

Series Compatible with Secondary Batteries

Material restriction

Copper metal, Zinc, Nickel
Nickel plating, Zinc chromate

90-Series

Copper metal restriction

Copper metal, Nickel plating

25-Series

For longer life,
low dew point

Material restriction + Lub-retainer

Service life has been improved
with a lub-retainer compared
with SMC's standard models.
Compatible with a low dew
point (-40°C).

91-Series

Low dust

Material restriction + Vacuum port for vacuum suction

Using a vacuum port for
vacuum suction enables
reducing more dust particles
than 90-series.

92-MSQB Series

Dust-tight

Material restriction + Lub-retainer + Heavy-duty scraper

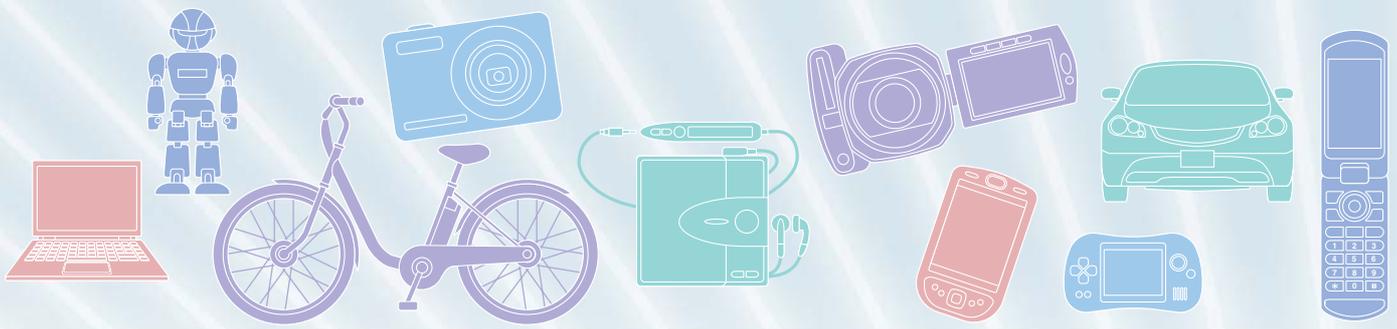
Dustproofing has been
improved with a lub-retainer
and heavy-duty scraper.

91-□-XC4 Series

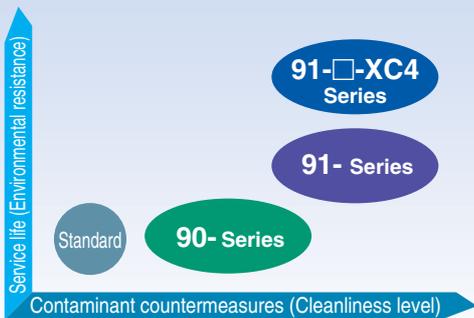
Compatible with
main products
to terminal devices



C-E08-6A



Secondary battery manufacturing process



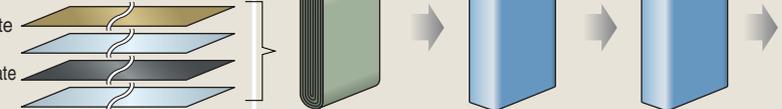
Electrode production

Environment
Copper-free (prohibited materials)/
Dust

Weighing	Kneading	Coating
Dry	Roll	Press

Winding
Layering

Anode plate
Separator
Cathode plate
Separator



Material restriction

90- Series

Restricting material prevents contamination by foreign matter.

90- Series

Material restriction: 90- + Lub-retainer

91- Series

Service life has been improved with a lub-retainer compared with SMC's standard models. Compatible with a low dew point (-40°C).

91- Series

Material restriction: 90- + Lub-retainer: 91- + Heavy-duty scraper

91-XC4 Series

Dustproofing has been improved with a lub-retainer and heavy-duty scraper.

91-XC4 Series

Material restriction: 90- + Vacuum port for vacuum suction

92- Series

Using a vacuum port for vacuum suction enables reducing more dust particles than 90- series.

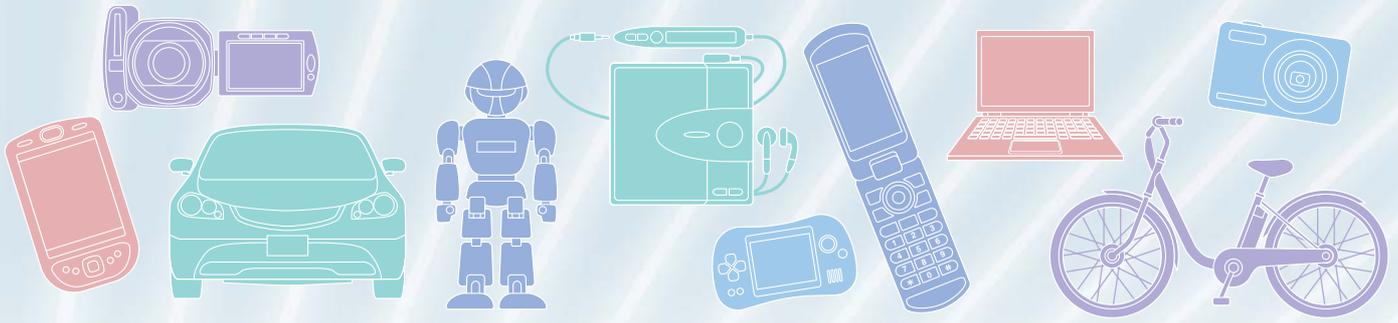
92- Series

Copper metal restriction

25- Series

25- Series

*Depending on the device, some products are not for. See device introduction pages.

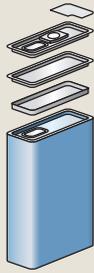
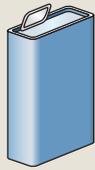
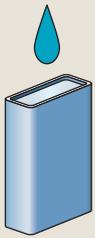


Cell assembly

Environment

Copper-free (prohibited materials)/Low dew point/Chemical resistant/
High-speed, high-frequency specifications

Liquid injection



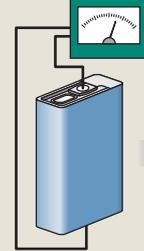
Sealing



Activation



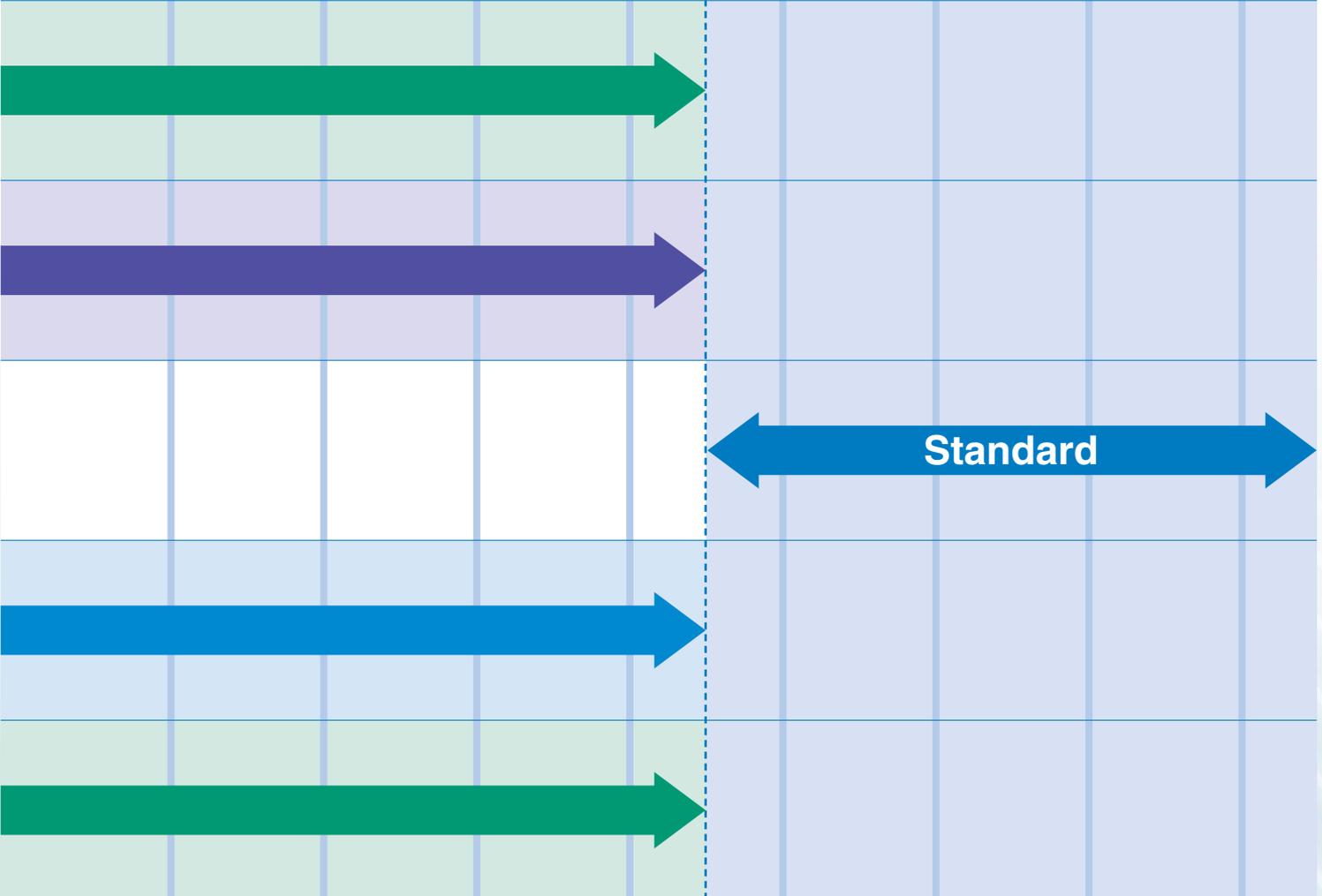
Inspection



Package

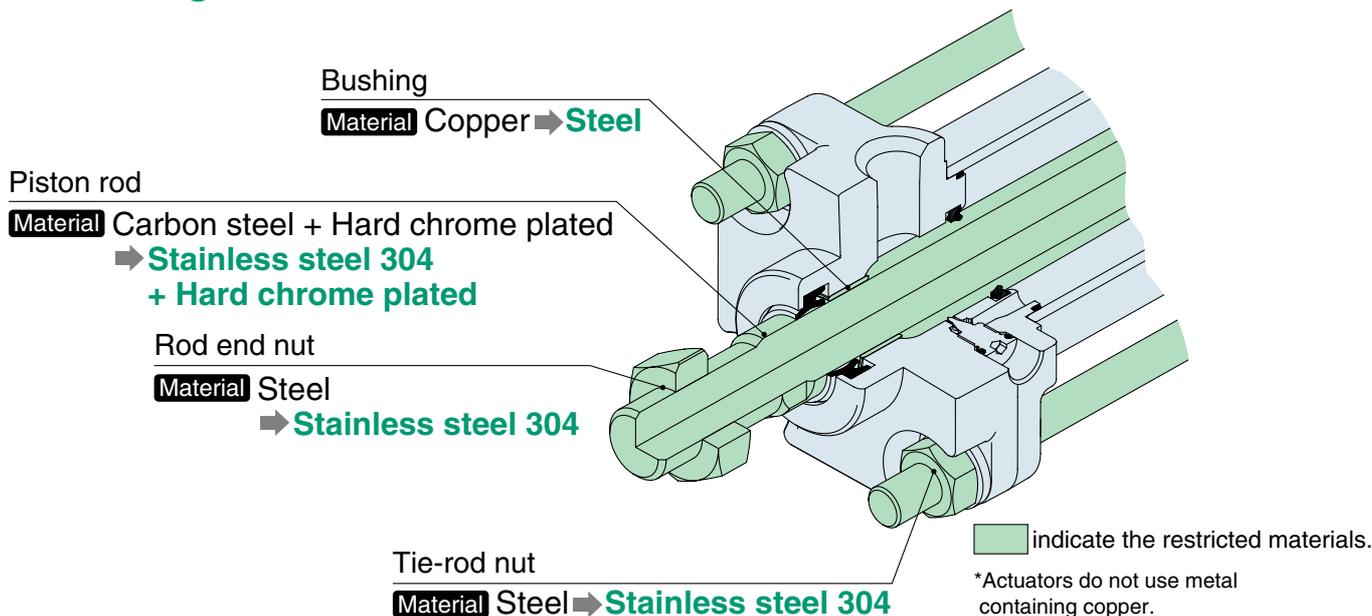


Recommended devices



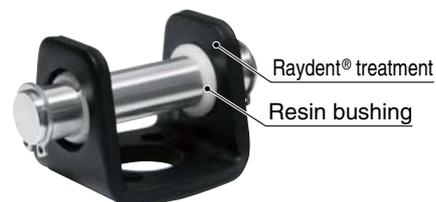
Material restriction 90- Series

Mounting dimensions are the same as those of the standard series.



Mounting Bracket
(Foot style, Trunnion style, Flange style etc.)
Steel + **Raydent® treatment**

Pivot bracket
Resin bushing + Steel + **Raydent® treatment**



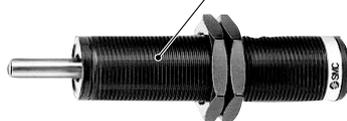
90-91- CDG1 Series Double clevis style

Material Change (Related Products)

Shock Absorber

The outer tube surface treatment has been changed to Raydent® treatment. Using low-dust fluorine grease.

Change of outer tube surface treatment



90-RB Series

Floating Joint

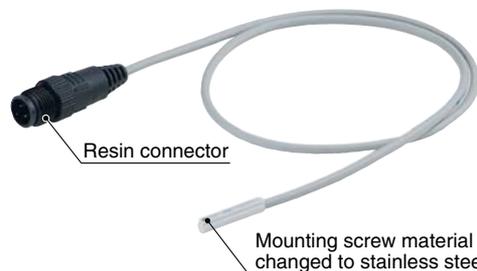
External parts such as casings, studs, threads, and nuts are changed to stainless steel.



90-J□ Series

Auto Switch

The connector material of the auto switch with pre-wired connector has been changed to resin, and the auto switch mounting screw material has been changed to stainless steel.



D-M9BWSRPC-900 Series

*The lead wires and connector pins are made of copper.

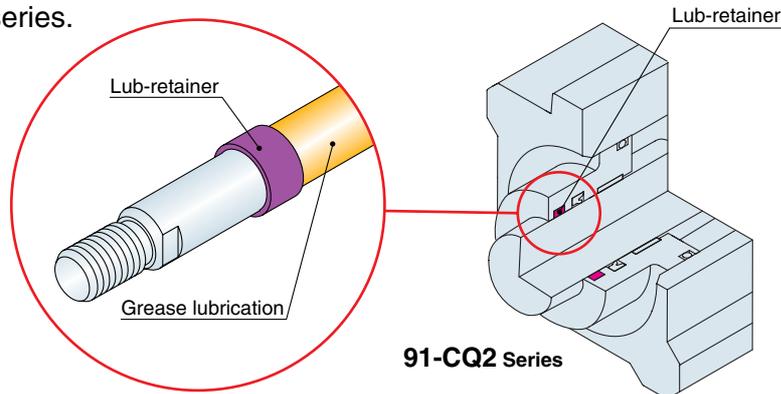
Improved service life 91- Series

Material restriction + Lub-retainer

Service life has been improved with a lub-retainer compared with SMC's standard models. Compatible with a low dew point (-40°C).

Air Cylinder

Mounting dimensions are not interchangeable with the 90- series.



For use in dusty environment 91-□-XC4 Series

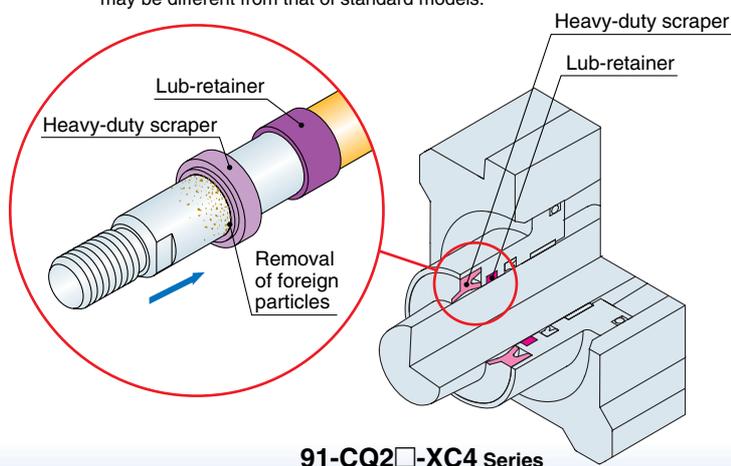
Material restriction + Lub-retainer + Heavy-duty scraper

Dustproofing has been improved with a lub-retainer and heavy-duty scraper.

Air Cylinder

Mounting dimensions are not interchangeable with the 90- and 91- series.

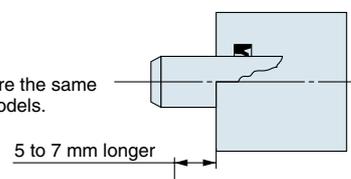
Note) For some models, the minimum operating pressure may be different from that of standard models.



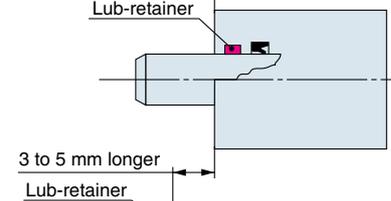
Mounting Dimension Comparison

90- spec.

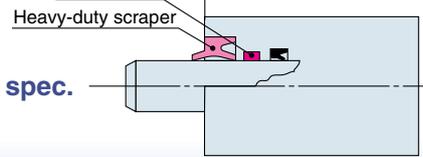
Mounting dimensions are the same as those of standard models.



91- spec.



91-XC4 spec.



90- Series

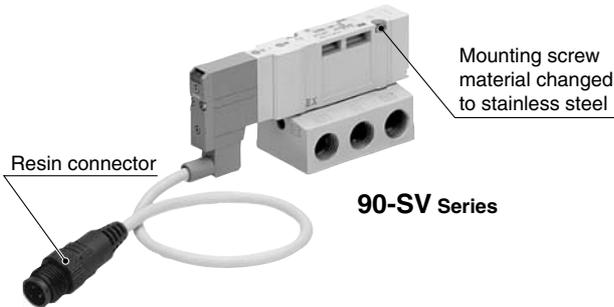
Pneumatic equipment material restriction

Mounting dimensions are the same as those of the standard series.

*Coils for solenoid valves, connector pins, and lead wires are made of copper.

Solenoid Valve

Changed to with resin pre-wired connector.



Mounting screw material has been changed to stainless steel.



Mist Separator

Mounting screw material has been changed to stainless steel.



Regulator

Valve (wetted parts) material has been changed to stainless steel.



Pressure Switch

Changed to with resin pre-wired connector.



Fittings/Speed Controller

Stainless steel specifications
(Stainless steel 303)



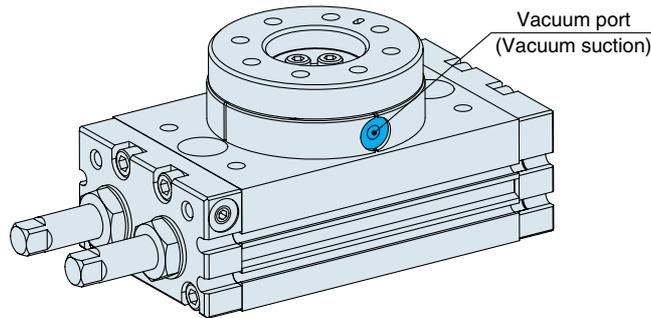
92-MSQB Series

Material restriction + Vacuum port for vacuum suction

Using a vacuum port for vacuum suction enables reducing more dust particles than 90- series.

Rotary Actuator

A vacuum port for vacuum suction has been added to reduce the number of dust particles being emitted from the bearing part.

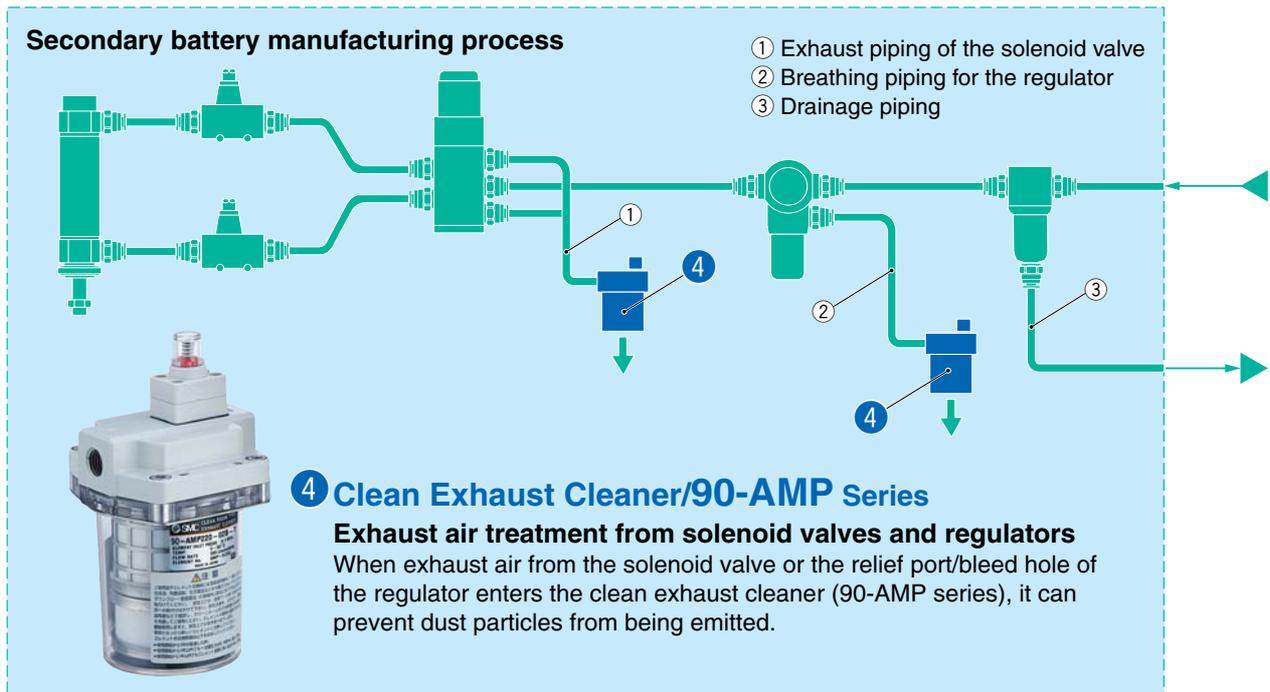


92-MSQB Series

Recommended System Circuit for the Secondary Battery Manufacturing Process

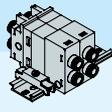
When the pneumatic equipment is used in the secondary battery manufacturing process, the system circuit shown below is recommended for dust particle generation countermeasures.

Recommended System Circuit



Directional Control Valves

● : Available as standard
▲ : Consult your SMC sales representative.

Description		Series	90-	25-	Remarks
	5 Port Solenoid Valve	SY5000, 7000	▲	●	
		SV2000, 4000	●	▲	
		VQ1000Y, 2000Y	▲	●	
	Separate Type Double Check Block	VQ1000	●	▲	
		VQ2000	●	●	
	3 Port Solenoid Valve	VP342, 542	●	▲	
		VP742	▲	●	
	3 Port Solenoid Valve	VT317	●	▲	
		VG342	●	▲	
	Finger Valve	VHK2	●	▲	

Actuators

● : Available as standard
▲ : Consult your SMC sales representative.
○ : Made-to-Order

Description		Series	90-	91-	91-XC4	25-	Remarks
	Standard (Double acting only)	CDJ2	●	—	—	●	ø10, ø16
	Standard	CDM2	▲	—	—	●	ø20 to ø40
	Standard (Double acting only)	Rubber Bumper CDG1□N	●	●	○ ^{*1}	●	90- series for ø20 to ø50 25- series for ø20 to ø100
		Air Cushion CDG1□A	▲	—	—	●	25- series for ø25 to ø100
	Standard	MDB	▲	—	—	●	ø40 to ø100
	Standard	CDA2	●	●	○	▲	ø40 to ø100

*Refer to the auto switches (Front matter 13) for the models that can be mounted on actuators.

*1 Not compatible with ø20 and ø25.

