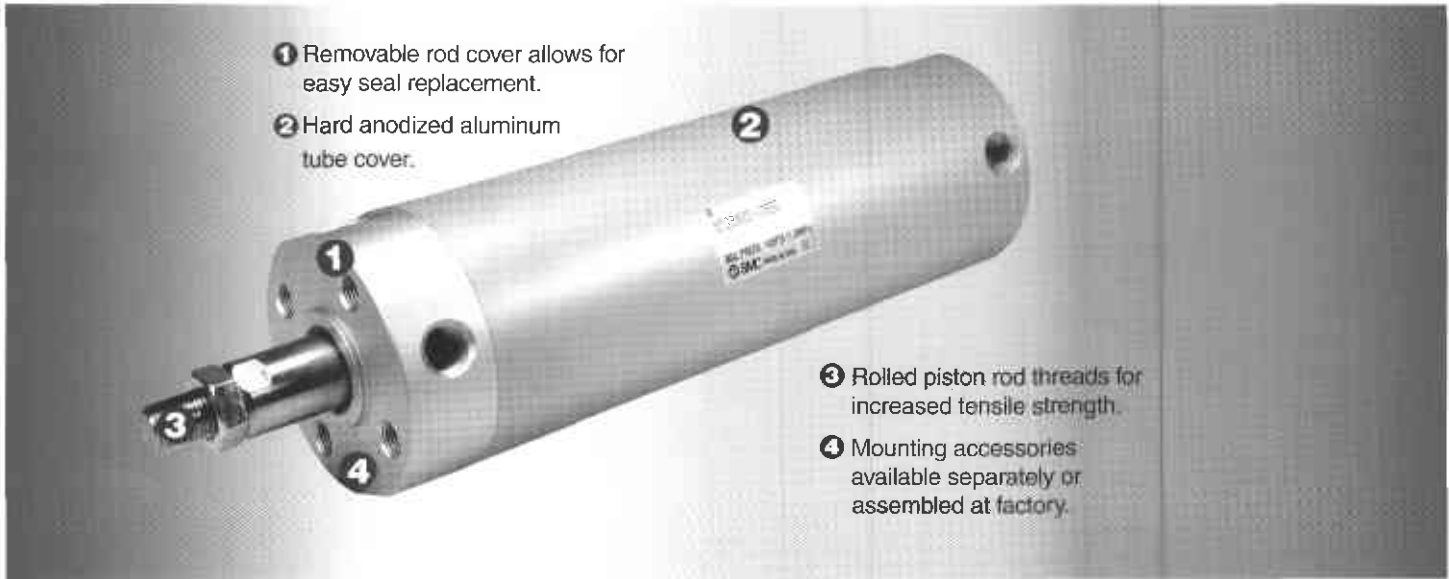
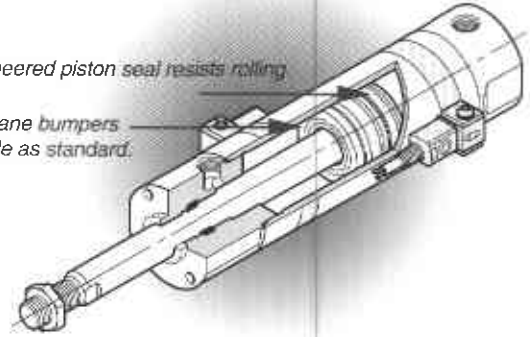
(Note: Maximum speed for 80 & 100mm bore size is 28 in/sec.)

■ **Available in 8 bore sizes and 9 different mounting styles.**

■ **Cylinder can be integrated with linear guide unit (Series MGG and MGC).**

Engineered piston seal resists rolling

Urethane bumpers available as standard.



- ① Removable rod cover allows for easy seal replacement.
- ② Hard anodized aluminum tube cover.

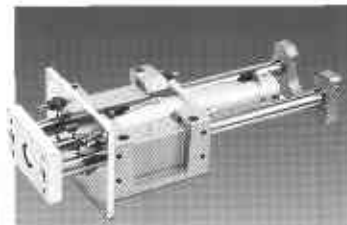
- ③ Rolled piston rod threads for increased tensile strength.
- ④ Mounting accessories available separately or assembled at factory.

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.



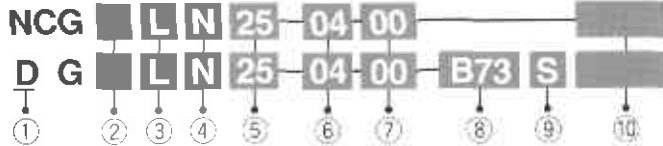
Repairable Round Body Cylinder

How to Order

NCG

Without auto switch

With auto switch



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")

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.



6 Stroke/Inch

7 Stroke/Hundredths of an Inch

* Note)

Stroke length must be indicated as 4 digits.

First and second digit: Stroke/Inch

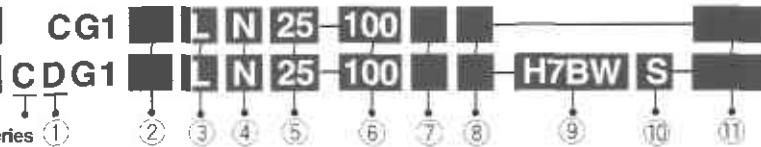
Third and fourth digit: Stroke/ Hundredth of an inch

Example) 0525 = 5.25 (5-1/4) inch stroke

CG1

Without auto switch

With auto switch



1 Built-in magnet

4 Cushion

N	Urethane cushion
A	Adjustable air cushion

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

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
J	Nylon tarpaulin
K	Heat resistant tarpaulin
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.

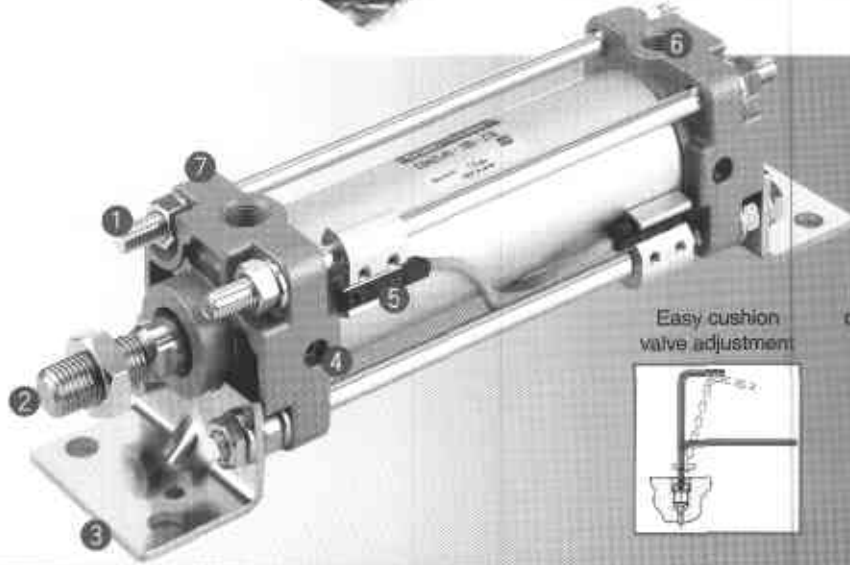
Refer to Best Pneumatic volume 6 for details and options compatibility.

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 deflection
- 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.

Cylinder stroke (mm)

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

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	60	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 and 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.



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

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.

NFPA Interchangeable Air Cylinder

Series **NCA1**

Bore sizes:

ø1.5", ø2", ø2.5", ø3.25", ø4"

1 Improved cushion capacity

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

2 Compact and lightweight design

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

3 Increased 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.

4 Full port design

Allows for improved piston breakaway.

5 Piston Rod

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

6 Rolled piston rod threads

Rolled piston rod threads for increased tensile strength.

7 Replaceable rod seal

Engineered rod seal can be replaced without disassembling the cylinder.

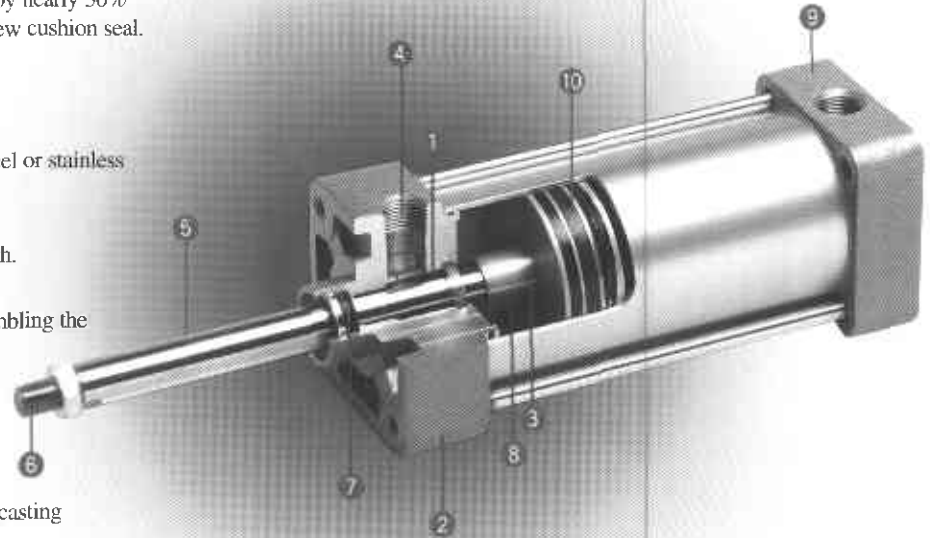
8 Piston and cushion ring

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

9 Rugged square covers

Rugged square covers are made of an aluminum die casting.

10 Magnetic 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.



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.

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



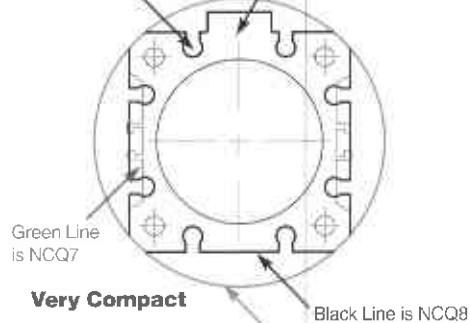
ø25 to ø63 mm
Elliptical piston design allows space-savings.

NCQ8 Design Features

square body allows for close center-to-center mounting

Mounting of Auto Switches on up to 4 Sides

Super Compact Version Available (Magnet Type)



Very Compact

Outer Red Circle is Bimba Flat-1®

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



Compact Cylinder

How to Order

Rod style

Nil	Single rod
W	Double rod

Options

Nil	Standard
XB6	High temp. seals Nil/W
XC4	Heavy duty rod scraper

Note) Not available W/magnet

Without auto switch N C Q 8 [] A 150 100 S [] [] [] []

With auto switch N C D Q 8 [] A 150 100 S [] [] Y 7 B W [] [] [] []

Built-in magnet

Mounting options

Standard overall length	
A	Both ends tapped
B	Basic model-Through holes with c-bores
C	Rear clevis ²
E	Front screw clearance hole
M	Rear screw clearance hole ²
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

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 ¹
M	Male rod end

¹ Stroke will be reduced by 0.05" for rubber bumper type.
² Body option combination is available (CM)

Actuation

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

Nominal bore size

056	9/16"
075	3/4"
100	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"

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.

Cylinder/Actuator



Compact Cylinder

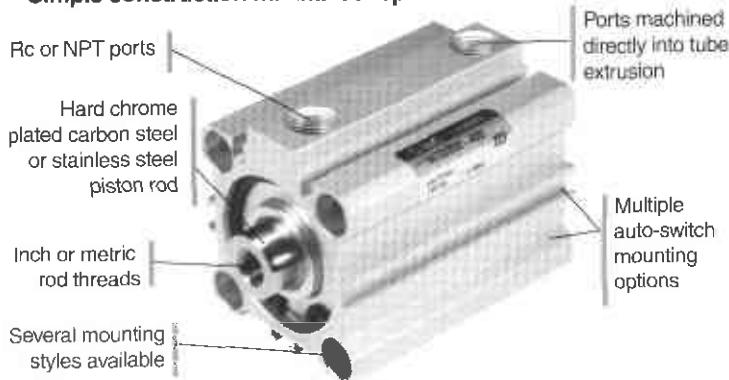
Series

NCO2/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.

