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numatics®

2005 Series

Solenoid Pilot Actuated Valves





www.numatics.com

EMERSON
Industrial Automation

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2005 Series

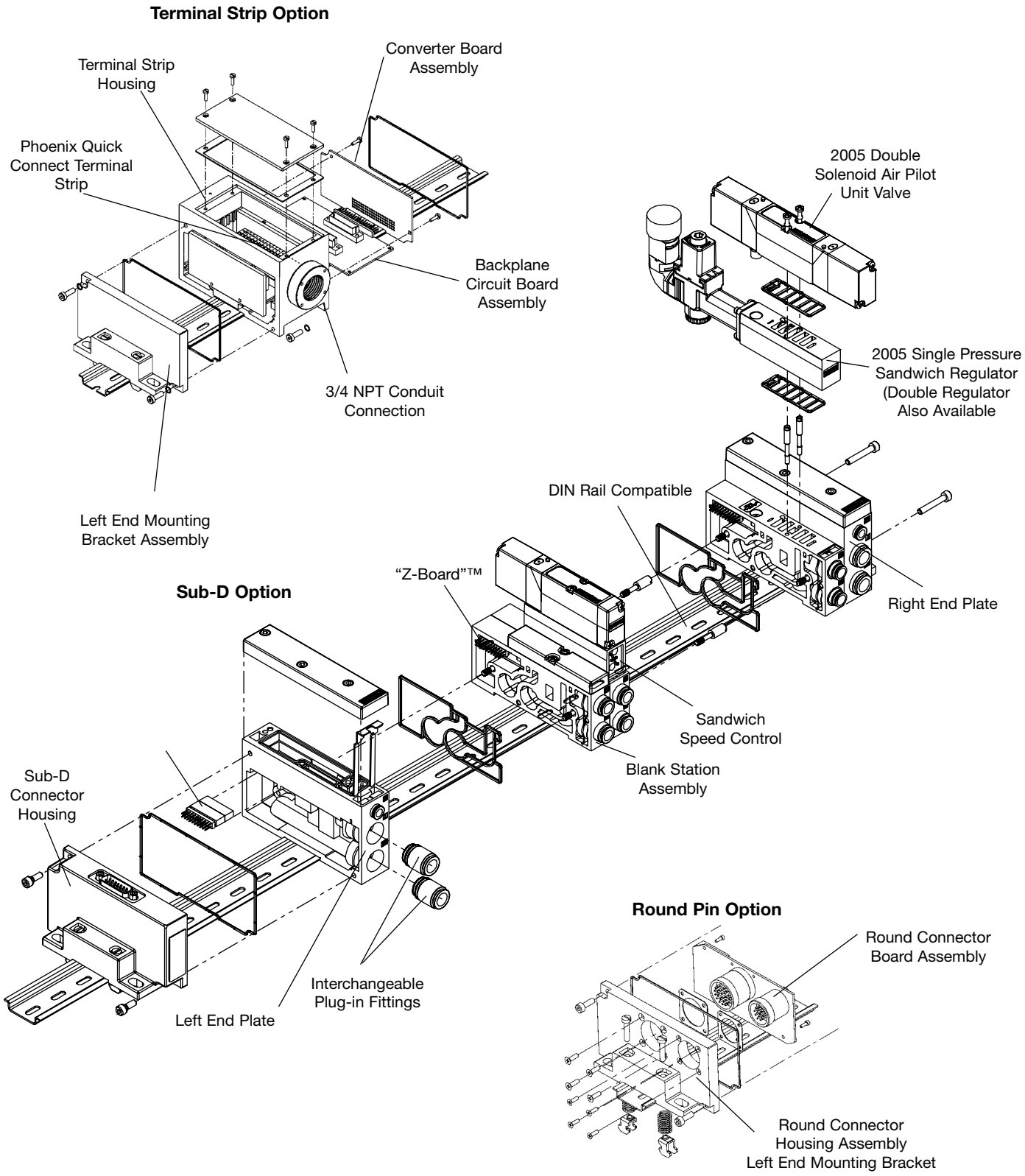
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Manifold and Wiring Architecture

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



Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

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

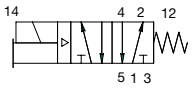
Cv: 0.56

Dual 3-Way Pack Spool Cv:0.56

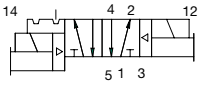
- Solenoid air pilot actuated
- Low wattage plug-in - 1.0 watt for DC application
- DC solenoids polarity insensitive with surge suppression
- Plug together circuit boards eliminate internal wiring
- Integral recessed gaskets
- Interchangeable Push-in fittings to accommodate various tube sizes
- Simple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



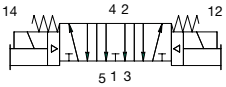
single solenoid air pilot
2 position 4-way



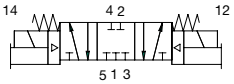
double solenoid air pilot
2 position 4-way



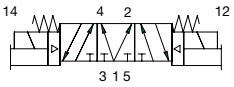
double solenoid air pilot
3 position 4-way
open center



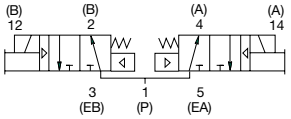
double solenoid air pilot
3 position 4-way
closed center



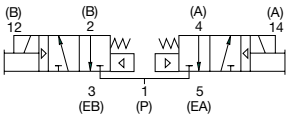
double solenoid air pilot
3 position 4-way
pressure center



double solenoid
2 position dual 3-way
“14(A)” & “12(B)” NO



double solenoid
2 position dual 3-way
“14(A)” & “12(B)” NC



Technical Data

Valve Data	English	Metric
Cv	0.56	0.56
Flow Capacity	26 SCFM @ 80 PSIG upstream pressure to atmosphere	552 Nl/m @ 6 bar upstream to 5 bar downstream
Operating Pressure Range Spool and Sleeve	28” Hg. Vacuum to 150 PSIG	Vacuum to 10 bar
Operating Pressure Range – Dual 3 Way – Types A & D	22" Hg. Vacuum to 100 PSIG	Vacuum to 7 bar
Pilot Pressure Range	26 to 120 PSIG	1.8 to 8.2 bar
Pilot Pressure Range – Dual 3 Way	26 to 100 PSIG	1.8 to 7 bar
Pilot Pressure Vacuum Types B & E	50 to 100 PSIG	3.5 to 7 bar
Temperature Range (Ambient)t	-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)	1.35	4.2
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
Dual 3 Way	0.014	0.016	0.014	0.016

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

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
7 = 3 Position, 4 way Pressure Center
A = Dual 3-way, A Normally Open - B Normally Open
B = Dual 3-way, Vacuum Service, A Normally Open - B Normally Open
D = Dual 3-way, A Normally Closed - B Normally Closed
E = Dual 3-way, Vacuum Service, A Normally Closed - B Normally Closed
0 = Manifold Block, w/o Valve
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
3A = Individual Base, Side Ports, Individual Exhaust
3C = 3A w/ Speed Control

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)
0 = 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 online PDF.
- 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
3A = Individual Base, Side Ports, Individual Exhaust
3C = 3A 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
(See Note Below)

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

Wiring Option
J = Plug-In Receptacle Ass'y
O = Non-Plug-In (Type RE Only)



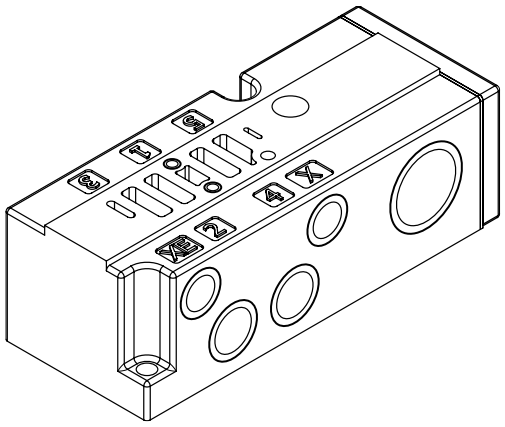
NOTE: Regulator gauges must be offset on alternating stations to prevent interference (see photo)

* 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.

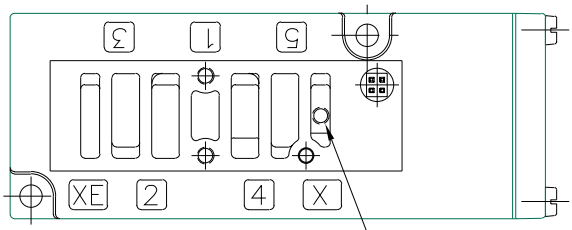
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Individual Base Assembly Kit



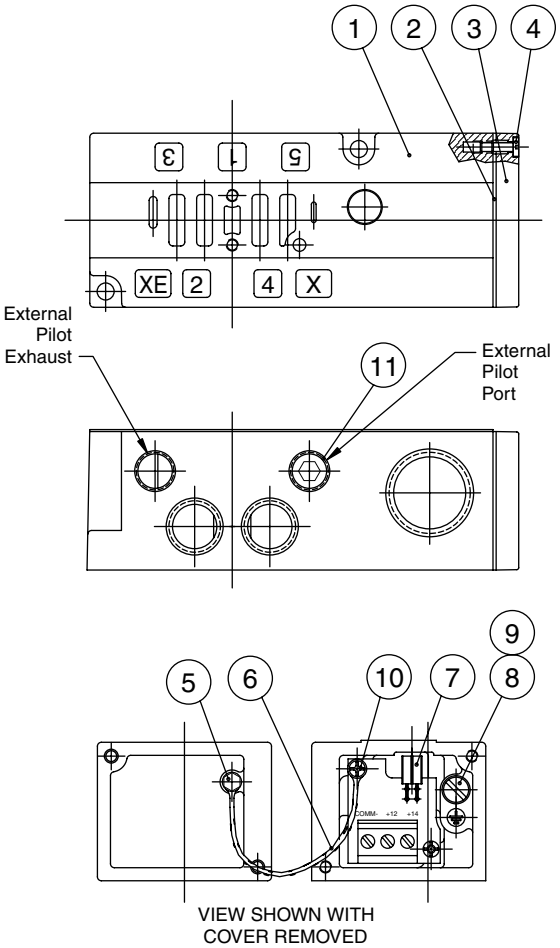
Port Size	Part. No.
1/4-NPTF	203-1266

Internal/External Pilot Selection



M4 Pilot Port Location
(plug# 127-691 order separately)

Note: Base assemblies are supplied set up for internal pilot supply. To convert to external pilot supply install plug P.N. 127-691 (sold separately) in the "X" gallery as indicated above. Remove the 1/8 NPTF pipe plug from the "X" port to supply pilot pressure.

