

Series Compatible with Secondary Batteries

Series 25A-

New

Copper (Cu)
and Zinc (Zn)
Free

Compatible with
a low dew point
-70°C

Using grease
compatible with
a low dew point
Longer life

A wide range
of lineup
**Number of
models is
expanded**



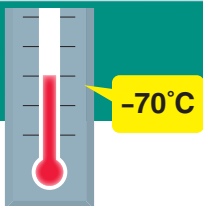
**Compatible with various usage environments
in each manufacturing process**



P-E11-7A

New Low dew point

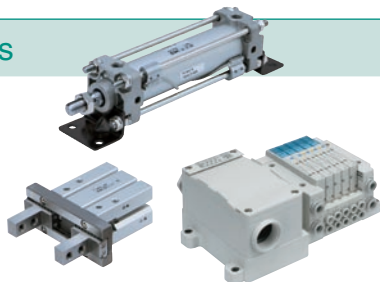
**Compatible
with -70°C**



- Service life and performance have been improved at a low dew point.
- Using grease compatible with a low dew point.*

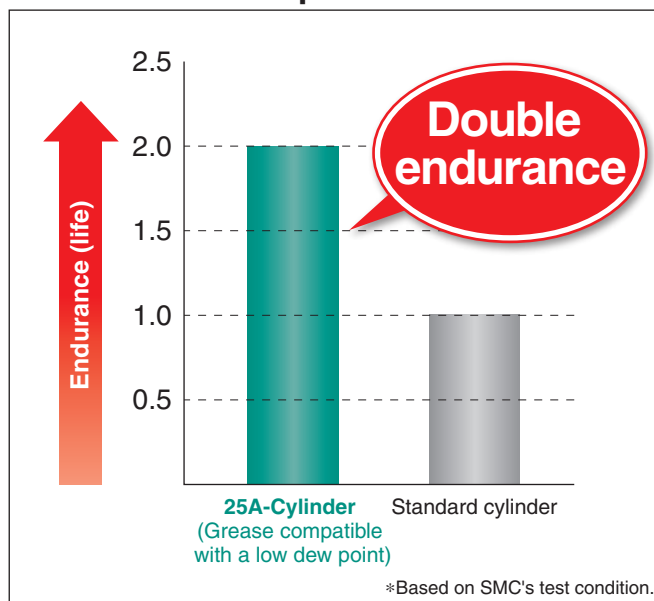
Applicable Series

- Air cylinder
- Gripper
- Solenoid valve (5 Port)
- Regulator, etc.



* For details about the part number of the maintenance grease pack, refer to Front matter 9.

Endurance comparison



Material

Copper (Cu)

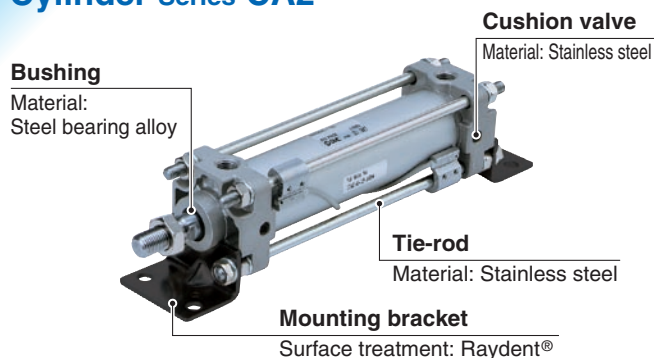
Zinc (Zn)

Surface Treatment

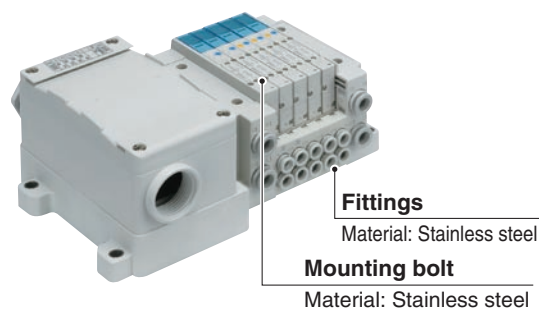
- Electrolytic nickel plating with a copper layer (Electroless nickel plating is used)
- Zinc plating

