

A photograph of an industrial manufacturing environment. In the foreground, a bright orange robotic arm is welding a metal component, creating a large burst of orange and yellow sparks. The background shows a complex assembly line with various mechanical parts and structures, illuminated by warm, industrial lighting. A dark blue banner is overlaid on the top left of the image.

Easy-to-integrate,  
reliable directional control,  
with high level of flexibility

**AVENTICS™ Series 511, 512, 513**  
Modular Valve Systems Complying with ISO 5599-2 Standard



**General Information**

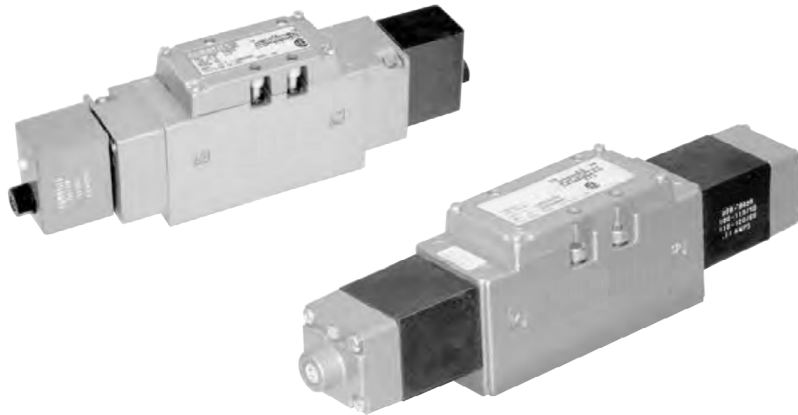
511, 512, and 513 ISO valve series incorporate the famous lapped spool and sleeve for ultimate service life.  
Due to the great variety of configuration and drive possibilities, they adapt to each task.

Characteristics:

- Modular, flexible and wear-free
- Strong aluminum alloy housing
- Equipped with the famous lapped spool and sleeve assembly
- Insensitive, self-cleaning spool made of stainless steel with "air bearing effect" by air entrained between spool and sleeve (1 µm clearance), typical service life of more than 200 million cycles
- Can operate with different pressures at the same time within one valve, independent of flow direction
- Available as 5-port., 2-position (5/2) and 3-position (5/3) valves
- Can be combined with G3 Electronics
- Worldwide support by Emerson subsidiaries and dealers in almost all countries in the world



**Sub-base mounted valves to ISO 5599/2**

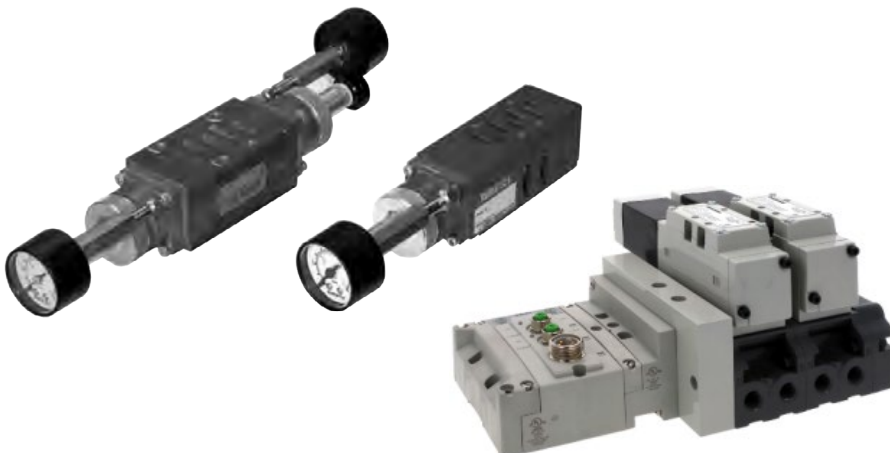


**Solenoid pilot actuated**

Port size 1/4 to 1/2  
Flow capacity 1300 NI/min (CV 1.3) to 5250 NI/min (CV 5.25)

**Direct solenoid actuated**

Port size 1/4 to 1/2  
Flow capacity 1200 NI/min (CV 1.2) to 4400 NI/min (CV 4.4)



**Single or dual regulators**

Port size 1/4 to 1/2

**G3 Electronics**

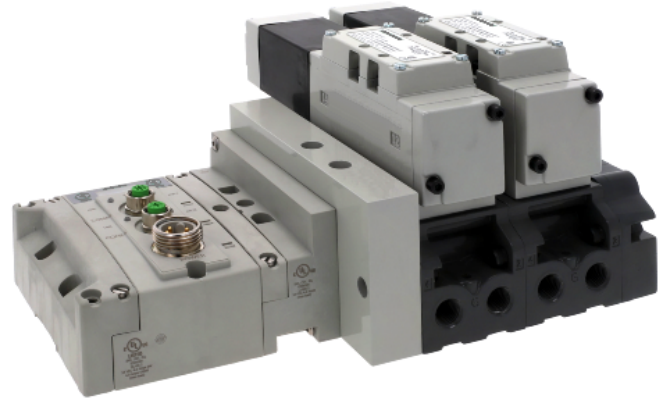
Can be connected to G3 electronics

**511, 512, 513 Series (ISO 5599-2)**

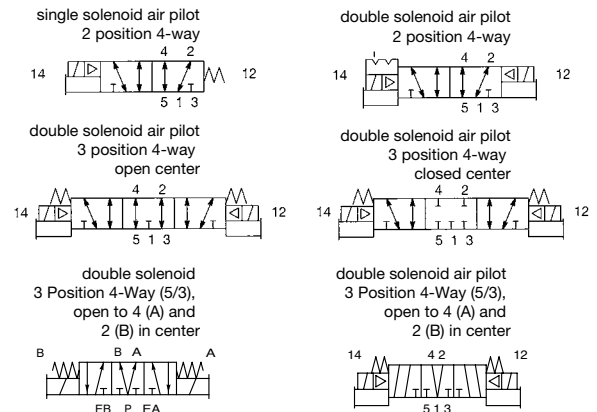
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5 Ported, 4-way, 2 and 3 position, Spool & Sleeve,  
Cv: 1.2 to 5.3

- Direct solenoid or solenoid pilot actuated
- Complies with ISO Standard 5599-2
- ISO sizes 1, 2, 3
- Terminal block for ease of wiring
- Side and bottom cylinder ports standard
- AC/ DC color-coded solenoids
- Sandwich regulators available
- Plug-in speed control available
- Elimination of internal wiring
- Designed to meet the requirements of NEMA 4 / IP65



**Solenoid Pilot Actuated**



**Technical Data: ISO 5599-2 - Solenoid Air Pilot**

Valve Data		English	Metric
Cv	ISO 1	1.3	1.3
	ISO 2	2.9	2.9
	ISO 3	5.3	5.3
Flow Capacity	ISO 1	60.1 SCFM	1280 NI/m
	ISO 2	134.0 SCFM	2857 NI/m
	ISO 3	245.0 SCFM	5222 NI/m
		Upstream pressure to atmosphere @80 PSIG	@ 6 bar upstream/5 bar downstream
Main Valve Operating Pressure Range - All Sizes		28" HG to 232 PSIG	Vacuum to 16 bar
Pilot Pressure Range - All Sizes		15 to 125 PSIG	1 to 8.6 Bar
Temperature Range (ambient) - All Sizes		-10° F to +115° F	-23.3° C to +46.1° C

**Operating Data**

All Solenoids Are Continuous Duty Rated			24 VDC	24 VAC 50 Hz	24 VAC 60 Hz	100-115 VAC 50 Hz	110-120 VAC 60 Hz	200-230 VAC 50 Hz	220-240 VAC 60 Hz
Power (Watts) - All Sizes			4.0	N/A	N/A	N/A	N/A	N/A	N/A
Holding Current (Amps.) - All Sizes			0.16	0.36	0.29	0.06	0.06	0.03	0.03
Inrush Current (Amps.) - All Sizes			N/A	0.52	0.47	0.10	0.09	0.05	0.05
Energize in seconds	2-Position, Single, Spring Return	ISO 1 & 2	0.013	0.013	0.012	0.012	0.012	0.013	0.013
		ISO 3	0.020	0.018	0.019	0.017	0.017	0.018	0.018
	2-Position, Double, Detented	ISO 1 & 2	0.013	0.013	0.012	0.012	0.012	0.013	0.013
		ISO 3	0.020	0.018	0.019	0.017	0.017	0.018	0.018
	3-Position, Spring Centered	ISO 1 & 2	0.013	0.013	0.012	0.012	0.012	0.013	0.013
		ISO 3	0.020	0.018	0.019	0.017	0.017	0.018	0.018
De-energize in seconds	2-Position, Single, Spring Return	ISO 1	0.036	0.034	0.035	0.035	0.036	0.039	0.038
		ISO 2	0.060	0.053	0.053	0.055	0.054	0.057	0.056
		ISO 3	0.066	0.067	0.067	0.069	0.068	0.072	0.072
	2-Position, Double, Detented	ISO 1, 2, & 3	N/A						
	3-Position, Spring Centered	ISO 1	0.036	0.034	0.035	0.035	0.036	0.039	0.038
		ISO 2	0.060	0.053	0.053	0.055	0.054	0.057	0.056
	ISO 3	0.066	0.067	0.067	0.069	0.068	0.072	0.072	

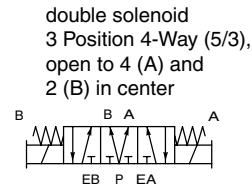
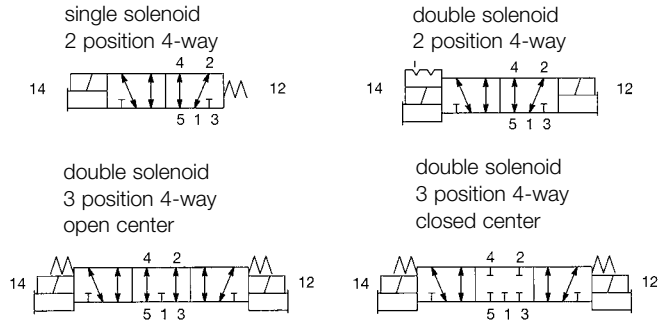
5 Ported, 4-way, 2 and 3 position, Spool & Sleeve,