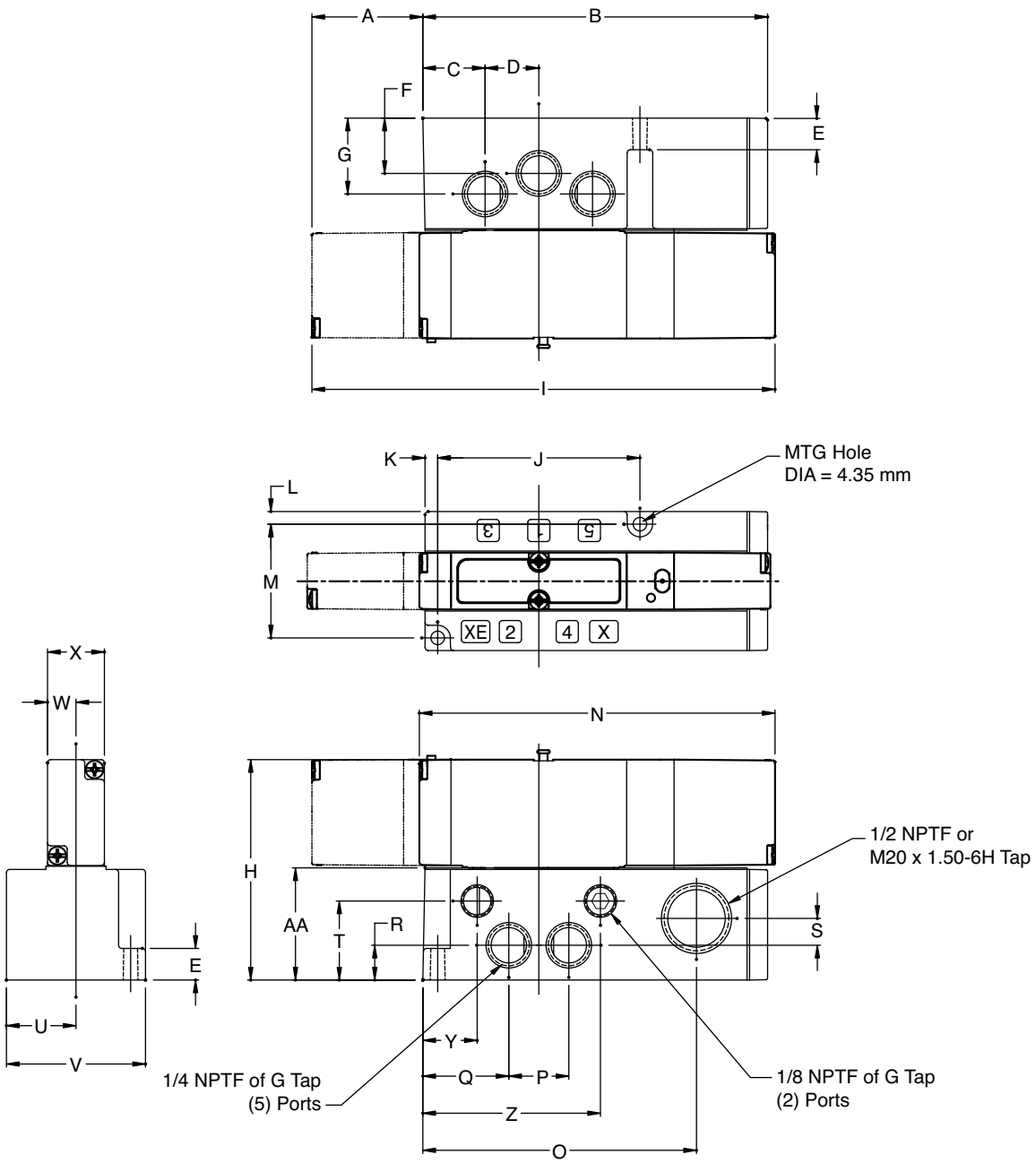


Det. No.	No. Req'd	Part Name	Part No.
1	1	Base	
2	1	Gasket	113-632
3	1	Cover	105-462
4	2	Screw	127-172
5	1	Screw	127-172
6	1	Strap	125-772
7	1	Terminal Strip Ass'y	256-896
8	1	Screw	127-176
9	1	Washer	128-162
10	2	Screw	127-318
11	1	1/8 NPTF Pipe Plug	129-100

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Valve on Individual Base

Dimensions: Inches (mm)



A	B	C	D	E	F	G	H	I	J	K	L	M	N
1.38 (35.1)	4.01 (101.9)	0.77 (19.7)	0.67 (17.0)	0.39 (10.0)	0.68 (17.5)	0.94 (24.0)	2.75 (69.75)	5.77 (146.56)	5.77 (146.56)	0.16 (4.0)	2.52 (4.0)	1.42 (36.0)	4.37 (111.1)

O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
3.41 (86.6)	0.75 (19.0)	1.07 (27.2)	0.43 (11.0)	0.33 (8.5)	0.98 (25.0)	0.87 (22.0)	1.73 (44.0)	0.35 (9.0)	0.71 (18.0)	0.68 (17.2)	2.21 (56.2)	1.40 (35.5)

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Sandwich Pressure Regulators

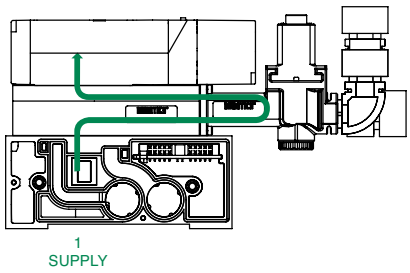
Types: RS / RD / RE / RT



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.”

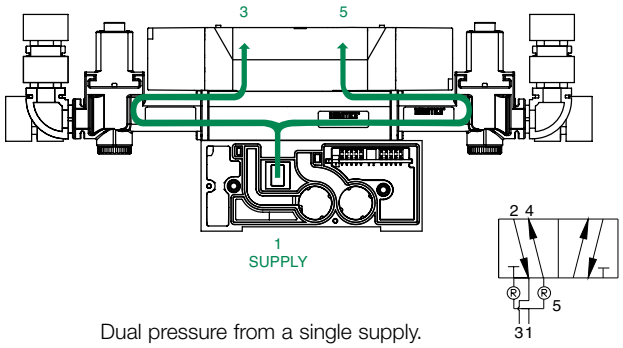
Example orders:	**Type RS**	**Type RD**
Valve unit only:	051BA400K000030	051BB400M000061
Regulator	052RS1Z1JL00000	052RD1Z2JL00000
+mounting	ASSEMBLED	ASSEMBLED

Type RS



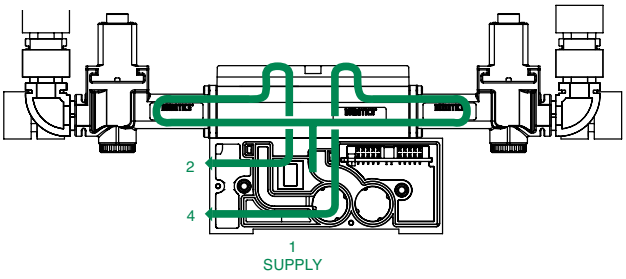
Single pressure from a single supply.

Type RD



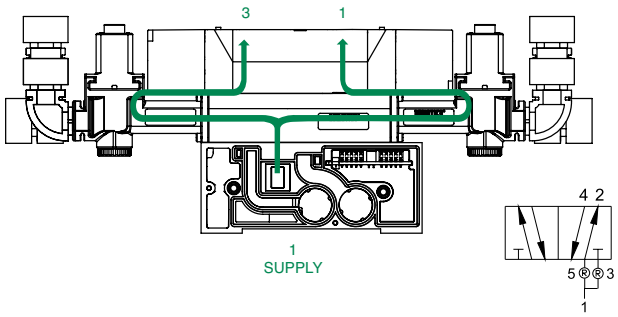
Dual pressure from a single supply.

Type RE



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

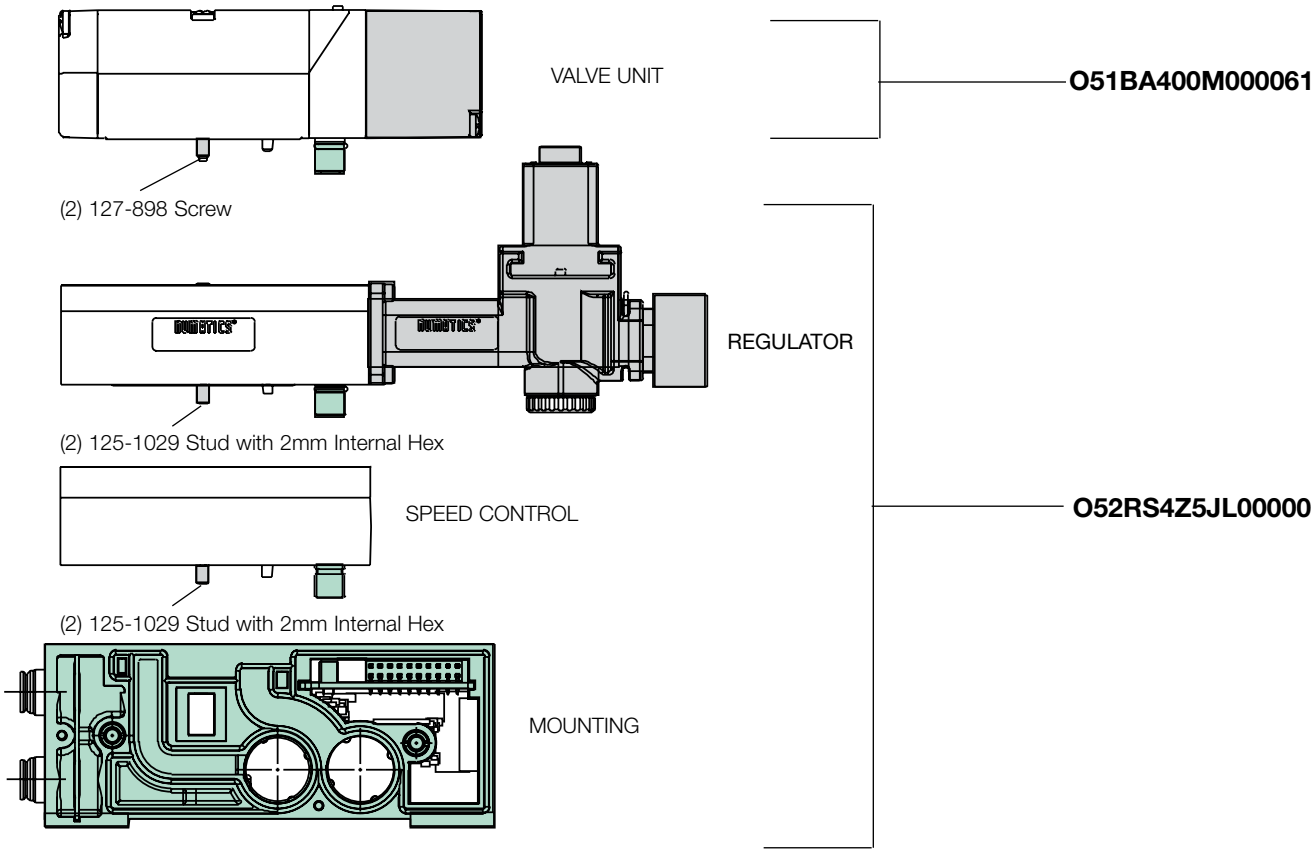
Type RT



Two-pressure selector used for multi-pressure applications.

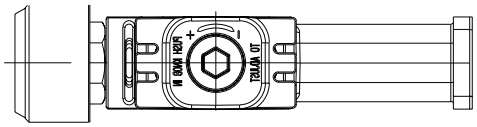
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

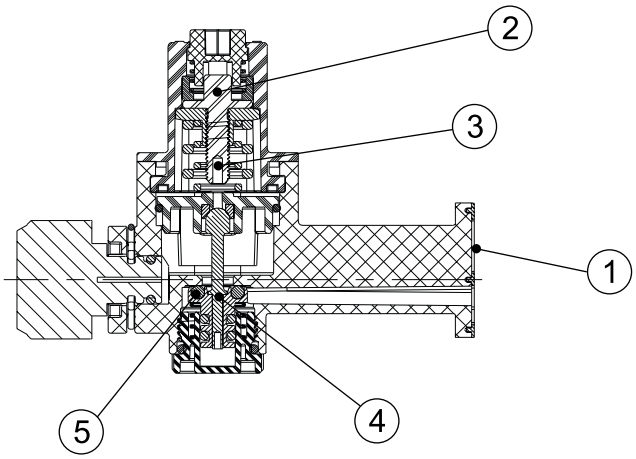
Valve Regulator / Speed Control Plug-in Assembly