Not Used

Cylinder Series CA2

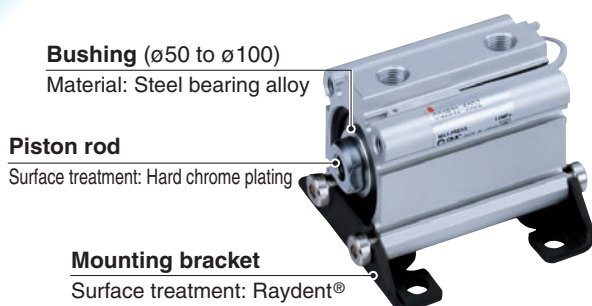


Solenoid Valve Series SY

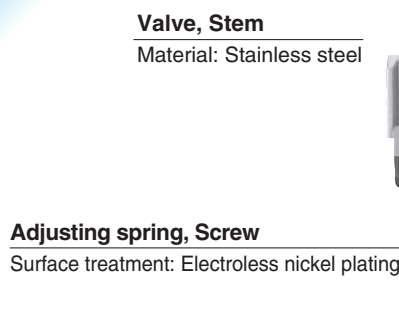


*Coils for solenoid valves, connector pins, and lead wires are made of copper.

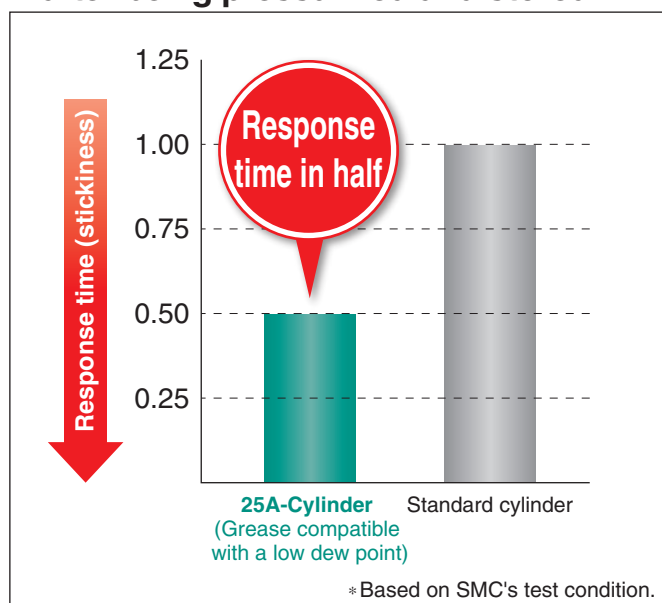
Cylinder Series CQ2



Regulator Series AR



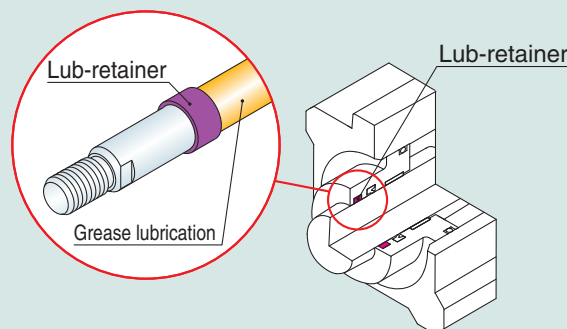
● Comparison of cylinder response times after being pressurized and stored



Lub-retainer

Made to Order

- Service life has been further improved with a lub-retainer.