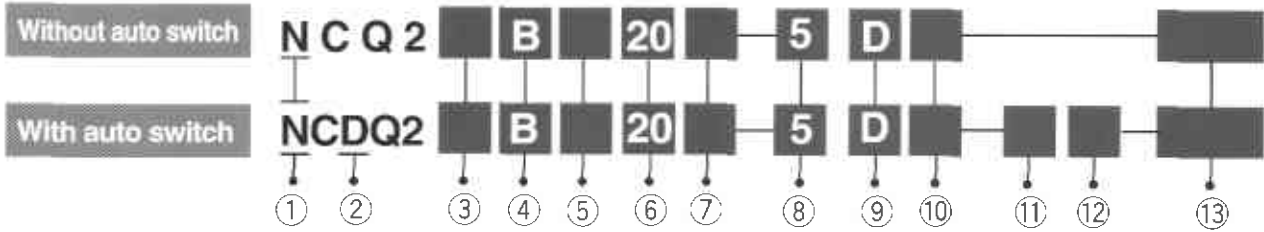
Variations

Series	Action	Style	Options	Bore size (mm)
Standard	Double acting	Single rod (N)CQ2	Basic Built-in magnet Adjustable cushion Rod end make/break Virt. T-tube bracket Heat labile mounting	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 CQ2LS		32, 40 50, 63 80, 100

With One-touch fitting (bore size ø20 to ø63)
Top and flange
Double pipe
Cushionless
All-hydro (Bore ø20 to ø100)
Clean seals (Bore ø12 to ø63)

Compact Cylinder

How to Order



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 83
-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.

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

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 rod 10 to 300
 Double rod 10 to 300

Long stroke

Double acting
 Single rod 125 to 300

Anti-lateral load

Double acting
 Single rod
 ø32 to ø40/5 to 100
 ø50 to ø100/10 to 100



Mounting type

- Not available for Long Stroke cylinder.
- Only "Through holes" available for Large Bore cylinder.
- 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.

Notes

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

Body Option

* Body option combination is available: CM, FC, FM, and FCM

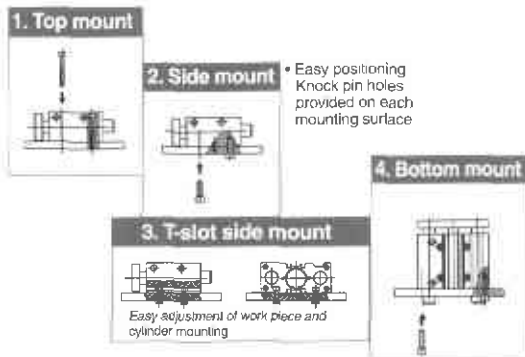
- Not available for Double Rod cylinder.

Compact Guide Cylinder

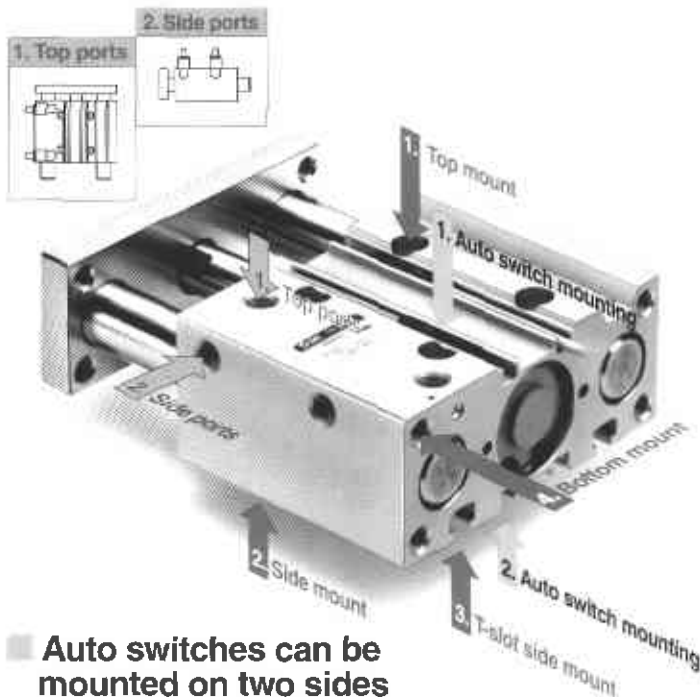
Series MGP

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!

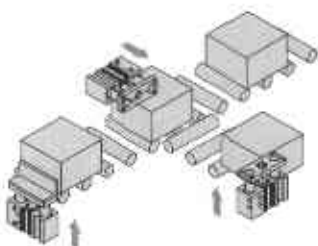
Four mounting types provided



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)	MGP	MGP	MGP	MGPS	MGPA
12	●	●	●	●	●
16	●	●	●	●	●
20	●	●	●	●	●
25	●	●	●	●	●
32	●	●	●	●	●
40	●	●	●	●	●
50	●	●	●	●	●
63	●	●	●	●	●
80	●	●	●	●	●
100	●	●	●	●	●

- Clean room series: $\phi 12$ to $\phi 63$
- Water resistant type: $\phi 20$ to $\phi 100$ (Note)
- Copper-free specification: $\phi 12$ to $\phi 100$.

Note) Available with $\phi 20$ to $\phi 100$ 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.

Stroke (mm)	Bearing type									
	MGPM			MGPL			MGPA			
	Slide bearing			Ball bushing			High precision ball bushing			
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										

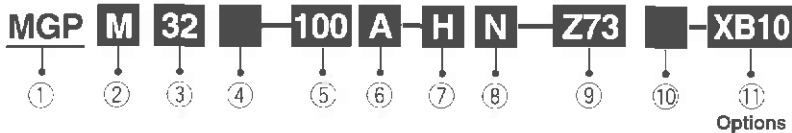
Intermediate strokes

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 (150C°)
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



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

NII	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

NII	Without air cushion
A	With air cushion

With air cushion applicable for M & L type only.

⑦ Lock position

NII	Without end lock
H	Rear lock
R	Front lock

⑧ Manual release type

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

⑨ Auto switch type

NII	Without auto switch (built-in magnet cylinder)
-----	--

* Refer to Catalog and Best Pneumatics for details

⑩ Number of auto switches

NII	2 pcs
S	1 pc

⑪ Options

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



Cylinder/Actuator

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

Slide Table

Series MX

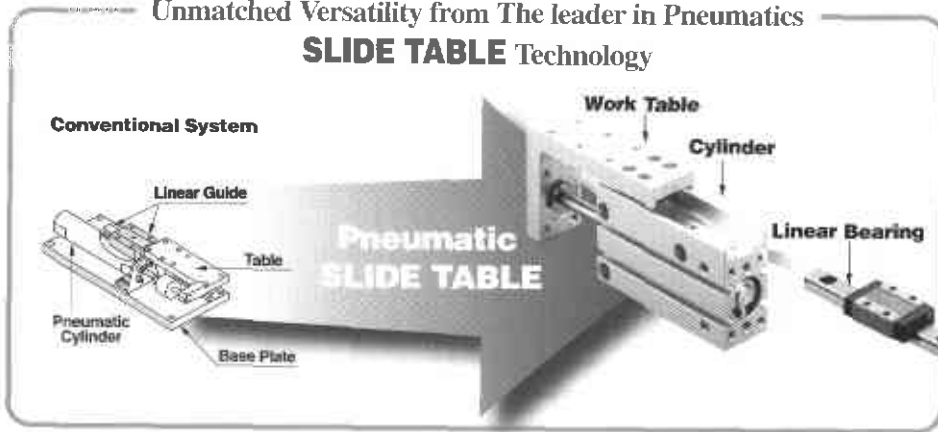
SMC has pioneered the development of compact integration of pneumatic cylinders and guided slide tables.

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.

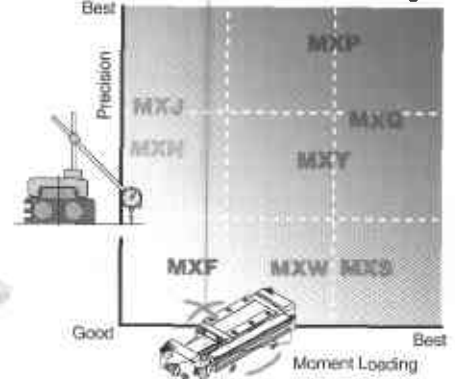
Unmatched Versatility from The leader in Pneumatics

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



Bore Size (mm)

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	W	W			
25		SQ		SQ		SQ	SQ	SQ		SQ	SQW	SQW	SQW	W	W	W	W	W	W	W		

Slide Table

How to Order



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.

⑧ Auto switch

See catalogs for switch selection.

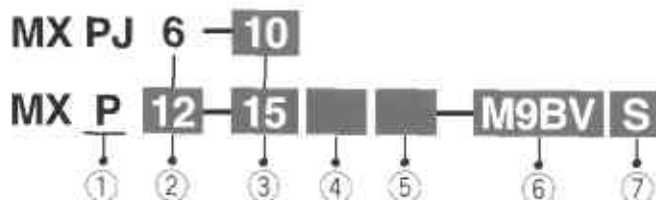
⑨ No. of auto switches

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

⑩ Adjust range

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

Compact precision Air slide table



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 MXPJE.

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

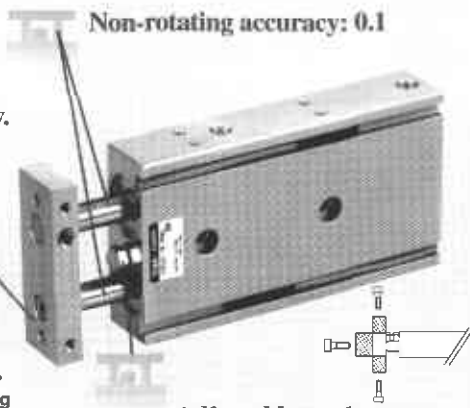
Series CXS

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

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

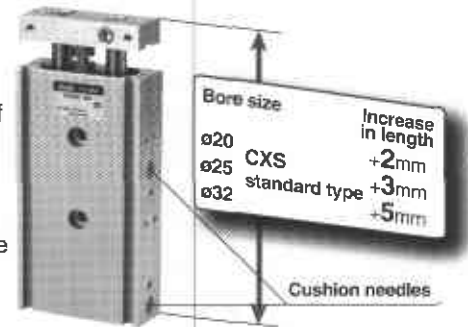
Dual-rod cylinder range is better than ever.

Air cushion type

Series CXS: $\varnothing 20$, $\varnothing 25$, $\varnothing 32$

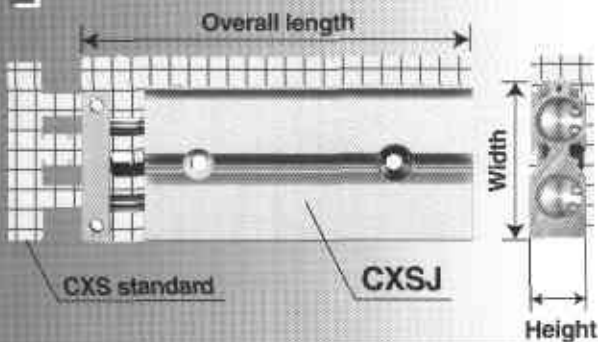
Air cushion only minimally adds to overall length, compared with the standard type cylinder.