Regulator Kits and 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

Bonnet Springs

PSIG	Part No.
3-30 PSIG	115-421
5-60 PSIG	115-422
10-130 PSIG*	115-419
	115-420

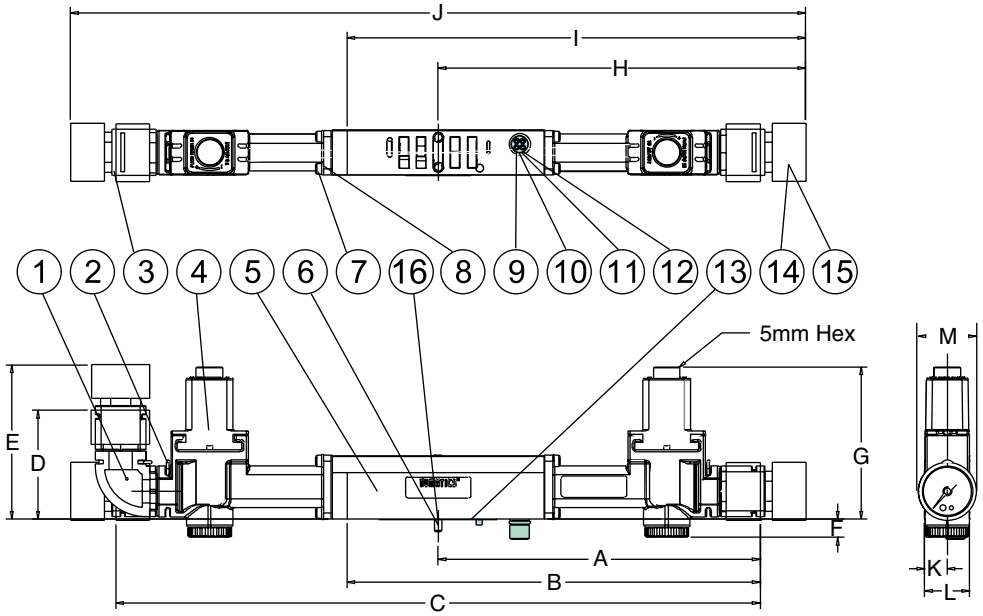
* = Both Springs Required

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

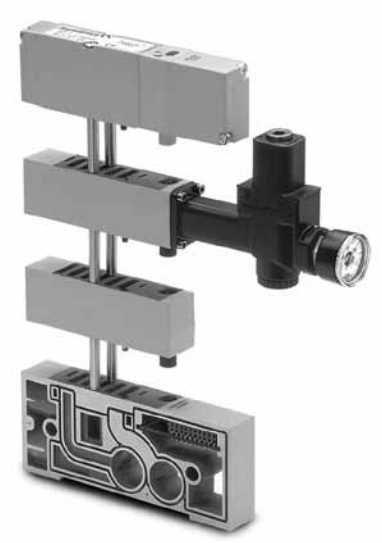
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Sandwich Pressure Regulator

Dimensions: Inches (mm)



A	B	C	D	E	F	G	H	I	J	K	L	M
5.20 (132.0)	6.71 (170.5)	10.40 (264.0)	1.78 (45.2)	2.53 (64.3)	0.29 (7.4)	2.47 (62.7)	5.99 (152.0)	7.46 (189.5)	11.97 (304.1)	0.36 (9.3)	0.75 (19.1)	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 Adaptor Kit 1/8 NPTF **239-1790**

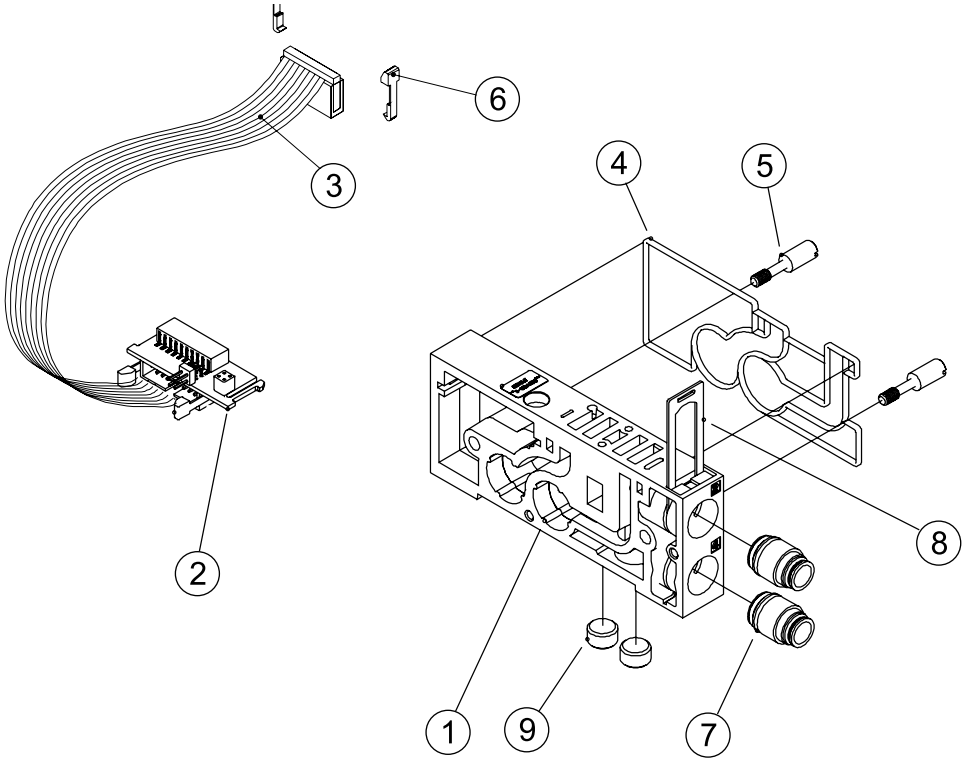
Parts List

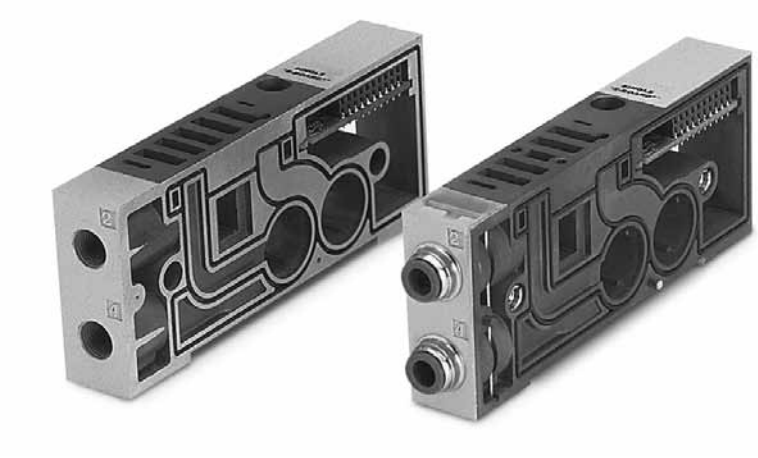
Det. No.	No. Req'd	Part Name	Part No.
1	1*	Elbow	134-505
2	1*	Pin	131-236
3	1*	Extender	134-536
4	1*	Regulator	See p. 5
5	1	Single Riser Block	125-974
5	1	Double Riser Block	125-975
6	2	Stud with 2mm Internal Hex	125-991
7	4**	Lockwasher	128-352
8	4**	Screw	127-957
9	1	Plug Assembly	230-1006
10	1	O-Ring	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

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Manifold Assemblies





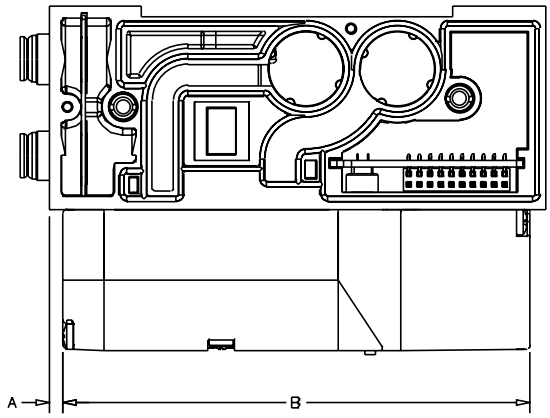
Det. No.	No. Req'd	Part Name	Part No.
1	1	Manifold Block (not sold separately)	
2	1	"Z-Board"™	not sold separately
3	1	Ribbon Cable Ass'y	230-1053
4	1	Gasket Manifold	113-571
5	2	Stud	125-1011
6	1	Snap In Latch	140-721
7	2	Push-in Fittings	See p. 15
8	1	Retaining Clip	125-1013
9	2	Pipe Plug 1/8 NPTF	129-100
9	2	Pipe Plug G 1/8	129-160

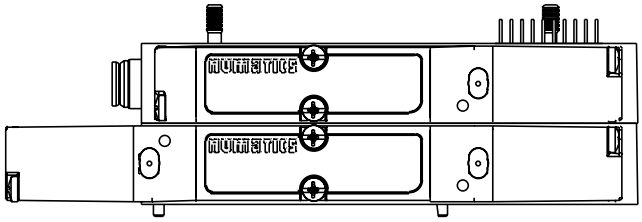
Manifold Assembly Kits					
Side Cylinder Ports	1/8 NPTF	G 1/8	1/4 Push-in	6mm Push-in	5/16 (8mm) Push-in
Bottom Cylinder Ports	1/8 NPTF	G 1/8	1/8 NPTF	G 1/8	G 1/8
Single, "Z-Board"™	206-1373	206-1371	206-1365	206-1387	206-1363
Double "Z-Board"™	206-1374	206-1372	206-1366	206-1388	206-1364
Single, "Z-Board"™ 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

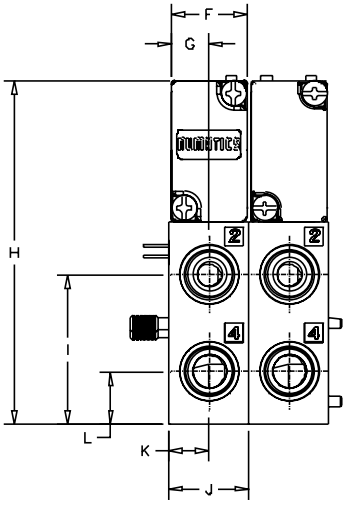
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

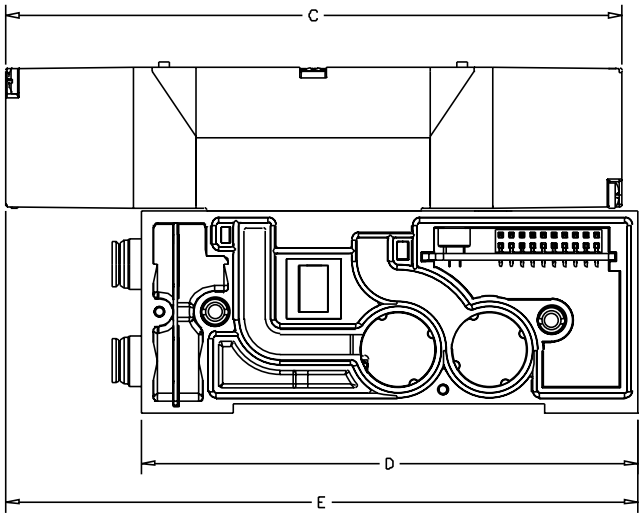
Dimensions: Inches (mm)

Valve on Manifold Block





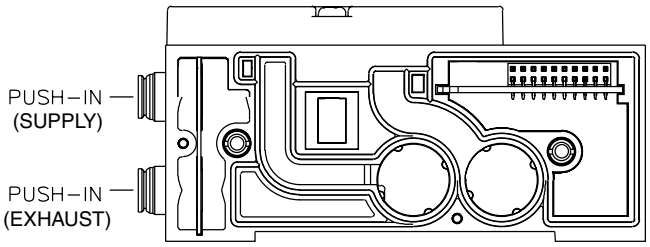




A	B	C	D	E	F	G	H	I	J	K	L
0.13 (3.2)	4.37 (111.1)	5.77 (146.6)	4.65 (118.2)	5.92 (150.5)	0.74 (18.0)	0.37 (9.0)	3.24 (81.8)	1.40 (35.5)	0.75 (19.0)	0.38 (9.5)	0.49 (12.5)

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Mid-Station Supply and Exhaust Block



