

# Copper/Fluorine-free Specifications 20-Series

Possible to use under the environment that copper and fluorine materials are unacceptable.

How to Order: 20- Standard part number

**Dimensions: Same as the standard type**

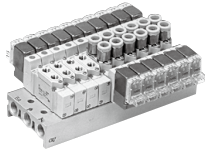
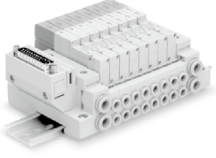


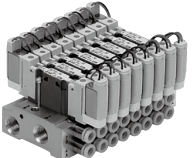
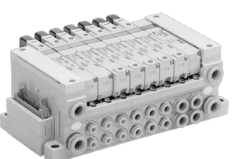
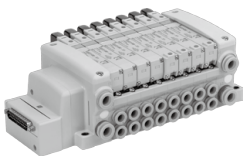

Note) Copper material is used for the electrical part of each equipment.  
(Refer to the note column of each equipment for applicability.)

<b>Directional Control Valves</b> .....	<b>Back page 30</b>
<b>Actuators</b> .....	<b>Back page 34</b>
<b>Related Products</b> .....	<b>Back page 42</b>
<b>Rotary Actuators</b> .....	<b>Back page 43</b>
<b>Air Grippers</b> .....	<b>Back page 44</b>
<b>Vacuum Equipment</b> .....	<b>Back page 46</b>
<b>Air Preparation Equipment</b> .....	<b>Back page 48</b>
<b>Air Line Equipment</b> .....	<b>Back page 49</b>
<b>Piping Equipment</b> .....	<b>Back page 51</b>
<b>Flow Control Equipment</b> .....	<b>Back page 52</b>
<b>Detection Equipment</b> .....	<b>Back page 55</b>
<b>Brass Usage for 20- Specifications</b> .....	<b>Back page 56</b>

# Copper/Fluorine-free Specifications

## Directional Control Valves




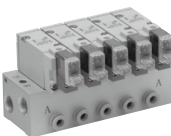
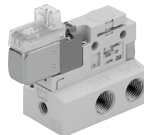
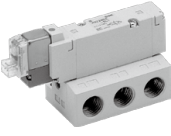

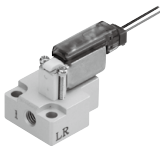
○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
	Rubber seal	<b>SY3000</b>	○*			* Copper material is not used for the wetted parts. However, fluorine grease is used.
	Rubber seal	<b>SY5000</b>				
	Rubber seal	<b>SY7000</b>				
	Manifold base	<b>SS5Y3/5/7</b>				
	Rubber seal	<b>SV1000</b>	○*			* Copper material is not used for the wetted parts. However, fluorine grease is used.
	Rubber seal	<b>SV2000</b>				
	Rubber seal	<b>SV3000</b>				
	Rubber seal	<b>SV4000</b>				
	Manifold base	<b>SS5V1/2/3/4</b>				
	Rubber seal	<b>SYJ3000</b>	○*			* Copper material is not used for the wetted parts. However, fluorine grease is used.
	Rubber seal	<b>SYJ5000</b>				
	Rubber seal	<b>SYJ7000</b>				
	Manifold base	<b>SS5YJ3/5/7</b>				
	Rubber seal	<b>SZ3000</b>	○*			* Copper material is not used for the wetted parts. However, fluorine grease is used.
	Manifold base	<b>SS5Z3</b>				
	Rubber seal	<b>S0700</b>		○*		* Copper material is not used for the wetted parts.
	Manifold base	<b>SS075 0/5</b>				
	Other parts	<b>SS0700</b>		○*		
	Metal/Rubber seal	<b>VQ1000</b>	○*			* Copper material is not used for the wetted parts. However, fluorine grease is used. *1 Copper material is not used for the wetted parts. *2 Except ejectors and regulators.
	Metal/Rubber seal	<b>VQ2000</b>				
	Manifold base	<b>VV5Q1/2</b>	○*1			
	Double check block (Separated type)	<b>VQ-FPG</b>		○*1		
	Metal/Rubber seal	<b>VQ4000</b>	○*	○*1		
	Metal/Rubber seal	<b>VQ5000</b>				
	Manifold base	<b>VV5Q4/5</b>	○*1			
Other parts	<b>VQ/VVQ</b>		○*2			
	Metal/Rubber seal	<b>VQC1000</b>	○*	○*1		* Copper material is not used for the wetted parts. However, fluorine grease is used. *1 Copper material is not used for the wetted parts.
	Metal/Rubber seal	<b>VQC2000</b>				
	Manifold base	<b>VV5QC1/2</b>	○*1			
	Metal/Rubber seal	<b>VQC4000</b>	○*	○*1		
	Metal/Rubber seal	<b>VQC5000</b>				
	Manifold base	<b>VV5QC4/5</b>	○*1			
	Metal/Rubber seal	<b>SQ1000</b>		○*		* Copper material is not used for the wetted parts.
	Metal/Rubber seal	<b>SQ2000</b>				
	Manifold base	<b>SS5Q1/2</b>				
	Other parts	<b>SSQ</b>		○*		

# Copper/Fluorine-free Specifications

## Directional Control Valves







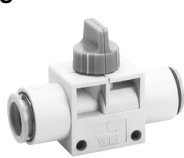

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>5 Port Solenoid Valve</b> 	Metal seal	<b>VFS2000</b>				* Copper material is not used for the wetted parts.
	Metal seal	<b>VFS3000</b>		○*		
	Metal seal	<b>VFS4000</b>				
	Manifold base	<b>VV5FS2/3/4</b>	○*			
<b>5 Port Solenoid Valve</b> 	Rubber seal	<b>VFR2000</b>				* Although copper material is used for the wetted parts, it is electroless nickel plated.
	Rubber seal	<b>VFR3000</b>		○*		
	Rubber seal	<b>VFR4000</b>				
	Manifold base	<b>VV5FR2/3/4</b>	○			
<b>5 Port Solenoid Valve/ISO Standard</b> 	Metal/Rubber seal	<b>VQ7-6</b>				* Copper material is not used for the wetted parts.
	Metal/Rubber seal	<b>VQ7-8</b>		○*		
	Manifold base	<b>VV71/VV72</b>				
<b>3 Port Solenoid Valve</b> 	Rubber seal	<b>SYJ300</b>				* Copper material is not used for the wetted parts. However, fluorine grease is used.
	Rubber seal	<b>SYJ500</b>	○*			
	Rubber seal	<b>SYJ700</b>				
<b>3 Port Solenoid Valve</b> 	Metal/Rubber seal	<b>VQZ100</b>				* Copper material is not used for the wetted parts. However, fluorine grease is used. *1 Copper material is not used for the wetted parts.
	Metal/Rubber seal	<b>VQZ200</b>	○*	○*1		
	Metal/Rubber seal	<b>VQZ300</b>				
	Manifold base	<b>VV3QZ1/2/3</b>	○*1			
<b>5 Port Solenoid Valve</b> 	Metal/Rubber seal	<b>VQZ1000</b>				* Copper material is not used for the wetted parts. However, fluorine grease is used. *1 Copper material is not used for the wetted parts.
	Metal/Rubber seal	<b>VQZ2000</b>	○*	○*1		
	Metal/Rubber seal	<b>VQZ3000</b>				
	Manifold base	<b>VV5QZ1/2/3</b>	○*1			
<b>3 Port Solenoid Valve</b> 	Pilot/Poppet type	<b>VP300</b>				* Copper material is not used for the wetted parts. However, fluorine grease is used.
	Pilot/Poppet type	<b>VP500</b>	○*			
	Pilot/Poppet type	<b>VP700</b>				
<b>3 Port Solenoid Valve</b> 	Direct operated poppet type	<b>S070</b>			○*	* Copper material is not used for the wetted parts.

