Series Compatible with Secondary Batteries

25A- Series

Copper (Cu) and Zinc (Zn) Restrictions

Compatible with dew points as low as -70°C

Longer life due to use of grease compatible with low dew points

A wide range of products! Now with a greater number of models!

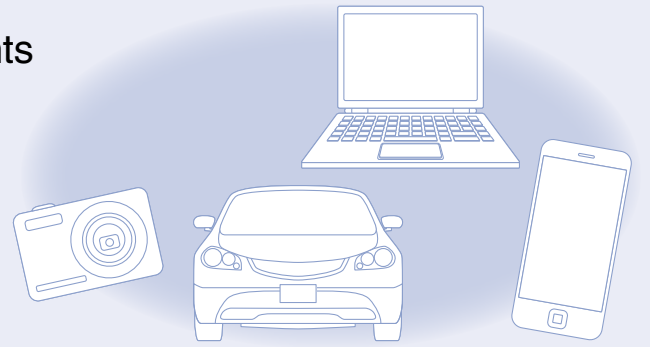
New

- 5-Port Solenoid Valve 25A-JSY Series (Plug-in/Non plug-in)
- Cylinder 25A-CJP2, CJ2K Series
- Mechanically Jointed Rodless Cylinder 25A-MY1M, MY2C Series
- Air Gripper 25A-MHW2 Series
- Modular F.R.L. Units 25A-AC-D Series
- Air Filter 25A-AF-D, AFM-D, AFD-D Series
- Regulator 25A-AR(K)-D, AW(K)-D Series
- Vacuum Unit 25A-ZK2□A Series, etc., have been added.

Compatible with the various environments of each manufacturing process

SMC

Products compatible with the environments of the secondary battery manufacturing process are available, contributing to the improvement of productivity and reduced defects.



Series Compatible with Secondary Batteries 25A- Series

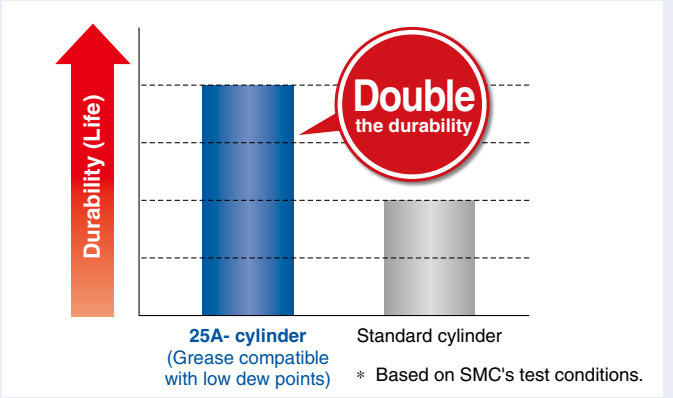
Applicable for use at −70°C

Improved performance in environments with low dew points

- **Uses grease compatible with low dew points**

Double the durability

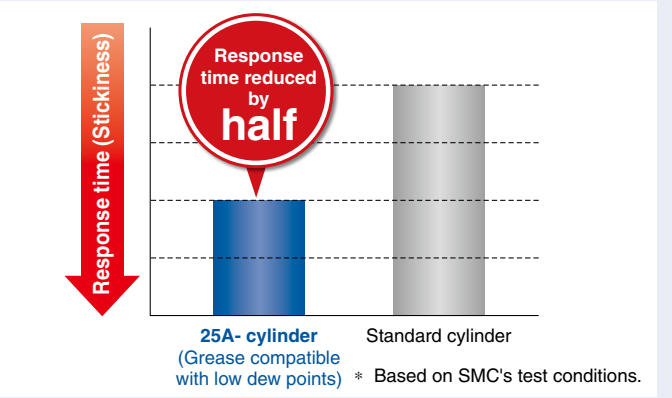
Durability comparison (Air cylinder)



＊ Based on SMC's test conditions.

Response time reduced by half

Comparison of cylinder response times after being pressurized and stored



＊ Based on SMC's test conditions.

Material Restrictions

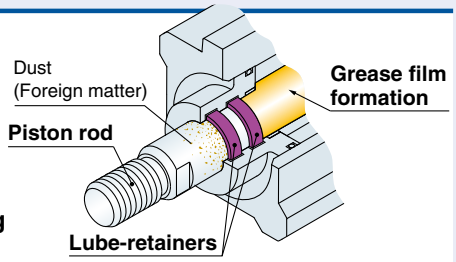
The following materials are not used in order to reduce the number of defective products produced during the secondary battery manufacturing process:

- **Metal materials whose main component is either copper or zinc are not used.**
  ＊ Some of the aluminum alloy and aluminum die-cast materials contain traces of copper or zinc as an additive element. If a product with restrictions on the amounts of these additive elements is required, we can accommodate your needs via a special product. Please contact your local sales representative for further details.
- **Electrolytic nickel plating with a copper layer or zinc plating**
  ＊ Electroless nickel plating is used.
- **Parts of the piston rod, clevis pin, split pin, etc., of the cylinder are made of carbon steel with hard chrome plating. Therefore, as the processed parts aren't coated, an anti-rust oil coating is applied to these parts before shipment.**
  ＊ Rust may be generated due to the operating environment. If the generation of rust is a problem, made-to-order options using stainless steel, etc., are available. Please contact your local sales representative for further details..
- **The coils of solenoid valves, the circuit boards of electrical equipment, the motors of electric actuators, etc., use copper materials.**
  ＊ Parts whose materials cannot be easily changed to alternative ones and parts whose functions would be compromised by changing to alternative materials use copper and/or zinc materials. Please contact your local sales representative for further details.

