

valves

2009 Series

Solenoid Pilot Actuated Valves



numatics®

2009 Series

..... 3-14

Technical & Operating Data 3

How To Order 4-5

Valve with Base 6

Flexiblok® Assembly 7

Sandwich Pressure Regulators 8

Sandwich Pressure Regulator 9

Valve Regulator / Speed Control Plug-in Assembly 10

End Plate Assembly Kit 11

Blank Station Plate Kit 11

Blocking Disc Kit 11

Speed Control Kit with Plug 11

Adaptor Kits with End Plates 12

Terminal Block Kit 12

Solenoid Pilot Assemblies 12

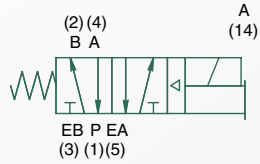
Base Assembly Kit 13

Flexiblok Manifold Kit 13

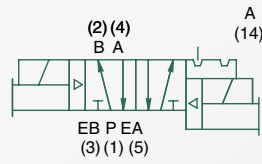
Service Kits and Parts - 2 Position 14



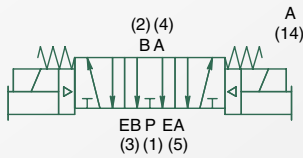
single solenoid air pilot
2 position 4-way



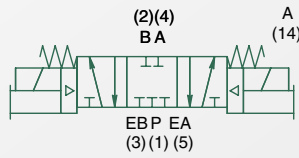
double solenoid air pilot
2 position 4-way



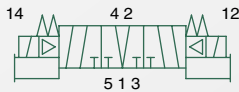
double solenoid air pilot
3 position 4-way
open center



double solenoid air pilot
3 position 4-way
closed center



double solenoid pilot
3 Position 4-Way (5/3),
open to 4 (A) and
2 (B) in center



5-ported, 4-way, 2 and 3 position, Spool & Sleeve
Cv: 0.9

- Solenoid pilot actuated
- Lightweight magnesium alloy valve body
- Plug-in solenoid with indicator light
- Multi-purpose
- 1/8 and 1/4 NPTF or G Tap ports
- For unlubricated or lubricated service
- Integral plug-in and regulators available
- Integral plug-in speed control with adjustments on the same end.
- Plug-in manifold with terminal block for ease of wiring
- Optional push-in tubing connections on subbases and manifolds.



Technical Data

VALVE DATA	NPTF	G TAP
Cv	0.9	0.9
Flow Capacity	41 SCFM @ 80 PSIG upstream pressure to atmosphere	887 NI/m @ 80 PSIG upstream pressure to atmosphere
Main Valve Operating Pressure Range	28" Hg. to 150 PSIG	Vacuum to 10 bar
Pilot Pressure Range	14.5 to 120 PSIG	1 to 8.23 Bar
Temperature Range (Ambient)	-10°F to +115°F ambient	-23°C to +46°C

Operating Data

ALL SOLENOIDS ARE CONTINUOUS DUTY RATED	24 VDC	110 V AC/ 50 Hz. to 120 V AC/60 Hz.		
Power (Watts)	2.5 W	4.2 W		
Holding Current (Amps)	0.10 amps	0.03 amps		
RESPONSE TIME IN SECONDS	ENERGIZE	DE-ENERGIZE	ENERGIZE	DE-ENERGIZE
2 - Position, Single, Spring Return	0.010	0.024	0.010	0.024
2 - Position, Double, Detented	0.010	N/A	0.010	N/A
3 - Position, Spring Centered	0.011	0.031	0.010	0.031



How to Order

091 BA 4 11 M N 000 61

Valve Series & Port Size

- 091 = 1/8
- 092 = 1/4
- 09H = 8mm
- 09F = 6mm

Valve Type

- BA = Solenoid Pilot 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 Blocked Center
- 7 = 3 Position 4-Way (5/3), Open to 4 (A) and 2 (B) in Center
- P = Blank Station

Mounting

- 00 = Valve Unit Only (Used with Blank Station)
- 3A = Plug-in Base, Side Ports Individual Exhaust
- 3C = 3A with Speed Control
- 11 = Standard Blok, Side Ports
- 15 = 11 with Side and Bottom Cylinder Ports
- 21 = 11 with Speed Control
- 25 = 15 with Speed Control

Voltage

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

Options

- 000 = Standard
- 11B = Flush Locking Override
- 14X = External Pilot
- 16T = Bottom P Port

Port Type

- G = G Tap
- L = Push-in Fitting
- N = NPTF
- 0 = Valve Unit Only

Wiring Option

- K = Plug-in AC w/Light
- M = Plug-in DC w/Light
- 0 = Blank Station Plate

092 RS 3 25 J N 000 00

Valve Series & Port Size

- 091 = 1/8
- 092 = 1/4
- 09H = 8mm
- 09F = 6mm

Regulator Type

- RS = Single Pressure to Port P (1)
- RD = Dual Pressure to Ports EB (3) & EA (5)

Pressure Range

- 3 = 3-30 PSIG Regulator
- 7 = 0-100 PSIG Regulator

Mounting

- 3A = Plug-in Base, Side Ports Individual Exhaust
- 3C = 3A with Speed Control
- 11 = Standard Blok, Side Ports
- 15 = 11 with Side and Bottom Cylinder Ports
- 21 = 11 with Speed Control
- 25 = 15 with Speed Control

Voltage

- 00 = Not Applicable

Options

- 000 = Standard
- 12H = Less Gauge
- 14X = External Pilot
- 16N = Jumper on A End
- 16P = Jumper on B End
- 16T = Bottom P Port