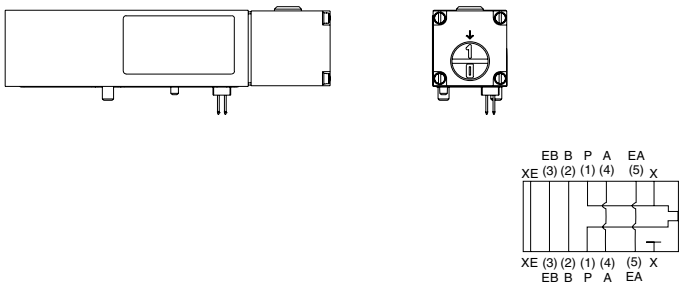
Mid-Station Supply & Exhaust Block Kit

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

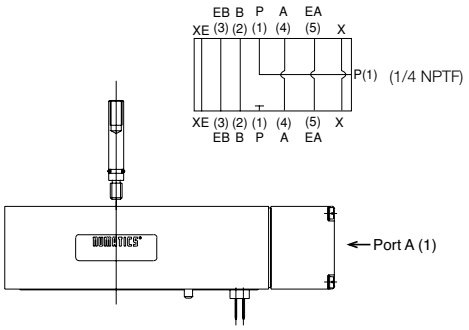
239-1596

- 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

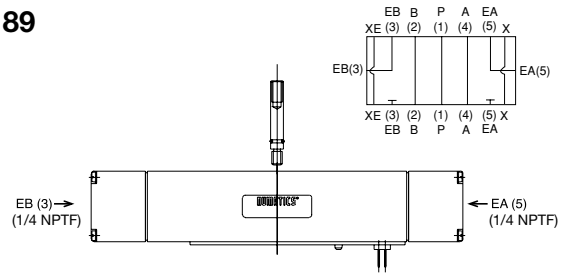
239-2188



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

Sandwich Exhaust Block

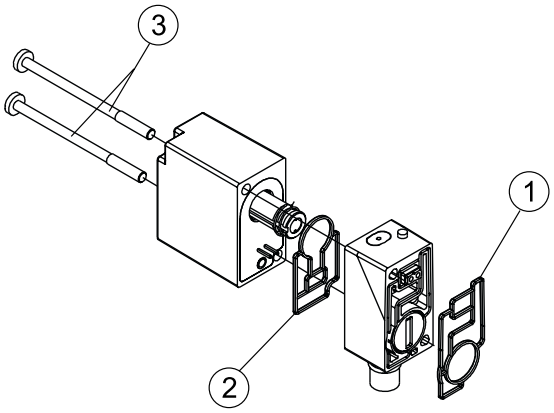
239-2189



- 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.

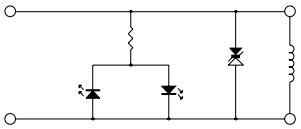
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Solenoid Pilot Assembly

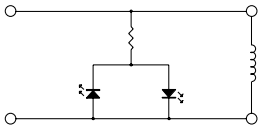


Det. No.	No. Req'd	Part Name	Part No.
1	1	Gasket	113-573
2	1	Gasket	113-572
3	2	Screw	127-658

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



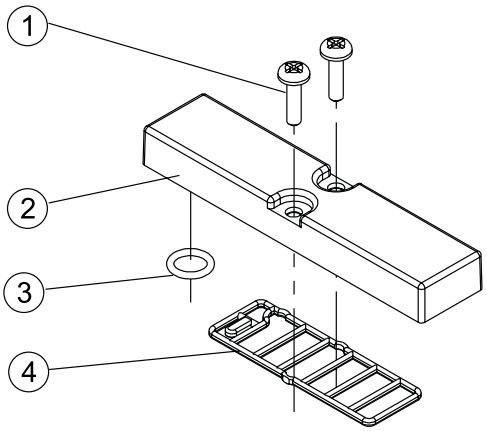
DC Solenoid
Circuit Diagram



AC Solenoid
Circuit Diagram

Blank Station Plate Kit

239-1712

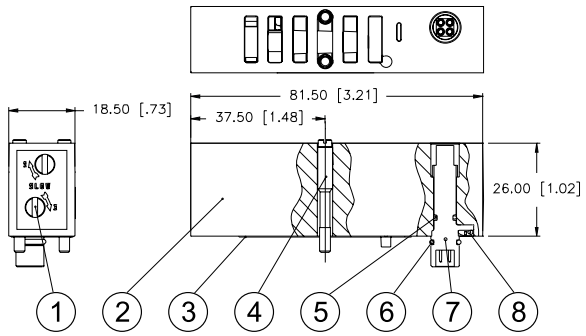


- Used to block off a manifold station block for future use

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



- Used to control cylinder speed by restricting exhaust flow

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

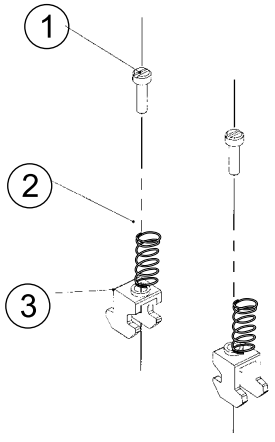
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

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 Ass'y	239-1190
X, XE	N/A	Plug Ass'y	239-1086
2, 4	N/A	Plug Ass'y	239-1085

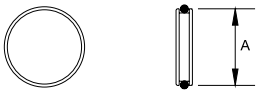
DIN Rail Clamp Kit 239-980



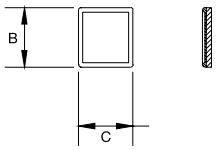
Det. No.	No. Req'd	Part Name	Part No.
1	4	Screw	127-472
2	4	Spring	115-355
3	4	Clamp	125-720

Blocking Discs

Port 3/5



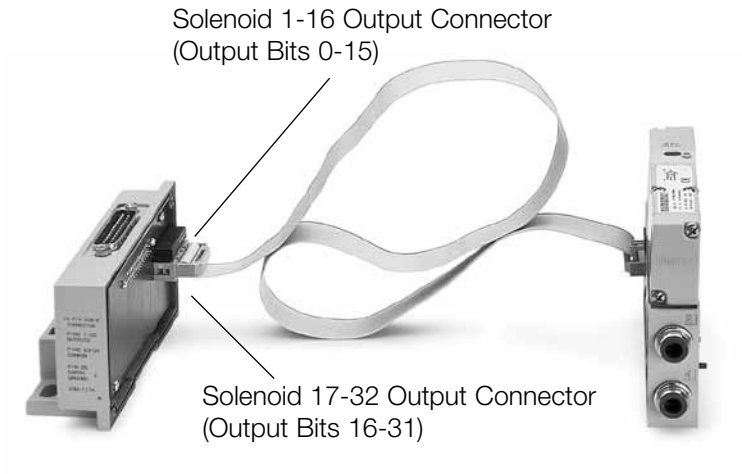
Port 1



Det. No.	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

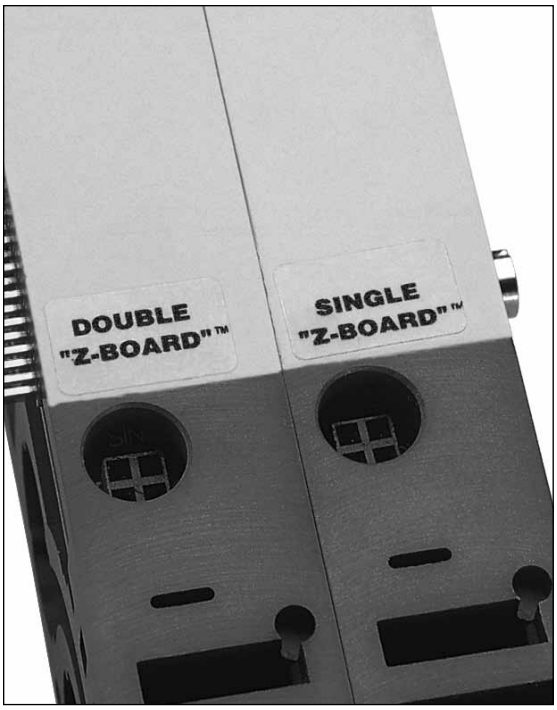
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Ribbon Cable Assembly Kit 239-1840



No. Req'd	Part Name	Part No.
1	Ribbon Cable Assembly	230-1053
2	Snap In Latch	140-721

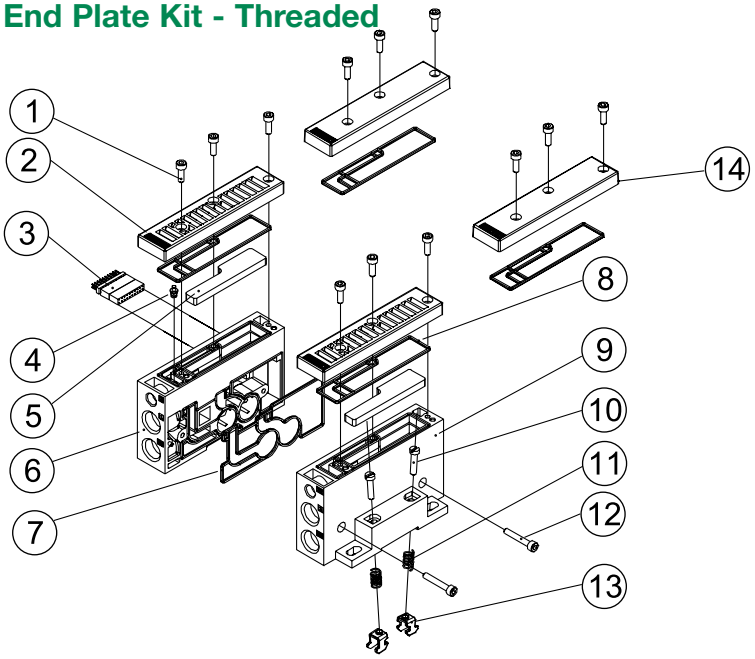
Ribbon cable option used for manifold assemblies that exceed 16 solenoids.



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

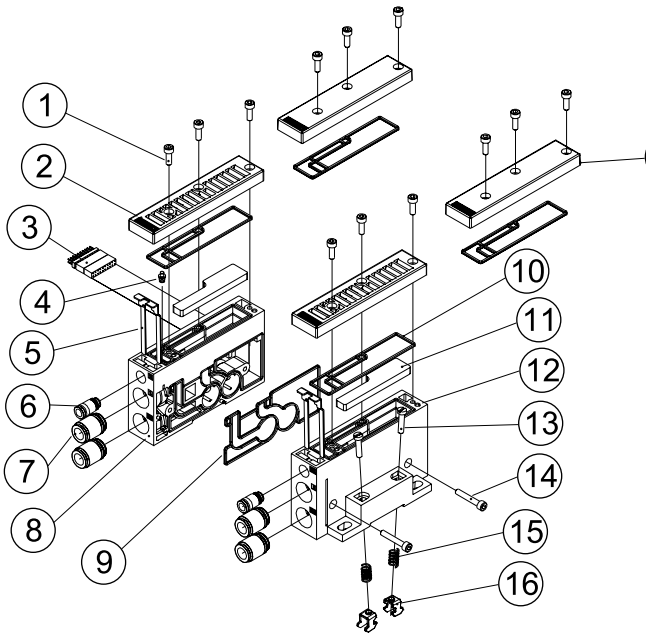
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

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 Kits - Push-in



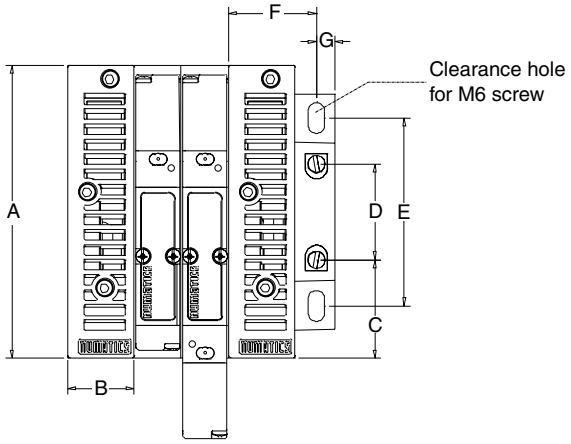
Det. No.	No. Req'd	Part Name	Part No.
1	6	Cover Screw	127-368
2	2	Vented Cover	105-435
3	1	Transfer Conn.	140-910
4	1	Pilot Plug Ass'y	213-497
5	2	Retaining Clip	125-1014
6	2	Pilot Push-in Fitting	See p. 15
7	4	Supply/Exhaust Push-in Fitting	See p. 15
8	1	LH Endplate	104-760
9	1	Gasket	113-571
10	2	Cover 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

