

Copper/Fluorine-free Specifications Series 20-

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


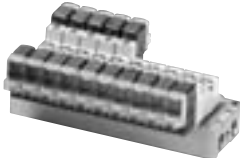
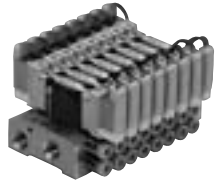
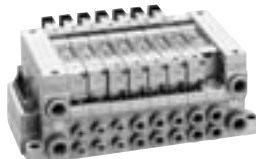


Note) Copper material is used for the electrical part of each equipment.
(Refer to the note column of each equipment for applicability.)

Directional Control Valves	Back page 30
Actuators	Back page 34
Related Products	Back page 40
Rotary Actuators	Back page 41
Air Grippers	Back page 42
Vacuum Equipment	Back page 44
Air Preparation Equipment	Back page 46
Air Line Equipment	Back page 47
Piping Equipment	Back page 49
Flow Control Equipment	Back page 50
Detection Equipment	Back page 52
Brass Usage for 20- Specifications	Back page 53

Copper/Fluorine-free Specifications

Directional Control Valves


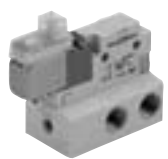
○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
5 Port Solenoid Valve 	Rubber seal	SY3000		○*		* Copper material is not used for the wetted parts.
	Rubber seal	SY5000				
	Rubber seal	SY7000				
	Manifold base	SS5Y3/5/7				
5 Port Solenoid Valve 	Rubber seal	SYJ3000		○*		* Copper material is not used for the wetted parts.
	Rubber seal	SYJ5000				
	Rubber seal	SYJ7000				
	Manifold base	SS5YJ3/5/7				
5 Port Solenoid Valve 	Rubber seal	S0700		○		* Copper material is not used for the wetted parts.
	Manifold base	SS075 0/5				
	Other parts	SS0700		○		* Copper material is not used for the wetted parts.
5 Port Solenoid Valve 	Metal/Rubber seal	VQ1000		○		*1 Copper material is not used for the wetted parts. *2 Except ejectors and regulators.
	Metal/Rubber seal	VQ2000				
	Double check block (Separated type)	VQ-FPG				
	Metal/Rubber seal	VQ4000				
	Manifold base	VV5Q1/2/4				
	Other parts	VQ/VVQ		○*2		
5 Port Solenoid Valve 	Metal/Rubber seal	SQ1000		○		* Copper material is not used for the wetted parts.
	Metal/Rubber seal	SQ2000				
	Manifold base	SS5Q1/2				
	Other parts	SSQ		○		* Copper material is not used for the wetted parts.
5 Port Solenoid Valve 	Metal seal	VFS2000		○		* Copper material is not used for the wetted parts.
	Metal seal	VFS3000				
	Metal seal	VFS4000				
	Manifold base	VV5FS2/3/4	○			