# Copper/Fluorine-free Specifications

## Directional Control Valves

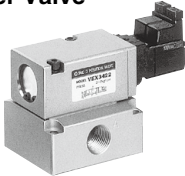






○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>4 Port Solenoid Valve</b> 	Direct operated poppet type	<b>VQD1000</b>		○*		* Copper material is not used for the wetted parts.
<b>3 Port Solenoid Valve</b> 	Rubber seal	<b>VK300</b>		○*		* Copper material is not used for the wetted parts. Continuous duty type, E: Fluororubber is used.
<b>3 Port Solenoid Valve</b> 	Direct operated poppet type	<b>VT307</b>		○*		* Copper material is not used for the wetted parts.
	Direct operated poppet type	<b>VT317</b>				
<b>3 Port Solenoid Valve</b> 	Direct operated poppet type	<b>VQ100</b>		○*		* Copper material is not used for the wetted parts.
<b>2/3/5 Port Mechanical Valve</b> 	Poppet type	<b>VM130-01-30GA</b>	○			Some actuators are available upon request for special order. Please contact SMC for model numbers other than mentioned at left.
	Poppet type	<b>VM131-01-01SA</b>		○		
	Poppet type	<b>VM220-02-30GA</b>		○		
	Rubber spool type	<b>VZM550-01-01S</b>		○		
	Rubber spool type	<b>VZM550-01-34□</b>				
<b>Relay Valve</b> 	Shuttle valve	<b>VR1210-01</b>		○		
<b>Finger Valve</b> 	Finger valve	<b>VHK</b>		○		
<b>Pressure Relief Valve</b> 	Pressure relief 3 port valve with locking holes	<b>VHS20/30</b>		○		
	Pressure relief 3 port valve with locking holes	<b>VHS40/50</b>		○		

# Copper/Fluorine-free Specifications

## Directional Control Valves







○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>Power Valve</b> 	3 position valve	<b>VEX322<sup>1</sup><sub>2</sub></b>		○		
<b>2 Port Solenoid Valve</b> 	Direct operated	<b>VX2</b>	△			Select stainless steel or resin for the body material and EPDM for the seal material. * Copper material is not used for the wetted parts.
<b>2 Port Solenoid Valve</b> 	Pilot operated Zero pressure differential operation	<b>VXZ2</b>	△			Select stainless steel or resin for the body material and EPDM for the seal material. * Copper material is not used for the wetted parts.
<b>2 Port Solenoid Valve</b> 	Pilot operated	<b>VXD2</b>	△			Select stainless steel for the body material and EPDM for the seal material. * Copper material is not used for the wetted parts.
<b>2 Port Solenoid Valve</b> 	Compact direct operated type for water/air	<b>VDW</b>	△			Select stainless steel or resin for the body material and EPDM for the seal material. * Copper material is not used for the wetted parts.
	Compact direct operated type for water/air	<b>VV2DW</b>				
<b>2 Port Solenoid Valve</b> 	Single/Manifold	<b>VQ20</b>		○		Suffix "-X2" to the part number for the oil-free type
	Single/Manifold	<b>VQ30</b>				
<b>Silencer</b> 	Sintered silencer	<b>AN120-M5</b>		○		Stainless steel
	High noise reduction silencer 40dB (A)	<b>ANA1</b>		○		
	High noise reduction silencer 38dB (A)	<b>ANB1</b>				

# Copper/Fluorine-free Specifications

## Actuators

○: Compatible △: Partially compatible





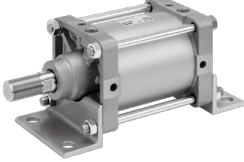
Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Pin Cylinder</b> 	Double acting type	<b>CJP2</b>		○		ø4 (Double acting only) ø6, ø10, ø16 (Single acting: ø15)  Although brass is used, the product is electroless nickel plated. (Refer to back page 56 for details.)
	Single acting type	<b>CJP</b>				
<b>Air Cylinder</b> 	Standard type	<b>CJ2-Z</b>	○			ø10, ø16
	Double rod type	<b>CJ2W-Z</b>	○			
	Standard type/Single acting	<b>CJ2-Z</b>	○			
	Non-rotating rod type	<b>CJ2K-Z</b>	○			
	Non-rotating rod type/Single acting	<b>CJ2K-Z</b>	○			
	Built-in speed controller type	<b>CJ2Z-Z</b>	○			
	Built-in speed controller type/Double rod	<b>CJ2ZW-Z</b>	○			
	Direct mount type	<b>CJ2R-Z</b>	○			
	Direct mount type/Single acting	<b>CJ2R-Z</b>	○			
	Non-rotating rod/Direct mount type	<b>CJ2RK-Z</b>	○			
Non-rotating rod, Direct mount type/Single acting	<b>CJ2RK-Z</b>	○				
<b>Air Cylinder</b> 	Standard type	<b>CJ2</b>		○		ø6  The piston is electroless nickel plated and the mounting nut is nickel plated. (Refer to back page 56 for details.)
	Standard type/Single acting	<b>CJ2</b>				
	Double rod type	<b>CJ2W</b>				
<b>Air Cylinder</b> 	Standard type	<b>CM2-Z</b>		○		
	Double rod type	<b>CM2W-Z</b>		○		
	Standard type/Single acting	<b>CM2-Z</b>		○		
	Not-rotating type	<b>CM2K-Z</b>		○		
	Not-rotating type/Double rod	<b>CM2KW-Z</b>		○		
	Direct mount type	<b>CM2R-Z</b>		○		
Direct mount, Non-rotating rod type	<b>CM2RK-Z</b>		○			
<b>Air Cylinder</b> 	With end lock	<b>CBM2</b>		○		ø20 to ø40
<b>Air Cylinder</b> 	Standard type	<b>CG1-Z</b>		○		* ø40 to ø63: Air cushion is available upon request for special order.
	Double rod type	<b>CG1W-Z</b>		○		
	Standard type/Single acting	<b>CG1-Z</b>			○	
	Non-rotating rod type	<b>CG1K-Z</b>		○	○*	
	Non-rotating rod type/Double rod	<b>CG1KW-Z</b>			○	
Direct mount type	<b>CG1R-Z</b>			○		

Note) Copper base surface treated parts may be used as parts other than iron bearings are standard parts.

# Copper/Fluorine-free Specifications

## Actuators

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Air Cylinder</b> 	With end lock	<b>CBG1</b>			○	ø20 to ø100
	Standard type	<b>MB-Z</b>	○			
<b>Air Cylinder</b> 	Double rod type	<b>MBW-Z</b>	○			
	With end lock	<b>MBB</b>			○	ø32 to ø100
<b>Air Cylinder</b> 	Standard type	<b>CA2-Z</b>	○			
	Double rod type	<b>CA2W-Z</b>	○			
<b>Air Cylinder</b> 	Non-rotating rod type	<b>CA2K</b>			○	ø40 to ø63
	Non-rotating double rod type	<b>CA2KW</b>				
	With end lock	<b>CBA2</b>				ø40 to ø100
<b>Large Bore Size Cylinder</b> 	Standard type	<b>CS2</b>			○	ø125 to ø160
	Double rod type	<b>CS2W</b>				

Note) Copper base surface treated parts may be used as parts other than iron bearings are standard parts.