Port Type

- G = G Tap
- L = Push-in Fitting
- N = NPTF

Wiring Option

- J = Plug-in Recetacle Assembly



How to Order continued

Manifold Assembly

AK 0 9 F 0000 2 N STD

Electrical/Electronics

Type & Location

0 = Standard

V = For Fieldbus Electronics,

See Electronics section for ordering information

Valve Series

9 = 2009 Series

J = Mark 15 Series

Number of Valve Stations

A = 1 E = 5 I = 9 M = 13

B = 2 F = 6 J = 10 N = 14

C = 3 G = 7 K = 11 O = 15

D = 4 H = 8 L = 12 P = 16

Valve Series & Number

of Valve Stations

Options

STD = Standard

Port Type

N = NPTF

G = G Tap/Metric Conduit

C = G Tap/NPTF Conduit

End Plate Port Size

2 = 1/4

X = Multiple Valve Lines

Example order

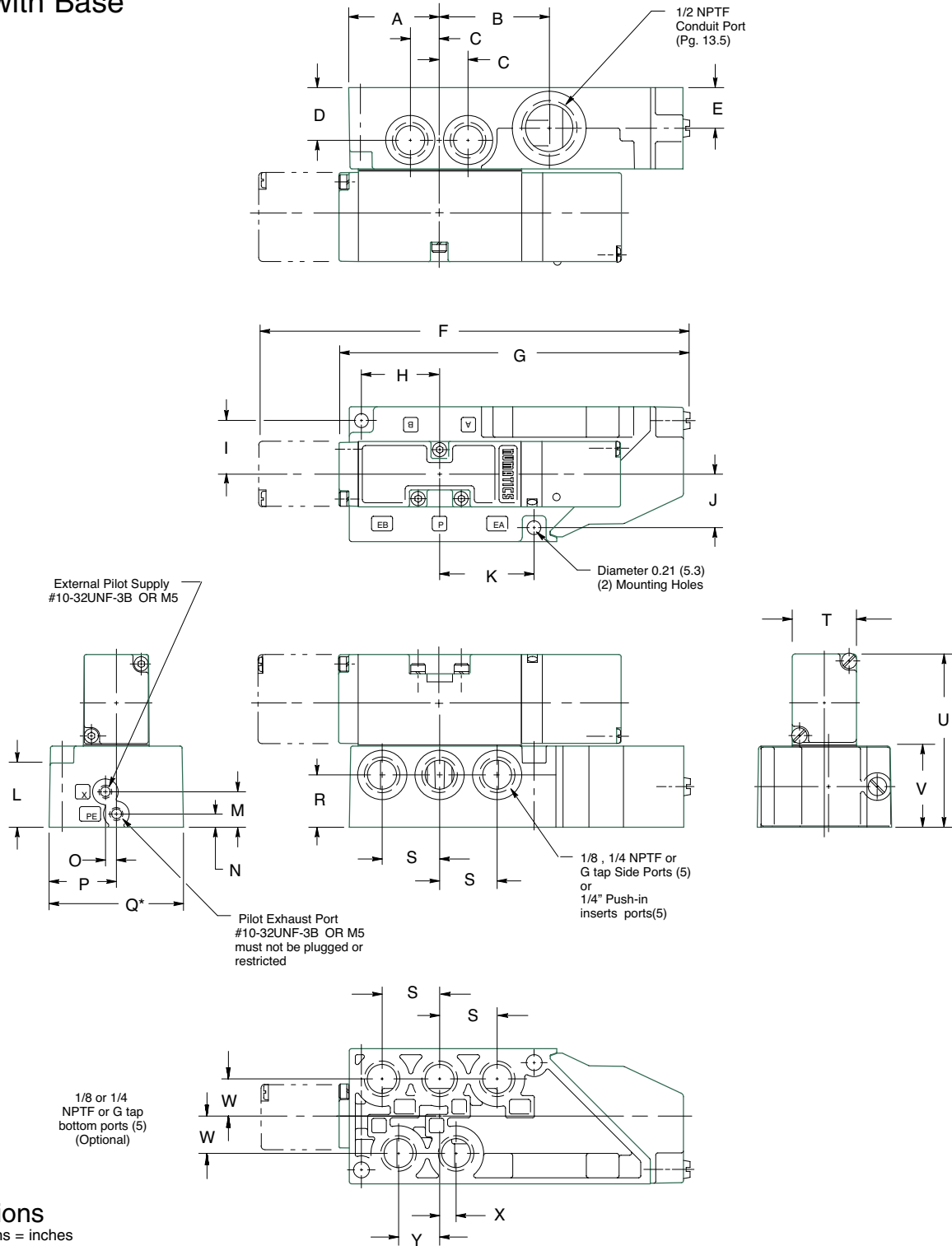
List in order, left to right, facing cylinder ports

Assembly kit	AKO9F00002NSTD
Station 1	091BA415KN00030
Station 2	092BA425KN00030
Station 3	092BS415KN00030
Station 4	092BS415KN00030
Station 5	091BA400KO00030
	092RS115JN00000
Station 6	091BA415KN00030
	ASSEMBLED