Cylinder Series MGPM

Bushing (ø50 to ø100)

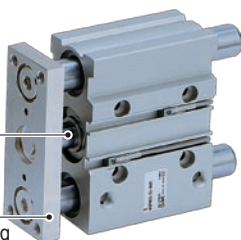
Material: Steel bearing alloy

Piston rod

Surface treatment: Hard chrome plating

Plate

Surface treatment: Electroless nickel plating



Filter Series AF

Rod (AF20 to 60)

Material: Stainless steel

Bowl guard (AF30 to 60)

Surface treatment: Electrodeposition coating

Drain plug (AF30 to 60)

Material: Stainless steel



Cylinder Series MXQ

Piston rod

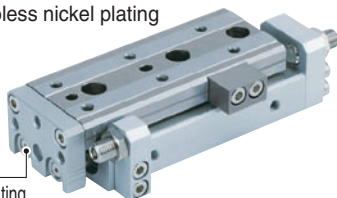
Surface treatment: Electroless nickel plating

Piston

Material: Stainless steel
Aluminum alloy

Bolts

Surface treatment: Electroless nickel plating



2-Color Display High-Precision Digital Pressure Switch Series ZSE30A/ ISE30A

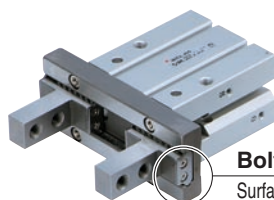


Fittings

Material: Stainless steel

* Lead wires are made of copper.

Air Gripper Series MHZ



Bolts

Surface treatment: Electroless nickel plating

Auto Switch Series D-M9□

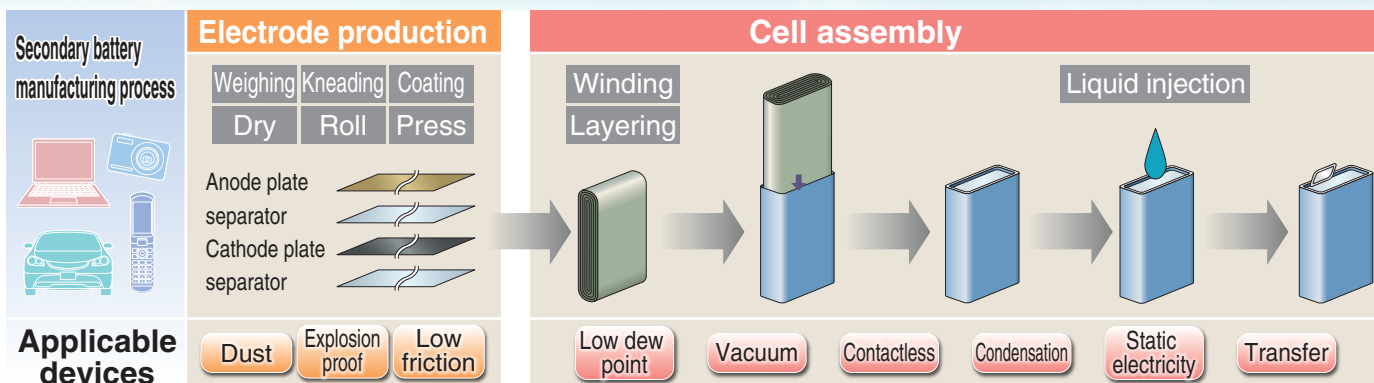


Mounting screw

Material: Stainless steel

* Lead wires are made of copper.

Secondary Battery Manufacturing Process and Applicable Products



New 25A- series Applicable Products

Directional Control Valves



5 Port Solenoid Valve
Series 25A-SY5000/7000



3 Port Solenoid Valve

Series 25A-VP542



Series 25A-VT317

Air Grippers

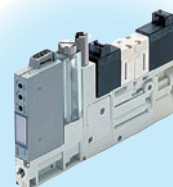


Standard
Series 25A-MHZ2

With Dust Cover
Series 25A-MHZJ2



Vacuum Equipment



Space Saving Vacuum Ejector & Vacuum Pump Unit
Series 25A-ZQ

Actuators



Air Cylinder
Series 25A-CQ2

Compact Guide Cylinder
Series 25A-MGP



Air Preparation Equipment/Pressure Control Equipment



Mist Separator
Series 25A-AM



Exhaust Cleaner for Clean Rooms
Series 25A-AMP



Regulator
Series 25A-AR

Pressure Gauge
G46-□□-X3
(Bourdon tube: Stainless steel 316)
*Copper is used for parts other than wetted parts.



