

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**

New

- 5 port air operated valve: Series 25A-SYA
- Vacuum unit: Series 25A-ZK2
- Electric actuators: Series 25A-LEFS/LEJS/LEY
- Air cylinders: Series 25A-CJ2-Z, 25A-MB-Z, 25A-MGP-Z
- Stainless steel pressure gauge: Series G43, etc. added.

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

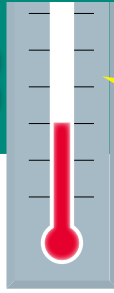
SMC

P-E11-7B [Ⓐ]

Series 25A-

Low dew point

Compatible with -70°C



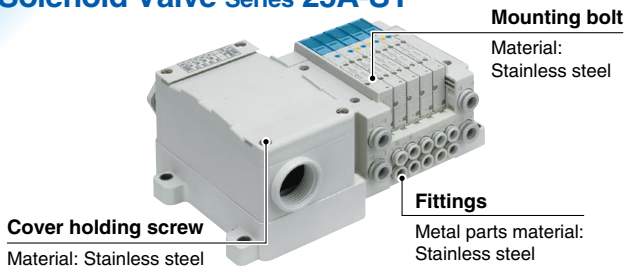
-70°C

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

(Refer to page 10 for part numbers of the maintenance grease pack.)

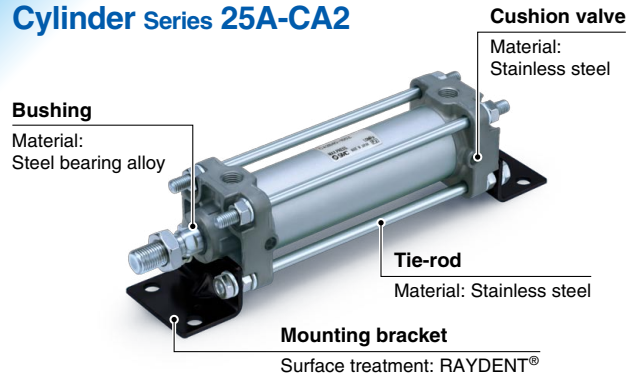
Material	Copper (Cu) Zinc (Zn)	Not Used
Surface Treatment	<ul style="list-style-type: none"> •Electrolytic nickel plating with a copper layer (Electroless nickel plating is used) •Zinc plating 	

Solenoid Valve Series 25A-SY

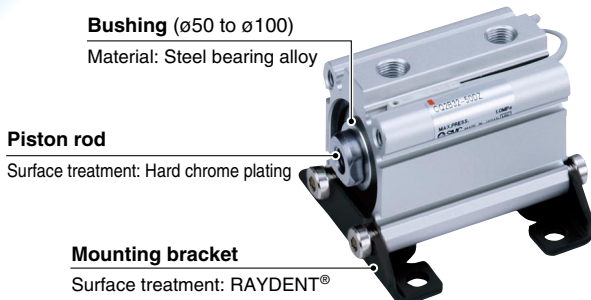


*1 Coils for solenoid valves, connector pins, and lead wires are made of copper.
*2 Manifold terminal block, wiring parts, connector metal parts and printed circuit board are made of copper.