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

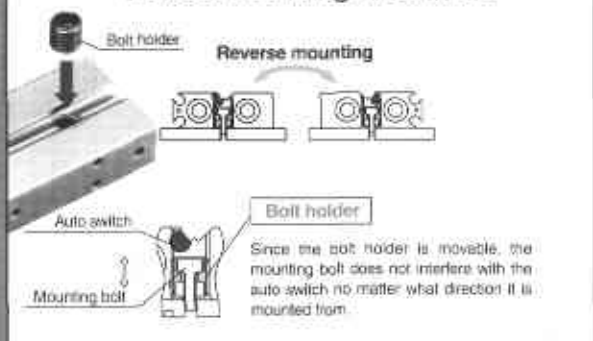


Compact Type Series CXSJ: $\varnothing 6$, $\varnothing 10$, $\varnothing 15$, $\varnothing 20$, $\varnothing 25$, $\varnothing 32$

Smaller and lightweight

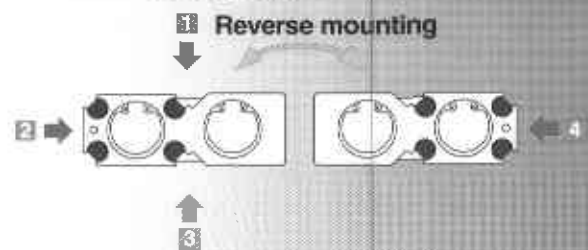


Reverse mounting mechanism

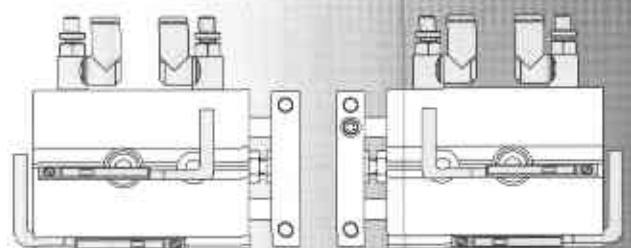


Superior mounting options

Auto switches can be installed from 4 directions.



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		
TN	NPT	ø25, ø32	ø32
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

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

Number of auto switches

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

Auto switch type

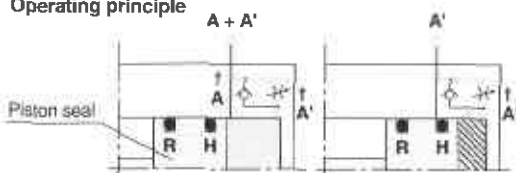
Nil	Without auto switch (with built-in magnet)
-----	--

See catalog for available auto switches.

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

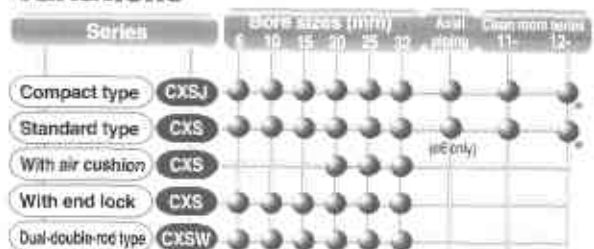


① When the piston is retracting, air is exhausted through both A and A' until piston seal H passes air passage A.

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

• (Ball bushing only)

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**

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							Finger option				
			Basic type	End boss type						Basic type (flipped in open/close direction)	Side tapped	Through holes at opposite direction	Flat type finger	
			Side ported	Side ported	With Contact fitting for closed acting	With Contact fitting	With M3 port	With M5 port	With hose nipple					
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

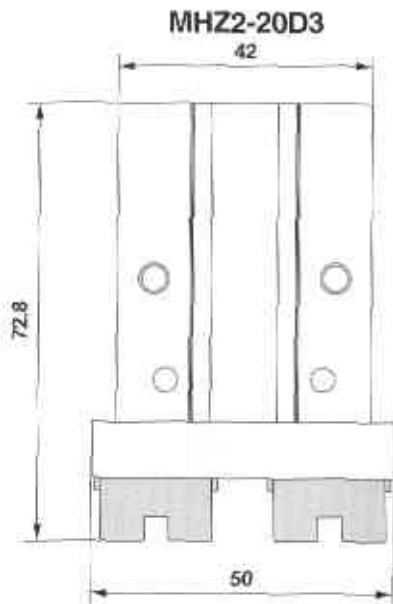
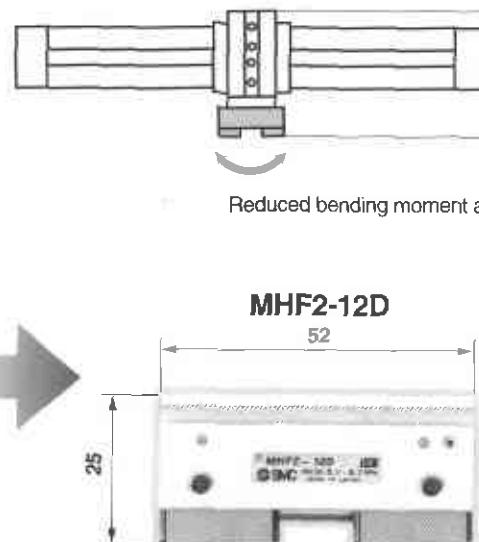
Finger	Series	Description	Bore size (mm)										
			16	20	25	32	40	50	63	80	100	125	
2 Finger	Series MHS2	Gripping of diverse workpieces	•	•	•	•	•	•	•	•	•	•	•
			•	•	•	•	•	•	•	•	•	•	•
3 Finger	Series MHS3	Axial gripping of cylindrical workpieces	•	•	•	•	•	•	•	•	•	•	•
			•	•	•	•	•	•	•	•	•	•	•
3 Finger	Long stroke Series MHSL3	Accommodates a wide range of workpiece diameters	•	•	•	•	•	•	•	•	•	•	•
			•	•	•	•	•	•	•	•	•	•	•
4 Finger	Series MHS4	Positioning of square workpieces	•	•	•	•	•	•	•	•	•	•	•
			•	•	•	•	•	•	•	•	•	•	•

Parallel Grippers

Series MH

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.

Bore size	Height (mm)
8	19
12	25
16	33
20	41

Low profile design

Reduced bending moment and vibration

MHF2-12D 52

25

Height is approximately 1/3 the size of an equivalent Series MH2.

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

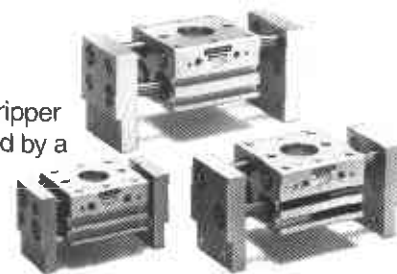
Refer to catalog ES20-166A

Cylinder/Actuator

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

Parallel Grippers

How to Order

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 •

Number of auto switches

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

Nil	2 pcs.
S	1 pc.

Auto switch model

Refer to catalog for switch selection.

Body option

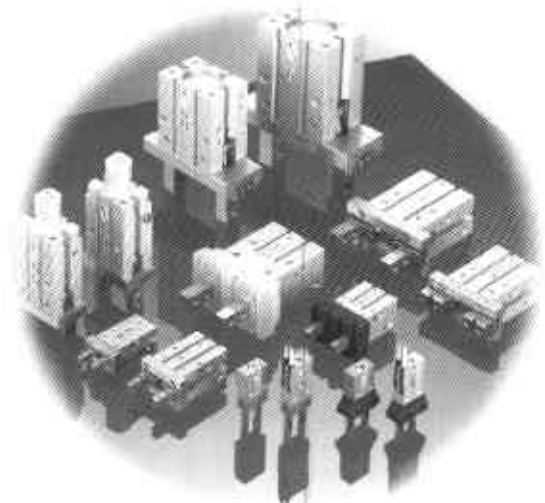
Nil	Basic type
E	End boss side ported*
K	End boss axial one-touch fitting† **
M	End boss axial M5 port†
W	End boss axial coaxial fitting‡ **

† Single-acting only

‡ Double-acting only

* D, S action, basic and N type fingers only

** basic and N type fingers only



Parallel Grippers

How to Order

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

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

Dust cover

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

* See page 2502.040 for replacement covers.

Body option

NII	Basic type
E	End boss side ported*
H	End boss axial hose nipple†
K	End boss axial one-touch fitting† *
M	End boss axial M5 port†

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

Cylinder/Actuator

Parallel Gripper – Series MHZJ2

MHZJ 2 - 16 **D** [] [] - **F9PV** []

Number of fingers

Bore size

6	8mm
10	10mm
16	16mm
20	20mm
25	25mm

Action

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

Body option

NII	Basic type
E	End boss side ported
K	End boss axial one-touch fitting†
M	End boss axial M5 port†
W	End boss axial coaxial fitting‡

† Single-acting only
‡ Double-acting only

Number of auto switches

NII	2 pcs.
S	1 pc.

Auto switch model

Refer to page 4572.010 for switch selection.

Dust cover

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

Parallel Grippers

How to Order

2/3/4 Finger Air Gripper

Wedge Cam Gripper – Series MHS/MHSL

MHS L 3 - 20 D - [] S

- Stroke**


NII	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**
- Number of auto switches**

NII	2 pcs.
S	1 pc.
- Auto switch model**
Refer to catalog for available auto switches.



3 Finger Air Gripper with Center Pusher/Dust Cover

Gripper with Boot and Pusher – Series MSHH3/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**
- Auto switch model**
Refer to page 4572.010 for switch selection.
- Number of auto switches**


NII	2 pcs.
S	1 pc.
- Dust cover type***

NII	Chloroprene rubber (CR)
F	Fluoro rubber (FKM)
S	Silicon rubber (SI)

* Dust cover J, HJ type only.
- Center pusher type***

NII	Without center pusher
A	Cylinder type
B	Spring type

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



Parallel Grippers

How to Order

Low Profile Air Gripper

Rack and Pinion Gripper – Series MHF2

MHF2 - 12 D - - - F9B -

Bore size

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

Number of auto switches

Nil	2 pcs
S	1 pc

Stroke length

Nil	Short stroke
1	Middle stroke
2	Long stroke

Auto switch model

Refer to catalog for available auto switches.

Body option

Nil	End ports
R	Side ports



Cylinder/Actuator

Wide Opening Gripper – Series MHL2

MHL 2 - 16 D 2 - - - S

Wide opening gripper

Number of fingers

2	2 fingers
---	-----------

Number of auto switches

Nil	2 pcs
S	1 pc

Bore size

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

Applicable auto switch

See catalog for applicable switches.

