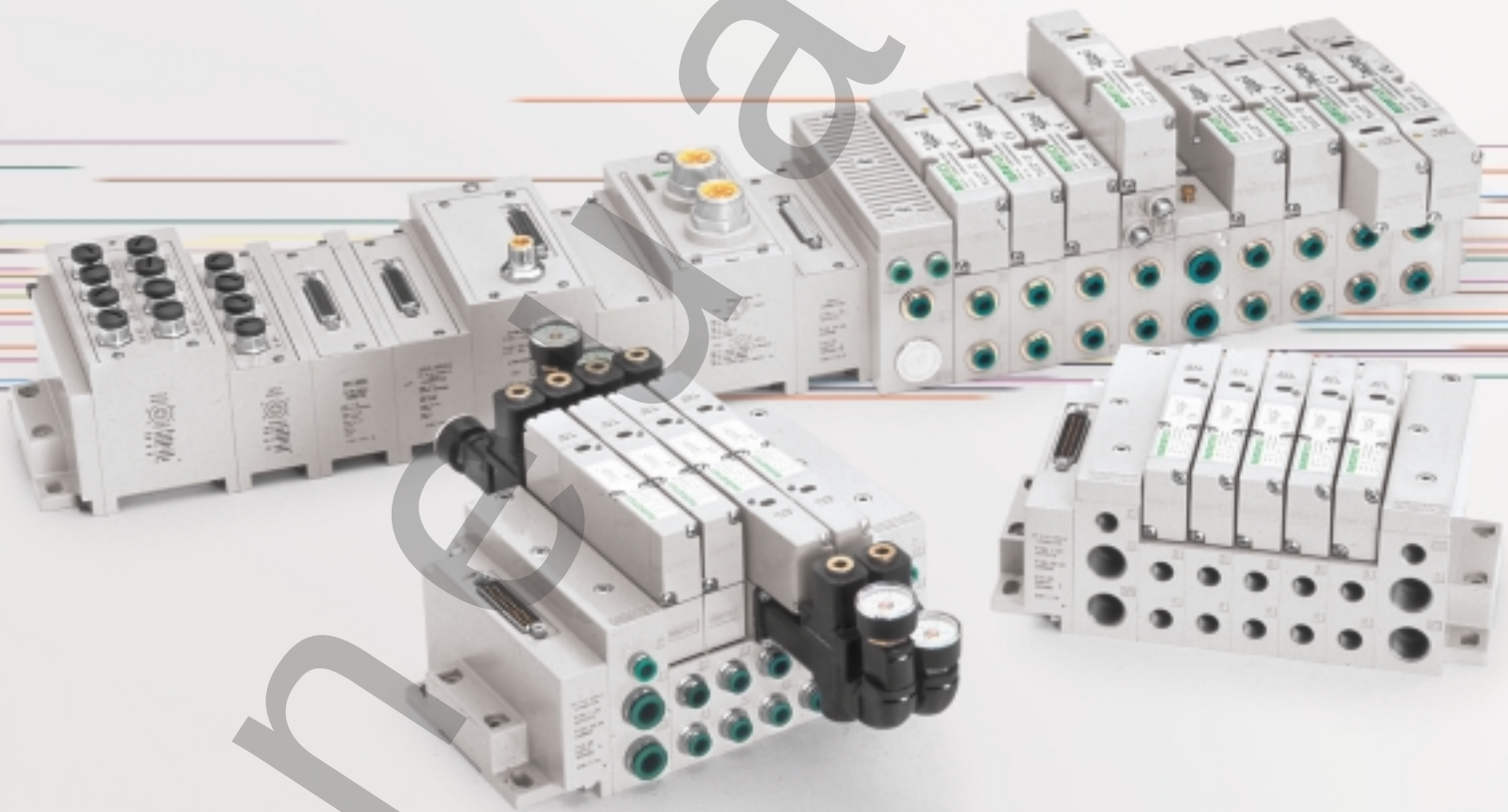




Valves



2005 and 2012 Series

Solenoid Pilot Actuated Valves

We're everywhere you need us to be!



2005 Series

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2012 Series

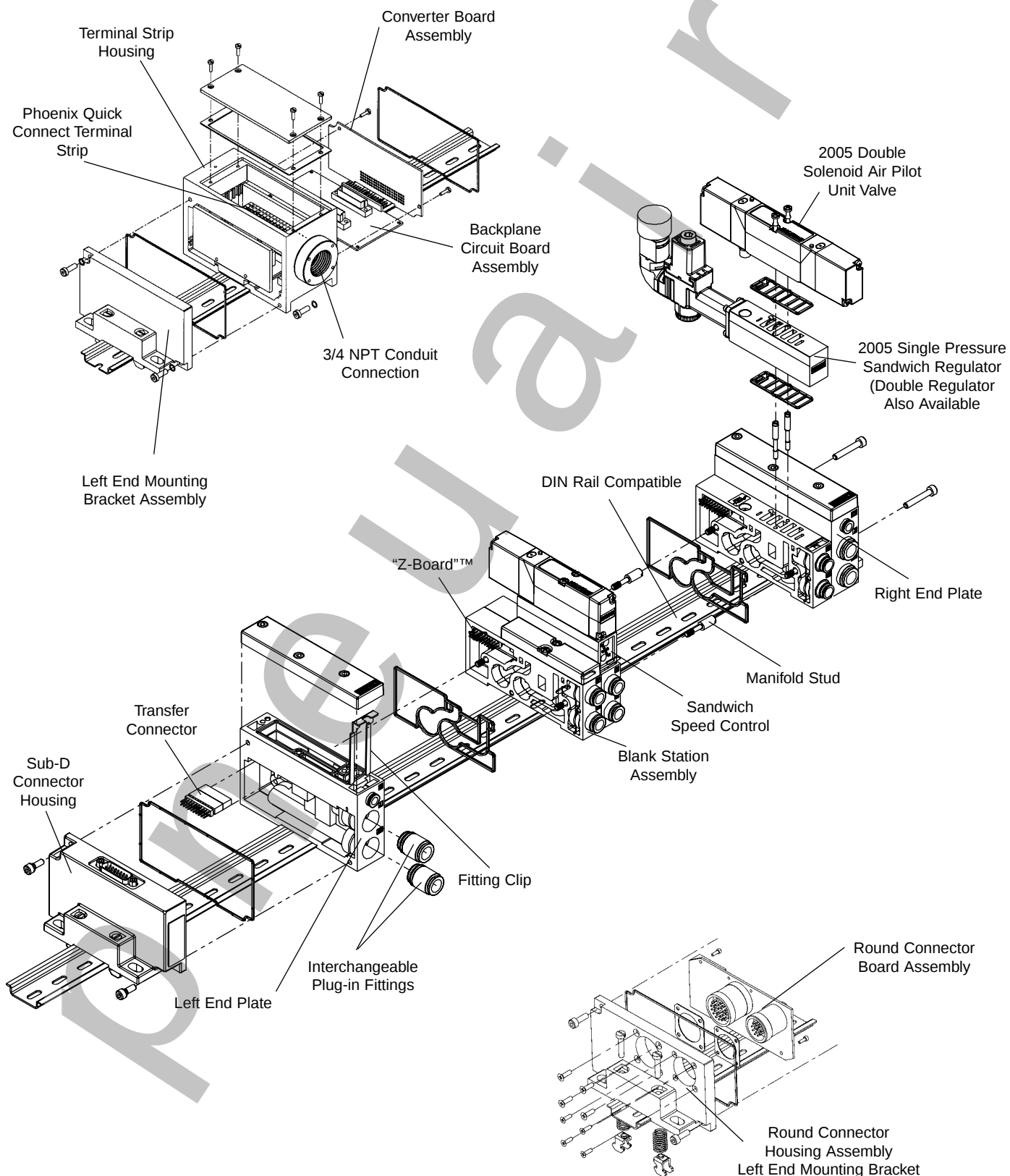
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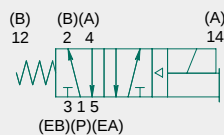
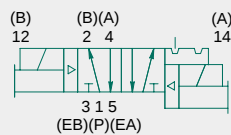
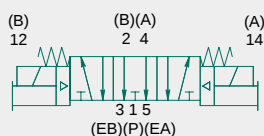
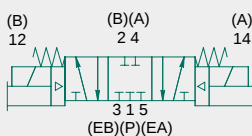


