

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**



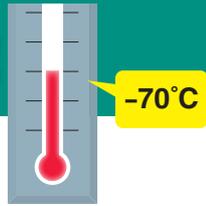
Compatible with various usage environments
in each manufacturing process



P-E11-7A

New Low dew point

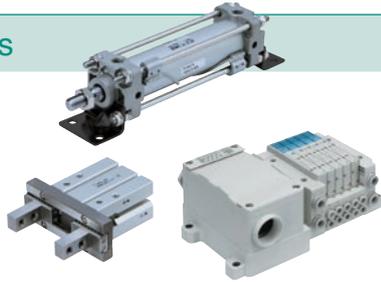
Compatible with -70°C



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

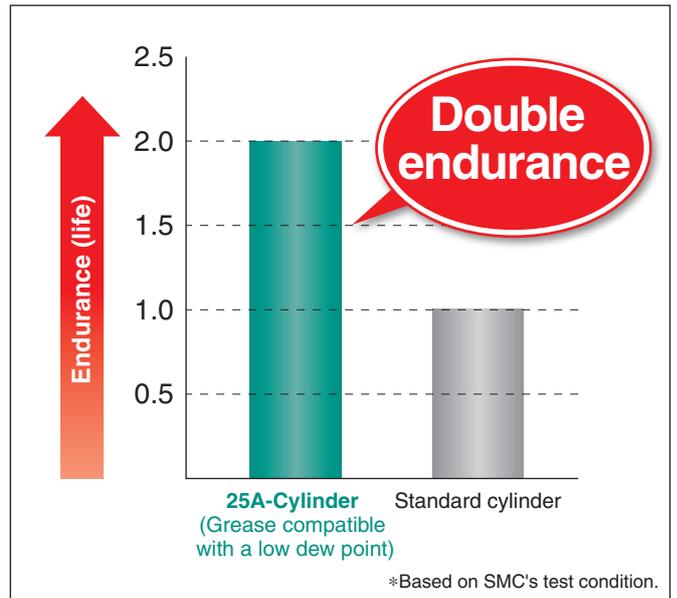
Applicable Series

- 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

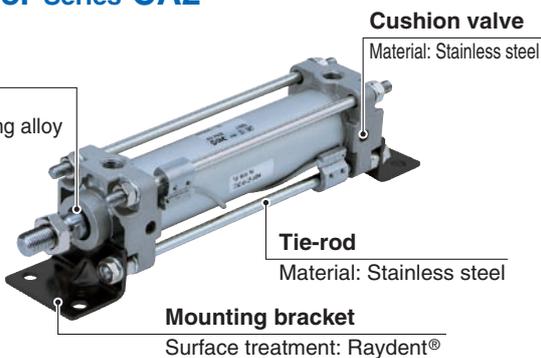
- Electrolytic nickel plating with a copper layer (Electroless nickel plating is used)
- Zinc plating