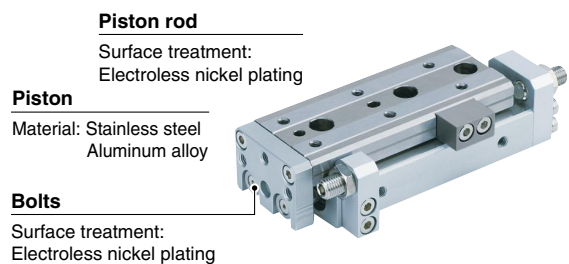
Cylinder Series 25A-CA2



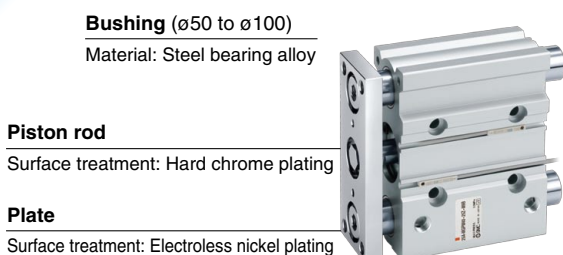
Cylinder Series 25A-CQ2



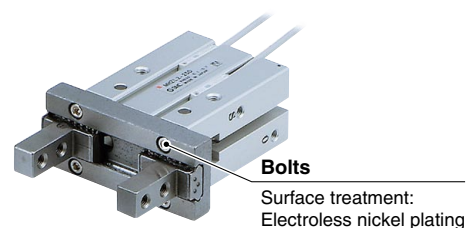
Cylinder Series 25A-MXQ



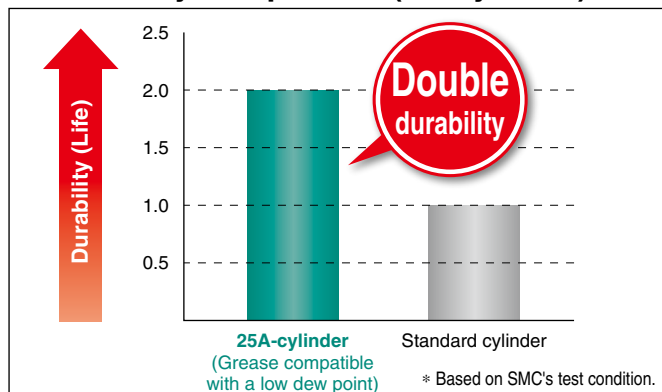
Cylinder Series 25A-MGPM



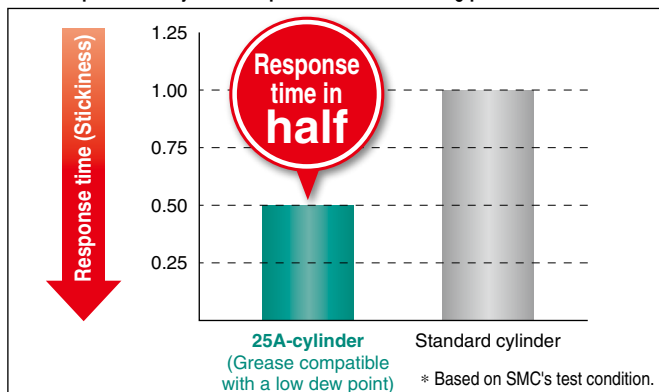
Air Gripper Series 25A-MHZ



● Durability comparison (Air cylinder)



● Comparison of cylinder response times after being pressurized and stored



Filter Series 25A-AF

Rod (AF50 to 60-A)

Material: Stainless steel



Drain plug (AF30 to 60-A)

Material: Stainless steel

Regulator Series 25A-AR

Valve, Stem

Material: Stainless steel



Adjusting spring, Screw

Surface treatment:
Electroless nickel plating

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



Port thread

Material: Stainless steel

* Lead wires are made of copper.

Auto Switch Series D-M9□-900



Mounting screw

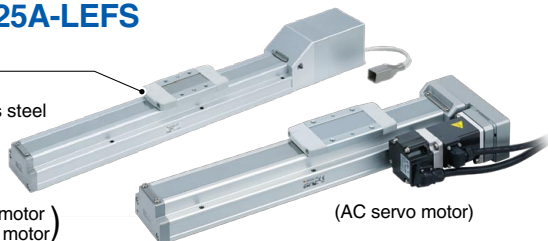
Material: Stainless steel

* Lead wires are made of copper.