2009 Series

Valve with Base



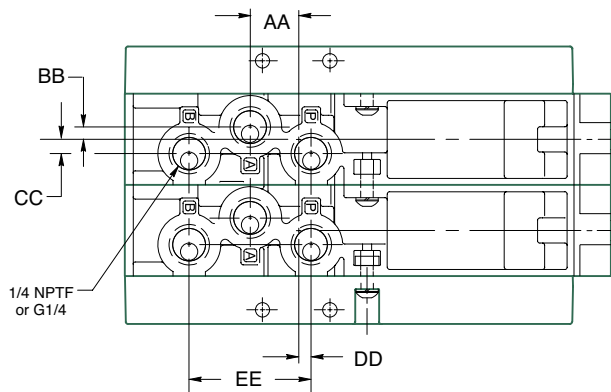
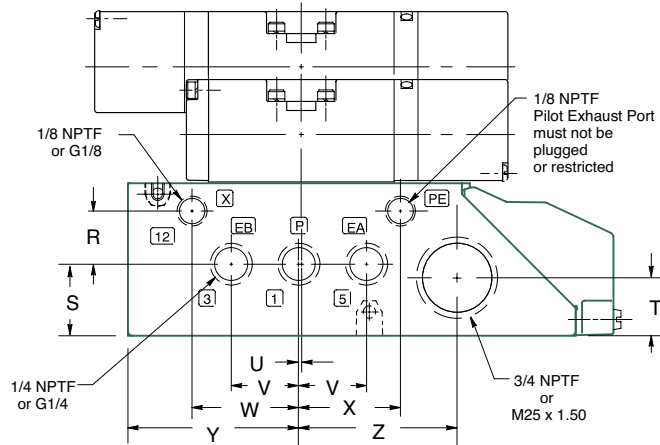
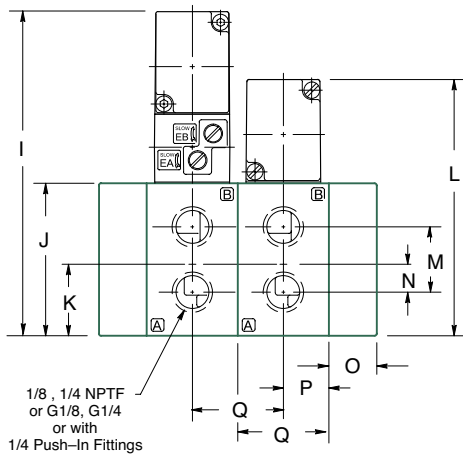
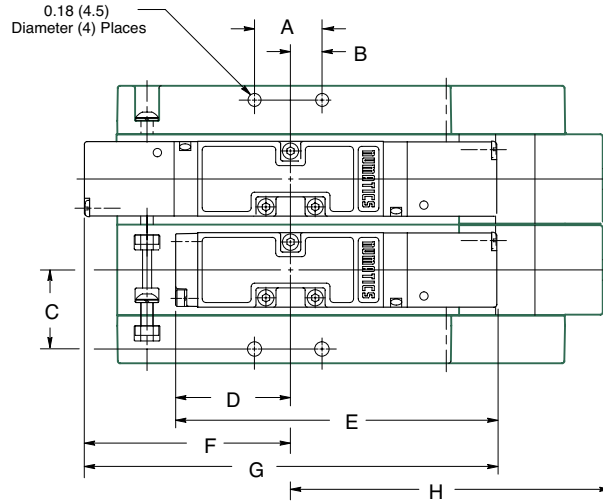
Dimensions

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

A	B	C	D	E	F	G	H	I	J	K	L	M
1.37 (35.0)	1.67 (42.4)	0.44 (11.0)	0.80 (20.2)	0.62 (16.0)	6.53 (166.0)	5.35 (136.0)	1.19 (30.0)	0.81 (20.6)	0.81 (11.2)	1.44 (36.5)	0.97 (24.6)	0.54 (14.0)
N	O	P	Q	R	S	T	U	V	W	X	Y	
0.20 (5.2)	0.17 (4.2)	1.02 (26.0)	2.05 (52.0)	0.80 (20.0)	0.88 (22.0)	1.00 (25.4)	2.63 (67.0)	1.25 (32.0)	0.57 (14.4)	0.25 (6.4)	0.63 (16.0)	



Flexiblok® Assembly



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
0.91 (23.0)	0.42 (11.0)	1.06 (27.0)	1.54 (39.0)	4.31 (109.0)	2.77 (70.0)	5.49 (139.0)	4.28 (109.0)	4.38 (110.0)	2.05 (52.0)	0.96 (24.4)	3.44 (87.0)	0.88 (22.2)	0.38 (9.5)	0.64 (16.3)	0.61 (16.0)
Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	
1.22 (31.0)	0.71 (18.0)	0.96 (24.4)	0.78 (20.0)	0.03 (0.76)	0.91 (23.0)	1.43 (36.0)	1.36 (34.5)	2.32 (59.0)	2.12 (54.0)	0.65 (16.4)	0.17 (4.2)	0.19 (4.8)	0.17 (4.2)	1.46 (37.2)	

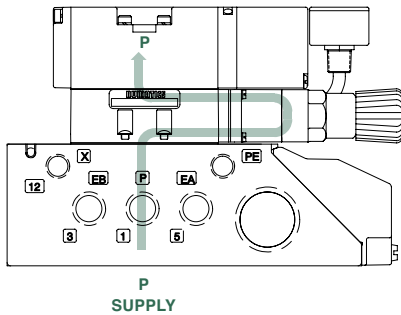


Sandwich Pressure Regulators Types: RS / RD

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

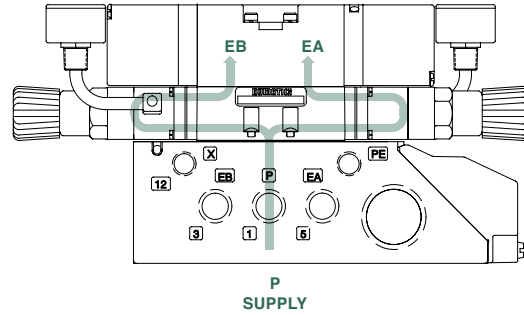
EXAMPLE ORDERS:	TYPE RS	TYPE RD
Valve unit only:	091BA400K000030	091BA400K000030
Regulator + mounting	091RS73AJL00000 ASSEMBLED	092RD711JL00000 ASSEMBLED

Type RS



Single pressure from a single supply.