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

Acting

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



Angular Grippers

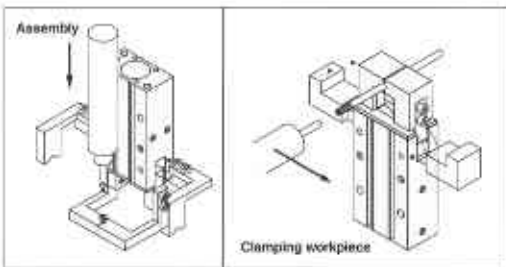
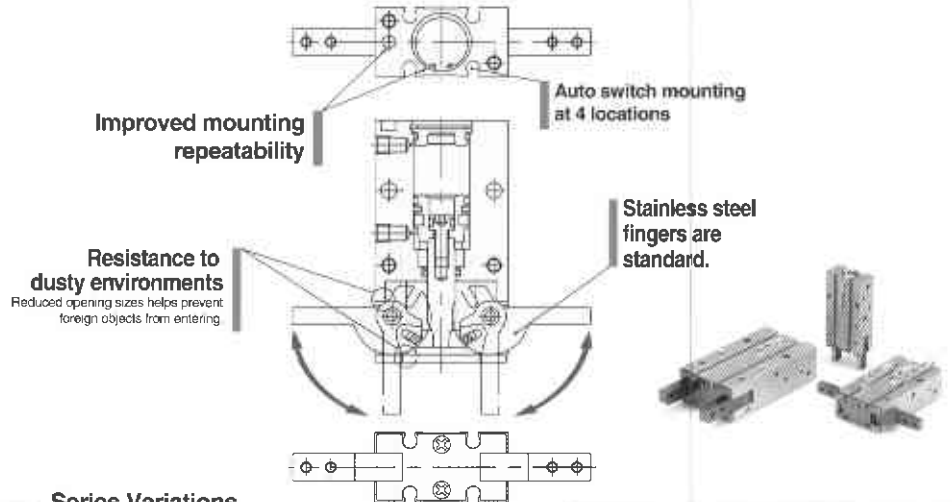
Series **MH**

MHY2/MHW2 180° Angular Grippers

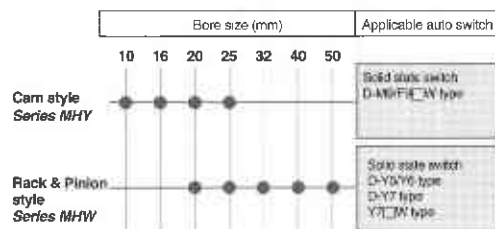
Cam Style — Light and compact size in small bore sizes

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



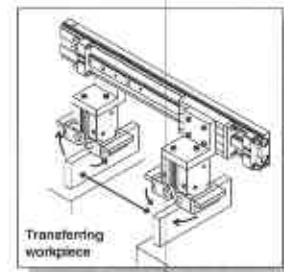
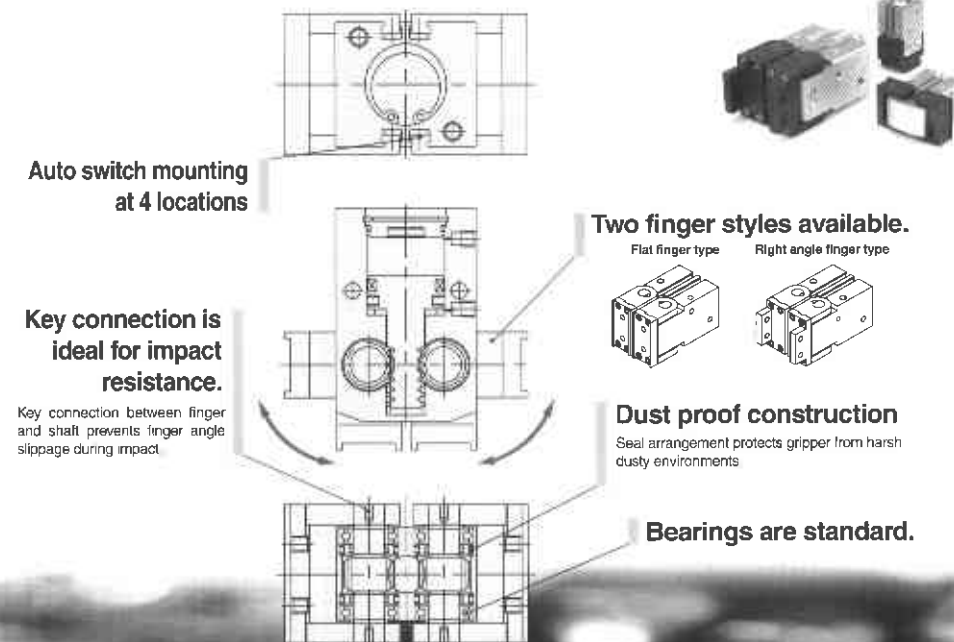
Series Variations



Model	Bore size (mm)	Gripping moment (Nm)	Overlength (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 Gripping force when opening and closing fingers. (PAT.PEND)



Model	Bore size (mm)	Gripping moment (Nm)	Overlength (mm)	Weight (g)
MHW2-20D	20	0.30	86	300
MHW2-25D	25	0.70	78	510
MHW2-32D	32	1.81	93.5	900
MHW2-40D	40	3.70	117.5	2100
MHW2-50D	50	8.27	164	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 from 30 to –10 degrees. Speed adjustments and heat-treated carbon steel fingers are standard.



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

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

Fluid	Air
Operating pressure	0.15 to 0.6 MPa
Double acting	
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)	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 (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 12-3-3 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 (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.

Model/Specifications

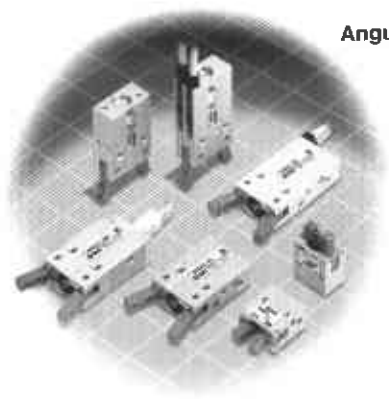
Model	MHT2-33D	MHT2-40D	MHT2-50D	MHT2-63D
Bore size (mm)	32	40	50	63
Action	Double acting			
Fluid	Air			
Operating pressure	0.1 to 0.6 MPa			
Ambient and fluid temperature	5 to 60°C			
Lubrication	Not required			
Finger opening angle (Total)	-3 to 28	-3 to 27	-2 to 23	-2 to 23
Weight (kg)	0.80	1.09	1.93	2.8
Gripping moment ⁽¹⁾ (Effective value) (N·m)	12.4	36.0	63.0	108

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	18mm
20	20mm
25	25mm

Number of auto switches

Nil	2 pcs
S	1 pc

Applicable auto switch
See catalog for available auto switches.

Action

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

180° Opening Gripper – Series MHY2

MHY 2 - 16 D 2 - M9NL S

2 2 fingers

2	2 fingers
---	-----------

Bore size

10	10mm
16	18mm
20	20mm
25	25mm

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch
Nil Without auto switch
See catalog for available auto switches.

Action

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

Finger option

Nil: Standard tap mounting 2: Opening/closing direction through hole



Angular Grippers

How to Order

180° 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)
-----	---

Number of auto switches

Nil	2 pcs.
S	1 pc.

See catalog for available auto switches.



Cylinder/Actuator

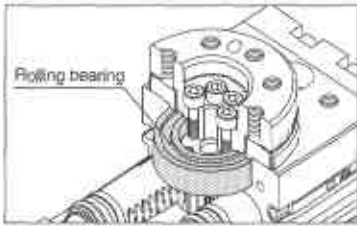
Rotary Table/Rack-and-Pinion Type

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)

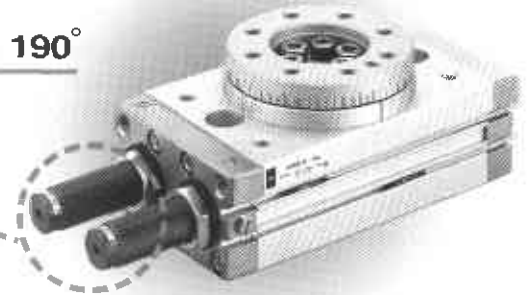


Pivoting angle adjustment range: 0 to 190°

With internal shock absorber

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

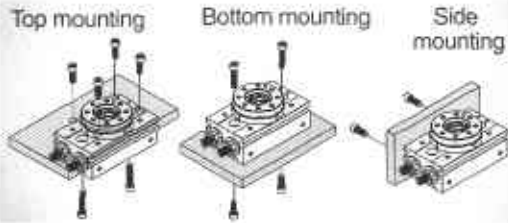
Basic type
MSQB



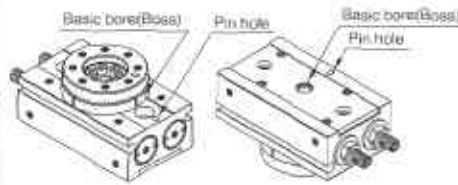
Flexible mounting

Compact design also saves space for wiring and piping.

Free mounting

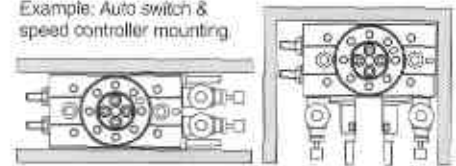


Easy alignment for mounting



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

Example: Auto switch & speed controller mounting



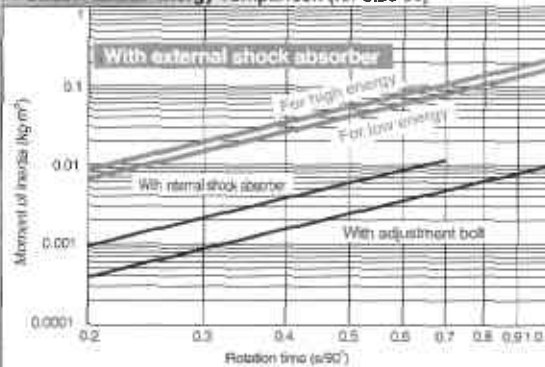
External shock absorber types

4 to 10 times more allowable kinetic energy

(Compared with external 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.

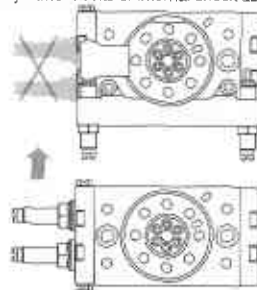
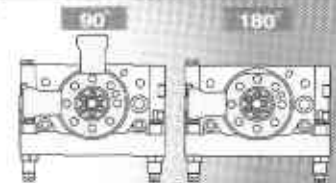
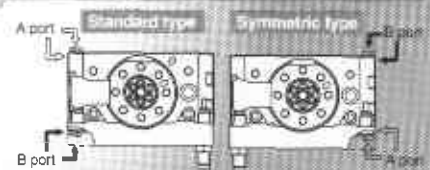


Table height is the same for both types with adjustment bolts or internal shock absorbers.

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 shock absorbers
L	External low-energy shock absorbers
R	Internal shock absorbers

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

Options

NII	PT ports
XN	NPT ports

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

No. of Switches

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

Lead wire length

NII	0.5m
L	3m
Z	5m

Applicable Auto Switch

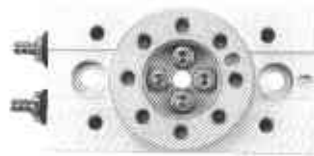
Refer to catalog for available auto switches.

Connection port position & rotation angle*

NII	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.

Cylinder/Actuator



Refer to catalog E20-92F

Auto Switch

Series **D*****

Lead Free Solder

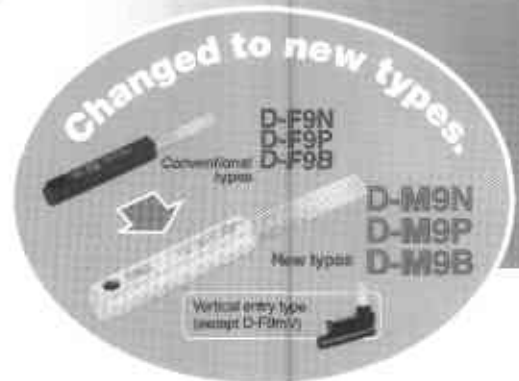
Dimensions and the most sensitive positions are same as the conventional types.



D-M9N (3-wire, NPN output)

D-M9P (3-wire, PNP output)

D-M9B (2-wire)



Range of load current:

2.5 to 40 mA (2-wire)

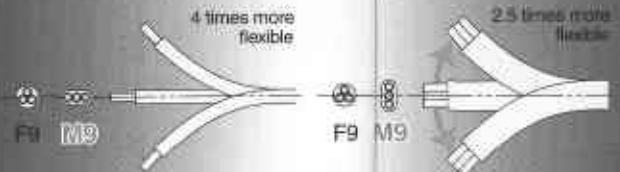
New types
D-M9B
2.5 to 40 mA



Conventional types
D-F9B
5 to 40 mA

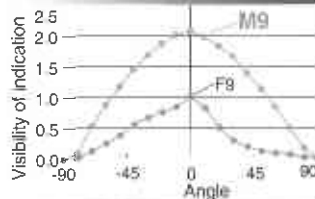
Improved lead wire : **4 times** the flexibility

Flexible lead wire is available as standard.