Actuators

● : Available as standard
 ▲ : Consult your SMC sales representative.
 ○ : Made-to-Order

Description			Series	90-	91-	91-XC4	25-	Remarks
	Free Mount Cylinder	Standard	CDU	●	●	○ ^{*1}	▲	ø10 to ø32
		Non-rotating rod	CDUK	▲	● ^{*2}	○ ^{*1}	▲	ø10 to ø32
	Compact Cylinder	Standard (Double acting only)	CDQS	●	●	○ ^{*3}	●	ø12 to ø25
		Anti-lateral load (Double acting only)	CDQS□S	●	●	—	▲	ø12 to ø25
		Standard (Double acting only)	CDQ2	●	●	○ ^{*4}	●	ø12 to ø100
	Mechanically Jointed Rodless Cylinder	Basic	MY1B	●	●	—	▲	ø20 to ø63
		Linear guide 1-axis	MY1H	●	●	—	▲	ø16 to ø40
		Linear guide 1-axis	MY2H	●	●	—	▲	ø16, ø25
	Magnetically Coupled Rodless Cylinder	Basic	CY3B	▲	●	—	▲	ø15 to ø40
		Direct mount	CY3R(G)	▲	●	—	▲	ø15 to ø40
	Air Slide Table	Cross roller guide	MXS	●	●	○ ^{*5}	▲	ø16, ø20, ø25 (Basic only)
		Recirculating linear guide	MXQ	●	●	○ ^{*5}	●	90- series for ø6 to ø25 (Basic only) 25- series for ø6 to ø25 (Stopper)
	Compact Guide Cylinder	Slide bearing	MGPM	●	●	○ ^{*4}	●	90- series for ø12 to ø63 25- series for ø12 to ø100
		Ball bushing bearing	MGPL	●	●	○ ^{*4}	●	ø12 to ø63
	Dual Rod Cylinder	Slide bearing	CXSM	▲	—	—	●	ø15 to ø25
		Ball bushing bearing	CXSL	▲	—	—	●	ø6 to ø32

*Refer to the auto switches (Front matter 13) for the models that can be mounted on actuators.

*1 Not compatible with ø10 and ø16.
 *2 Not compatible with ø10.
 *3 Not compatible with ø12.
 *4 Not compatible with ø12 and ø16.
 *5 Not compatible with ø6, ø8, ø12 or ø16.

Actuators

● : Available as standard
 ▲ : Consult your SMC sales representative.
 ○ : Made-to-Order

Description			Series	90-	91-	91-XC4	25-	Remarks
	Guide Cylinder	Ball bushing bearing	MGGL	●	●	○	▲	ø20 to ø50
	Cylinder with Lock	Standard	CDNG□N	▲	●	○ ^{*1}	▲	ø20 to ø40
	Cylinder with Lock	Standard	CDNA□N	▲	●	○	▲	ø40 to ø100
	Compact Cylinder with Lock	Standard (Double acting only)	CDLQ	▲	●	○	▲	ø20 to ø100
	Stopper Cylinder	Standard	RSDQ	●	—	—	▲	ø20 to ø50
	Heavy Duty Stopper Cylinder	Standard	RSH	●	—	—	▲	ø20, ø32
		Standard	RS1H	●	—	—	▲	ø50 to ø63

*Refer to the auto switches (Front matter 13) for the models that can be mounted on actuators.

*1 Not compatible with ø20 and ø25.

Related Products

● : Available as standard

Description			Series	90-	25-	Remarks
	Floating Joint	Standard	JA	●	—	90- series for applicable cylinders ø80 and ø100 25- series for applicable cylinders ø6 to ø15 (JS) 25- series for applicable cylinders ø20 to ø160 (Standard)
		For compact cylinder	JB	●	—	90- series for applicable cylinders ø12 to ø100 25- series for applicable cylinders ø12 and ø16 (JS) 25- series for applicable cylinders ø20 to ø160 (Standard)
		Stainless steel	JS	●	—	90- series for applicable cylinders ø10 to ø63 25- series available as standard
	Shock Absorber	Standard	RB	●	●	M8 to M27
		Standard	RBC	●	●	M8 to M27

Rotary Actuator

● : Available as standard
 ▲ : Consult your SMC sales representative.

Description			Series	92-	25-	Remarks
	Rotary Table	Rack & Pinion	MSQB	●	▲	Size: 20 to 100

*Refer to the auto switches (Front matter 13) for the models that can be mounted on rotary actuators.

- : Available as standard
- ▲ : Consult your SMC sales representative.
- : Made-to-Order

Air Grippers

Description		Series	90-	91-	91-XC4	25-	Remarks
	Standard	MHZ2	—	—	—	●	ø16 to ø40
	Long stroke	MHZL2	—	—	—	▲	ø10 to ø25
	With dust cover	MHZJ2	●	—	—	▲	ø10 to ø25
	Long stroke (with dust cover)	MHZL2	●	—	—	▲	ø10, ø16, ø20
	Wide	MHL2	●	●	○	● ^{*1}	90- series, 91- series, and 91- XC4 series are for ø20 and ø25. 25- series is for ø10 and ø32.
	Low Profile Air Gripper	MHF2	▲	—	—	●	ø8, ø12, ø16, ø20
	3-finger air gripper	MHS3	●	—	—	▲	ø16, ø20, ø25
	4-finger air gripper	MHS4	●	—	—	▲	ø16, ø20, ø25

*Refer to the auto switches (Front matter 13) for the models that can be mounted on air grippers.

*1 Please contact SMC for ø40.

Vacuum Equipment

- : Available as standard
- ▲ : Consult your SMC sales representative.

Description		Series	90-	25-	Remarks
	Ejector unit	ZR	—	▲	
	Manifold	ZZR	—	▲	
	Ejector unit	ZQ	●	▲	With connector cover
	Manifold	ZZQ	●	▲	With connector cover -X125: Port exhaust
	Vacuum Ejector	ZH	—	—	Compatible with standard models
	Air Suction Filter	ZFC	—	—	Compatible with standard models
	Vertical vacuum entry (without buffer)	ZPT	●	—	Pad material: Fluororubber
	Vertical vacuum entry (with buffer)	ZPT	●	—	Pad material: Fluororubber
	Pad	ZP	●	▲	Mounting on a special adapter Pad material: Fluororubber

Air Preparation Equipment

● : Available as standard

Description		Series	90-	Remarks
	Membrane Air Dryer	IDG50L to 100L	●	With fittings for purge air discharge
	Main Line Filter	AFF4C to 22C, 37B, 75B	●	Drain discharge is possible only manually.
	Mist Separator	AM250C to 550C, 650, 850	●	Drain discharge is possible only manually.
	Micro Mist Separator	AMD250C to 550C, 650, 850	●	Drain discharge is possible only manually.

Clean Air Filters

● : Available as standard

Description		Series	90-	Remarks
	Clean Air Filter	SFD100	—	Compatible with standard models
		SFD200	●	
	Exhaust Cleaner for Clean Rooms	AMP220, 320, 420	●	With element service indicator
		AMP420-06□-T-X1	●	With element service indicator [1500 ℓ/min (ANR)]

Air Filters/Pressure Control Equipment

● : Available as standard
▲ : Consult your SMC sales representative.

Description		Series	90-	25-	Remarks
	Air Filter	AF30 to 60	●	●	25- series is for AF20 to AF60. Drain discharge is possible only manually.
	Mist Separator	AFM30, 40	●	▲	Drain discharge is possible only manually.
	Micro Mist Separator	AFD30, 40	●	▲	Drain discharge is possible only manually.
	Regulator	AR20 to 50	▲	●	
	Regulator with Backflow Function	AR25K to 60K	●	●	25- series is for AR20K to AR50K. 90- series is with a joint at the relief port. Order a pressure gauge separately.

*Please contact SMC for pressure gauges.

Air Filters/Pressure Control Equipment

●: Available as standard

Description		Series	90-	Remarks
	Filter Regulator with Backflow Function	AW30K to 60K	●	<ul style="list-style-type: none"> With fitting for relief port Drain discharge is possible only manually. Order a pressure gauge separately.
	For Air Combination (Modular connection bracket)	Y30 to 60 Y30T to 60T	●	<ul style="list-style-type: none"> Spacer T-bracket spacer For 30 to 60
	Precision Regulator	IR1000 to 3000	●	Order a pressure gauge separately.
	Electro-Pneumatic Regulator	ITV1000 to 3000	●	This is not completely copper-free since the electric circuit is included. (Wetted parts are copper-free.)
	Residual Pressure Indicator	CB-97XH	—	Compatible with standard models

*Please contact SMC for pressure gauges.

Fittings/Flow Control Equipment

●: Available as standard

Description		Series	90-	Remarks
	Quick Exhaust Valve with Built-in One-touch Fittings	AQ240F, 340F	●	
	Check Valve with One-touch Fittings	AKH4 to 12	●	
	Speed Controller with One-touch Fittings Stainless Steel Specifications	AS-FG	—	Compatible with standard models
	One-touch Fittings Stainless Steel Specifications	KG	—	Compatible with standard models

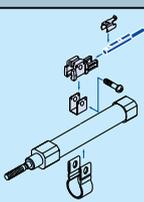
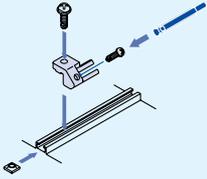
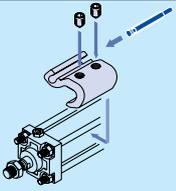
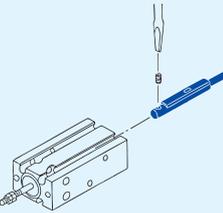
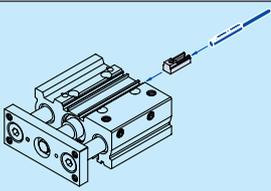
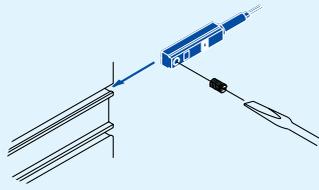
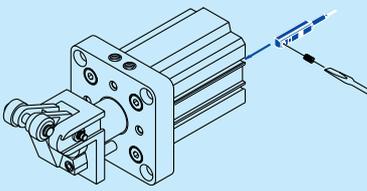
Detection Switches

●: Available as standard

▲: Consult your SMC sales representative.

Description		Series	90-	25-	Remarks
	2-Color Display High-Precision Digital Pressure Switch	ZSE30A/ISE30A	▲	●	
	High Precision Digital Pressure Switch	ZSE40/ISE40	●	●	90- series is with resin pre-wired connectors.
	General Purpose High Precision Digital Pressure Switch	ISE50	●	▲	With resin pre-wired connector
	2-Color Display Digital Flow Switch	PFM	●	▲	Note) Copper will be exposed when the connector cover moves.
	Digital Flow Switch for Water	PF2W	●	—	90- series covers 25- series.

Auto Switches

Series	Applicable cylinder	Mounting		
2-Color Display Solid State Switch D-M9BWSDDPC-900 D-M9BWSVDDPC-900 D-M9BWL-900 D-M9BWVL-900  Reed Switch D-A90L-900 	CDJ2 Series CDG1 Series MGG Series	Band mounting ^{*1}		
	CDQ2 Series RSQ Series	Rail mounting ^{*1}		
	^{*2}	CDA2 Series CDNA Series	Tie-rod mounting ^{*1}	
	^{*2}	CDU Series CQ Series MY Series CY3R Series RSQ Series MSQ Series MHZJ Series ^{*4} MHZL Series ^{*4} MHS Series ^{*4} MX Series	Direct mounting (Round groove)	
	MY Series ^{*3} CY3R Series MGP Series MLGP Series RSH Series MHL Series ^{*4}	Direct mounting ^{*1} (Square groove)		
2-Color Display Solid State Switch D-Y7BWL-900 D-Y7BWVL-900 	MY1B50 Series	Direct mounting		
Reed Switch D-Z80L-900 	RSH Series MY1B25 to 63	Direct mounting		

^{*1} Can be mounted on the products by using an auto switch mounting bracket. ^{*}The auto switch mounting bracket material is also restricted.

^{*2} The D-A90L-900 cannot be mounted on the RSH, RS1H, MY1B25 to 63, CDNA□50.

^{*3} The D-M9BW(V)□-900 cannot be mounted on the MY1B50.

^{*4} Reed switches (D-A90L-900 and D-Z80L-900) cannot be mounted on the MHZJ, MHZL, MHS, MHL series.

Table Comparing Materials and Treatment of Components

Product, Series	Parts		Standard	25 series	90 series
Cylinder CQ2	Bushing ($\phi 50$ to $\phi 100$)	Material	Copper metal	Iron metal	Iron metal
		Treatment	—	—	—
	Piston	Material	Aluminum	Aluminum	Aluminum
		Treatment	Chromate	Chromate	Anodized ($\phi 12$ to $\phi 40$)
	Rod	Material	S45C	S45C	SUS304
		Treatment	Hard-chrome-plated	Hard-chrome-plated	Hard-chrome-plated
Mounting bracket	Material	Iron	Iron	Iron	
	Treatment	Ni-plated (Copper base)	Raydent®-treated	Raydent®-treated	
Cylinder MGPM	Bushing	Material	Copper metal	Iron metal	Iron metal
		Treatment	—	—	—
	Guide bushing	Material	Lead bronze casting	Iron metal	Iron metal
		Treatment	—	—	—
	Guide rod	Material	Iron	Iron	SUS440C
		Treatment	Hard-chrome-plated	Hard-chrome-plated	Hard-chrome-plated
Plate	Material	Iron	SUS304	SUS304	
	Treatment	Ni-plated (Copper base)	—	—	
Air slide table MXQ	Piston	Material	Brass ($\phi 6$ and $\phi 8$) Aluminum ($\phi 12$ and up)	SUS304 ($\phi 6$ and $\phi 8$) Aluminum ($\phi 12$ and up)	SUS304 ($\phi 6$ and $\phi 8$) Aluminum ($\phi 12$ and up)
		Treatment	Electroless Ni-plated ($\phi 6$ and $\phi 8$) Chromate ($\phi 12$ and up)	— Chromate ($\phi 12$ and up)	— Anodized ($\phi 12$ and up)
	Piston spacer	Material	Brass	SUS304	SUS304
		Treatment	Electroless Ni-plated	—	—
	Packing support	Material	Brass	SUS303	SUS303, SUS304
		Treatment	Electroless Ni-plated	—	—
Bolts and screws	Material	Iron	Iron	Iron	
	Treatment	Ni-plated (Copper base)	Black dyeing	Raydent®-treated	
Solenoid valve	Bolts and screws	Material	Iron	SUS	SUS
		Treatment	Ni-plated (Copper base)	—	—
Filter AF30 to 60	Drain plug	Material	Brass	SUS303	SUS303
		Treatment	Electroless Ni-plated	—	—
	Rod	Material	Brass	SUS303	SUS303
		Treatment	—	—	—
	Bracket	Material	Steel belt	Steel belt	Steel belt
		Treatment	Electrodeposition painted (Black)	Electrodeposition painted (Black)	Raydent®-treated
Regulator AR25K to 60K	Check valve plug	Material	Brass	SUS303	SUS303
		Treatment	—	—	—
	Packing retainer	Material	AR50, 60: Brass	AR50, 60: Aluminum	AR50, 60: Aluminum
		Treatment	—	—	—
	Valve	Material	Brass	SUS303	SUS303
		Treatment	—	—	—
	Stem	Material	Brass	SUS303	SUS303
		Treatment	—	—	—
	Bonnet	Material	AR25 to 40: POM AR50, 60: ADC	AR25 to 40: POM AR50, 60: ADC	ADC
		Treatment	AR25 to 40: — AR50, 60: Chromate, black painted	AR25 to 40: — AR50, 60: Chromate, black painted	Chromate, black painted
Bracket	Material	Steel belt	Steel belt	Steel belt	
	Treatment	Electro-deposition painted (Black)	Electro-deposition painted (Black)	Raydent®-treated	

1 Clean

■ Clean Room Products

Products for use in clean rooms. Particle reducing products.
Assembled inside a clean room and shipped in double packaging.

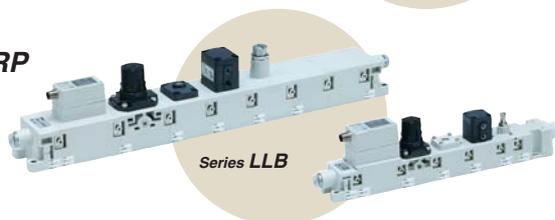
- Clean Series *10-/11-/12-/13-*
- Clean Rodless Cylinder *Series CYP*
- Clean One-touch Fittings
for Driving Air Piping *Series KPQ/KPG*
- Clean Speed Controller
with One-touch Fitting *Series AS-FPQ/FPG*
- Exhaust Cleaner for Clean Room *Series AMP*
- Non-Metallic Pump/
Double Acting Pump *Series PAF*
- High Vacuum Equipment
- Clean Regulator *Series SRH*
- Precision Clean Regulator *Series SRP*
- Fluoropolymer Equipment
- Polyolefin Tubing *Series TPH*
- Soft Polyolefin Tubing *Series TPS*



■ Clean Blow Products

Products for clean air lines.
Assembled inside a clean room and double packaging.

- Clean Gas Filter *Series SF*
- Clean Air Filter/
Hollow Fiber Element *Series SFD*
- Clean Air Module *Series LLB*
- Clean Regulator *Series SRH/SRP*
- Clean Regulator/
Fluoropolymer Type *Series SRF*
- Clean One-touch Fittings
(for Blowing) *Series KP*
- Polyolefin Tubing *Series TPH/TPS*
- Air Operated Chemical Valve/
Threaded Type *Series LVA*
- High Vacuum Straight
Solenoid Valve *Series XSA*



Consult SMC about "Material restriction".

2 Fluoropolymer

Equipment made with fluoropolymer excels in corrosion resistance and heat resistance.

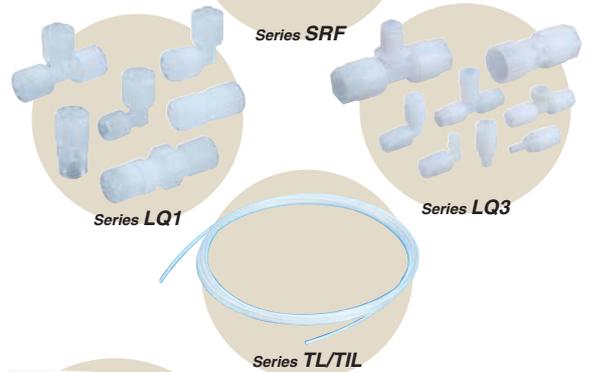
Pressure Control Equipment

- Clean Regulator/
Fluoropolymer Type *Series SRF*



Fittings and Tubings

- Fluoropolymer Fittings
Hyper Fitting *Series LQ1/LQ3*
- Fluoropolymer Tubing *Series TL/TIL*
- FEP Tubing (Fluoropolymer) *Series TH/TIH*
- Soft Fluoropolymer Tubing *Series TD/TID*



Flow Sensor

- Digital Flow Switch for Deionized
Water and Chemicals *Series PF2D*



Fluid Control Equipment

- Air Operated Chemical Valve *Series LV*



Pump

- Non-Metallic Pump/
Double Acting Pump *Series PAF*



Consult SMC about "Material restriction".

3 Antistatic Equipment

Antistatic performance achieved through conductive measures for a reduction in static-related trouble.

Actuators

- Antistatic Air Cylinder
(Made to Order) *CM2-X1051*

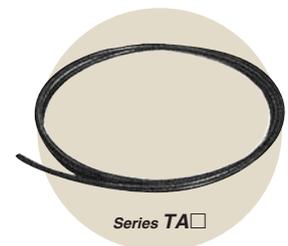


Vacuum Equipment

- Vacuum Pad *Series ZP*

Fittings and Tubings

- Antistatic One-touch Fittings *Series KA*
- Miniature Fittings/Stainless Steel 316 *Series MS*
- Miniature Fittings *Series M*
- Antistatic Tubing *Series TA* □



Flow Control Equipment

- Antistatic Speed Controller
(Made to Order) *AS-X260*

Consult SMC about "Material restriction".

4 Static Electricity Elimination Equipment

Ions generated by corona discharge eliminate (neutralize) static electricity.

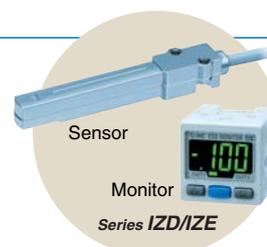
- Ionizer *Series IZS31*
- Ionizer/Nozzle Type *Series IZN10*



■ Measurement Equipment

Measures the electrostatic potential.

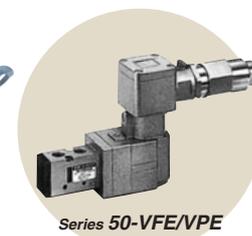
- Electrostatic Sensor *Series IZD10/IZE11*
- Handheld Electrostatic Meter *Series IZH10*



5 Explosion Proof Equipment

Consult SMC about "Material restriction".

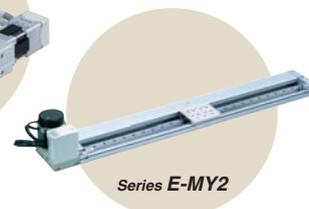
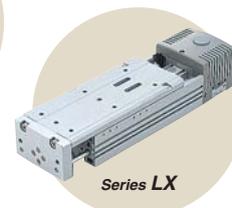
- Intrinsically Safe Explosion-proof System
5 Port Solenoid Valve *Series 51-SY*
- Explosion Proof Solenoid Valve *Series 50-VFE/VPE*



6 Electric Actuators/Cylinders

Consult SMC about "Material restriction".

- Electric Actuator *Series LJ1/LG1*
- Electric Actuator with
Integrated Guide *Series LTF*
- Short Stroke Electric Actuator *Series LX*
- Electric Cylinder *Series LZB/LDZB/LZC/LDZC*
- Electric Gripper *Series LEHZ/LEHF*
- Electric Slide Table *Series LES*
- e-Rodless Actuator *Series E-MY2*



CONTENTS

Product name	Series	Page
 Directional Control Valves		
Single Valve/Sub-plate Type IP67 Compliant	90-SV	P.2
EX124 Integrated Type (for Output) Serial Transmission System	90-SV-X124	P.3
EX124 Integrated Type (for Output) Serial Transmission System	90-SV-X166	P.4
D-sub Connector	90-SV	P.5
Plug-in Unit Base Mounted	90-VQ1000-X121	P.7
	90-VQ2000-X121	P.7
3 Port Solenoid Valve Pilot Operated Poppet Type	90-VP300/500	P.8
3 Port Solenoid Valve Pilot Operated Poppet Type	90-VG342	P.9
3 Port Solenoid Valve Direct Operated Poppet Type	90-VT317	P.10
Finger Valve	90-VHK	P.11
 Actuators		
Air Cylinder: Standard Type Double Acting, Single Rod	90-CDJ2	P.12
Air Cylinder: Standard Type Double Acting, Single Rod	90-91-CDG1	P.13
Air Cylinder: Standard Type Double Acting, Single Rod	90-91-CDA2	P.14
Free Mount Cylinder Double Acting, Single Rod	90-91-CDU	P.15
Free Mount Cylinder: Non-rotating Rod Type Double Acting, Single Rod	90-91-CDUK	P.16
Compact Cylinder: Standard Type Double Acting, Single Rod	90-91-CDQS	P.17
Compact Cylinder: Anti-lateral Load Type	90-91-CDQS□S	P.18
Compact Cylinder: Standard Type Double Acting, Single Rod	90-91-CDQ2	P.19
Compact Cylinder: Long Stroke Type Double Acting, Single Rod	90-91-CDQ2	P.20
Mechanically Jointed Rodless Cylinder Basic Type	90-91-MY1B	P.21
Mechanically Jointed Rodless Cylinder Linear Guide Type	90-91-MY1H	P.22
Mechanically Jointed Rodless Cylinder Linear Guide Type	90-91-MY2H	P.23
Magnetically Coupled Rodless Cylinder/ Basic Type	90-91-CY3B	P.24
Magnetically Coupled Rodless Cylinder/ Direct Mount Type	90-91-CY3R	P.25
Air Slide Table	90-91-MXS	P.26
Air Slide Table	90-91-MXQ	P.27
Compact Guide Cylinder	90-91-MGP	P.28
Guide Cylinder	90-91-MGG	P.29
Cylinder with Lock Double Acting, Single Rod	90-91-CDNG	P.30
Cylinder with Lock Double Acting, Single Rod	90-91-CDNA	P.31
Compact Cylinder with Lock Double Acting, Single Rod	90-91-CDLQ	P.32
Stopper Cylinder/Fixed Mounting Height	90-RSDQ	P.33
Heavy Duty Stopper Cylinder	90-RSH/RS1H	P.34
Floating Joint		
/Standard Type	90-JA	P.35
/For Compact Cylinders	90-JB	P.35
/Stainless Steel Type	90-JS	P.35
Shock Absorber	90-RB/RBC	P.36
Rotary Table/Rack & Pinion Style	92-MSQ	P.37

Product name	Series	Page
 Air Grippers		
Parallel Style Air Gripper with Dust Cover	90-MHZJ2	P.38
Parallel Style Air Gripper/Long Stroke Type	90-MHZL2	P.39
Parallel Style Air Gripper: Wide Type	90-91-MHL2	P.40
Parallel Style Air Gripper	90-MHS□	P.41



Air Preparation Equipment

Main Line Filter	90-AFF	P.42
Mist Separator	90-AM	P.43
Micro Mist Separator	90-AMD	P.44
Membrane Air Dryer	90-IDG	P.45
Clean Air Filter	90-SFD	P.46
Exhaust Cleaner for Clean Room	90-AMP	P.47



Air Filters/Pressure Control Equipment

Air Filter	90-AF30 to 90-AF60	P.48
Mist Separator	90-AFM30/90-AFM40	P.49
Micro Mist Separator	90-AFD30/90-AFD40	P.49
Regulator	90-AR30/90-AR40	P.50
Regulator with Backflow Function	90-AR25K to 90-AR60K	P.50
Filter Regulator with Backflow Function	90-AW30K to 90-AW60K	P.51
Precision Regulator	90-IR1000/2000/3000	P.52
Electro-Pneumatic Regulator	90-ITV2000	P.53



Flow Control Related Products

Quick Exhaust Valve with One-touch Fittings	90-AQ240F/340F	P.54
Check Valve with One-touch Fittings	90-AKH	P.55



Vacuum Equipment

Space Saving Vacuum Ejector	90-ZQ	P.56
Vacuum Pad/Vertical Vacuum Entry		
/Without buffer	90-ZPT	P.57
/With buffer	90-ZPT	P.57



Detection Switches

High-Precision Digital Pressure Switch	90-ZSE40□/90-ISE40	P.58
High-Precision Digital Pressure Switch for General Fluids	90-ZSE50F/90-ISE50	P.59
2-Color Display Digital Flow Switch	90-PFM7	P.60
Digital Flow Switch For Water	90-PF2W	P.61



Auto Switches

Solid State Auto Switch Direct Mounting Style	D-M9BW(V)SDPC-900	P.62
	D-M9BW(V)L-900	P.63
	D-Y7BW(V)L-900	P.64
Reed Auto Switch Direct Mounting Style	D-A90L-900	P.65
	D-Z80L-900	P.65
Auto Switch Mounting Bracket Part No.		P.66

Single Valve/Sub-plate Type IP67 Compliant 90-SV Series

How to Order



90 - SV 2 1 00 - 5 W1 U D -

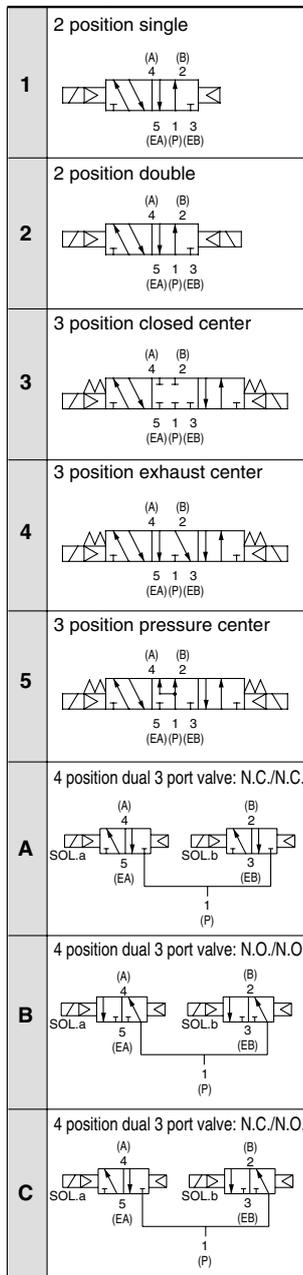
Series compatible with secondary batteries

90	Material restriction
----	----------------------

Series

2	90-SV2000
4	90-SV4000

Type of actuation



Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Port size

Symbol	Port size	Applicable series
Nil		Without sub-plate
02	1/4	90-SV2000
03	3/8	90-SV4000
04	1/2	90-SV4000

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type

Light/Surge voltage suppressor

U	With light/surge voltage suppressor(Non-polar type)
R	With surge voltage suppressor(Non-polar type)

M12 waterproof connector

Symbol	Cable length (mm)
W1	300
W2	500
W3	1000
W4	2000
W7	5000

Rated voltage

5	24 VDC
6	12 VDC

Pilot type

Nil	Internal pilot
R	External pilot

*External pilot specifications is not available for 4 position dual 3 port valves.