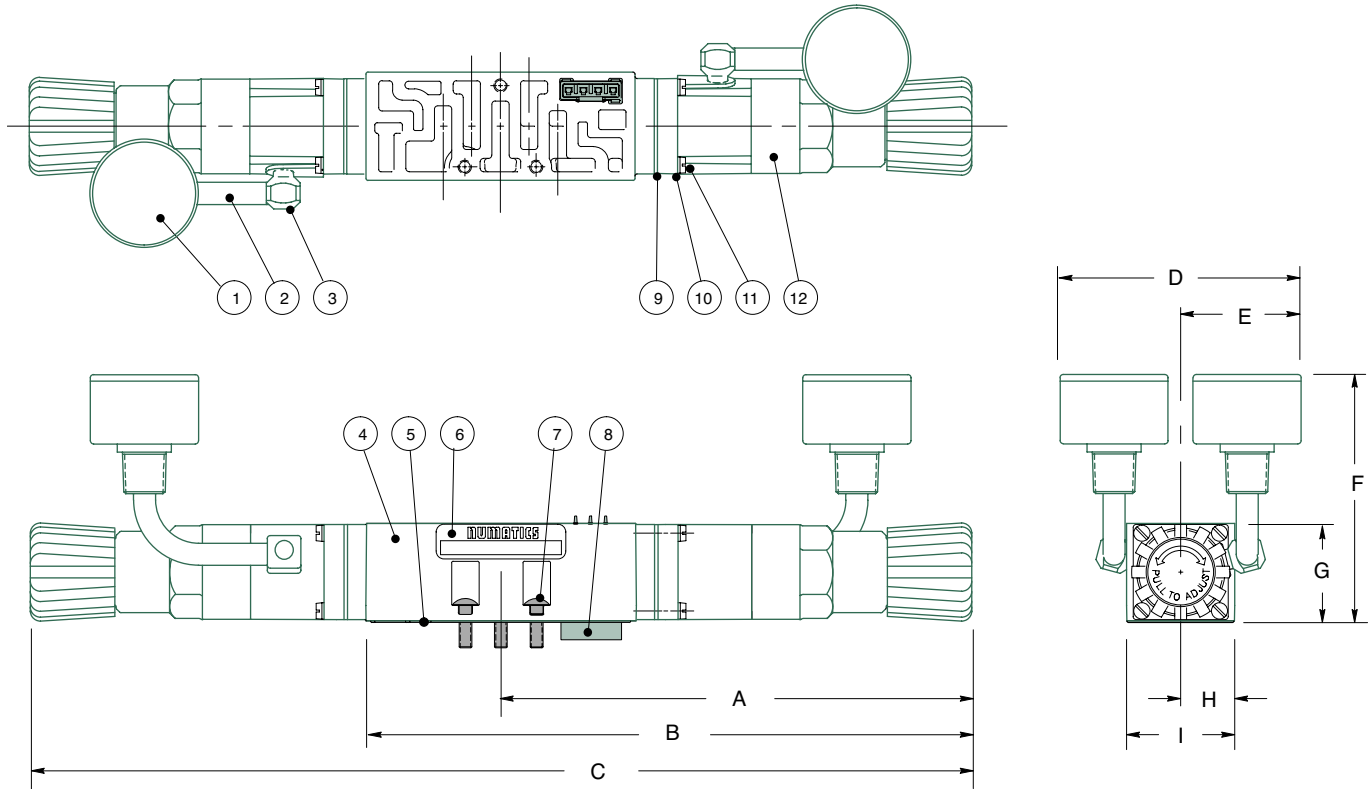
Type RD



Dual pressure from a single supply.



Sandwich Pressure Regulator



Dimensions

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

A	B	C	D	E	F	G	H	I
4.38 (111.2)	5.80 (147.3)	8.76 (222.5)	2.14 (54.4)	1.07 (27.2)	2.28 (57.9)	0.90 (22.9)	0.50 (12.7)	1.00 (25.4)