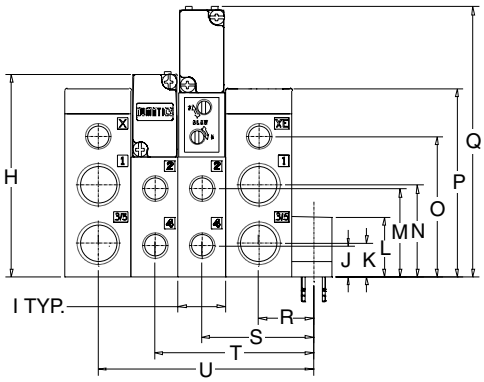
Port Type	NPTF			ISO228/1-G			Push-In			Push-In		
PORT	1	3/5	X, XE	1	3/5	X, XE	1	3/5	X, XE	1	3/5	X, XE
PORT SIZE	3/8	3/8	1/8	3/8	3/8	1/8	3/8	1/2	1/4	10mm	10mm	6mm
Kit w/o muffler, w/o DIN Rail	239-1642			239-1646			239-1650			239-1654		
Kit w/o muffler, w/ DIN Rail	239-1641			239-1645			239-1649			239-1653		
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		

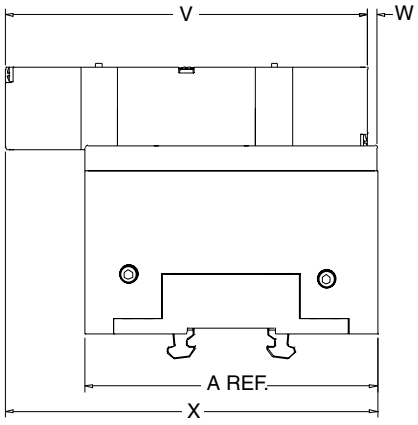
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

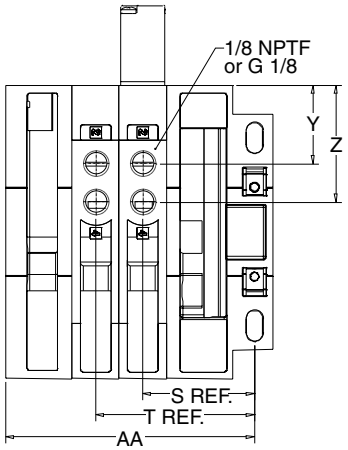
Manifold Assembly

Dimensions: Inches (mm)









NOTE:

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

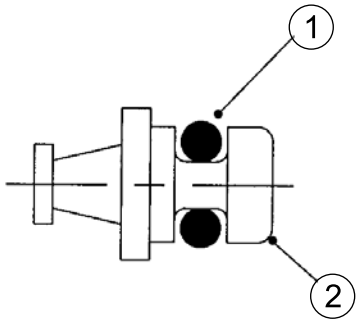
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
4.65 (118.2)	1.06 (27.0)	1.62 (41.2)	1.40 (35.7)	2.87 (73.0)	1.40 (35.7)	0.34 (8.7)	3.24 (81.8)	0.75 (19.0)	0.49 (12.5)	0.53 (13.5)	0.96 (24.4)	1.40 (35.5)	1.46 (37.0)	2.22 (56.5)

P	Q	R	S	T	U	V	W	X	Y	Z	AA
2.99 (76.0)	4.31 (109.5)	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)

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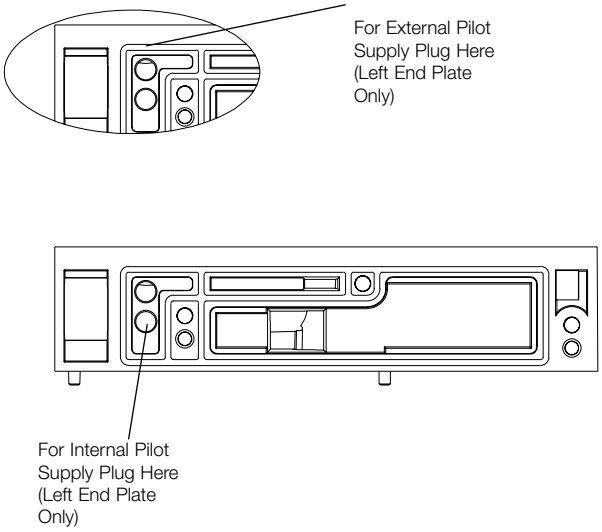
Internal Pilot Plug

213-497



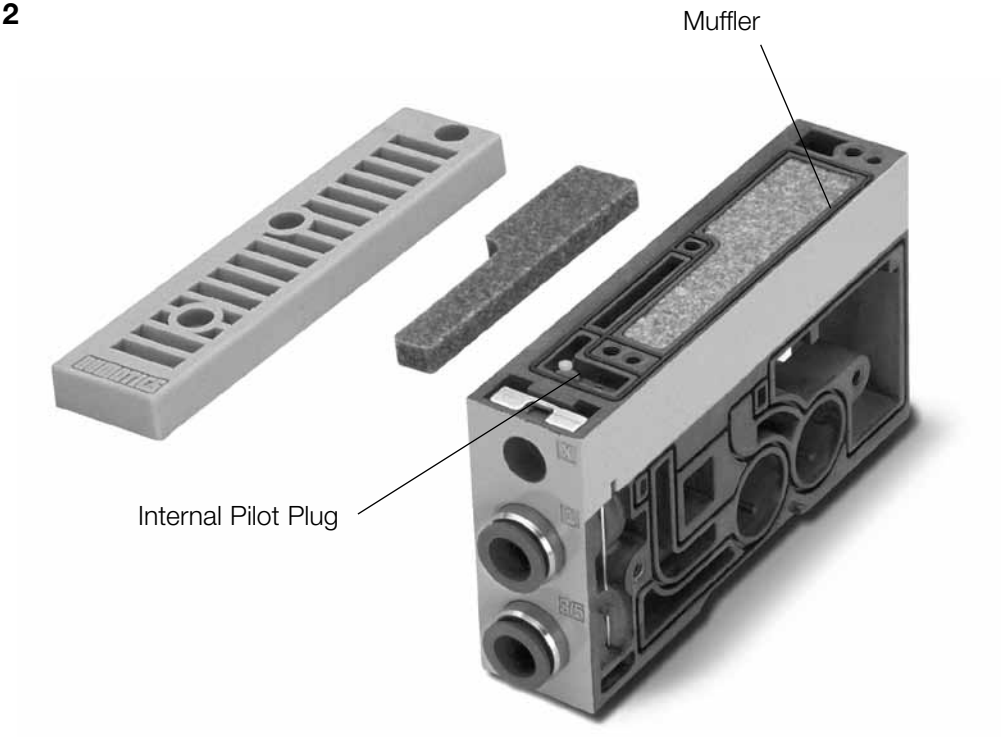
Det. No.	No. Req'd	Part Name	Part No.
1	1	Plug	125-820
2	1	O-Ring	126-471

Internal/External Pilot Selection



Internal Muffler

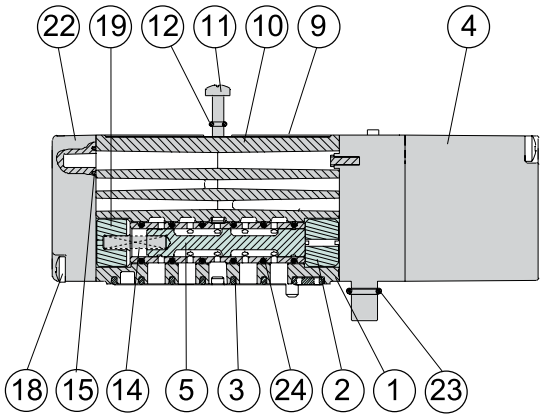
125-1012



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Valve Service Kits and Parts

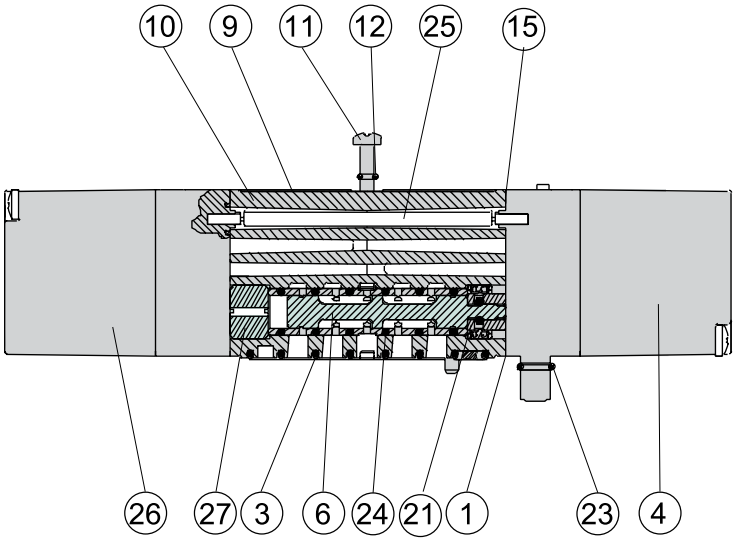
Kit No. 2005-K1*
(For Models 051BA4, 052BA4, 05FBA4, 05HBA4)



Det. No.	BA4	BB	Part Name	Part No.
1	1	1	Sceen	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. 14
5	1	N/A	Spool & Sleeve Assembly	209-512
6	N/A	1	Spool & Sleeve Assembly	209-634
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. 14
27*	N/A	1	Spacer	116-516

*Indicates parts included in service kit.

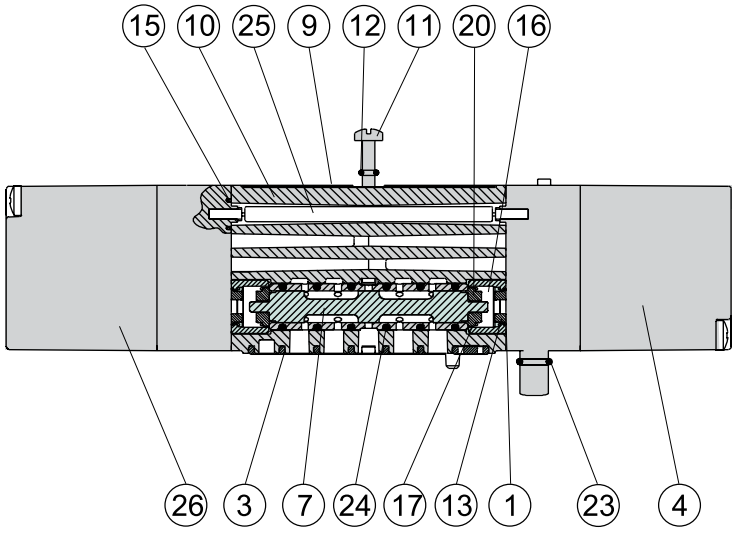
Kit No. 2005-K2*
(For Models 051BB4, 052BB4, 05FBB4, 05HBB4)



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Valve Service Kits and Parts

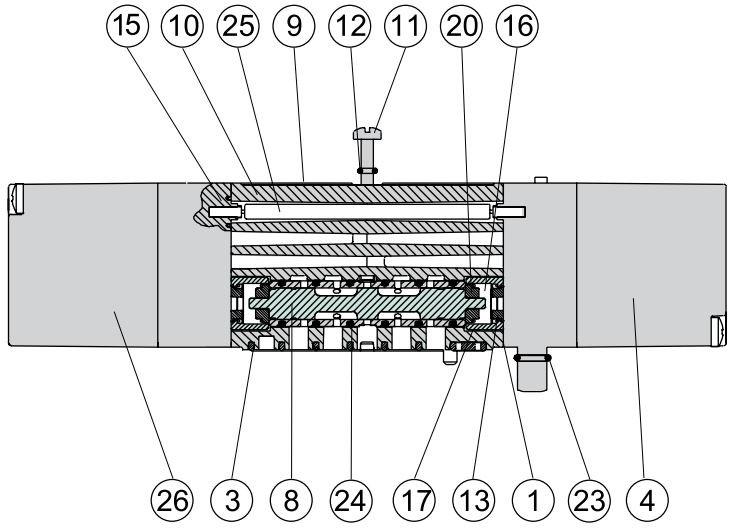
Kit No. 2005-K3*
(For Models 051BB5, 052BB5, 05FBB5, 05HBB5)



Det. No.	BA4	BB	Part Name	Part No.
1	1	1	Sceen	125-789
3*	1	1	Gasket Body/Manifold	113-574
4	1	1	Solenoid Pilot – 14 End	See p. 14
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. 14

*Indicates parts included in service kit.