*Specifications and dimensions for the 90-series are the same as standard products.

*4 position dual 3 port valve is not available for the 90-SV4000.

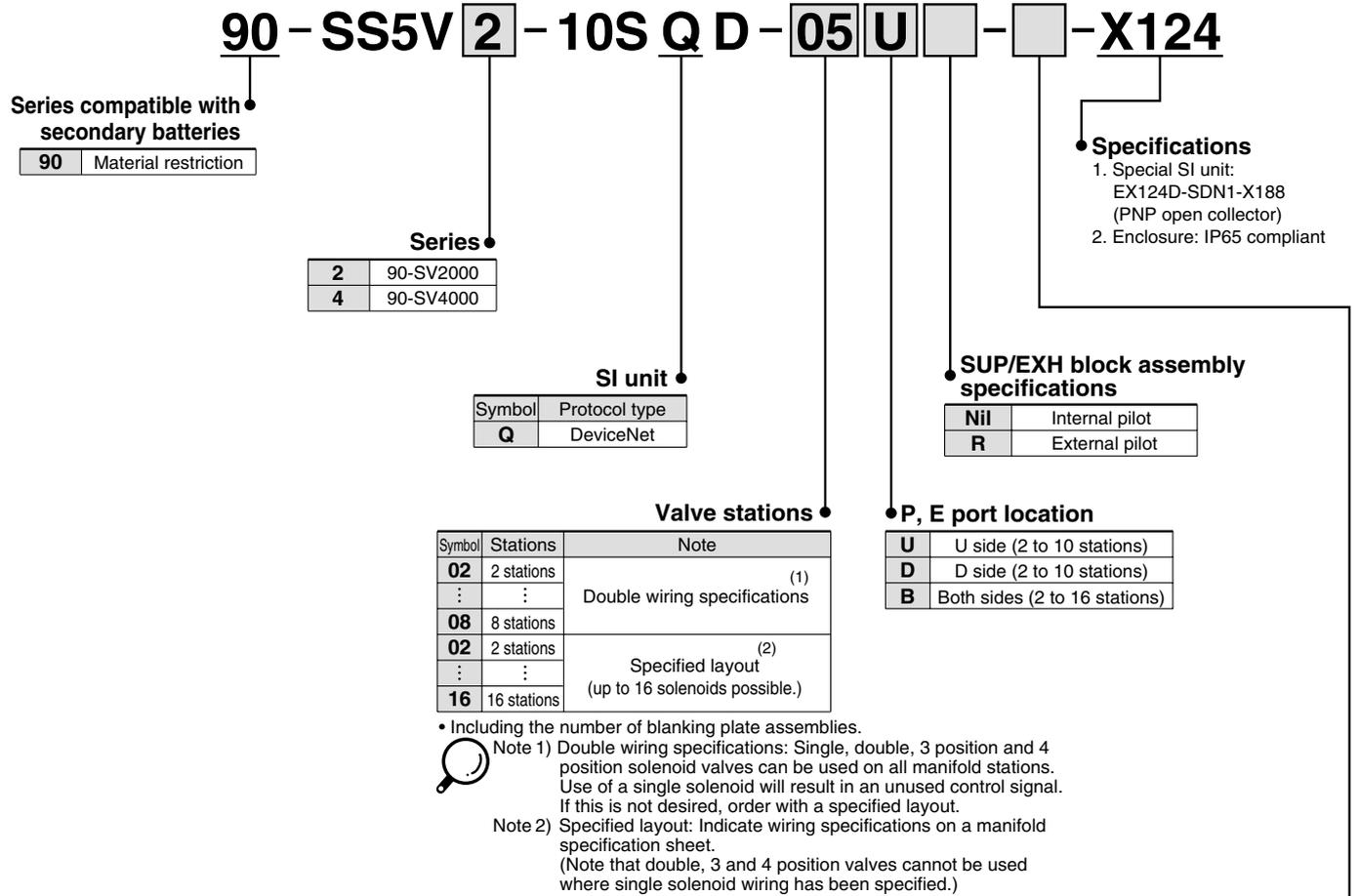
EX124 Integrated Type (for Output) Serial Transmission System

90-SV-X124 Series

IP65 Compliant

How to Order Manifold

● Tie-rod base



SI Unit Part No.

Symbol	Protocol type	SI unit part no.	CE-certified
Q	DeviceNet (Negative common)	EX124D-SDN1-X188	○

A, B port size (Metric)

Symbol	A, B port	P, E port	Applicable series
C4	One-touch fitting for ø4	One-touch fitting for ø10	90-SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
M	A, B ports mixed		

A, B port size (Inch)

Symbol	A, B port	P, E port	Applicable series
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	90-SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
M	A, B ports mixed		

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

*Port sizes of X, PE port for external pilot specifications (R) are ø4 mm or ø5/32 inch.

*Specifications and dimensions for the 90-series are the same as standard products.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

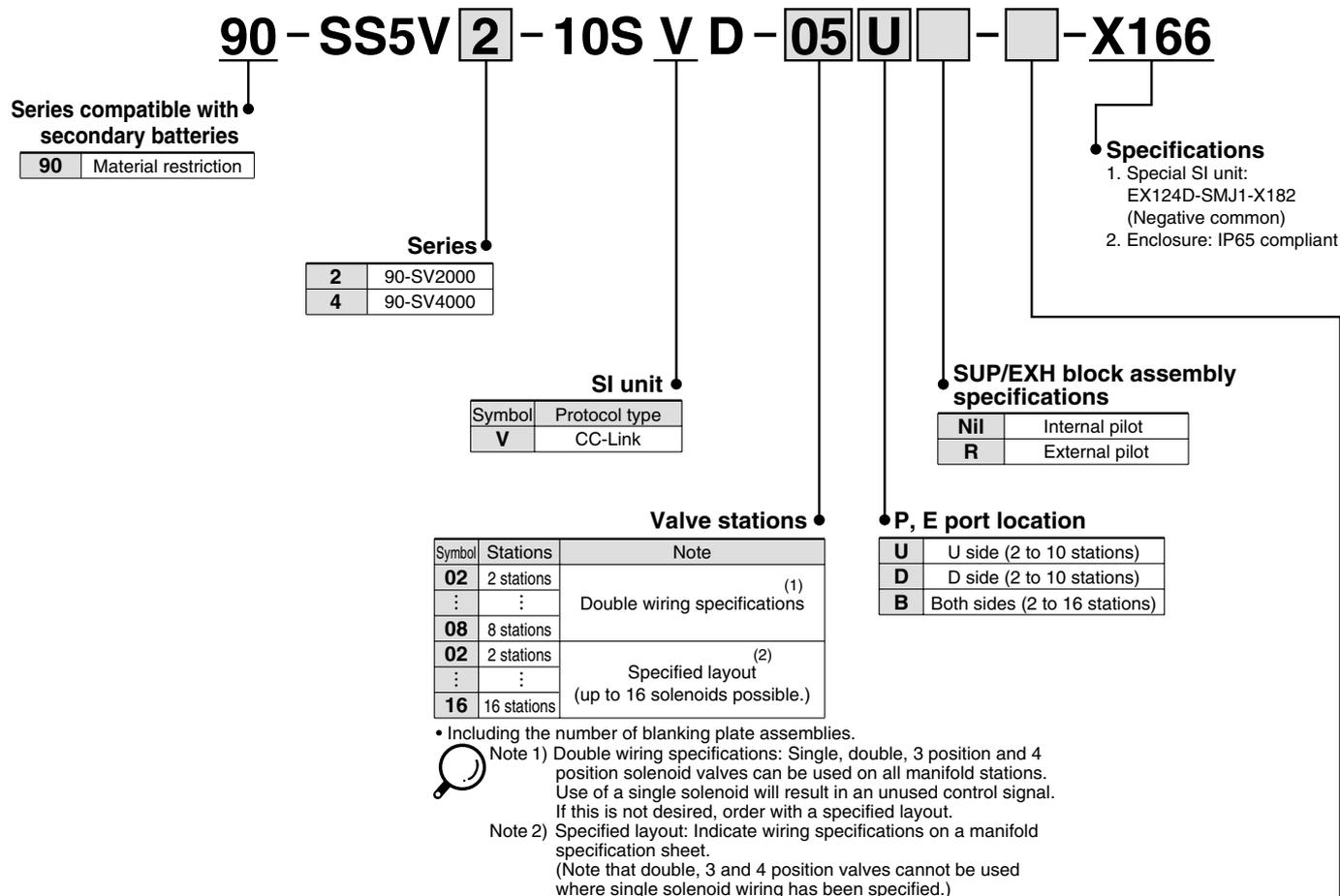
EX124 Integrated Type (for Output) Serial Transmission System

90-SV-X166 Series

IP65 Compliant

How to Order Manifold

● Tie-rod base



SI Unit Part No.

Symbol	Protocol type	SI unit part no.	CE-certified
V	CC-Link (Negative common)	EX124D-SMJ1-X182	○

A, B port size (Metric)

Symbol	A, B port	P, E port	Applicable series
C4	One-touch fitting for ø4	One-touch fitting for ø10	90-SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C8	One-touch fitting for ø8	One-touch fitting for ø12	90-SV4000
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
M	A, B ports mixed		

A, B port size (Inch)

Symbol	A, B port	P, E port	Applicable series
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	90-SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
N9	One-touch fitting for ø5/16"	One-touch fitting for ø3/8"	90-SV4000
N11	One-touch fitting for ø3/8"		
M	A, B ports mixed		

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

*Port sizes of X, PE port for external pilot specifications (R) are ø4 mm or ø5/32 inch for 90-SV2000 series and ø6 mm or ø1/4 inch for 90-SV4000 series.

*Specifications and dimensions for the 90-series are the same as standard products.

D-sub Connector 90-SV Series

How to Order Manifold

● Tie-rod base

90 - SS5V 2 - 10FD 1 - 05 U - -

● Series

2	90-SV2000
4	90-SV4000

● Series compatible with secondary batteries

90	Material restriction
----	----------------------

● Connector entry direction

1	Upward
2	Lateral

● Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring specifications (1)
:	:	
11	11 stations	
02	2 stations	Specified layout (2) (Up to 23 solenoids possible.)
:	:	
20	20 stations	

Note 1) Double wiring specifications: Single, double, 3 position and 4 position solenoid valves can be used at all of the 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 the manifold specification sheet. (Note that double, 3 and 4 position valves cannot be used where single solenoid wiring has been specified.)

● P, E port location

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

● Pilot type

Nil	Internal pilot
R	External pilot

● A, B port size (metric)

Symbol	A, B port	P, E port	Applicable series
C4	One-touch fitting for ø4	One-touch fitting for ø1	90-SV2000
C6	One-touch fitting for ø6		
C8	One-touch fitting for ø8		
C8	One-touch fitting for ø8	One-touch fitting for ø12	90-SV4000
C10	One-touch fitting for ø10		
C12	One-touch fitting for ø12		
M	A, B ports mixed		

● A, B port size (inch)

Symbol	A, B port	P, E port	Applicable series
N3	One-touch fitting for ø5/32"	One-touch fitting for ø3/8"	90-SV2000
N7	One-touch fitting for ø1/4"		
N9	One-touch fitting for ø5/16"		
N9	One-touch fitting for ø5/16"	One-touch fitting for ø3/8"	90-SV4000
N11	One-touch fitting for ø3/8"		
M	A, B ports mixed		

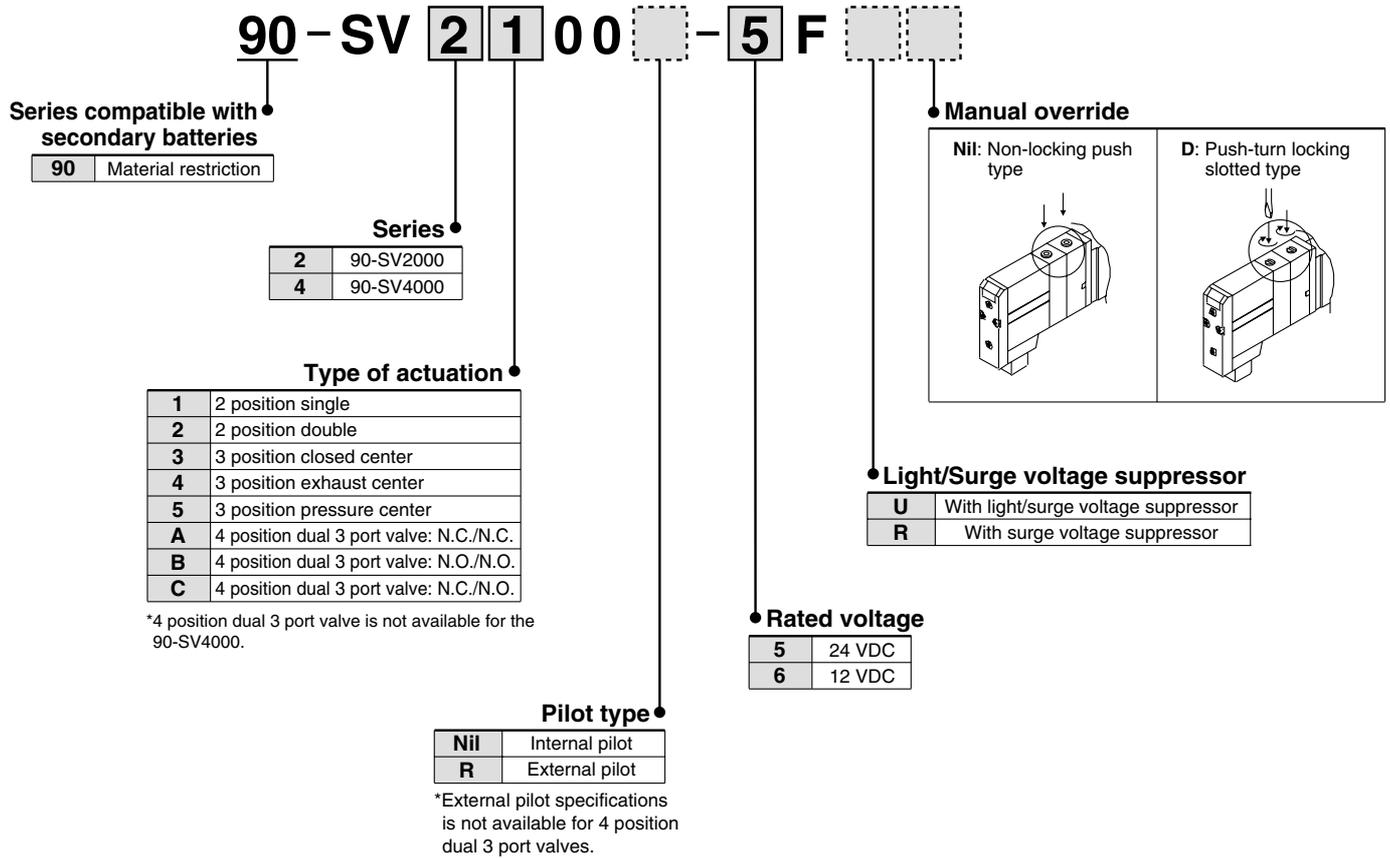
*In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

*Port sizes of X, PE port for external pilot specifications (R) are ø4 mm or ø5/32 inch for 90-SV2000 series and ø6 mm or ø1/4 inch for 90-SV4000 series.

*Specifications and dimensions for the 90-series are the same as standard products.

90-SV Series

How to Order Solenoid Valves



*Specifications and dimensions for the 90-series are the same as standard products.

Plug-in Unit
Base Mounted

90-VQ1000-X121 Series

90-VQ2000-X121 Series

Double Check Block (Separated Type)

How to Order

90-VQ1000

90 - VQ1000 - FPG - C6 C6 - X121

• Series compatible with secondary batteries

90 Material restriction

• For blanking manual specification

• OUT side port size

C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

• IN side port size

C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

*Specifications and dimensions for the 90-series are the same as standard products.

90-VQ2000

90 - VQ2000 - FPG - 01 01 - X121

• Series compatible with secondary batteries

90 Material restriction

• For blanking manual specification

• OUT side port size

01	Rc 1/8
----	--------

• IN side port size

01	Rc 1/8
----	--------

*Specifications and dimensions for the 90-series are the same as standard products.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

3 Port Solenoid Valve Pilot Operated Poppet Type

90-VP300/500 Series

Rubber Seal

How to Order



90 - VP 3 4 2 [] - 5 D Z [] - 02 [] A

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Series VP solenoid valve

Body size

3	1/4 standard
5	3/8 standard

Type of actuation

4	Common use to normally closed and normally open (Pilot)
---	---

Body type

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

Valve option

Nil	Standard (Internal pilot)
R	External pilot

Rated voltage

5	24 VDC
6	12 VDC

Passage symbol

A	N.C. (Normally closed)
B	N.O. (Normally open)

Only "A" is available for external pilot type.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Port size

Symbol	Port size Rc	90-VP342	90-VP542
02	1/4	●	●
03	3/8		●

Manual override

Nil	Push type
B	Locking type (Slotted)
C	Locking type (Manual)

Light/Surge voltage suppressor

Nil	None
Z*	With light/surge voltage suppressor

*Option

Electrical entry

D	DIN terminal
---	--------------

How to Order Pilot Valve Assembly

90 - SF4 - 5 D Z [] - 50

Rated voltage

5	24 VDC
6	12 VDC

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Manual override

Nil	Push type
B	Locking type (Slotted)
C	Locking type (Manual)

Light/Surge voltage suppressor

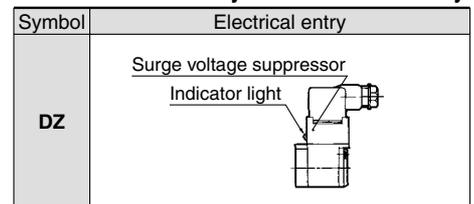
Nil	None
Z*	With light/surge voltage suppressor

*Option

Electrical entry

D	DIN terminal
---	--------------

Pilot Valve Assembly and Electrical Entry



*Specifications and dimensions for the 90-series are the same as standard products.

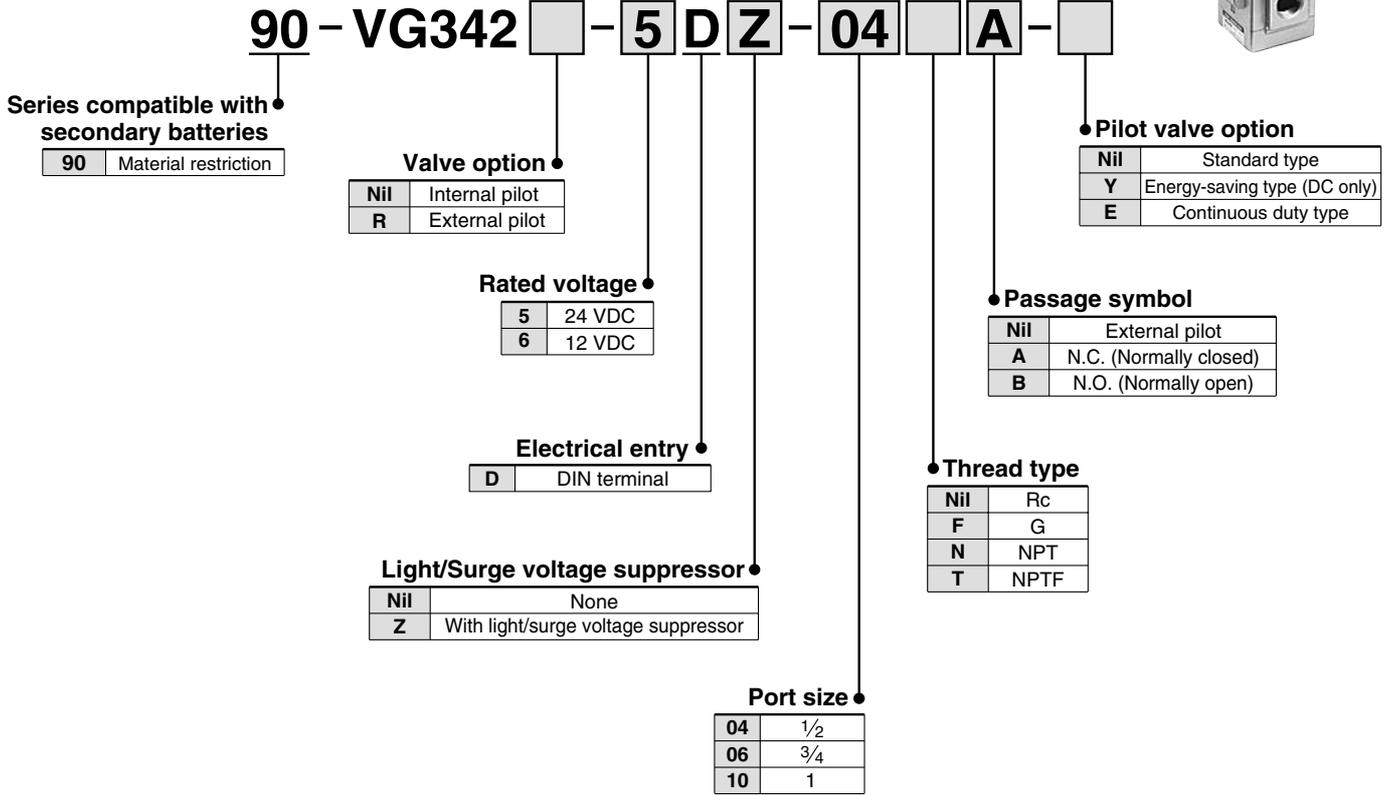
3 Port Solenoid Valve Pilot Operated Poppet Type

90-VG342 Series

Rubber Seal



How to Order



*Specifications and dimensions for the 90-series are the same as standard products.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

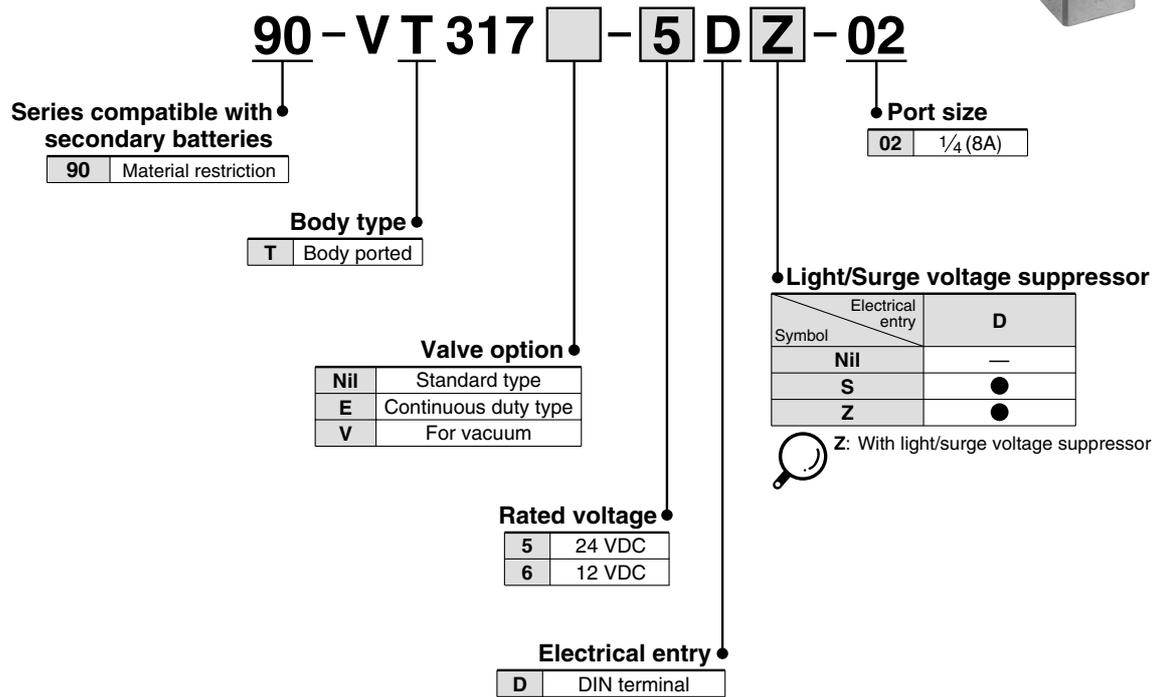
Detection Switches

Auto Switches

3 Port Solenoid Valve Direct Operated Poppet Type **90-VT317 Series** Rubber Seal



How to Order



*Specifications and dimensions for the 90-series are the same as standard products.