Slider Type/Ball Screw Drive Series 25A-LEFS

Bolts

Material:
Stainless steel



(Step motor)
(Servo motor)

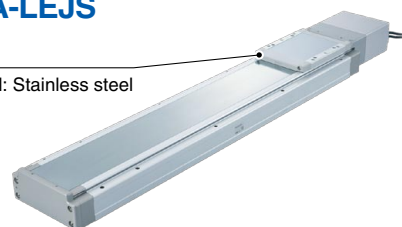
(AC servo motor)

* Copper and zinc materials are used for the motors, cables, controllers/drivers.

High Rigidity Slider Type/Ball Screw Drive Series 25A-LEJS

Bolts

Material: Stainless steel



* Copper and zinc materials are used for the motors, cables, controllers/drivers.

Rod Type Series 25A-LEY

Bushing

Material:
Steel bearing alloy



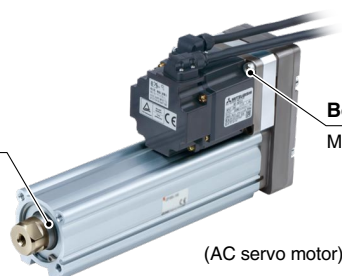
(Step motor)
(Servo motor)

Bolts

Material: Stainless steel

Bushing

Material:
Steel bearing alloy



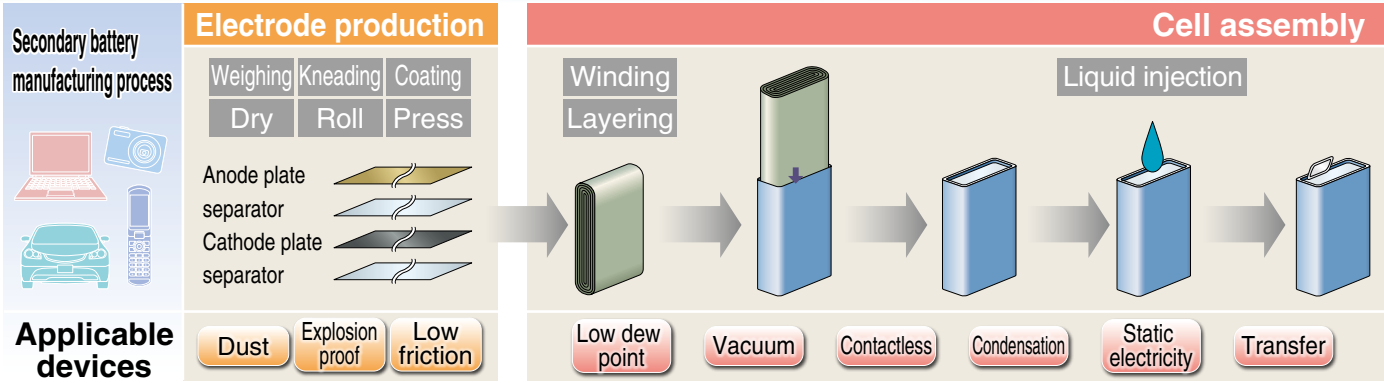
Bolts

Material: Stainless steel

(AC servo motor)

* Copper and zinc materials are used for the motors, cables, controllers/drivers.

Secondary Battery Manufacturing Process and Applicable Products



Low dew point grease

Copper (Cu) Zinc (Zn) Free

Series 25A-

(Refer to pages 5 to 10 for the applicable products.)

Directional Control Valves 	Air Cylinders 	Rotary Actuators/Air Grippers 	Vacuum Equipment
Air Preparation Equipment/Pressure Control Equipment 	Detection Switches/Auto Switches 	Fluid Control Equipment 	Electric Actuators

Made to Order

Low dew point grease Copper (Cu) Zinc (Zn) Free Corrosion resistant materials → Improved corrosion resistance

Air Slide Table Series 25A-MXQ Series 25A-MXS Changed material of the inner part of the cylinder to that with high corrosion resistance		After change	Before change
	Head cap	Aluminum	Synthetic resin