Copper/Fluorine-free Specifications

Directional Control Valves








○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
5 Port Solenoid Valve 	Rubber seal	VFR2000		○*		* Although copper material is used for the wetted parts, it is electroless nickel plated.
	Rubber seal	VFR3000				
	Rubber seal	VFR4000				
	Manifold base	VV5FR2/3/4	○			
5 Port Solenoid Valve/ ISO Standard 	Metal/Rubber seal	VQ7-6		○		* Copper material is not used for the wetted parts.
	Metal/Rubber seal	VQ7-8				
	Manifold base	VV71/VV72				
3 Port Solenoid Valve 	Rubber seal	SYJ300		○*		* Copper material is not used for the wetted parts.
	Rubber seal	SYJ500				
	Rubber seal	SYJ700				
3 Port Solenoid Valve 	Metal/Rubber seal	VQZ100		○		
	Metal/Rubber seal	VQZ200				
	Metal/Rubber seal	VQZ300				
	Metal/Rubber seal	VV3QZ1/2/3	○			
3 Port Solenoid Valve 	Pilot/Poppet type	VP300		○*		* Although copper material is used for the wetted parts, it is electroless nickel plated.
	Pilot/Poppet type	VP500				
	Pilot/Poppet type	VP700				
3 Port Solenoid Valve 	Direct operated poppet type	S070		○		* Copper material is not used for the wetted parts.
4 Port Solenoid Valve 	Direct operated poppet type	VQD1000		○		* 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					
3 Port Solenoid Valve 	Rubber seal	VK300	○*			* Copper material is not used for the wetted parts.
3 Port Solenoid Valve 	Direct operated poppet type	VT307		○*		* Copper material is not used for the wetted parts.
	Direct operated poppet type	VT317				
3 Port Solenoid Valve 	Direct operated poppet type	VQ100		○		* Copper material is not used for the wetted parts.
2/3/5 Port Mechanical Valve 	Poppet type	VM130-01-30G	○			Some actuators are available upon request for special order. Please contact SMC for model numbers other than mentioned at left.
	Poppet type	VM131-01-01S		○		
	Poppet type	VM220-02-30G		○		
	Rubber spool type	VZM550-01-01S		○		
	Rubber spool type	VZM550-01-34□		○		
Relay Valve 	Shuttle valve	VR1210-01		○		
Finger Valve 	Finger valve	VHK	○			
Pressure Relief Valve 	Pressure relief 3 port valve with locking holes	VHS20/30		○		
	Pressure relief 3 port valve with locking holes	VHS40/50	○			

Copper/Fluorine-free Specifications

Directional Control Valves

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
Power Valve 	3 position valve	VEX322¹₂		○		
2 Port Solenoid Valve 	Direct operated	VX2	△			* Copper material is not used for the wetted parts. Body material: Stainless steel, Seal material: Select NBR or EPDM
2 Port Solenoid Valve 	Pilot operated Zero pressure differential operation	VXZ2230	△	○		* Copper material is not used for the wetted parts. Body material: Stainless steel, Seal material: Select NBR or EPDM
		VXZ2360				
2 Port Solenoid Valve 	Compact direct operated type for water	VCW	△			* Copper material is not used for the wetted parts. Body material: Stainless steel, Seal material: Select NBR or EPDM
	Compact direct operated type for water	VV2CW				
2 Port Solenoid Valve 	Compact direct operated type for water/air	VDW	△			* Copper material is not used for the wetted parts. Body material: Stainless steel, Seal material: Select NBR or EPDM
	Compact direct operated type for water/air	VV2DW				
2 Port Solenoid Valve 	Single/Manifold	VQ20	○			Suffix "-X2" to the part number for the oil-free type
	Single/Manifold	VQ30				
Silencer 	Sintered silencer	AN120-M5		○		Stainless steel
	High noise reduction silencer 40 dB (A)	ANA1	○			
	High noise reduction silencer 38 dB (A)	ANB1				

Copper/Fluorine-free Specifications

Actuators

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
Pin Cylinder 	Double acting type	CJP2		○		ø6, ø10, ø16 (Single acting: ø15) Although brass is used, the product is electroless nickel plated. (Refer to back page 53 for details.)
	Single acting type	CJP				
Air Cylinder 	Standard type	CJ2		○		ø6 Although brass is used, the product is electroless nickel plated. (Refer to back page 53 for details.)
	Double rod type	CJ2W				
	Non-rotating rod type	CJ2K				
	Built-in speed controller type	CJ2Z				
	Direct mount type	CJ2R				
Air Cylinder 	Standard type	CM2		○		ø20 to ø40
	Standard type with an air cushion	CM2□A				
	Double rod type	CM2W				
	Non-rotating rod type	CM2K				
	Direct mount type	CM2R				
	With end lock	CBM2				
Air Cylinder 	Standard type	CG1		○		ø20 to ø100
	Non-rotating rod type	CG1K				ø20 to ø63
	Direct mount type	CG1R				ø20 to ø100
	With end lock	CBG1			○	ø20 to ø100
Air Cylinder 	Standard type	MB		○		ø32 to ø100
	Double rod type	MBW				
	With end lock	MBB			○	
Air Cylinder 	Standard type	CA2		○		ø40 to ø100
	Double rod type	CA2W				ø40 to ø63
	Non-rotating rod type	CA2K				
	Non-rotating double rod type	CA2KW				ø40 to ø100
	With end lock	CBA2				
Large Bore Size Cylinder 	Standard type	CS1□N		○		ø125 to ø160