Cv: 1.2 to 5.3

- Direct solenoid or solenoid pilot actuated
- Complies with ISO Standard 5599-2
- ISO sizes 1, 2, 3
- Terminal block for ease of wiring
- Side and bottom cylinder ports standard
- AC/ DC color-coded solenoids
- Sandwich regulators available
- Plug-in speed control available
- Elimination of internal wiring
- NEMA 4/IP 65



**Direct Solenoid Actuated**



**Technical Data: ISO 5599-2 - Direct Acting**

Valve Data		English	Metric
Cv	ISO 1	1.2	1.2
	ISO 2	2.2	2.2
	ISO 3	4.4	4.4
Flow Capacity	ISO 1	55.5 SCFM	1181 NI/m
	ISO 2	101.7 SCFM	2166 NI/m
	ISO 3	203.4 SCFM	4336 NI/m
		80 PSIG upstream pressure to atmosphere	6 bar upstream to 5 bar downstream
Main Valve Operating Pressure Range - All Sizes		28" HG to 232 PSIG	Vacuum to 16 bar
Temperature Range (ambient) - All Sizes		-10° F to +115° F	-23.3° C to +46.1° C

**Operating Data** - All solenoids are continuous duty rated

Valve Data		24 VDC	24 VAC 50 Hz	24 VAC 60 Hz	100-115 VAC 50 Hz	110-120 VAC 60 Hz	200-230 VAC 50 Hz	220-240 VAC 60 Hz	
Power (Watts)	ISO 1 & 2	6.0	N/A	N/A	N/A	N/A	N/A	N/A	
	ISO 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Holding Current (Amps.)	ISO 1 & 2	0.25	0.59	0.42	0.11	0.09	0.07	0.05	
	ISO 3		0.59	0.42	0.11	0.09	0.07	0.05	
In-rush Current (Amps.)		ISO 1, 2, & 3	N/A	2.85	2.53	0.63	0.58	0.31	0.29
Energize in seconds	2-Position, Single, Spring Return	ISO 1 & 2	0.038	0.012	0.012	0.012	0.012	0.012	0.012
		ISO 3	N/A	0.012	0.012	0.012	0.012	0.012	0.012
	2-Position, Double, Detented	ISO 1 & 2	0.012	0.012	0.012	0.012	0.012	0.012	0.012
		ISO 3	N/A	0.012	0.012	0.012	0.012	0.012	0.012
	3-Position, Spring Centered	ISO 1 & 2	0.038	0.012	0.012	0.012	0.012	0.012	0.012
		ISO 3	N/A	N/A	0.012	0.012	0.012	0.012	0.012
De-energize in seconds	2-Position, Single, Spring Return	ISO 1 & 2	0.012	0.012	0.012	0.012	0.012	0.012	0.012
		ISO 3	N/A	0.012	0.012	0.012	0.012	0.012	0.012
	2-Position, Double, Detented	ISO 1, 2, & 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		ISO 1 & 2	0.012	0.012	0.012	0.012	0.012	0.012	0.012
	3-Position, Spring Centered	ISO 1 & 2	0.012	0.012	0.012	0.012	0.012	0.012	0.012
		ISO 3	N/A	0.012	0.012	0.012	0.012	0.012	0.012

**How to Order**

**Valves**

**I24 BA 4 15 M P 000 61**

**Valve Series and Port Size**

- I12\* = 511 Series ISO Size 1 1/4
- I13 = 511 Series ISO Size 1 3/8
- I23\* = 512 Series ISO Size 2 3/8
- I24\* = 512 Series ISO Size 2 1/2
- I34 = 513 Series ISO Size 3 1/2
- I35\* = 513 Series ISO Size 3 3/4

\*Use for valve unit only (Mounting = 00)

**First letter = "14" Actuator**

**Second letter = "12" Actuator**

- BA = Solenoid Air Pilot w/Spring Return
- BB = Double Solenoid Air Pilot
- BW = Solenoid Pilot w/Differential Air Return
- SA = Direct Solenoid w/Spring Return
- SS = Double Direct Solenoid
- 00 = Manifold Block without Valve

**Function**

- 4 = 2 Position, 4-Way
- 5 = 3 Position, 4-Way Open Center
- 6 = 3 Position, 4-Way Closed Center
- 7 = 3 Position 4-Way (5/3), Open to 4 (A) and 2 (B) in Center
- P = Indicates Blank Station Plate

**Mounting**

- 00 = Valve Unit Only
- 01 = 00 w/Speed Control
- 15\*\* = Manifold Block, Side and Bottom Cylinder Ports
- 25 = 15 w/Speed Control
- 3A = Base, Side Ports, Individual Exhaust
- 3B = Base, Side and Bottom Ports, Individual Exhaust
- 3C = 3A w/Speed Control
- 3D = 3B w/Speed Control
- MN = Mid-station Supply and Exhaust Block without Internal Circuit Board
- MS = Mid-station Supply and Exhaust Block with Internal Circuit Board
- Z1 = Manifold Block w/Side and Bottom Ports, Single Solenoid Internal Circuit Board
- Z2\*\* = Manifold Block w/Side and Bottom Ports, Double Solenoid Internal Circuit Board
- Z5 = Z1 w/Speed Control
- Z6 = Z2 w/Speed Control
- R1 = Z1 w/Ribbon Cable Connector
- R2 = Z2 w/Ribbon Cable Connector
- R5 = Z5 w/Ribbon Cable Connector
- R6 = Z6 w/Ribbon Cable Connector

\*\*Also Used with Function P= Blank Station

Note: Standard for all ISO 5599-2 Valve Series is internal pilot supply from port #1.

**Voltage**

- 20 = 24 VAC/50-60Hz
- 30 = 100-115 VAC/50Hz; 110-120 VAC/60Hz
- 40 = 200-230 VAC/50Hz; 220-240 VAC/60Hz
- 61 = 24 VDC
- 00 = Use w/Blank Station Plate

**Options**

- 11B = Flush Locking Override
  - 11Z = Extended Locking Override
  - 14B = Internal Pilot Supply from #1 (P) If Not Standard
  - 14C\*\*\* = Internal Pilot Supply from #3 (EB)
  - 14D\*\*\* = Internal Pilot Supply from #5 (EA)
  - 15G = 5 Pin Mini Connector (Valve Conduit Cover)
  - 17G = Low Wattage Solenoid Pilot-1.85 Watt
  - 14X \*\*\* = External Pilot Supply Through Base or Manifold Endplates
  - 17N = DC Solenoid with Surge Suppression Diode
  - 46T = Zinc Plated "T" Armature In Solenoid(s) - AC Only, Direct Acting Only
  - 56Y = 4 Pin Micro Connector in Mounting
  - 60V = 4 Pin Micro Connector (Valve Conduit Cover)
- \*\*\*Must use one of these options when used with RC, RQ, or RD regulators and solenoid pilot valves.

**Port Type**

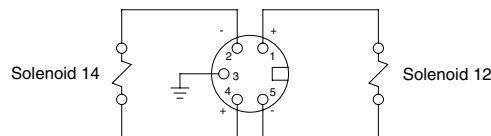
- 0 = NPTF (Direct Solenoid Valves)(Use for valve unit only)
- G = G Tap (Direct Solenoid Valves)(Use for valve unit only) (conforms to ISO standards 1179-1 and 228-1)
- P = NPTF (Solenoid Pilot Valves)
- Q = G Tap (Solenoid Pilot Valves) (conforms to ISO standards 1179-1 and 228-1)

**Wiring Option**

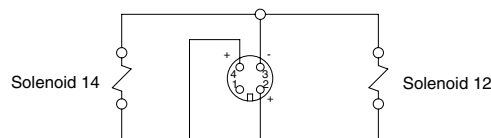
- K = Plug-in AC w/Light
- L= = Standard AC, Special Connector (15G)
- M = Plug-in DC w/Light
- O= = Blank Station Plate
- R= = Standard DC, Special Connector (60V)

**Wiring Diagrams**

**5 Pin (Mini) Connector**  
15G (Valve Conduit Cover)



**4 Pin 12mm (Micro) Connector**  
60V (Valve Conduit Cover)  
56Y (Mounting)



How to Order

Regulators

**I24 RS 1 15 J P 000 00**

**Valve Series and Port Size**

- I12\* = 511 Series ISO Size 1 1/4
- I13 = 511 Series ISO Size 1 3/8
- I23\* = 512 Series ISO Size 2 3/8
- I24\* = 512 Series ISO Size 2 1/2
- I34 = 513 Series ISO Size 3 1/2
- I35\* = 513 Series ISO Size 3 3/4

\*Use for regulator unit only (Mounting = 00)

**Regulator Type**

- RS = Single Pressure to Port #1 (P)
- RD\*\* = Dual Pressure to Ports #3 (EB) & #5 (EA)
- RC\*\* = Dual Pressure w/Non-relieving Checks Air Return (Sizes 2 & 3 Only)
- RQ\*\* = Dual Pressure w/Relieving Checks
- RE = Dual Pressure, External Outlet

\*\*Solenoid pilot valves used with RC, RD & RQ regulators must have the pilot supply from other than internally from port #1 (P)

**Pressure Range**

- 1 = 10 - 130 PSIG (0.7 - 9 bar)
- 3 = 3 - 30 PSIG (0.2 - 2 bar)
- 4 = 5 - 60 PSIG (0.3 - 4.1 bar)
- 6 = 20 - 250 PSIG (1.4 - 17 bar)