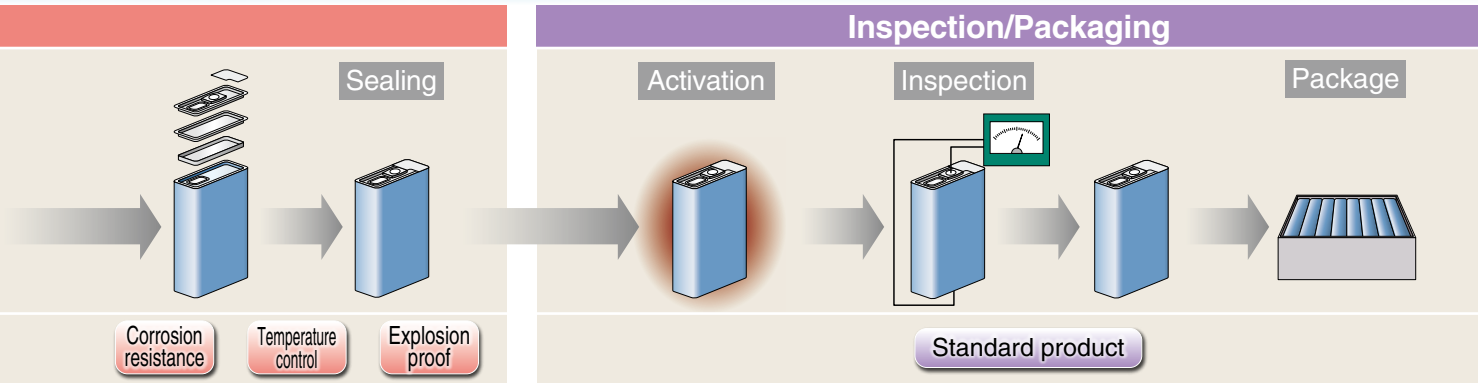
Solenoid Valve Series 25A-VQ		After change	Before change
	One-touch fitting Release bushing	PP	POM

Copper (Cu) Zinc (Zn) Free

Standard Products

(Refer to pages 5 to 10 for the applicable products.)

Fittings 	Flow Control Equipment 	Vacuum Equipment
Clean Air Filter 	Pressure Gauge 	Fluoropolymer Products









Measures against dust Standard Products

Cylinder with Stable Lubrication Function (Lube-retainer)

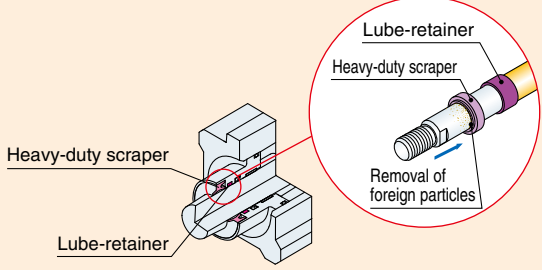
Service life has been further improved with a Lube-retainer in micro-powder (10 to 100 μm) environments. Overall length and mounting are the same as those of the standard model. (Except for some sizes)

Applicable Cylinders

Air Cylinder Series CM2 □M 	Air Cylinder Series CG1 □M 	Air Cylinder Series CA2 □M 	Compact Cylinder/Compact Type Series CQS □M 
Compact Cylinder Series CQ2 □A 	Air Slide Table Series MXQ □AM 	Compact Guide Cylinder Series MGP □M 	Dual Rod Cylinder Series CXS □M 

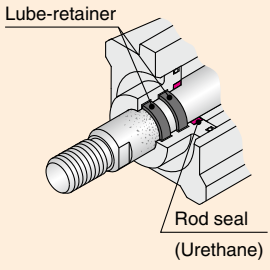
Made to Order

Lube-retainer + Heavy-duty scraper



Double Lube-retainer + Urethane seal (-X2163)

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

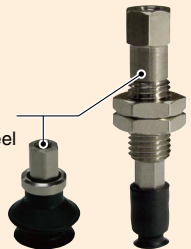


Made to Order

Vacuum Pad

- Series ZPT
- Series ZP


Changed to stainless steel



Aluminum High Vacuum Angle Valve

- Series XL□


U nut material changed to stainless steel, bearing material changed to POM (Internal parts)