Copper/Fluorine-free Specifications

Actuators








○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
Mini Free Mount Cylinder 	Standard type	CUJ				ø4, ø6, ø8, ø10 Since fluorine grease is used, Series -20 cannot be manufactured.
Free Mount Cylinder 	Standard type (Double acting)	CU		○		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 53 for details.)
	Non-rotating rod type	CUK				
	Standard type (Single acting)	CU			○	
	Double rod type	CUW				
	Non-rotating rod type	CUKW			○	
Compact Cylinder 	Standard type	CQS	○			ø12 to ø25
	Standard long stroke type	CQS		○		
	Double rod type	CQSW	○			
	Anti-lateral load type	CQS□S		○		
	Non-rotating rod type	CQSK(ø12)	○			ø12
	Non-rotating rod type	CQSK			○	ø16, ø20, ø25
Compact Cylinder 	Standard type (Double acting, single rod)	CQ2	○			ø12 to ø40
	Standard type (Double acting, single rod)	CQ2		○		ø50 to ø100
	Standard type (Single acting, single rod)	CQ2	○			5S and 5T of ø12 to ø25 and ø32 (without a switch)
	Standard type (Single acting, single rod)	CQ2		○		All S/T single acting strokes of ø32 to ø50 (with/without a switch) except ø32 above
	Large bore size type	CQ2			○	ø125 to ø200
	Standard long stroke type	CQ2		○		ø32 to ø100
	Double rod type	CQ2W	○			ø12 to ø40
	Double rod type	CQ2W		○		ø50 to ø100
	Non-rotating rod type	CQ2K		○		ø16 to ø63
	Non-rotating rod type/Double rod	CQ2KW				
	Axial piping type (Double acting, single rod)	CQP2	○			ø12 to ø40
	Axial piping type (Double acting, single rod)	CQP2		○		ø50 to ø100
	Axial piping type (Single acting, single rod)	CQP2		○		All S/T single acting strokes of ø32 to ø50 (with/without a switch)
	Anti-lateral load type	CQ2□S		○		ø32 to ø100
	With end lock	CBQ2			○	ø20 to ø100
Compact Cylinder 	Guide rod type	CQM			○	ø12 to ø100

Copper/Fluorine-free Specifications

Actuators

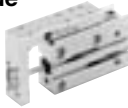
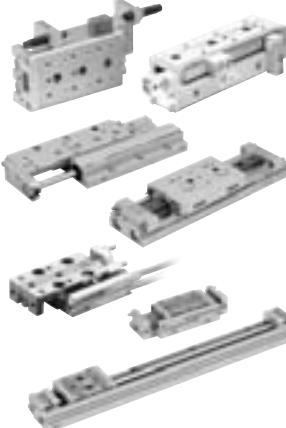
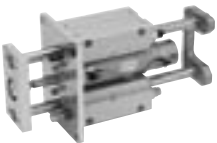
○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
Plate Cylinder 	Standard type	MU		○		ø25 to ø63
	Double rod type	MUW				
Mechanically Jointed Rodless Cylinder 	Basic type	MY1B		○		ø10 to ø100
	Slide bearing type	MY1M				ø16 to ø63
	Cam follower guide type	MY1C				ø10 to ø40
	Linear guide/Single axis type	MY1H				ø50, ø63
	Linear guide/Double axis type	MY1HT				
Mechanically Jointed Rodless Cylinder 	Slide bearing type	MY1MW		○		ø16 to ø63 Series MY1□WK: Special order
	Cam follower guide type	MY1CW				
Mechanically Jointed Rodless Cylinder 	Cam follower guide type	MY2C		○		ø16, ø25, ø40
	Linear guide/Single axis type	MY2H				
	Linear guide/Double axis type	MY2HT				
Magnetically Coupled Rodless Cylinder 	Basic type	CY3B	○			ø6 to ø63 ø6 and ø10: Fluorine grease used
Magnetically Coupled Rodless Cylinder 	Slider type/Slide bearing	CY1S		○		ø6 to ø40 ø6 and ø10: Fluorine grease used
	Slider type/Ball bushing bearing	CY1L	○			ø6 to ø40 ø6 and ø10: Fluorine grease used
Magnetically Coupled Rodless Cylinder 	Linear guide/Single axis type	CY1H	○			ø10 to ø32 ø10: Fluorine grease used
	Linear guide/Double axis type	CY1HT				