Dustproof Products

Durability is 4 times stronger than the standard model in micro-powder (10 to 100 μm) environments.

(The durability test was conducted in accordance with SMC test conditions.)



Cylinder with Stable Lubrication Function (Lube-retainer)

- **Double Lube-retainer**
- **Lube-retainers are mounted at two locations to form a grease film, preventing the entry of dust and foreign matter.**

∗ Not compatible with the secondary battery specifications

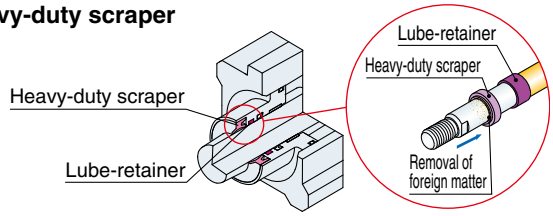
Applicable Cylinders

Air Cylinder RoHS **CM2 Series** ø20 to ø40	**Air Cylinder** RoHS **CG1 Series** ø20 to ø100	**Air Cylinder** RoHS **CA2 Series** ø40 to ø100	**Compact Cylinder** RoHS **CQS Series** ø20 to ø25
Compact Cylinder RoHS **CQ2 Series** ø32 to ø100	**Air Slide Table** RoHS **MXQ□A Series** ø6 to ø25	**Compact Guide Cylinder** RoHS **MGP Series** ø20 to ø100	**Dual Rod Cylinder** RoHS **CXS Series** ø6 to ø32

Special Products (Please contact your local sales representative for more details.)

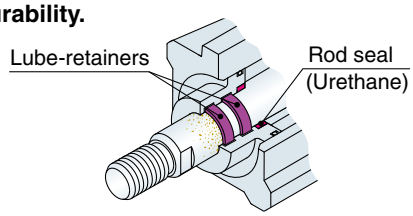
Lube-retainer + Heavy-duty scraper

- **Improved dust prevention due to the lube-retainer and heavy-duty scraper**



Double Lube-retainer + Urethane seal

- **Material of rod seal has been changed to urethane to improve durability.**



Explosion-proof Products

Explosion-proof Solenoid Valves

For Japan (TIIS certification)

- Intrinsically Safe Explosion-proof System 5-Port Solenoid Valve
  · 51-SY5000/7000/9000 Series

  Ex ia IIB T4
- Explosion-proof (Flameproof) 3/5-Port Solenoid Valve
  · 50-VFE/VPE Series

  d2G4, Ex d IIB T4

For China (CCC certification)

- Intrinsically Safe Explosion-proof 5-Port Solenoid Valve
  · 52-SY5000/7000/9000-X140 Series

  Ex ia IIC T4 to T6 Gb
- Explosion-proof (Flameproof) 3/5-Port Solenoid Valve
  · 50-VFE/VPE-X140 Series

  Ex d IIC T5/T6 Gb
  Ex tD A21 IP6X T85°C/T100°C

For Taiwan (TS certification)

- Explosion-proof (Flameproof) 3/5-Port Solenoid Valve
  · 50-VFE/VPE-X170 Series

  Ex db IIC T5/T6 Gb
  Ex tb IIIC T100°C/T85°C Db

∗ Not compatible with the secondary battery specifications

For Europe (CE marking, ATEX directive)

- Intrinsically Safe Explosion-proof System
  · 5-Port Solenoid Valve/52-SY5000/7000/9000

  II 2G Ex ia IIC T4...T5 Gb Ta–10°C to +50°C
  II 2G Ex ia IIC T6 Gb Ta–10°C to +45°C
  [Certification no.: DEKRA 11ATEX0273 X]
- Explosion-proof (Flameproof) 3/5-Port Solenoid Valve
  · 50-VFE/VPE-X60 Series

  II 2G Ex db IIC T5 Gb Ta:–10°C TO +50°C
  II 2G Ex db IIC T6 Gb Ta:–10°C TO +40°C
  II 2D Ex tb IIIC T100°C Db Ta:–10°C TO +50°C
  II 2D Ex tb IIIC T85°C Db Ta:–10°C TO +40°C
  [Certification no.: KEMA 09ATEX0024X]

For Korea (KOSHA certification)

- Explosion-proof (Flameproof) 3/5-Port Solenoid Valve
  · 50-VFE/VPE-X100 Series

  Ex d IIB T4

For North America (UL 913/CSA C22.2 No. 157)

- Intrinsically Safe Explosion-proof
  · Pilot Operated 5-Port Solenoid Valve: 53-SY5000/7000/9000 Series

Electrical Entry TT	Electrical Entry L and LL
Hazardous Location	Hazardous Location
Class I, II, III	Class I
Division 1	Division 1
Groups A, B, C, D, E, F, G	Groups A, B, C, D

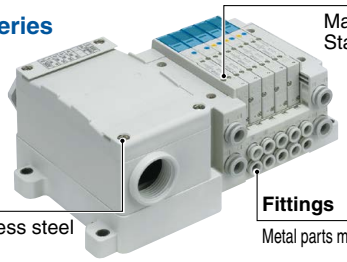
Restrictions

Material: Copper (Cu) / Zinc (Zn)

Surface treatment:
- Electrolytic nickel plating with a copper layer
- Zinc plating

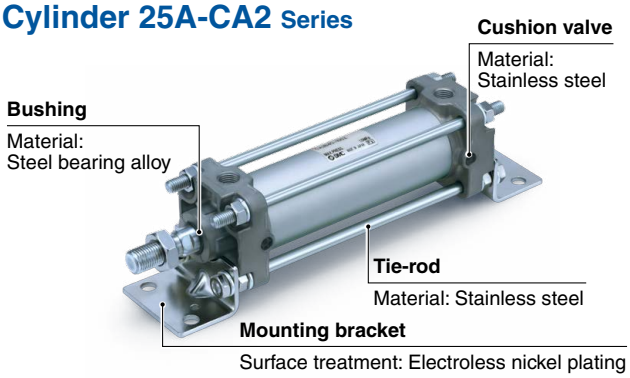
(Electroless nickel plating is used.)