Terminal Strip, Sub-D, and 26 & 12 Round Pin Options (exploded view)





2005 Series

single solenoid air pilot
2 position 4-waydouble solenoid air pilot
2 position 4-waydouble solenoid air pilot
3 position 4-way
open centerdouble solenoid air pilot
3 position 4-way
closed center

5 Ported, 2 and 3 position, 4-way, Spool & Sleeve
Cv: 0.56

- Solenoid air pilot actuated
- Low wattage plug-in - 1.0 watt for DC application
- DC solenoids polarity insensitive with surge suppression
- Plug together circuit boards eliminate internal wiring
- Integral recessed gaskets
- Interchangeable Push-in fittings to accommodate various tube sizes
- Simple conversion from internal to external pilot supply
- Modular plug-together Fieldbus electronics
- NEMA 4/IP65



Technical Data

VALVE DATA	ENGLISH	METRIC
Cv	0.56	0.56
Flow Capacity	26 SCFM @ 80 PSIG upstream pressure to atmosphere	552 NI/m @ 6 bar upstream to 5 bar downstream
Operating Pressure Range	28" Hg. Vacuum to 150 PSIG	Vacuum to 10 bar
Pilot Pressure Range	26 to 120 PSIG	1.8 to 8.2 bar
Temperature Range (Ambient)	-10°F to +115°F	-23°C to +46°C

Operating Data

ALL SOLENOIDS ARE CONTINUOUS DUTY RATED		24 VDC	110-120 VAC / 50/60 Hz.	
Power (Watts)		1.0	3.7	
Holding Current (Amps)		0.04	0.04	
RESPONSE TIME IN SECONDS	ENERGIZE	DE-ENERGIZE	ENERGIZE	DE-ENERGIZE
2 - Position, Single, Spring Return	0.014	0.016	0.014	0.016
2 - Position, Double, Detented	0.013	N/A	0.013	N/A
3 - Position, Spring Centered	0.014	0.016	0.014	0.016



How to Order

Valves

051 BB 4 Z6 M N 000 61

Valve Series & Port Size
051* = 1/8 (Threaded only)
052 = 1/4 (Push-in only)
05F = 6mm
05H = 8mm
*Use for valve unit only (Mounting = 00)

Valve Type
BA = Single Solenoid Pilot, (Spring Return) w/flush Non-Locking Override
BB = Double Solenoid Pilot w/Flush non-locking Override
00 = Blank Station

Function
4 = 2 Position, 4-way
5 = 3 Position, 4-way Open Center
6 = 3 Position, 4-way Closed Center
P = Indicates Blank Station

Mounting
00 = Valve Unit only
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

Voltage
20 = 24/50-60 VAC
30 = 110-120/50-60 VAC
60 = 12 VDC
61 = 24 VDC

Options
11B = Flush Locking Override
11M = No Override

Port Type
L = Push-In Fitting
N = NPTF (1/8 only)
G = G Tap (1/8 only)
O = Valve Unit only

Wiring Option
K = Plug-In AC w/Light
M = Plug-In DC w/Light
0 = Blank Station Plate

NOTE:
Manifold assembly kit ordering information for:
• Electrical interface options see page 42.
• Fieldbus electronics see Electronics section.

Regulators

051 RS 1 Z1 J L 000 00

Valve Series & Port Size
051* = 1/8
052 = 1/4 (Push-in only)
05F = 6mm
05H = 8mm
*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)
RE = Dual Pressure to Ports 4 (A) & 2 (B)
RT = 2 Pressure Selector
*For metric gauge replace R with E in 4th Digit.

Pressure Range
1 = 10-130 PSIG (0.7-9 bar)
3 = 3-30 PSIG (0.2-2 bar)
4 = 5-60 PSIG (0.5-4 bar)

Mounting
00 = Regulator Unit Only
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 = Manifold Block w/Side and Bottom Ports, Transfer Board, Used w/RE Regulators RE only (no Z-board)
Z1 = Manifold Block w/Side & Bottom Ports, Single Solenoid Internal Circuit Board
Z2 = Manifold Block W/Side & Bottom Ports, Double Solenoid Internal Circuit Board
Z5 = Z1 W/Speed Control
Z6 = Z2 W/Speed Control

Options
12H = Less Gauge
16N = Jumper on 14 (A) End
16P = Jumper on 12 (B) End
16W = Top Facing Gauge
61Y = Extended Gauge
63D = 16W + 61Y Extended Top Facing Gauge

Port Type
L = Push-In
N = NPTF (1/8 only)
G = G Tap (1/8 only)

Wiring Option
J = Plug-In Receptacle Ass'y

See Note Below



NOTE: Regulator gauges must be offset on alternating stations to prevent interference (see photo)

* Odd numbered stations will use either standard (no option) or top facing ("16W" option) gauges.

* Even numbered stations will use either extended standard ("61Y" option) or extended top facing ("63D" option) gauges.

Sandwich Pressure Regulators

Types: RS / RD / RE / RT

When ordering a valve with a regulator mounted on a manifold, list the valve unit model number only and include the mounting requirements with the regulator.

Specify "Assembled."

EXAMPLE ORDERS: TYPE RS

Valve unit only: 051BA400K000030

Regulator
+mounting 052RS1Z1JN00000

ASSEMBLED

TYPE RD

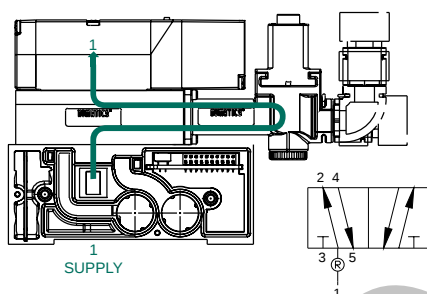
051BB400M000061

052RD1Z2JN00000

ASSEMBLED

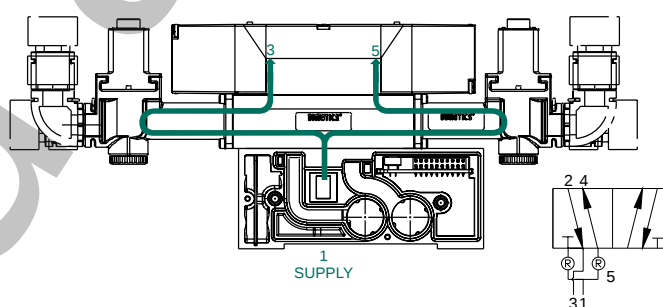


Type RS



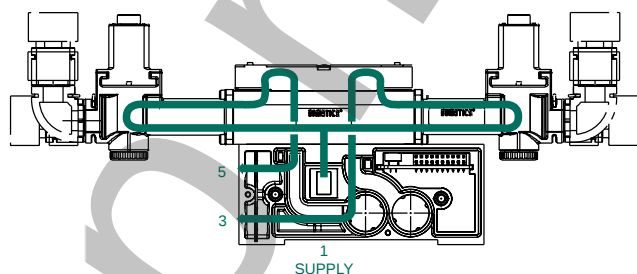
Single pressure from a single supply.

Type RD



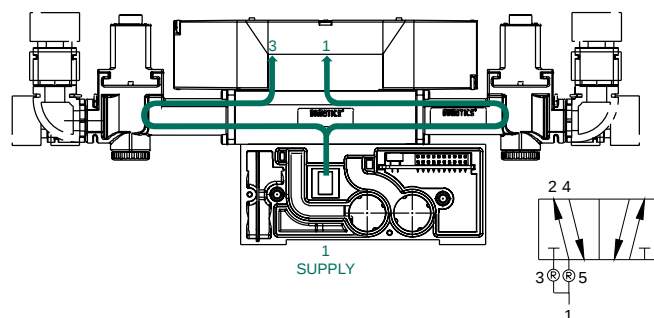
Dual pressure from a single supply.