Explosion proof Made to Order


Explosion Proof Equipment

5 Port Solenoid Valve/51-SY series
Intrinsically safe explosion-proof (conforming to IEC standard 79)




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)

+




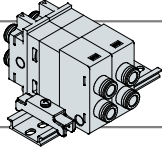



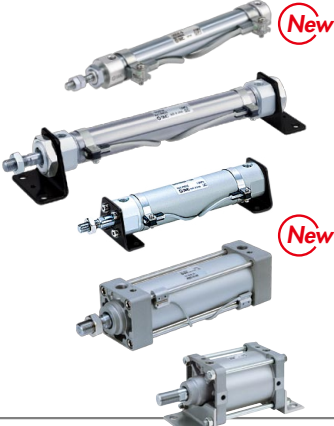
Barrier relay
(Provided by customer)









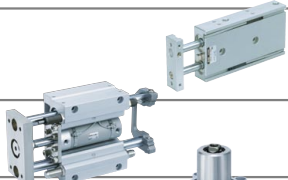
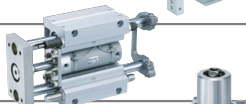




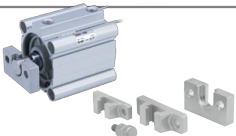
Series Variations Compatible with Secondary Batteries

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

* For details about "25-" and "90-", please contact your SMC sales representative.

Series 25A- Applicable Products










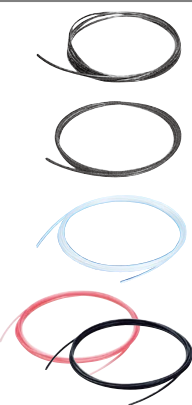
Description	Series 25A-	
	Model (Type)	Page no.
Directional Control Valves 5 Port Solenoid Valve  Separate Type Double Check Block  3 Port Solenoid Valve  5 Port Air Operated Valve  Finger Valve 	25A-SY5000 (Plug-in connector connecting base)	P.13
	25A-SY5000, 7000	P.34
	25A-VQ2000, 4000 (W)	P.41
	25A-SQ2000	P.54
	25A-VQZ1000	P.59
	25A-VQ1000 (Double check block)	P.63
	25A-VQ2000 (Double check block)	P.63
	25A-VP342, 542, 742 (Body ported)	P.64
	25A-VP344, 544, 744 (Base mounted)	P.65
	VP500/700 (Safety standards ISO13849-1)	P.65-1
25A-VT317	P.66	
25A-VG342	P.67	
25A-SYA5000, 7000	P.68	
25A-VHK2, 3	P.69	
Air Cylinders Air Cylinder 	25A-CJ2-Z (Standard)	P.71
	25A-CJ2 (Standard)	P.72
	25A-CM2 (Standard)	P.73
	25A-CG1-Z (Standard)	P.74
	25A-MB-Z (Standard)	P.75
	25A-MB (Standard)	P.76
	25A-CA2-Z (Standard)	P.77
	25A-CS2 (Standard)	P.78