Indicator Light:
Twice the brightness

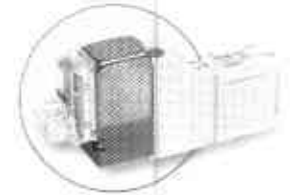
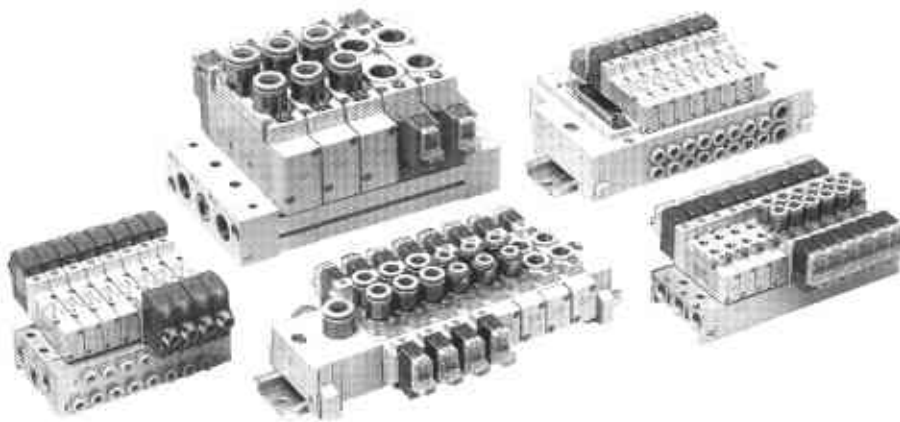
Control point brightness improved at 0 angle compared to the previous F9 series.



Pre-wired connector



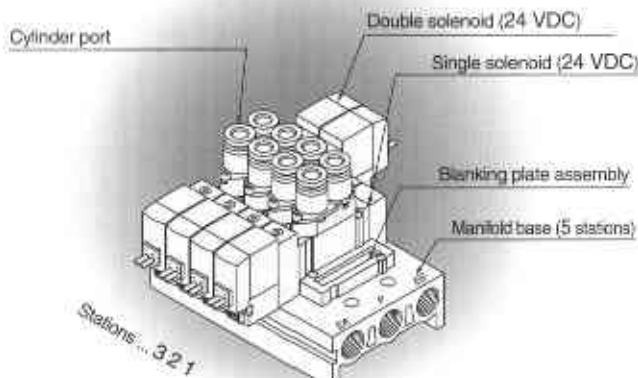
5-port Solenoid Valve Series SY



Improved pilot valve performance

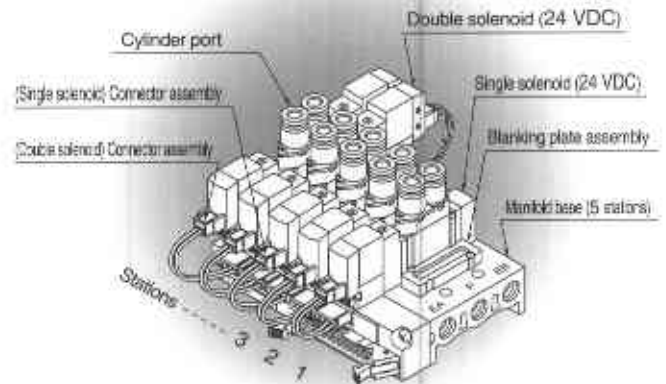
- Power consumption: 0.35W (standard) and 0.10W (with power saving circuit)
- Improved pilot valve strength by use of stainless steel pilot valve cover

Body Ported Bar Stock Base/Individual Wiring



Maximum number of stations 20

Body Ported Bar Stock Type/Flat Ribbon Cable

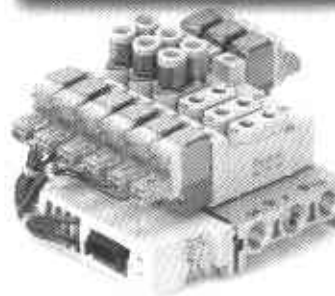


Maximum number of stations 20

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)

Bracket

NII	None
F1	Foot (Single solenoid only)
F2	Side

Port Size (A&B)

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

Manual Override

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

Option

NII	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)

Manifold

SS5Y 5 20 [] 05 00T

Valve Series

3	SY3000
5	SY5000
7	SY7000

Electrical Connection

NII	Individual electrical wiring
P	Flat ribbon cable connector

P, R, Ports

NII	PT
00T	NPT

No. of Stations

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

* Stocked up to 12 stations.

Valves & Manifolds

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	Rubber seal	Applicable cylinder size (mm)
		Cv	Cv	
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

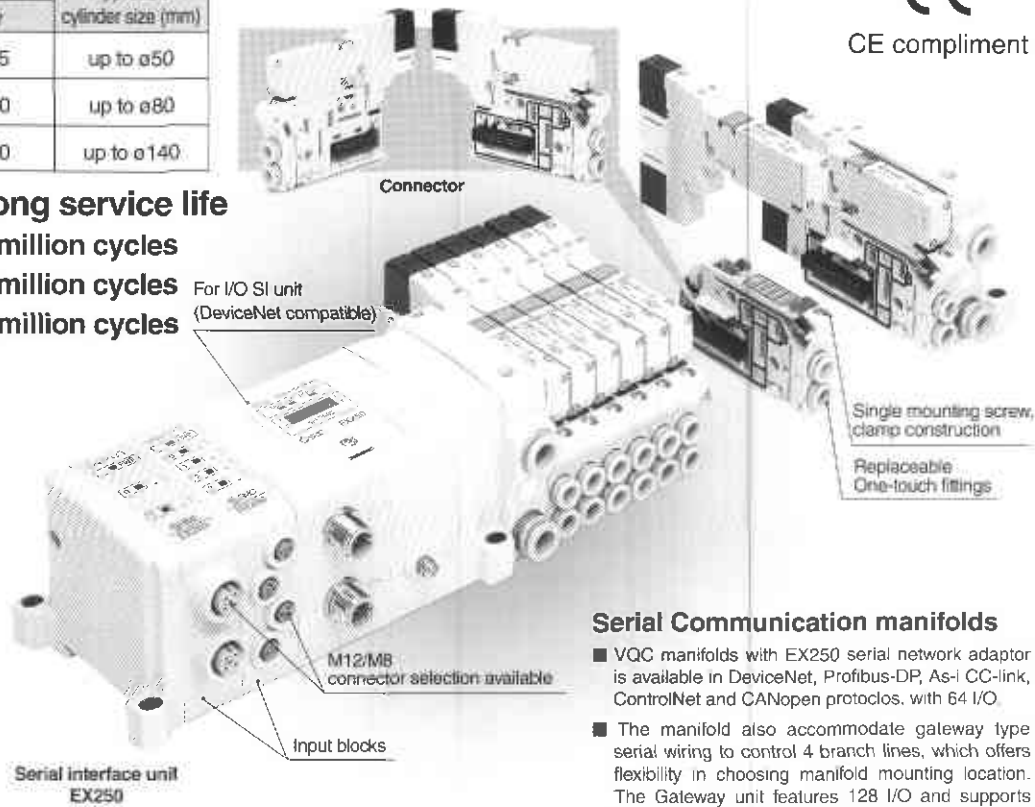
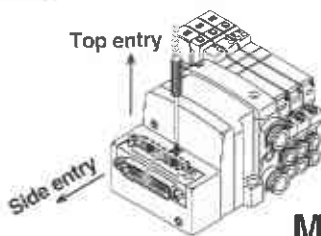
VQC2100: 20 ms 2 ms; 200 million cycles

VQC4100: 17 ms 3 ms; 100 million cycles

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

Available 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

Kit (Serial transmission)	Kit (D-sub connector)	Kit (Flat ribbon cable)	Kit (Terminal block box)	Kit (Lead wire)	Kit (Multiple connector)
Protective enclosure conforms to IP 67			Protective enclosure conforms to IP 67	Protective enclosure conforms to IP 67	Protective enclosure conforms to IP 67

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 N.O.	4-position dual 3-port valve (A)
2	2-position double (metal)	B N.O.	4-position dual 3-port valve (B)
3	2-position double (rubber)	C N.O.	4-position dual 3-port valve (C)
4	3-position closed center	Note) For rubber seal type only.	
5	3-position exhaust center		
6	3-position pressure center		

Note) For rubber seal type only.

Seal type

0	Metal seal
1	Rubber seal

Light/Surge voltage suppressor

Nil	With
E	Without

Note) Not applicable to S Kit

Coil voltage

5	24VDC
6	12VDC

Function

Nil	Standard type (1W)
K (Note 1)	High voltage type (1.0MPa)
NRV	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)

Manual override

Nil: Non-locking push type (Slotted)



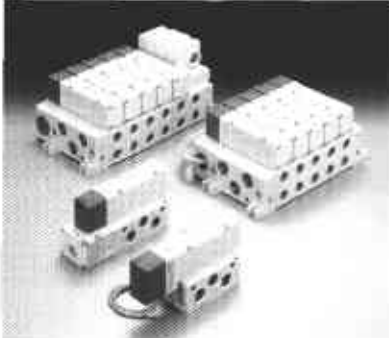
B: Locking type (Slotted)



C: Locking type (Manual)



Also available VQ5000 manifold



Compact large flow (Cv 4.4) manifold valve to drive cylinder size up to $\phi 180\text{mm}$

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.



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

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Coil voltage

5	24VDC
6	12VDC

Function

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

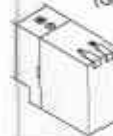
Note) When specifying more than one option, enter symbols in alphabetical order.

Seal type

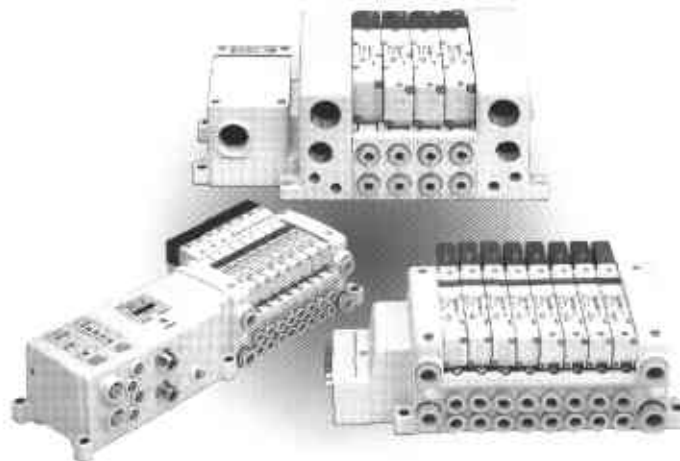
0	Metal seal
1	Rubber seal

Manual override

Nil: Non-locking push type (Slotted)



B: Locking type (Slotted)



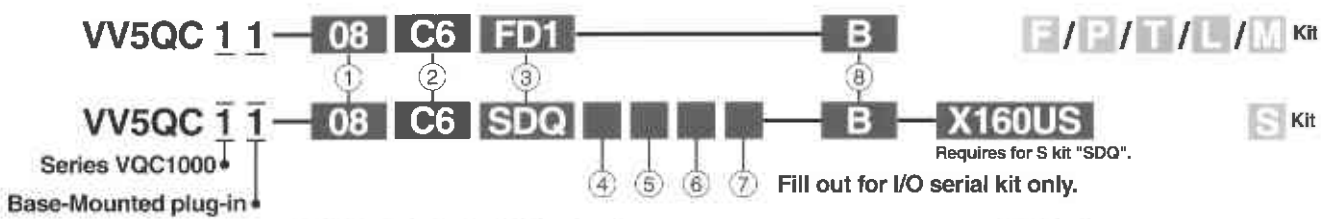
5-port Solenoid Valve

How to Order

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 □.

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

NII	PNP (+) or without SI unit/input block (SD0)
N	NPN (-)

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	
T Kit	PDC	Flat ribbon cable kit (20P) without cable ^{Note 1)}	1 to 9 (18)
	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	
S Kit	MD3	Multi-Connector kit with 5.0m cable	1 to 12 (24)
	Input/Output serial kit (EX250)		
	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	
	SDTB	AS-Interface 4In/4out 31 slave mode 2 isolated common type	
	SDTC	AS-Interface 8In/8out 31 slave mode 1 isolated common type	
	SDTD	AS-Interface 4In/4out 31 slave mode 1 isolated common type	
	SDZCN	ControlNET compatible	
SDY	CANopen compatible		
Decentralized wiring serial kit (EX500)			
SDA1	Serial kit for Remote I/O	1 to 8 (16)	
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".