# Copper/Fluorine-free Specifications

## Actuators

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
	Standard type	<b>CUJ</b>				ø4, ø6, ø8, ø10, ø12, ø16, ø20 Since fluorine grease is used, Series -20 cannot be manufactured.
	Free Mount Cylinder					
	Standard type (Double acting)	<b>CU</b>		○		ø6 to ø32 Although brass is used for pistons and head covers for ø6 and ø10 cylinders, they are electroless nickel plated. (Refer to back page 56 for details.)
	Non-rotating rod type	<b>CUK</b>				
	Standard type (Single acting)	<b>CU</b>			○	
	Double rod type	<b>CUW</b>				
	Non-rotating rod type	<b>CUKW</b>			○	
	Standard type	<b>CQS</b>	○			ø12 to ø25
	Standard long stroke type	<b>CQS</b>		○		
	Double rod type	<b>CQSW</b>	○			
	Anti-lateral load type	<b>CQS□S</b>			○	
	Non-rotating rod type	<b>CQSK (ø12)</b>	○			ø12
	Non-rotating rod type	<b>CQSK</b>				○
	Standard type (Double acting, single rod)	<b>CQ2-Z</b>			○	ø12 to ø100
	Standard type (Double acting, double rod)	<b>CQ2W-Z</b>			○	ø12 to ø100
	Standard type (Single acting, single rod)	<b>CQ2-Z</b>			○	ø12 to ø50
	Large bore size (Double acting, single rod)	<b>CQ2-Z</b>			○	ø125 to ø200
	Large bore size (Double acting, double rod)	<b>CQ2W-Z</b>			○	ø125 to ø200
	Long stroke type (Double acting, single rod)	<b>CQ2-Z</b>			○	ø32 to ø100
	Non-rotating rod type	<b>CQ2K-Z</b>			○	ø16 to ø63
	Non-rotating rod type	<b>CQ2KW-Z</b>			○	ø16 to ø63
	Axial piping type (Double acting, single rod)	<b>CQ2P</b>			○	ø12 to ø100
	Axial piping type (Single acting, single rod)	<b>CQ2P</b>			○	ø12 to ø50
	Anti-lateral load type (Double acting, single rod)	<b>CQ2□S-Z</b>			○	ø32 to ø100
	With end lock (Double acting, single rod)	<b>CBQ2</b>				○
	Guide rod type	<b>CQM</b>			○	ø12 to ø100


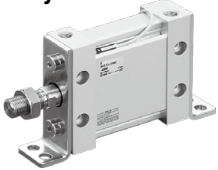





(Note) Copper base surface treated parts may be used as parts other than iron bearings are standard parts.



# Copper/Fluorine-free Specifications

## Actuators

○: Compatible △: Partially compatible







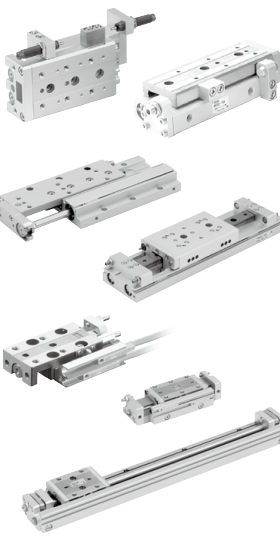
Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Compact Cylinder Plate Type</b> 	Standard type	<b>CQU</b>		○		ø20 to ø40
	<b>Plate Cylinder</b> 	Standard type	<b>MU-Z</b>		○	
	Double rod type	<b>MUW-Z</b>				
<b>Mechanically Jointed Rodless Cylinder</b> 	Basic type	<b>MY1B-Z</b>		○		ø25 to ø40
	Linear guide/Single axis type	<b>MY1H-Z</b>		○		
<b>Mechanically Jointed Rodless Cylinder</b> 	Basic type	<b>MY1B</b>	○			ø16L with unit only
		<b>MY1B</b>		○		ø10 to ø100 (Except ø25 to ø40)
	Slide bearing type	<b>MY1M</b>		○		ø16 to ø63
	Cam follower guide type	<b>MY1C</b>			ø10 to ø20	
	Linear guide/Single axis type	<b>MY1H</b>			ø50, ø63	
	Linear guide/Double axis type	<b>MY1HT</b>				
<b>Mechanically Jointed Rodless Cylinder</b> 	Slide bearing type	<b>MY1MW</b>		○		ø16 to ø63 Series MY1□WK: Special order
	Cam follower guide type	<b>MY1CW</b>				
<b>Mechanically Jointed Rodless Cylinder</b> 	Cam follower guide type	<b>MY2C</b>		○		ø16, ø25, ø40
	Linear guide/Single axis type	<b>MY2H</b>				
	Linear guide/Double axis type	<b>MY2HT</b>				
<b>Mechanically Jointed Rodless Cylinder</b> 	Basic, short type	<b>MY3A</b>		○		ø16 to ø63
	Basic, standard type	<b>MY3B</b>				
	Slide bearing guide type	<b>MY3M</b>				ø16, ø25, ø40, ø63
<b>Magnetically Coupled Rodless Cylinder</b> 	Basic type	<b>CY3B</b>		○		ø6 to ø63 ø6 and ø10: Fluorine grease used

Note) Copper base surface treated parts may be used as parts other than iron bearings are standard parts.

# Copper/Fluorine-free Specifications

## Actuators

○: Compatible △: Partially compatible






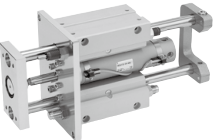
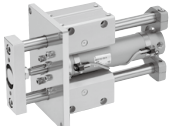
Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Magnetically Coupled Rodless Cylinder</b> 	Slide bearing type	<b>CY1S-Z</b>				
<b>Magnetically Coupled Rodless Cylinder</b> 	Slider type/Ball bushing bearing	<b>CY1L</b>	○			ø6 to ø40 ø6 and ø10: Fluorine grease used
<b>Magnetically Coupled Rodless Cylinder</b> 	Linear guide (Single axis type)	<b>CY1H</b>	○			ø10 to ø32 ø10: Fluorine grease used
	Linear guide (Double axis type)	<b>CY1HT</b>				
<b>Magnetically Coupled Rodless Cylinder</b> 	Low profile guide type	<b>CY1F</b>			○	ø10 to ø25 ø10: Fluorine grease used
<b>Compact Slide</b> 	MXH series	<b>MXH</b>			○	ø6 to ø20
<b>Air Slide Table</b> 	MXQ□, A, B, C	<b>MXQ□, A, B, C</b>			○	ø6 to ø25
<b>Air Slide Table</b> 	MXS series	<b>MXS</b>			○	ø6 to ø25* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	MXQ series	<b>MXQ</b>				ø8 to ø20* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	MXF series	<b>MXF</b>				ø8 to ø25* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	MXW series	<b>MXW</b>				ø4 to ø8* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	MXJ series	<b>MXJ</b>				ø6 to ø16* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	MXP series	<b>MXP</b>				ø6 to ø12* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	MXY series	<b>MXY</b>				

Note) Copper base surface treated parts may be used as parts other than iron bearings are standard parts.