Detection Switches/Auto Switches



2-Color Display High-Precision Digital Pressure Switch
Series 25A-ZSE30A/ISE30A

2-Color Display Solid State Switch
Series D-M9□□-900

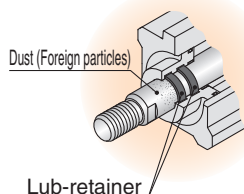


Made to Order

Dust

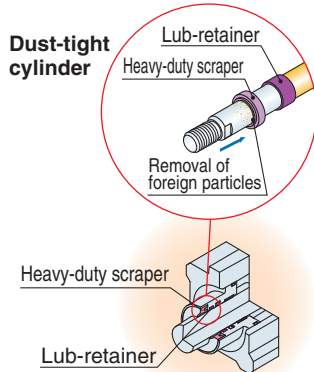
Dust resistant cylinder CM2/CQS/CQ2/MGP

Applicable for environments with flying micro-power such as ceramic powder, toner powder, paper powder, and metallic powder (except weld spatter).



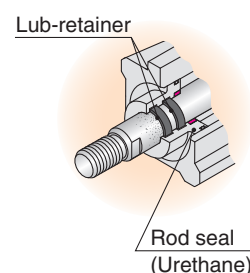
Longer life in dusty environment

Dust-tight cylinder



Double lub-retainer + urethane seal

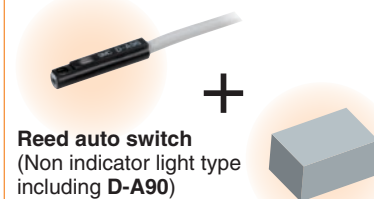
Changed material of rod seal to urethane (to improve endurance)



Explosion Proof

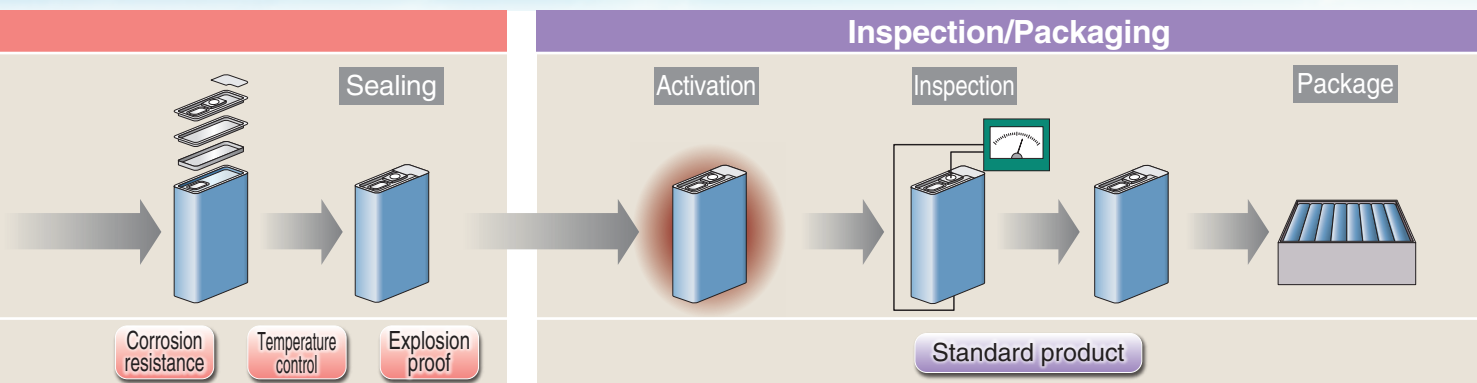
Compatible with a reed auto switch (without a light) in explosion proof environment

Compatible with a Reed Auto Switch when being connected to a barrier relay



Reed auto switch
(Non indicator light type including D-A90)

Barrier relay
(Supply a barrier relay on your own)



Standard Products [Standard products are copper (Cu) and zinc (Zn) free.]