Type RE



External outlet regulator used with jumper plate for single or dual pressure.

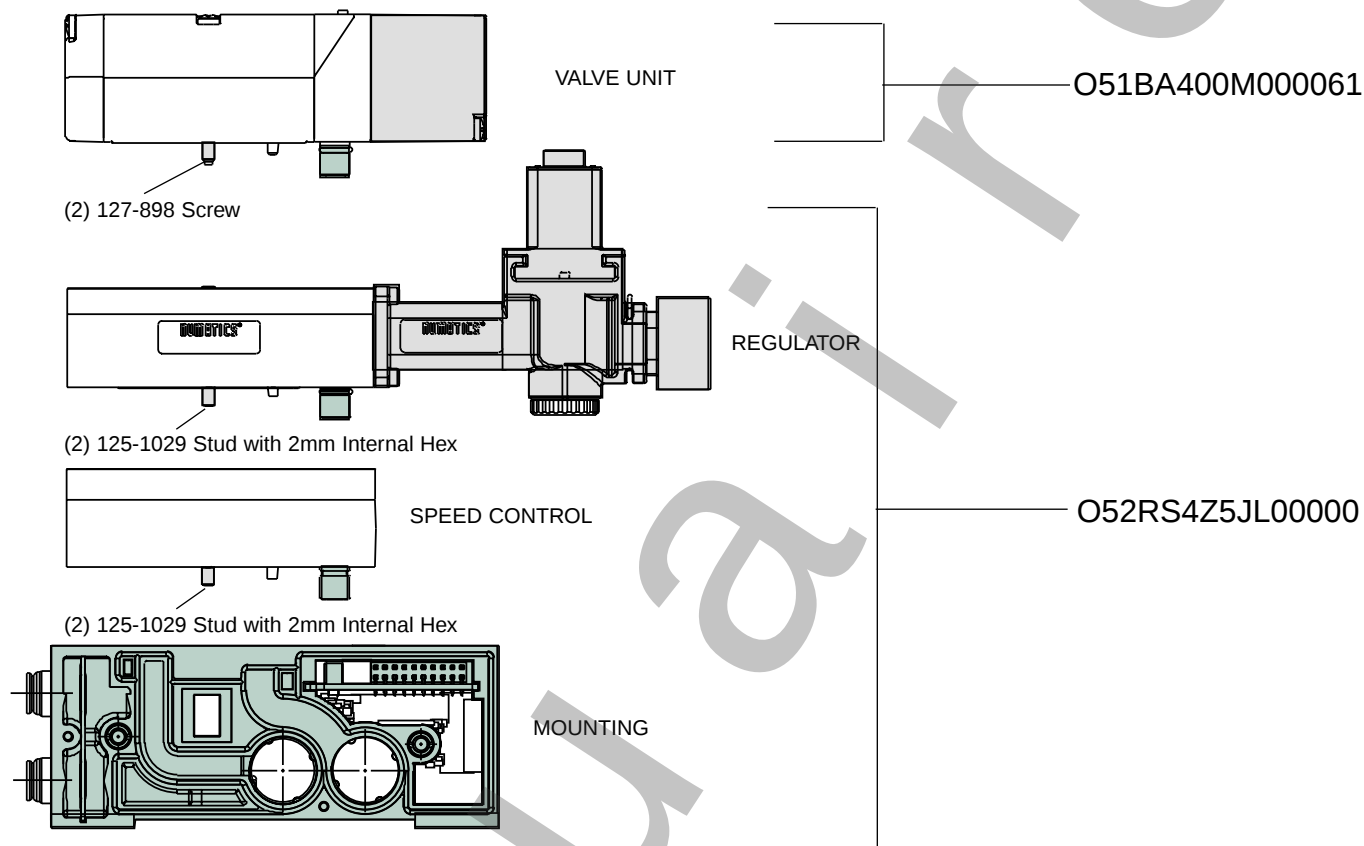
Type RT



Two-pressure selector used for multi-pressure applications.

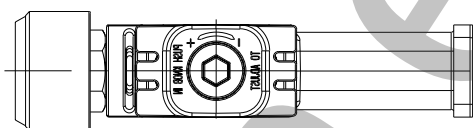


Valve Regulator / Speed Control Plug-in Assembly



Regulator Kits & Service Parts

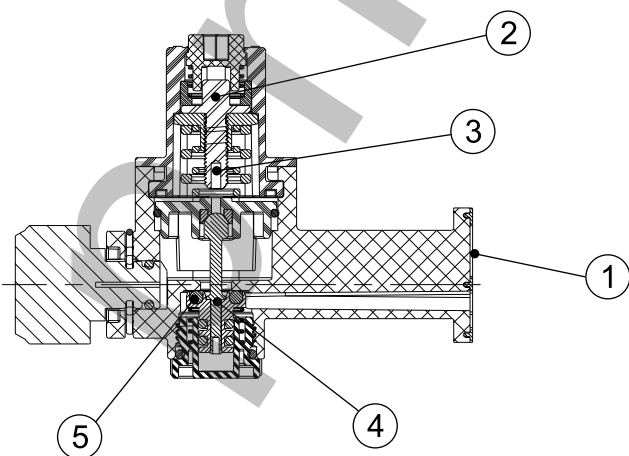
Regulator Service Kit 239-1839



Regulator Unit Kits

(includes regulator assembly, gaskets, screws)

PSIG	PART NO.
3-30 PSIG	239-1824
5-60 PSIG	239-1825
10-130 PSIG	239-1826

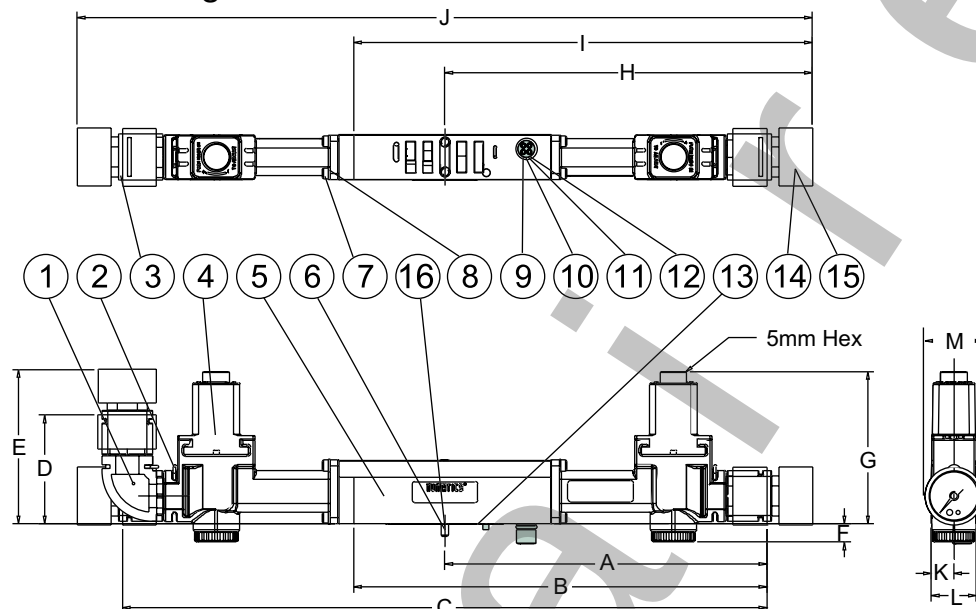


DET. NO.	NO. REQ'D	PART NAME
1	1	Gasket
2	1	Valve Cap Assembly
3	1	Valve Stem Assembly
4	1	Piston Assembly
5	1	O-Ring