④ SI unit COM

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

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

⑧ Options

NII	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)

NII	Without SI unit/input block (SD0)
0	Without input block
1	With 1 input block
...	...
8	With 8 input blocks

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

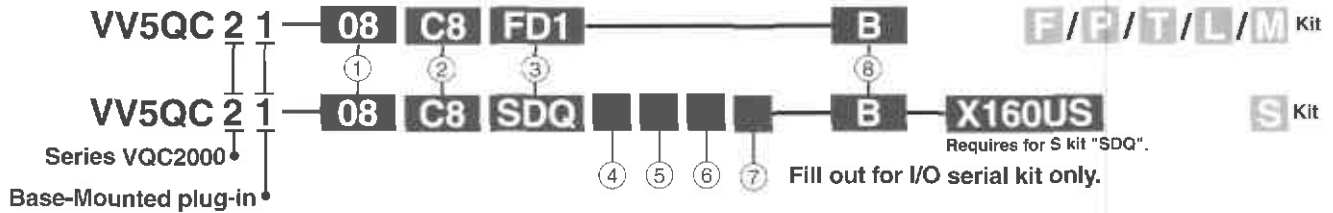
NII	Without input block
1	M12, 2 inputs
2	M12, 4 inputs
3	M8, 4 inputs (3 pins)

Valves & Manifolds

Manifold

Series VQC2000: 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

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 □.

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

NII	PNP (+) or without SI unit/Input block (SD0)
N	NPN (-)

③ Electrical entry/Cable length

	D-side entry	Kit, Cable length	Stations <small>Note 2)</small>
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 <small>Note 1)</small>	
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	
	SDO	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	
	SOTB	AS-Interface 4in/4out 31 slave mode 2 isolated common type	
	SDTC	AS-Interface 8in/8out 31 slave mode 1 isolated common type	
	SDTD	AS-Interface 4in/4out 31 slave mode 1 isolated common type	
	SDZCN	ControlNET compatible	
	SDY	CANopen compatible	
	Decentralized wiring serial kit (EX500)		
	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'.

④ SI unit COM

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

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

⑧ Options

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

* 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)

NII	Without SI unit/Input block (SD0)
0	Without input block
1	With 1 input block
8	With 8 input blocks

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

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

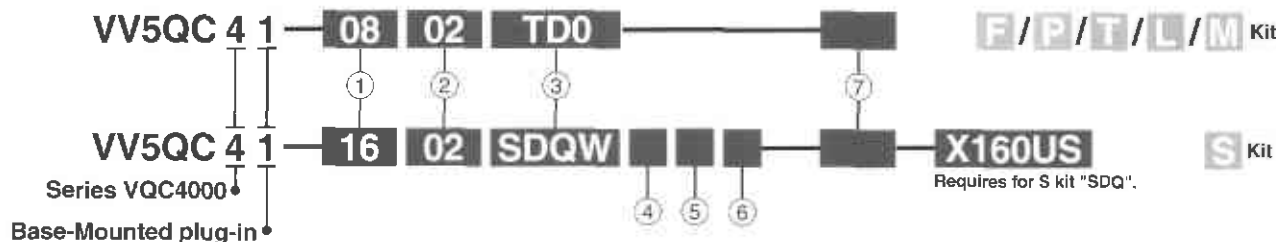
5-port Solenoid Valve

How to Order

Manifold

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

① How to order manifolds



① Stations

01	1 station
1	1

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

② Cylinder port size

C6	With ø6 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

NII	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	
T Kit	PDC	Flat ribbon cable kit (20P) without cable (Note 1)	1 to 9 (18)
	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	
	SD0A1	Serial kit for Remote I/O	
	SDA2	Serial kit PROFIBUS-DP compatible	1 to 12 (24)
	Input/Output serial kit (EX250)		
	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	
	SDTB	AS-Interface 4in/4out 31 slave mode 2 isolated common type	
	SDTC	AS-Interface 8in/8out 31 slave mode 1 isolated common type	
	SDTD	AS-Interface 4in/4out 31 slave mode 1 isolated common type	
	SDZCN	ControlNET compatible	
	SDY	CANopen compatible	
	Input/Output serial kit (EX240)		
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 (SD0W)	PROFIBUS-DP (SDNW)
NII +COM	○	—
N -COM	—	○

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

⑤ Input block

NII	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

NII	PNP (+) or without SI unit/input block (SD0)
N	NPN (-)

⑦ Options

NII	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

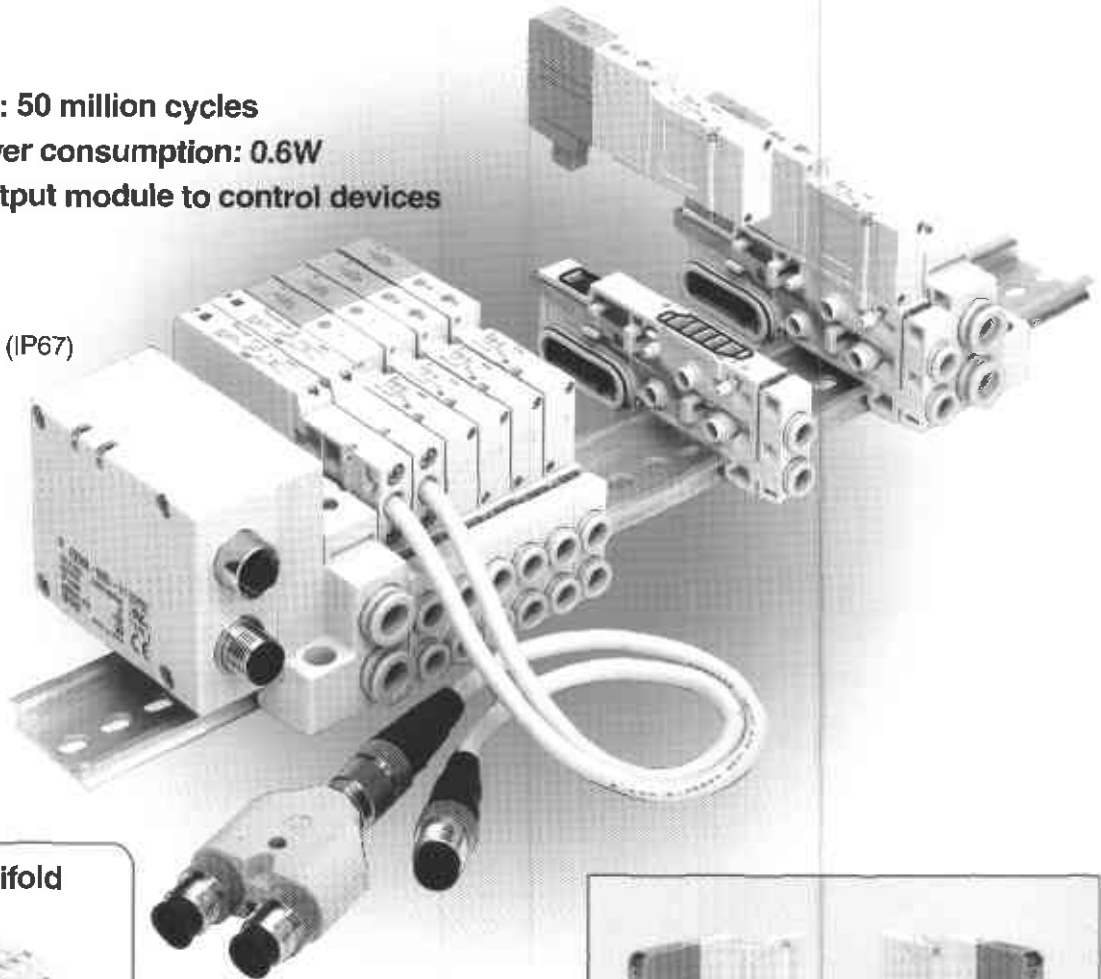
Lateral Plug in Style Manifold
Series SV1000/2000/3000/4000

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

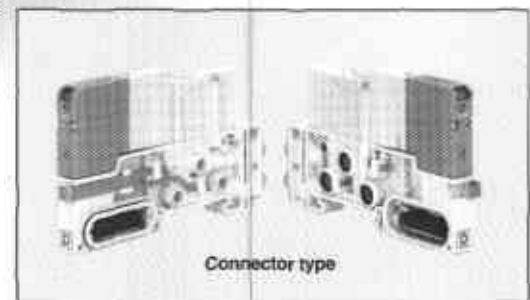
- Decentralized Serial Wiring (IP67)
- Serial Wiring (IP67)
- Circular Connector (IP67)
- D-sub Connector
- Flat Ribbon Connector



Also available SJ manifold



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



5-port Solenoid Valve

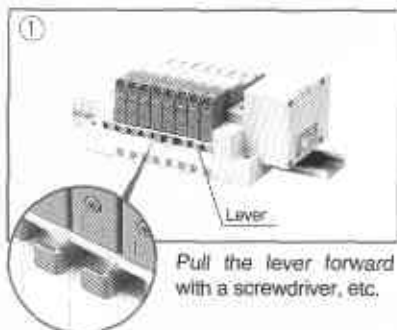
Series SV

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.



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



■ 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	Applicable cylinder size (mm)
		Cv	
SV1000	10.5	0.28	Up to $\phi 50$
SV2000	16.0	0.48	Up to $\phi 80$
SV3000	20.5	0.93	Up to $\phi 100$
SV4000	24.0	1.60	Up to $\phi 125$

■ Interface regulator

To regulate pressure of A or B ports depending on application



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

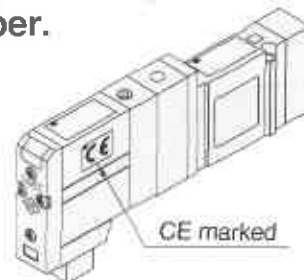
Available configurations [N.C./N.C.], [N.O./N.O.], and [N.C./N.O.].

■ Serial Communication Manifolds

- SV manifolds with EX250 serial network adaptor are available for DeviceNet, Profibus-DP, As-i, CC-link, ContriNet 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 0 0 [] [] - 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

* Available 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

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

Manifold wiring specification (with manifold block only)

Nil	Double wiring
S	Single wiring

Manifold block type

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

Manual Override

Nil	Non-locking push type
D	Slotted locking type

Light/Surge suppressor

U	With light and surge suppressor
R	With surge suppressor only

Rated voltage

5	24VDC
6	12VDC*

* Except EX500, EX250, and EX120 serial manifolds

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		
C5	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	SV4000
03	Rc 3/8		
02F	G 1/4		
03F	G 3/8	G 3/8	SV4000
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		
N8	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		
N8	5/16" one-touch fitting	3/8" one-touch fitting	SV4000
N11	3/8" one-touch fitting		
02N	NPT 1/4		
03N	NPT 3/8	NPTF 3/8	SV4000
02T	NPTF 1/4		
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 – EX500 Decentralized Serial Wiring

Series

1	SV1000
2	SV2000
3	SV3000
4	SV4000

Tie-rod base

Cassette base

SS5V

1 — W 10S A1W D — 05 U

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

Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring specification (Note 1)
...	...	
08	8 stations	Specified layout (Note 2) (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	ø10 One-touch fitting	SV2000
C4	ø4 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV3000
C8	ø8 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV4000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting	Rc 3/8	SV4000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting	G 3/8	SV4000
C12	ø12 One-touch fitting		
02	Rc 1/4	G 3/8	SV4000
03	Rc 3/8		
D2F	G 1/4	G 3/8	SV4000
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	ø3/8" One-touch fitting	SV2000
N3	ø5/32" One-touch fitting		
N9	ø5/16" One-touch fitting	ø3/8" One-touch fitting	SV3000
N7	ø1/4" One-touch fitting		
N9	ø5/16" One-touch fitting	ø3/8" One-touch fitting	SV4000
N11	ø3/8" One-touch fitting		
N9	ø5/16" One-touch fitting	NPT 3/8	SV4000
N11	ø3/8" One-touch fitting		
02N	NPT 1/4	NPTF 3/8	SV4000
03N	NPT 3/8		
02T	NPTF 1/4	NPTF 3/8	SV4000
03T	NPTF 3/8		
M	A, B ports mixed		

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

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	

Valves & Manifolds

5-port Solenoid Valve

How to Order

Manifold – EX250 Serial Wiring with Input/Output Unit

• Tie-rod base

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

Series

1	SV1000
2	SV2000
3	SV3000

Enclosure
IP67 specification

*Required for SI unit "QW" option.