Not Used

Cylinder Series CA2

Bushing

Material: Steel bearing alloy

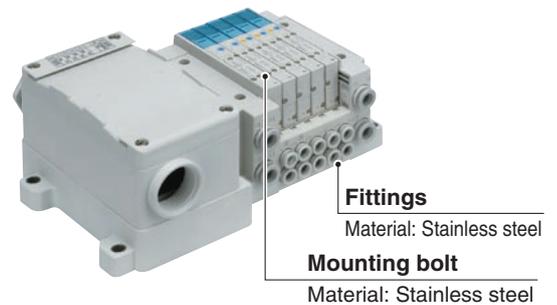


Cushion valve
Material: Stainless steel

Tie-rod
Material: Stainless steel

Mounting bracket
Surface treatment: Raydent®

Solenoid Valve Series SY



Fittings
Material: Stainless steel

Mounting bolt
Material: Stainless steel

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

Cylinder Series CQ2

Bushing (ø50 to ø100)
Material: Steel bearing alloy

Piston rod
Surface treatment: Hard chrome plating

Mounting bracket
Surface treatment: Raydent®



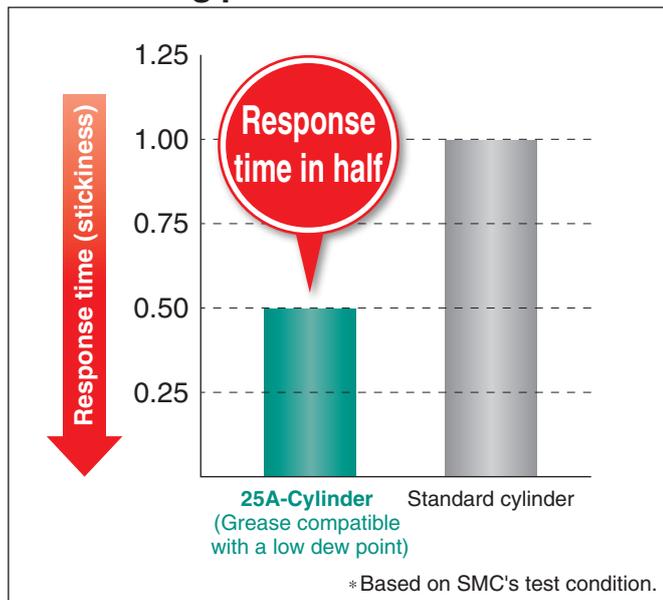
Regulator Series AR

Valve, Stem
Material: Stainless steel

Adjusting spring, Screw
Surface treatment: Electroless nickel plating



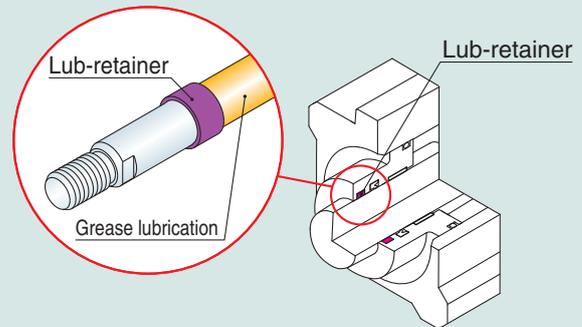
● Comparison of cylinder response times after being pressurized and stored



Lub-retainer

Made to Order

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



Cylinder Series MGPM

Bushing (ø50 to ø100)

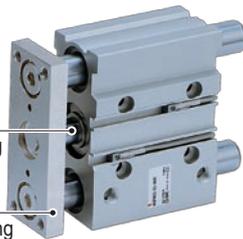
Material: Steel bearing alloy

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

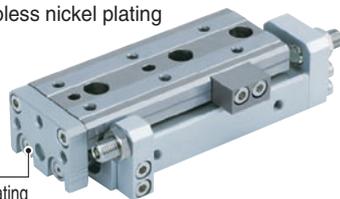
Surface treatment: Electroless nickel plating

Piston

Material: Stainless steel
Aluminum alloy

Bolts

Surface treatment: Electroless nickel plating



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

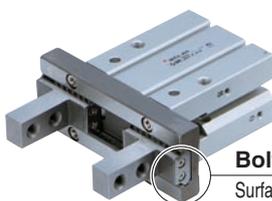


Fittings

Material: Stainless steel

* Lead wires are made of copper.