# Copper/Fluorine-free Specifications

## Actuators

○: Compatible △: Partially compatible

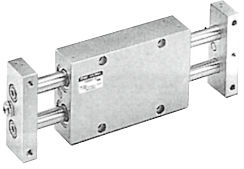
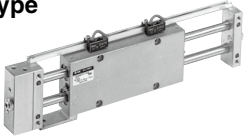
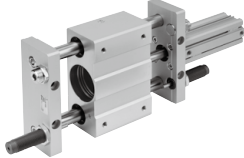
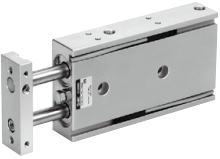



Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Compact Guide Cylinder</b> 	Standard type/Slide bearing	<b>MGQM</b>		○		ø12 to ø100
	Standard type/ Ball bushing bearing	<b>MGQL</b>				
<b>Precision Cylinder</b> 	Standard type	<b>MTS</b>	○			ø20 to ø40 Brass is used for the cap, but it is electroless nickel plated.
	With end lock	<b>MTS-R</b>	○			
<b>Compact Guide Cylinder</b> 	Standard type/Slide bearing	<b>MGPM-Z</b>		○		
	Standard type/Ball bushing	<b>MGPL-Z</b>	○			
	Standard type/ High precision ball bushing	<b>MGPA-Z</b>	○			
<b>Compact Guide Cylinder</b> 	Heavy duty guide rod type	<b>MGPS</b>			○	ø50, ø80
	With an air cushion	<b>MGPM</b>		○		ø16 to ø100
		<b>MGPL</b>				
	With end lock	<b>MGPM</b>		○		ø20 to ø100
		<b>MGPL</b>				
	<b>Compact Guide Cylinder</b> 	Standard type/Slide bearing	<b>MGPWM</b>			○
Standard type/Ball bushing		<b>MGPWL</b>	○			
Standard type/ High precision ball bushing		<b>MGPWA</b>	○			
<b>Guide Cylinder</b> 	Standard type/Slide bearing	<b>MGGM</b>		○		ø20 to ø100
	Standard type/ Ball bushing bearing	<b>MGGL</b>				
	With end lock	<b>MGG</b>				
<b>Guide Cylinder (Compact Type)</b> 	Standard type/Slide bearing	<b>MGCM</b>		○		ø20 to ø50
	Standard type/ Ball bushing bearing	<b>MGCL</b>				

Note) Copper base surface treated parts may be used as parts other than iron bearings are standard parts.

# Copper/Fluorine-free Specifications

## Actuators

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
	Standard type/Slide bearing	<b>CX2</b>	△			ø10 to ø25 The unit with a shock absorber is available upon request for special order.
	Standard type/Slide bearing	<b>CXWM</b>			○	ø10 to ø32
	Standard type/Ball bushing bearing	<b>CXWL</b>				
	With end lock/Slide bearing	<b>CXWM</b>				
	With end lock/Ball bushing bearing	<b>CXWL</b>				
	Standard type	<b>CXT</b>		○		ø12 to ø40
	With a shock absorber	<b>CXT</b>				
	Standard type/Slide bearing	<b>CXSM</b>	○			ø6 to ø32
	Standard type/ Ball bushing bearing	<b>CXSL</b>				
	Standard type	<b>CL1</b>		○		ø40 to ø160
	Standard type	<b>CNA2</b>		○		ø40 to ø100
	Basic type	<b>REA</b>	○			ø25 to ø63
	Direct mount type	<b>REAR</b>	○			ø10 to ø40 ø10: Fluorine grease used
	Slider type (Slide bearing)	<b>REAS</b>			○	
	Slider type (Ball bushing bearing)	<b>REAL</b>	○			
	Linear guide (Single axis type)	<b>REAH</b>	○			ø10 to ø32 ø10: Fluorine grease used
	Linear guide (Double axis type)	<b>REAHT</b>	○			
	Direct mount type	<b>REBR</b>	○			ø15 to ø32
	Linear guide (Single axis type)	<b>REBH</b>	○			
Linear guide (Double axis type)	<b>REBHT</b>	○				

Note) Copper base surface treated parts may be used as parts other than iron bearings are standard parts.

# Copper/Fluorine-free Specifications

## Actuators

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Low Friction Cylinder (Metal Seal Type)</b> 	Compact low friction cylinder Metal seal	<b>MQQL</b>	○			ø10 to ø40
	Lateral load resisting low friction cylinder Metal seal	<b>MQM</b>				ø6 to ø25
	Low friction cylinder (Single acting)	<b>MQP</b>	○			ø4 to ø20
<b>High Power Cylinder</b> 	Standard type	<b>RHC</b>		○		ø20 to ø100
<b>Stopper Cylinder</b> 	Standard type/RSQ	<b>RSQ</b>			○	ø12 to ø50 Order with a suffix -X866
	Standard type/RSH	<b>RSH</b>				ø20, ø32 Order with a suffix -X866
	Standard type/RS2H	<b>RS2H</b>				ø50 to ø80 Order with a suffix -X866
<b>Stroke Reading Cylinder</b> 	Special order	<b>CE1</b>			○*	ø12 to ø63 * Copper materials are used for the sensor unit.
<b>Stroke Reading Cylinder with Brake</b> 	Special order	<b>CE2</b>			○*	ø40 to ø100 * Copper materials are used for the sensor unit.
<b>Free Mount Cylinder for Vacuum</b> 	Standard type	<b>ZCUK□</b>			○	ø10 to ø32

Note) Copper base surface treated parts may be used as parts other than iron bearings are standard parts.

# Copper/Fluorine-free Specifications

## Related Products





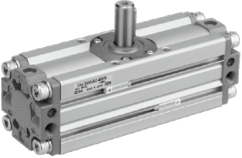


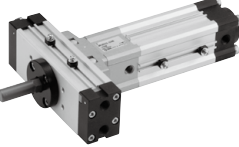
○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Floating Joint</b> 	Light weight type for light load	<b>JC</b>	○			ø20 to ø63
<b>Floating Joint</b> 	Standard type	<b>JA</b>	○			ø6 to ø160 * Symbol 6 to 15: Although brass is used, they are electroless nickel plated.
<b>Floating Joint</b> 	For compact cylinder	<b>JB</b>	○			ø12 to ø100 * Symbol 12 and 16: Although brass is used, they are electroless nickel plated.
<b>Floating Joint</b> 	Stainless steel type	<b>JS</b>	○			ø10 to ø63 * Silicone rubber only.
<b>Shock Absorber</b> 	Soft type	<b>RJ</b>	○*			* M06: Available as standard, Others: Supported with the prefix "25-"
	Short stroke type	<b>RJ</b>	○*			* M06: Available as standard, Others: Supported with the prefix "25-"
	Replacement parts	<b>RJ</b>	○			Hexagon nut, Stopper nut, Cap, Foot bracket
<b>Shock Absorber</b> 	Standard type	<b>RB</b>		○		O.D. thread: M8 to M27
	Replacement parts	<b>RB</b>	○			Hexagon nut, Stopper nut, Cap, Foot bracket
<b>Shock Absorber</b> 	Coolant resistant type	<b>RBL</b>			○	O.D. thread: M10 to M27
<b>Shock Absorber</b> 	Short type	<b>RBQ</b>			○	O.D. thread: M16 to M32