Mounting

Nil	Direct mount
D	DIN rail mount (with DIN rail)
D0	DIN rail mount (without DIN rail)
D3	For 3 stations. Specify a rail longer than the standard length.
:	:
D20	For 20 stations

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

SI unit specification

QW	For DeviceNet
NW	For PROFIBUS-DP
VW	For CC-Link
TAW	For AS-interface 6in/8out, 31 slave mode, 2 insulated common type
TBW	For AS-interface 4in/4out, 31 slave mode, 2 insulated common type
TCW	For AS-interface 6in/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 block stations

Nil	None
1	1 station
:	:
8	8 stations

Note) Without SI unit, the symbol is nil.

- 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 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	Specified layout (Up to 32 solenoids possible.) Note 2)
02	2 stations	
:	:	
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.

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

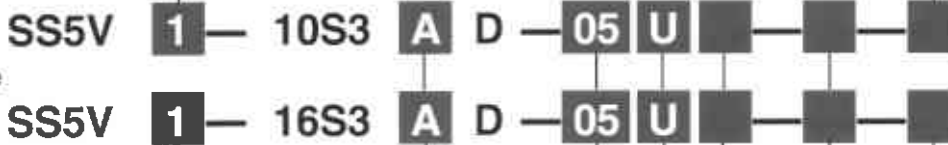
How to Order

Manifold – EX120 Dedicated Serial Wiring

• Tie-rod base

• Cassette base

Series	
1	SV1000
2	SV2000
3	SV3000
4	SV4000



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.

Symbol	Stations	Note
02	2 stations	Double wiring specification Note 1)
8	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.)

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		
C5	ø5 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		

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

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		

Mounting

N11	Direct mount	
D	DIN rail mount (with DIN rail)	
D0	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

	Standard length	
N11		
3	For 3 stations	Specify a rail longer than the standard length.
...	...	
20	For 20 stations	

Supply/Exhaust block assembly specification

N11	Internal pilot specification
S	Internal pilot/Built-in silencer
R	External pilot specification
RS	External pilot/Built-in silencer

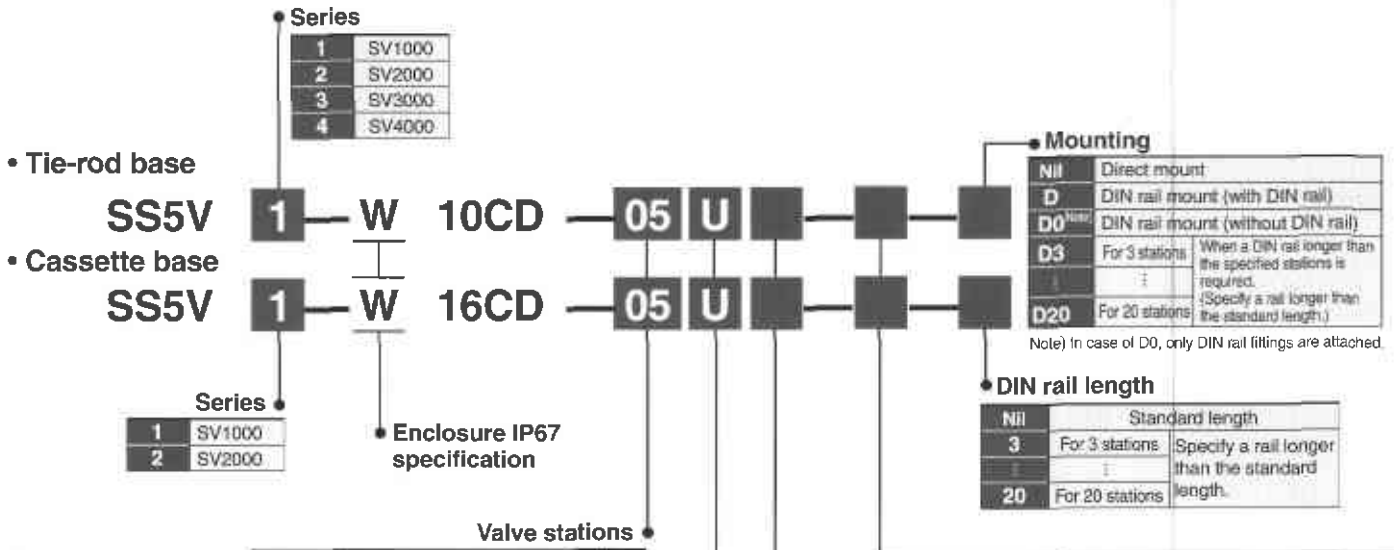
P, E port position

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

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 ^{Note 1)}	
	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 ^{Note 2)}	
	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	ø10 One-touch fitting	SV2000
C4	ø4 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV3000
C8	ø8 One-touch fitting		
C6	ø6 One-touch fitting	ø12 One-touch fitting	SV4000
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting		
C8	ø8 One-touch fitting		
C10	ø10 One-touch fitting		
C12	ø12 One-touch fitting		
O2	Rc 1/4	Rc 3/8	SV4000
O3	Rc 3/8		
O2F	G 1/4	G 3/8	
O3F	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	ø3/8" One-touch fitting	SV2000
N3	ø5/32" One-touch fitting		
N7	ø1/4" One-touch fitting	ø3/8" One-touch fitting	SV3000
N9	ø5/16" One-touch fitting		
N7	ø1/4" One-touch fitting	ø3/8" One-touch fitting	SV4000
N9	ø5/16" One-touch fitting		
N11	ø3/8" One-touch fitting		
N11	ø3/8" One-touch fitting		
O2N	NPT 1/4	NPT 3/8	SV4000
O3N	NPT 3/8		
O2T	NPTF 1/4		
O3T	NPTF 3/8		
M	A, B ports mixed		

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

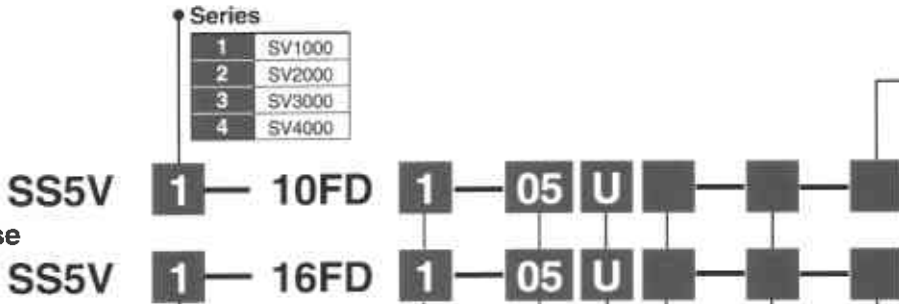
5-port Solenoid Valve

How to Order

Manifold – D-sub Connector

• Tie-rod base

• Cassette base



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 ^{Note 1)}	
	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 ^{Note 2)}	
	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.

Mounting

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

When a DIN rail longer than the specified stations is required. [Specify a rail longer than the standard length.]

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

DIN rail length

Nil	Standard length
3	For 3 stations
:	:
20	For 20 stations

Specify a rail longer than the standard length.

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)

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.

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		
O2	Rc 1/4	Rc 3/8	SV4000
O3	Rc 3/8		
O2F	G 1/4		
O3F	G 3/8	G 3/8	SV4000
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		
O2N	NPT 1/4		
O3N	NPT 3/8	NPT 3/8	SV4000
O2T	NPTF 1/4		
O3T	NPTF 3/8		
M	A, B ports mixed		

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

Valves & Manifolds

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

Mounting

Nil	Direct mount
D	DIN rail mount (with DIN rail)
<small>Note</small> D0	DIN rail mount (without DIN rail)
D3	For 3 stations
⋮	⋮
D20	For 20 stations

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

Tie-rod base
SS5V 1 — 10 P D 1 — 05 U

Cassette base
SS5V 1 — 16 P D 1 — 05 U

Series

1	SV1000
2	SV2000

Connector entry direction

1	Upward
2	Lateral

Valve stations

Series	Double wiring specification <small>(max1)</small>					
	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 <small>(max2)</small>					
	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

DIN rail length

Nil	Standard length
3	For 3 stations
⋮	⋮
20	For 20 stations

Specify a rail longer than the standard length.

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)

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.

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

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		
O2	Rc 1/4	Rc 3/8	SV4000
O3	Rc 3/8		
O2F	G 1/4		
O3F	G 3/8	G 3/8	SV4000
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
N5	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		
O2N	NPT 1/4		
O3N	NPT 3/8	NPT 3/8	SV4000
O2T	NPTF 1/4		
O3T	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

Interface regulator

Series SV1000

SV1 0 00 - 05 - P

• Applicable valve

0	For single and double
3	For 3-position

• 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)

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

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

• 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)

Option

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

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*

NII	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

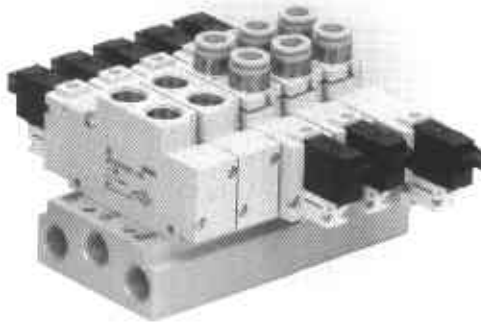
Series	Port size
SV2000	1/8
SV3000	1/4
SV4000	

3/5-port Solenoid Valve

Series **VQZ**

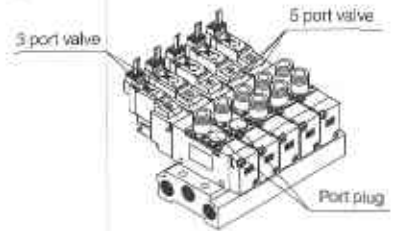
5 Port Solenoid Valve Metal Seal/Rubber Seal Body Ported

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



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	0.55	0.81	Up to ø100



DIN terminal is available with IP65 enclosure.

Built-in One-touch fittings for easier piping.

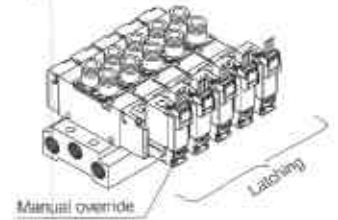
All solenoids on one side

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.