Solenoid Valve 25A-SY Series



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

Cylinder 25A-CA2 Series



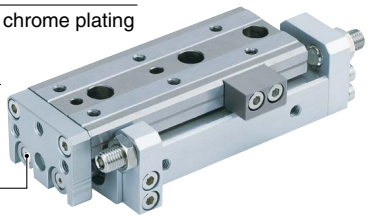
Compact Cylinder 25A-CQ2 Series

* The auto switch magnet contains copper and/or zinc. (ø12)

Compact Guide Cylinder 25A-MGPM Series

* The auto switch magnet contains copper and/or zinc. (ø12)

Air Slide Table 25A-MXQ Series



Corrosion-resistant Air Slide Table (Made to Order: 25A-MXQ□-X771, 25A-MXS□-X1949)

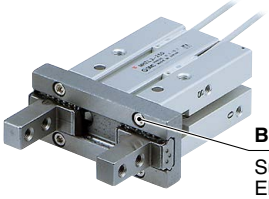
The material of the head cap part has been changed to a highly corrosion-resistant material.

	After change	Before change
Head cap	Aluminum alloy	Synthetic resin

Dual Rod Cylinder/Compact Type 25A-CXSJ Series

* The auto switch magnet contains copper and/or zinc. (ø6, ø10, ø15)

Air Gripper 25A-MHZ2 Series



* Cylinder mounting brackets made of steel are either electroless nickel plated, treated with RAYDENT®, or coated with electrodeposition paint.

Air Filter 25A-AF Series

Rod (AF50 to 60-D)
Material: Stainless steel

Drain plug (AF30 to 60-A, AF30 to 60-D)
Material: Stainless steel

Regulator 25A-AR Series

Valve, Stem
Material: Stainless steel

Adjusting spring, Screw
Surface treatment: Electroless nickel plating

Precision Regulator 25A-IR□-A Series

Screw
Surface treatment: Electroless nickel plating

Screws
Material: Stainless steel

Vacuum Regulator 25A-IRV Series

Stem, Valve, Screws
Material: Stainless steel

Seal, O-ring
Material: EPDM

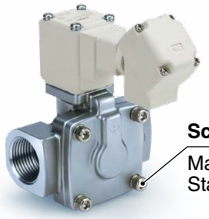
Fittings
Metal material: Stainless steel

3-Color Display High-Precision Digital Pressure Switch ZSE20□(F)/ISE20□ Series

Port thread
Material: Stainless steel

∗ A copper material is used for the lead wires.

Pilot Operated 2-Port Solenoid Valve 25A-VXD Series



Screw
Material: Stainless steel

∗ A copper material is used for the solenoid coils and lead wires.

Solid State Auto Switch D-M9□-900 Series

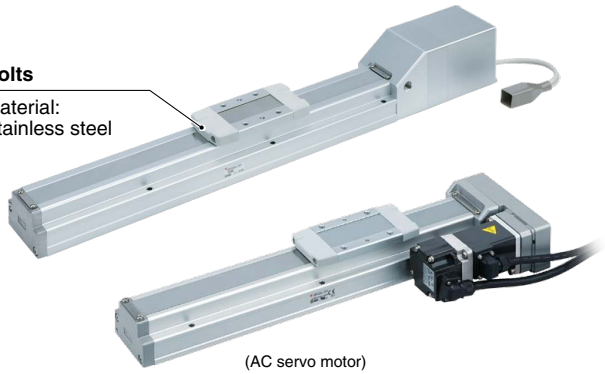
Mounting screw
Material: Stainless steel

∗ A copper material is used for the lead wires.

Electric Actuator/Slider Type Ball Screw Drive 25A-LEFS Series

(Step motor / Servo motor)

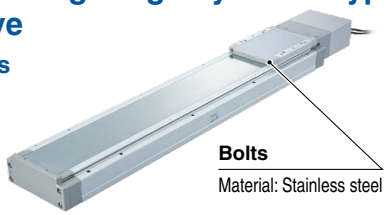
Bolts
Material: Stainless steel



(AC servo motor)

∗ Copper and zinc materials are used for the motors, cables, controllers/drivers.
∗ The motor magnet contains copper and/or zinc.

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



Bolts
Material: Stainless steel

∗ Copper and zinc materials are used for the motors, cables, controllers/drivers.
∗ The motor magnet contains copper and/or zinc.