# Copper/Fluorine-free Specifications

## Rotary Actuators

○: Compatible △: Partially compatible


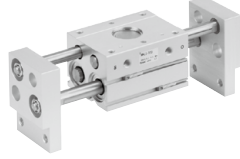

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Rotary Actuator</b> 	Vane type	<b>CRB2-Z</b>	○			Sizes 10 to 40
	Vane type Free mount type	<b>CRBU2-Z</b>				
<b>Rotary Actuator</b> 	Vane type	<b>CRB1</b>	○			Sizes 50 to 100
<b>Rotary Table</b> 	Vane type	<b>MSUA</b>	○			Sizes 1, 3, 7, 20
	Vane type	<b>MSUB</b>				
<b>Rotary Actuator</b> 	Rack & pinion type	<b>CRJ</b>			○	Sizes 05, 1 * Grease: Fluorine included Available upon request Grease: Lithium grease
<b>Rotary Actuator</b> 	Rack & pinion type	<b>CRA1-Z</b>	○			Sizes 30 to 100
<b>Rotary Actuator</b> 	Rack & pinion type	<b>CRQ2</b>	○			Sizes 10 to 40
<b>Rotary Table</b> 	Rack & pinion type	<b>MSQA</b>	○			Sizes 1 to 7
				○		Sizes 10 to 50
	Rack & pinion type	<b>MSQB</b>	○			Sizes 1 to 7
				○		Sizes 10 to 200
<b>Rotary Cylinder</b> 	Rotary Cylinder	<b>MRQ</b>	○			Sizes 32, 40



# Copper/Fluorine-free Specifications

## Air Grippers






○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Parallel Style Air Gripper</b> 	Standard type	<b>MHZ2</b>	○ Except ø6	○ ø6 only		ø6: Supported with the prefix "20-" ø10 to ø40: Available as standard
	Long stroke	<b>MHZL2</b>				ø10 to ø25
<b>Parallel Style Air Gripper</b> 	With a dust cover	<b>MHZJ2</b>	○ Except ø6	○ ø6 only		ø6: Supported with the prefix "20-" ø10 to ø40: Available as standard * Fluororubber Except dust cover
<b>Compact Air Gripper</b> 	2-finger type	<b>MHF2</b>	△*	○		* Grease: Fluorine mixed
<b>Parallel Style Air Gripper</b> 	Wide type	<b>MHL2</b>		○		ø10 to ø40 Although brass is used for plugs of ø32 and ø40, they are electroless nickel plated.
<b>Parallel Style Air Gripper</b> 	2-finger type	<b>MHR2</b>	○			Nominal size 10 to 30
<b>Parallel Style Air Gripper</b> 	Standard type	<b>MHK2</b>	△*	○		ø12 to ø25 Although brass is used for needles, they are electroless nickel plated. * Some parts have fluorine surface treatment. * Fluororubber Except dust cover
	Long stroke	<b>MHKL2</b>				
<b>Parallel Style Air Gripper</b> 	2-finger type	<b>MHS2</b>	△*	○		ø16 to ø63 * Some parts have fluorine surface treatment.
<b>Parallel Style Air Gripper</b> 	3-finger type	<b>MHS3</b>	△*	○		ø16 to ø125 * Some parts have fluorine surface treatment.

# Copper/Fluorine-free Specifications

## Air Grippers

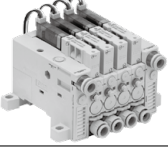
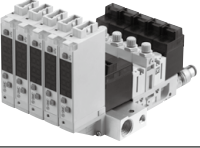
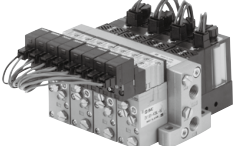
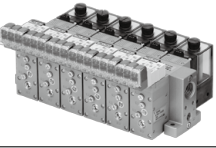

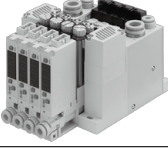
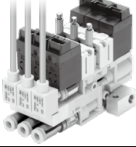


○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
<b>Angular Style Air Gripper</b> 	Standard type	<b>MHC2</b>	○ Except ø6	○ ø6 only		ø6: Supported with the prefix "20-" ø10 to ø40: Available as standard  Although brass is used for needles, they are electroless nickel plated.
<b>Angular Style Air Gripper</b> 	Toggle type	<b>MHT2</b>		○		ø32 to ø63
<b>Angular Style Air Gripper</b> 	180° angular type Cam type	<b>MHY2</b>	△*	○		ø10 to ø25 * Grease: Fluorine mixed
<b>Angular Style Air Gripper</b> 	180° angular type Gear type	<b>MHW2</b>	△*	○		ø20 to ø50 * Some parts have fluorine surface treatment.
<b>Parallel Style Air Gripper</b> 	Rotary gripper	<b>MRHQ</b>	*		○	ø10 to ø25 * Grease: Fluorine grease Available upon request Grease: Lithium grease (Characteristics can be changed.)

# Copper/Fluorine-free Specifications

## Vacuum Equipment









○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>Vacuum Unit</b> 	Ejector/Pump system	<b>ZK2</b>	△*			Although brass is used, the product is electroless nickel plated. * Grease: Fluorine grease
	Manifold base	<b>ZZK2</b>				
<b>Vacuum Unit</b> 	Ejector/Pump system	<b>ZB</b>	△*			Although brass is used, the product is electroless nickel plated. * Fluororubber is used for the seal.
	Manifold base	<b>ZZB</b>				
<b>Vacuum Unit</b> 	Ejector/Pump system	<b>ZX</b>	○			Although brass is used, the product is electroless nickel plated.
	Manifold base	<b>ZZX</b>				
<b>Vacuum Unit</b> 	Ejector/Pump system	<b>ZR</b>	○			Although brass is used, the product is electroless nickel plated.
	Manifold base	<b>ZZR</b>				
<b>Vacuum Ejector</b> 	Ejector system	<b>ZM</b>	○			Although brass is used, the product is electroless nickel plated.
	Manifold base	<b>ZZM</b>				
<b>Vacuum Unit</b> 	Ejector/Pump system	<b>ZQ</b>	△*			Although brass is used, the product is electroless nickel plated. * Fluororubber is used for the seal.
	Manifold base	<b>ZZQ</b>				
<b>Vacuum Ejector</b> 	Ejector system	<b>ZA</b>	△*			Although brass is used, the product is electroless nickel plated. * Fluororubber is used for the seal.
	Manifold base	<b>ZZA</b>				
<b>Vacuum Ejector</b> 	Box type/Body ported	<b>ZH, ZU</b>	○			Although brass is used, the product is electroless nickel plated.
<b>Vacuum Ejector</b> 	Multistage ejector	<b>ZL</b>	△*			Although brass is used, the product is electroless nickel plated. * Fluororubber is used for the check valve.