Description		Series 25A-		
		Model (Type)	Page no.	
Air Cylinders	Free Mount Cylinder		25A-CU (Standard)	P.79
			25A-CUK (Non-rotating rod)	P.80
	Compact Cylinder		25A-CQS (Standard)	P.81
			25A-CQS□S (Anti-lateral load)	P.82
			25A-CQ2-Z (Standard)	P.83
			25A-CQ2-Z (Large bore size)	P.84
			25A-CQ2-Z (Long stroke)	P.85
			25A-CQ2□S-Z (Anti-lateral load)	P.86
	Mechanically Jointed Rodless Cylinder		25A-MY1B-Z (Basic $\phi 25$ to $\phi 40$)	P.86-1
			25A-MY1H-Z (Linear guide $\phi 25$ to $\phi 40$)	P.86-2
			25A-MY1B (Basic $\phi 16$, $\phi 20$, $\phi 50$, $\phi 63$)	P.87
			25A-MY1C (Cam follower guide $\phi 16$ to $\phi 63$)	P.87-1
			25A-MY1H (Linear guide $\phi 16$, $\phi 20$)	P.88
			25A-MY2H (Linear guide)	P.89
	Magnetically Coupled Rodless Cylinder		25A-CY3B (Basic)	P.90
			25A-CY3R (G) (Direct mount)	P.91
	Compact Slide		25A-MXH (Recirculating linear guide)	P.91-1
	Air Slide Table		25A-MXS (Cross roller guide)	P.92
			25A-MXQ (Recirculating linear guide)	P.93
			25A-MXW (Recirculating linear guide)	P.94
Compact Guide Cylinder		25A-MGPM-Z (Slide bearing) New	P.95	
		25A-MGPL-Z (Ball bushing bearing) New	P.95	
Slide Unit		25A-CXWM (Slide bearing)	P.97	
Dual Rod Cylinder		25A-CXSM (Slide bearing)	P.98	
		25A-CXSL (Ball bushing bearing)	P.98	
Guide Cylinder		25A-MGGL (Ball bushing bearing)	P.99	
Rotary Clamp Cylinder		25A-MK-Z (Standard)	P.99-1	
Stopper Cylinder/ Fixed Mounting Height		25A-RSQ (Standard)	P.99-2	
Related Products	Shock Absorber		25A-RB (Standard)	P.100
			25A-RBC (Standard)	P.100
			25A-RJ (Soft type)	P.101
			25A-RJ (Short stroke type)	P.102
	Floating Joint		25A-JA (Standard/80, 100 only)	P.103
			25A-JB (For compact cylinder)	P.103
			25A-JS (Stainless steel)	P.103
	Simple Joint for CQ2		YA (Type A mounting bracket)	*1
			YB (Type B mounting bracket)	*1
			YU (Joint)	*1

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

Description		Series 25A-		
		Model (Type)	Page no.	
Rotary Actuators		25A-MSUB (Vane style)	P.104	
		25A-MSQ (Rack & Pinion)	P.105	
		25A-MSQ (Rack & Pinion/With vacuum port)	P.105	
Air Grippers		25A-MHZ2 (Standard)	P.107	
		25A-MHZL2 (Long stroke)	P.108	
		25A-MHZJ2 (With dust cover)	P.109	
		25A-MHZL2 (Long stroke/With dust cover)	P.109	
		25A-MHF2 (Low profile type)	P.110	
		25A-MHL2 (Wide type)	P.111	
		25A-MHS□ (3-finger, 4-finger)	P.112	
		25A-MHSJ3 (3-finger/With dust cover)	P.113	
25A-MHY2 (180° Angular style)	P.114			
Vacuum Equipment		25A-ZK2 (Vacuum unit) Single unit only	P.115	
		25A-ZQ (Ejector unit) Single unit/Manifold	P.119	
		25A-ZQ (Vacuum pump unit) Single unit/Manifold	P.123	
		ZH (Body ported)	*2	
		In-line Air Filter	ZFC (With One-touch fittings)	*1
Air Suction Filter		ZFC (With One-touch fittings/In-line type)	*1	
		Vacuum Pad	ZP (Pad only)	*1
Adsorption Plate		SP	*1	
Air Preparation Equipment		25A-IDG	P.127	
			25A-AFF (Main line filter)	P.129
			25A-AM (Mist separator)	P.130
			25A-AMD (Micro mist separator)	P.131
25A-AMH (Micro mist separator with pre-filter)	P.132			
Clean Air Filters		SFD100	*1	
		SFD200	*1	
		25A-AMP (Exhaust cleaner for clean rooms)	P.133	
		SFE (Exhaust cleaner for clean rooms)	*1	

*1 Standard products: Standard products are copper (Cu) and zinc (Zn) free. Refer to the **Web Catalog** or the Best Pneumatics for details.
 *2 For the ZH (body ported) series, only the screw-in type uses copper. One-touch connection type is copper-free as standard.