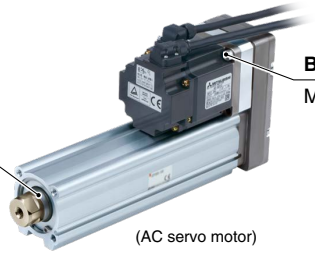
Electric Actuator/Rod Type 25A-LEY Series

Bolts
Material: Stainless steel

Bushing
Material: Steel bearing alloy

Bushing
Material: Steel bearing alloy

(Step motor / Servo motor)



(AC servo motor)

Bolts
Material: Stainless steel

∗ Copper and zinc materials are used for the motors, cables, controllers/drivers. ∗ The motor magnet contains copper and/or zinc.

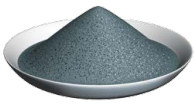
Secondary Battery Manufacturing Process

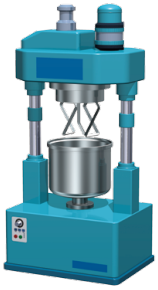
Electrode Production Process

Same for both can types and laminate types

① Mixing and kneading machine

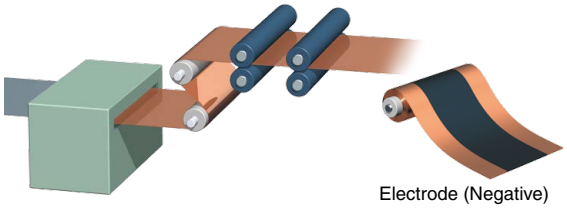
The proper amount of raw materials for positive or negative electrodes are mixed to make electrode slurry.





② Coating and rolling

Positive or negative electrode slurry is coated with a metallic foil made from aluminum, copper, etc.
The coated slurry is then compressed with rollers continuously to enhance the density of the electrode sheet.



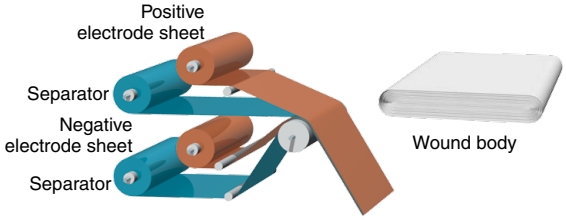
Electrode (Negative)

Cell Assembly Process

Can type

④ Winder (Winding)

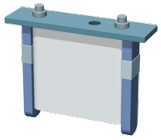
The positive electrode sheet, negative electrode sheet, and separator sheets are laid on top of each other and wound to form a wound body.



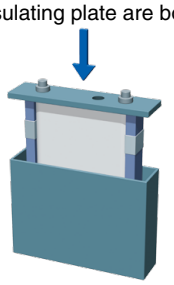
Wound body

⑤ Attaching tabs and an insulating plate and inserting into a case

Current collecting tabs and an insulating plate are bonded to the wound body.
It is then inserted into a case.



Bonding tabs and an insulating plate

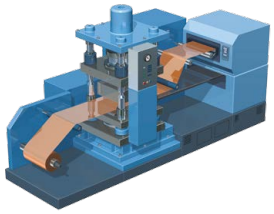


Inserting into a case

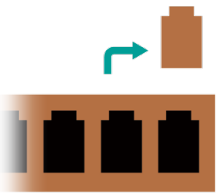
Laminate type

④ Punching electrodes

The rolled positive and negative electrodes are punched according to the battery size.

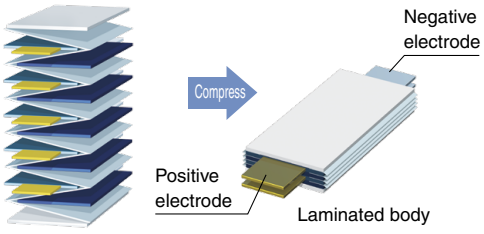


Electrode puncher



⑤ Stacking (Layering)

Positive and negative electrodes are stacked alternately and accurately at high speed with a separator inserted between them.



Stacking positive and negative electrodes

Inspection/Packaging Process

Same for both can types and laminate types

⑧ Charging/discharging and aging

Standard products are applicable.

Charging and discharging are repeated to activate batteries. Charged battery cells are then left for a certain period of time, and the initial deterioration of batteries is checked to detect defective products.

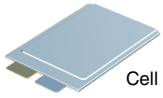
Activation of batteries

Aging

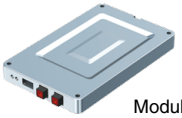
⑨ Packaging

Standard products are applicable.

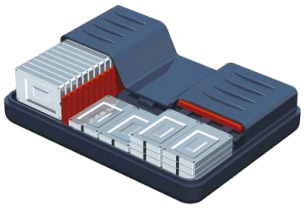
Connected multiple cells are enclosed in a metallic case, and terminals are attached to form a module.
Then, the connected multiple modules with a sensor and a controller are enclosed in a case to form a battery pack.



Cell



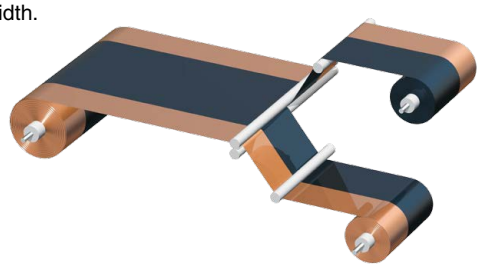
Module



Pack

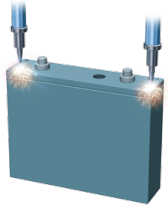
❸ Slitting

The electrode sheet and separator are cut to the cell width.

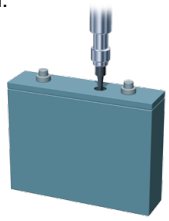


❻ Welding cell lid and pouring electrolytic solution

The electrode and lid are laser-welded, and then the entire periphery of the cell case and lid is welded. Electrolytic solution is poured into the cell.