# Copper/Fluorine-free Specifications

## Vacuum Equipment






○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>Air Suction Filter</b> 	With One-touch fittings	<b>ZFB</b>	○			Although brass is used, the product is electroless nickel plated.
<b>Air Suction Filter</b> 	With One-touch fittings In-line type	<b>ZFC5□</b> <b>ZFC7□</b>	○			
<b>Vacuum Pad</b> 	Pad only	<b>ZP</b> <b>ZP2</b> <b>ZP3</b>	○			· Pad material FKM is excluded.
<b>Vacuum Pad</b> 	Vertical vacuum inlet (Without buffer)	<b>ZPT</b> <b>ZP2-T</b> <b>ZP3-T</b>	○			· Pad material FKM is excluded. · Ball joint type is excluded. · Although brass is used, the product is electroless nickel plated.
<b>Vacuum Pad</b> 	Lateral vacuum inlet (Without buffer)	<b>ZPR</b> <b>ZPY</b> <b>ZPX</b> <b>ZP2-R</b> <b>ZP3-Y</b>	○			· Pad material FKM is excluded. · Ball joint type is excluded. · Although brass is used, the product is electroless nickel plated.
<b>Vacuum Pad</b> 	Vertical vacuum inlet (With buffer)	<b>ZPT</b> <b>ZP2-T</b> <b>ZP3-T</b>	△*1			· Pad material FKM is excluded. · Ball joint type is excluded. · Although brass is used, the product is electroless nickel plated. *1 Fluorine grease is used for the buffer sliding part.
<b>Vacuum Pad</b> 	Lateral vacuum inlet (With buffer)	<b>ZPR</b> <b>ZPY</b> <b>ZPX</b> <b>ZP2-R</b> <b>ZP3-Y</b>	△*1			· Pad material FKM is excluded. · Ball joint type is excluded. · Although brass is used, the product is electroless nickel plated. *1 Fluorine grease is used for the buffer sliding part.
<b>Free Mount Cylinder for Vacuum</b> 	Standard type	<b>ZCUK□</b>			○	ø10 to ø32

# Copper/Fluorine-free Specifications

## Air Preparation Equipment








○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>Air Dryer</b>	 Membrane air dryer	<b>IDG30A, 50A</b> <b>30HA, 50HA</b> <b>30LA, 50LA</b> <b>IDG60LA, 75LA</b> <b>100LA</b> <b>60SA, 75SA</b> <b>100SA</b>			○	
<b>Water Separator</b>	 Water separator	<b>AMG150C to 550C</b> <b>AMG650</b> (Without auto drain)	○			
		<b>AMG850</b> (Without auto drain)		○		
		<b>AMG150C to 550C</b> <b>AMG650</b> (With auto drain)		○		
<b>Separator</b>		<b>AFF2C to 22C</b> <b>AFF37B</b> (Without auto drain)	○			
		<b>AFF75B</b> (Without auto drain)		○		
		<b>AFF2C to 22C</b> <b>AFF37B, 75B</b> (With auto drain)			○	
		<b>AM150C to 550C</b> <b>AM650</b> (Without auto drain)	○			
		<b>AM850</b> (Without auto drain)			○	
		<b>AM150C to 550C</b> <b>AM650, 850</b> (With auto drain)			○	
		<b>AMD150C to 550C</b> <b>AMD650</b> (Without auto drain)	○			
		<b>AMD850</b> (Without auto drain)			○	
		<b>AMD150C to 550C</b> <b>AMD650, 850</b> (With auto drain)			○	
	<b>AMH150C to 550C</b> <b>AMH650</b> (Without auto drain)	○				
	<b>AMH850</b> (Without auto drain)			○		
	<b>AMH150C to 550C</b> <b>AMH650, 850</b> (With auto drain)			○		
<b>Oil Mist Separator</b>	 Super mist separator	<b>AME150C to 550C</b> <b>AME650, 850</b>	○			
	Odor removal filter	<b>AMF150C to 550C</b> <b>AMF650, 850</b>	○			
<b>Related Products</b>	 Auto drain	<b>AD402-04</b>			○	

# Copper/Fluorine-free Specifications

## Air Line Equipment








○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>F.R.L.</b> 	F.R.L. combination	AC20-A to 40-06-A			○	Seals for 30 to 40 auto drains are fluoro coated. Although brass is used for drain cocks and drain guides for 30 to 40, they are electroless nickel plated.
		AC20A-A to 40A-06-A			○	
		AC20B-A to 40B-06-A		○		
		AC20C-A to 40C-06-A		○		
		AC20D-A to 40D-06-A		○		
		<b>AC10B-A</b>	△			Products with a pressure gauge are not compatible.
<b>Filter/ Separator</b> 	Air filter	<b>AF20-A to 60-A</b>				Seals for 30 to 60 auto drains are fluoro coated. Although brass is used for drain cocks and drain guides for 30 to 60, they are electroless nickel plated.
	Mist separator	<b>AFM20-A to 40-06-A</b>		○		
	Micro mist separator	<b>AFD20-A to 40-06-A</b>				
<b>Pressure Control Equipment</b> 	Regulator	<b>AR10-A</b>	△			Products with a pressure gauge are not compatible.
		<b>AR20-A to 40-06-A</b>			○	
<b>Filter/Pressure Control Equipment</b> 	Filter regulator	<b>AW10-A</b>	△			Products with a pressure gauge are not compatible. Seals for 30 to 60 auto drains are fluoro coated. Although brass is used for drain cocks and drain guides for 30 to 60, they are electroless nickel plated.
		<b>AW20-A to 40-06-A</b>			○	
<b>F.R.L.</b> 	F.R.L. combination	<b>AC20-B to 60-B</b>			○	Products with a square-shaped and embedded pressure gauge are not copper/fluorine-free. Seals for 30 to 60 auto drains are fluoro coated. Although brass is used for drain cocks and drain guides for 30 to 60, they are electroless nickel plated.
		<b>AC20A-B to 60A-B</b>			○	
		<b>AC20B-B to 60B-B</b>		○		
		<b>AC20C-B to 40C-06-B</b>		○		
		<b>AC20D-B to 40D-06-B</b>		○		
		<b>AC10B-A</b>	△			Products with a pressure gauge are not compatible.
<b>Pressure Control Equipment</b> 	Regulator	<b>AR10-A</b>	△			Products with a square-shaped and embedded pressure gauge are not copper/fluorine-free. Although brass is used for check valves (AR20K to 60K), they are electroless nickel plated.
	Regulator	<b>AR20-B to 60-B</b>			○	
	Regulator with backflow function	<b>AR20K-B to 60K-B</b>				
<b>Filter/Pressure Control Equipment</b>  <b>AWM/AWD</b>	Filter regulator	<b>AW10-A</b>	△			Products with a square-shaped and embedded pressure gauge are not copper/fluorine-free. Although brass is used for drain cocks and drain guides for 30 to 60, they are electroless nickel plated. Although brass is used for check valves (AW20K to 60K), they are electroless nickel plated.
	Filter regulator	<b>AW20-B to 60-B</b>			○	
	Filter regulator with backflow function	<b>AW20K-B to 60K-B</b>				
	Mist separator regulator	<b>AWM20 to 40</b>				
	Micro mist separator regulator	<b>AWD20 to 40</b>				