Fittings

- Stainless Steel One-touch Fittings Series KG**
- Stainless Steel 316 Insert Fittings Series KFG2**
- Stainless Steel 316 One-touch Fittings Series KQG2**
- Clean One-touch Fittings for Driving Air Piping Series KPG**
- S Couplers Stainless Steel Type Series KKA**

Flow Control Equipment

- Stainless Steel Speed Controller with One-touch Fittings Series AS-FG**
- Clean Speed Controller with One-touch Fittings Series AS-FPG**

Fluoropolymer

- Series LQ1**
- Series SRF**
- Series LQ3**
- Series TL/TIL**
- Series PAF**
- Series LVC**

- Cyclone Pad Series XT661**
- Vacuum Pad Series ZP**
- Clean Air Filter Series SFD100/200**

Improved Corrosion Resistance

Solenoid valve Series VQ

		After change	Before change
One-touch fittings	Release bushing	PP	POM
	Body	Stainless steel 303	Brass

Air slide table Series MXQ/MXS

Changed material of the inner part of the cylinder to that with high corrosion resistance

	After change	Before change
25A-MXQ-X771 Head cap	Aluminum	Synthetic resin
25A-MXS-X1949 Head cap	Aluminum	Synthetic resin
Guide	Iron based	Synthetic resin

Vacuum

Vacuum pad

- Series ZPT
- Series ZP

Changed to stainless steel

Aluminum high vacuum angle valve

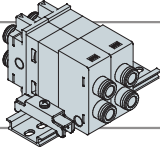
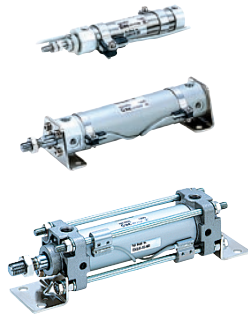
- Series XL□

Bolt material changed to stainless steel

Series Variations Compatible with Secondary Batteries

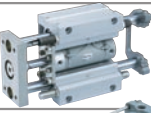
Series	Materials not used		
	Copper (Cu)	Zinc (Zn)	Stainless Steel 316
New 25A-			
25-			
90-			

New Series 25A- Applicable Products

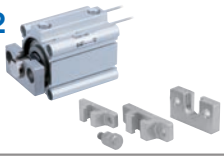
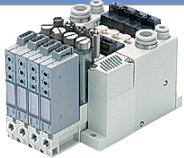
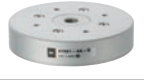
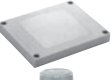
Description		Series 25A-		25-	90-
		Model (Type)	Page no.		
Directional Control Valves	5 Port Solenoid Valve 	SY5000 (Plug-in connector connecting base)	P.1	—	—
		SY5000, 7000	P.22		—
		VQ2000, 4000 (W)	P.29	—	—
		SQ2000	P.42	—	—
		VQZ1000	P.47	—	—
	Separate Type Double Check Block 	VQ1000 (Double check block)	P.51	—	
		VQ2000 (Double check block)	P.51		
	3 Port Solenoid Valve 	VP342, 542, 742 (Body ported)	P.52	—	
		VP344, 544, 744 (Base mounted)	P.53	—	
		VP500/700 (Safety standards ISO13849-1)	*2	—	—
		VT317	P.54	—	
Actuators	Finger Valve 	VG342	P.55	—	
		VHK2, 3	P.56	—	
	Air Cylinder 	CJ2 (Standard)	P.57		
		CM2 (Standard)	P.58		—
		CBM2 (With end lock)	*2	—	—
		CG1 (Standard)	P.59		
		CBG1 (With end lock)	*2	—	—
		MB (Standard)	P.60		—
		MBB (With end lock)	*2	—	—

*2 Consult your SMC sales representative.