Welding cell lid

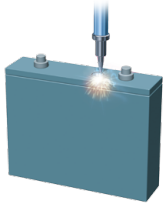


Pouring electrolytic solution

❼ Pre-charging and welding infusion plug

Pre-charging (formation charging) is performed to remove the gas generated in the initial charging process, and then the infusion plug is welded to seal the cell.

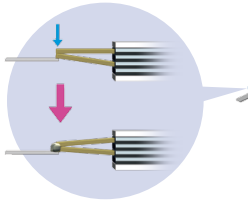
Pre-charging



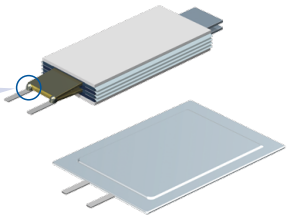
Welding infusion plug

❻ Tab welding and lamination

Current collecting tabs are welded to the laminated body. The laminated body is wrapped with armoring material.



Tab welding

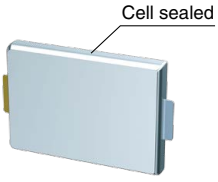


Lamination

❼ Pre-charging and sealing cell

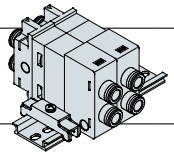
Pre-charging (formation charging) is performed to remove the gas generated in the initial charging process, and then heat is applied to seal the cell.

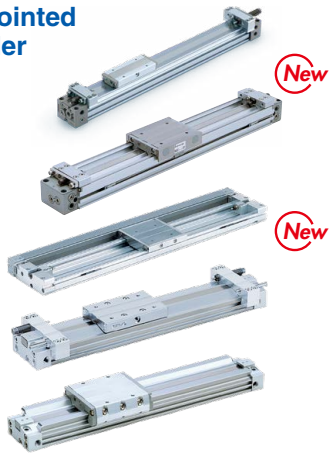
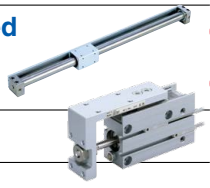
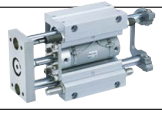
Pre-charging



Sealing cell

25A- Series Applicable Products

Description		25A- Series Model (Type)	Page
Directional Control Valves	5-Port Solenoid Valve 	New 25A-JSY1000/3000 (Plug-in connector connecting base)	15
		New 25A-JSY1000/3000 (Non plug-in metal base)	29
		25A-SY5000, 7000 (Plug-in connector connecting base)	33
		25A-SY5000, 7000	59
		25A-VQ2000, 4000 (W)	69
		25A-SQ2000	83
		25A-VQZ1000	87
	Separate Type Double Check Block 	25A-VQ1000, 2000 (Double check block)	91
	3-Port Solenoid Valve 	25A-VP342, 542, 742 (Body ported)	92
		25A-VP344, 544, 744 (Base mounted)	93
		25A-VP500, 700 (Safety Standard ISO 13849-1)	94
		25A-VT317	95
		25A-VG342	96
	5-Port Air Operated Valve 	25A-SYA5000, 7000	97
	3-Port Air Operated Valve 	25A-SYJA500, 700	98
	Finger Valve 	New 25A-VHK□A	100
	Conforming to OSHA Standard Pressure Relief 3-Port Valve with Locking Holes 	New 25A-VHS20(W), 30(W), 40(W), 50(W)-D	101
		25A-VHS20, 30, 40, 50	102
		25A-VHS2510, 3510, 4510, 5510	103
Air Cylinders	Air Cylinder 	New 25A-CJP2 (Standard)	104
		25A-CJ2 (Standard): The air cushion type has been added.	105
		New 25A-CJ2K (Standard)	106
		25A-CBJ2 (With end lock)	107
		New 25A-CM2 (Standard): The air cushion type has been added.	108
		25A-CG1 (Standard)	109
		25A-CBG1 (With end lock)	110
		25A-MB (Standard)	111
		25A-CA2 (Standard)	112
		25A-CS2 (Standard)	113
Compact Air Cylinders	Mini Free Mount Cylinder 	25A-CUJ (Standard)	114
	Free Mount Cylinder 	25A-CU (Standard)	116
		25A-CUK (Non-rotating rod)	117