2005 Series

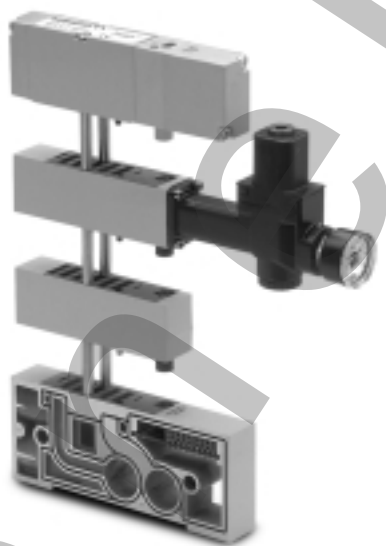
Sandwich Pressure Regulator



Dimensions

top dimensions = inches
bottom dimensions (in parenthesis) = millimeters

A	B	C	D	E	F	G	H	I	J	K	L	M
5.24 (133.0)	6.71 (170.5)	10.47 (266.0)	1.78 (45.2)	2.53 (64.3)	0.28 (7.1)	2.72 (69.1)	5.99 (152.0)	7.46 (189.5)	11.97 (304.1)	0.36 (9.3)	0.73 (18.5)	0.94 (23.9)



Gauge Kit

160 PSI	11 bar max.	60 PSI	4 bar max.
214-214	214-215	214-219	214-220

Elbow Kit

239-1217

Gauge Extension Kit

239-1790

Parts List

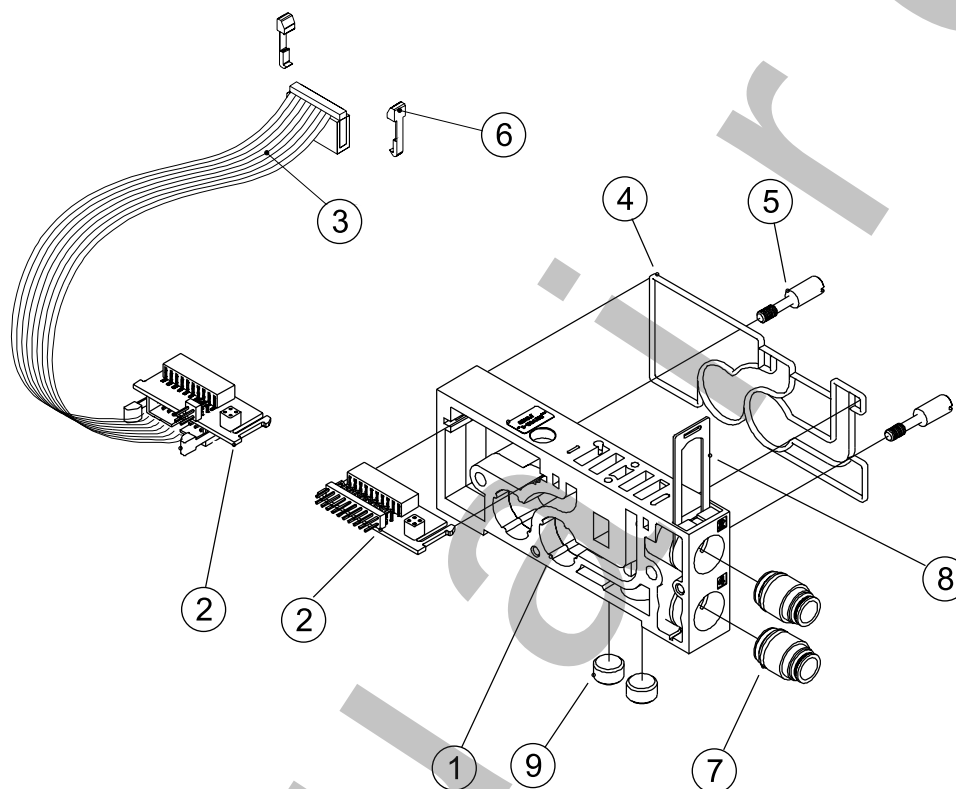
DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1*	Elbow	134-505
2	1*	Pin	131-236
3	1*	Extender	134-536
4	1*	Regulator	See p. 7
5	1	Single Riser Block	125-974
5	1	Double Riser Block	125-975
6	2	Stud with 2mm Internal Hex	125-991
7	4**	Lockwasher	128-352
8	4**	Screw	127-957
9	1	Plug Assembly	230-1006
10	1	O-Ring	126-144
11	1	O-Ring	126-419
12	1	Screw	127-318
13	1	Gasket	113-574
14	1*	Gauge 160 PSI max.	214-212
14	1*	Gauge 11 bar max.	214-213
14	1*	Gauge 60 PSI max.	214-217
14	1*	Gauge 4 bar max.	214-218
15	1*	O-Ring	126-105
16	2	O-Ring	126-187

* (2) Required for RD

** (8) Required for RD



Manifold Assemblies

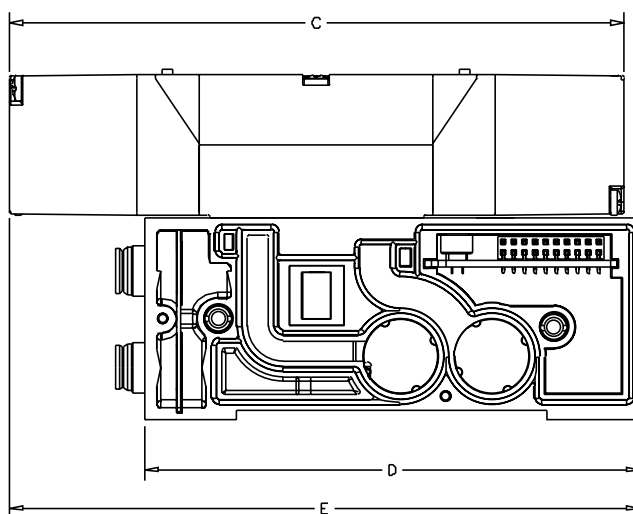
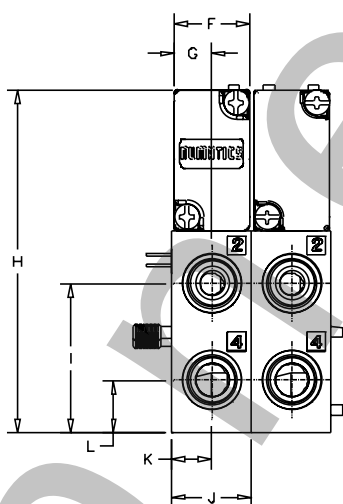
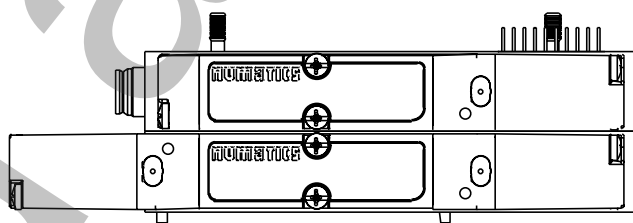
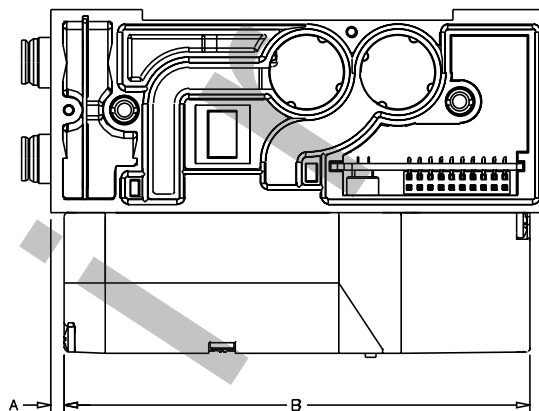


DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Manifold Block (not sold separately)	
2	1	"Z-Board"™	See p. 14
3	1	Ribbon Cable Ass'y	230-1053
4	1	Gasket Manifold	113-571
5	2	Stud	125-1011
6	1	Snap In Latch	140-721
7	2	Push-in Fittings	See p. 13
8	1	Retaining Clip	125-1013
9	2	Pipe Plug 1/8 NPTF	129-100
9	2	Pipe Plug G 1/8	129-160