Front matter 5

	Description	Series 25A-		25-	90-
		Model (Type)	Page no.		
Actuators	Air Cylinder 	CA2 (Standard) (Z)	P.61	—	●
		CS2 (Standard)	P.62	—	—
	Free Mount Cylinder 	CU (Standard)	P.63	—	●
		CUK (Non-rotating rod)	P.64	—	—
	Compact Cylinder 	CQS (Standard)	P.65	●	●
		CQS□S (Anti-lateral load)	P.66	—	●
		CQ2 (Standard) (Z)	P.67	●	●
		CQ2 (Large bore size) (Z)	P.68	—	—
		CQ2 (Long stroke) (Z)	P.69	—	—
		CQ2□S (Anti-lateral load) (Z)	P.70	—	—
		CBQ2 (With end lock)	*2	—	—
	Mechanically Jointed Rodless Cylinder 	MY1B (Basic)	P.71	—	●
		MY1H (Linear guide)	P.72	—	●
		MY2H (Linear guide)	P.73	—	●
	Magnetically Coupled Rodless Cylinder 	CY3B (Basic)	P.74	—	—
		CY3R (Direct mount) (G)	P.75	—	—
	Air Slide Table 	MXS (Cross roller guide)	P.76	—	●
		MXQ (Recirculating linear guide)	P.77	●	●
		MXW (Recirculating linear guide)	P.78	—	—
	Compact Guide Cylinder 	MGPM (Slide bearing)	P.79	●	●
		MGPL (Ball bushing bearing)	P.79	●	●
	Slide Unit	CXWM (Slide bearing)	P.80	—	—
	Dual Rod Cylinder 	CXSM (Slide bearing)	P.81	●	—
		CXSL (Ball bushing bearing)	P.81	●	—
	Guide Cylinder 	MGGL (Ball bushing bearing)	P.82	—	●
	Cylinder with Lock 	CNG□N	*2	●	—
		CNA2□N	*2	●	—
	Compact Cylinder with Lock 	CLQ	*2	●	—
	Stopper Cylinder 	RSQ	*2	●	●
	Heavy Duty Stopper Cylinder 	RSH	*2	●	●
		RS2H	*2	●	—

*2 Consult your SMC sales representative.

Description		Series 25A-		25-	90-
		Model (Type)	Page no.		
Related Products	Shock Absorber 	RB (Standard)	P.83	☐	☐
		RBC (Standard)	P.83	☐	☐
		RJ (Standard)	P.84	☐	☐
	Floating Joint 	JA (Standard/80, 100 only)	P.86	☐	☐
		JB (For compact cylinder)		☐	☐
		JS (Stainless steel)		☐	☐
	Simple Joint for CQ2 	YA (Type A mounting bracket)	*1	☐	☐
		YB (Type B mounting bracket)		☐	☐
		YU (Joint)		☐	☐
Rotary Actuators	Rotary Table 	MSUB (Vane style)	P.87	☐	☐
		MSQ (Rack & Pinion)	P.88	☐	☐
		MSQ (Rack & Pinion/With vacuum port)	P.88	☐	☐
Air Grippers	Parallel Type Air Gripper   	MHZ2 (Standard)	P.89	☐	☐
		MHZL2 (Long stroke)	P.90	☐	☐
		MHZJ2 (With dust cover)	P.91	☐	☐
		MHZL2 (Long stroke/With dust cover)	P.91	☐	☐
		MHF2 (Low profile type)	P.92	☐	☐
		MHL2 (Wide type)	P.93	☐	☐
		MHS□ (3-finger, 4-finger)	P.94	☐	☐
		MHSJ3 (3-finger/With dust cover)	P.95	☐	☐
		MHY2 (180° Angular style)	P.96	☐	☐
Vacuum Equipment	Vacuum Ejector 	ZQ (Ejector unit)	P.97	☐	☐
		ZQ (Vacuum pump unit)	P.101	☐	☐
		ZH (Body ported)	*1	☐	☐
	Air Suction Filter 	ZFC (With One-touch fittings/In-line type)	*1	☐	☐
	Vacuum Pad 	ZP□	*2	☐	☐
		ZP (Pad only)	*1	☐	☐
	Cyclone Pad 	XT661	*1	☐	☐
	Adsorption Plate 	SP	*1	☐	☐
	Vacuum Regulator 	IRV (Standard)	*2	☐	☐