Finger Valve

90-VHK Series

How to Order



Standard type

90 - VHK 2 - 02S - 06F

Series compatible with secondary batteries

90 Material restriction

Valve model

2 2 port valve

1(P) port size

04F	ø4
06F	ø6
08F	ø8
01S	R 1/8
02S	R 1/4
03S	R 3/8

Bracket

Nil	None
L	With L-bracket

*Bracket and screws are attached.

Knob color

Nil (Standard)	Gray
R (Option)	Red

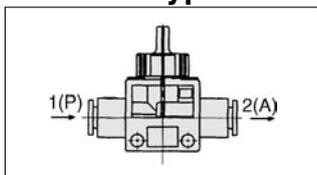
2(A) port size

04F	ø4
06F	ø6
08F	ø8

*Specifications and dimensions for the 90-series are the same as standard products.

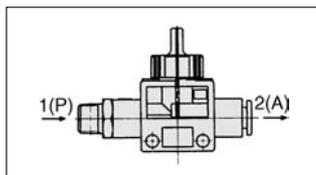
Applicable Series

Standard Type



1(P): One-touch fitting
2(A): One-touch fitting

		2(A) Applicable tubing O.D. (mm)		
		ø4	ø6	ø8
Applicable tubing O.D. (mm)	ø4	●	—	—
	ø6	●	●	—
	ø8	—	●	●



1(P): Male thread
2(A): One-touch fitting

		2(A) Applicable tubing O.D. (mm)		
		ø4	ø6	ø8
Port size R	1/8	●	●	●
	1/4	—	●	●
	3/8	—	●	●

L Type Bracket Part No.

1(P): One-touch fitting · 2(A): One-touch fitting

Applicable tubing O.D. (mm)		Bracket assembly no.
1(P)	2(A)	
ø4	ø4	90-VHK-B1A
ø6	ø4	90-VHK-B1A
	ø6	
ø8	ø6	90-VHK-B1A
	ø8	

1(P): Male thread · 2(A): One-touch fitting

Connection thread R	Applicable tubing O.D. (mm)	Bracket assembly no.
1(P)	2(A)	
1/8	ø4	90-VHK-B1A
	ø6	
	ø8	
1/4	ø6	90-VHK-B1A
	ø8	
3/8	ø6	90-VHK-B1A
	ø8	

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Air Cylinder: Standard Type Double Acting, Single Rod

90-CDJ2 Series

ø10, ø16

How to Order



Mounting style

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

Bore size

10	10 mm
16	16 mm

Cylinder standard stroke (mm)

10	15, 30, 45, 60, 75, 100, 125, 150
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

*Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Built-in Magnet Cylinder Model

Suffix the symbol "-B" (Band mounting style) to the end of part number for cylinder with auto switch.

Example | Band mounting style | 90-CDJ2B16-60-B

With auto switch

90-CDJ2 L 16-60 - M9BWL

Series compatible with secondary batteries

90	Material restriction
-----------	----------------------

With auto switch (Built-in magnet)

Head cover port location

Bore size (mm)	ø10, ø16
Symbol	
Nil	Perpendicular to axis
R	Axial

*Double clevis is only available for being perpendicular to axis.

Number of auto switches

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

Auto switch

Nil	Without auto Switch
------------	---------------------

*For the applicable auto switch model, refer to the table below.

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model	Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC				3(L)	SDPC
Solid state switch	Diagnostic indication (2-color indication)		Yes	2-wire	24 V	12 V	M9BW	●	●	—	Relay, PLC
Reed switch	—	Grommet	No			100 V or less	A90	●	—	IC circuit	

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BWL-900, D-M9BWS DPC-900 and D-A90L-900.

*Models D-M9BWL-900 or M9BWS DPC-900 cannot be mounted.

*The auto switch is shipped together but not assembled. (Only auto switch mounting brackets are assembled before shipment.)

*Refer to pages 66 to 68 for details on auto switch mounting brackets.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)		
	6	10	16
Foot bracket	90-CJ-L006B	90-CJ-L010B	90-CJ-L016B
Flange bracket	90-CJ-F006B	90-CJ-F010B	90-CJ-F016B

Air Cylinder: Standard Type Double Acting, Single Rod

90-91-CDG1 Series

∅20, ∅25, ∅32, ∅40, ∅50

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches



How to Order

With auto switch **90-CDG1 L N 25-100-M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch (Built-in magnet)

Mounting style

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

*91-series foot and rod side flange are assembled before shipment.

Type

N	Rubber bumper
---	---------------

Bore size

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

Number of auto switches

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

Auto switch

Nil	Without auto switch
-----	---------------------

*For the applicable auto switch model, refer to the table below.

Cylinder stroke (mm)

Bore size (mm)	Standard stroke ⁽¹⁾ (mm)	Long stroke ⁽²⁾ (mm)	Maximum manufacturable stroke (mm)
20	25, 50, 75, 100, 125, 150, 200	201 to 350	1500
25	25, 50, 75, 100, 125, 150, 200, 250, 300	301 to 400	
32		301 to 450	
40		301 to 800	
50		301 to 1200	

Note 1) Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)
Note 2) Long stroke is compatible with the axial foot and rod side flange types. When other mounting brackets are used or the long stroke exceeds the limit, the allowable maximum stroke length is determined using the stroke selection table.

*Specifications and dimensions for the 90-series are the same as standard products.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example)⁹⁰.CDG1FN32-100

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model	Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC		3(L)	SDPC		
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	M9BW	●	●	—	Relay, PLC
Reed switch	—		No			100 V or less		A90	●	—	

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BWL-900, D-M9BWS DPC-900 and D-A90L-900.

*Models D-M9BWL-900 or M9BWS DPC-900 cannot be mounted.

*The auto switch is shipped together but not assembled. (Only auto switch mounting brackets are assembled before shipment.)

*Refer to pages 66 to 68 for details on auto switch mounting brackets.

Mounting Bracket Part No.

Mounting bracket	Min. order	Bore size (mm)					Description
		20	25	32	40	50	
Foot	1	90-CG-L020	90-CG-L025	90-CG-L032	90-CG-L040	90-CG-L050	Foot x 2, Mounting bolt x 8
Flange	1	90-CG-F020	90-CG-F025	90-CG-F032	90-CG-F040	90-CG-F050	Flange x 1, Mounting bolt x 4
Trunnion pin	1	90-CG-T020	90-CG-T025	90-CG-T032	90-CG-T040	90-CG-T050	Trunnion pin x 2, Trunnion bolt x 2, Flat washer x 2
Clevis	1	90-CG-D020	90-CG-D025	90-CG-D032	90-CG-D040	90-CG-D050	Clevis x 1, Mounting bolt x 4, Clevis pin x 1, Retaining ring x 2
Pivot bracket	1	90-CG-020-24A	90-CG-025-24A	90-CG-032-24A	90-CG-040-24A	90-CG-050-24A	Pivot bracket x 1

Air Cylinder: Standard Type Double Acting, Single Rod

90-*CDA2* Series

91-*CDA2* Series

∅40, ∅50, ∅63, ∅80, ∅100

How to Order



With auto switch

90 - **CDA2** **L** **50** - **100** - **M9BWL** **□**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch
(Built-in magnet)

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
G	Head side flange style
C	Single clevis style
D	Double clevis style
T	Center trunnion style

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) ⁹⁰CDA2L40-100

Bore size

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

Number of auto switches

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

Auto switch

Nil	Without auto switch
------------	---------------------

*Refer to the table below for the applicable auto switch model.

Cylinder stroke (mm)

40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 500, 600
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700

*Intermediate strokes not listed above are produced upon receipt of order.

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC
Reed switch	—		No					100 V or less	—				

*Additional symbols for auto switch: Lead wire length 3 m.....L
With pre-wired connector.....SDPC Example: M9BWL M9BWS DPC

**Models D-A90L-900 cannot be mounted on cylinders of ∅50.

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*The auto switch is shipped together but not assembled. (Only auto switch mounting brackets are assembled before shipment.)

*Refer to pages 66 to 68 for details on auto switch mounting brackets.

Mounting Bracket Part No.

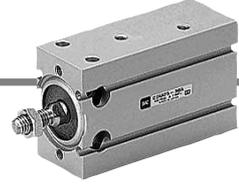
Bore size (mm)	40	50	63	80	100
Axial foot*	91-CA2-L04	91-CA2-L05	91-CA2-L06	91-CA2-L08	91-CA2-L10
Flange	91-CA2-F04	91-CA2-F05	91-CA2-F06	91-CA2-F08	91-CA2-F10
Single clevis	91-CA2-C04	91-CA2-C05	91-CA2-C06	91-CA2-C08	91-CA2-C10
Double clevis**	91-CA2-D04	91-CA2-D05	91-CA2-D06	91-CA2-D08	91-CA2-D10

*When axial foot brackets are used, two pieces should be ordered for each cylinder.

**Double clevis type is packed with clevis pin, flat washer and cotter pin.

Free Mount Cylinder Double Acting, Single Rod 90-*CDU* Series ø10, ø16, ø20, ø25, ø32

How to Order



With auto switch

90 - CDU 16 - [] D - M9BWL []

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Built-in magnet

Bore size

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

Action

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

Standard stroke (mm)

ø6, ø10, ø16	5, 10, 15, 20, 25, 30
ø20, ø25, ø32	5, 10, 15, 20, 25, 30, 40, 50

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch

Nil	Without auto switch
-----	---------------------

*Refer to the table below for applicable auto switches.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example)⁹⁰₉₁-CDU20-25D

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switches/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC
Reed switch	—		No					—	A90				

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSRPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*The auto switch is shipped together but not assembled.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

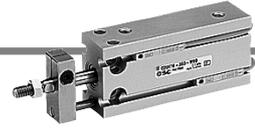
Auto Switches

Free Mount Cylinder: Non-rotating Rod Type Double Acting, Single Rod

90-*CDUK* Series

ø10, ø16, ø20, ø25, ø32

How to Order



With auto switch

90-CDUK16-30D-M9BWL

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Built-in magnet

Non-rotating rod type

Bore size

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

Action

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

Standard stroke (mm)

ø10, ø16	5, 10, 15, 20, 25, 30
ø20, ø25, ø32	5, 10, 15, 20, 25, 30, 40, 50

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch

Nil	Without auto switch
-----	---------------------

*Refer to the table below for applicable auto switches.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example)⁹⁰CDUK20-25D

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switches/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWV	M9BW	●	●	—	Relay, PLC
Reed switch	—		No					—	A90				

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSLSDPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*The auto switch is shipped together but not assembled.

Compact Cylinder: Standard Type Double Acting, Single Rod

90-91-CDQS Series

Ø12, Ø16, Ø20, Ø25

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches



How to Order

With auto switch **90**-CDQS **B** **20**-**30** **D** - **M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch (Built-in magnet)

Mounting style

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

*In the case of long strokes, use either ends tapped mounting or bracket mounting.
*Mounting brackets are shipped together, (but not assembled).

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm

Cylinder stroke (mm)

Bore size	Standard stroke	Long stroke
12, 16	5, 10, 15, 20, 25, 30	35, 40, 45, 50, 75, 100, 125, 150, 175, 200
20	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	75, 100, 125, 150, 175, 200
25		75, 100, 125, 150, 175, 200, 250, 300

Number of auto switches

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

Auto switch

Nil	Without auto switch
-----	---------------------

*Refer to the table below for the applicable auto switch model.

Body option

<Standard stroke>

Nil	Standard
C	With rubber bumper
M	Rod end male thread

*Combination of body options is available.

<Long stroke>

C	With rubber bumper Rod end female thread (Standard)
CM	With rubber bumper Rod end male thread

*Rubber bumper is standard equipment for long stroke type.

Action

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

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example)⁹⁰-CDQSL25-30D

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			Relay, PLC	IC circuit	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V		M9BWW	M9BW	3(L)	SDPC	—	Relay, PLC
Reed switch	—		No					—	A90				

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*The auto switch is shipped together but not assembled.

Note) Auto switches of models D-M9BWWL-900 or M9BWWSDPC-900 cannot be mounted on the port depending on cylinder stroke and fitting size. Consult SMC.

Mounting Brackets for 90-series/Part No.

Bore size (mm)	Foot (1)	Flange	Double clevis
12	90-CQS-L012	90-CQS-F012	90-CQS-D012
16	90-CQS-L016	90-CQS-F016	90-CQS-D016
20	90-CQS-L020	90-CQS-F020	90-CQS-D020
25	90-CQS-L025	90-CQS-F025	90-CQS-D025

Mounting Brackets for 91-series/Part No.

Bore size (mm)	Foot (1)	Flange	Double clevis
12	91-CQS-L012	91-CQS-F012	90-CQS-D012
16	91-CQS-L016	91-CQS-F016	90-CQS-D016
20	91-CQS-L020	91-CQS-F020	90-CQS-D020
25	91-CQS-L025	91-CQS-F025	90-CQS-D025

Note1) When ordering foot bracket, order 2 pieces per cylinder.

Note2) Parts belonging to each bracket are as follows.

Foot or Flange style: Body mounting bolt

Double clevis style: Clevis pin, Type C snap ring for axis, Body mounting bolt

Compact Cylinder: Anti-lateral Load Type

90-**CDQS**□**S** Series

ø12, ø16, ø20, ø25



How to Order

With auto switch **90-CDQSBS20-30DC-M9BWL** □

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch (Built-in magnet)

Mounting style

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

Type

S	Anti-lateral load type
---	------------------------

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm)
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50

Number of auto switches

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

Auto switch

Nil	Without auto switch
-----	---------------------

*Refer to the table below for the applicable auto switch model.

Body option

C	With rubber bumper Rod end female thread (Standard)
CM	With rubber bumper Rod end male thread

Action

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

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example)⁹⁰⁻CDQSLS12-25D
Only for models with cushions

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line			3(L)	SDPC
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—
Reed switch	—		No				—	A90	●	—	IC circuit	

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*The auto switch is shipped together but not assembled.

Note) Auto switches of models D-M9BWWL-900 or M9BWWSDPC-900 cannot be mounted on the port depending on cylinder stroke and fitting size. Consult SMC.

Mounting Brackets for 90-series/Part No.

Bore size (mm)	Foot (1)	Flange	Double clevis
12	90-CQS-L012	90-CQS-F012	90-CQS-D012
16	90-CQS-L016	90-CQS-F016	90-CQS-D016
20	90-CQS-L020	90-CQS-F020	90-CQS-D020
25	90-CQS-L025	90-CQS-F025	90-CQS-D025

Mounting Brackets for 91-series/Part No.

Bore size (mm)	Foot (1)	Flange	Double clevis
12	91-CQS-L012	91-CQS-F012	90-CQS-D012
16	91-CQS-L016	91-CQS-F016	90-CQS-D016
20	91-CQS-L020	91-CQS-F020	90-CQS-D020
25	91-CQS-L025	91-CQS-F025	90-CQS-D025

Note1) When ordering foot bracket, order 2 pieces per cylinder.

Note2) Parts belonging to each bracket are as follows.

Foot or Flange style: Body mounting bolt

Double clevis style: Clevis pin, type C retaining ring for axis, Body mounting bolt

Compact Cylinder: Standard Type Double Acting, Single Rod

90-91-CDQ2 Series

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



How to Order

With auto switch **90-CDQ2 B 20-30 D Z-M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch (Built-in magnet)

Mounting style

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

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

Auto switch

Nil	Without auto switch
-----	---------------------

*Refer to the table below for the applicable auto switch model.

Auto switch mounting groove

Z	∅12 to ∅25	2 sides
	∅32 to ∅100	4 sides

Number of auto switches

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

Body option

Nil	Standard (Rod end female thread)
C	With rubber bumper
M	Rod end male thread

*Combination of body options is available.

Action

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

Cylinder stroke (mm)

12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50 to 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) 90-CDQ2L32-25DZ

Bore size

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

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC
Reed switch	—		No										

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSDDPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*When mounting the D-M9BW(V)L-900, D-M9BW(V)SDPC-900 or A90L-900 on cylinders with ∅32 to ∅50 other than on the port face, order the auto switch mounting bracket separately. Refer to pages 66 to 68 for details.

Mounting Brackets for 90-series/Part No.

Bore size (mm)	Foot ⁽¹⁾	Flange	Double clevis
12	90-CQ-L012	90-CQ-F012	90-CQ-D012
16	90-CQ-L016	90-CQ-F016	90-CQ-D016
20	90-CQ-L020	90-CQ-F020	90-CQ-D020
25	90-CQ-L025	90-CQ-F025	90-CQ-D025
32	90-CQ-L032	90-CQ-F032	90-CQ-D032
40	90-CQ-L040	90-CQ-F040	90-CQ-D040
50	90-CQ-L050	90-CQ-F050	90-CQ-D050
63	90-CQ-L063	90-CQ-F063	90-CQ-D063
80	90-CQ-L080	90-CQ-F080	90-CQ-D080
100	90-CQ-L100	90-CQ-F100	90-CQ-D100

Mounting Brackets for 91-series/Part No.

Bore size (mm)	Foot ⁽¹⁾	Flange	Double clevis
12	91-CQ-L012	91-CQ-F012	90-CQ-D012
16	91-CQ-L016	91-CQ-F016	90-CQ-D016
20	91-CQ-L020	91-CQ-F020	90-CQ-D020
25	91-CQ-L025	91-CQ-F025	90-CQ-D025
32	90-CQ-L032	90-CQ-F032	90-CQ-D032
40	90-CQ-L040	90-CQ-F040	90-CQ-D040
50	90-CQ-L050	90-CQ-F050	90-CQ-D050
63	90-CQ-L063	90-CQ-F063	90-CQ-D063
80	90-CQ-L080	90-CQ-F080	90-CQ-D080
100	90-CQ-L100	90-CQ-F100	90-CQ-D100



Note 1) When ordering foot bracket, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows. Foot, Flange: Body mounting bolt/Double clevis: Clevis pin, Type C retaining ring for axis, body mounting bolt

Compact Cylinder: Long Stroke Type Double Acting, Single Rod

90-*CDQ2* Series

ø32, ø40, ø50, ø63, ø80 ø100



How to Order

With auto switch **90-CDQ2 A 32-200 DC Z-M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch (Built-in magnet)

Mounting style

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

Bore size

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

Cylinder stroke (mm)

32, 40, 50	125, 150, 175
63, 80, 100	200, 250, 300

Action

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

Number of auto switches

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

Auto switch

Nil	Without auto switch
-----	---------------------

*Refer to the table below for the applicable auto switch model.

Auto switch mounting groove

Z	ø12 to ø25	2 sides
	ø32 to ø100	4 sides

Body option

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

Cushion

C	Rubber bumper
---	---------------

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

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) ⁹⁰-CDQ2L40-200DCZ

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC
Reed switch	—		No					—	A90				

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSRPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*When mounting the D-M9BW(V)L-900, D-M9BW(V)SDPC-900 or A90L-900 on cylinders with ø32 to ø50 other than on the port face, order the auto switch mounting bracket separately. Refer to pages 66 to 68 for details.

Mounting Brackets for 90- and 91-series/Part No.

Bore size (mm)	Foot (1)	Flange	Double clevis
32	90-CQ-L032	90-CQ-F032	90-CQ-D032
40	90-CQ-L040	90-CQ-F040	90-CQ-D040
50	90-CQ-L050	90-CQ-F050	90-CQ-D050
63	90-CQ-L063	90-CQ-F063	90-CQ-D063
80	90-CQ-L080	90-CQ-F080	90-CQ-D080
100	90-CQ-L100	90-CQ-F100	90-CQ-D100



Note 1) When ordering foot bracket, order 2 pieces per cylinder.

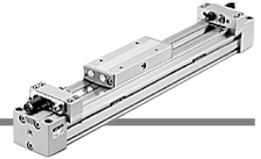
Note 2) Parts belonging to each bracket are as follows.

Foot or Flange style: Body mounting bolt, Double clevis/Clevis pin, Type C retaining ring for axis, Body mounting bolt

Mechanically Jointed Rodless Cylinder Basic Type

90-MY1B Series

ø20, ø25, ø32, ø40, ø50, ø63



How to Order

Basic type 90-MY1B 20 - 300 - M9BWL

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Basic type

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

Bore size (mm)

Piping

Nil	Standard type
G	Centralized piping type

Cylinder stroke (mm)

20, 25, 32, 40, 50, 63	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000
------------------------	---

Number of auto switches

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

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

Applicable auto switches vary depending on the bore size. Select an applicable one referring to the table below.

Suffix for stroke adjusting unit

Nil	Both sides
S	One side

Note) "S" is applicable for stroke adjusting units L and H.

Stroke adjusting unit

Nil	Without adjusting unit
L	With low load shock absorber + Adjusting bolt
H	With high load shock absorber + Adjusting bolt
LH	With one L unit and one H unit each

No stroke adjustment units are used for ø50 and ø63.

*The cylinder stroke is used every one millimeter up to the maximum stroke. When exceeding 2,000 mm, consult SMC.

No stroke adjustment units are used for ø50 and ø63.

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line			3(L)	SDPC
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	M9BWV** [Y7BWV]	M9BW** [Y7BW]	●	●	—	Relay, PLC
Reed switch	—		No		100 V or less	—						

*Additional symbols for auto switch: Lead wire length 3 m.....L
With pre-wired connector.....SDPC

Example: M9BWL
M9BWS DPC

**Models D-M9BW(V)L-900 or D-M9BW(V)SDPC-900 cannot be mounted on cylinders of ø50.
Select auto switches from those specified in brackets [].

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900, D-Y7BW(V)L-900, D-Y7BW(V)SDPC-900 and D-Z80L-900.

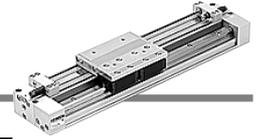
*The auto switch is shipped together but not assembled.

*Refer to pages 66 to 68 for details on the auto switch mounting brackets.

Mechanically Jointed Rodless Cylinder Linear Guide Type

90-MY1H Series

∅16, ∅20, ∅25, ∅32, ∅40



How to Order

Linear guide type **90** - **MY1H** **25** - **300** - **M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Linear guide type

Bore size

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

Piping

Nil	Standard type
G	Centralized piping type

Cylinder stroke (mm)

16, 20	50, 100, 150, 200
25, 32, 40	250, 300, 350, 400 450, 500, 550, 600

Stroke adjusting unit

Nil	Without adjusting unit
L	With low load shock absorber + Adjusting bolt
H	With high load shock absorber + Adjusting bolt
LH	With one L unit and one H unit each

Number of auto switches

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

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

Suffix for stroke adjusting unit

Nil	Both ends
S	One end

Note) "S" is applicable for stroke adjusting units L and H.

*Refer to the table below for the applicable auto switch model.

Note) ⁹⁰⁻₉₁₋MY1H16 is not available with H unit.