MANIFOLD ASSEMBLY KITS

	1/8 NPTF	G 1/8	1/4 Push-in	6mm Push-in	5/16 (8mm) Push-in
Side Cylinder Ports					
Bottom Cylinder Ports					
Single, "Z-Board"™	206-1373	206-1371	206-1365	206-1387	206-1363
Double "Z-Board"™	206-1374	206-1372	206-1366	206-1388	206-1364
Single, "Z-Board"™ w/ Ribbon Cable	206-1377	206-1375	206-1381	206-1389	206-1379
Double "Z-Board"™ w/ Ribbon Cable	206-1378	206-1376	206-1382	206-1390	206-1380

Valve on Manifold Block



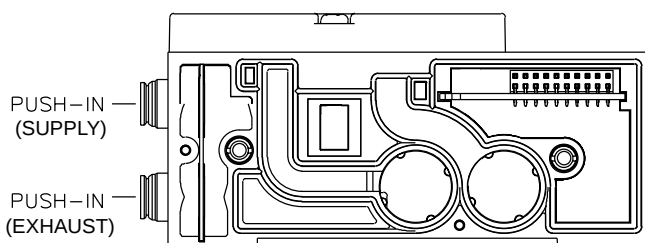
Dimensions

top dimensions = inches
bottom dimensions (in parenthesis) = millimeters

A	B	C	D	E	F	G	H	I	J	K	L
0.13 (3.2)	4.37 (111.1)	5.77 (146.6)	4.65 (118.2)	5.92 (150.5)	0.74 (18.0)	0.37 (9.0)	3.24 (81.8)	1.40 (35.5)	0.75 (19.0)	0.38 (9.5)	0.49 (12.5)



Mid-Station Supply and Exhaust Block



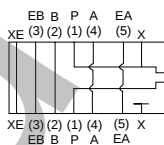
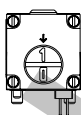
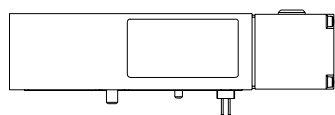
- Add additional supply and exhaust capacity to large manifold assemblies
- Add different pressure to manifold section with use of blocking disks
- Same size as standard manifold block with blank station plate

Mid-Station Supply & Exhaust Block Kit

PORT TYPE	PART NO.
1/4 Push-in	239-1787
8mm Push-in	239-1788
NPTF 1/8	239-1786
G 1/8	239-1789

Sandwich Shut Off Block

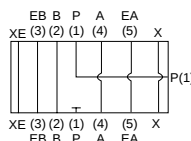
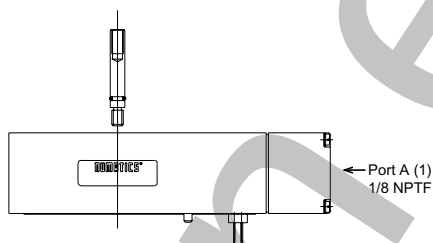
239-1596



- Used to shut-off pressure to the valve which is mounted above it.
- Allows easy maintenance without the need to shut-off pressure to the whole manifold.

Sandwich Pressure Block

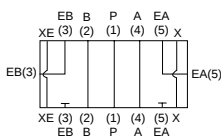
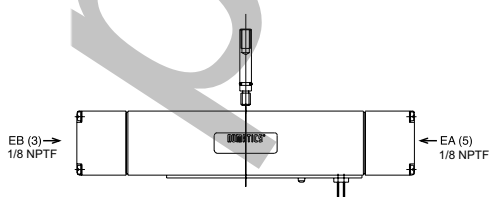
239-2188



- Used to supply a separate pressure to a single valve station without needing blocking disks.

Sandwich Exhaust Block

239-2189

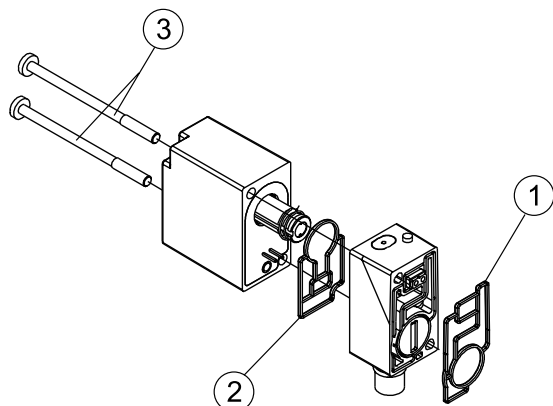


- Used to isolate the exhaust of a single valve station from the manifold.
- Allows faster exhaust response by re-routing.
- Exhaust externally to the manifold.

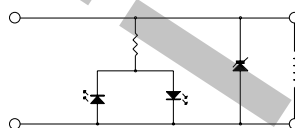
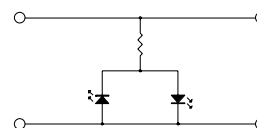


2005 Series

Solenoid Pilot Assembly



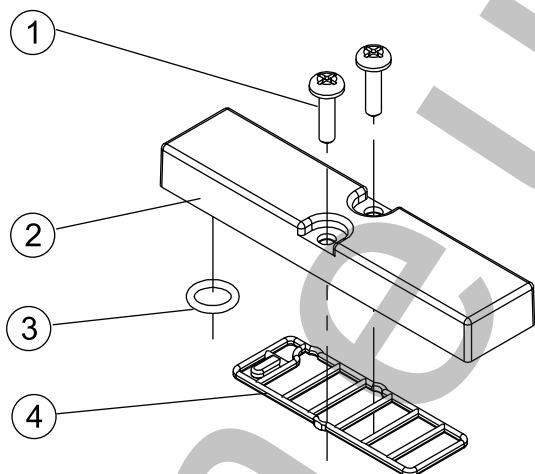
DESCRIPTION	12 VDC	24 VDC	24 VAC	120 VAC
14 end, push non-locking override	236-495	236-496	237-1115	237-1112
12 end, push non-locking override	236-501	236-502	237-1121	237-1118
14 end, turn & lock override	236-494	236-497	237-1114	237-1111
12 end, turn & lock override	236-500	236-503	237-1120	237-1117
14 end, no override	236-493	236-498	237-1113	237-1110
12 end, no override	236-499	236-504	237-1119	237-1116

DC Solenoid
Circuit DiagramAC Solenoid
Circuit Diagram

DET. NO.	NO. REQ'D.	PART NAME	PART NO.
1	1	Gasket	113-573
2	1	Gasket	113-572
3	2	Screw	127-658

Blank Station Plate Kit

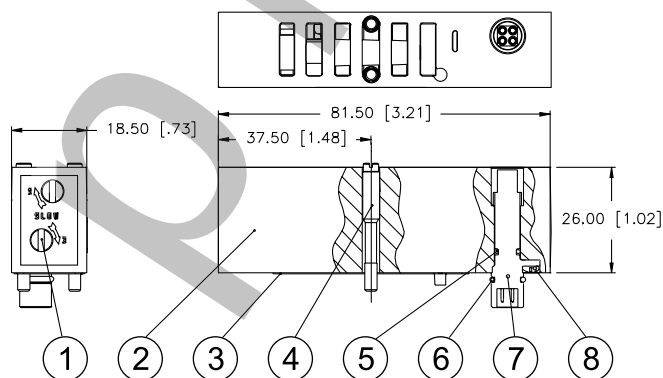
239-1712



DET. NO.	NO. REQ'D.	PART NAME	PART NO.
1	2	Screw	127-916
2	1	Gasket	113-574
3	1	O-Ring	126-191
4	1	Blank Station Plate	104-769

Speed Control Kit

239-1597



DET. NO.	NO. REQ'D.	PART NAME	PART NO.
1	2	Metering Screw	118-185
Not Shown	2	Nylon Rod	125-613
2	1	Speed Control Body	125-973
3	1	Gasket	113-574
4	2	Stud	125-1029
5	1	O-Ring	126-419
6	1	O-Ring	126-144
7	1	Plug Assembly	230-1006
8	1	Screw	127-318