Air Gripper series MHZ



Bolts

Surface treatment: Electroless nickel plating

Auto Switch series D-M9□

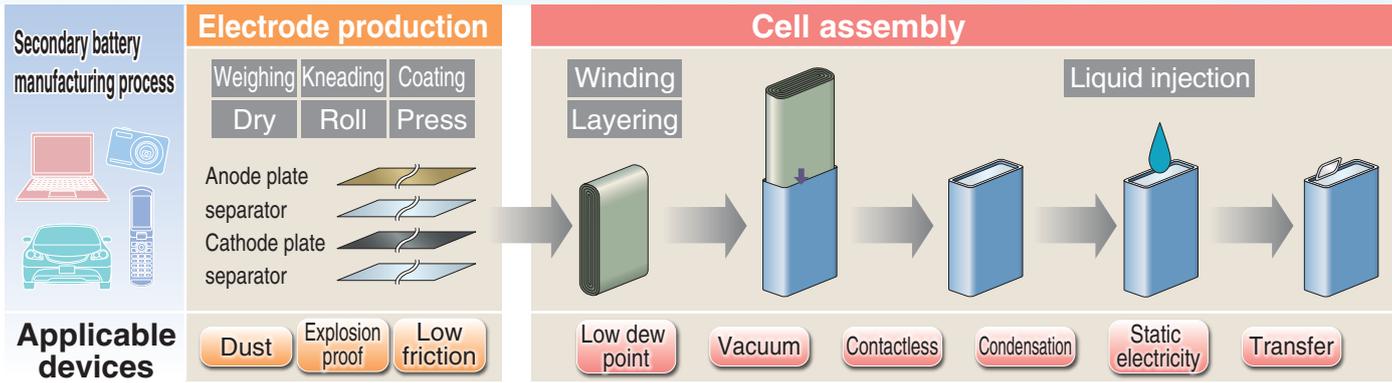


Mounting screw

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

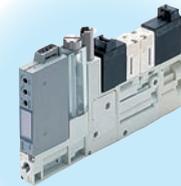


Standard
Series 25A-MHZ2

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

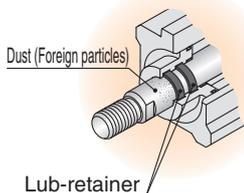


Made to Order

Dust

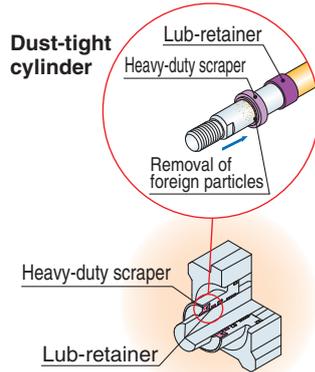
Dust resistant cylinder CM2/CQS/CQ2/MGP

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



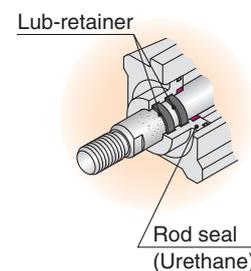
Longer life in dusty environment

Dust-tight cylinder



Double lub-retainer + urethane seal

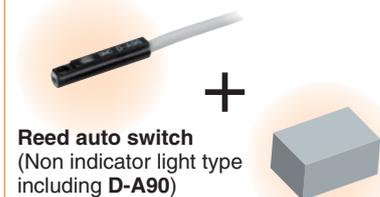
Changed material of rod seal to urethane (to improve endurance)



Explosion Proof

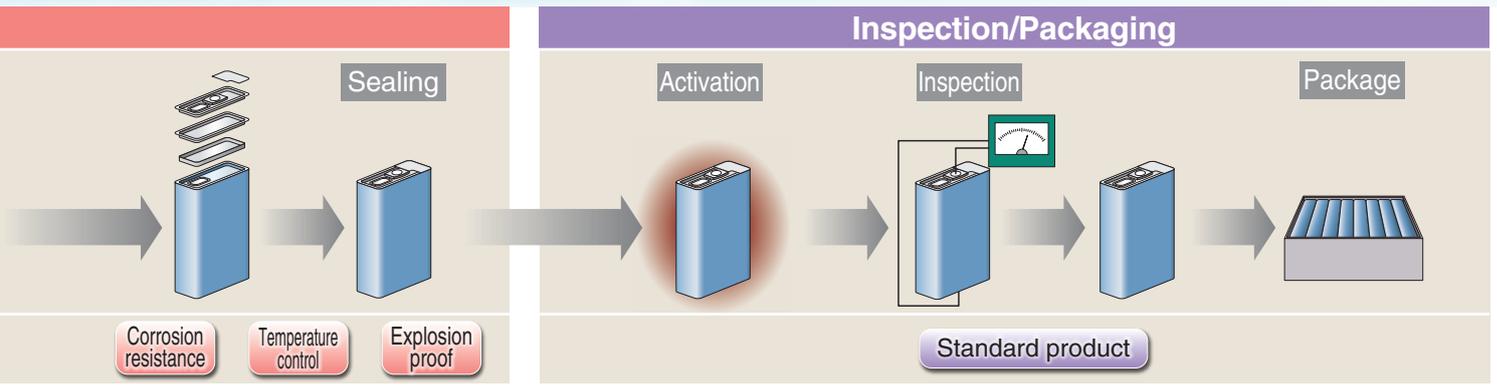
Compatible with a reed auto switch (without a light) in explosion proof environment

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

Cyclone Pad Series XT661

Vacuum Pad Series ZP

Clean Air Filter Series SFD100/200

Fluoropolymer

Series LQ1 | **Series SRF** | **Series LQ3**

Series TL/TIL | **Series PAF** | **Series LVC**

Improved Corrosion Resistance

Solenoid valve Series VQ

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

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

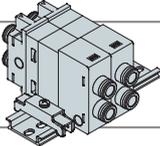
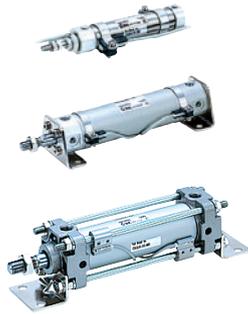
- Series XL□

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-	●	●	●

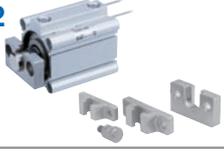
New Series 25A- Applicable Products

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

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

*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	 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	 Booster Regulator	VBA	P.118	—	—
			VBAT (Air tank)	P.119	—	—
	Pressure Gauge	 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		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*



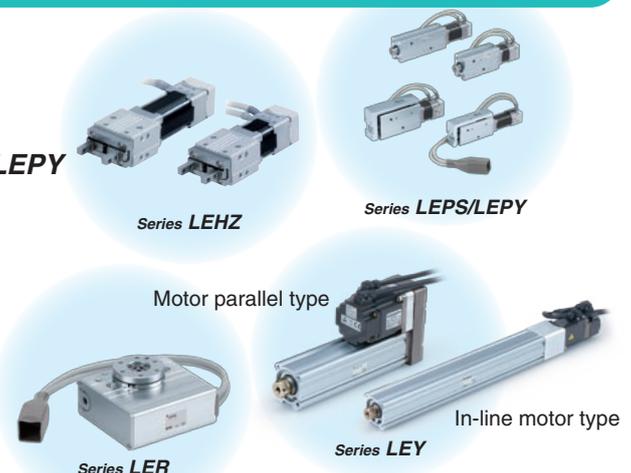
3 Temperature Control Equipment

- 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.