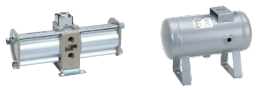
Description			25A- Series	
			Model (Type)	Page
Compact Air Cylinders	Compact Cylinder		25A-CQS (Standard)	118
			25A-CQSW (Standard, Double rod)	119
			25A-CQS□S (Anti-lateral load)	120
			25A-CQ2 (Standard)	121
			25A-CQ2W (Standard, Double rod)	122
			25A-CQ2 (Large bore size)	123
			25A-CQ2 (Long stroke)	124
			25A-CQ2□S (Anti-lateral load)	125
			25A-CBQ2 (With end lock)	126
Rodless Cylinders	Mechanically Jointed Rodless Cylinder		25A-MY1B (Basic)	127
			25A-MY1M (Slide bearing guide)	128
			25A-MY1C (Cam follower guide)	129
			25A-MY1H (Linear guide)	130
			25A-MY2C (Cam follower guide)	131
			25A-MY2H/HT (Linear guide)	132
			25A-MY3A (Basic short type, Rubber bumper)	133
			25A-MY3B (Basic standard type, Air cushion)	133
			25A-MY3M (Slide bearing guide)	134
	Magnetically Coupled Rodless Cylinder		25A-CY3B (Basic): Bore sizes ø6, ø10, ø50, and ø63 have been added.	135
			25A-CY3R(G) (Direct mount): Bore sizes ø6, ø10, ø50, and ø63 have been added.	136
Table Cylinders	Compact Slide		25A-MXH (Recirculating linear guide)	137
	Air Slide Table		25A-MXS (Cross roller guide)	138
			25A-MXQ□A (Recirculating linear guide/Double-ported type)	139
			25A-MXQ□B (Recirculating linear guide/Low thrust with high rigidity type)	140
			25A-MXQ□C (Recirculating linear guide/Single side-ported type)	141
			25A-MXQ□ (Recirculating linear guide/Height interchangeable type)	142
			25A-MXQ (Recirculating linear guide)	143
			25A-MXF (Cross roller guide)	144
			25A-MXW (Recirculating linear guide)	145
			25A-MXP (Recirculating linear guide)	146
Guide Cylinders	Compact Guide Cylinder		25A-MGPM (Slide bearing)	147
			25A-MGPL (Ball bushing bearing)	147
			25A-MGPM (Slide bearing, Air cushion type)	148
			25A-MGPL (Ball bushing bearing, Air cushion type)	148
	Guide Cylinder		25A-MGGL (Ball bushing bearing)	152

Description		25A- Series	
		Model (Type)	Page
Guide Cylinders	Slide Unit	25A-CXWM (Slide bearing)	149
	Dual Rod Cylinder	25A-CXSJM (Slide bearing)	150
		25A-CXSJL (Ball bushing bearing)	150
		25A-CXSM (Slide bearing)	151
		25A-CXSL (Ball bushing bearing)	151
Clamp/ Stopper Cylinders	Rotary Clamp Cylinder	25A-MK (Standard)	153
	Stopper Cylinder/ Fixed Mounting Height	25A-RSQ (Standard)	154
	Heavy Duty Stopper Cylinder	25A-RSH (Standard)	155
ISO Cylinders	(ISO Standards) Air Cylinder New	25A-C85 (Standard) (ISO Standard (6432))	155-1
	(ISO Standards) Compact Cylinder New	25A-C55 (Standard) ISO Standard (21287)	155-4
Related Products	Shock Absorber	25A-RJ (Soft type)	156
		25A-RJ (Short stroke type)	157
		25A-RB (Standard)	158
		25A-RBC (Standard)	158
	Floating Joint	25A-JA (Standard/80, 100 only)	159
		25A-JB (For compact cylinders)	159
		25A-JS (Stainless steel type)	159
	Simple Joint for CQ2	YA (Type A mounting bracket)	∗1
		YB (Type B mounting bracket)	∗1
		YU (Joint)	∗1
Rotary Actuators	Rotary Table	25A-MSUB (Vane type)	160
		25A-MSQ (Rack & Pinion type)	161
		25A-MSQ-X251 (Rack & Pinion type, With vacuum port)	161
	3-Position Rotary Table	25A-MSZA (High precision type)	163
		25A-MSZB (Basic type)	163
Air Grippers	Parallel Type Air Gripper New	25A-JMHZ2 (Compact type)	164
	New	25A-JMHZ2-X6900(A, B) (With positioning pins on the lateral mounting surface)	164
	New	25A-JMHZ2-X7460 (Lateral auto switch mounting)	164
		25A-MHZ2 (Standard)	165
		25A-MHZL2 (Long stroke)	166
		25A-MHZJ2 (With dust cover)	167
	New	25A-MHZJ2-X6100 (With dust cover)	167
		25A-MHZL2-X5955 (Long stroke, With dust cover)	167
		25A-MHF2 (Low profile type)	168
	New	25A-MHL2-Z (Wide type)	169
		25A-MHL2 (Wide type)	169
		25A-MHS□ (3-finger, 4-finger)	170
		25A-MHSJ3 (3-finger, With dust cover)	171
		25A-MHY2 (180° Angular type, Cam type)	172
	New	25A-MHW2 (180° Angular type, Rack & Pinion type)	173

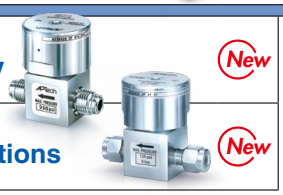
∗1 Standard products: Standard products are copper (Cu) and zinc (Zn) free. Refer to the **Web Catalog** for details.