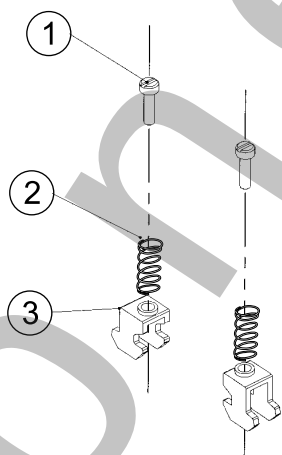
Interchangeable Push-in Cartridge Fittings



PORTS	SIZE	TYPE	PART NO.
1, 3, 5	10mm	Push-in	134-509
1, 3, 5	3/8"	Push-in	134-508
X, XE	1/4"	Push-in	134-518
X, XE	6mm	Push-in	134-499
2, 4	6mm	Push-in	134-534
2, 4	1/4"	Push-in	134-502
2, 4	5/16 (8mm)	Push-in	134-501
1, 3, 5	N/A	Plug Assy.	239-1190
X, XE	N/A	Plug Assy.	239-1086
2, 4	N/A	Plug Assy.	239-1085

DIN Rail Clamp Kit

239-980



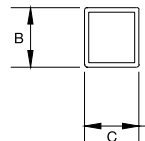
DET. NO.	NO. REQ'D.	PART NAME	PART NO.
1	4	Screw	127-472
2	4	Spring	115-355
3	4	Clamp	125-720

Blocking Discs

Port 3/5



Port 1

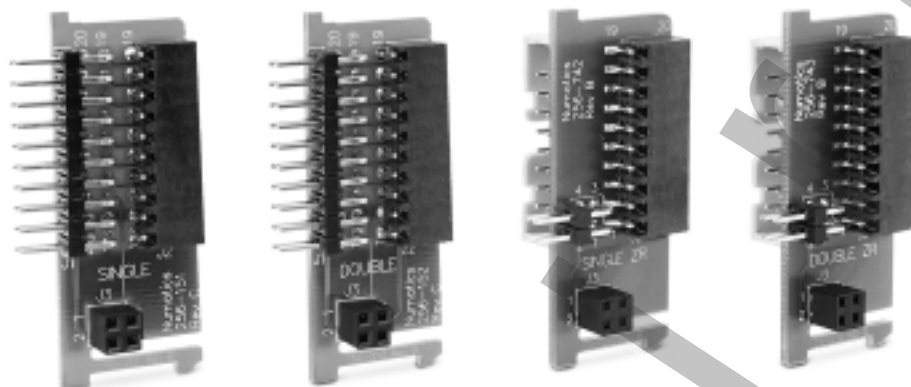


PORT	PART NO.	A	B	C
1	124-341	N/A	0.54 (13.7)	0.50 (12.6)
3/5	239-907	0.70 (17.8)	N/A	N/A



2005 Series

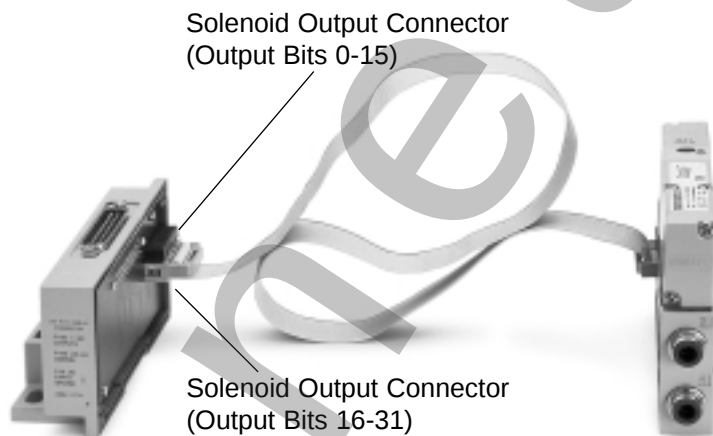
"Z-Board"™



MANIFOLD "Z-BOARDS"™	PART NO.
Single "Z-Board"™	256-151
Double "Z-Board"™	256-152
Single "Z-Board"™ w/ ribbon connector (excludes cable)*	256-742
Double "Z-Board"™ w/ ribbon connector (excludes cable)*	256-743

*Used only with ribbon cable and solenoid output connector (Bits 16-31).

Ribbon Cable Assembly Kit 239-1840



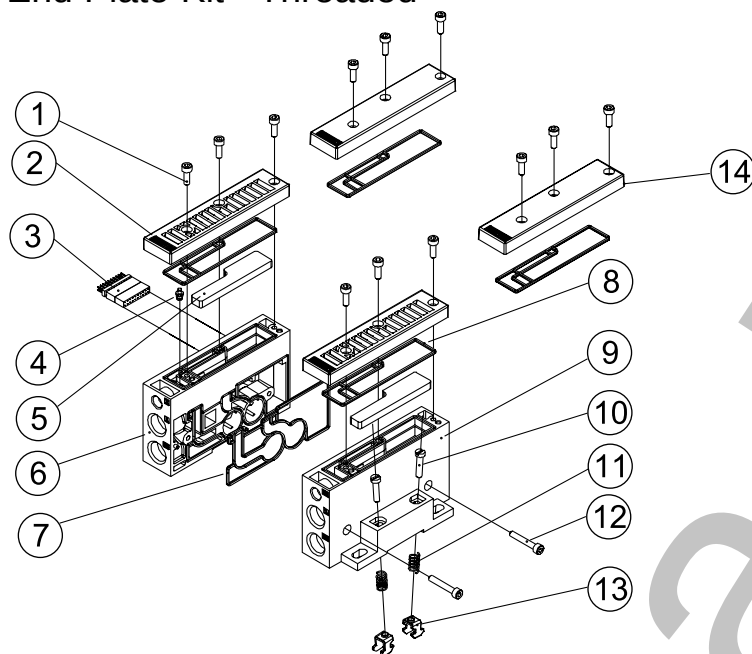
Label on manifold block indicates installed "Z-Board"™ type.

NO. REQ'D.	PART NAME	PART NO.
1	Ribbon Cable Assembly	230-1053
2	Snap In Latch	140-721

Ribbon cable option used for manifold assemblies that exceed 16 solenoids.

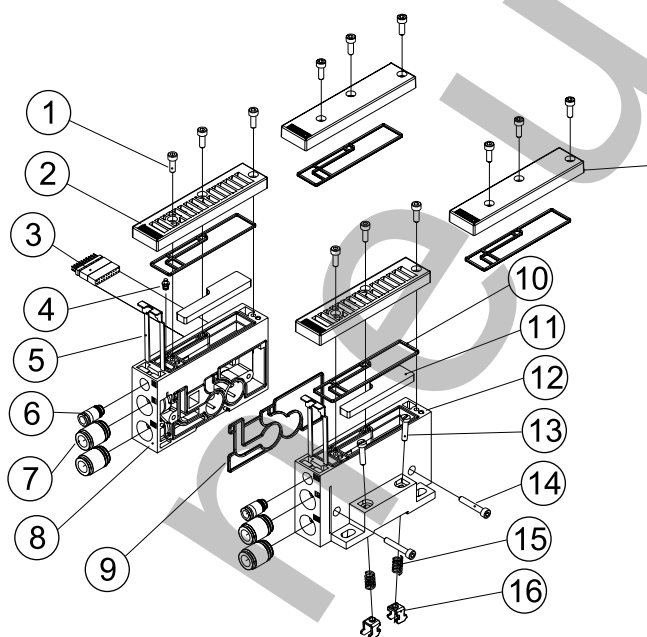


End Plate Kit - Threaded



DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	6	Cover Screw	127-368
2	2	Vented Cover	105-435
3	1	Transfer Conn.	140-910
4	1	Pilot Plug Ass'y	213-497
5	2	Muffler	125-1012
6	1	LH Endplate	104-759
7	1	Gasket	113-571
8	2	Cover Gasket	113-570
9	1	RH Endplate	104-761
10	2	Screw (DIN Rail Only)	127-472
11	2	Spring (DIN Rail Only)	115-355
12	2	Screw	127-400
13	2	Clamp (DIN Rail Only)	125-720
14	2	Cover	105-436