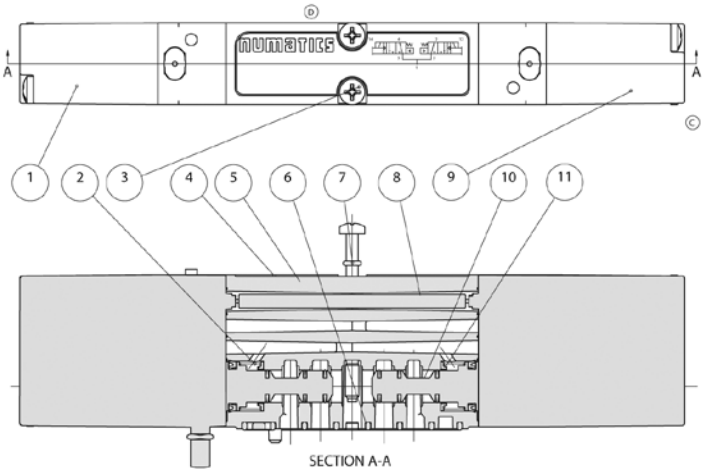
Kit No. 2005-K3*
(For Models 051BB6, 052BB6, 05FBB6, 05HBB6)



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Valve Service Kits and Parts, Dual 3-Way

Kit No. 2005-K3A
(for models 051BBA, 052BBA, 053BBA, 05FBBA, 05HBBA)

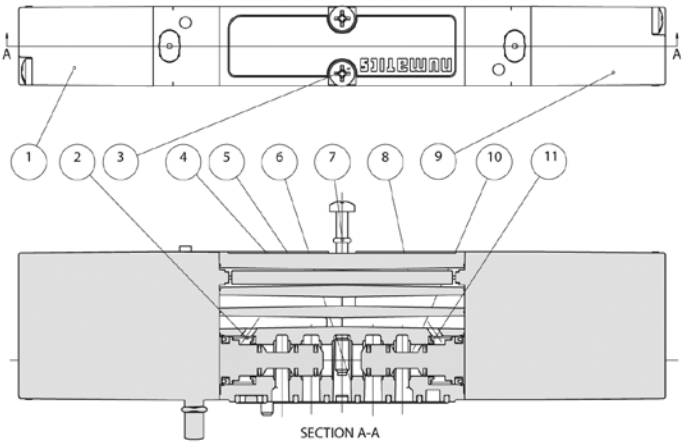


Parts List

Det. No.	No. Req'd	Part Name	Part No.
1	1	Sol. Pilot Ass'y 14	237-1112
2*	2	Spring	115-395
3	2	Screw	127-990
4	1	Nameplate	122-1121
5	1	Body	101-821
6*	1	Gasket	113-574
7*	2	O-ring	126-345
8	1	14 To 12 Conn.	230-1044
9	1	Sol. Pilot Ass'y 12	237-1118
10*	2	Spool Ass'y W/seals	221-187
11*	2	Bumper	114-205

* Indicates parts included in service kit

Kit No. 2005-K3B
(for models 051BBB, 052BBB, 053BBB, 05FBBB, 05HBBB)



Parts List

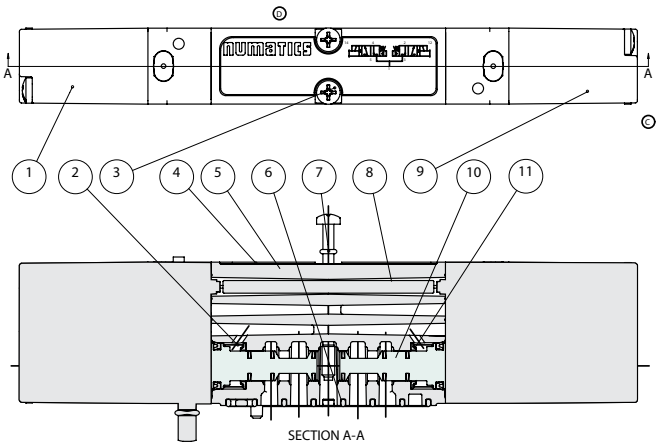
Det. No.	No. Req'd	Part Name	Part No.
1	1	Sol. Pilot Ass'y 14	237-1112
2*	2	Spring	115-431
3	2	Screw	127-990
4	1	Nameplate	122-1121
5	1	Body	101-821
6*	1	Gasket	113-574
7*	2	O-ring	126-345
8	1	14 To 12 Conn.	230-1044
9	1	Sol. Pilot Ass'y 12	237-1118
10*	2	Spool Ass'y W/seals	221-187
11*	2	Bumper	114-205

* Indicates parts included in service kit

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Valve Service Kits and Parts, Dual 3-Way

Kit No. 2005-K3D
(for models 051BBD, 052BBD, 053BBD, 05FBBD, 05HBBD)

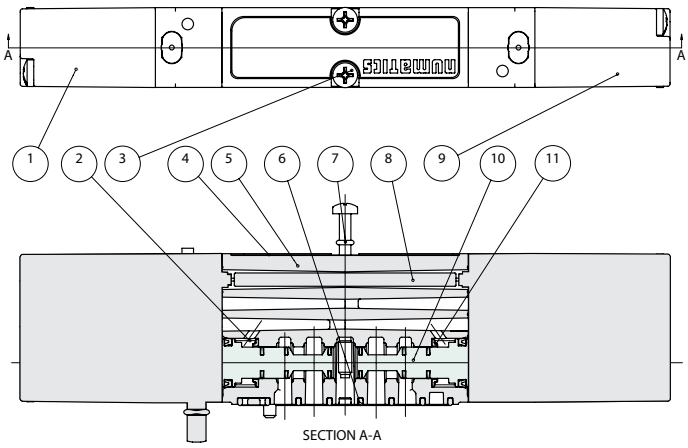


Parts List

Det. No.	No. Req'd	Part Name	Part No.
1	1	Sol. Pilot Ass'y 14	237-1112
2*	2	Spring	115-395
3	2	Screw	127-990
4	1	Nameplate	122-1121
5	1	Body	101-821
6*	1	Gasket	113-574
7*	2	O-ring	126-345
8	1	14 To 12 Conn.	230-1044
9	1	Sol. Pilot Ass'y 12	237-1118
10*	2	Spool Ass'y W/seals	221-186
11*	2	Bumper	114-205

* Indicates parts included in service kit

Kit No. 2005-K3E
(for models 051BBE, 052BBE, 053BBE, 05FBBE, 05HBBE)



Parts List

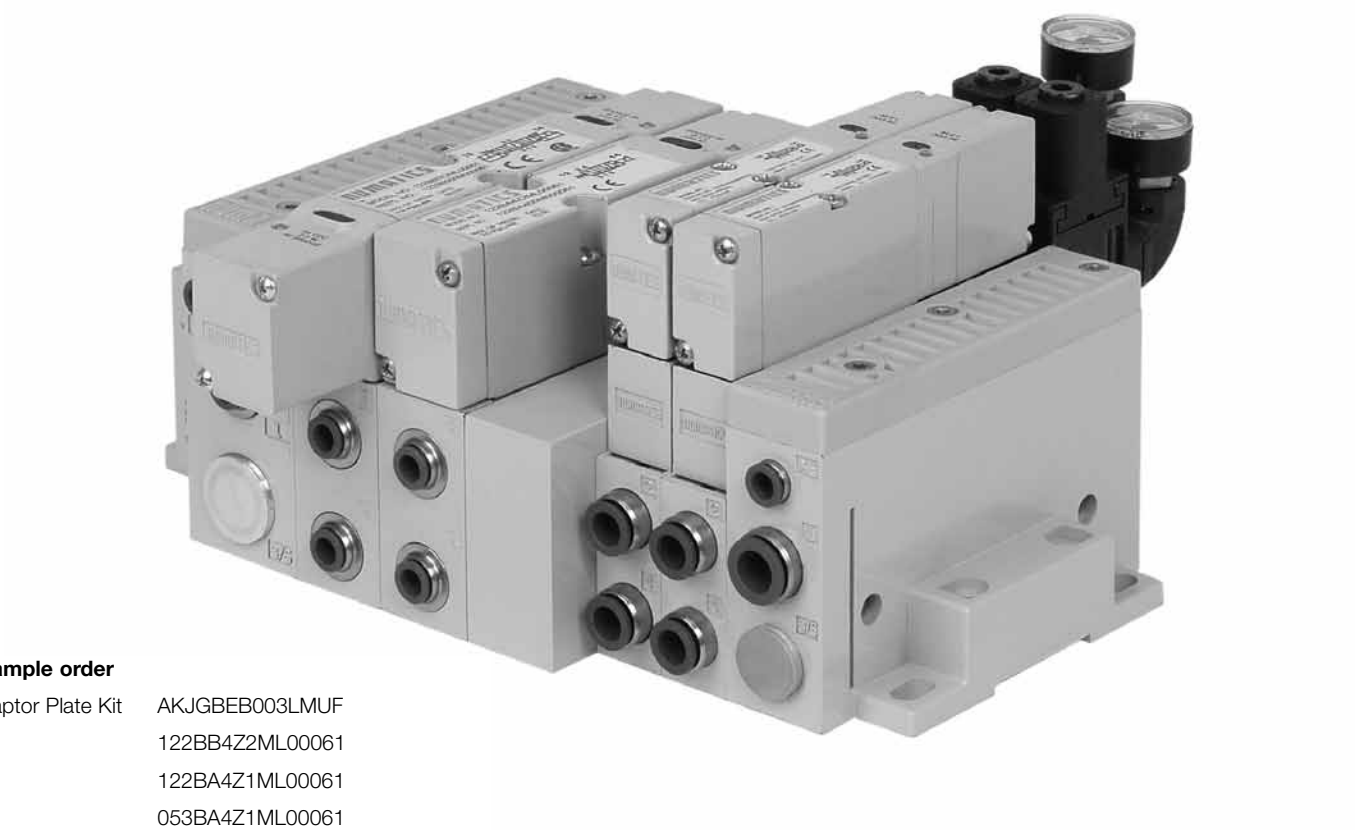
Det. No.	No. Req'd	Part Name	Part No.
1	1	Sol. Pilot Ass'y 14	237-1112
2*	2	Spring	115-431
3	2	Screw	127-990
4	1	Nameplate	122-1121
5	1	Body	101-821
6*	1	Gasket	113-574
7*	2	O-ring	126-345
8	1	14 To 12 Conn.	230-1044
9	1	Sol. Pilot Ass'y 12	237-1118
10*	2	Spool Ass'y W/seals	221-186
11*	2	Bumper	114-205

* Indicates parts included in service kit

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Adaptor Plate Kits 239-1965

This kit includes the adaptor plate, transfer board, gasket, screws, and studs. Individual end plates for the 2005 and 2012 are not included. This adaptor allows the transition from the 2012 to the 2005 series.