Copper/Fluorine-free Specifications

Actuators



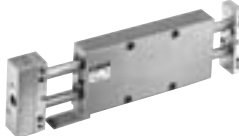
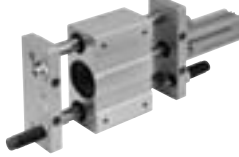
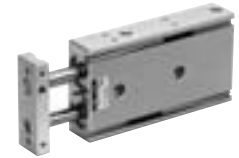



○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
Compact Slide 	Series MXH	MXH			○	ø6 to ø20
	Series MXU	MXU				ø6 to ø16
Air Slide Table 	Series MXS	MXS				ø6 to ø25* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	Series MXQ	MXQ				ø8 to ø20* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	Series MXF	MXF				ø8 to ø25* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	Series MXW	MXW		○		ø4 to ø8* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	Series MXJ	MXJ				ø6 to ø16* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	Series MXP	MXP				ø6 to ø12* * Although brass is used for some plugs, studs, etc., they are electroless nickel plated.
	Series MXY	MXY				
Compact Guide Cylinder 	Standard type/Slide bearing	MGQM				ø12 to ø100
	Standard type/Ball bushing bearing	MGQL			○	
Precision Cylinder 	Standard type	MTS	○			ø20 to ø40
	With end lock	MTS-R			○	
Compact Guide Cylinder 	Standard type/Slide bearing	MGPM			○	ø12 to ø100
	Standard type/Ball bushing bearing	MGPL				
	Heavy duty guide rod type	MGPS			○	ø50, ø80
	High precision ball bushing type	MGPA			○	ø12 to ø100
	With an air cushion	MGP			○	ø16 to ø100
	With end lock				○	ø20 to ø100
Guide Cylinder 	Standard type/Slide bearing	MGGM			○	ø20 to ø100
	Standard type/Ball bushing bearing	MGGL				
	With end lock	MGG			○	
Guide Cylinder (Compact Type) 	Standard type/Slide bearing	MGCM			○	ø20 to ø50
	Standard type/Ball bushing bearing	MGCL				

Copper/Fluorine-free Specifications

Actuators

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
Slide Unit 	Standard type/Slide bearing	CX2	△			ø10 to ø25 The unit with a shock absorber is available upon request for special order.
	With end lock	CXWM			○	ø10 to ø32
Slide Unit Built-in Shock Absorber Type 	Standard type/Slide bearing	CXWM			○	ø10 to ø32
	With end lock	CXWM			○	ø10 to ø32
Slide Unit Built-in Shock Absorber Type 	Standard type/Ball bushing bearing	CXWL			○	ø10 to ø32
	With end lock	CXWL			○	ø10 to ø32
Platform Cylinder 	Standard type	CXT		○		ø12 to ø40
	With a shock absorber	CXT		○		ø12 to ø40
Dual Rodless Cylinder 	Standard type/Slide bearing	CXSM	○			ø6 to ø32
	Standard type/Ball bushing bearing	CXSL	○			ø6 to ø32
Lock-up Cylinder 	Standard type	CL1		○		ø40 to ø160
Cylinder with Lock 	Standard type	CNA			△	ø40 to ø100 Not compatible with RoHS
Sine Rodless Cylinder 	Basic type	REA	○			ø25 to ø63