# Copper/Fluorine-free Specifications

## Air Line Equipment

○: Compatible △: Partially compatible


Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>Pressure Control Equipment</b> 	Miniature regulator	<b>ARJ1020F</b>			○	
	Miniature regulator	<b>ARJ210</b>			○	Products with a pressure gauge are not compatible.
<b>Pressure Control Equipment</b> 	Precision regulator	<b>IR1000</b>			○	Pressure gauge is changed to G43.
	Precision regulator manifold	<b>IRM10</b>			△	Products with a pressure gauge are not compatible.
	Precision regulator	<b>IR2000</b>				
	Precision regulator manifold	<b>IRM20</b>			○	
	Precision regulator	<b>IR3000</b>				
<b>Pressure Control Equipment</b> 	Electro-pneumatic regulator	<b>ITV1000</b>	△			Since an electrical circuit is used, this equipment is not completely copper and fluorine-free.
	Electro-pneumatic regulator	<b>ITV2000</b>			△	
		<b>ITV3000</b>			△	
<b>Booster Regulator</b> 	Booster regulator	<b>VBA1□A</b>				When the prefix is "20-", no pressure gauge options are available. The standard option pressure gauge is not copper/fluorine-free.
	Booster regulator	<b>VBA20A</b>			○	
	Booster regulator	<b>VBA40A</b>				
<b>Air Tank</b> 	Air tank	<b>VBAT05□1</b>				When the prefix is "20-", no safety valve options are available. The standard option safety valve is not copper/fluorine-free.
	Air tank	<b>VBAT10□1</b>			○	
	Air tank	<b>VBAT20□1</b>				
	Air tank	<b>VBAT38□1</b>				
<b>Pressure Gauge</b> 	Pressure gauge for general purpose	<b>G43</b>				○ For the stainless steel wetted parts, order with a suffix -X3.
	Pressure gauge for general purpose	<b>G46</b>				
<b>Pressure Relief Valve</b> 	Pressure relief 3 port valve with locking holes	<b>VHS20/30/40/50</b>			○	



# Copper/Fluorine-free Specifications

## Piping Equipment

○: Compatible △: Partially compatible




Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>Fittings</b> 	One-touch fittings (With thread)	<b>KQ2□-N</b> <sup>Note 1)</sup> <b>KQ2□-NP</b>	○			
<b>Fittings</b> 	One-touch fittings (Without thread)	<b>KQ2□-A</b>	○			
<b>Fittings</b> 	One-touch fittings	<b>KQ2P</b>	○			
<b>Fittings</b> 	Insert fittings	<b>KF</b> <sup>Note 1)</sup>			○	For the electroless nickel plated specifications, order with a suffix -X2.
	Insert fittings	<b>KFS</b>	○			
<b>Fittings</b> 	Stainless steel One-touch fittings	<b>KG</b> <sup>Note 1)</sup>	○			
<b>Low Rotating Torque Rotary Joint</b> 	Metal seal type	<b>MQR</b>	○			

Note 1) KQ2, KG, KF, KF-X2: Without sealant only

# Copper/Fluorine-free Specifications

## Flow Control Equipment

○: Compatible △: Partially compatible

Series		Port size		Model	Option symbol Part number suffix	Standard *3	20-	Special order	Note
	Series/Variation								
<b>Speed Controller with One-touch Fittings Push-lock Type</b> *1 *2  	Elbow type	M thread	M 5	AS12□1F-M5-□A	Nil	○			Without thread seal
		R thread	R 1/8	AS22□1F-01-□A		○			
			R 1/4	AS22□1F-02-□A		○			
			R 1/4	AS32□1F-02-□A		○			
			R 3/8	AS32□1F-03-□A		○			
			R 1/2	AS42□1F-04-□A		○			
		G thread	G 1/8	AS22□1F□-G01		○			
			G 1/4	AS22□1F□-G02		○			
			G 1/4	AS32□1F□-G02		○			
			G 3/8	AS32□1F□-G03		○			
			G 1/2	AS42□1F□-G04		○			
		Uni thread	U 1/8	AS22□1F-U01		○			
			U 1/4	AS22□1F-U02		○			
			U 1/4	AS32□1F-U02		○			
			U 3/8	AS32□1F-U03		○			
			U 1/2	AS42□1F-U04		○			
		<b>Speed Controller with One-touch Fittings</b> *1 *2  	Elbow type	M thread		M 3	AS12□1F-M3-□□	Nil	○
M 5	AS12□1F-M5-□□				○				
R thread	R 1/8			AS22□1F-01-□□	○				
	R 1/4			AS22□1F-02-□□	○				
	R 3/8			AS32□1F-03-□□	○				
	R 1/2			AS42□1F-04-□□N	N	○			
Uni thread	U 1/8			AS22□1F-U01-□□	Nil	○			
	U 1/4			AS22□1F-U02-□□N	N	○			
	U 3/8			AS32□1F-U03-□□N		○			
	U 1/2			AS42□1F-U04-□□N		○			
<b>Speed Controller with Indicator</b> *1 *2  	Elbow type	M thread	M 5	AS12□1FS-M5		Nil	○		
		R thread	R 1/8	AS22□1FS-□01	○				
			R 1/4	AS22□1FS-□02	○				
			R 3/8	AS32□1FS-□03	○				
			R 1/2	AS42□1FS-□04	○				

\*1) Applicable tubing O.D. for the speed controller with One-touch fittings is in metric size.






\*2) Although brass is used, the product is electroless nickel plated.

\*3) Standard part number is for copper and fluorine-free specifications.

# Copper/Fluorine-free Specifications

## Flow Control Equipment

○: Compatible △: Partially compatible

Series		Port size		Model	Option symbol Part number suffix	Standard *3	20-	Special order	Note
	Series/Variation								
<b>Speed Controller with One-touch Fittings</b> *1 *2 	Universal type	M thread	M 3	AS13□1F-M3-□□	Nil	○			
			M 5	AS13□1F-M5-□□		○			
		R thread	R 1/8	AS23□1F-01-□□		○			Without thread seal
			R 1/4	AS23□1F-02-□□		○			
			R 3/8	AS33□1F-03-□□		○			
		Uni thread	R 1/2	AS43□1F-04-□□N		N	○		
			U 1/8	AS23□1F-U01-□□	Nil	○			
				U 1/4	AS23□1F-U02-□□N	N	○		
				U 3/8	AS33□1F-U03-□□N	N	○		
		U 1/2		AS43□1F-U04-□□N	N	○			
<b>Speed Controller with One-touch Fittings</b> *1 *2 	In-line type	—	—	AS1002F-□□ to AS4002F-□□	Nil	○			
<b>Speed Controller</b> 	In-line type	M thread	M 3	AS1000-M3	Nil	○		*2	
			M 5	AS1000-M5-X95	-X95			○	
		R thread	Rc 1/8 to Rc 1/4	AS2000-□□-X95	-X95			○	
			Rc 1/4 to Rc 3/8	AS3000-□□-X95				○	
			Rc 1/4 to Rc 1/2	AS4000-□□	Nil		○		
Rc 1/4 to Rc 1/2	AS5000-□□			○					
<b>Speed Controller with One-touch Fitting Stainless Steel Series Push-lock Type</b> *1 *2 	Elbow type	M thread	M 5	AS12□1FG-M5-□A	Nil	○			
		R thread	R 1/8	AS22□1FG-01-□A		○			Without thread seal
			R 1/4	AS22□1FG-02-□A		○			
			R 1/4	AS32□1FG-02-□A		○			
			R 3/8	AS32□1FG-03-□A		○			
			R 1/2	AS42□1FG-04-□A		○			
		G thread	G 1/8	AS22□1FG□-G01		○			
			G 1/4	AS22□1FG□-G02		○			
			G 1/4	AS32□1FG□-G02		○			
			G 3/8	AS32□1FG□-G03		○			
G 1/2	AS42□1FG□-G04		○						
<b>Speed Controller with One-touch Fittings<sup>※1</sup>/Stainless Steel</b> 	Elbow type	M thread	M 5	AS12□1FG-M5-□□	Nil	○			
			R 1/8	AS22□1FG-01-□□		○			Without thread seal
		R thread	R 1/4	AS22□1FG-02-□□		○			
			R 3/8	AS32□1FG-03-□□		○			
			R 1/2	AS42□1FG-04-□□		○			

\*1) Applicable tubing O.D. for the speed controller with One-touch fittings is in metric size.