Example order

Adaptor Plate Kit	AKJGBEB003LMUF
	122BB4Z2ML00061
	122BA4Z1ML00061
	053BA4Z1ML00061
	053BA4Z1ML00061
	ASSEMBLED

Adaptor Plate Kit with Standard End Plates ("STD" Option)

Description	Part No.
2005 with 3/8 NPTF - 2012 with 3/8 and 1/2 NPTF	239-2064
2005 with 3/8 G-Tap - 2012 with 3/8 and 1/2 G-Tap	239-2068
2005 with 3/8 Push-in - 2012 with 3/8 and 1/2 Push-in	239-2072
2005 with 10 mm Push-in - 2012 with 10 & 14 mm Push-in	239-2076

Adaptor Plate Kit with Standard End Plates and Muffler ("MUF" Option)

Description	Part No.
2005 with 3/8 NPTF - 2012 with 3/8 and 1/2 NPTF	239-2065
2005 with 3/8 G-Tap - 2012 with 3/8 and 1/2 G-Tap	239-2069
2005 with 3/8 Push-in - 2012 with 3/8 and 1/2 Push-in	239-2073
2005 with 10 mm Push-in - 2012 with 10 & 14 mm Push-in	239-2077

Adaptor Plate Kit with Standard End Plates and DIN Rail Mount ("DRM" Option)

Description	Part No.
2005 with 3/8 NPTF - 2012 with 3/8 and 1/2 NPTF	239-2066
2005 with 3/8 G-Tap - 2012 with 3/8 and 1/2 G-Tap	239-2070
2005 with 3/8 Push-in - 2012 with 3/8 and 1/2 Push-in	239-2074
2005 with 10 mm Push-in - 2012 with 10 & 14 mm Push-in	239-2078

Adaptor Plate Kit with Standard End Plates, Muffler and DIN Rail Mount ("DWM" Option)

Description	Part No.
2005 with 3/8 NPTF - 2012 with 3/8 and 1/2 NPTF	239-2067
2005 with 3/8 G-Tap - 2012 with 3/8 and 1/2 G-Tap	239-2071
2005 with 3/8 Push-in - 2012 with 3/8 and 1/2 Push-in	239-2075
2005 with 10 mm Push-in - 2012 with 10 & 14 mm Push-in	239-2079

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Manifold Assembly

2005 Series

AK J E D 0000 3 L STD

Electrical/Electronics Type & Location
3 = G3 Fieldbus Electronics, See Electronics Section
F = Terminal Strip 1-16
J = 25 Pin Sub-D
M = 37 Pin Sub-D
P = 12 Pin Round Connector
Q = 19 Pin Round Connector
R = 26 Pin Round Connector
S = 26 + 12 Pin Round Connector
T = Terminal Strip 1-32

Valve Series
E = 2005 Series

Options
STD = Standard
DRM = DIN Rail Mounting
MUF = Muffler in End Plates
DWM = DIN Rail with MUF
14X = External Pilot

Port Type
L = Push-in
N = NPTF
G = G Tap

End Plate Port Size 2005
3 = Port type L, N or G
Port 1 = 3/8 Port 3/5 = 3/8
K = Port type L only
Port 1 = 10mm Port 3/5 = 10mm

Number of Valve Stations

A = 1	I = 9	Q = 17	Y = 25
B = 2	J = 10	R = 18	Z = 26
C = 3K	K = 11S	S = 19	2 = 27
D = 4L	L = 12T	T = 20	3 = 28
E = 5M	M = 13U	U = 21	4 = 29
F = 6N	N = 14V	V = 22	5 = 30
G = 7O	O = 15W	W = 23	6 = 31
H = 8P	P = 16X	X = 24	7 = 32

Maximum Solenoid Outputs

Terminal Strip		25 PIN Sub-D	37 PIN Sub-D	26 PIN Round
AK "F"	AK "T"	AK "J"	AK "M"	AK "R"
16	32	22	32	22

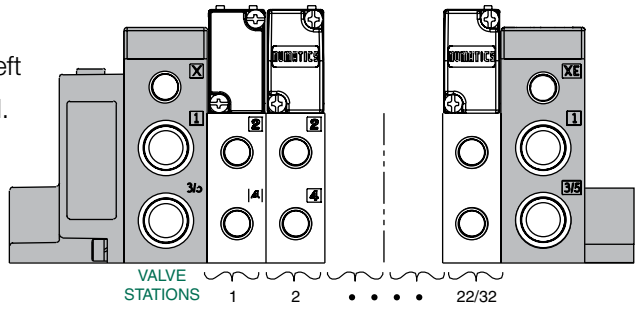
*NOTE: Maximum number of valve stations is determined by:
- The electrical connection type.
- The valve type - single solenoid valves up to the maximum solenoid outputs allowed by the electrical connection type (see chart above) or a combination of single and/or double solenoid valves not to exceed the maximum number of solenoid outputs allowed.
- Combination of all stations cannot exceed 32

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Manifold Assembly Example

AKJ or AKM 25 or 37 Pin Sub-D

- Shaded components described by Assembly Kit (AK) model number designation.
- Each valve manifold station is listed in sequential order from left to right when facing the port side of the manifold as indicated.

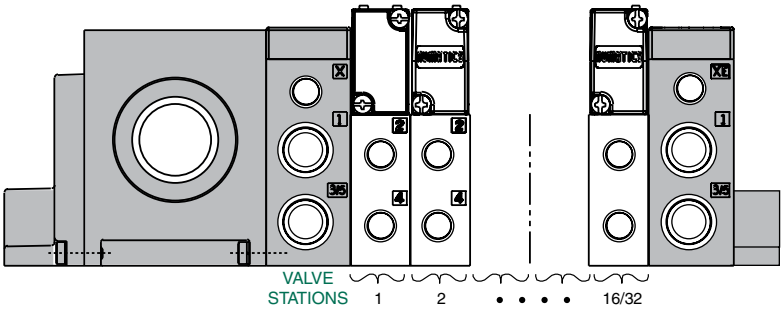


Example order: (2005)

25 Pin Sub-D	AKJED00003NSTD
valve station 1	051BA4Z1MN00061
valve station 2	051BA4Z1MN00061
valve station 3	051BB4Z2MN00061
valve station 4	051BB5Z2MN00061
	ASSEMBLED

AKF or AKT 1-16 or 1-32 Terminal Strip

- Ordered using the same method as Sub-D:

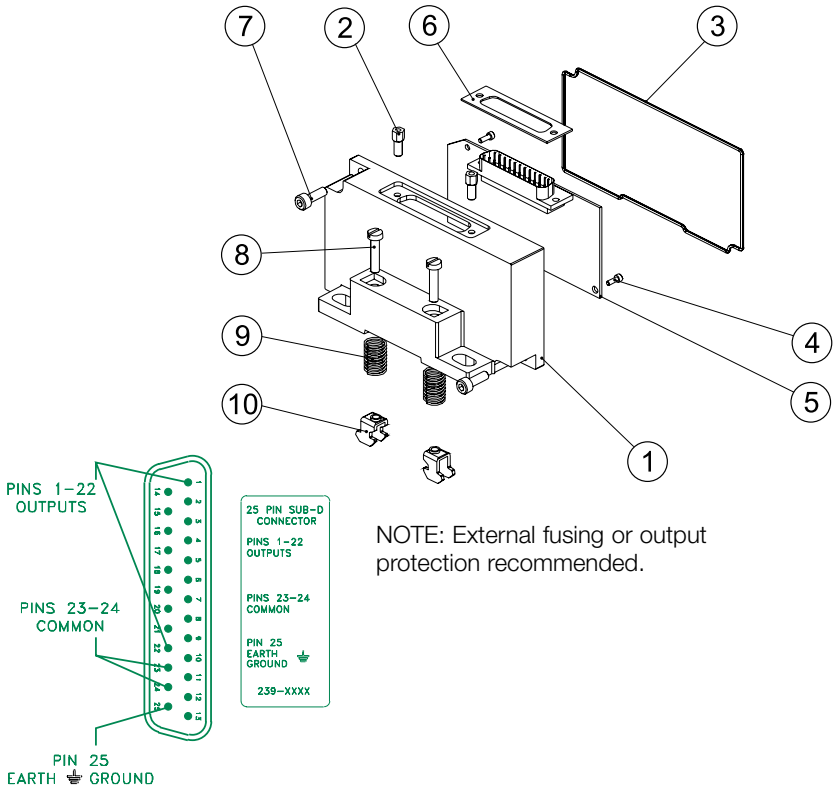


Example order: (2005)

	AKFEF00003LDRM
valve station 1	05HBA4Z1ML00061
valve station 2	05HBA4Z1ML00061
valve station 3	05HBB4Z2ML00061
valve station 4	05HBB4Z2ML00061
valve station 5	05HBB5Z2ML00061
valve station 6	05HBB6Z2ML00061
	ASSEMBLED

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25 Pin Sub-D Connector Kit

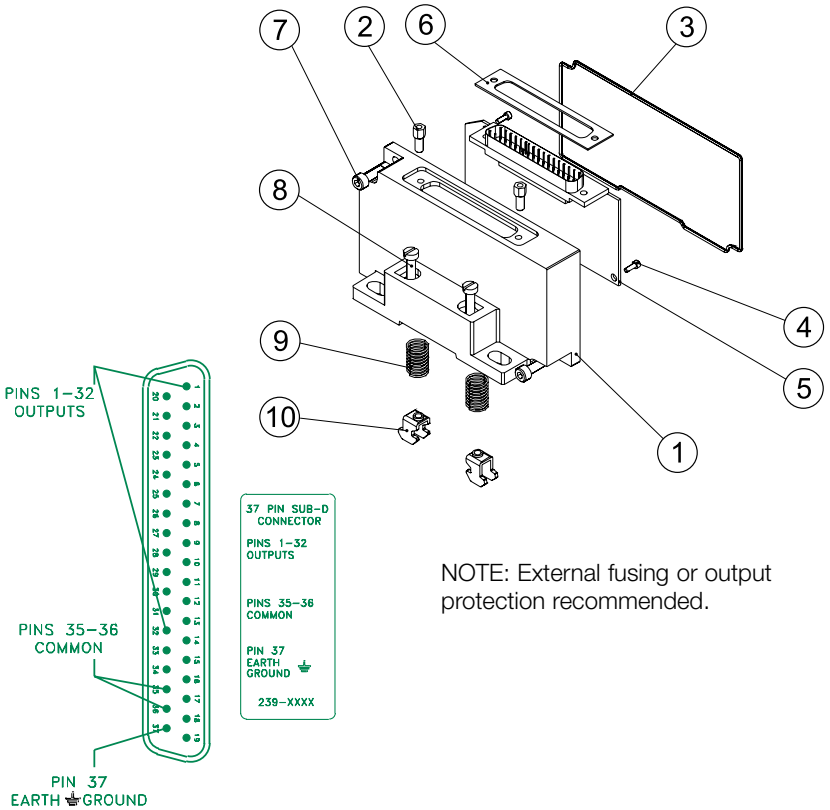


NOTE: External fusing or output protection recommended.

37 Pin Sub-D Housing Kits	Part No.
Without DIN Rail	239-1174
With DIN Rail	239-1175

Det. No.	No. Req'd	Part Name	Part No.
1	1	Housing	105-401
2	2	Hex Screw	127-825
3	1	Gasket	113-531
4	2	Screw	127-318
5	1	PCB Ass'y	256-607
6	1	Gasket	113-507
7	2	Screw Ass'y	127-396
8	2	Screw (DIN Rail Only)	127-472
9	2	Spring (DIN Rail Only)	115-355
10	2	Clamp (DIN Rail Only)	125-720

37 Pin Sub-D Connector Kit



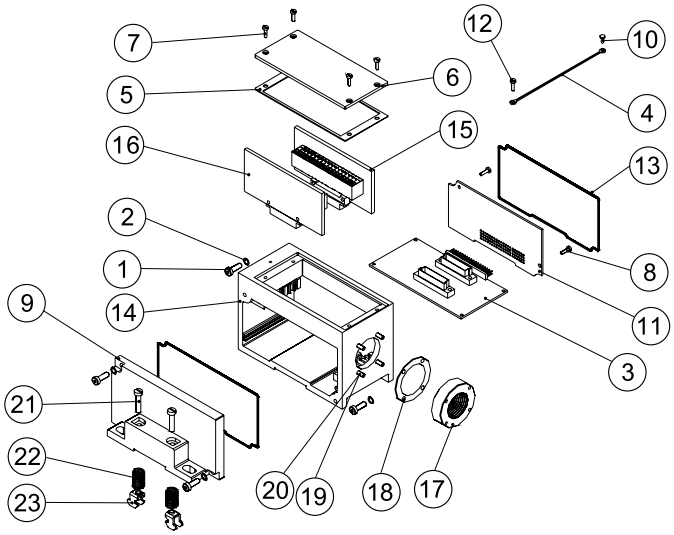
NOTE: External fusing or output protection recommended.