Copper/Fluorine-free Specifications

Actuators







○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
Low Friction Cylinder (Metal Seal Type) 	Compact low friction cylinder Metal seal	MQQL	○			ø10 to ø28
	Lateral load resisting low friction cylinder Metal seal	MQM				ø6 to ø25
	Low friction cylinder (Single acting)	MQP	○			ø4 to ø20
High Power Cylinder 	Standard type	RHC		○		ø20 to ø100
Stopper Cylinder 	Standard type	RSQ			○	ø12 to ø50 Order with a suffix -X866
	Standard type	RSH				ø20, ø32
	Standard type	RS1H				ø50 to ø80
Stroke Reading Cylinder 	Special order	CE1			○	ø12 to ø63
Stroke Reading Cylinder with Brake 	Special order	CE2			○	ø40 to ø100
Free Mount Cylinder for Vacuum 	Standard type/Rod piping Male thread	ZCUKQ			○	ø10 to ø32

Copper/Fluorine-free Specifications

Related Products




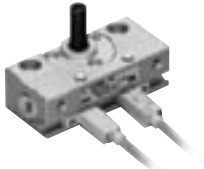


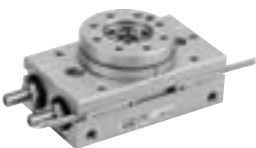

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
Floating Joint 	Standard type	JA	○			ø20 to ø100 * Symbol 6 to 15: Although brass is used, they are electroless nickel plated.
Floating Joint 	For compact cylinder	JB	○			ø20 to ø100 * Symbol 12 and 16: Although brass is used, they are electroless nickel plated.
Floating Joint 	Stainless steel type	JS	○			ø10 to ø63
Shock Absorber 	Standard type	RB		○		O.D. thread: M8 to M27
	Replacement parts	RB	○			Hexagon nut Stopper nut Cap
Shock Absorber 	Coolant resistant type	RBL			○	O.D. thread: M10 to M27
Shock Absorber 	Short type	RBQ			○	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					
Rotary Actuator 	Vane type	CRB2	○			Sizes 10 to 40
	Vane type Free mount type	CRBU2				
Rotary Actuator 	Vane type	CRB1	○			Sizes 50 to 100
Rotary Table 	Vane type	MSUA	○			Sizes 1, 3, 7 and 20
	Vane type	MSUB				
Rotary Actuator 	Rack & pinion type	CRJ			○	Sizes 05, 1 * Grease: Fluorine included Available upon request Grease: Lithium grease
Rotary Actuator 	Rack & pinion type	CRA1	○*			Sizes 30 to 100 * Although brass is used for the size 63, 80 and 100 cushion needles, they are electroless nickel plated.
Rotary Actuator 	Rack & pinion type	CRQ2	○			Sizes 10 to 40
Rotary Table 	Rack & pinion type	MSQA	○			Sizes 1 to 7
				○		Sizes 10 to 50
	Rack & pinion type	MSQB	○			Sizes 1 to 7
				○		Sizes 10 to 200
Rotary Cylinder 	Rotary Cylinder	MRQ	○*			Sizes 32, 40 * Although brass is used for plugs, they are electroless nickel plated.