Parts List

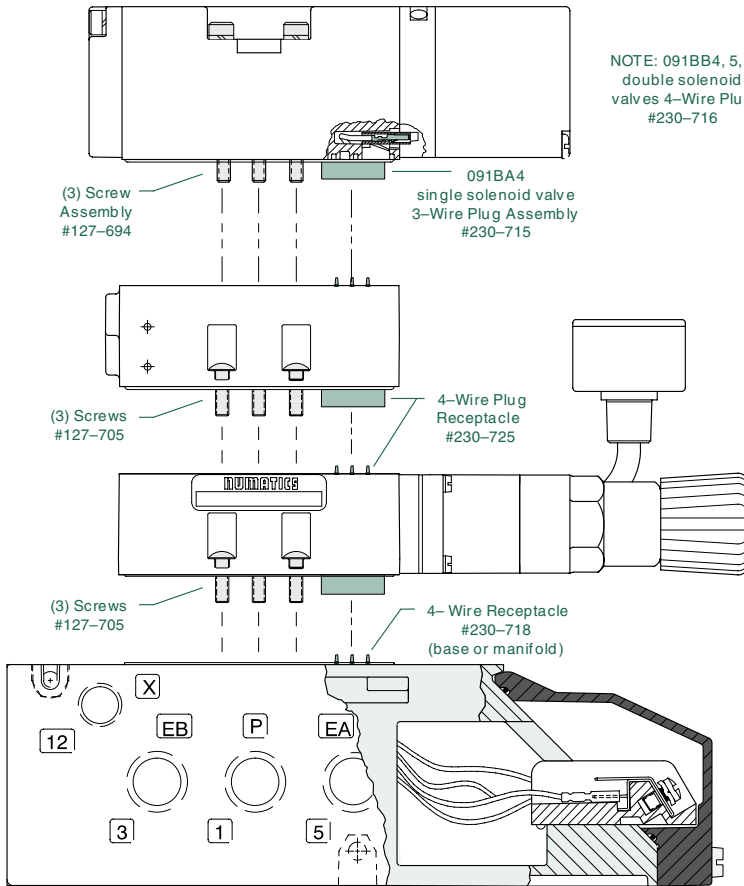
DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	2*	Gauge 0-150 PSIG	214-209
		Gauge 0-60 PSIG	214-216
2	2*	Tube Fitting	134-469
3	2*	Fitting	134-472
4	1	Regulator Block:	RS 125-615
			RD 125-616
5	1	Gasket body/base	113-464
6	1	Nameplate	122-991
7	3	Screw	127-705
8	1	Plug Receptacle	230-725
9	1	Gasket (to regulator block)	113-472
10	8**	Lockwasher	128-172
11	8**	Screw	127-380
12	2*	Regulator Assembly (not sold separately)	

* (1) required for RS

** (4) required for RS



Valve Regulator / Speed Control Plug-in Assembly



EXAMPLE

091BA400K000030

2009 single solenoid valve unit with plug-in assembly

092RS721JL00000

Single pressure regulator Type RS + speed control sandwich mounted on a 1/4 NPTF FlexiBlok manifold with side ports and push-in fittings.

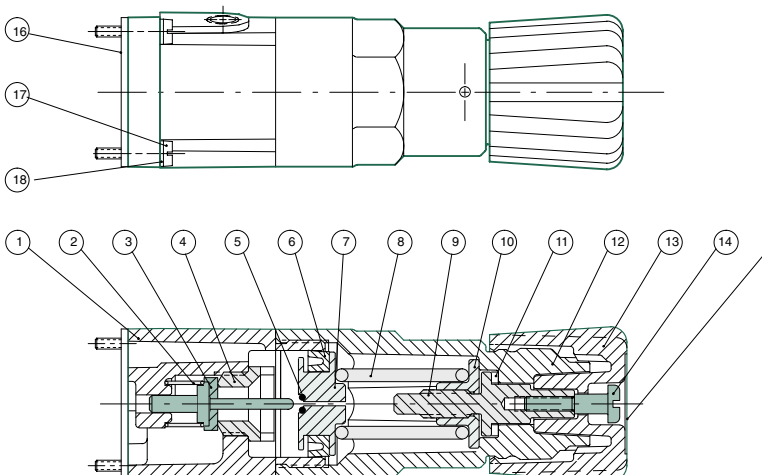
EXAMPLE ORDER:

Valve: 091BA400K000030
 Regulator: 092RS721JL00000
 ASSEMBLED

Regulator Kits & Service Parts

Regulator Service Kit 239-708

Jumper Plate Kit 239-764



Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Regulator Body	101-706
2	1*	Spring	115-226
3	1*	Poppet Assembly	221-168
4	1	Poppet Seat	124-148
5	1*	O-Ring	126-336
6	1*	Seal U-Packing	124-302
7	1	Piston	125-618
8	1	Spring	0-30 PSIG 115-352 0-100 PSIG 115-342
9	1	Metering Screw	118-187
10	1	Spring Guide	112-369
11	1*	Bearing	125-617
12	1	Bonnet	125-623
13	1	Knob	125-624
14	1*	Screw	127-706
15	1	Label	122-992
16	1*	Gasket	113-472
17	4	Screw	127-380
18	4	Lockwasher	128-172

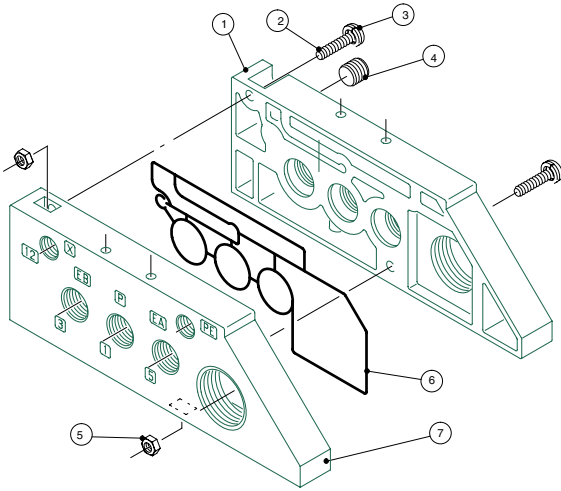
* (2) Required for RD

** (8) Required for RD



End Plate Assembly Kit

1/4 NPTF 239-691
 G1/4 (Metric Conduit) 239-692
 G1/4 (NPTF Conduit) 239-727

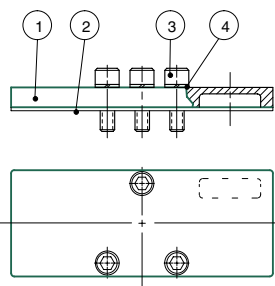


Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.		
			NPTF	G TAP METRIC CONDUIT	G TAP NPTF CONDUIT
1	1	Left End Plate	104-517	104-519	104-553
2	2	Screw	127-697	127-697	127-697
3	2	Lockwasher	128-279	128-279	128-279
4	1	Pipe Plug	129-100	129-160	129-160
5	2	Nut	128-191	128-191	128-191
6	1	Gasket	113-466	113-466	113-466
7	1	Right End Plate	104-518	104-520	104-554