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line				
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	3(L)	SDPC	—
					100 V or less	—						
Reed switch	—	—	No	—	—	—	—	—	—	—	IC circuit	

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSLSDPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*The auto switch is shipped together but not assembled.

*Refer to pages 66 to 68 for details on the auto switch mounting brackets.

Mechanically Jointed Rodless Cylinder Linear Guide Type

90-MY2H Series

ø16, ø25



How to Order

Linear Guide Type **90** - **MY2H** **16G** - **300L** - **M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Guide type

H	Linear guide, Single axis
---	---------------------------

Bore size

16	16 mm
25	25 mm

Piping

G	Centralized piping type (Standard)
---	------------------------------------

Stroke (mm)

16	50, 100, 150, 200, 250, 300, 350,
25	400, 450, 500, 550, 600

Number of auto switches

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

Auto switch type

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

*Refer to the table below for the applicable auto switch model.

Stroke adjusting unit position

Nil	Both ends
S	One end

Note) "S" is applicable for stroke adjusting units L and H.

Stroke adjusting unit

Nil	Without adjusting unit
L	With low load shock absorber
H	With high load shock absorber
LH	With one L unit and one H unit each

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for the detailed specifications of auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWV	M9BW	●	●	—	Relay, PLC
Reed switch	—		No					—	A90				

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSRPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*The auto switch is shipped together but not assembled.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Magnetically Coupled Rodless Cylinder/ Basic Type

90-*CY3B* Series

Ø15, Ø20, Ø25, Ø32, Ø40

How to Order



Basic type

90 - **CY3B** **25** - **300**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Basic type

Bore size

15	15 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm

Standard stroke

Bore size (mm)	Standard stroke (mm)	Maximum available stroke (mm)
15	50, 100, 150, 200, 250, 300, 350, 400, 450, 500	1000
20	100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	1500
25		
32	100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000	2000
40		

*Specifications and dimensions for the 90-series are the same as standard products.

Note 1) For strokes exceeding the maximum, consult SMC.

Note 2) The longer the stroke, the larger the amount of deflection in a cylinder tube. Pay attention to the mounting bracket and clearance value.

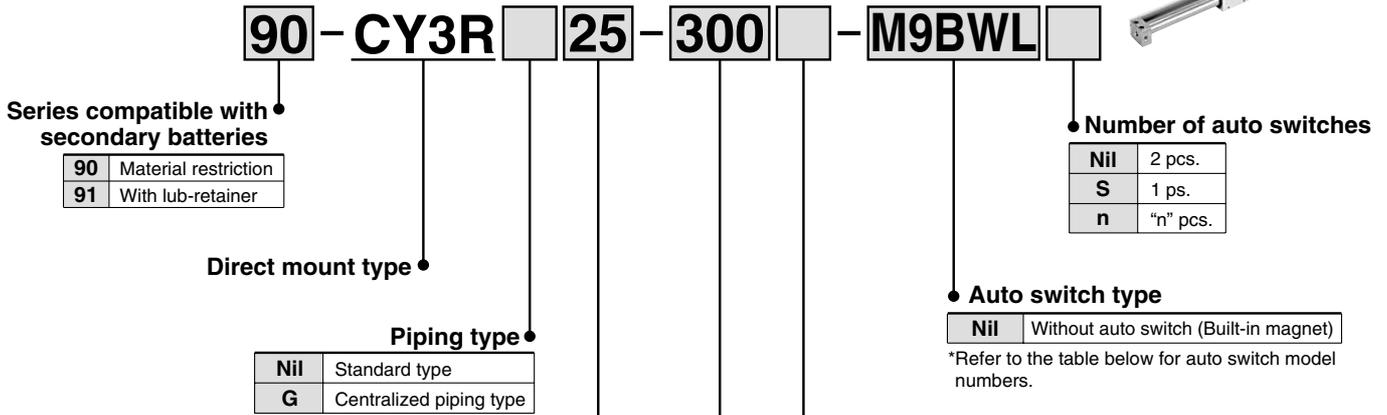
Note 3) Intermediate stroke is available by the 1 mm interval.

Magnetically Coupled Rodless Cylinder/ Direct Mount Type

90-**CY3R** Series

Ø15, Ø20, Ø25, Ø32, Ø40

How to Order



Bore size

15	15 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm

Switch rail

Nil	With switch rail
N	Without switch rail

Note) A type with switch rail has built-in auto switch magnets.

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm)	Max. stroke without switch (mm)	Max. stroke with switch (mm)
15	50, 100, 150, 200, 250, 300, 350 400, 450, 500	1000	750
20	100, 150, 200, 250, 300, 350, 400 450, 500, 600, 700, 800	1500	1000
25			1200
32	100, 150, 200, 250, 300, 350, 400 450, 500, 600, 700, 800, 900, 1000	2000	1500
40			1500

Note 1) The longer the stroke, the larger the amount of deflection in a cylinder tube.

Pay attention to the mounting bracket and clearance value.

Note 2) Intermediate stroke is available by the 1 mm interval.

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switches/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch model	Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC				3(L)	SDPC
Solid state switch	Diagnostic indication (2-color display)	Grommet	Yes	2-wire	24 V	12 V	M9BW	●	●	—	Relay, PLC
Reed switch	—		No								

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSRPC

*Order part numbers for auto switches alone are D-M9BWL-900, D-M9BWSRPC-900 and D-A90L-900.

*Models D-M9BWL-900 or M9BWSRPC-900 cannot be mounted.

*The auto switch is shipped together but not assembled.

*Refer to pages 66 to 68 for details on the auto switch mounting brackets.

Air Slide Table

90-MXS Series

How to Order



Air slide table **90** - **MXS** **16** - **50** **AS** - **M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Port thread type

Nii	M thread	ø16
	Rc	ø20, ø25
TN	NPT	
TF	G	

Symmetric type

Nii	Standard type
L	Symmetric type

Bore size (Stroke (mm))

ø16	10, 20, 30, 40, 50, 75, 100, 125
ø20	10, 20, 30, 40, 50, 75, 100, 125, 150
ø25	10, 20, 30, 40, 50, 75, 100, 125, 150

Number of auto switches

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

Auto switch

Nii	Without auto switch (Built-in magnet)
------------	---------------------------------------

*For the applicable auto switch models, refer to the table below.

Adjuster option

Nii	Without adjuster
AS	Adjuster on extension end
AT	Adjuster on retraction end
A	Adjuster on both ends
BS	Absorber on extension end
BT	Absorber on retraction end
B	Absorber on both ends
ASBT	Adjuster on extension end + Absorber on retraction end
BSAT	Absorber on extension end + Adjuster on retraction end

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switches/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC
Reed switch	—		No				100 V or less	—	A90	●	—	IC circuit	

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.
*The auto switch is shipped together but not assembled.

Air Slide Table

90-91-MXQ Series

ø6, ø8, ø12, ø16, ø20, ø25

How to Order



90 - MXQ 16 [] [] - 50 AS - M9BWL []

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Port thread type

Nil	M thread	ø6 to ø16
	Rc	
TN	NPT	ø20, ø25
TF	G	

Symmetric type

Nil	Standard type
L	Symmetric type

Bore size (Stroke mm)

ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø20	10, 20, 30, 40, 50, 75, 100, 125, 150
ø25	10, 20, 30, 40, 50, 75, 100, 125, 150

Number of auto switches

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

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

*For the applicable auto switch model, refer to the table below.

Adjuster option

Nil	Without adjuster
AS	Extension end adjuster
AT	Retraction end adjuster
A	Double end adjuster
BS	Extension end absorber
BT	Retraction end absorber
B	Double absorber
CS	Extension end metal stopper
CT	Retraction end metal stopper
C	Double metal stopper
ASBT	Extension end adjuster + Retraction end absorber
ASCT	Extension end adjuster + Retraction end metal stopper
BSAT	Extension end absorber + Retraction end adjuster
BSCT	Extension end absorber + Retraction end metal stopper
CSAT	Extension end metal stopper + Retraction end adjuster
CSBT	Extension end metal stopper + Retraction end absorber

*90- and 91-series MXQ6 products do not have shock absorbers.

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for the detailed specifications of auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC
Reed switch	—		No					—	A90				

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.
*The auto switch is shipped together but not assembled.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Compact Guide Cylinder

90-MGP Series

∅12, ∅16, ∅20, ∅25, ∅32, ∅40, ∅50, ∅63



How to Order

Compact Guide Cylinder **90-MGP M 25-30-M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Compact Guide Cylinder

Bearing type

M	Slide bearing
L	Ball bushing bearing

Bore size

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

Number of auto switches

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

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

*For the applicable auto switch model, refer to the table below.

Cylinder stroke (mm)

12, 16	10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250
20, 25	20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400
32 to 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC
Reed switch	—		No				100 V or less	—	A90	●	—	IC circuit	

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*The auto switch is shipped together but not assembled.

*Refer to pages 66 to 68 for details on the auto switch mounting brackets.

Minimum Operating Pressure for Products for 91-series Specifications

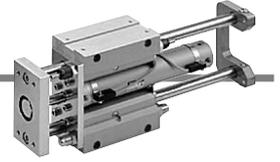
Bore size (mm)	12, 16, 20, 25	32, 40, 50, 63
Minimum operating pressure	0.2MPa	0.15MPa

Guide Cylinder

90-91-MGG Series

∅20, ∅25, ∅32, ∅40, ∅50

How to Order



90 - **MGG** **L** **B** **32** - **100** - **M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

Guide Cylinder

Bearing type

L	Ball bushing bearing
----------	----------------------

Mounting style

B	Basic style
F	Front mounting flange style

Bore size

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

Number of auto switches

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

Auto switch

Nil	Without auto switch (Built-in magnet)
------------	---------------------------------------

*For the applicable auto switch model, refer to the table below.

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm)	Long stroke (mm)
20	75, 100, 125, 150, 200	250, 300, 350, 400
25	75, 100, 125, 150, 200	350, 400, 450, 500
32		350, 400, 450, 500, 600
40	75, 100, 125, 150, 200, 250, 300	350, 400, 450, 500, 600, 700, 800
50		350, 400, 450, 500, 600, 700, 800, 900, 1000

*Intermediate strokes and short strokes other than the above are produced upon receipt of order.

*Specifications and dimensions for the 90-series are the same as standard products. Specifications for the 91-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model	Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC		3(L)	SDPC		
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	●	●	—	Relay, PLC
Reed switch	—		No								

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BWL-900, D-M9BWS DPC-900 and D-A90L-900.

*Models D-M9BWS L-900 or M9BWS DPC-900 cannot be mounted.

*The auto switch is shipped together but not assembled. (Only auto switch mounting brackets are assembled before shipment.)

*Refer to pages 66 to 68 for details on the auto switch mounting brackets.

Cylinder with Lock

Double Acting, Single Rod

90-91-CDNG Series

∅20, ∅25, ∅32, ∅40



How to Order

With auto switch **90-CDNG L N 32-100-D-M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch (Built-in magnet)

Mounting style

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

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

Bore size

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

Locking direction

D	Both directions
---	-----------------

Number of auto switches

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

Auto switch

Nil	Without auto switch
-----	---------------------

*For the applicable auto switch model, refer to the table below.

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm) ⁽¹⁾	Long stroke (mm)	Max. manufacturable stroke (mm)
20	25, 50, 75, 100, 125, 150, 200	201 to 350	1500
25	25, 50, 75, 100, 125, 150, 200, 250, 300	301 to 400	
32		301 to 450	
40		301 to 800	

Note 1) Intermediate strokes other than the above are produced upon receipt of order. Spacers are not used for intermediate strokes.
 Note 2) Long strokes are applicable to the axial foot style and rod side flange style.
 In the case of other mounting brackets or when long stroke limits are exceeded, the maximum useable stroke is determined by the stroke selection table (information edition).

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
 (Example) 90-CDNGLN40-100-D

Cushion type

N	Rubber bumper
---	---------------

*Specifications and dimensions for the 90-series are the same as standard products.
 Specifications for the 91-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model	Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC		3(L)	SDPC		
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	M9BW	●	●	—	Relay, PLC

*Additional symbols for auto switch: Lead wire length 3 m.....L
 With pre-wired connector.....SDPC
 Example: M9BWL
 M9BWSNPC

*Order part numbers for auto switches alone are D-M9BWL-900, D-M9BWSNPC-900 and D-A90L-900.

*Models D-M9BWL-900 or M9BWSNPC-900 cannot be mounted.

*The auto switch is shipped together but not assembled. (Only auto switch mounting brackets are assembled before shipment.)

*Refer to pages 66 to 68 for details on the auto switch mounting brackets.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)			
	20	25	32	40
Axial foot *	91-CNG-L020	91-CNG-L025	91-CNG-L032	91-CNG-L040
Flange	91-CNG-F020	91-CNG-F025	91-CNG-F032	91-CNG-F040
Trunnion pin	90-CG-T020	90-CG-T025	90-CG-T032	90-CG-T040
Clevis **	90-CG-D020	90-CG-D025	90-CG-D032	90-CG-D040
Rod side pivot bracket	91-CNG-020-24	91-CNG-025-24	91-CNG-032-24	91-CNG-040-24
Head side pivot bracket	90-CG-020-24A	90-CG-025-24A	90-CG-032-24A	90-CG-040-24A

*When ordering foot bracket, order 2 pieces per cylinder.

**Clevis pin, retaining ring, and mounting bolt are shipped together with clevis style.

***Mounting bolts are included with the foot and flange styles.

Cylinder with Lock Double Acting, Single Rod

90-*CDNA* Series

Ø40, Ø50, Ø63, Ø80, Ø100



How to Order

With auto switch **90** - **CDNA** **L** **N** **50** - **100** - **D** - **M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch
(Built-in magnet)

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
G	Head side flange style
C	Single clevis style
D	Double clevis style
T	Center trunnion style

Type

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

Bore size

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

Locking direction

D	Both directions
---	-----------------

Auto switch

Nil	Without auto switch
-----	---------------------

Number of auto switches

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

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm) ⁽¹⁾	Long stroke (mm) ⁽²⁾
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	800
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	1000
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700	ø80: 1000 ø100: 1000

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) ⁹⁰CDNALN40-100-D

*Specifications and dimensions for the 90-series are the same as standard products.
Specifications for the 91-series are the same as standard products.

Note 1) Intermediate strokes other than the above are produced upon receipt of order. Spacers are not used for intermediate strokes.
Note 2) Long stroke applies to the axial foot style and the rod side flange style.
When exceeding the stroke range for each bracket, determine the maximum strokes referring to the Selection Table (front matter 29 in Best Pneumatics No. 2).

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line			3(L)	SDPC
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—
Reed switch	—		No					—	A90**			

*Additional symbols for auto switch: Lead wire length 3 m.....L
With pre-wired connector.....SDPC
Example: M9BWL M9BWS DPC
**Models D-A90L-900 cannot be mounted on cylinders of ø50.

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.
*The auto switch is shipped together but not assembled. (Only auto switch mounting brackets are assembled before shipment.)
*Refer to pages 66 to 68 for details on the auto switch mounting brackets.

Mounting Bracket Part No.

Bore size (mm)	40	50	63	80	100
Foot *	90-CA1-L04	90-CA1-L05	90-CA1-L06	90-CA1-L08	90-CA1-L10
Flange	90-CA1-F04	90-CA1-F05	90-CA1-F06	90-CA1-F08	90-CA1-F10
Single clevis	90-CA1-C04	90-CA1-C05	90-CA1-C06	90-CA1-C08	90-CA1-C10
Double clevis **	90-CA1-D04	90-CA1-D05	90-CA1-D06	90-CA1-D08	90-CA1-D10

* When ordering foot bracket, order 2 pieces per cylinder.
**Clevis pin, plain washer, and cotter pin are shipped together with double clevis style.

Compact Cylinder with Lock Double Acting, Single Rod

90-*CDLQ* Series

ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100



How to Order

With auto switch **90** - **CDLQ** **B** **40** - **30D** - **F** - **M9BWL**

Series compatible with secondary batteries

90	Material restriction
91	With lub-retainer

With auto switch
(Built-in magnet)

Mounting style

ø20, ø25		ø32 to ø100	
B	Through-hole/ Both ends tapped common (Standard)	B	Through-hole (Standard)
L	Foot style	A	Both ends tapped style
F	Rod side flange style	L	Foot style
G	Head side flange style	F	Rod side flange style
D	Double clevis style	G	Head side flange style
		D	Double clevis style

*Mounting bracket is shipped together, (but not assembled).

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) ⁹⁰CDLQL32-30D-B

*Specifications and dimensions for the 90-series are the same as standard products.
Specifications for the 91-series are the same as standard products.

Bore size

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

Number of auto switches

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

Auto switch

Nil	Without auto switch
-----	---------------------

*For the applicable auto switch model, refer to the table below.

Locking direction

F	Extension locking
B	Retraction locking

Body option

Nil	Standard (Rod end female thread)
C	With rubber bumper
M	Rod end male thread
CM	With rubber bumper, Rod end male thread

Action

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

Cylinder stroke (mm)

Bore size (mm)	Standard stroke (mm)
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40, 50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Applicable Auto Switch/Refer to pages 62 to 65 for detailed specifications of auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line				
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	3(L)	SDPC	—
Reed switch	—		No				100 V or less	—	A90			IC circuit

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWS DPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*When mounting the D-M9BW(V)L-900, M9BW(V)SDPC-900, or A90L-900 on cylinders with ø32 to ø50 other than on the port face, order the auto switch mounting brackets separately. Refer to page 66 for details.

*When using mounting brackets (foot, head side flange, or double clevis), an auto switch may or may not be mounted later. Confirm specifications.

Mounting Bracket Part No.

Bore size (mm)	Foot ⁽¹⁾	Flange	Double clevis ⁽³⁾	Bore size (mm)	Foot ⁽¹⁾	Flange	Double clevis ⁽³⁾
20	91-CLQ-L020	91-CLQ-F020	91-CLQ-D020	50	91-CLQ-L050	91-CLQ-F050	91-CLQ-D050
25	91-CLQ-L025	91-CLQ-F025	91-CLQ-D025	63	91-CLQ-L063	91-CLQ-F063	91-CLQ-D063
32	91-CLQ-L032	91-CLQ-F032	91-CLQ-D032	80	91-CLQ-L080	91-CLQ-F080	91-CLQ-D080
40	91-CLQ-L040	91-CLQ-F040	91-CLQ-D040	100	91-CLQ-L100	91-CLQ-F100	91-CLQ-D100

Note1) When ordering foot bracket, order 2 pieces per cylinder.

Note2) Parts belonging to each bracket are as follows. Foot, Flange: Body mounting screws, Double clevis: Clevis pin, type C retaining ring for shaft, Body mounting screws, Flat washer.

Note3) Clevis pin and retaining ring are included with the double clevis style.

Stopper Cylinder / Fixed Mounting Height

90-RSDQ Series

∅20, ∅32, ∅40, ∅50



How to Order

With auto switch

90-RSDQ B 20 - 15 D - M9BWL

Series compatible with secondary batteries
90 Material restriction

With auto switch (Built-in magnet)

Mounting bracket

B	Through-hole (Standard)
A	Both ends tapped style

Bore size

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

Port thread type

Nil	Rc	∅20 to ∅50
TN	NPT	
TF	G	

Note) TF for ∅20 indicates M5.

Cylinder stroke (mm)

20	10, 15, 20
32	10, 15, 20
40	20, 25, 30
50	20, 25, 30

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch
Nil Without auto switch

*For the applicable auto switch model, refer to the table below.

Rod end configuration

Symbol	Configuration	Application
Nil	Round bar type	—
K	Chamfered type	—
R	Roller type	—
L	Lever type (Non-adjustable) (1)	Basic style

Note 1) The lever types are applicable only to ∅32, ∅40 and ∅50.

Action

D	Double acting
B	Double acting with spring loaded
T	Single acting (Spring extend)

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
 (Example) 90-RSQB32-15D

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line			3(L)	SDPC
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—
Reed switch	—		No					—	A90			

*Additional symbols for auto switch: Lead wire length 3 m.....L
 With pre-wired connector.....SDPC
 Example: M9BWL
 M9BWSLSDPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.

*When mounting the D-M9BW(V)L-900, M9BW(V)SDPC-900, or A90L-900 on cylinders with ∅32 to ∅50 other than on the port face, order the auto switch mounting brackets separately. Refer to page 66 for details.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Heavy Duty Stopper Cylinder

90-RSH/RS1H Series

∅20, ∅32 ∅50, ∅63

How to Order



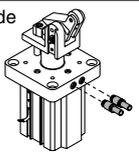
Bore size

20	20 mm
32	32 mm

Piping direction

Flange side

Nil

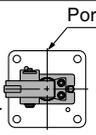


Positional relationship of lever and port

90-RSH20

Port

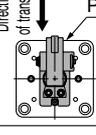
Direction of transfer



90-RSH32

Port

Direction of transfer



Heavy Duty Stopper Cylinder ∅20, ∅32

Heavy Duty Stopper Cylinder ∅50, ∅63

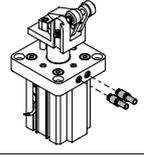
Series compatible with secondary batteries

90 Material restriction

Piping direction

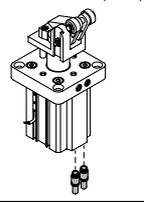
Flange side

Nil



Axial direction (tube)

A



Bore size

50	50 mm
63	63 mm

Cylinder stroke

30	30 mm (90-RS1H50, 63)
----	-----------------------

Action

D	Double acting type
B	Double acting spring type
T	Single acting/Spring extended

Roller material

L	Resin
M	Carbon steel

Option Note 1)

Nil	Without option
D	With lock mechanism
C	With cancel cap

Note 1) Options can be combined. Indicate the part No. according to the priority order of D.C.

Number of auto switches
(auto switch number mounted)

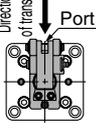
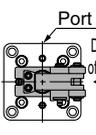
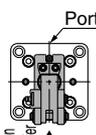
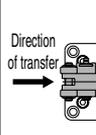
Nil	2 pcs.
S	1 pc.

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

*For the applicable auto switch model, refer to the table below.

Positional relationship of lever and port

Nil		P		Q		R	
-----	---	---	---	---	---	---	---

*Specifications and dimensions for the 90-series are the same as standard products.

Applicable auto switches/Refer to pages 62 to 65 for detailed auto switch specifications.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line			—	—
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—
Reed switch	—		No		100 V or less	—	Z80	●	—	—	—	IC circuit

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSDDPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-Z80L-900.

*The auto switch is shipped together but not assembled.

*Refer to pages 66 to 68 for details on the auto switch mounting brackets.

Floating Joint 90-J□ Series

How to Order

Standard Type

90 - JA 80 - 22-150

Series compatible with secondary batteries

90 Material restriction

Applicable bore size (mm)

Model	Symbol	Applicable bore size (mm)
Standard	80	80
	100	100

Thread nominal size (Standard)

Nominal thread size	Applicable cylinder nominal thread size
22-150	M22 x 1.5
26-150	M26 x 1.5



*Specifications and dimensions for the 90-series are the same as standard products.

How to Order

For Compact Cylinders

90 - J B 40 - 8-125

Series compatible with secondary batteries

90 Material restriction

For compact cylinders/Female thread

Applicable bore size (mm)

Symbol	Applicable bore size (mm)
12	12
16	16
20	20
25	25
40	32, 40
63	50, 63
80	80
100	100

Thread nominal size

Nominal thread size	Applicable cylinder nominal thread size
3-050	M3 x 0.5
4-070	M4 x 0.7
5-080	M5 x 0.8
6-100	M6 x 1
8-125	M8 x 1.25
10-150	M10 x 1.5
16-200	M16 x 2
20-250	M20 x 2.5



*Specifications and dimensions for the 90-series are the same as standard products.

How to Order

Stainless Steel Type

90 - J S 32 - 10-125

Series compatible with secondary batteries

90 Material restriction

Stainless steel type

Applicable bore size (mm)

Symbol	Applicable bore size (mm)
10	10
16	10, 16
20	20
32	25, 32
40	40
63	50, 63

Nominal thread size

Symbol	Applicable cylinder nominal thread size
4-070	M4 x 0.7
5-080	M5 x 0.8
8-125	M8 x 1.25
10-125	M10 x 1.25
14-150	M14 x 1.5
18-150	M18 x 1.5



*Specifications and dimensions for the 90-series are the same as standard products.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

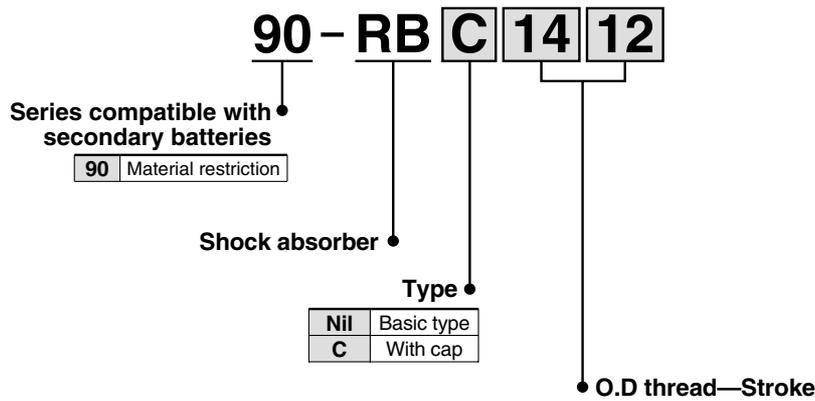
Detection Switches

Auto Switches

Shock Absorber

90-RB/RBC Series

How to Order



Replacement part no./Cap (Resin part only)		RBC 08 C
		Applicable model
08	90-RBC0805, 0806	20 90-RBC2015
10	90-RBC1006, 1007	27 90-RBC2725
14	90-RBC1411, 1412	

Cap

Cap cannot be mounted for basic type. Please place an order with cap type from the beginning.