Copper/Fluorine-free Specifications

Air Grippers

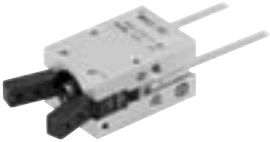




○: Compatible △: Partially compatible

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

Copper/Fluorine-free Specifications

Air Grippers




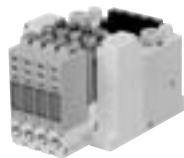




○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Size variations Note
	Series/Variation					
Angular Style Air Gripper 	Standard type	MHC2	○ Except ø6	○ ø6 only		ø6 ø10 to ø25 Although brass is used for needles, they are electroless nickel plated.
Angular Style Air Gripper 	Toggle type	MHT2		○		ø32 to ø63
Angular Style Air Gripper 	180° angular type Cam type	MHY2	△ *	○		ø10 to ø25 * Grease: Fluorine grease
Angular Style Air Gripper 	180° angular type Gear type	MHW2		○		ø20 to ø50
Parallel Style Air Gripper 	Rotary gripper	MRHQ	*		○	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					
Vacuum Unit 	Ejector system	ZX1	○			Although brass is used, the product is electroless nickel plated.
Vacuum Unit 	Ejector system	ZR1	○			Although brass is used, the product is electroless nickel plated.
Vacuum Ejector 	With a valve and switch	ZM	○			Although brass is used, the product is electroless nickel plated.
Vacuum Unit 	Ejector/Pump system	ZQ	○			Although brass is used, the product is electroless nickel plated.
	Manifold base	ZZQ				
Vacuum Ejector 	Box type/Body ported	ZH	○			Although brass is used, the product is electroless nickel plated.
Vacuum Ejector 	Multistage ejector	ZL	*			Although brass is used, the product is electroless nickel plated. Fluororubber is used.
Air Suction Filter 	With One-touch fittings	ZFB	○			Although brass is used, the product is electroless nickel plated.
Air Suction Filter 	With One-touch fittings In-line type	ZFC100	○			
		ZFC200				

Copper/Fluorine-free Specifications

Vacuum Equipment





○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
Vacuum Pad 	Vertical vacuum entry	ZPT	△ ^{*1}			Although brass is used, the product is electroless nickel plated. *1 Fluorine grease is used for the buffer sliding part.
Vacuum Pad 	Lateral vacuum entry With One-touch fittings	ZPR	△ ^{*1}			Although brass is used, the product is electroless nickel plated. *1 Fluorine grease is used for the buffer sliding part.
Vacuum Pad 	Lateral vacuum entry With barb fitting	ZPY	△ ^{*1}			Although brass is used, the product is electroless nickel plated. *1 Fluorine grease is used for the buffer sliding part.
Free Mount Cylinder for Vacuum 	Standard type/Rod piping Male thread	ZCUKQ			○	ø10 to ø32

Copper/Fluorine-free Specifications

Air Preparation Equipment







○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
Air Dryer 	Membrane air dryer	IDG30, 50 30H, 50H 30L, 50L IDG60L, 75L, 100L 65S, 75S, 100S			○	Order with a suffix -X241 * Fluorine material included.
Water Separator 	Water separator	AMG (Without auto drain)	○*			* Copper parts are nickel plated.
		AMG (With auto drain)		○*		
Separator 	Main line filter	AFF2C to 22C AFF37B, 75B (Without auto drain)	○*			* Copper parts are nickel plated.
		AFF2C to 22C AFF37B, 75B (With auto drain)		○*		
		AFF75A to 220A			○	
	Mist separator	AM150C to 550C AM650, 850 (Without auto drain)	○*			* Copper parts are nickel plated.
		AM150C to 550C AM650, 850 (With auto drain)		○*		
	Micro mist separator	AMD150C to 550C AMD650, 850 (Without auto drain)	△*			* Fluorine material included. * Copper parts are nickel plated.
		AMD150C to 550C AMD650, 850 (With auto drain)				
		AMD800, 810 to 10□0 AMD801, 811, 9□1			△*	* Fluorine material included.
	Micro mist separator with a prefilter	AMH150C to 550C AMH650, 850 (Without auto drain)	△*			* Fluorine material included. * Copper parts are nickel plated.
		AMH150C to 550C AMH650, 850 (With auto drain)				
Oil Mist Separator 	Super mist separator	AME150C to 550C AME650, 850	△*			* Fluorine material included.
	Odor removal filter	AMF150C to 550C AMF650, 850	△*			* Fluorine material included.
		AMF800 to 1000 AMF801, 901			△*	
Related Products 	Auto drain	AD402-04		○		