Description		Series 25A-	
		Model (Type)	Page no.
Air Filters/Pressure Control Equipment	Air Filter Separator 	25A-AF-A	P.134
		25A-AFM-A (Mist separator)	P.135
		25A-AFD-A (Micro mist separator)	P.135
	Regulator  	25A-AR-B	P.136
		25A-AR□□K-B (With backflow function)	P.136
		25A-AW-B	P.137
		25A-AW□□K-B (With backflow function)	P.137
		25A-IR (Precision regulator)	P.138
		25A-ITV (Electro-pneumatic regulator)	P.139
		CB-97XH (Residual pressure indicator)	*1
	Booster Regulator 	25A-VBA*4	P.140
		25A-VBAT (Air tank)	P.141
	Pressure Gauge  	G43-10-01-X300 (Stud, Bourdon tube, Internal parts: Stainless steel 304)	*2
		G46-SRB (Only external parts and wetted parts are made of stainless steel.)	*3
	Fittings/Flow Control Equipment	Quick Exhaust Valve 	25A-AQ240F, 340F (Built-in One-touch fittings)
25A-AKH (With One-touch fittings)			P.143
Stainless Steel Speed Controller Speed Controller with Indicator 		AS-FG (Elbow/Universal/In-line type)	*1
		AS-FSG (Elbow type)	*1
		AS-FPG (Elbow type)	*1
Stainless Steel Fittings 		KG (One-touch fittings)	*1
		KPG (One-touch fittings)	*1
		KQG2 (One-touch fittings)	*1
		KFG2 (Insert fittings)	*1
		MS (Miniature fittings)	*1
	KKA (S Couplers stainless steel type)	*1	
Tubing		T (Nylon)	*1
		TS (Soft nylon)	*1
		TU (Polyurethane)	*1
		TA□ (Antistatic)	*1
		TL (Fluoropolymer)	*1
		TH (FEP)	*1
		TD (Soft fluoropolymer)	*1
		TPS (Soft polyolefin)	*1
		IDK (Moisture control tubing)	*1

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

*2 Copper (Cu) and zinc (Zn) free. Consult your SMC sales representative for further details.

*3 Standard products: Copper (Cu) and zinc (Zn) are used for parts other than external parts and wetted parts. Refer to the Web Catalog or the Best Pneumatics for details.

*4 Pressure gauge mounting: The G43-10-01-X300/G46-SRB pressure gauge cannot be mounted directly to the booster regulator as it will interfere with the booster regulator handle (for the 25A-VBA10A) or the other pressure gauge (for the 25A-VBA20A/40A). In order to mount the pressure gauge, piping which does not cause any interference must be prepared separately.

Description		Series 25A-	
		Model (Type)	Page no.
Detection Switches	Pressure Switch 	25A-ZSE30A/ISE30A	P.144
		25A-ZSE40A/ISE40A	P.145
		25A-ZSE80/ISE80	P.146
	Flow Switch 	25A-PFM7	P.147
		25A-PF3W (For water)	P.148
		25A-PF3W (For PVC piping)	P.149
Auto Switches	Solid State Auto Switch 	D-M9□□	P.161
		D-Y7□□	P.161
		D-K59	P.161
	Reed Auto Switch 	D-Z80L	P.161
		D-A90L	P.161
Fluid Control Equipment	Direct Operated 2 Port Solenoid Valve 	25A-VX2	P.150
Electric Actuators	Electric Actuator 	New 25A-LEFS (Slider type/Ball screw drive/Step motor, Servo motor)	P.153
		New 25A-LEFS (Slider type/Ball screw drive/AC servo motor)	P.155
		New 25A-LEJS (High rigidity slider type/Ball screw drive/AC servo motor)	P.156
		New 25A-LEY (Rod type/Step motor, Servo motor)	P.157
		New 25A-LEY (Rod type/AC servo motor)	P.159

Grease pack for Series 25A*











Applicable models

* Air cylinders (Except guide unit). For other models, consult with your SMC sales representative.