*Specifications and dimensions for the 90-series are the same as standard products.

Rotary Table/Rack & Pinion Style

92-MSQ Series

Size: 10, 20, 30, 50, 70, 100, 200

How to Order



Basic type 92-MSQ B 10 A - M9BWL

Series compatible with secondary batteries

92	Material restriction + Vacuum port for vacuum suction
----	---

Note) Restricted material is used in part.

Size

10
20
30
50
70
100
200

Number of auto switches

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

Auto switch type

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

*Refer to the table below for auto switch types.

A	With adjustment bolt
---	----------------------

Applicable Auto Switch

Refer to pages 62 to 65 for detailed auto switch specification.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line			3(L)	SDPC	
Solid state switch	Diagnostic indication (2-color display)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWV	M9BW	●	●	—	Relay, PLC
Reed switch	—		No				100 V or less	—	A90				

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSRPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and D-A90L-900.
*The auto switch is shipped together but not assembled.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

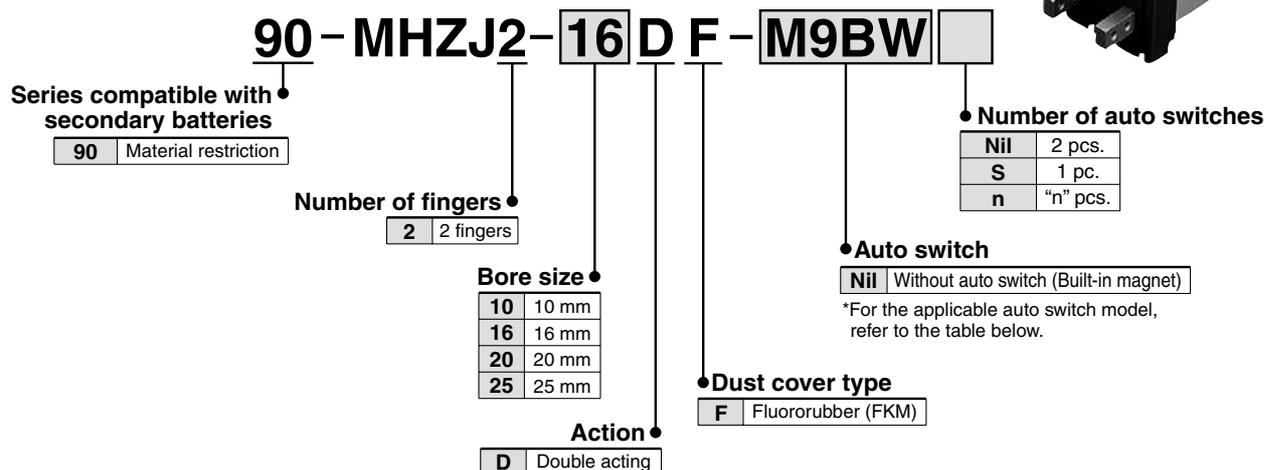
Detection Switches

Auto Switches

Parallel Style Air Gripper with Dust Cover

90-MHZJ2 Series

How to Order



*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on the auto switch.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m)	Applicable model	Applicable load	
					DC	AC	—	Perpendicular	In-line				
Solid state switch	Diagnosis (2-color indicator)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	3(L)	SDPC	—	Relay, PLC

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSRPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900 and D-M9BW(V)SDPC-900.

*The auto switch is shipped together but not assembled.

Note) Take note of hysteresis with 2-color indication type auto switches. Refer to page 438 in "Best Pneumatic No.4" for auto switch specifications.

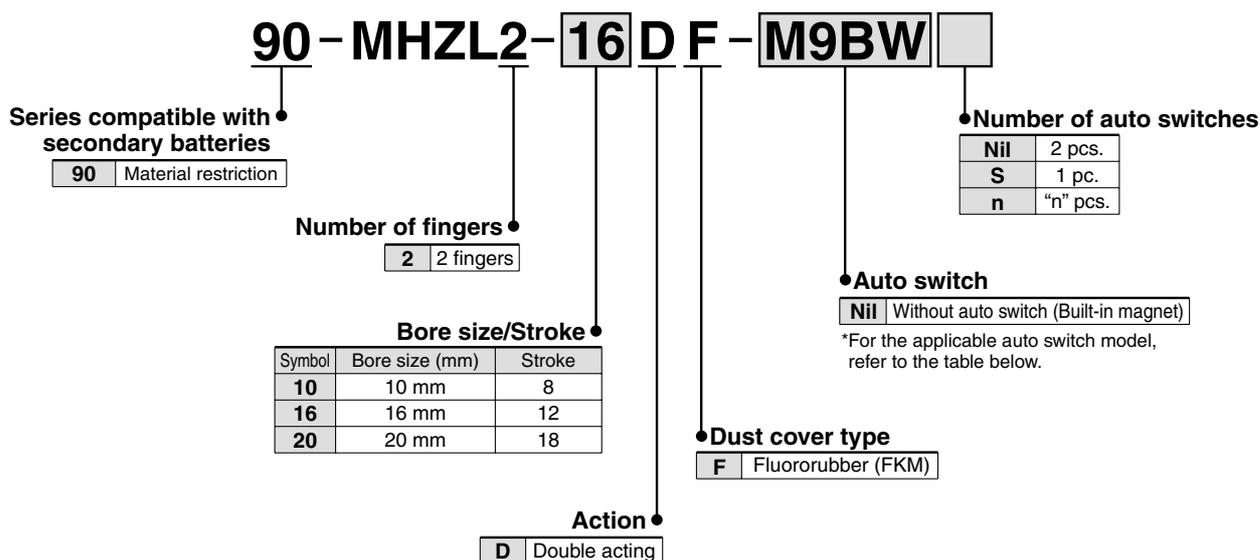
If an auto switch is mounted where the green light is lit and the air gripper has a short stroke, the auto switch may detect an unnecessary portion due to its operating range. Check that auto switch mounting is correct and adjust if necessary. This also applies to when the red light is lit.

*Through-hole mounting is not used when mounting the auto switch for the 90-MHZJ2-10D.

*When using the perpendicular auto switch for $\phi 10$, the fitting and auto switch could mutually interfere. Use the extension fitting shipped in the package to avoid interference.

Parallel Style Air Gripper/Long Stroke Type 90-MHZL2 Series

How to Order



Applicable Auto Switch/Refer to pages 62 to 65 for further information on the auto switch.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	—	Perpendicular	In-line			3(L)	SDPC
Solid state switch	Diagnostic (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSRPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900 and D-M9BW(V)SDPC-900.

*The auto switch is shipped together but not assembled.

Note) Take note of hysteresis with 2-color indication type auto switches. Refer to page 438 in "Best Pneumatic No.4" for auto switch specifications.

If an auto switch is mounted where the green light is lit and the air gripper has a short stroke, the auto switch may detect an unnecessary portion due to its operating range. Check that auto switch mounting is correct and adjust if necessary. This also applies to when the red light is lit.

*When using the perpendicular auto switch for $\phi 10$, the fitting and auto switch could mutually interfere. Use the extension fitting shipped in the package to avoid interference.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

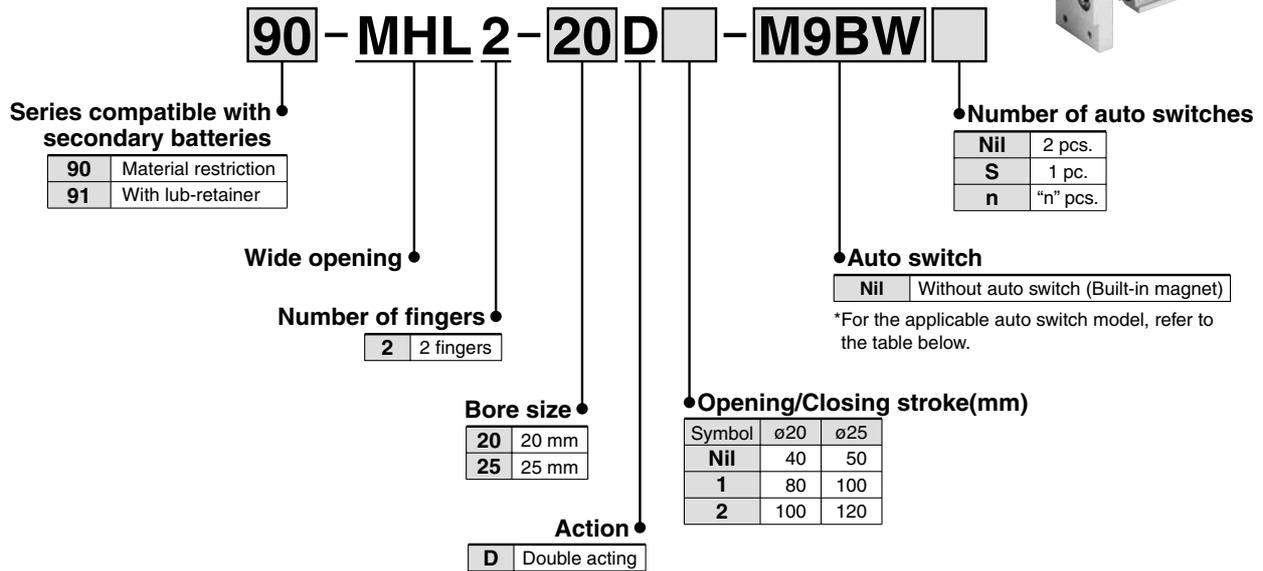
Parallel Style Air Gripper: Wide Type

90-MHL2 Series

ø20, ø25



How to Order



*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on the auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC		Perpendicular	In-line				
Solid state switch	Diagnostic (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWW	M9BW	●	●	—	Relay, PLC
								Y7BWW	Y7BW	●	—		

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSDDPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900, D-M9BW(V)SDPC-900 and DY7BW(V)L-900.

*The auto switch is shipped together but not assembled.

*For the M9 auto switch, the auto switch mounting bracket model 90-BMG2-012 is shipped with one for each auto switch.

Note 1) Take note of hysteresis with 2-color indication type auto switches. Refer to page 487 in "Best Pneumatic No.4" for auto switch specifications.

If an auto switch is mounted where the green light is lit and the air gripper has a short stroke, the auto switch may detect an unnecessary portion due to its operating range. Check that auto switch mounting is correct and adjust if necessary. This also applies to when the red light is lit.

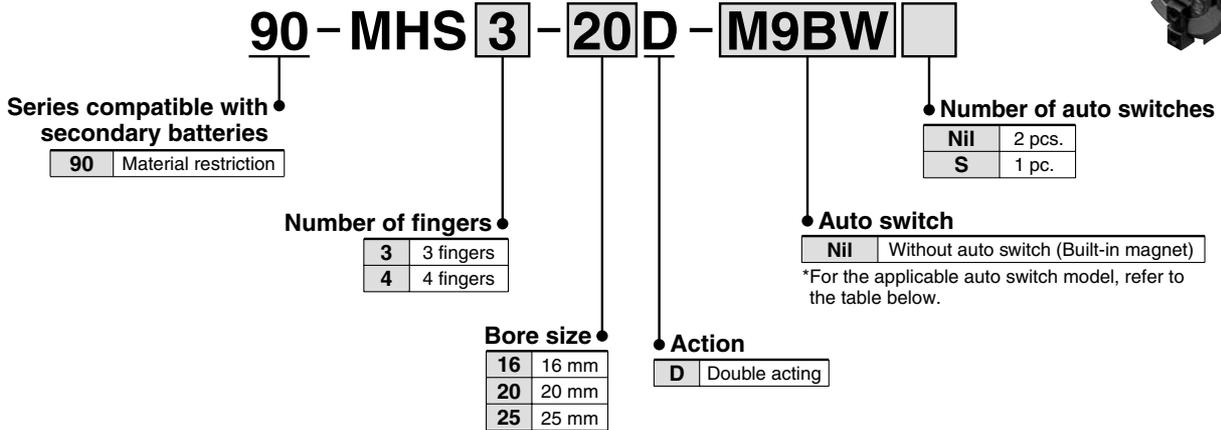
Note 2) The mounting bracket (90-BMG2-012) is required to mount the M9 auto switch.

Parallel Style Air Gripper

90-MHS Series

∅16, ∅20, ∅25

How to Order



*Specifications and dimensions for the 90-series are the same as standard products.

Applicable Auto Switch/Refer to pages 62 to 65 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m)	Pre-wired connector	Applicable load	
					DC	AC	—	Perpendicular	In-line			3(L)	SDPC
Solid state switch	Diagnostic (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	M9BWV	M9BW	●	●	—	Relay, PLC

*Additional symbols for auto switch: Lead wire length 3 m.....L Example: M9BWL
With pre-wired connector.....SDPC M9BWSNPC

*Order part numbers for auto switches alone are D-M9BW(V)L-900 and D-M9BW(V)SDPC-900.

*The auto switch is shipped together but not assembled.

Note) Take note of hysteresis with 2-color indication type auto switches. Refer to page 606 in "Best Pneumatic No.4" for auto switch specifications.

If an auto switch is mounted where the green light is lit and the air gripper has a short stroke, the auto switch may detect an unnecessary portion due to its operating range. Check that auto switch mounting is correct and adjust if necessary. This also applies to when the red light is lit.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Main Line Filter

90-AFF Series



How to Order

90-AFF2C to 90-AFF22C

90 - AFF 22C - [] 10 [] - []

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Body size

Symbol	Applicable compressor output (guide)
2C	2.2 kW
4C	3.7 kW
8C	7.5 kW
11C	11 kW
22C	22 kW

Thread type

Symbol	Type
Nil	Rc
F	G*1
N	NPT

*1 Conforms to ISO1179-1.

Option

Symbol	Description
Nil	—
H	For medium air pressure (1.6 MPa)
R	IN-OUT reversal direction

Accessory

Symbol	Description
Nil	—
B	Bracket*2

*2 Bracket is included, (but not assembled).

Port size

Symbol	Size	Applicable body size				
		2C	4C	8C	11C	22C
01	1/8	●	—	—	—	—
02	1/4	●	—	—	—	—
03	3/8	—	●	●	—	—
04	1/2	—	—	●	●	—
06	3/4	—	—	—	●	●
10	1	—	—	—	—	●

90-AFF37B/75B

90 - AFF 37B - [] 10 [] - []

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Body size

Symbol	Applicable compressor output (guide)
37B	37 kW
75B	75 kW

Thread type

Symbol	Type
Nil	Rc
F	G
N	NPT

Option

Symbol	Description
Nil	—
R	IN-OUT reversal direction

Accessory

Symbol	Description
Nil	—
B	Bracket*1

*1 Bracket is included, (but not assembled).

Port size

Symbol	Size	Applicable body size	
		37B	75B
10	1	●	—
14	1 1/2	●	●
20	2	—	●

*Specifications and dimensions for the 90-series are the same as standard products.

Bracket Part No.

Applicable model	90-AFF2C	90-AFF4C	90-AFF8C	90-AFF11C	90-AFF22C	90-AFF37B	90-AFF75B
Bracket assembly (with 2 mounting screws)	90-AM-BM101	90-AM-BM102	90-AM-BM103	90-AM-BM104	90-AM-BM105	90-BM56	90-BM57

Mist Separator

90-AM Series



How to Order

90-AM150C to 90-AM550C

90-AM 550C - 10 -

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Body size

Symbol	Applicable compressor output (guide)
150C	2.2 kW
250C	3.7 kW
350C	7.5 kW
450C	11 kW
550C	22 kW

Thread type

Symbol	Type
Nil	Rc
F	G*1
N	NPT

*1 Conforms to ISO1179-1.

Option

Symbol	Description
Nil	—
H	For medium air pressure (1.6 MPa)
R	IN-OUT reversal direction

Accessory

Symbol	Description
Nil	—
B	Bracket*2

*2 Bracket is included, (but not assembled).

Port size

Symbol	Size	Applicable body size				
		150C	250C	350C	450C	550C
01	1/8	●	—	—	—	—
02	1/4	●	●	—	—	—
03	3/8	—	●	●	—	—
04	1/2	—	—	●	●	—
06	3/4	—	—	—	●	●
10	1	—	—	—	—	●

90-AM650/850

90-AM 650 - 10 -

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Body size

Symbol	Applicable compressor output (guide)
650	37 kW
850	75 kW

Thread type

Symbol	Type
Nil	Rc
F	G
N	NPT

Option

Symbol	Description
Nil	—
R	IN-OUT reversal direction

Accessory

Symbol	Description
Nil	—
B	Bracket*1

*1 Bracket is included, (but not assembled).

Port size

Symbol	Size	Applicable body size	
		650	850
10	1	●	—
14	1 1/2	●	●
20	2	—	●

Bracket Part No.

Applicable model	90-AM150C	90-AM250C	90-AM350C	90-AM450C	90-AM550C	90-AM650	90-AM850
Bracket assembly (with 2 mounting screws)	90-AM-BM101	90-AM-BM102	90-AM-BM103	90-AM-BM104	90-AM-BM105	90-BM56	90-BM57

*Specifications and dimensions for the 90-series are the same as standard products.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Micro Mist Separator

90-AMD Series



How to Order

90-AMD150C to 90-AMD550C

90 - AMD 550C - [] 10 [] - []

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Body size

150C
250C
350C
450C
550C

Thread type

Symbol	Type
Nil	Rc
F	G*1
N	NPT

*1 Conforms to ISO1179-1.

Option

Symbol	Description
Nil	—
H	For medium air pressure (1.6 MPa)
R	IN-OUT reversal direction

Accessory

Symbol	Description
Nil	—
B	Bracket*2

*2 Bracket is included, (but not assembled).

Port size

Symbol	Size	Applicable body size				
		150C	250C	350C	450C	550C
01	1/8	●	—	—	—	—
02	1/4	●	●	—	—	—
03	3/8	—	●	—	—	—
04	1/2	—	—	●	●	—
06	3/4	—	—	—	●	●
10	1	—	—	—	—	●

90-AMD650/850

90 - AMD 650 - [] 10 [] - []

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Body size

650
850

Thread type

Symbol	Type
Nil	Rc
F	G
N	NPT

Option

Symbol	Description
Nil	—
R	IN-OUT reversal direction

Accessory

Symbol	Description
Nil	—
B	Bracket*1

*1 Bracket is included, (but not assembled).

Port size

Symbol	Size	Applicable body size	
		650	850
10	1	●	—
14	1 1/2	●	●
20	2	—	●

*Specifications and dimensions for the 90-series are the same as standard products.

Bracket Part No.

Applicable model	90-AMD150C	90-AMD250C	90-AMD350C	90-AMD450C	90-AMD550C	90-AMD650	90-AMD850
Bracket assembly (with 2 mounting screws)	90-AM-BM101	90-AM-BM102	90-AM-BM103	90-AM-BM104	90-AM-BM105	90-BM56	90-BM57

Membrane Air Dryer

90-IDG Series

Single Unit/Standard Dew Point -40°C Specifications



How to Order

90 - IDG 50 L - [] 03 [] - P []

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Flow rate by size

Size	Outlet air flow rate ℓ/min	
	Purge air flow rate (ANR)	
50	110/40	
75	240/80	
100	300/100	

Standard dew point temperature

Symbol	Standard dew point ($^{\circ}\text{C}$)
L	-40

Thread type

Symbol	Type
Nil	Rc
N	NPT
F	G

Option

Symbol	Contents
Nil	Flow direction (Left \rightarrow Right)
R	Flow direction (Right \rightarrow Left)

With fitting for purge air discharge

Symbol	Contents
P	With fitting for purge air discharge

Accessory

Symbol	Description
Nil	None (Standard)
B	With bracket

Note) When symbol B is indicated, a bracket assembly with a part number shown in the table left below is included as an accessory.

Port size

Symbol	Bore	Size		
		50	75	100
02	1/4	●	—	—
03	3/8	●	●	●
04	1/2	—	●	●

Bracket Assembly Part No.

Applicable model	Part no.
90-IDG50L	90-BM64
90-IDG75L, 100L	90-BM65

*With cap bolts (2 pcs.) and spring washers (2 pcs.)

*Specifications and dimensions for the 90-series are the same as standard products.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Clean Air Filter

90-SFD Series

How to Order



90 - SFD 2 00 - C08

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Clean air filter

Size

Symbol	Max. flow rate
1	100 l/min (ANR) ^{Note)}
2	500 l/min (ANR)

Note) The SFD100 as standard is compatible with secondary batteries. It is not used for selection with the 90-series.

Case material

0	Resin
---	-------

Port size

Symbol	Connection size	Note
C08	ø8	Clean One-touch fittings (Series KP)
C10	ø10	
C12	ø12	
02	Rc 1/4	Female thread
N02	NPT 1/4	
F02	G 1/4	

*Specifications and dimensions for the 90-series are the same as standard products.

Exhaust Cleaner for Clean Room

90-AMP Series



How to Order

90-AMP 2 20-03 [] - [] T

Series compatible with secondary batteries

90 Material restriction

Body size

Symbol	Size
2	1/4 standard
3	3/8 standard
4	1/2 standard

Element construction

Symbol	Stage
2	2 stage

Port size

Symbol	Port size	Body size		
		2	3	4
02	1/4	●	—	—
03	3/8	●	●	—
04	1/2	—	●	●
06	3/4	—	—	●

With element service indicator

Optional specifications

Symbol	Description
Nil	Flow direction Left→Right
R	Flow direction Right→Down

Accessories (optional)

Symbol	Name
Nil	None
B	With bracket

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

*Specifications and dimensions for the 90-series are the same as standard products.

Models

Model	90-AMP220	90-AMP320	90-AMP420
Maximum flow capacity ℓ /min (ANR)	200	500	1000
Port size (nominal size B)	1/4, 3/8	3/8, 1/2	1/2, 3/4
Mass (kg)	0.43	0.68	1.15

Bracket Part No.

Applicable model	90-AMP220	90-AMP320	90-AMP420
Bracket assembly (with 2 cap bolts with 2 spring washers)	90-BM66	90-BM67	90-BM68

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Air Filter

90-AF30 to 90-AF60



How to Order

90 - AF 30 - 03 B -

① ② ③ ④ ⑤

- Option/Semi-standard: Select one each for a to c.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) 90-AF30-N03B-RZ

Series compatible with secondary batteries

90 Material restriction

	Symbol	Description	①					
			Body size					
			30	40	50	60		
②	Thread type	Nil	Rc	●	●	●	●	
		N	NPT	●	●	●	●	
		F	G	●	●	●	●	
+								
③	Port size	02	1/4	●	●	—	—	
		03	3/8	●	●	—	—	
		04	1/2	—	●	—	—	
		06	3/4	—	●	●	—	
		10	1	—	—	●	●	
+								
④ Option	a	Mounting	Nil	Without mounting option	●	●	●	●
			B ^{Note 1)}	With bracket	●	●	●	●
+								
⑤ Semi-standard	b	Flow direction	Nil	Flow direction: Left to right	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●
+								
⑤ Semi-standard	c	Pressure unit	Nil	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●
			Z ^{Note 2)}	Name plate and caution plate for bowl in imperial units: psi, °F	○ ^{Note 2)}	○ ^{Note 2)}	○ ^{Note 2)}	○ ^{Note 2)}

Note 1) A bracket is not assembled and supplied loose at the time of shipment. Including 2 mounting screws.

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

*Specifications and dimensions for the 90-series are the same as standard products.

Bracket Part No.

		Model				
90-AF30	90-AF40	90-AF40-06	90-AF50	90-AF60		
90-AF30P-050AS	90-AF40P-050AS	90-AF40P-070AS	90-AF50P-050AS	90-AF60P-050AS		

Note) Assembly of a bracket and 2 mounting screws.

90-AC Series Accessories: Spacer/Bracket

How to Order

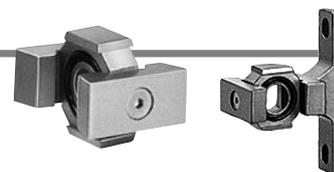
90 - Y 30 T

① ②

Series compatible with secondary batteries

90 Material restriction

Spacer



	Symbol	Description	①					
			Body size					
			30	40	50 ^{Note)}	60		
② Option	a	Mounting	Nil	Without mounting option	●	●	●	●
			T	With bracket	●	●	●	●

Note) Applicable to 90-AF40-06, 90-AFM40-06 and 90-AFD-40-06.

*Specifications and dimensions for the 90-series are the same as standard products.