Blank Station Plate Kit

239-668

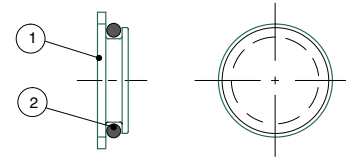


Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Blank Station Plate	104-543
2	1	Gasket	113-471
3	3	Screw	127-570
4	3	Lockwasher	128-192

Blocking Disc Kit

239-667

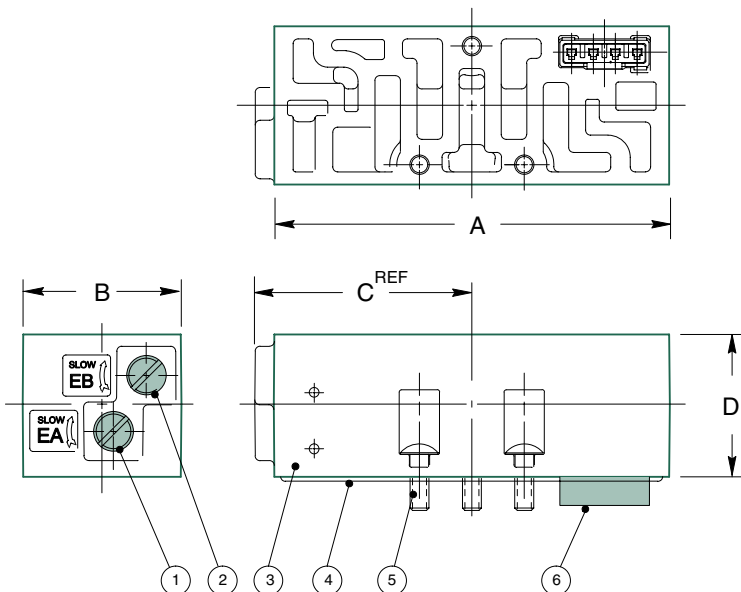


Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Blocking Plug	125-730
2	1	O-Ring	126-427

Speed Control Kit with Plug

239-687



Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Metering Screw	125-730
2	1	Metering Screw	126-427
not shown	2	Nylon Rod for use w/ metering screw	125-613
4	1	Gasket	113-464
5	3	Screw	127-705
6	1	Plug Receptacle Assembly	230-725

Dimensions

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

A	B	C	D
2.50 (13.5)	1.01 (25.7)	1.37 (35.0)	0.90 (23.0)



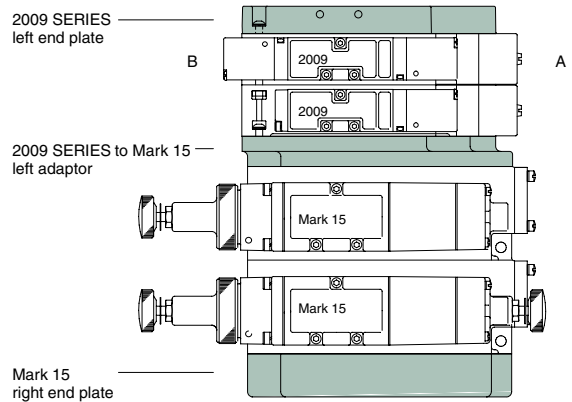
2009 Series

Adaptor Kits with End Plates

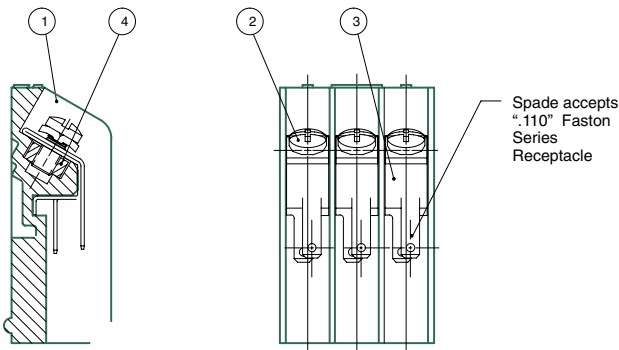
2009 Series LEFT* of Mark 15 (NPTF) 239-766
Includes kit #239-791 (2009 left adaptor, screws, seals)
+ 2009 left end plate & Mark 15 right end plate

2009 Series RIGHT* of Mark 15 (NPTF) 239-767
Includes kit #239-792 (2009 right adaptor, screws, seals)
+ 2009 right end plate & Mark 15 left end plate

*Left/right when view from the cylinder ports of assembly.