**Options**

- 16N = Jumper on 14 (A) End
- 16P = Jumper on 12 (B) End

**Port Type**


- P = NPTF
- Q = G Tap

**Wiring Option**

- J = Plug-In Receptacle
- O = No Electrical Connection

**Mounting**

- 00 = Regulator Unit Only
- 15 = Manifold Block, Side and Bottom Cylinder Ports
- 3A = Base, Side Ports, Individual Exhaust
- 3B = Base, Side and Bottom Ports, Individual Exhaust
- Z0 = Manifold Block w/Side and Bottom Transfer Board, Used w/RE Regula
- Z1 = Manifold Block with Side and Bottom Ports, Single Solenoid Internal Circuit Board
- Z2 = Manifold Block with Side and Bottom Ports, Double Solenoid Internal Circuit Board
- Z5 = Z1 w/Speed Control
- Z6 = Z2 w/Speed Control
- R1 = Z1 w/Ribbon Cable Connector
- R2 = Z2 w/Ribbon Cable Connector
- R5 = Z5 w/Ribbon Cable Connector
- R6 = Z6 w/Ribbon Cable Connector
- Z0 = RE only (no Z-board)



Manifold Assembly Kit

**AK 0 R C 0000 4 N STD**

**Electrical/Connection Type and Location**

- 0 = Standard
- 3\* = G3 Fieldbus Electronics
- 8\* = 580 Electronics (513 Series only)
- F\* = Terminal Strip 1-16
- J\* = 25 Pin Sub-D
- M\* = 37 Pin Sub-D
- P\* = 12 Pin Round Connector
- R\* = 26 Pin Round Connector
- T\* = Terminal Strip 1-32

\*Used with Z-board only

**Valve Series(s)**

- Q = 511 Series ISO Size 1
- R = 512 Series ISO Size 2
- S = 513 Series ISO Size 3

**Number(s) of Valve Stations**

A = 1	I = 9
B = 2	J = 10
C = 3	K = 11
D = 4	L = 12
E = 5	M = 13
F = 6	N = 14
G = 7	O = 15
H = 8	P = 16

**Options**

- STD = Standard

**Port Type**

- N = NPTF
- G = G Tap

**End Plate Port Size**

- 3 = 3/8 (ISO 1)
- 4 = 1/2 (ISO 2)
- 6 = 1 (ISO 3)
- X = 2 or more valve series in one manifold assembly

**Valve Series and Number of stations**

**Example order**

ISO 2 manifold with side and bottom ports

AK0RC00004NSTD

Station 1      I23BA415MP00061

Station 2      I23BB415MP00061

Station 3      I23BB400MP00061

I23RS115JP00000

ASSEMBLED

Maximum Solenoid Outputs

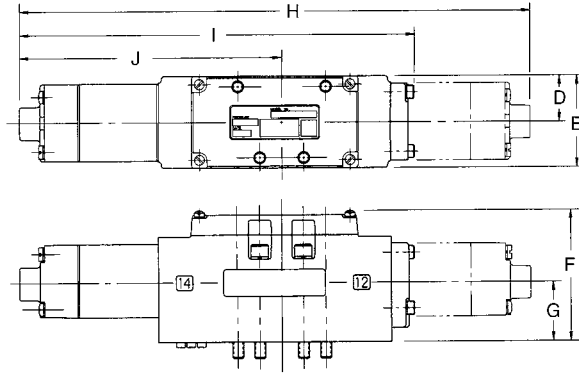
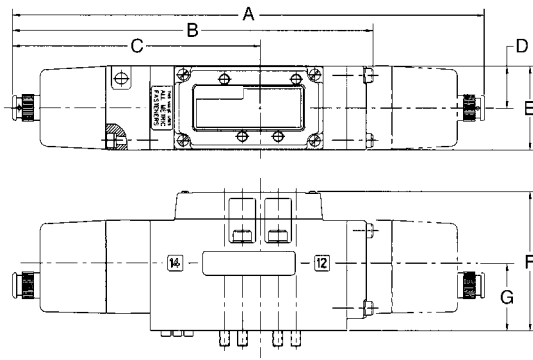
Terminal Strip		25 PIN Sub-D	37 PIN Sub-D	26 PIN Round	26 + 12 PIN Round	12 PIN Round	19 PIN Round
AK"F"	AK"T"	AK"J"	AK"M"	AK"R"	AK"S"	AK"P"	AK"Q"
16	32	22	32	22	32	8	16

**Dimensions: Inches (mm)**

**Valve Units**

**Solenoid Pilot Actuated**

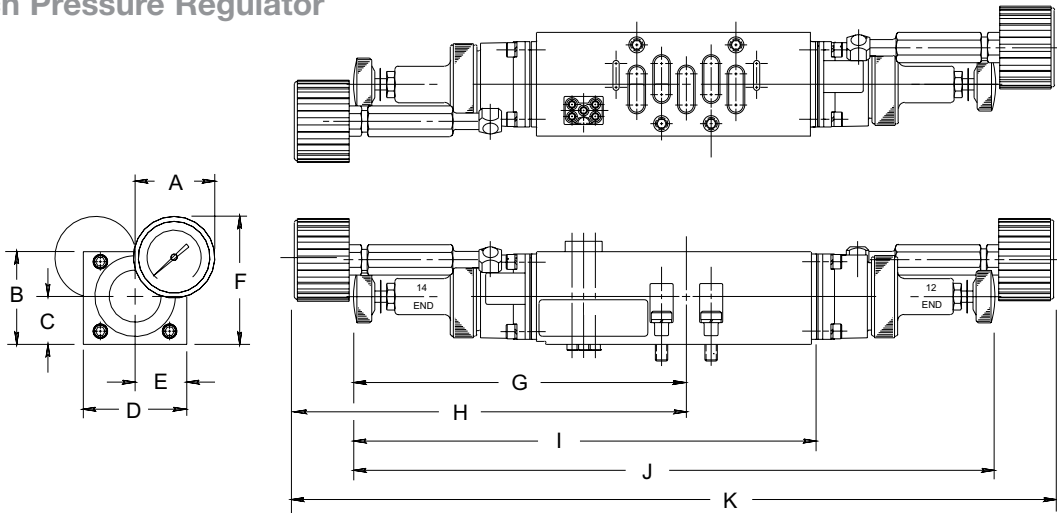
**Direct Solenoid Actuated**



	A	B	C	D	E	F	G	H DC	H AC	I DC	I AC	J DC	J AC
ISO 1	9.32 (236.7)	7.11 (180.6)	4.89 (124.2)	0.83 (21.0)	1.65 (41.9)	2.69 (68.4)	1.30 (32.9)	11.23 (285.3)	9.75 (247.8)	8.09 (205.4)	7.35 (186.6)	5.83 (148.1)	5.10 (129.6)
ISO 2	10.41 (264.4)	8.27 (210.1)	5.36 (136.1)	0.99 (25.0)	1.97 (50.0)	2.79 (70.8)	1.25 (31.8)	12.34 (313.4)	10.86 (275.8)	9.18 (233.2)	8.45 (214.7)	6.32 (160.5)	5.58 (141.7)
ISO 3	11.65 (295.9)	9.27 (235.5)	6.05 (153.7)	1.26 (32.0)	2.52 (64.0)	2.93 (74.3)	1.22 (30.9)	N/A N/A	12.40 (314.9)	N/A N/A	9.05 (229.8)	N/A N/A	5.86 (148.7)

**Dimensions: Inches (mm)**

**Sandwich Pressure Regulator**



	A	B	C	D	E	F	G	H	I	J	K
ISO 1	1.55 (39.4)	1.77 (45.0)	0.92 (23.3)	1.70 (43.2)	0.85 (21.6)	2.46 (62.5)	5.98 (151.9)	7.10 (180.3)	7.83 (198.9)	11.19 (284.2)	13.44 (341.4)
ISO 2	1.55 (39.4)	1.77 (45.0)	0.92 (23.4)	2.02 (51.3)	1.01 (25.9)	2.46 (62.5)	6.33 (160.8)	7.46 (189.5)	8.81 (223.8)	12.19 (309.6)	14.44 (366.8)
ISO 3	1.55 (39.4)	2.65 (67.3)	1.32 (33.5)	2.52 (64.0)	1.26 (32.0)	3.36 (85.3)	9.11 (231.4)	7.71 (195.8)	11.77 (299.0)	17.45 (443.2)	14.63 (371.6)



**Dimensions: Inches (mm)**

**Individual Base Assembly  
Individual Base Assembly Part Number**

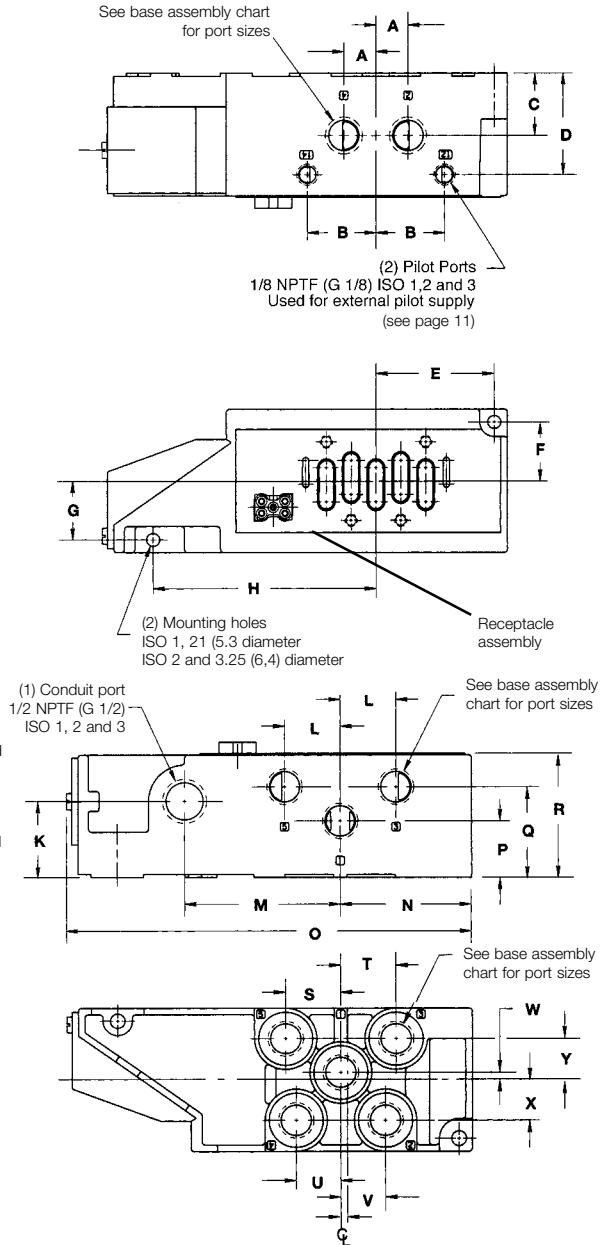
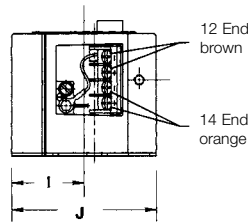
Series	Port Size	Side Ports Only	Side and Bottom Ports
ISO 1	1/4 NPTF	203-818	203-822
	3/8 NPTF	203-817	203-821
	G 1/4	203-819	203-823
ISO 2	3/8 NPTF	203-829	203-833
	1/2 NPTF	203-830	203-834
	G 3/8	203-831	203-835
ISO 3	G 1/2	203-832	203-836
	1/2 NPTF	203-837	203-841
	3/4 NPTF	203-838	203-842
	G 3/4	203-840	203-844