\*2) Although brass is used, the product is electroless nickel plated.

\*3) Standard part number is for copper and fluorine-free specifications.

# Copper/Fluorine-free Specifications

## Flow Control Equipment

○: Compatible △: Partially compatible

Series		Port size		Model	Option symbol Part number suffix	Standard *3	20-	Special order	Note	
	Series/Variation									
<b>Speed Controller with One-touch Fittings*1/Stainless Steel</b> 	Universal type	M thread	M 5	AS13□1FG-M5-□□	Nil	○			Without thread seal	
		R thread	R 1/8	AS23□1FG-01-□□		○				
			R 1/4	AS23□1FG-02-□□		○				
			R 3/8	AS33□1FG-03-□□		○				
			R 1/2	AS43□1FG-04-□□		○				
<b>Speed Controller with One-touch Fittings*1/Stainless Steel</b> 	In-line type	—	—	AS1001FG-□□ to AS4001FG-□□	Nil	○				
<b>Quick Exhaust Valve</b> 	—	M thread	M 5	AQ1500-M5	Nil	○			*2	
		R thread	Rc 1/8	AQ1500-01		○			*2	
			Rc 1/8, R 1/4	AQ2000-□□		○				
			Rc 3/8, R 1/4	AQ3000-□□		○				
			Rc 1/2, R 3/4	AQ5000-□□		○				
<b>Quick Exhaust Valve with One-touch Fittings</b> *2 	—	—	—	AQ240F-□□-□□	Nil	○				
				AQ340F-□□-□□		○				
<b>Speed Exhaust Controller</b> *2 	—	M thread	M 3	ASV120F-M3-□□	Nil	○				
			M 5	ASV220F-M5-□□		○				
		R thread	R 1/8, Rc 1/4	ASV310F-□□-□□				○		Without thread seal
			R 1/8 to Rc 3/8	ASV410F-□□-□□				○		
	R 1/4 to Rc 1/2	ASV510F-□□-□□			○					
<b>Check Valve</b> 	—	R thread	Rc 1/8 to Rc 1/4	AK2000-□□	Nil	○				
			Rc 1/4 to Rc 1/2	20-AK4000-□□			○		Order with a suffix 20-	
			Rc 3/4 to Rc 1	20-AK6000-□□			○			
<b>Check Valve with One-touch Fittings*2/Bushing Type</b> 	Straight type	—	—	AKH□□-00	Nil	○				
	Male connector type	M thread	M 5	AKH□□-M5		○				
		R thread	R 1/8 to R 1/2	AKH□□-□□				○	Without thread seal	
	Bushing type	R thread	R 1/8 to R 1/2 Rc 1/8 to Rc 1/2	AKB□□-□□				○		

\*1) Applicable tubing O.D. for the speed controller with One-touch fittings is in metric size.








\*2) Although brass is used, the product is electroless nickel plated.

\*3) Standard part number is for copper and fluorine-free specifications.

# Copper/Fluorine-free Specifications

## Detection Equipment

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
<b>Pressure Switch</b> 	2-color display High precision digital pressure switch	<b>ISE30A</b> <b>ZSE30A</b>			○	Only compatible with the wetted parts. Although brass is used, they are electroless nickel plated.
<b>Pressure Switch</b> 	2-color display High precision digital pressure switch	<b>ISE40A</b> <b>ZSE40A</b>			○	Only compatible with the wetted parts. Although brass is used, they are electroless nickel plated.
<b>Pressure Switch</b> 	2-color display digital pressure switch for general fluids	<b>ISE80</b> <b>ZSE80</b>			○	Only compatible with the wetted parts.
<b>Pressure Switch</b> 	Pressure sensor	<b>PSE530</b>	○			Only compatible with the wetted parts.
<b>Pressure Switch</b> 	Compact pressure sensor for pneumatics	<b>PSE540</b>	○			Only compatible with the wetted parts. Although brass is used, they are electroless nickel plated.
<b>Pressure Switch</b> 	Pressure sensor for general fluids	<b>PSE560</b>	○			Only compatible with the wetted parts.
<b>Flow Switch</b> 	Diaphragm style flow switch	<b>IFW5</b>			○	For the wetted parts, order with a suffix -X206. Electric parts include copper material.

# Copper/Fluorine-free Specifications

## Brass Usage for 20- Specifications

### 20-CJ2 Series

Parts for 20- specifications			Double acting (Single rod)	Double rod	Single
Description	Material	Surface treatment			
Piston *1	Brass	Electroless nickel plated	○	○	○
Spring seat *1	Brass	Electroless nickel plated			○
Spacer *1	Brass	Electroless nickel plated		○*2	○*2
Standard common parts			Double acting (Single rod)	Double rod	Single
Description	Material	Surface treatment			
Mounting nut *1	Brass	Nickel plated	○	○	○

\*1: ø6 only

\*2: Type with a ø6 switch only

### 20-CJP Single Acting Type

Parts for 20- specifications			Panel mount type	Embedded type
Description	Material	Surface treatment		
Collar	Wear-resistant aluminum	None	○	○
Standard common parts			Panel mount type	Embedded type
Description	Material	Surface treatment		
Cover	Brass	Electroless nickel plated	○	○
Hose nipple	Brass	Electroless nickel plated	○	
Mounting nut	Brass	Electroless nickel plated	○	○

### 20-CJP2 Double Acting Type

Parts for 20- specifications			Double acting (Single rod)
Description	Material	Surface treatment	
Piston *1	Brass	Electroless nickel plated	○
Magnet holder *2	Brass	Electroless nickel plated	○
Standard common parts			Double acting (Single rod)
Description	Material	Surface treatment	
Head cover *2	Brass	Electroless nickel plated	○
Mounting nut	Brass	Electroless nickel plated	○

\*1: ø6, ø10 only

\*2: ø4, ø6, ø10 only

### 20-CU Double Acting Type

Parts for 20- specifications			Double acting (Single rod)
Description	Material	Surface treatment	
Bushing	Oil-impregnated sintered alloy	—	○
Piston *3	Brass	Electroless nickel plated	○
Magnet holder *2	Brass	Electroless nickel plated	○
Standard common parts			Double acting (Single rod)
Description	Material	Surface treatment	
Head cover *1	Brass	Electroless nickel plated	○

\*1: ø6, ø10 only

\*2: CDU6 only

\*3: ø6 only