End Plate Kit - Push-in



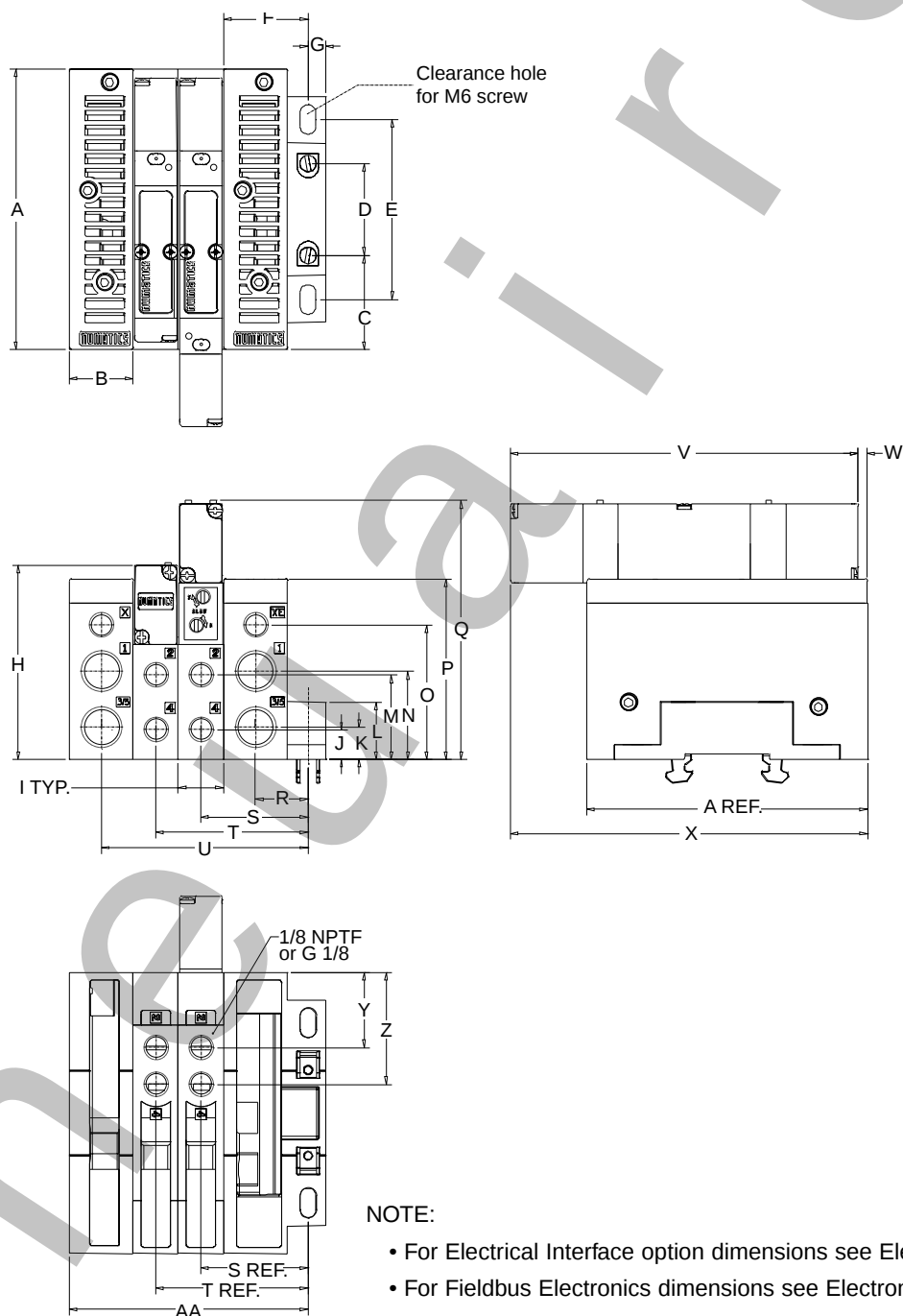
DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	6	Cover Screw	127-368
2	2	Vented Cover	105-435
3	1	Transfer Conn.	140-910
4	1	Pilot Plug Ass'y	213-497
5	2	Retaining Clip	125-1014
6	2	Pilot Push-in Fitting	See p. 13
7	4	Supply/Exhaust Push-in Fitting	See p. 13
8	1	LH Endplate	104-760
9	1	Gasket	113-571
10	2	Cover Gasket	113-570
11	2	Muffler	125-1012
12	1	RH Endplate	104-762
13	2	Screw (DIN Rail Only)	127-472
14	2	Screw	127-400
15	2	Spring (DIN Rail Only)	115-355
16	2	Clamp (DIN Rail Only)	125-720
17	2	Cover	105-436

PORT TYPE	NPTF			ISO228/1-G			PUSH-IN			PUSH-IN		
PORT	1	3/5	X, XE	1	3/5	X, XE	1	3/5	X, XE	1	3/5	X, XE
PORT SIZE	3/8	3/8	1/8	3/8	3/8	1/8	3/8	3/8	1/4	10mm	10mm	6mm
Kit w/o muffler, w/o DIN Rail	239-1642			239-1646			239-1650			239-1654		
Kit w/o muffler, w/ DIN Rail	239-1641			239-1645			239-1649			239-1653		
Kit w/ muffler, w/o DIN Rail	239-1640			239-1644			239-1648			239-1652		
Kit w/ muffler, w/ DIN Rail	239-1638			239-1643			239-1647			239-1651		



2005 Series

Manifold Assembly



NOTE:

- For Electrical Interface option dimensions see Electronics section.
- For Fieldbus Electronics dimensions see Electronics section.

Dimensions

top dimensions = inches

bottom dimensions (in parenthesis) = millimeters

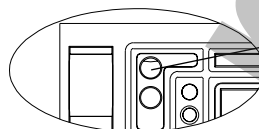
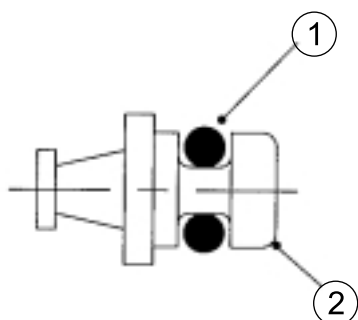
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
4.65 (118.2)	1.06 (27.0)	1.62 (41.2)	1.40 (35.7)	2.87 (73.0)	1.40 (35.7)	0.34 (8.7)	3.24 (81.8)	0.75 (19.0)	0.49 (12.5)	0.53 (13.5)	0.96 (24.4)	1.40 (35.5)	1.46 (37.0)	2.22 (56.5)	2.99 (76.0)	4.31 (109.5)
R	S	T	U	V	W	X	Y	Z	AA							
0.90 (22.2)	1.84 (45.2)	2.62 (64.2)	3.56 (87.2)	5.77 (146.6)	0.15 (3.9)	5.92 (150.5)	1.24 (31.5)	1.85 (47.0)	3.96 (100.7)							



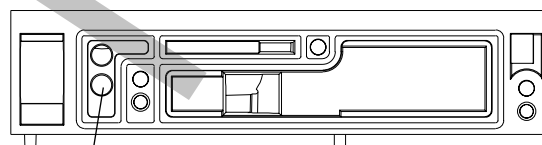
Internal Pilot Plug

213-497

Internal/External Pilot Selection



For External Pilot
Supply Plug Here
(Left End Plate
Only)