Copper/Fluorine-free Specifications

Air Line Equipment

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
F.R.L 	F.R.L. combination	AC20 to 60			○	Products with a square-shaped and embedded pressure gauge: Copper/fluorine-free Although brass is used for drain cocks and drain guides for 30 to 60, they are electroless nickel plated.
		AC20A to 60A			○	
		AC20B to 60B		○		
		AC20C to 40C-06		○		
		AC20D to 40D-06		○		
		AC10B	△			Products with a pressure gauge are not compatible.
Filer/Separator 	Air filter	AF10	○			
	Air filter	AF20 to 60		○		Seals for 30 to 60 auto drains include fluoro coated material. Although brass is used for drain cocks and drain guides for 30 to 60, they are electroless nickel plated.
	Mist separator	AFM20 to 40				
	Micro mist separator	AFD20 to 40		○*		* Elements include fluorine material.
Pressure Control Equipment 	Regulator	AR10	△			Products with a pressure gauge are not compatible.
	Regulator	AR20 to 60		○		Products with a square-shaped and embedded pressure gauge: Copper/fluorine-free Although brass is used for check valves (AR20K to 60K), they are electroless nickel plated.
	Regulator with backflow function	AR20K to 60K				
Filter/Pressure Control Equipment 	Filter regulator	AW10	△			Products with a pressure gauge are not compatible.
	Filter regulator	AW20 to 60		○		Products with a square-shaped and embedded pressure gauge: 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 with backflow function	AW20K to 60K				
	Mist separator regulator	AWM20 to 40				
	Micro mist separator regulator	AWD20 to 40		○*		* Elements include fluorine material.
Pressure Control Equipment 	Miniature regulator	ARJ1020F			○	
	Miniature regulator	ARJ210			○	Products with a pressure gauge are not compatible.
Pressure Control Equipment 	Precision regulator	IR1000		○		Pressure gauge is changed to G43.
	Precision regulator manifold	IRM10		△		Products with a pressure gauge are not compatible.
	Precision regulator	IR2000		○		
	Precision regulator manifold	IRM20				
	Precision regulator	IR3000				

Copper/Fluorine-free Specifications

Air Line Equipment





○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
Pressure Control Equipment 	Electro-pneumatic regulator	ITV1000	△			Since an electrical circuit is used, this equipment is not completely copper and fluorine-free.
	Electro-pneumatic regulator	ITV2000			△	
		ITV3000			△	
Booster Regulator 	Booster regulator	VBA111□				Products with a pressure gauge are not copper and fluorine-free.
	Booster regulator	VBA20A			○	
	Booster regulator	VBA40A				
Air Tank 	Air tank	VBAT05□				The safety valve is not copper and fluorine-free.
	Air tank	VBAT10□			○	
	Air tank	VBAT20□				
	Air tank	VBAT38□				
Pressure Gauge 	Pressure gauge for general purpose	G43				For the stainless steel wetted parts, order with a suffix -X3.
	Pressure gauge for general purpose	G46			○	
Pressure Relief Valve 	Pressure relief 3 port valve with locking holes	VHS20/30			○	
	Pressure relief 3 port valve with locking holes	VHS40/50	○			
Process Pump 	Air operated type	PB1013	△ *			* Fluorine is used for the diaphragm.

Copper/Fluorine-free Specifications

Piping Equipment

○: Compatible △: Partially compatible






Series		Model	Standard	20-	Special order	Note
	Series/Variation					
Fittings 	One-touch fittings	KQ2 ^{Note 1)}			○	For the electroless nickel plated specifications, order with a suffix -X2.
	One-touch fittings	KQ2P	○			
Fittings 	Insert fittings	KF ^{Note 1)}			○	For the electroless nickel plated specifications, order with a suffix -X2.
	Insert fittings	KFS	○			
Fittings 	Stainless steel One-touch fittings	KG ^{Note 1)}	○			
Low Rotating Torque Rotary Joint 	Metal seal type	MQR	○			