**Receptacle Assembly Part Numbers**

	Standard	With Z-Board
ISO 1	230-680	230-1066
ISO 2	230-707	230-1062
ISO 3	230-707	230-1062



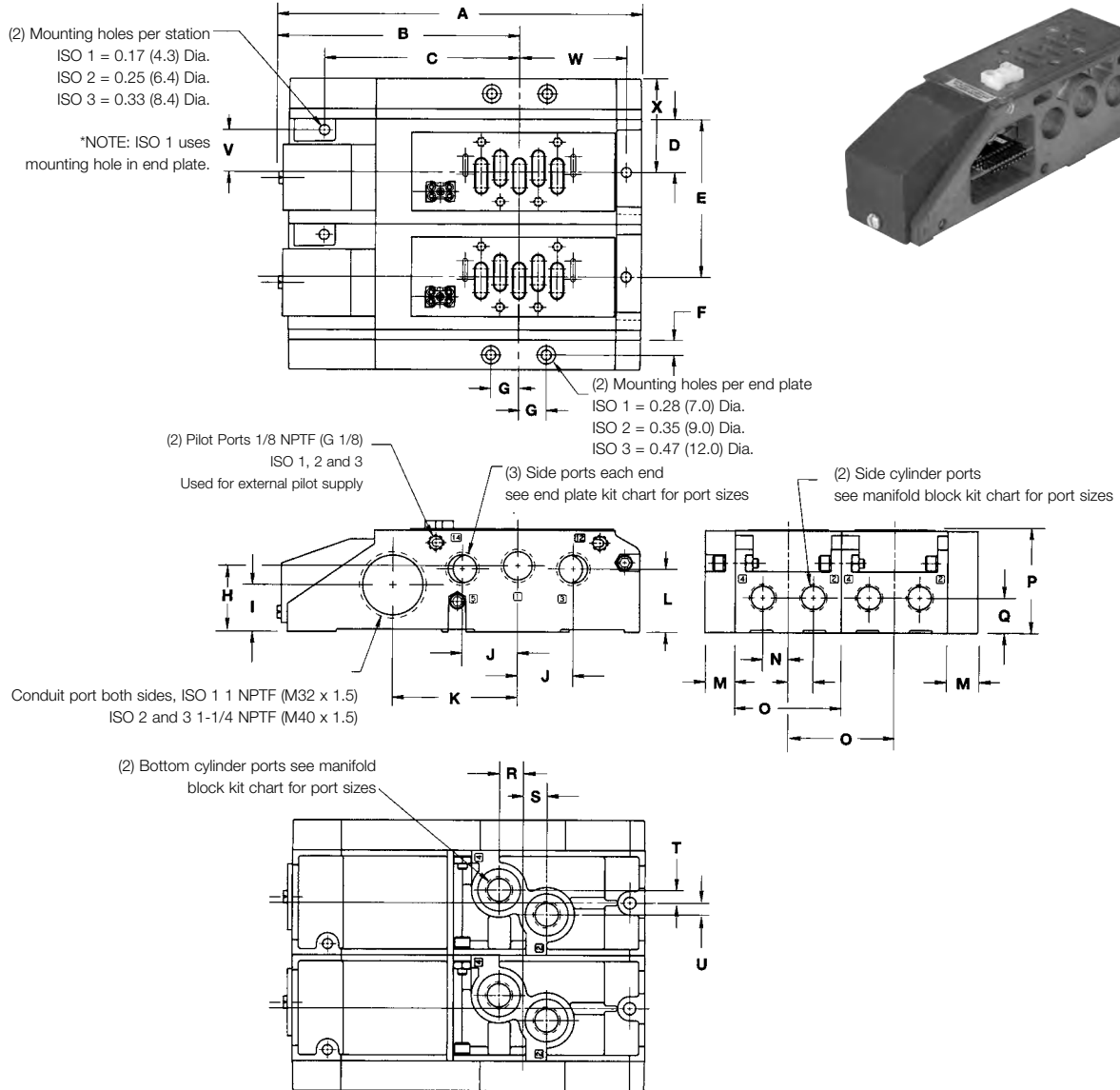
View shown with conduit cover removed



	A	B	C	D	E	F	G	H	I	J	K	L	M
ISO 1	0.50 (12.7)	1.02 (25.9)	0.82 (20.8)	1.49 (37.8)	1.55 (39.4)	0.89 (22.6)	0.90 (22.9)	3.63 (92.2)	1.14 (29.0)	2.27 (57.7)	0.94 (23.9)	0.86 (21.8)	2.37 (60.2)
ISO 2	0.61 (15.5)	1.31 (33.3)	1.19 (30.2)	1.94 (49.3)	2.25 (57.2)	1.13 (28.7)	1.13 (28.7)	4.25 (108.0)	1.38 (35.1)	2.75 (69.9)	1.47 (37.2)	1.06 (26.9)	2.97 (75.4)
ISO 3	0.81 (20.6)	1.77 (45.0)	1.33 (33.9)	2.73 (69.3)	2.48 (63.0)	1.52 (38.6)	1.43 (36.3)	5.38 (136.7)	1.77 (45.0)	3.54 (89.9)	1.84 (46.7)	1.49 (37.8)	4.09 (103.9)
	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
ISO 1	1.81 (45.9)	6.47 (164.3)	0.82 (20.8)	1.33 (33.8)	1.85 (47.0)	0.84 (21.3)	1.07 (27.2)	0.50 (12.7)	0.59 (15.0)	0.33 (8.4)	0.65 (16.5)	0.63 (16.0)	0.12 (3.0)
ISO 2	2.50 (63.5)	7.76 (197.1)	1.09 (27.7)	1.74 (44.2)	2.38 (60.5)	1.05 (26.7)	1.05 (26.7)	0.85 (21.6)	0.85 (21.6)	0.13 (3.3)	0.78 (19.8)	0.78 (19.8)	N/A
ISO 3	2.73 (69.3)	9.26 (235.2)	1.33 (33.8)	2.02 (51.3)	3.34 (84.8)	1.63 (41.4)	1.63 (41.4)	1.07 (27.2)	1.07 (27.2)	0.81 (20.6)	0.81 (20.6)	0.81 (20.6)	N/A

**Dimensions: Inches (mm)**

**Manifold Block Assembly**

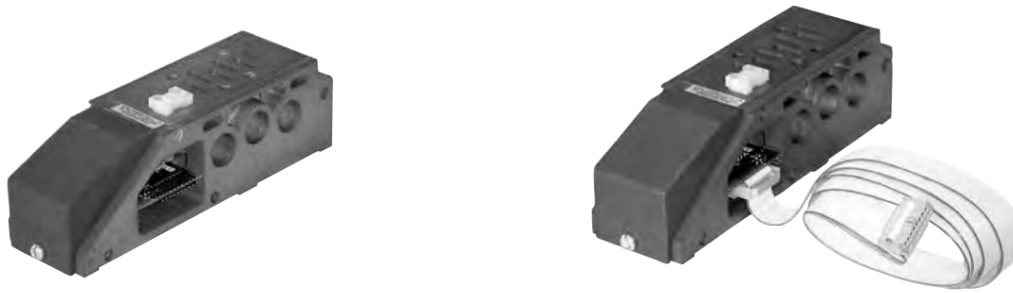


	A	B	C	D	E	F	G	H	I	J	K	L
ISO 1	7.19 (182.6)	N/A N/A	N/A N/A	1.04 (26.4)	3.11 (79.0)	0.55 (14.0)	0.55 (14.0)	1.32 (33.5)	0.97 (24.6)	1.10 (27.9)	2.50 (63.5)	1.20 (30.5)
ISO 2	9.00 (228.6)	5.97 (151.6)	4.84 (122.9)	1.31 (33.3)	3.94 (100.1)	0.63 (16.0)	0.69 (17.5)	1.65 (41.9)	1.16 (29.5)	1.38 (35.1)	3.10 (78.7)	1.57 (39.9)
ISO 3	10.61 (269.5)	7.10 (180.3)	5.94 (150.9)	1.68 (42.7)	5.05 (128.3)	0.59 (15.0)	1.02 (25.9)	1.79 (45.5)	1.22 (31.0)	2.05 (52.1)	4.10 (104.1)	1.67 (42.4)