Description			25A- Series Model (Type)	Page
Vacuum Equipment	Vacuum Ejector	New	25A-ZK2□A (Vacuum unit) Single unit only	175
	Space Saving Vacuum Ejector	New	25A-ZQ□A (Ejector system) Single unit/Manifold	181-1
		New	25A-ZQ□A (Vacuum pump system) Single unit/Manifold	181-4
			25A-ZQ (Ejector unit) Single unit/Manifold	181
			25A-ZQ (Vacuum pump unit) Single unit/Manifold	185
			ZH□□DA (Body ported) (Only the models without connection threads)	∗1
			ZH□□BA (Box type) (Only the models without connection threads)	∗1
	In-line Type Vacuum Ejector		ZU□□A (In-line type) (Only the models without connection threads)	∗1
	In-line Air Filter		ZFC (With One-touch fittings)	∗1
	Vacuum Pad		ZP (Pad only)	∗1
			ZPS (With stainless steel adapter)	∗1
	Vacuum Regulator	New	25A-IRV	189
	Adsorption Plate		SP	∗1
Air Preparation Equipment	Membrane Air Dryer		25A-IDG (Single unit/Standard dew point -40°C/-60°C specifications)	190
	Air Preparation Filter		25A-AFF (Main line filter)	192
			25A-AM (Mist separator)	193
			25A-AMD (Micro mist separator)	194
			25A-AMH (Micro mist separator with pre-filter)	195
Clean Air Filters	Clean Air Filter		SFD100	∗1
			SFD200	∗1
			25A-AMP (Exhaust cleaner for clean room)	196
			SFE (Clean exhaust filter)	∗1
Modular F.R.L./ Pressure Control Equipment	Modular F.R.L. Units	New	25A-AC□B-D, AC□C-D, AC□D-D	∗2
			25A-AC□B-B, AC□C-B, AC□D-B	∗2
	Air Filter Separator	New	25A-AF-D (Air filter)	197
		New	25A-AFM-D (Mist separator)	199
		New	25A-AFD-D (Micro mist separator)	199
			25A-AF-A (Air filter)	198
			25A-AFM-A (Mist separator)	200
			25A-AFD-A (Micro mist separator)	200
	Regulator	New	25A-AR-D (Regulator)	201
		New	25A-AR□K-D (Regulator with backflow function)	201
		New	25A-AW-D (Filter regulator)	203
		New	25A-AW□K-D (Filter regulator with backflow function)	203
		New	25A-AWM-D (Mist separator regulator)	205
		New	25A-AWD-D (Micro mist separator regulator)	205
			25A-AR-B (Regulator)	202
			25A-AR□K-B (Regulator with backflow function)	202
			25A-AW-B (Filter regulator)	204
			25A-AW□K-B (Filter regulator with backflow function)	204
			25A-IR□-A (Precision regulator)	206
			25A-ITV (Electro-pneumatic regulator)	207

∗1 Standard products: For the standard model, copper (Cu) and zinc (Zn) are not used as main components in the metal materials. Refer to the **Web Catalog** for details.
∗2 Available as simple specials. Please contact your local sales representative for more details.

Description		25A- Series	
		Model (Type)	Page
Modular F.R.L./ Pressure Control Equipment	Booster Regulator 	25A-VBA*4	208
		25A-VBAT (Air tank)	209
	Pressure Gauge 	G43-10-01-X300 (Stud, Bourdon tube, Internal parts: Stainless steel)	*2
		G46-SRB (Only external parts and wetted parts are made of stainless steel.)	*3
Flow Control Equipment/Fittings	Stainless Steel Speed Controller 	AS-FG (Elbow/Universal/In-line type)	*1
	Speed Controller with Indicator 	AS-FSG (Elbow type)	*1
		AS-FPG (Elbow type)	*1
	Quick Exhaust Valve 	25A-AQ240F, 340F (Built-in One-touch fittings)	210
	Check Valve 	25A-AKH (With One-touch fittings)	211
	One-touch Fittings 	KQ2 (One-touch fittings) (Only the type without a connection thread)	*1
	Rectangular Multi-connector	25A-KDM (Rectangular multi-connector)	212
	Stainless Steel Fittings 	KG (One-touch fittings)	*1
		KPG (One-touch fittings)	*1
		KQG2 (One-touch fittings)	*1
		KQ2-G (Stainless steel)	*1
		KFG2 (Insert fittings)	*1
		MS (Miniature fittings)	*1
		KKA (S Couplers stainless steel type)	*1
Tubing	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 tube)	*1
Detection Switches	Pressure Switch 	25A-ZSE20(F)/ISE20 (3-screen display high-precision)	213
		25A-ZSE20A(F)/ISE20A (3-screen display high-precision)	214
		25A-ZSE20B(F)/ISE20B (3-screen display high-precision)	215
		25A-ZSE20C(F)/ISE20C(H) (3-screen display high-precision, for general fluids)	216

*1 Standard products: For the standard model, copper (Cu) and zinc (Zn) are not used as main components in the metal materials. Refer to the **Web Catalog** for details.
*2 Copper (Cu) and zinc (Zn) are not used as main components in the metal materials. Please contact your local sales representative for more details.
*3 Standard products: Aside from the external parts and wetted parts, copper (Cu) and zinc (Zn) are used as main components in the metal materials. Refer to the **Web Catalog** 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 (25A-VBA10A) handle 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		25A- Series	
		Model (Type)	Page
Detection Switches	Flow Switch 	25A-PF2M7 (For air, Integrated display type)	217
		25A-PFM7 (For air, Integrated display type)	218
		25A-PFM5 (For air, Remote type)	219
		25A-PFM3 (For air, Flow monitor)	220
		25A-PFMB7 (For air, Integrated display type)	221
		25A-PF3W7-Z (For water, Integrated display type)	223
		25A-PF3W5-Z (For water, Remote type)	224
		25A-PF3W (For water, Integrated display/Remote type)	225
		25A-PF3W (PVC piping, Integrated display/Remote type)	226
		25A-PF3W (For water, Flow monitor)	227
Fluid Control Equipment	Direct Operated 2-Port Solenoid Valve 	25A-VX2 (For air)	229
		25A-VX2 (For water/medium vacuum)	230
	Pilot Operated 2-Port Solenoid Valve	25A-VXD (For air)	231
		25A-VXD (For water)	232
	Zero Differential Pressure Type Pilot Operated 2-Port Solenoid Valve	25A-VXZ (For air)	233
		25A-VXZ (For water)	234
Process Gas Equipment	Diaphragm Valve for Ultra High Purity 	AZ3542 & 4542□25A (Air operated type)	235
	Diaphragm Valves for General Applications	AK3542 & 4542□25A (Air operated type)	237
Electric Actuators	Electric Actuator 	25A-LEFS (Slider type/Step motor, Servo motor: Applicable to the JXC□/LEC□)	239
		25A-LEFS (Slider type/AC servo motor: Applicable to the LECS□)	243
		25A-LEFS (Slider type/AC servo motor: Applicable to the LECY□)	244
		25A-LEJS (High rigidity slider type/AC servo motor: Applicable to the LECS□)	245
		25A-LEJS (High rigidity slider type/AC servo motor: Applicable to the LECY□)	246
		25A-LEY (Rod type/Step motor, Servo motor: Applicable to the JXC□/LEC□)	247
		25A-LEY (Rod type/AC servo motor: Applicable to the LECS□)	251
		25A-LEY (Rod type/AC servo motor: Applicable to the LECY□)	253
Auto Switches	Solid State Auto Switch 	D-M9□□-900	255 and onward
		D-F8□-900	
		D-Y□□-900	
		D-G59, G5P, K59-900	
		D-F79, F7P, J79-900	
		D-F7□V-900	
	Reed Auto Switch 	D-A90-900	255 and onward
		D-Z80-900	
		D-E73A, E76A, E80A	