37 Pin Sub-D Housing Kits	Part No.
Without DIN Rail	239-1180
With DIN Rail	239-1181

Det. No.	No. Req'd	Part Name	Part No.
1	1	Housing	105-402
2	2	Hex Screw	127-825
3	1	Gasket	113-531
4	2	Screw	127-318
5	1	PCB Ass'y	256-608
6	1	Gasket	113-530
7	2	Screw Ass'y	127-396
8	2	Screw (DIN Rail Only)	127-472
9	2	Spring (DIN Rail Only)	115-355
10	2	Clamp (DIN Rail Only)	125-720

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1-16 & 1-32 Terminal Strip Kit

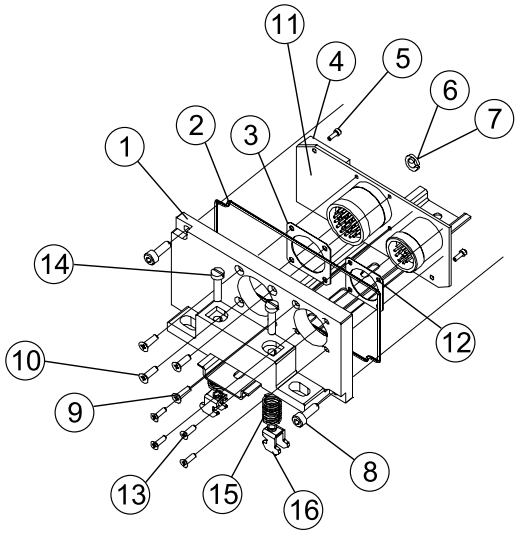


NOTE: External fusing or output protection recommended.
NOTE: Min. Wire AWG 26
Max. Wire AWG 18

Terminal Strip Housing Kits	Part No.
Without DIN Rail, 1-16 Sol.	239-1229
With DIN Rail, 1-16 Sol.	239-1230
Without DIN Rail, 1-32 Sol.	239-1231
With DIN Rail, 1-32 Sol.	239-1232

Det. No.	No. Req'd	Part Name	Part No.
1	4	Screw	127-697
2	4	Lockwasher	128-188
3	1	Backplane board	256-618
4	1	Cover Strap	125-772
5	1	Gasket	113-533
6	1	Cover	105-405
7	4	Screw	127-852
8	1	Screw	127-318
9	1	DIN Rail Cover PT	105-403
10	1	Screw	127-180
11	1	Converter BRD	256-645
12	2	Screw	127-794
13	2	Gasket	113-531
14	1	Housing	125-844
15	1	Terminal Strip (1-16)	256-617
16	1	Terminal Strip (17-32)	256-619
17	1	Adaptor	119-659
18	1	Gasket	113-542
19	4	Screw	127-879
20	4	Lockwasher	128-192
21	2	Screw (DIN Rail Only)	127-472
22	2	Spring (DIN Rail Only)	115-355
23	2	Clamp (DIN Rail Only)	125-720

26 Pin & 26 + 12 Pin Round Connector Kit



26 Pin 26 Pin + 12 Pin

NOTE: External fusing or output protection recommended.

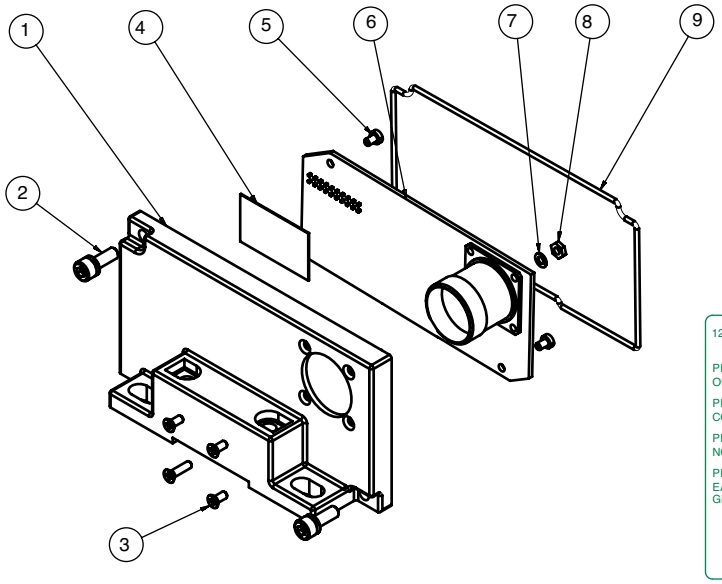
26 Pin Round Kit	Part No.
Without DIN	239-1184
With DIN	239-1185

26 + Pin Round Kits	Part No.
Without DIN	239-1184
With DIN	239-1185

Det. No.	No. Req'd	Part Name	Part No.
1	1	Cover (26 Pin Only)	105-408
1	1	Cover (26 + 12 Pin Only)	105-421
2	1	Gasket	113-531
3	1	Gasket	113-353
4	1	26 PCB Ass'y	256-624
4	1	26 + 12 PCB Ass'y	256-688
5	2	Screw	127-875
6	1	Lockwasher	128-294
7	1	Hex Nut	128-293
8	2	Screw Ass'y	127-396
9	3	Screw	127-810
10	1	Screw	127-770
11	1	Shield (26 + 12 Pin Only)	140-759
12	1	Gasket (26 + 12 Pin Only)	113-354
13	4	Screw (26 + 12 Pin Only)	127-811
14	2	Screw (DIN Rail Only)	127-742
15	2	Spring (DIN Rail Only)	115-355
16	2	Clamp (DIN Rail Only)	125-720

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12 Pin Round Connector Kit 239-2115



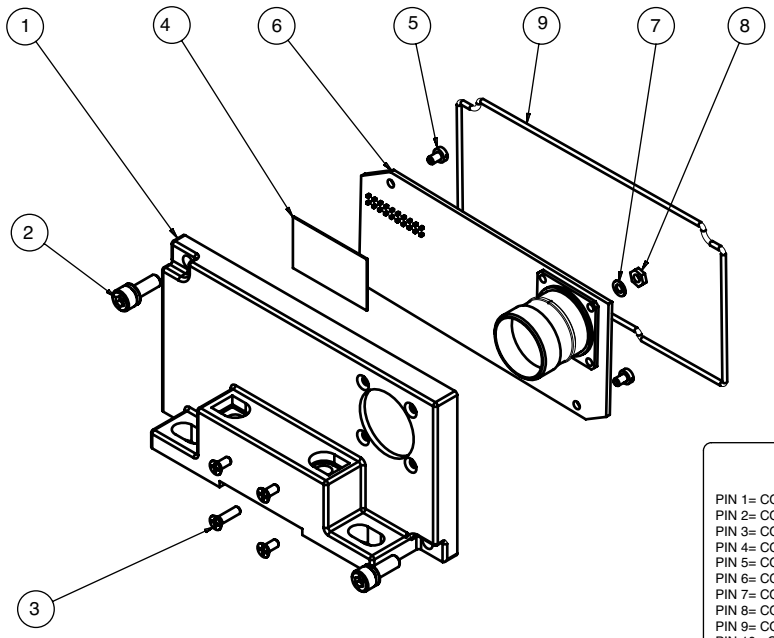
12 PIN ROUND CONNECTOR
PINS 1-8 OUTPUTS
PINS 9-10 COMMON
PIN 11 NOT USED
PIN 12 EARTH GROUND
239-2115

Parts List

Det. No.	No. Req'd	Part Name	Part No.
1	1	Cover	105-451
2	2	Screw	127-391
3	4	Screw	127-982
4	1	Shield	140-759
5	2	Screw	127-875
6	1	PC Board	256-905
7	4	Lockwasher	128-352
8	4	Nut	128-288
9	1	Gasket	113-531

NOTE: External fusing or output protection recommended.

19 Pin Round Connector Kit 239-2307



Parts List

Det. No.	No. Req'd	Part Name	Part No.
1	1	Cover	105-451
2	2	Screw	127-391
3	4	Screw	127-982
4	1	Shield	140-759
5	2	Screw	127-875
6	1	PC Board	256-905
7	4	Lockwasher	128-352
8	4	Nut	128-288
9	1	Gasket	113-531

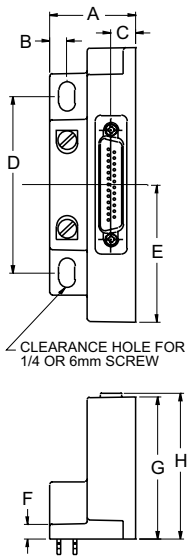
19 PIN CONNECTOR

PIN 1= COIL 15
PIN 2= COIL 11
PIN 3= COIL 7
PIN 4= COIL 4
PIN 5= COIL 3
PIN 6= COMMON
PIN 7= COIL 2
PIN 8= COIL 6
PIN 9= COIL 10
PIN 10= COIL 14
PIN 11= COIL 13
PIN 12= P.E.
PIN 13= COIL 12
PIN 14= COIL 8
PIN 15= COIL 1
PIN 16= COIL 5
PIN 17= COIL 9
PIN 18= COIL 16
PIN 19= N.C.

NOTE: External fusing or output protection recommended.

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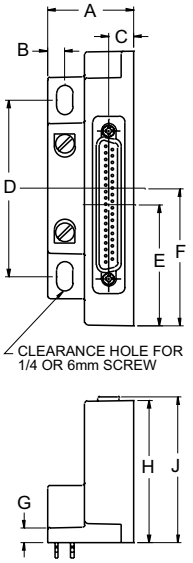
Electrical Interface
25 Pin Sub-D



Dimensions: Inches (mm)

A	B	C	D	E	F	G	H
1.45 (36.8)	0.29 (7.4)	0.42 (10.7)	2.98 (75.7)	2.32 (58.9)	0.25 (6.3)	2.40 (61.0)	2.47 (62.7)

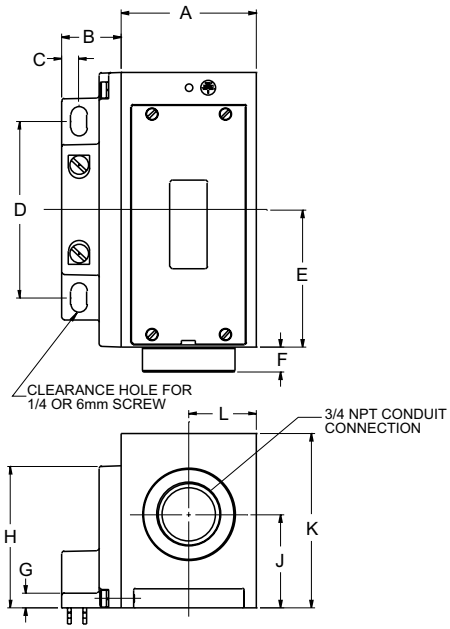
37 Pin Sub-D



Dimensions: Inches (mm)

A	B	C	D	E	F	G	H	J
1.45 (36.8)	0.29 (7.4)	0.42 (10.7)	2.98 (75.7)	2.04 (51.8)	2.32 (58.9)	0.25 (6.3)	2.40 (61.0)	2.47 (62.7)

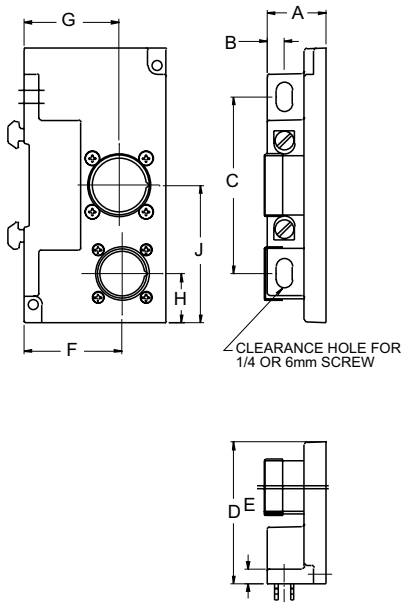
Terminal Strip 1-16 & 1-32



Dimensions: Inches (mm)

A	B	C	D	E	F	G	H	J	K	L
2.28 (57.9)	1.00 (25.4)	0.29 (7.4)	2.98 (75.7)	2.32 (58.9)	0.43 (10.9)	0.25 (6.3)	2.40 (61.0)	1.58 (40.1)	2.95 (74.9)	1.14 (29.0)

12, 19, 26 & 26 + 12 Pin Round Connector



Dimensions: Inches (mm)

A	B	C	D	E	F	G	H	J
1.00 (25.4)	0.29 (7.4)	2.98 (75.7)	2.40 (61.0)	0.25 (6.3)	1.66 (42.2)	1.61 (40.9)	0.82 (20.8)	2.32 (58.9)

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2.5M-TGI-10/09

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