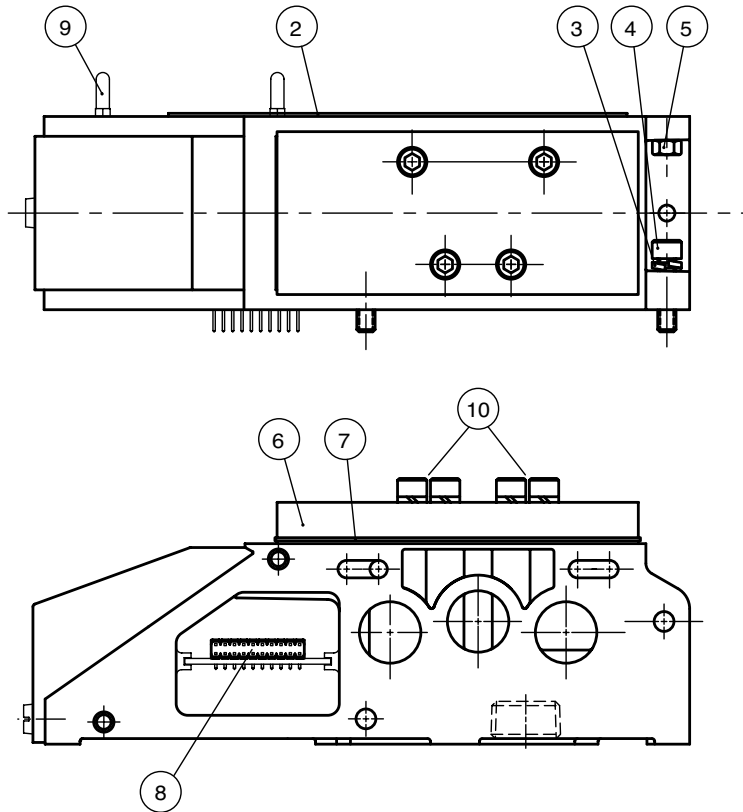
	M	N	O	P	Q	R	S	T	U	V	W	X
ISO 1	0.87 (22.1)	0.51 (13.0)	2.08 (52.8)	2.18 (55.4)	0.63 (16.0)	0.51 (13.0)	0.51 (13.0)	0.26 (6.6)	0.26 (6.6)	N/A N/A	2.02 (51.3)	1.90 (48.3)
ISO 2	1.00 (25.4)	0.63 (16.0)	2.63 (66.8)	2.58 (65.5)	0.86 (21.8)	0.59 (15.0)	0.59 (15.0)	0.32 (8.1)	0.30 (7.6)	1.04 (26.4)	2.65 (67.3)	2.31 (58.7)
ISO 3	1.18 (30.0)	0.83 (21.1)	3.37 (85.6)	3.06 (77.7)	0.77 (19.6)	0.70 (17.8)	0.80 (20.3)	0.49 (12.4)	0.47 (11.9)	1.25 (31.8)	3.11 (79.0)	2.86 (72.6)

**Manifold Assembly Kits**



Series	Port Size	Kit Number with Single Z-Board	Kit Number with Double Z-Board	Kit Number with Single ZR-Board and Ribbon Cable	Kit Number with Double ZR-Board and Ribbon Cable	Port Size without Z-Board	Kit Number without Z-Board
ISO 1	1/4 NPTF	239-2128	239-1931	239-2132	239-1935	1/4 NPTF	239-638
	3/8 NPTF	239-2129	239-1930	239-2133	239-1934	3/8 NPTF	239-637
	G 1/4	239-2130	239-1933	239-2134	239-1937	G 1/4	239-640
	G 3/8	239-2131	239-1932	239-2135	239-1936	G 3/8	239-639
ISO 2	3/8 NPTF	239-2136	239-1893	239-2140	239-1897	3/8 NPTF	239-647
	1/2 NPTF	239-2137	239-1894	239-2141	239-1898	1/2 NPTF	239-648
	G 3/8	239-2138	239-1895	239-2142	239-1899	G 3/8	239-649
	G 1/2	239-2139	239-1896	239-2143	239-1900	G 1/2	239-650
ISO 3	1/2 NPTF	239-2144	239-1901	239-2148	239-1905	1/2 NPTF	239-654
	3/4 NPTF	239-2145	239-1902	239-2149	239-1906	3/4 NPTF	239-655
	G 1/2	239-2146	239-1903	239-2150	239-1907	G 1/2	239-656
	G 3/4	239-2147	239-1904	239-2151	239-1908	G 3/4	239-657

**Mid-Station Supply and Exhaust Block**

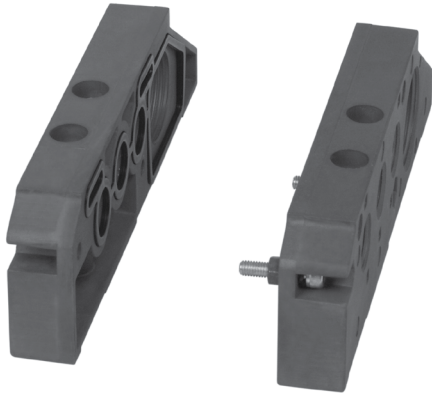


NOTE: For dimensions and port locations, see page 9.

Det. No.	No. Req'd	Part Name	ISO 1		ISO 2		ISO 3	
			Part Name with Z-Board without Z-Board	3/8 NPTF 239-1938 239-2101	G 3/8 239-1939 239-2102	1/2 NPTF 239-1940 239-2103	G 1/2 239-1941 239-2104	3/4 NPTF 239-1942 239-2105
2	1	Gasket		113-447		113-453		113-457
3	6	Lockwasher		128-170		128-171		128-187
4	2	Screw		127-409		127-427		127-443
5	2	Nut		128-234		128-235		128-236
6	1	Blank Station Plate		104-525		104-526		104-538
7	1	Gasket		113-581		113-582		113-583
8*	1	Transfer Board		256-811		256-790		256-802
9*	2	Guide Pin		131-250		131-250		131-250
10	4	Screw		127-409		127-529		127-441

\*Not required for mid-station supply and exhaust blocks without "Z-Board."™

**End Plate Kits for Manifolds without “Z-Board”™**



**End Plate Kits  
for Non-“Z-Board”™ Manifolds\***

Series	Port Size	Kit Number	Common Exhaust
ISO 1	3/8 NPTF	239-635	N/A
	G 3/8	239-636	N/A
ISO 2	1/2 NPTF	239-642	239-874
	G 1/2	239-643	N/A
ISO 3	1 NPTF	239-658	239-875
	G 1	239-659	N/A

\* For use with Electrical/Connection Type 0 (No Electronics)

**Accessories for End Plates without “Z-Board”™**

Part Name	Kit Number
Screw fitting M32 x 1.5	140-295
Screw fitting M40 x 1.5	140-296
Plug M32 x 1.5	140-297
Plug M40 x 1.4	140-298

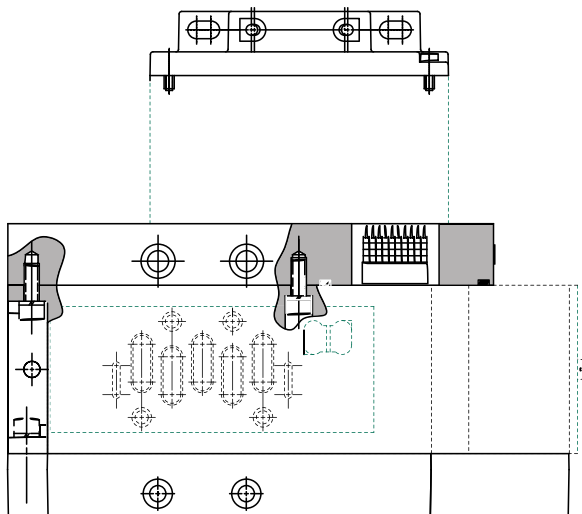


Screw fitting



Plug

**End Plate Kit for Manifolds with “Z-Board”™**



**End Plate Kits for “Z-Board”™ Manifolds**

Series	Port Size	Kit Number With Mounting Cover**	Kit Number Without Mounting Cover*
ISO 1	3/8 NPTF	239-1947	239-1945
	G 3/8	239-1948	239-1946
ISO 2	1/2 NPTF	239-1951	239-1949
	G 1/2	239-1952	239-1950
ISO 3	1 NPTF	239-1955	239-1953
	G 1	239-1956	239-1954

\* For use with all Electrical/Connection Types other than Type 0 (No Electronics)

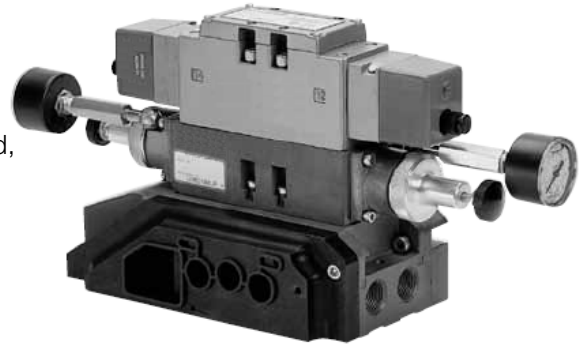
\*\* For use with Electrical/Connection Types Sub-D, Terminal Strip, and Round Connector only



**Sandwich Pressure Regulators**

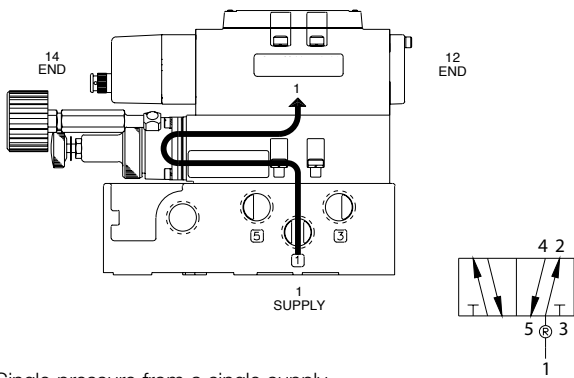
**Types: RS / RD / RC / RQ**

When ordering a valve plus regulator mounted on a base or manifold, list the valve unit-only model number and include the mounting requirements only within the regulator. Specify "Assembled."