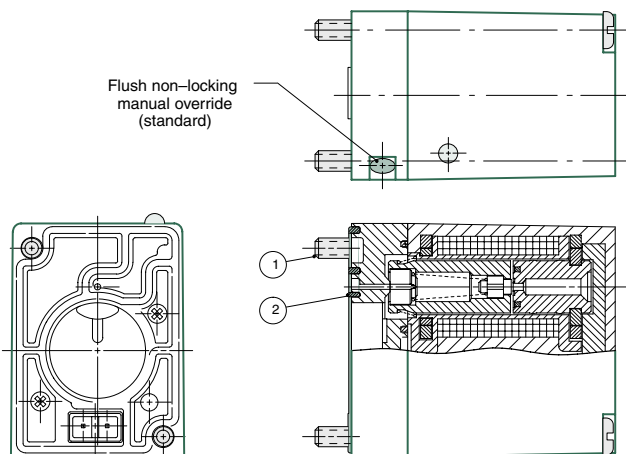
Terminal Block Kit 230-719



Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Terminal Block	140-580
2	3	Screw	127-689
3	3	Terminal Clip	140-556
4	3	Nut	128-281

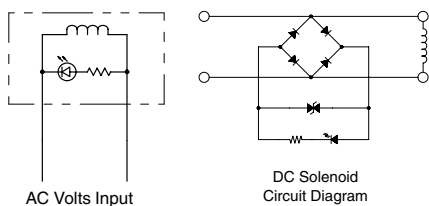
Solenoid Pilot Assemblies



Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	2	Screw	127-774
2	1	Gasket	113-465

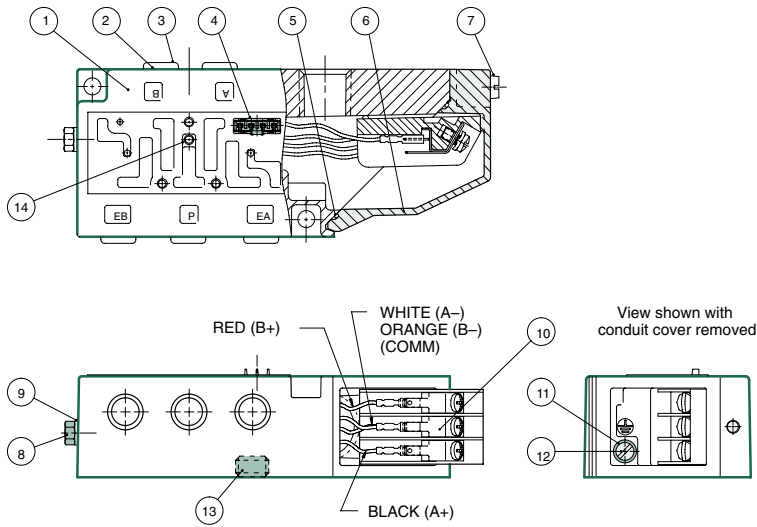
OVERRIDE DESCRIPTION	120/60 V AC	24 VDC
Flush non-locking override with light (standard)	237-881	236-468
Flush locking override with light (add option "011B" to valve number)	237-880	236-230



Solenoid Wiring



Base Assembly Kit



Parts List

DET. NO.	NO. REQ'D	PART NAME	NPTF PART NO.	G TAP PART NO.
1	1	Base (not sold separately)		
2	5**	Tube Cartridge	134-458	134-458
3	3**	Manual Release Button	123-179	123-179
4	1	Plug-in Receptacle	230-718	230-718
5	1	Gasket	113-463	113-463
6	1	Conduit Cover	105-339	105-339
7	1	Screw	127-692	127-692
8	1	Plug	129-127	127-362
9	1	Gasket	-	113-311
10	1	Terminal Block Assembly	230-719	230-719
11	1	Cup Washer	128-162	128-162
12	1	Screw	127-176	127-176
13	5~	Pipe Plug:	1/8 129-100	129-160
			1/4 129-101	129-161
14	1	Plug (M3)	127-693	127-693

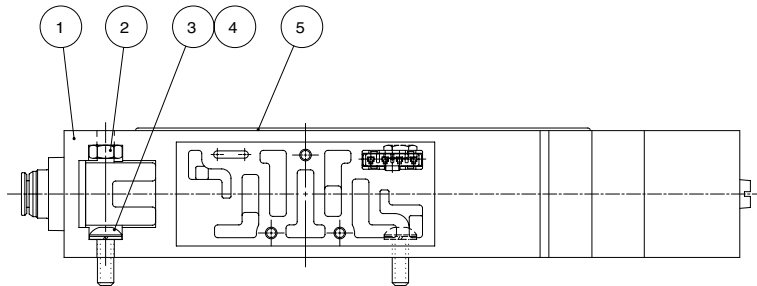
* Details 8 & 9 omitted on external pilot option.

** 1/4 push-in ports (5)-Base kits #203-852 and 203-866 only.

~ Used on bases with side and bottom ports, individual exhaust only. Used only with external pilot supply option.

BASE DESCRIPTION	1/8 NPTF	1/4 NPTF	G 1/8	G 1/4	1/4 PUSH-IN
3A & 3C Bases: side ports only, individual exhaust	203-854	203-853	203-856	203-855	203-852
3B & 3D Bases: side & bottom ports, individual exhaust	203-858	203-857	203-860	203-859	N/A
3A + external pilot option	203-868	203-867	203-870	203-869	203-866
3B + external pilot option	203-872	203-871	203-874	203-873	N/A

Flexiblok Manifold Kit



Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Valve Block Assy	206-1653
2	2	Nut	128-191
3	2	Screw	127-697
4	2	LockWasher	128-188
5	1	Gasket	113-466
6	2	1/4 Slip-In Cartridge	134-502
		6mm Slip-In Cartridge	134-534
		8mm Slip-In Cartridge	134-501