Grease pack part number	Quantity
GR-D-005	5 g
GR-D-010	10 g
GR-D-100	100 g

Contained in a plastic container.

Made to order (For details, consult with your SMC sales representative.)

	Series	Model (Type)
Air Cylinders	Air Cylinder With End Lock 	CBM2 CBG1 MBB
	Compact Cylinder With End Lock 	CBQ2
	Cylinder with Lock 	CNG□N CNA2□N
	Compact Cylinder with Lock 	CLQ
	Stopper Cylinder 	RSQ
	Heavy Duty Stopper Cylinder 	RSH RS2H
Vacuum Equipment	Vacuum Pad 	ZP□
	Non-contact Gripper 	XT661
	Vacuum Regulator 	IRV (Standard)
High Vacuum Equipment	Aluminum High Vacuum Angle Valve 	XLA (Normally closed) XLC (Double acting)
Directional Control Valves	3 Port Solenoid Valve	VG342-X87 (Safety standards ISO13849-1)

Related Products

Consult with 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 Tubing

- 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 Neutralization Equipment

Static electricity

Ions generated by corona discharge neutralize static electricity.

- Ionizer/Bar Type Series **IZS4**□
- Ionizer Series **IZS31**
- Ionizer/Nozzle Type Series **IZN10**
- Ionizer/Fan Type Series **IZF10/21/31**

Measurement Equipment

Measures the electrostatic potential.

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



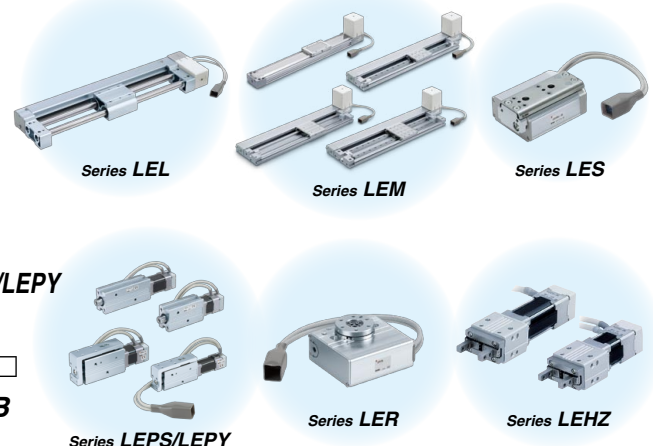
3 Temperature Control Equipment

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



4 Electric Actuators

- Electric Actuator/Guide Rod Slider Series **LEL**
- Electric Actuator/Compact Slider Type Series **LEM**
- Electric Slide Table Series **LES**
- Electric Actuator/Miniature Rod Type /Miniature Slide Table Type Series **LEPS/LEPY**
- Electric Rotary Table Series **LER**
- Electric Gripper Series **LEH**□
- Electric Actuator/Slider Type Series **LEFB**
- Motorless Type Electric Actuators Series **LE**□







Series 25A- Precautions

Be sure to read before handling.

Precautions

Caution

■ Change of material

The 25A- series are copper- and zinc-free products and restrict the use of materials including copper and zinc as main components. However, some parts including solenoid valves, motors, cables, drivers for electric actuators, and coils, connector pins, lead wires for auto switches whose materials are difficult to be changed to alternative ones use copper materials.

■ Particle generation (metallic contaminants)

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

The following models of air gripper may generate dust particles, as metal-to-metal collisions occur when fingers are fully closed.

- MHZ2
- MHZL2 (Except -X5955)
- MHF2
- MHY2

■ 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.

EtherNet/IP™ is a trademark of ODVA.

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

Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and the "Operation Manual" before use.