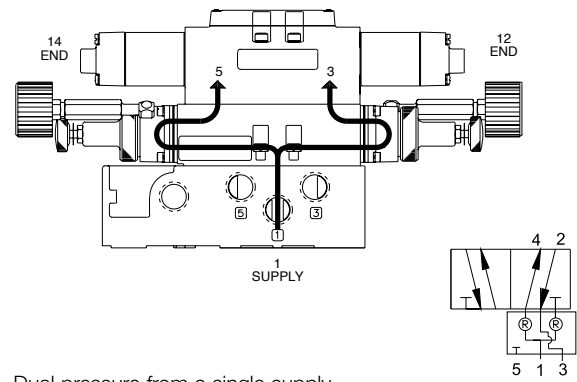
<b>Example orders:</b>	<b>TYPE RS</b>	<b>TYPE RD</b>
Valve unit only:	I23BA400KP00030	I23BB400KP14C30
Regulator	I23RS13AJP00000	I23RD115JP00000
+mounting	ASSEMBLED	ASSEMBLED

**Type RS**



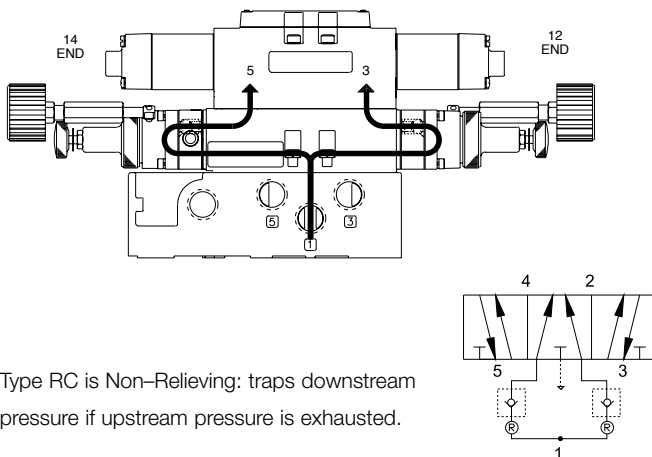
Single pressure from a single supply.

**Type RD**



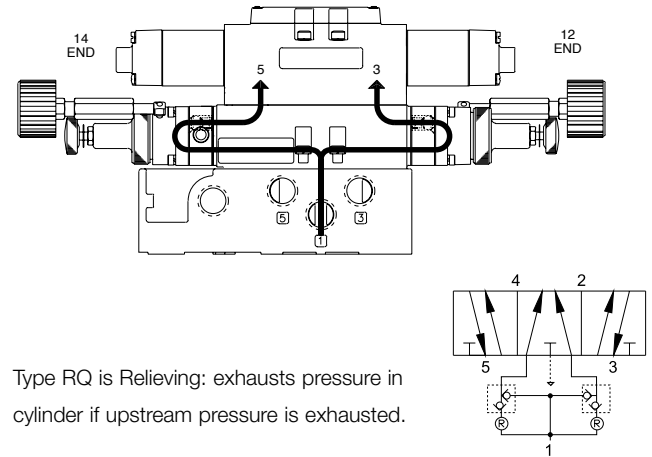
Dual pressure from a single supply.

**Type RC**



Type RC is Non-Relieving: traps downstream pressure if upstream pressure is exhausted.

**Type RQ**

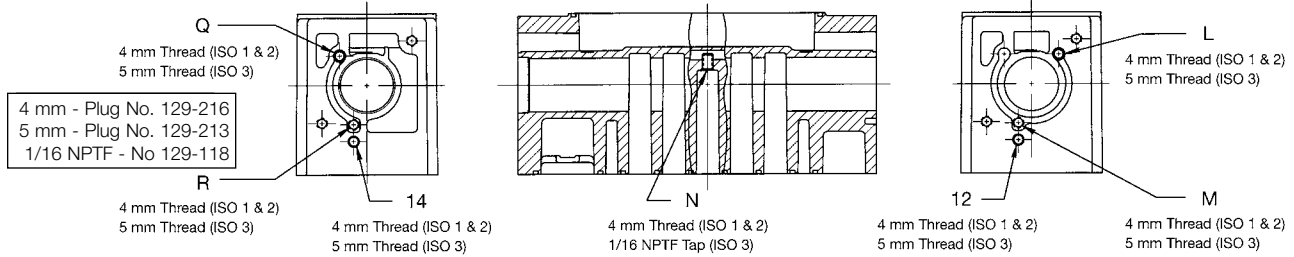


Type RQ is Relieving: exhausts pressure in cylinder if upstream pressure is exhausted.

**Pilot Plugging Arrangements and Service Kits**

The Aventics valve bodies used for the 511, 512, 513 Series have a number of tapped pilot passages. Simply by opening or plugging certain passages, a number of different pilot supply options are available. A cross

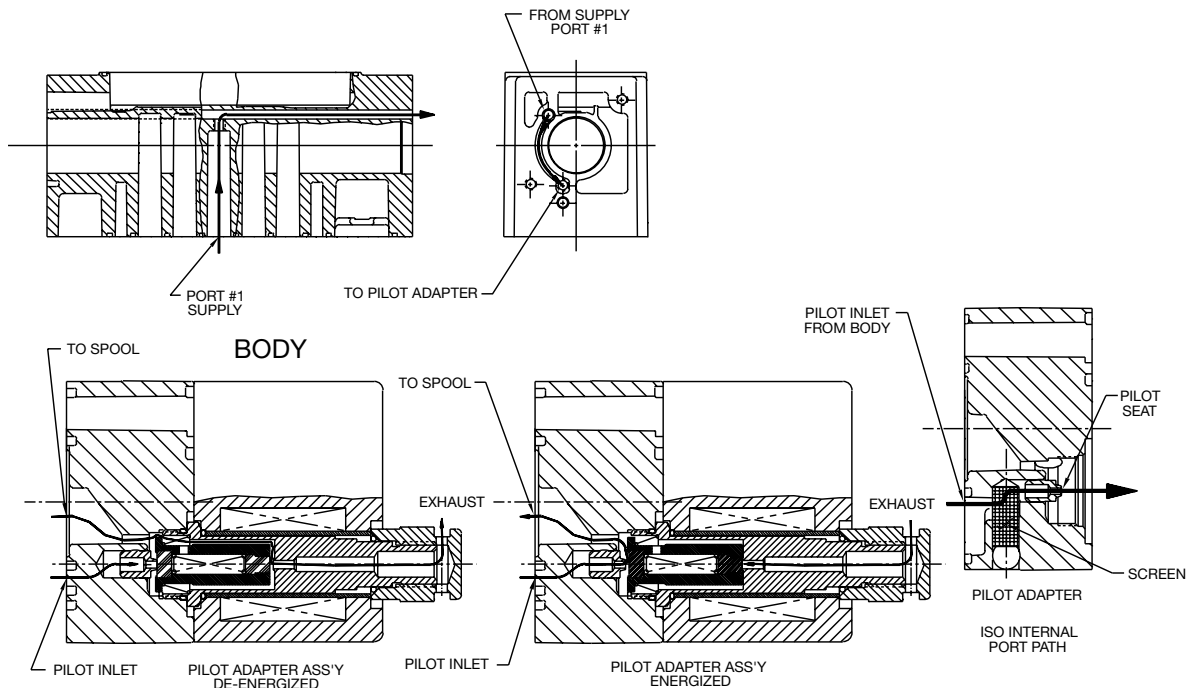
section of the valve bodies and both end views are shown below. These views show the location of all passages. The letters do not appear on the casting. They are used only to identify the ports and the locations.



Pilot Port	Standard Internal Supply From Port 1		External Supply From Port 12		14X External Supply From Port 14		14C Internal Supply From Port 3		14D Internal Supply From Port 5	
	Single Pilot	Double Pilot	Single Pilot	Double Pilot	Single Pilot	Double Pilot	Single Pilot	Double Pilot	Single Pilot	Double Pilot
L	Plug	Open	N/A	Open	Plug	Open	N/A	Open	Open	Open
M	Plug	Plug	N/A	Plug	Plug	Plug	N/A	Open	Plug	Plug
N	Open	Open	N/A	Plug	Plug	Plug	N/A	Plug	Plug	Plug
Q	Open	Open	N/A	Open	Plug	Open	N/A	Open	Plug	Open
R	Plug	Plug	N/A	Plug	Plug	Plug	N/A	Plug	Open	Open
12	Plug	Plug	N/A	Open	Plug	Plug	N/A	Plug	Plug	Plug
14	Plug	Plug	N/A	Plug	Open	Open	N/A	Plug	Plug	Plug

NOTE: Standard for all ISO 5599-2 valve series is internal supply from port #1.

**Flow Paths for Solenoid Air Pilot Actuation**



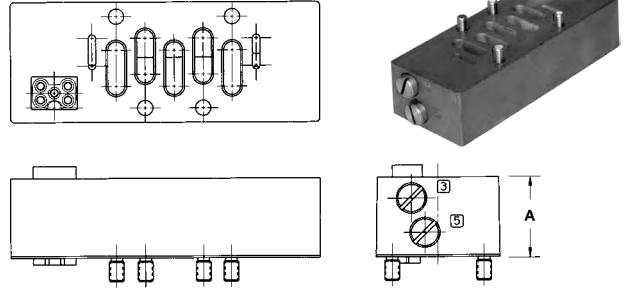
**Speed Controls Kits**

The ISO speed control kit mounts between the valve unit and any base, manifold, or RS regulator. The 3 and 5 ports of the unit contain needle valves which can be adjusted to throttle the flow of exhaust air out of the valve

unit. Thus, the speeds of the two strokes of a cylinder piston can be adjusted independently on the same end of the speed control unit.