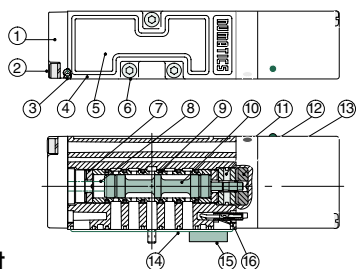
* Used on #15 Flexibloks only (3 plugs supplied on #15 w/ bottom P port option)

BASE DESCRIPTION	1/8 NPTF	1/4 NPTF	G 1/8	G 1/4	1/4 PUSH-IN	6mm PUSH-IN	8mm PUSH-IN
Flexiblok #11: side cylinder ports	239-694	239-695	239-696	239-697	239-2373	239-2374	239-2372
Flexiblok #15: side & bottom cylinder ports	239-698	239-699	239-700	239-701	N/A	N/A	N/A
Flexiblok #15: + bottom P port	239-702	239-703	239-704	239-705	N/A	N/A	N/A



Service Kits and Parts - 2 Position

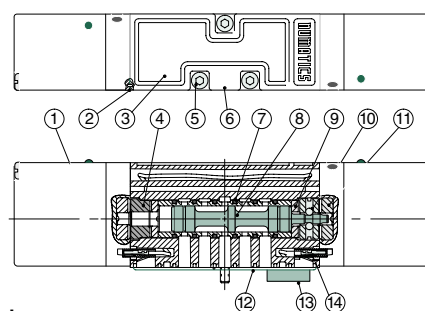
Kit No. 2009-K1 (For Models 091BA4, 092BA4)



Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Spring Cover	104-537
2*	2	Screw Assembly	127-564
3	2	Gasket valve/cover	113-465
4	1	Valve Body (not sold separately)	
5	1	Nameplate	122-986
6	3	Screw Assembly	127-694
7*	2	Bumper	114-181
8*	1	Spring	115-338
9*	6	Seals	126-347
10	1	Spool and Sleeve Assembly	209-508
11*	1	Detent Body	110-135
12*	1	Spacer	116-447
13	1	Solenoid Capsule Assembly	See p. 12
14*	1	Gasket valve/mounting	113-464
15	1	3-Wire Plug Assembly	230-715
16	1	Electrical Receptacle	140-579

Kit No. 2009-K2 (For Models 091BB4, 092BB4)

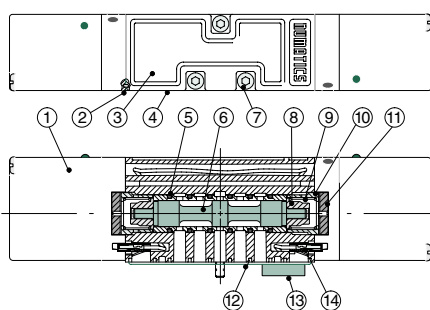


Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	2	Solenoid Capsule Assembly	See p. 12
2*	2	Gasket	113-465
3	1	Nameplate	122-968
4*	1	Spacer	116-440
5	3	Screw Assembly	127-694
6	1	Valve Body (not sold separately)	
7*	6	Seals	126-347
8	1	Spool and Sleeve Assembly	209-508
9*	2	Bumper	114-181
10*	1	Detent Assembly	210-138
11*	2	Spacer	116-447
12*	1	Gasket valve/mounting	113-464
13	1	5-Wire Plug Assembly	230-716
14	2	Electrical Receptacle	140-579

2 Position

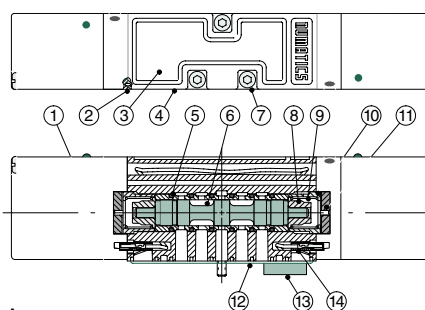
Kit No. 2009-K3 (For Models 091BB5, 092BB5)



Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	2	Solenoid Capsule Assembly	See p. 12
2*	2	Gasket	113-465
3	1	Nameplate	122-968
4	1	Valve Body (not sold separately)	
5*	6	Seal	126-347
6	1	Spool and Sleeve Assembly	209-509
7	3	Screw Assembly	127-694
8	2	Spring Retainer	116-438
9*	2	Spring	115-340
10*	2	Spacer	116-439
11*	2	Bumper	114-180
12*	1	Gasket	113-464
13	1	5-Wire Plug Assembly	230-716
14	2	Electrical Receptacle	140-579

Kit No. 2009-K3 (For Models 091BB6, 092BB6)



Parts List

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	2	Solenoid Capsule Assembly	See p. 12
2*	2	Gasket	113-465
3	1	Nameplate	122-968
4	1	Valve Body (not sold separately)	
5*	6	Seal	126-347
6	1	Spool and Sleeve Assembly	209-510
7	3	Screw Assembly	127-694
8	2	Spring Retainer	116-438
9*	2	Spring	115-340
10*	2	Spacer	116-439
11*	2	Bumper	114-180
12*	1	Gasket	113-464
13	1	5-Wire Plug Assembly	230-716
14	2	Electrical Receptacle	140-579

*Indicates parts included in kit. Spool and sleeve assemblies are precision matched sets and include (6) 126-347 seals; spools are not interchangeable.

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Fax: 011-55-12-351 1958

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Australia
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Fax: 011-61-3-95 63 85 11

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Numatics Co, Ltd. Asia
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