Note 1) KQ, KQ2, KQ-X2, KQ2-X2, 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								
Speed Controller with One-touch Fittings *1 *2 	Elbow type	M thread	M 3	AS12□1F-M3-□□	Nil	○			Without thread seal
			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-□□N	N	○			
			R 1/2	AS42□1F-04-□□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		○			
Speed Controller with One-touch Fittings *1 *2 	Universal type	M thread	M 3	AS13□1F-M3-□□	Nil	○			Without thread seal
			M 5	AS13□1F-M5-□□		○			
		R thread	R 1/8	AS23□1F-01-□□		○			
			R 1/4	AS23□1F-02-□□		○			
			R 3/8	AS33□1F-03-□□N	N	○			
			R 1/2	AS43□1F-04-□□N		○			
		Uni thread	U 1/8	AS23□1F-U01-□□	Nil	○			
			U 1/4	AS23□1F-U02-□□N	N	○			
			U 3/8	AS33□1F-U03-□□N		○			
			U 1/2	AS43□1F-U04-□□N		○			
Speed Controller with One-touch Fittings *1 *2 	In-line type	—	—	AS1001F-□□ to AS4001F-□□	Nil	○			
Speed Controller 	In-line type	M thread	M 3	AS1000-M3	Nil	○			
			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-□□		○			
Speed Controller with One-touch Fittings *1/Stainless Steel 	Elbow type	M thread	M 5	AS12□1FG-M5-□□	Nil	○			Without thread seal
		R thread	R 1/8	AS22□1FG-01-□□		○			
			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.

Example: AS3201F-03-10N

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								
Speed Controller with One-touch Fittings *1/Stainless Steel 	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-□□		○			
Speed Controller with One-touch Fittings *1/Stainless Steel 	In-line type	—	—	AS1001FG-□□ to AS4001FG-□□	Nil	○			
Quick Exhaust Valve 	—	M thread	M 5	AQ1500-M5	Nil	○			
		R thread	Rc 1/8	AQ1500-01		○			
			Rc 1/8, R 1/4	AQ2000-□□		○			
			Rc 3/8, R 1/4	AQ3000-□□		○			
			Rc 1/2, R 3/4	AQ5000-□□		○			
Quick Exhaust Valve with One-touch Fittings *2 	—	—	—	AQ240F-□□-□□	Nil	○			
				AQ340F-□□-□□		○			
Speed Exhaust Controller *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-□□-□□				○	
Check Valve 	—	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-□□			○		
Check Valve with One-touch Fittings/Bushing Type *2 	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.

Example: AS3201F-03-10N

Copper/Fluorine-free Specifications

Detection Equipment

○: Compatible △: Partially compatible

Series		Model	Standard	20-	Special order	Note
	Series/Variation					
Pressure Switch 	2-color display High precision digital pressure switch	ISE30 ZSE30	○			Only compatible with the wetted parts. Although brass is used, they are electroless nickel plated.
Pressure Switch 	High precision digital pressure switch	ISE40-01 ZSE40-01		○		Only compatible with the wetted parts. Piping: R 1/8 only Although brass is used, they are electroless nickel plated.
Pressure Switch 	For general fluids High precision digital pressure switch	ISE50 ZSE50			○	Only compatible with the wetted parts.
	For general fluids High precision digital pressure switch	ISE60 ZSE60				
Pressure Switch 	Pressure sensor	PSE530	○			Only compatible with the wetted parts.
Pressure Switch 	Compact pressure sensor for pneumatics	PSE540	○			Only compatible with the wetted parts. Piping: Except IM5 and IM5H Although brass is used, they are electroless nickel plated.
Pressure Switch 	Pressure sensor for general fluids	PSE560	○			Only compatible with the wetted parts.
Flow Switch 	Diaphragm style flow switch	IFW5			○	For the wetted parts, order with a suffix -X206. Electric parts include copper material.

Copper/Fluorine-free Specifications

Brass Usage for 20- Specifications Series 20-CJ2

Parts for 20- specifications			Double acting (Single rod)	Double rod	Single acting	Double acting, Non-rotating	Single acting, Non-rotating	Built-in speed controller	Direct mount
Description	Material	Surface treatment							
Piston*1	Brass	Electroless nickel plated	○	○	○	○	○	○	○
Spring seat	Brass	Electroless nickel plated			○		○		
Check seal sleeve	Brass	Electroless nickel plated						○	
Spacer	Brass	Electroless nickel plated		○*2	○*2				
Standard common parts			Double acting (Single rod)	Double rod	Single acting	Double acting, Non-rotating	Single acting, Non-rotating	Built-in speed controller	Direct mount
Description	Material	Surface treatment							
Mounting nut	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 retainer*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*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*1	Brass	Electroless nickel plated	○

*1: ø6, ø10 only

*2: CDU6 only