**Speed Control Kit Numbers**

Series	Part Numbers	Dimensions "A"
ISO 1	239-634	0.93" (23.6 mm)
ISO 2	239-645	1.30" (33.0 mm)
ISO 3	239-661	1.63" (41.4 mm)



**Transition Plate Kits**

	ISO 1 to ISO 2	ISO 2 to ISO 1	ISO 2 to ISO 3	ISO 3 to ISO 2
Hardwired	239-662	239-663	239-664	239-665
With Z-Board	239-1957	N/A	239-1960	N/A

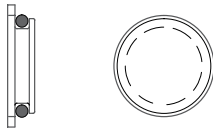
**Gallery Blocking Disc Kits**

May be used to block any gallery in a manifold system



**Disc Kit Numbers**

Series	1-5 Gallery	Pilot Supply Gallery
ISO 1	239-251	239-651
ISO 2	239-252	239-652
ISO 3	239-253	239-653



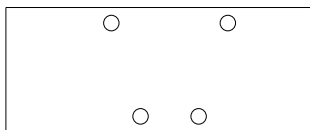
**Regulator Gauges**

Pressure Range	Part No.
0-160 PSIG	214-103
0-60 PSIG	214-116
0-100 PSIG	214-117
0-300 PSIG	214-118

NOTE: Core tube not available separately.



**Blank Station Plate Kit**



Note: Includes screws and gasket

**Plate Kit Numbers**

Series	Part Number
ISO 1	239-641
ISO 2	239-644
ISO 3	239-660





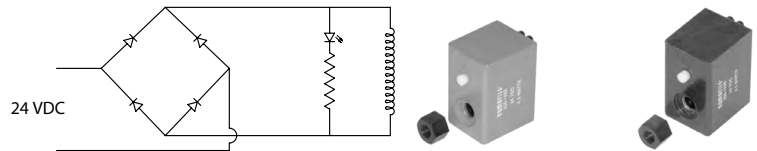
**Direct Solenoid Assemblies**

Voltages	Solenoid Capsule Ass'y ISO 1 & 2		Solenoid Only ISO 1 & 2	Solenoid Capsule Assembly ISO 3			Solenoid ISO 3	
	2-Position	3-Posiiton		Single	Double 2-Position	Double 3-Position	Single	Double
100-115/50 110-120/60	237-790	237-793	228-842	237-814	237-817	237-820	228-714	228-717
200-230/50 220-240/60	237-791	237-794	228-843	237-813	237-816	237-819	228-713	228-716
24/50-60	237-789	237-792	228-841	237-815	237-818	237-821	228-715	228-718
12 VDC	236-138	236-142	225-439	N/A	N/A	N/A	N/A	N/A
24 VDC	236-139	236-143	225-440	N/A	N/A	N/A	N/A	N/A

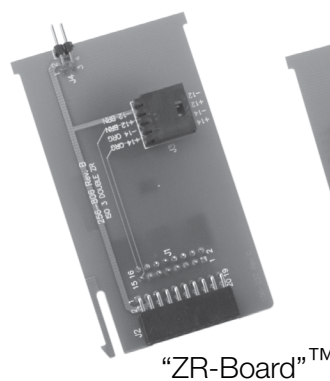
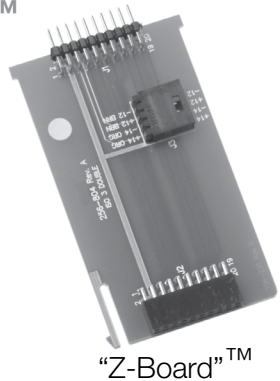
**Solenoid Pilot Assemblies**

Voltages	Part No.
110-120/60: 100-115/50 (Black Coil)	237-1045
220-240/60: 200-230/50 (Black Coil)	237-1046
24/50-60 (Black Coil)	237-1044
24 VDC (4.0 Watt) (Blue Coil)	236-384

Includes Solenoid, Core Tube & Nut (128-317)  
NOTE: Core tube not available separately.



**"Z-Boards"™**



Size	Single "Z-Board"™ for Single sol valve	Double "Z-Board"™ for Double sol valve	Single "ZR-Board"™ for Single sol valve	Double "ZR-Board"™ for Double sol valve	Replacement Ribbon Cable
ISO 1	256-861	256-812	256-862	256-813	230-1065
ISO 2	256-791	256-792	256-800	256-801	230-1063
ISO 3	256-803	256-804	256-805	256-806	230-1064

**"ZR-Board"™ Ribbon Cable Board**

Ribbon cable option used for manifold assemblies that exceed 16 solenoid outputs.  
Manifold Assembly Kits with ZR-Board and Ribbon Cable come with "ZR-Board"™ and Ribbon Cable.



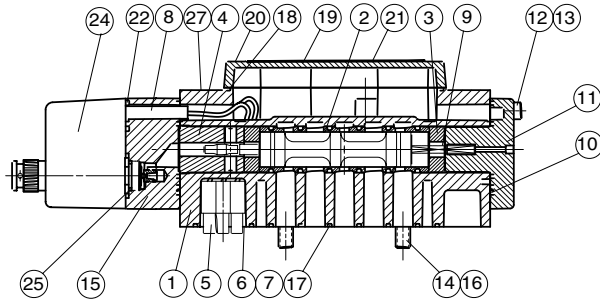
Ribbon cable option used for manifold assemblies that exceed 16 solenoid outputs.

In order to allow the full capacity of 32 solenoids, the assembly must be configured so that an even number of solenoids is utilized prior to the station using the ribbon cable feature.

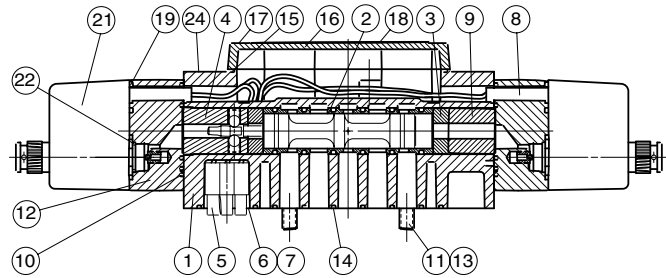
Note: The 16th and 17th solenoid cannot be on the same valve!

**Valve Service Kits and Parts - Solenoid Pilot**

Kit No. ISO 1 I1BP-K1  
ISO 2 I2BP-K1  
ISO 3 I3BP-K1



Kit No. ISO 1 I1BP-K2  
ISO 2 I2BP-K2  
ISO 3 I3BP-K2



**BA4 Parts List**

Det No.	No. Req'd	ISO 1	ISO 2	ISO 3	Part Name
1	1	101-624	101-623	101-626	Valve Body
2	1	209-314	209-571	209-572	Sleeve Ass'y w/ Seals
3*	2	114-146	114-170	114-110	Bumper
4*	1	110-132	110-133	110-134	Detent Body
5	1	230-700	230-700	230-708	Plug Assembly
6	1	127-342	127-342	127-342	Screw
7	1	127-180	127-180	127-180	Screw
8	1	125-309	125-309	125-309	Receptacle Housing
9*	1	115-254	115-248	115-251	Spring
10*	2	113-495	113-495	113-461	Gasket
11	1	204-523	204-598	204-524	Spring Cover Assembly
12	2	127-350	127-350	127-360	Screw
13	2	128-188	128-188	128-188	Lockwasher
14	4	127-620	127-430	127-447	Screw
15	1	219-278	219-278	219-417	Pilot Adaptor Assembly
16	4	128-170	128-171	128-170	Lockwasher
17*	1	113-450	113-455	113-459	Gasket
18*	1	113-449	113-454	113-458	Gasket
19	1	105-334	105-336	105-337	Conduit Cover
20	4	127-683	127-683	127-704	Screw
21	1	122-989	122-989	122-990	Nameplate
22*	1	126-204	126-204	126-204	O-Ring Seal
23	2	127-672	127-672	127-412	Screw with Lockwasher
24	1	See pg. 16			Solenoid Capsule Assembly
25	1	126-133	126-133	126-133	O-Ring Seal
26	4	127-691	127-691	128-187	Screw / Lockwasher
27	1	122-1064	122-1064	N/A	Label
28	4	N/A	N/A	129-213	Plug

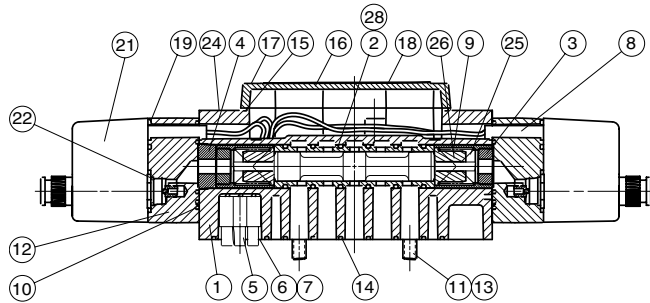
**BB4 Parts List**

Det No.	No. Req'd	ISO 1	ISO 2	ISO 3	Part Name
1	1	101-624	101-623	101-626	Valve Body
2	1	209-314	209-571	209-572	Sleeve Ass'y w/ Seals
3*	2	114-146	114-170	114-110	Bumper
4*	1	210-134	210-135	210-136	Detent Body
5	2	230-699	230-699	230-765	Plug Assembly
6	1	127-342	127-342	127-342	Screw
7	1	127-180	127-180	127-180	Screw
8	1	125-309	125-309	125-309	Receptacle Housing
9*	1	116-285	116-444	116-449	Spacer
10*	2	113-495	113-495	113-461	Gasket
11	4	127-620	127-430	127-447	Screw
12	2	219-278	219-278	219-279	Pilot Adaptor Assembly
13	4	128-170	128-171	128-170	Lockwasher
14*	1	113-450	113-455	113-459	Gasket
15*	1	113-449	113-454	113-458	Gasket
16	1	105-334	105-336	105-337	Conduit Cover
17	4	127-683	127-683	127-704	Screw
18	1	122-989	122-989	122-990	Nameplate
19*	1	126-204	126-204	126-204	O-Ring Seal
20	2	127-672	127-672	127-412	Screw with Lockwasher
21	1	See pg. 16			Solenoid Capsule Assembly
22	1	126-133	126-133	126-133	O-Ring Seal
23	4	127-691	127-691	128-187	Screw / Lockwasher
24	1	122-1064	122-1064	N/A	Label
25	4	N/A	N/A	129-213	Plug