25A- series grease pack*1 applicable models

*1 Air cylinders (Except guide unit). For other models, please contact your local sales representative.

Grease pack part no.	Quantity
GR-D-005	5 g
GR-D-010	10 g
GR-D-100	100 g

Contained in a plastic container.

Special Products (Please contact your local sales representative for more details.)

	Description	Model (Type)
Directional Control Valves	**3-Port Solenoid Valve/ Residual Pressure Release Valve with Detection of Main Valve Position** (Safety Standard ISO 13849-1 Certified) 	**VG342-X87**
Air Cylinders	**Air Cylinder With End Lock** 	**CBM2**
		MBB
	Cylinder with Lock 	**CNG□N**
		CNA2□N
	Compact Cylinder with Lock 	**CLQ**
	Stopper Cylinder 	**RSQ**
	Heavy Duty Stopper Cylinder 	**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)

Related Products

Consult with SMC for "Copper (Cu) and Zinc (Zn) Restrictions" 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) ····· *CM2-X1051 Series*

Vacuum Equipment

- Vacuum Pad ····· *ZP Series*

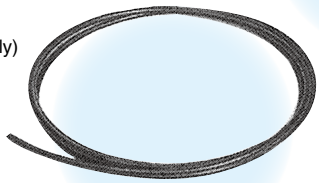
Fittings and Tubing

- Antistatic One-touch Fittings ····· *KA Series*
- Miniature Fittings/Stainless Steel 316 ····· *MS Series* (Some types only)
- Miniature Fittings ····· *M Series* (Some types only)
- Antistatic Tubing ····· *TA□ Series*

Flow Control Equipment

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

KA Series



TA□ Series

2 Static Neutralization Equipment

Static electricity

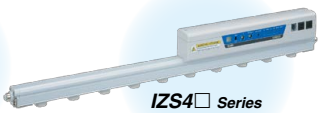
Ions generated by corona discharge neutralize static electricity.

- Ionizer/Bar Type ····· *IZS4□ Series*
- Bar Type Ionizer Separate Controller ····· *IZT4□ Series*
- Ionizer ····· *IZS31 Series*
- Nozzle Type Ionizer ····· *IZN10E Series*
- Fan Type Ionizer ····· *IZF□ Series*

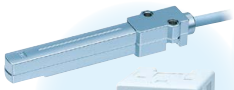
Measurement Equipment Measures the electrostatic potential.

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

IZF10 Series



IZS4□ Series



IZD/IZE Series

IZN10E Series

IZT4□ Series

3 Temperature Control Equipment

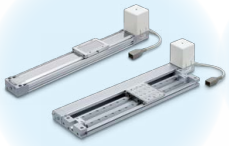
- Thermo-chiller/Standard Type ····· *HRS Series*

HRS Series

4 Electric Actuators

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

LEL Series



LEM Series

LES Series

LEPS/LEPY Series

LER Series

LEHZ Series

5 High Purity Chemical Liquid Valves

- High Purity Chemical Liquid Valve/Air Operated Type ····· *LVC/LVA/LVH Series*

LVC Series

LVA Series

LVH Series

25A- Series
Precautions
Be sure to read this before handling products.

Precautions

⚠Caution

■ Change of material

For the 25A- series, there is a restriction on the use of copper and zinc as main components in the metal materials used. Keep in mind that the aluminum alloy, aluminum die cast, and some of the stainless steel materials contain traces of copper (Cu) and/or zinc (Zn) as an additive element.

However, copper is used in some parts—the coils of solenoid valves, the circuit boards, connector pins, and lead wires of electrical equipment and auto switches, and the motors, cables, and drivers of electric actuators—whose materials cannot be easily changed to alternative materials.

In addition, some magnets (including the surface treatment) contain copper (Cu) and/or zinc (Zn). However, due to their magnetic characteristics, it is impossible to use alternative 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.

When the buffer mechanism or the end lock mechanism functional options are used, dust particles may be generated by the buffer part as well as the end lock part.

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
· MHW2

■ 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 (TL series) or stainless steel 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.