Mist Separator

90-AFM30/90-AFM40

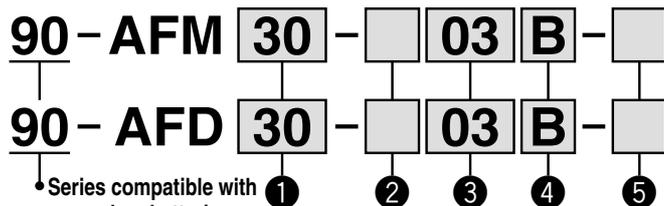
Micro Mist Separator

90-AFD30/90-AFD40



- 90-AFM Series Nominal filtration rating: 0.3 μm
- 90-AFD Series Nominal filtration rating: 0.01 μm

How to Order



- Option/Semi-standard: Select one each for a to c.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) 90-AFM30-N03B-RZ

90 Material restriction

		Symbol	Description	①	
				Body size	
				30	40
②	Thread type	Nil	Rc	●	●
		N	NPT	●	●
		F	G	●	●
		+			
③	Port size	02	1/4	●	●
		03	3/8	●	●
		04	1/2	—	●
		06	3/4	—	●
		+			
④	a Mounting	Nil	Without mounting option	●	●
		B (Note 1)	With bracket	●	●
		+			
⑤	b Flow direction	Nil	Flow direction: Left to right	●	●
		R	Flow direction: Right to left	●	●
		+			
⑤	c Pressure unit	Nil	Name plate and caution plate for bowl in imperial units: MPa	●	●
		Z (Note 2)	Name plate and caution plate for bowl in imperial units: psi, °F	○ (Note 2)	○ (Note 2)

Note 1) A bracket is not assembled and supplied loose at the time of shipment. Including 2 mounting screws.

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

Bracket Part No.

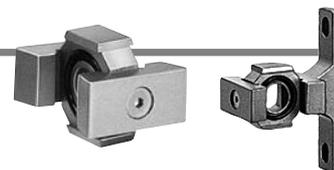
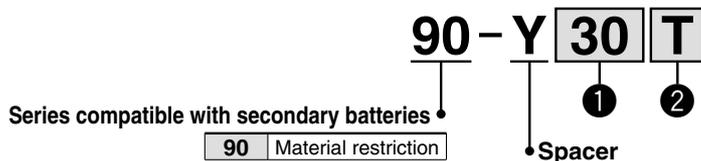
Model		
90-AFM30 90-AFD30	90-AFM40 90-AFD40	90-AFM40-06 90-AFD40-06
90-AF30P-050AS	90-AF40P-050AS	90-AF40P-070AS

Note) Assembly of a bracket and 2 mounting screws.

*Specifications and dimensions for the 90-series are the same as standard products.

90-AC Series Accessories: Spacer/Bracket

How to Order



		Symbol	Description	①			
				Body size			
				30	40	50 (Note)	60
②	a Mounting	Nil	Without mounting option	●	●	●	●
		T	With bracket	●	●	●	●

Note) Applicable to 90-AF40-06, 90-AFM40-06 and 90-AFD-40-06.

*Specifications and dimensions for the 90-series are the same as standard products.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Regulator

90-AR30/90-AR40

Regulator with Backflow Function

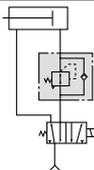
90-AR25K to 90-AR60K



- With the backflow function it incorporates a mechanism to exhaust the air pressure in the outlet side reliably and quickly.

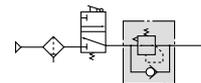
Example 1)

When the pressure in the rear and the front of the cylinder differs:



Example 2)

When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured for a safety purpose.



How to Order

90-AR **30** **K** - **03** **B** -

- Series compatible with secondary batteries

90 Material restriction

- Option/Semi-standard: Select one each for a to e.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) 90-AR30K-03B-1NR

	Symbol	Description	① Body size					
			25	30	40	50	60	
② With backflow function	Nil	Without backflow function	—	●	●	—	—	
	K	With backflow function	●	●	●	●	●	
③ Thread type	Nil	Rc	●	●	●	●	●	
	N	NPT	●	●	●	●	●	
	F	G	●	●	●	●	●	
④ Port size	02	1/4	●	●	●	—	—	
	03	3/8	●	●	●	—	—	
	04	1/2	—	—	●	—	—	
	06	3/4	—	—	—	●	—	
	10	1	—	—	—	●	●	
⑤ Option	a Mounting	Nil	Without mounting option	●	●	●	●	●
		B ^{Note 2)}	With bracket	●	●	●	●	●
		H	With set nut (for panel fitting)	●	●	●	—	—
⑥ Semi-standard	b Set pressure	Nil	0.05 to 0.85 MPa setting	●	●	●	●	●
		1 ^{Note 3)}	0.02 to 0.2 MPa setting	●	●	●	●	●
	c Exhaust mechanism	Nil	Relieving type	●	●	●	●	●
		N	Non-relieving type	●	●	●	●	●
	d Flow direction	Nil	Flow direction: Left to right	●	●	●	●	●
R		Flow direction: Right to left	●	●	●	●	●	
e Pressure unit	Nil	Name plate and pressure gauge in imperial units: MPa	●	●	●	●	●	
	Z ^{Note 4)}	Name plate and pressure gauge in imperial units: psi	○ ^{Note 4)}	○ ^{Note 4)}	○ ^{Note 4)}	○ ^{Note 4)}	○ ^{Note 4)}	

Note 1) Option B, H are not assembled and supplied loose at the time of shipment.

Note 2) Assembly of a bracket and set nuts (90-AR30 and 90-AR40, 90-AR25(K) to 90-AR40(K)) Including 2 mounting screws for the 90-AR50(K) and 90-AR60(K).

Note 3) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more.

Note 4) ○: For thread type: NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

*Specifications and dimensions for the 90-series are the same as standard products.

Bracket, Set Nut/Part No.

Option	Model	90-AR25K	90-AR30(K)	90-AR40(K)	90-AR50K	90-AR60K
Bracket assembly ^{Note 1)}		90-AR25P-270AS	90-AR30P-270AS	90-AR40P-270AS	90-AR50P-270AS ^{Note 2)}	
Set nut		AR25P-260S	AR30P-260S	AR40P-260S	— ^{Note 3)}	— ^{Note 3)}

Note 1) Assembly of a bracket and set nuts.

Note 2) Assembly of a bracket and 2 mounting screws.

Note 3) Please consult with SMC regarding the set nuts for the 90-AR50(K) and 90-AR60(K).

Filter Regulator with Backflow Function

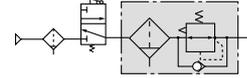
90-AW30K to 90-AW60K

- Integrated filter and regulator units save space and require less piping.
- With the backflow function it incorporates a mechanism to exhaust the air pressure in the outlet side reliably and quickly.



Example)

When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured for a safety purpose.



How to Order

90 - AW 30 K - [] 03 B - []

① ② ③ ④ ⑤ ⑥

• Series compatible with secondary batteries

90 Material restriction

- Option/Semi-standard: Select one each for a to e.
 - Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
- Example) 90-AW30K-03B-1N

	Symbol	Description	①				
			Body size				
			30	40	60		
② With backflow function	K	With backflow function	●	●	●		
	+						
③ Thread type	Nil	Rc	●	●	●		
	N	NPT	●	●	●		
	F	G	●	●	●		
	+						
④ Port size	02	1/4	●	●	—		
	03	3/8	●	●	—		
	04	1/2	—	●	—		
	06	3/4	—	—	●		
	10	1	—	—	●		
	+						
⑤ Option	a	Mounting	Nil	Without mounting option	●	●	●
			B <small>Note 2)</small>	With bracket	●	●	●
			H	With set nut (for panel fitting)	●	●	—
	+						
⑥ Semi-standard	b	Set pressure	Nil	0.05 to 0.85 MPa setting	●	●	●
			1 <small>Note 3)</small>	0.02 to 0.2 MPa setting	●	●	●
		+					
	c	Exhaust mechanism	Nil	Relieving type	●	●	●
			N	Non-relieving type	●	●	●
	+						
d	Flow direction	Nil	Flow direction: Left to right	●	●	●	
		R	Flow direction: Right to left	●	●	●	
	+						
e	Pressure unit	Nil	Name plate, caution plate for bowl, and pressure gauge in imperial units: MPa	●	●	●	
		Z <small>Note 4)</small>	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ <small>Note 4)</small>	○ <small>Note 4)</small>	○ <small>Note 4)</small>	

Note 1) Option B, H are not assembled and supplied loose at the time of shipment.

Note 2) Assembly of a bracket and set nuts. (90-AW30(K) and 90-AW40(K)) Including 2 mounting screws for the 90-AW60(K).

Note 3) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more.

Note 4) ○: For thread type: NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

*Specifications and dimensions for the 90-series are the same as standard products.

Bracket, Set Nut/Part No.

Optional specifications	Model		
	90-AW30K	90-AW40K	90-AW60K
Bracket assembly <small>Note 1)</small>	90-AR30P-270AS	90-AR40P-270AS	90-AW60P-270AS <small>Note 2)</small>
Set nut	AR30P-260S	AR40P-260S	— <small>Note 3)</small>

Note 1) Assembly of a bracket and set nuts.

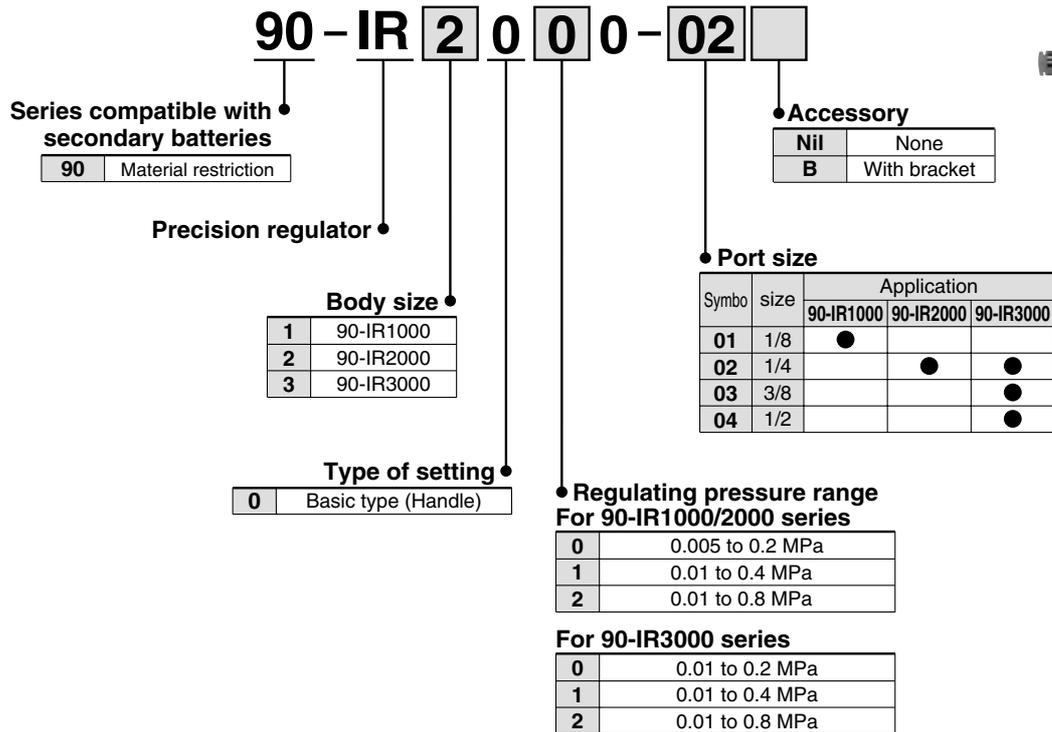
Note 2) Assembly of a bracket and 2 mounting screws.

Note 3) Please consult with SMC regarding the set nuts for the 90-AW60(K).

Precision Regulator

90-IR1000/2000/3000 Series

How to Order



*Specifications and dimensions for the 90-series are the same as standard products.

Bracket Part No.

Part no.								
90-IR1000	90-IR1010	90-IR1020	90-IR2000	90-IR2010	90-IR2020	90-IR3000	90-IR3010	90-IR3020
INI-362-0-320			INI-362-0-321			INI-362-0-322		

Electro-Pneumatic Regulator

90-ITV2000 Series

How to Order



90-ITV20010-01□2□N□

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Model

2	2000 type
---	-----------

Pressure range

1	0.1 MPa
3	0.5 MPa
5	0.9 MPa

Power supply voltage

0	24 VDC
1	12 to 15 VDC

Input signal

0	Current 4 to 20 mA (Sink type)
1	Current 0 to 20 mA (Sink type)
2	Voltage 0 to 5 VDC
3	Voltage 0 to 10 VDC
4	Preset input

Monitor output

0	None (for preset input)
1	Analog output 1 to 5 VDC
2	Switch output/NPN output
3	Switch output/PNP output
4	Analog output 4 to 20 mA (Sink type)

Pressure display unit

Nil	MPa
2	kgf/cm ²
3	bar
4	psi
5	kPa

Cable connector type

N	Without cable connector
---	-------------------------

Bracket

Nil	Without bracket
B	Flat bracket
C	L-bracket

Port size

2	1/4
3	3/8

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

*Specifications and dimensions for the 90-series are the same as standard products.

Bracket Part No.

Description	Part No.
Flat bracket	P39802043 (Mounting thread is not included.)
L-bracket	P39802044 (Mounting thread is not included.)

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

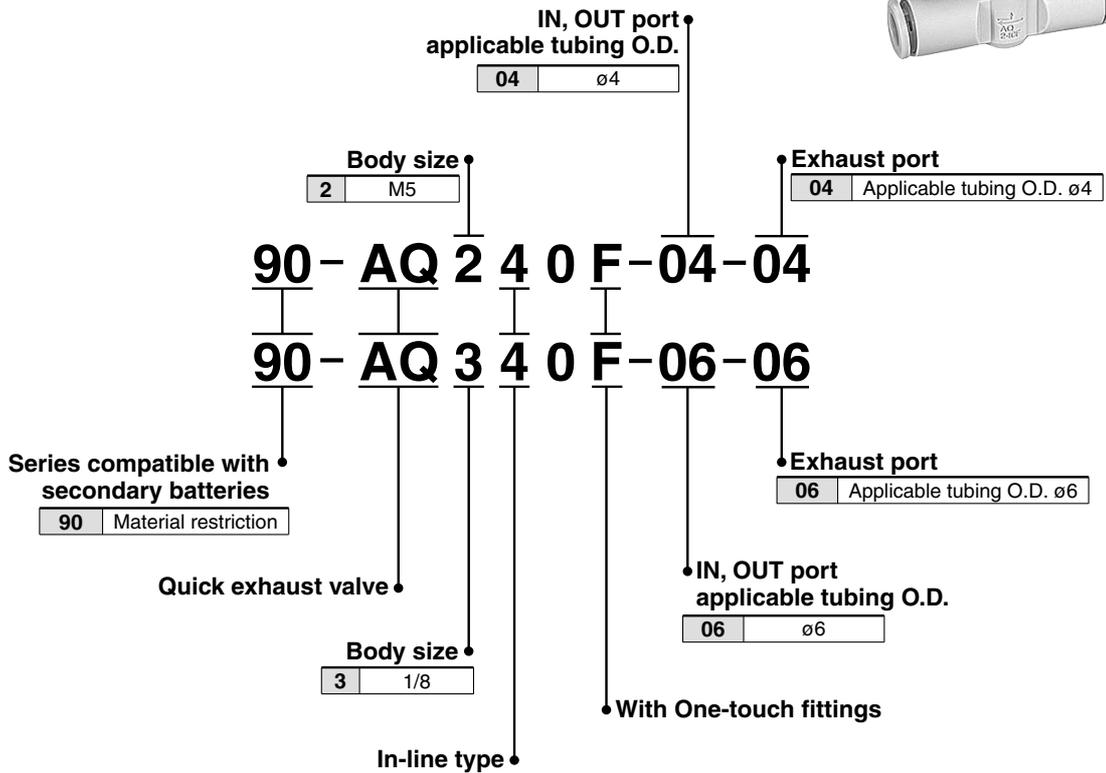
Detection Switches

Auto Switches

Quick Exhaust Valve with One-touch Fittings

90-AQ240F/340F Series

How to Order



*Specifications and dimensions for the 90-series are the same as standard products.

Check Valve with One-touch Fittings **90-AKH Series**

How to Order



Straight type

90 - AKH 04 - 00

Series compatible with secondary batteries •

90 Material restriction

• Applicable tubing O.D.

Metric size

04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

*Specifications and dimensions for the 90-series are the same as standard products.

Directional
Control Valves

Actuators

Air Grippers

Air Preparation
Equipment

Air Filters/Pressure
Control Equipment

Flow Control
Related Products

Vacuum
Equipment

Detection
Switches

Auto Switches

Space Saving Vacuum Ejector 90-ZQ Series

How to Order

Single Unit

90 - ZQ1 05 3M - K1 5 G - D31 CL

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

• Series compatible with secondary batteries

90 Material restriction

① Nozzle nominal size

05	ø0.5
07	ø0.7
10	ø1.0

② Exhaust type

3M With silencer for manifold

③ Solenoid valve combination

Symbol	Supply valve	Vacuum release valve
K1	Normally closed	Normally closed

④ Pilot valve

Nil	Standard (DC: 1 W) ^{Note 1)}
Y	DC low wattage type (0.5 W)

Note 1) Avoid energizing the solenoid valve for long periods of time.

⑤ Solenoid valve rated voltage

5	24 VDC
6	12 VDC

⑥ Electrical entry

G	Grommet, with 0.3 m lead wire	
---	-------------------------------	--

⑦ Vacuum pressure switch suction filter ^{Note 2)}

D31	1 NPN output + Analog output, with suction filter, Pressure range -100 to 0 kPa
D32	2 NPN outputs, with suction filter, Pressure range -100 to 0 kPa
D51	1 PNP output + Analog output, with suction filter, Pressure range -100 to 0 kPa
D52	2 PNP outputs, with suction filter, Pressure range -100 to 0 kPa

Note 2) The filter included in this product is of a simple type, and will become clogged quickly in environments with high quantities of dust or particulates. Please make additional use of an air suction filter of the ZFA, ZFB or ZFC series.

⑧ Vacuum switch electrical entry

CL Connector type, with 2 m lead wire

⑨ Check valve ^{Note 3)}

Nil	None
K	With check valve

Note 3) The check valve has a function to prevent the exhaust air from the silencer overflowing to the vacuum port side when a manifold is used. However, depending on usage conditions, it does not always suppress air overflow to the desired extent. During usage, please inspect thoroughly with actual machine. Also, in order to completely prevent the overflow of exhaust air, leave plenty of space between the check valve unit and adjacent ejector to avoid interference from the ejector's exhaust unit.

Manifold

90 - ZZQ1 07 - B 2 B - X125

• Series compatible with secondary batteries

90 Material restriction

Maximum Number of Stations in Simultaneous Operation

Nozzle nominal size	Maximum number of stations in simultaneous operation
ø0.5	8 stations
ø0.7	6 stations
ø1.0	4 stations

Number of stations ^{Note)}

01	1 station
02	2 stations
⋮	⋮
08	8 stations

Note) Number of stations varies according to nozzle nominal size during simultaneous operation.

• Port exhaust specifications

• Vacuum release pressure supply port (PD port)

B None (Release pressure is supplied from the P port.)

• Exhaust specifications

2 Port exhaust Rc 1/4

• Air pressure supply (P) port position

B Both sides



*Specifications and dimensions for the 90-series are the same as standard products.

Vacuum Pad/ Vertical Vacuum Entry **90-ZPT Series**



How to Order

**90-ZPT Series
Without buffer**

90 - ZPT 16 B F - B5

Series compatible with secondary batteries

90 Material restriction

Pad diameter (mm)

16 ϕ 16

Material

F Fluororubber

Pad type

B Bellows

Vacuum entry/Mounting thread diameter

Connection	Symbol	Thread diameter
Female thread	B5	M5 x 0.8

Replacement Parts: Pad Unit (With lock ring)

How to Order Pad Unit

90 - ZP 16 B F

Series compatible with secondary batteries

90 Material restriction

Pad diameter (mm)

16 ϕ 16

Material

F Fluororubber

Pad type

B Bellows

*Specifications and dimensions for the 90-series are the same as standard products.

How to Order

**90-ZPT Series
With buffer**

90 - ZPT 06 U F K 6 - B5 - A8

Series compatible with secondary batteries

90 Material restriction

Pad diameter (mm)

06 ϕ 6

Pad type

U Flat

Buffer stroke

6 6 mm

Buffer type

K Non-rotating

Material

F Fluororubber

Mounting thread diameter/
Male thread

A8 M8 x 1

Vacuum entry port

B5 M5 x 0.8



*Specifications and dimensions for the 90-series are the same as standard products.



High-Precision Digital Pressure Switch

90-ZSE40□/90-ISE40 Series



How to Order

Set pressure range

-0.100 to 1.000 MPa	For positive pressure
---------------------	-----------------------

For Positive Pressure 90 - ISE40 - 01 - 22 SDPC - M □

For Vacuum/Compound Pressure 90 - ZSE40 □ - 01 - 22 SDPC - M □

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Set pressure range

Nil	10.0 to -101.3 kPa	For vacuum pressure
F	-100.0 to 100.0 kPa	For compound pressure

Piping specifications

01: R 1/8 (with M5 female threads)

Input/Output specifications

22	NPN open collector 2 outputs
62*	PNP open collector 2 outputs

*Optional

Lead wire length

SDPC	0.5 m
------	-------

*With M12 connector

Option

Nil	None
E	Panel mount (ZS-22-A)
F	Panel mount + Front protective cover (ZS-24-C)

*When optional parts only are required, order with the part numbers inside ().

Unit specifications

Nil	With unit switching function
M	SI units only ^{Note)}

Note) Fixed units
 For vacuum/compound pressure : kPa
 For positive pressure : MPa

*Specifications and dimensions for the 90-series are the same as standard products.

High-Precision Digital Pressure Switch for General Fluids



90-ZSE50F/90-ISE50 Series

How to Order



For positive pressure 90 – ISE50 – 02 – 22 SDPC – M []
For compound pressure 90 – ZSE50 F – 02 – 22 SDPC – M []

Series compatible with secondary batteries
 90 Material restriction

Piping specifications
 02 R 1/4 (M5 with female screw), Piping in backward direction

Input/output specifications
 22 NPN open collector 2 output
 62* PNP open collector 2 output

*Optional

Lead wire length
 SDPC 0.5 m
 *With M12 connector

Option

Nil	None
E	Panel mount
F	Panel mount + Front protection cover

Unit specification

Nil	With unit switching function
M	Fixed SI unit ^{Note)}

Note) Fixed units:
 For compound pressure : KPa
 For positive pressure : MPa

*Specifications and dimensions for the 90-series are the same as standard products.

Panel Mount Part No.

Option	Part no.	Qty.
Panel mount	ZS-24-E	1
Panel mount + Front protection cover	ZS-24-F	1

Directional Control Valves
 Actuators
 Air Grippers
 Air Preparation Equipment
 Air Filters/Pressure Control Equipment
 Flow Control Related Products
 Vacuum Equipment
 Detection Switches
 Auto Switches

2-Color Display Digital Flow Switch

Integrated
display



90-PFM7 Series

How to Order



Integrated
display

90 - PFM7 10 - C6 - B - M - []

Series compatible with
secondary batteries

90 Material restriction

Type

7 Integrated display

Rated flow range (Flow rate range)

10	0.2 to 10 (5) ℓ /min
50	1 to 50 (25) ℓ /min
11	2 to 100 (50) ℓ /min

* (): Fluid: CO₂

Port size

Symbol	Description	Flow rate range		
		10	50	11
C6	ϕ 6 One-touch fitting	●	●	●
C8	ϕ 8 (5/16") One-touch fitting	—	●	●

Output specification

B	2 PNP outputs
E	1 PNP output + Analog (1 to 5 V)

Unit specification

M Fixed SI unit Note)

Note) Fixed unit: Real-time flow rate: ℓ /min
Accumulated flow: ℓ

Option

Nil	None
R	Bracket (For without flow adjustment valve) ZS-33-M-X221
T	Panel mount adapter (For without flow adjustment valve) ZS-33-J

*Specifications and dimensions for the 90-series are the same as standard products.

For Water

Digital Flow Switch

90-PF2W Series



How to Order

Integrated Display Type

90 - PF2W7 20 - 03 - 67 - M

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Flow rate range

04	0.5 to 4 ℓ/min
20	2 to 16 ℓ/min
40	5 to 40 ℓ/min

Thread type

Nil	Rc
N	NPT
F	G

Port size

Symbol	Port size	Flow rate (ℓ/min)			Applicable model
		4	16	40	
03	3/8	●	●	—	90-PF2W704, 90-PF2W720
04	1/2	—	●	●	90-PF2W720, 90-PF2W740
06	3/4	—	—	●	90-PF2W740

Unit specification

Nil	With unit switching function
M	Fixed SI unit (Note)

Note) Fixed units:
Real-time flow rate: ℓ/min
Accumulated flow: ℓ

Lead wire

Nil	M12 3 m lead wire with connector
N	Without lead wire

Output specification

67	PNP open collector 2 outputs
----	------------------------------

Remote Type Sensor Unit

90 - PF2W5 20 - 03 - - -

Series compatible with secondary batteries

90	Material restriction
----	----------------------

Flow rate range

04	0.5 to 4 ℓ/min
20	2 to 16 ℓ/min
40	5 to 40 ℓ/min

Thread type

Nil	Rc
N	NPT
F	G

Port size

Symbol	Port size	Flow rate (ℓ/min)			Applicable model
		4	16	40	
03	3/8	●	●	—	90-PF2W504, 90-PF2W520
04	1/2	—	●	●	90-PF2W520, 90-PF2W540
06	3/4	—	—	●	90-PF2W540

Lead wire

Nil	M12 3 m lead wire with connector
N	Without lead wire

Output specification

Symbol	Specification	Applicable monitor unit (monitor) model
1	Output for monitor unit + Analog output (1 to 5 V)	Series PF2W300
2	Output for monitor unit + Analog output (4 to 20 mA)	

Note) The monitor is not compatible with 90-series products.

Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

*Specifications and dimensions for the 90-series are the same as standard products.

Solid State Auto Switch D-M9BW(V)SDPC-900

Series Compatible with Secondary Batteries/Material restriction



Auto Switch Specifications



Refer to SMC website for the details of the products conforming to the international standards.

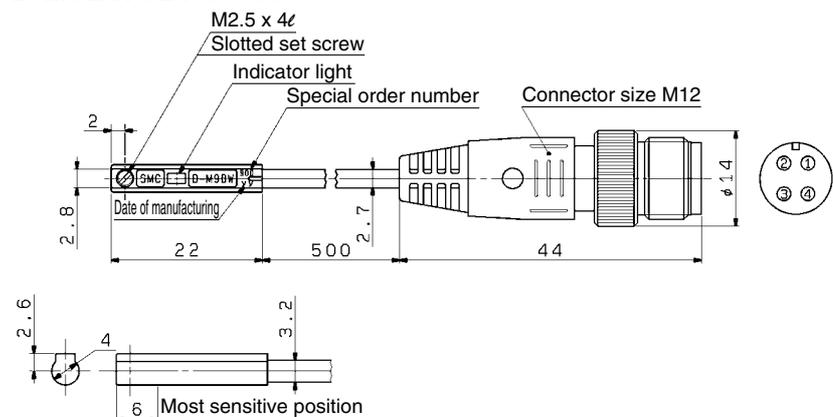
PLC: Programmable Logic Controller

Auto switch model	D-M9BW(V)SDPC-900
Applicable load	24 VDC relay, PLC
Power supply voltage	—
Current consumption	—
Load voltage	10 VDC to 28 VDC
Load current	2.5 mA to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less
Response time	1 ms or less
Indicator light	Operating position.....Red light is ON. Proper operating position.....Green light is ON.
Electrical entry	Grommet
Lead wire	Oilproof flexible heavy-duty vinyl cord, $\phi 2.7 \times 3.2$, ellipse
Impact resistance	Switch, 1,000 m/s ²
	Connector, 300 m/s ²
Connector standards	JIS C 4524, JIS C 4525
	IEC 947-5-2, NECA 0402
Enclosure	In compliance with IP 67 when coupled
Insulation resistance	50 M Ω or more (500 VDC Mega) between lead wire and case
Withstand voltage	1,000 VAC for 1 min. (between lead wire and case)
Ambient temperature	-10°C to 60°C
Standard	CE marking

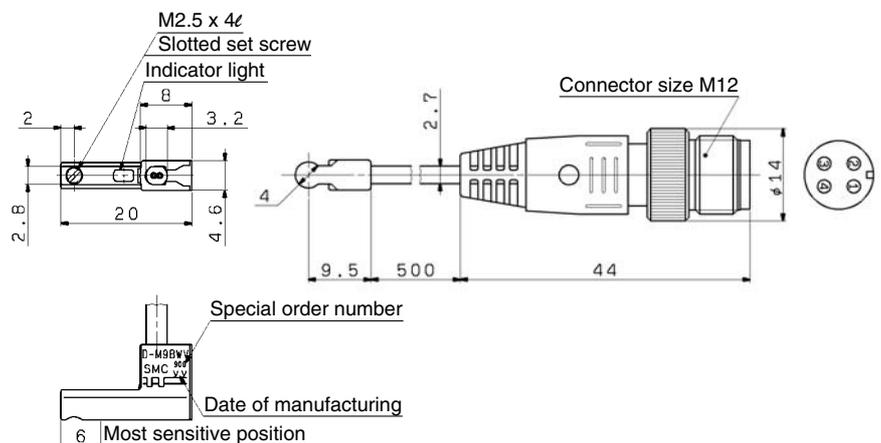
Dimensions

(mm)

D-M9BWSDPC-900



D-M9BWVSDPC-900



Solid State Auto Switch D-M9BW(V)L-900

Series Compatible with Secondary Batteries/Material restriction



Auto Switch Specifications



Refer to SMC website for the details of the products conforming to the international standards.

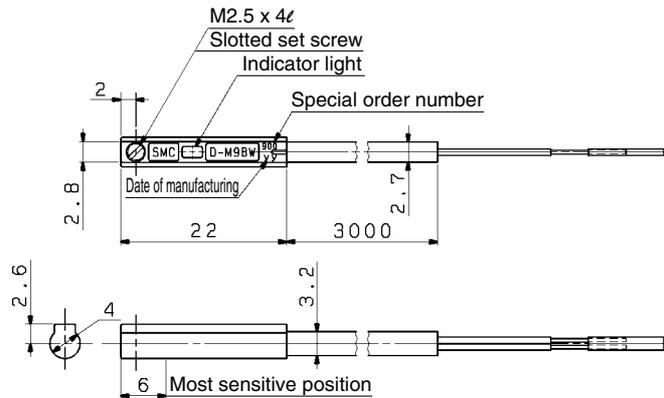
PLC: Programmable Logic Controller

Auto switch model	D-M9BW(V)SDPC-900
Applicable load	24VDC relay, PLC
Power supply voltage	—
Current consumption	—
Load voltage	10 VDC to 28 VDC
Load current	2.5 mA to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less
Response time	1 ms or less
Indicator light	Operating position.....Red light is ON. Proper operating position.....Green light is ON.
Electrical entry	Grommet
Lead wire	Oilproof flexible heavy-duty vinyl cord, ø2.7 x 3.2, ellipse, 0.15 mm ² , double core
Impact resistance	1,000 m/s ²
Insulation resistance	50 MΩ or more (500 VDC Mega) between lead wire and case
Withstand voltage	1,000 VAC for 1 min. (between lead wire and case)
Ambient temperature	-10°C to 60°C
Standard	CE marking

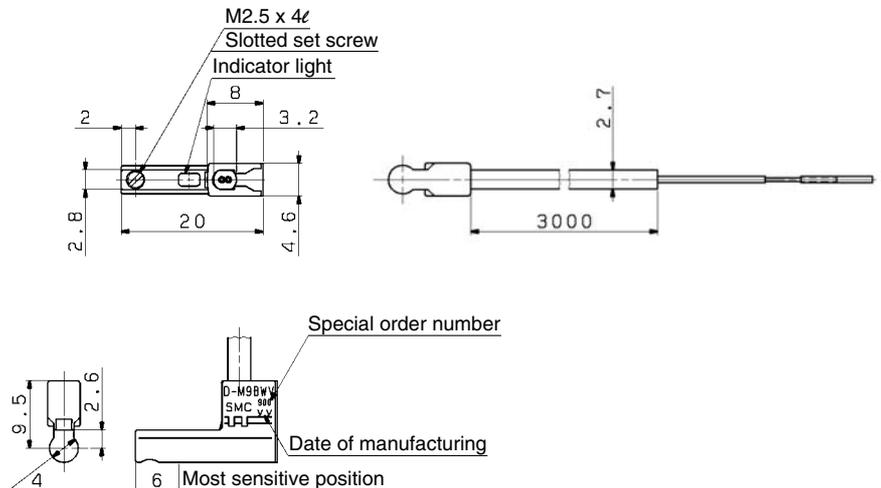
Dimensions

(mm)

D-M9BWL-900



D-M9BWVL-900



Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Solid State Auto Switch D-Y7BW(V)L-900

Series Compatible with Secondary Batteries/Material restriction



Auto Switch Specifications



Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

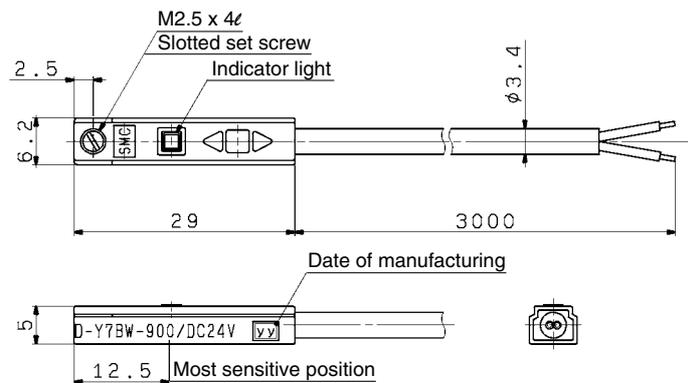
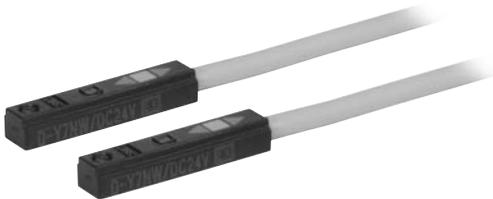
Auto switch model	D-Y7BW(V)L-900
Applicable load	24 VDC relay, PLC
Power supply voltage	—
Current consumption	—
Load voltage	10 VDC to 28 VDC
Load current	2.5 mA to 40 mA
Internal voltage drop	4 V or less
Leakage current	0.8 mA or less
Response time	1 ms or less
Indicator light	Operating position.....Red light is ON. Proper operating position.....Green light is ON.
Electrical entry	Grommet
Lead wire	Oilproof flexible heavy-duty vinyl cord, ø3.4, 0.15 mm ² , double core
Impact resistance	1,000 m/s ²
Insulation resistance	50 MΩ or more (500 VDC Mega) between lead wire and case
Withstand voltage	1,000 VAC for 1 min. (between lead wire and case)
Ambient temperature	-10°C to 60°C
Standard	CE marking

Dimensions

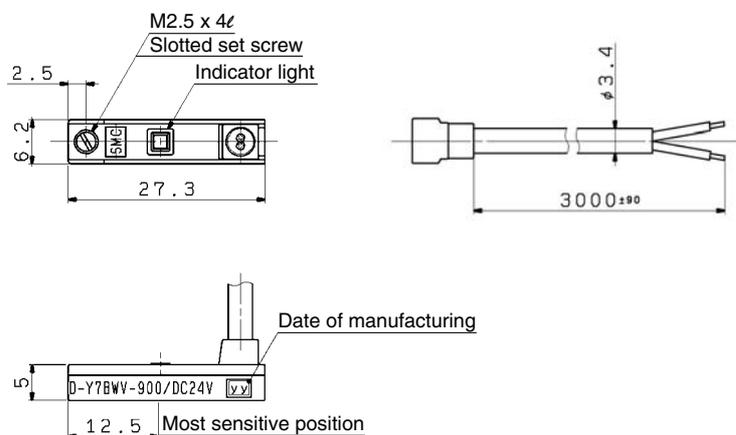
(mm)

D-Y7BWL-900

- Using flexible cable as standard spec.
- The optimum operating position can be determined by the color of the light. (Red → Green ← Red)



D-Y7BWVL-900



Reed Auto Switch Direct Mounting Style D-A90L-900/D-Z80L-900

Series Compatible with Secondary Batteries / Material restriction



Auto Switch Specifications



Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

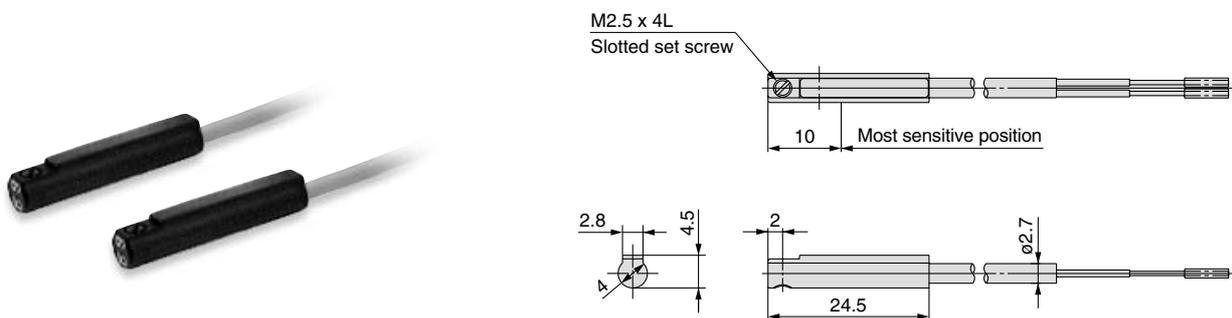
D-A90L-900 (Without indicator light)			
Auto switch model	D-A90L-900		
Applicable load	IC circuit, Relay, PLC		
Load voltage	24 V _{DC} ^{AC} or less	48 V _{DC} ^{AC} or less	100 V _{DC} ^{AC} or less
Maximum load current	50 mA	40 mA	20 mA
Contact protection circuit	None		
Internal resistance	1 Ω or less (Including lead wire length of 3 m)		
Standard	CE marking		

• Lead wires—Oilproof heavy-duty vinyl cord, ø2.7, 0.18 mm² x 2 cores (Brown, Blue), 3 m

Dimensions

(mm)

D-A90L-900



Auto Switch Specifications



Refer to SMC website for the details of the products conforming to the international standards.

PLC: Programmable Logic Controller

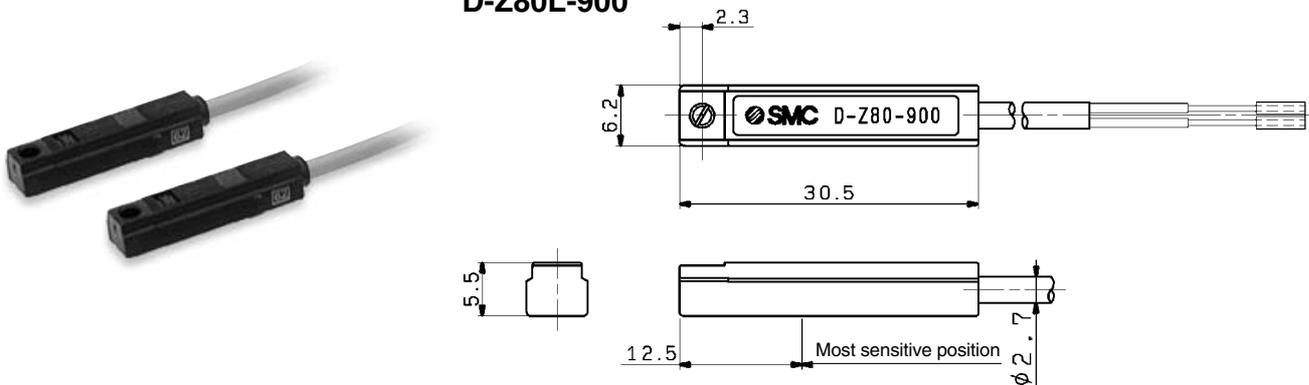
D-Z80L-900 (Without indicator light)			
Auto switch model	D-Z80L-900		
Applicable load	Relay, PLC, IC circuit		
Load voltage	24 V _{DC} ^{AC} or less	48 V _{DC} ^{AC} or less	100 V _{DC} ^{AC} or less
Maximum load current	50 mA	40 mA	20 mA
Contact protection circuit	None		
Internal resistance	1 Ω or less (Including 3 m lead wire)		
Standard	CE marking		

• Lead wires—Oilproof heavy-duty vinyl cord, ø2.7, 0.18 mm² x 2 cores (Brown, Blue), 3 m

Dimensions

(mm)

D-Z80L-900



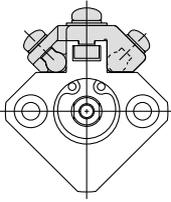
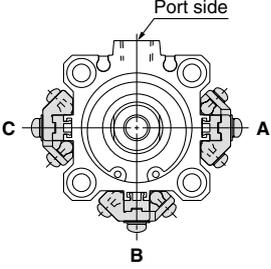
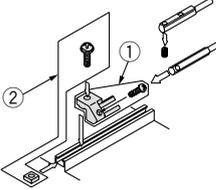
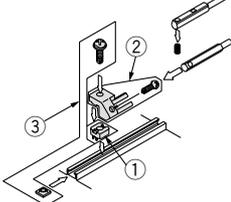
Directional Control Valves
Actuators
Air Grippers
Air Preparation Equipment
Air Filters/Pressure Control Equipment
Flow Control Related Products
Vacuum Equipment
Detection Switches
Auto Switches

Auto Switches

Auto Switch Mounting Bracket Part No.

Applicable cylinder series: 90-/91-CDLQ, 90-RSDQ

Applicable auto switches : D-M9BW(V)L-900, D-M9BW(V)SDPC-900, D-A90L-900

Cylinder series	Applicable bore size (mm)				
	20	25	32	40	50
90-91-CDLQ	Auto switch mounting brackets are not required.	Auto switch mounting brackets are not required.	①BQ-2 ②90-BQ2-012 ③BBA2	①BQ-2 ②90-BQ2-012 ③BBA2	①BQ-2 ②90-BQ2-012 ③BBA2
90-RSDQ	①90-BQ2-012 ②BBA2	—			
Auto switch mounting surface and auto switch mounting bracket used					
	Auto switch mounting rail only	Port side	A, B, C side		
	①90-BQ2-012 ②BBA2 (See the table below for screws and nuts.) Two types of auto switch bracket are used as a set. 	Auto switch mounting brackets are not required.	①BQ-2 (Only resin spacers are used.) ②90-BQ2-012 ③BBA2 (See the table below for screws and nuts.) Three types of auto switch bracket are used as a set. 		

Note 1) When a compact auto switch is mounted on 3 sides (A, B, and C above) other than the port side of each cylinder series with $\phi 32$ to $\phi 50$, auto switch mounting brackets above are required. Order them separately from cylinders.

Order example

90-RSDQB32-20D-M9BWL.....1
BQ22 (Only resin spacers are used.)
90-BQ2-012.....2
BBA22

Note 2) When shipping cylinders, auto switch mounting brackets and auto switches are shipped together.

Details of stainless steel mounting screw set

Part No.	Description			Applicable bore size
	Part	Size	Quantity	
BBA2	Auto switch mounting screw	M3 x 0.5 x 6L	1	—
		M3 x 0.5 x 8L	1	$\phi 20$, $\phi 25$
		M3 x 0.5 x 10L	1	$\phi 32$ to $\phi 50$
	Auto switch mounting nut (square)	M3 x 0.5	1	$\phi 20$, $\phi 25$
Auto switch mounting nut (convex)	M3 x 0.5	1	$\phi 32$ to $\phi 50$	

Note 3) A spacer (black resin) for BQ-2 is not included.

Note 4) Use auto switch mounting screws and nuts for lengths applicable to individual bore sizes.

Auto Switch Mounting Bracket Part No.

Applicable cylinder series: 90-CDJ2, 90-/91-CDG1, 90-/91-MGG, 90-/91-CDNG

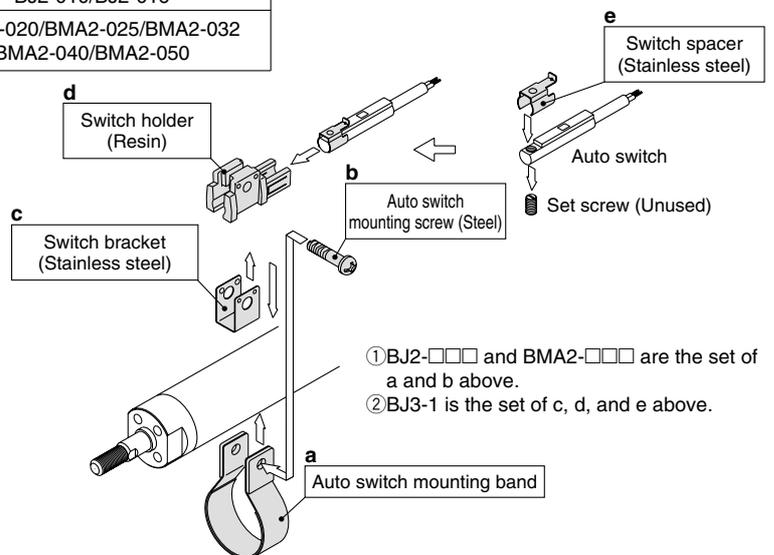
Applicable auto switches : D-M9BWL-900, D-M9BWSNPC-900, D-A90L-900

Cylinder series	Applicable bore size (mm)						
	10	16	20	25	32	40	50
90-CDJ2	①BJ2-010 ②BJ3-1 ③BBA4	①BJ2-010 ②BJ3-1 ③BBA4	—	—	—	—	—
90-/91-CDG1	—	—	①BMA2-020 ②BJ3-1 ③BBA4	①BMA2-025 ②BJ3-1 ③BBA4	①BMA2-032 ②BJ3-1 ③BBA4	①BMA2-040 ②BJ3-1 ③BBA4	①BMA2-050 ②BJ3-1 ③BBA4
90-/91-MGG	—	—					
90-/91-CDNG	—	—					—

Note) Since mounting screws attached to BJ2-□□□ and BMA2-□□□ are made of steel, use stainless steel mounting screw set BBA4.

Details of stainless steel mounting screw set

Part No.	Description			Part No. of applicable auto switch mounting bracket
	Part	Size	Quantity	
BBA4	Auto switch mounting screw	M3 x 0.5 x 14L	1	BJ2-010/BJ2-016
				BMA2-020/BMA2-025/BMA2-032 BMA2-040/BMA2-050

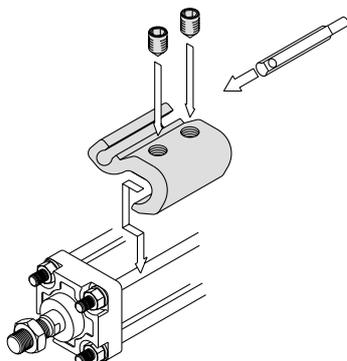


Applicable cylinder series: 90-/91-CDA2, 90-CDNA

Applicable auto switches : D-M9BW(V)L-900, D-M9BW(V)SDPC-900, D-A90L-900

Cylinder series	Applicable bore size (mm)				
	40	50	63	80	100
90-/91-CDA2	90-BA7-040	90-BA7-040	90-BA7-063	90-BA7-080	90-BA7-080
90-/91-CDNA					

Note) D-A90L-900 cannot be mounted on ø50.



Directional Control Valves

Actuators

Air Grippers

Air Preparation Equipment

Air Filters/Pressure Control Equipment

Flow Control Related Products

Vacuum Equipment

Detection Switches

Auto Switches

Auto Switches

Auto Switch Mounting Bracket Part No.

Applicable air gripper series: 90-/91MHL2

Applicable cylinder series : 90-/91-MY1B, 90-/91-MY1H, 90-/91-CY3R, 90-/91-MGP, 90-RS(1)H

Applicable auto switches : D-M9BW(V)L-900, D-M9BW(V)SDPC-900, D-A90L-900

Air gripper series Cylinder series	Applicable bore size (mm)								
	12	15	16	20	25	32	40	50	63
90-/91-MHL2	—	—	—	90-BMG2-012	90-BMG2-012	—	—	—	—
90-/91-MY1B ^{Note 1)}	—	—	—	Auto switch mounting brackets are not required.	90-BMG2-012	90-BMG2-012	90-BMG2-012	—	90-BMG2-012
90-/91-MY1H	—	—	—					—	—
90-/91-CY3R	—	Auto switch mounting brackets are not required.	Auto switch mounting brackets are not required.	90-BMG2-012	90-BMG2-012	90-BMG2-012	90-BMG2-012	90-BMG2-012	90-BMG2-012
90-/91-MGP	90-BMG2-012	—	90-BMG2-012					—	—
90-RSH ^{Note 2)}	—	—	—	90-BMG2-012	—	—	—	—	—
90-RS1H ^{Note 2)}	—	—	—	—	—	—	—	90-BMG2-012	90-BMG2-012

Note 1) 90-/91-MY1B series

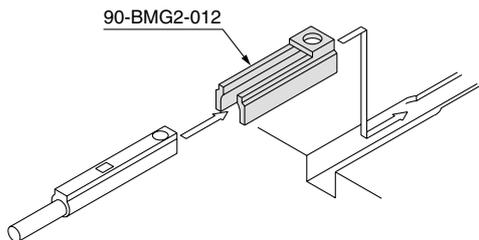
D-M9BW(V)L-900 or D-M9BW(V)SDPC-900 cannot be mounted on ø50.

D-A90L-900 cannot be mounted.

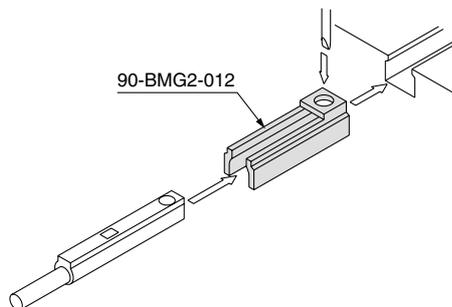
Note 2) 90-RS(1)H series

D-A90L-900 cannot be mounted.

For 90-/91-MY1B and 90-/91-MY1H series



For 90-/91-CY3R, 90-/91-MGP and 90-RS(1)H series



 **Safety Instructions** Be sure to read "Handling Precautions for SMC Products" (M-E03-3) and "Standard product catalogs" before using.

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