*1 Standard products: Standard products are copper (Cu) and zinc (Zn) free. Refer to the Best Pneumatics for details.

*2 Consult your SMC sales representative.

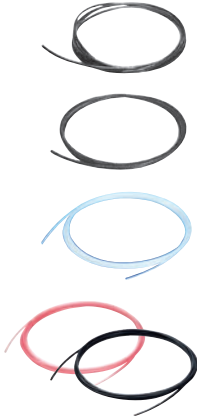
Description		Series 25A-		25-	90-
		Model (Type)	Page no.		
Air Preparation Equipment	Membrane Air Dryer 	IDG	P.105	—	●
	Air Preparation Filter 	AFF (Main line filter)	P.107	—	●
		AM (Mist separator)	P.108	—	●
		AMD (Micro mist separator)	P.109	—	●
		AMH (Micro mist separator with pre-filter)	P.110	—	—
Clean Air Filters	Clean Air Filter 	SFD100	*1	—	—
		SFD200		—	●
		AMP (Exhaust cleaner for clean rooms)	P.111	—	●
Air Filters/Pressure Control Equipment	Air Filter Separator 	AF	P.112	●	●
		AFM (Mist separator)	P.113	—	●
		AFD (Micro mist separator)	P.113	—	●
	Regulator  	AR	P.114	●	—
		AR□□K (With backflow function)	P.114	●	●
		AW	P.115	—	●
		AW□□K (With backflow function)	P.115	—	●
		IR (Precision regulator)	P.116	—	●
		ITV (Electro-pneumatic regulator)	P.117	—	●
		CB-97XH (Residual pressure indicator)	*1	—	—
				—	—
	Booster Regulator 	VBA	P.118	—	—
		VBAT (Air tank)	P.119	—	—
	Pressure Gauge 	G46-X2 (Threaded portion: Electroless nickel plating)	*4	—	—
		G46-X3 (Bourdon tube: Stainless steel) (With limit indicator)	*3	—	—
				—	—
Fittings/Flow Control Equipment	Quick Exhaust Valve 	AQ240F, 340F (Built-in One-touch fittings)	P.120	—	●
	Check Valve 	AKH (With One-touch fittings)	P.121	—	●
	Stainless Steel Speed Controller 	AS-FG (Elbow/Universal/In-line type)	*1	—	—
	Stainless Steel Fittings 	KG (One-touch fittings)		●	●
		KPG (One-touch fittings)		—	●
		KQG2 (One-touch fittings)		—	—
		KFG2 (Insert fittings)		—	—
		MS (Miniature fittings)		—	—
		KKA (S Couplers stainless steel type)		—	—

*1 Standard products: Standard products are copper (Cu) and zinc (Zn) free. Refer to the Best Pneumatics for details.

*2 Consult your SMC sales representative.

*3 Wetted parts are copper (Cu) and zinc (Zn) free. Copper and zinc are used for parts other than wetted parts.

*4 Copper (Cu) is not exposed outside. Copper (Cu) is used for wetted parts.