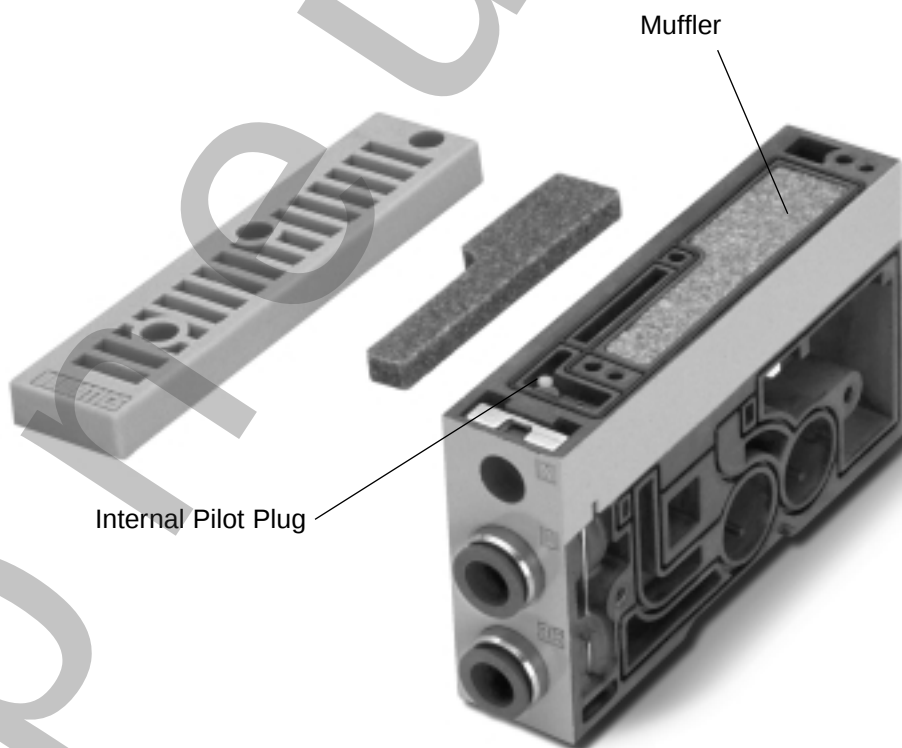


For Internal Pilot
Supply Plug Here
(Left End Plate
Only)

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Plug	125-820
2	1	O-Ring	126-471

Internal Muffler

125-1012



Muffler

Internal Pilot Plug

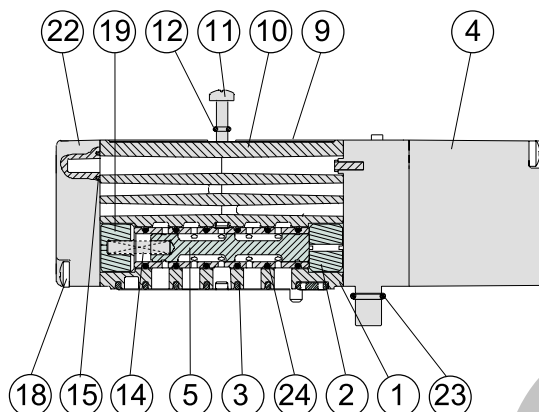


2005 Series

Valve Service Kits and Parts

Kit No. 2005-K1*

(For Models 051BA4, 052BA4, 05FBA4, 05HBA4)

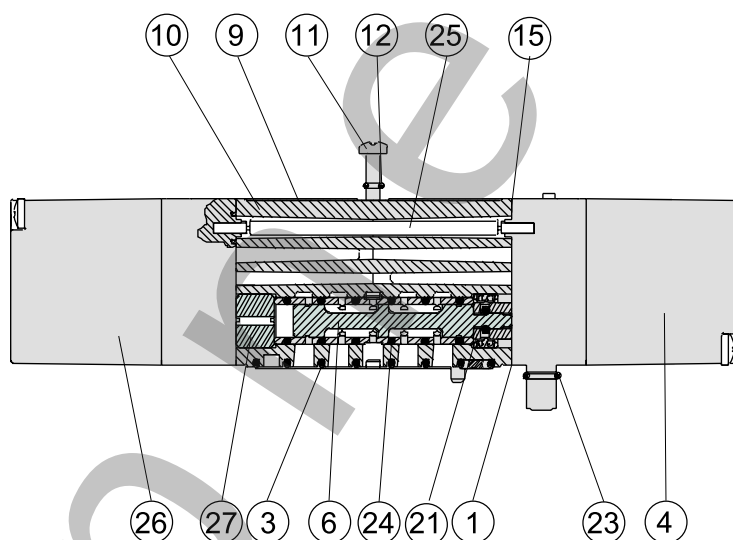


DET NO.	BA4	BB4	PART NAME	PART NO.
1	1	1	Screen	125-789
2 *	1	N/A	Detent Spacer	116-516
*3 *	1	1	Gasket Body/Manifold	113-574
4	1	1	Solenoid Pilot – 14 End	See p. 12
5	1	N/A	Spool & Sleeve Assembly	209-512
6	N/A	1	Spool & Sleeve Assembly	209-513
9	1	1	Nameplate	122-1121
10	1	1	Body (not sold separately)	
11	2	2	Screw	127-898
12 *	2	2	O-Ring	126-345
14 *	1	N/A	Spring	115-273
15 *	1	2	Gasket Adaptor/Body	113-573
18	2	N/A	Screw	127-650
19 *	1	N/A	Spring Retainer	116-517
21 *	N/A	1	Detent Assembly	210-143
22	1	N/A	Spring Cover	104-768
23 *	1	1	O-Ring	126-144
24 *	6	6	O-Ring	126-133
25	N/A	1	14 to 12 Conn.	230-1044
26	N/A	1	Solenoid Pilot - 12 End	See p. 12
27 *	N/A	1	Spacer	116-516

*Indicates parts included in service kit.

Kit No. 2005-K2*

(For Models 051BB4, 052BB4, 05FBB4, 05HBB4)

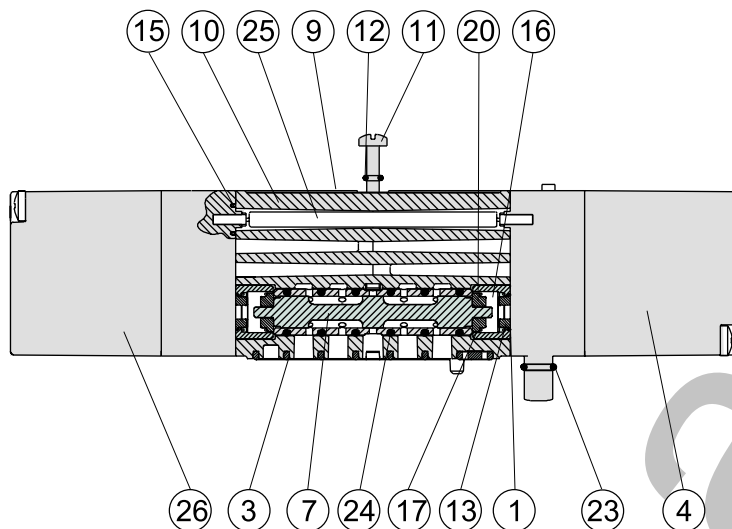




Valve Service Kits and Parts

Kit No. 2005-K3*

(For Models 051BB5, 052BB5, 05FBB5, 05HBB5)



DET NO.	BB5	BB6	PART NAME	PART NO.
1	1	1	Screen	125-789
3 *	1	1	Gasket Body/Manifold	113-574
4	1	1	Solenoid Pilot – 14 End	See p. 12
7	1	N/A	Spool & Sleeve Assembly	209-514
8	N/A	1	Spool & Sleeve Assembly	209-515
9	1	1	Nameplate	122-1121
10	1	1	Body (not sold separately)	
11	2	2	Screw	127-898
12 *	2	2	O-Ring	126-345
13 *	2	2	Bumper	114-204
15 *	2	2	Gasket Adaptor/Body	113-573
16 *	2	2	Spring	115-266
17 *	2	2	Spacer	116-519
20 *	2	2	Spring Retainer	116-386
23 *	1	1	O-Ring	126-144
24 *	6	6	O-Ring	126-133
25	1	1	14 to 12 Conn.	230-1044
26	1	1	Solenoid Pilot - 12 End	See p. 12

*Indicates parts included in service kit.

Kit No. 2005-K3*

(For Models 051BB6, 052BB6, 05FBB6, 05HBB6)