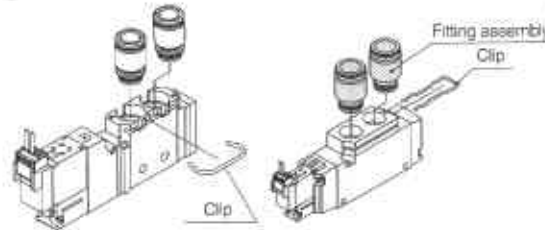
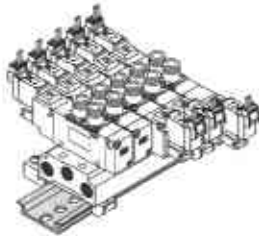
High speed and long service life

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

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



DIN rail mounting



VQZ1000/2000

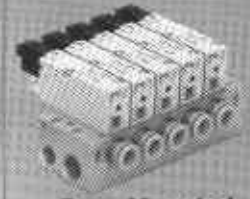
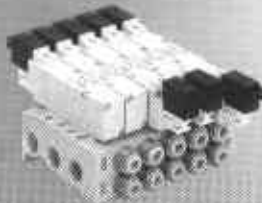
VQZ3000

5 Port Solenoid Valve Metal Seal/Rubber Seal Base Mounted

3 Port Solenoid Valve Metal Seal/Rubber Seal

Model	Manifold pitch (mm)	Flow Cv		Cylinder size
		Metal seal	Rubber seal	
VQZ1000	10	0.17	0.32	Up to ø53
VQZ2000	15	0.40	0.53	Up to ø100
VQZ3000	18	0.74	1.20	Up to ø100

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

Sub plate (A port)

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

Manual override

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

Electrical entry

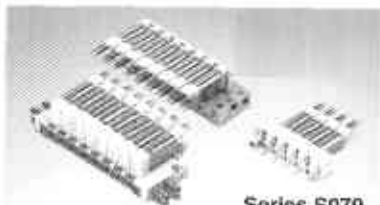
Symbol	Description	Light	Surge suppressor
G	Grommet (DC voltage only)	Without	Without
L	L type plug connector with 300mm lead wire	With	With
LO	L type plug terminal without lead wire	With	With
M	M type plug connector with 300mm lead wire	With	With
MO	M type plug terminal without lead wire	With	With

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.

Option

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

Port size (A port)

N1T	One-touch fitting for 1/8"
N3T	One-touch fitting for 3/32"
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

3/5-port Solenoid Valve

How to Order

3-port Body Ported

VQZ [] [] 5 [] - 5 L [] - N7 - PR []

Series

1 VQZ100 Body width 10mm

Symbol

1 N.C.

Pilot valve specifications

NII	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.

Bracket

Nil	Without bracket
F	With bracket

Porting option

Nil	Manifold mounting
PR	Body ported

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

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

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.

DIN rail mount

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

P, R port threads

Nil	PT threads
00T	NPTF threads

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.

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	—	○

IP65 option (Y, YZ only)

Nil	Standard
W	IP65 rated

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
Y	DIN connector	Without	Without
YZ	DIN connector	With	With

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

Option

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

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	—	○

3/5-port Solenoid Valve

How to Order

3-port Body Ported

Valve

VQZ **2** **1** **2** - **5** **L** - **N7T** - **Nil**

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
g*	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

Bracket

Nil	Without bracket
F	With bracket

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 Norm.)	○	—
O2T	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 Norm.)	○	—
O2	1/4PT thread	—	○

IP65 option (Y, YZ only)

Nil	Standard
W	IP65 rated

Manual override

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

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

DIN rail mount

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

P, R port threads

Nil	PT threads
00T	NPTF threads

3/5-port Solenoid Valve

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.

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	—	—	○

IP65 option (Y, YZ only)

Nil	Standard
W	IP65 rated

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
Y	DIN connector	Without	Without
YZ*	DIN connector	With	With

* DIN connectors available on VQZ2000, 3000 only.

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.

Option

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

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

Valves & Manifolds

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

Bracket

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

Port size (A, B port)

VQZ1000	VQZ2000	VQZ3000
M5	M5	O2
N1	M5T	O2T
N3	N3T	N7T
N7	N7T	N9T
C3	C4	N11T
C4	C6	C6
C6		C8
		C10

IP65 option (Y, YZ only)

Nil	Standard
W	IP65 rated

Manual override

Nil	Non locking push type
B	Slotted locking type (Toof 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
Y*	DIN connector	Without	Without
YZ*	DIN connector	With	With

* DIN connectors available on VQZ2000, 3000 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
10	10 stations
20	20 stations

* Stocked up to 12 stations.

P, R port threads

NII	PT threads
00T	NPTF threads

DIN rail mount

NII	None
D	DIN rail mounting

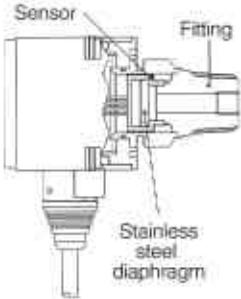
Digital Pressure & Vacuum Switches

ISE & ZSE

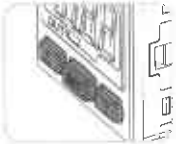


- Dual-Color Red & Green Display
- Bright Low-Watt Transmission Type LCD
- NPN, PNP, or Analog Output
- Easy-to-Operate Rubber Pushbuttons

Water-resistant Model



More user-friendly controls

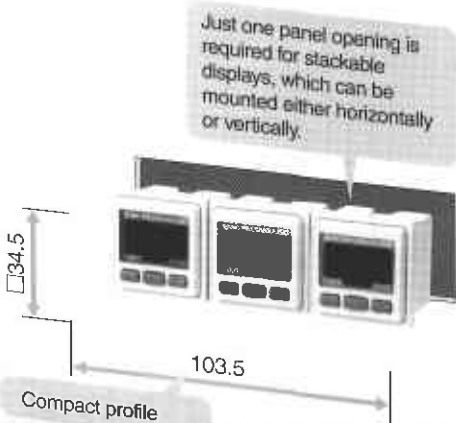


Raised rubber button controls are clearly set apart, simple to operate, soft to the touch.



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

Compact side-by-side mountable



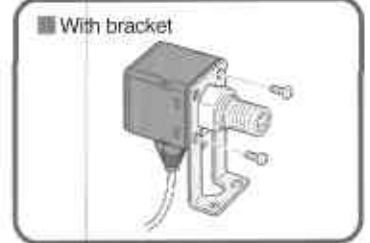
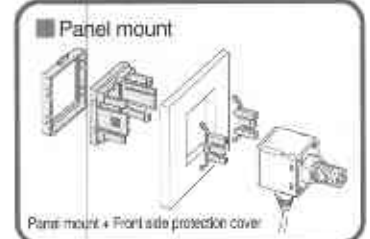
Many advanced, functions, including adjustable response, calibrate-to-others function, automatic preset, and more.



For vacuum and low pressure
ZSE30 Series

For positive pressure
ISE30 Series

Panel-mount and Angle Brackets Available



Protective Face Cover



Non-display Model

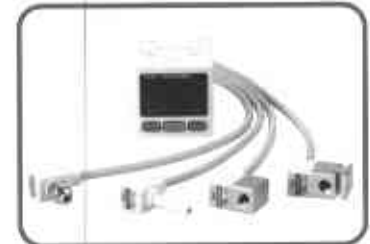


With one-touch fitting

Straight type Elbow type



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

Option

Nil	None
A	L bracket
B	Panel mount
D	IP66 cover

Lead wires

Nil	No lead wires
L	2m lead wire with connector

Output type

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

Unit specification

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

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

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, C6, M5
E	Panel mount	ZS-22-A None
F	Panel mount w/cover	ZS-24-C None

Display units

Nil	Switchable
M	Fixed

Lead length

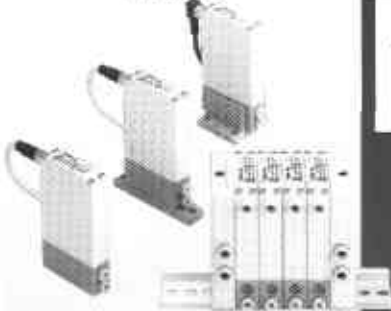
Nil	0.6m
L	0.3m

Series ISE40, ZSE40

Electro-Pneumatic Regulator

Series **ITV**

ITV000 Low-flow Compact Models

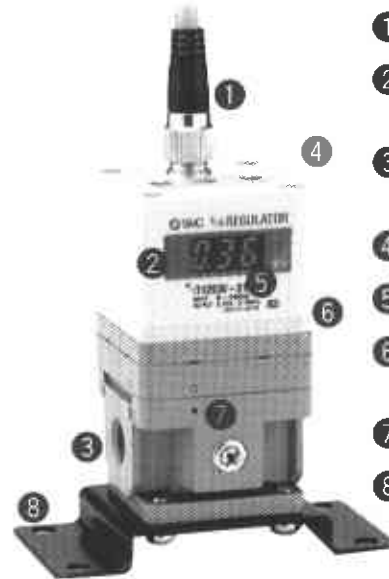
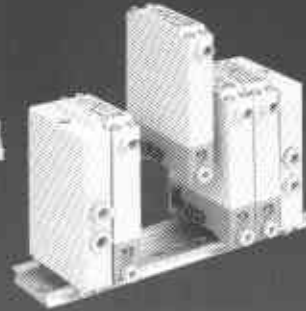
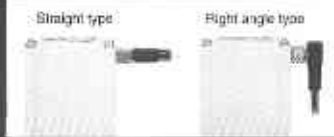


- Built-in One-touch fitting
- With error indication LED
- Brackets

Flat and L brackets are available.

Cable connectors

Straight type and right angle type are available.



- 1 Easy connection
- 2 High performance (linearity $\pm 1\%$ 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



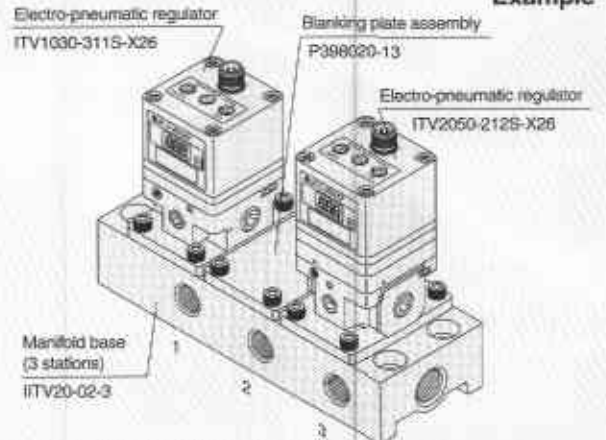
Vacuum control model



Manifolds available IITV20



How to Order Manifold Assemblies

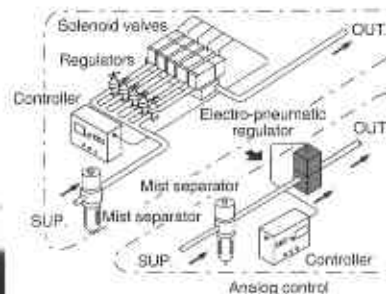


Note 1) Electro-pneumatic regulators are counted starting from station 1 on the left side with the OUT ports in front.

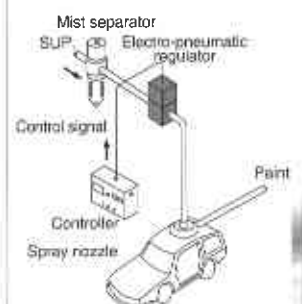
Note 1)

Application example

Analog multistage control



Control of electro-static spraying



Electro-Pneumatic Regulator

How to Order

ITV¹/₃20 1 0 01 2 S

Pressure Range

1	0.1MPa (45.5 PSI)
3	0.005 to 0.5MPa (72.5 PSI)
6	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

Display Units

NII	MPa†
2	kgf/cm ² *1
3	bar*†
4	PSI*†
5	kPa

†Not available ITV209C
*Made to order

Cable

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

*Made to order

Bracket

NII	Without bracket
B	Flat bracket*
C	L bracket*

*Made to order or purchase separately

Port Size

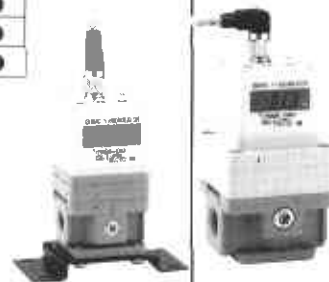
		1000	2000	3000
1	1/8"	●		
2	1/4"	●	●	●
3	3/8"		●*	●
4	1/2"			●

*Not available ITV209□

Port Thread

NII	Rc
N	NPT*
T	NPTF*
F	G*

*Made to order



Optional Specifications

Code	Description	Options
NII	Standard specification	—
O	CE marked	1, 17, 18, 19
X25	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 display 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