Description		Series 25A-		25-	90-
		Model (Type)	Page no.		
Tubings	Tubing 	T (Nylon)	*1	—	—
		TS (Soft nylon)		—	—
		TU (Polyurethane)		—	—
		TA□ (Antistatic)		—	—
		TL (Fluoropolymer)		—	—
		TH (FEP)		—	—
		TD (Soft fluoropolymer)		—	—
		TPS (Soft polyolefin)		—	—
		IDK (Moisture control tubing)		—	—
Detection Switches	Pressure Switch 	ZSE30A/ISE30A	P.122	●	—
		ZSE40A/ISE40A	P.123	—	—
		ZSE80/ISE80	P.124	—	—
	Flow Switch 	PFM7	P.125	—	●
		PF3W (For water)	P.126	—	—
		PF3W (For PVC piping)	P.127	—	—
Auto Switches	Solid State Switch 	D-M9□□	P.131	●	●
		D-Y7□□		●	●
		D-K59		—	—
	Reed Switch 	D-Z80L		●	●
		D-A90L		—	—
Fluid Control Equipment	Direct Operated 2 Port Solenoid Valve 	VX2	P.128	—	—
High Vacuum Equipment	Aluminum High Vacuum Angle Valve 	XLA (Normally closed)	*2	—	—
		XLC (Double acting)	*2	—	—

*1 Standard products: Standard products are copper (Cu) and zinc (Zn) free.

Refer to the Best Pneumatics for details.

*2 Consult your SMC sales representative.

Grease pack for Series 25A*

* For details about applicable models, consult your SMC sales representative.

Grease part number	Internal capacity
GR-D-005	5 g
GR-D-010	10 g
GR-D-100	100 g

Contained in a plastic container.

Related Products

Refer to SMC for
"Copper (Cu) and Zinc (Zn) Free" products.

1 Antistatic Equipment

Vacuum

Static electricity

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

Actuators

- Antistatic Air Cylinder (Made to Order) Series **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) Series **AS-X260**



2 Static Electricity Elimination Equipment

Static electricity

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

- Ionizer Series **IZS31**
- Ionizer/Nozzle Type Series **IZN10**
- Ionizer/Fan Type Series **IZF10**

Measurement Equipment

Measures the electrostatic potential.

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



3 Temperature Control Equipment

- Thermo-chiller/Compact Type Series **HRS**



4 Electric Actuators

- Electric Gripper Series **LEH**□
- Electric Slide Table Series **LES**
- Electric Actuator/Miniature Rod Type /Miniature Slide Table Type Series **LEPS/LEPY**
- Electric Actuator/Rod Type Series **LEY**
- Electric Actuator/Slider Type Series **LEF**
- Electric Actuator/Guide Rod Slider Series **LEL**
- Electric Rotary Table Series **LER**





Series 25A- Precautions

Be sure to read before handling.

Precautions

Caution

■ Change of material

Series 25A- are copper- and zinc-free products, however, some parts including coils for solenoid valves and auto switches, and connector pins and lead wires, whose material can not be changed, are made of copper.

■ Particle generation (metallic contaminants)

Usage of metal stoppers on an air slide table produces metal-to-metal collision and contact, and may generate wear particles. Do not use metal stoppers in an environment where wear particles are problem.

■ Static electricity

Refrain from using the electrical equipments including detection switches (e.g., pressure switches and flow switches) in electrostatically-charged environments. Otherwise, they may cause the system to fail or to malfunction.

■ Piping

Usage of nylon tubing and polyurethane tubing in environments with a low dew point may affect dew points of ambient air and inside of piping. Use fluoropolymer tubing (Series TL) or stainless steel copper tubing (Supply it on your own) in environments with a low dew point.

■ Chemical environment

Refrain from using the products in such environments as exposed to chemicals. Otherwise, resin parts may deteriorate.

If you want SMC to test the products for the effects of chemicals attached to them, send the products back to SMC after thoroughly cleaning them.

Consult your SMC sales representative for further details.

■ Trademark

DeviceNet™ is a trademark of ODVA.

EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Be sure to read "Handling Precautions for SMC Products" (M-E03-3) and "Instruction Manuals" before using.