\* Indicates parts included in service kit

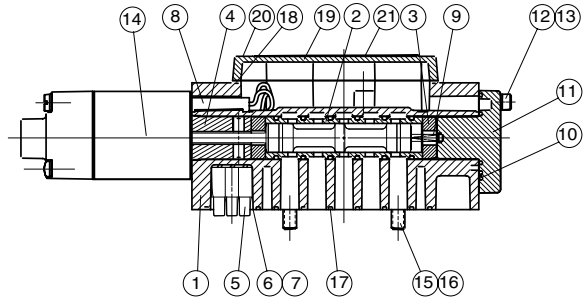
**Valve Service Kits and Parts -  
Solenoid Pilot continued**

Kit No. ISO 1 I1BP-K3  
ISO 2 I2BP-K3  
ISO 3 I3BP-K3



**Valve Service Kits and Parts -  
Direct Solenoid**

Kit No. ISO 1 I1SP-K1  
ISO 2 I2SP-K1  
ISO 3 I3SP-K1



**BB5 and BB6 Parts List**

Det No.	No. Req'd	ISO 1	ISO 2	ISO 3	Part Name
1	1	101-624	101-623	101-626	Valve Body
2	1	209-347	209-481	209-340	Sleeve Ass'y w/ Seals (BB5)
3*	2	114-100	114-146	114-108	Bumper
4*	1	116-344	116-443	114-448	Spacer
5	2	230-699	230-700	230-765	Plug Assembly
6	1	127-342	127-342	127-342	Screw
7	1	127-180	127-180	127-180	Screw
8	1	125-309	125-309	125-309	Receptacle Housing
9*	1	116-446	116-442	116-343	Spacer
10*	2	113-495	113-495	113-461	Gasket
11	4	127-620	127-430	127-447	Screw
12	2	219-278	219-278	219-280	Pilot Adaptor Assembly
13	4	128-170	128-171	128-170	Lockwasher
14*	1	113-450	113-455	113-459	Gasket
15*	1	113-449	113-454	113-458	Gasket
16	1	105-334	105-336	105-337	Conduit Cover
17	4	127-683	127-683	127-704	Screw
18	1	122-989	122-989	122-990	Nameplate
19*	2	126-204	126-204	126-204	O-Ring Seal
20	4	127-672	127-672	127-412	Screw w/Lockwasher
21	2	See pg. 16			Solenoid Capsule Assembly
22	2	126-133	126-133	126-133	O-Ring Seal
23	4	127-691	127-691	128-187	Screw / Lockwasher
24	1	122-1064	122-1064	N/A	Label
25*	2	115-225	115-337	115-242	Spring
26*	2	116-316	116-441	116-333	Spring Retainer
27	4	N/A	N/A	129-213	Plug
28	1	209-348	209-482	209-341	Sleeve Ass'y w/Seals (BB6)

**SA4 Parts List**

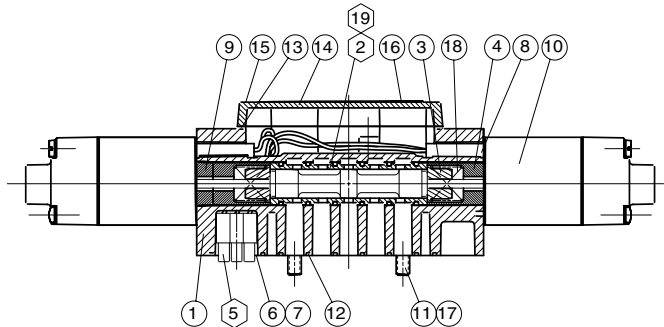
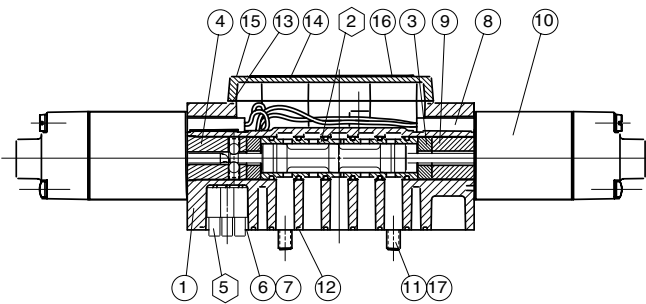
Det No.	No. Req'd	ISO 1	ISO 2	ISO 3	Part Name
1	1	101-618	101-621	101-625	Valve Body
2	1	209-467	209-476	209-478	Sleeve Ass'y w/ Seals
3*	2	114-146	114-170	114-110	Bumper
4*	1	110-132	110-133	110-132	Detent Body
5	2	230-700	230-700	230-708	Plug Assembly
6	1	127-342	127-342	127-342	Screw
7	1	127-180	127-180	127-180	Screw
8	1	125-309	125-309	125-309	Receptacle Housing
9*	1	115-214	115-214	115-165	Spring
10*	2	113-495	113-495	113-461	Gasket
11	4	104-512	104-535	104-534	Spring Cover
12	2	127-350	127-350	127-360	Screw
13	4	128-188	128-188	128-188	Lockwasher
14	1	127-620	127-430	127-447	Screw
15	1	See p.16			Sol. Capsule Assembly
16	1	128-170	128-171	128-170	Lockwasher
17*	4	113-450	113-455	113-459	Gasket
18*	1	113-449	113-454	113-458	Gasket
19	1	105-334	105-336	105-337	Conduit Cover
20	2	127-683	127-683	127-704	Screw
21	1	122-989	122-989	122-990	Nameplate

\* Indicates parts included in service kit

**Valve Service Kits and Parts - Direct Solenoid continued**

Kit No. ISO 1 I1SP-K2  
ISO 2 I2SP-K2  
ISO 3 I3SP-K2

Kit No. ISO 1 I1SP-K3  
ISO 2 I2SP-K3  
ISO 3 I3SP-K3



**SS4 Parts List**

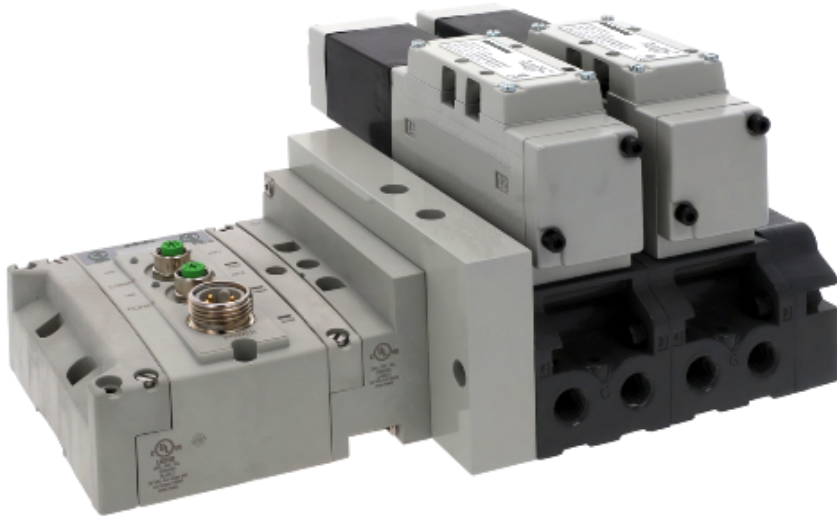
Det No.	No. Req'd	ISO 1	ISO 2	ISO 3	Part Name
1	1	101-618	101-621	101-625	Valve Body
2	1	209-470	209-477	209-479	Sleeve Ass'y w/ Seals
3*	2	114-146	114-170	114-110	Bumper
4*	1	110-134	210-135	210-136	Detent Assembly
5	1	230-679	230-699	230-699	Plug Assembly
6	1	127-342	127-342	127-342	Screw
7	1	127-180	127-180	127-180	Screw
8	2	125-309	125-309	125-309	Receptacle Housing
9*	1	116-285	116-444	116-317	Spacer
10	2	See pg. 16			Sol. Capsule Assembly
11	4	128-170	128-171	128-187	Lockwasher
12*	1	113-450	113-455	113-459	Gasket
13*	1	113-449	113-454	113-458	Gasket
14	1	105-334	105-336	105-337	Conduit Cover
15	4	127-683	127-683	127-704	Screw
16	1	122-989	122-989	122-990	Nameplate
17	4	127-620	127-430	127-447	Screw

**SS5 and SS6 Parts List**

Det No.	No. Req'd	ISO 1	ISO 2	ISO 3	Part Name
1	1	101-618	101-621	101-625	Valve Body
2	1	209-471	209-483	209-489	Sleeve Ass'y w/ Seals (SS5)
3*	2	116-287	116-391	116-401	Spring Retainer
4*	2	116-345	116-443	116-342	Spacer
5	1	230-679	230-699	230-699	Plug Assembly
6	1	127-342	127-342	127-342	Screw
7	1	127-180	127-180	127-180	Screw
8	1	125-309	125-309	125-309	Receptacle Housing
9*	1	116-446	116-445	116-448	Spacer
10*	2	See pg. 16			Sol. Capsule Assembly
11	4	128-170	128-171	128-187	Lockwasher
12	1	113-450	113-455	113-459	Gasket
13	1	113-449	113-454	113-458	Gasket
14	1	105-334	105-336	105-337	Conduit Cover
15	4	127-683	127-683	127-704	Screw
16	1	122-989	122-989	122-990	Nameplate
17*	4	127-620	127-430	127-447	Screw
18*	2	115-204	115-290	115-249	Spring
19	1	209-472	209-484	209-487	Sleeve Ass'y w/Seals (SS6)

\* Indicates parts included in service kit

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