

valves

2009 Series

Solenoid Pilot Actuated Valves



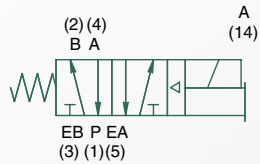
numatics®

2009 Series

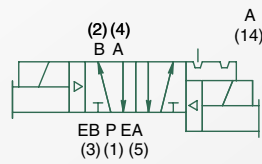
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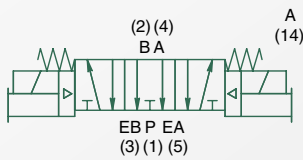
single solenoid air pilot
2 position 4-way



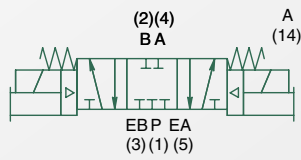
double solenoid air pilot
2 position 4-way



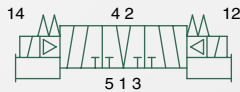
double solenoid air pilot
3 position 4-way
open center



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.
- NEMA 4



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

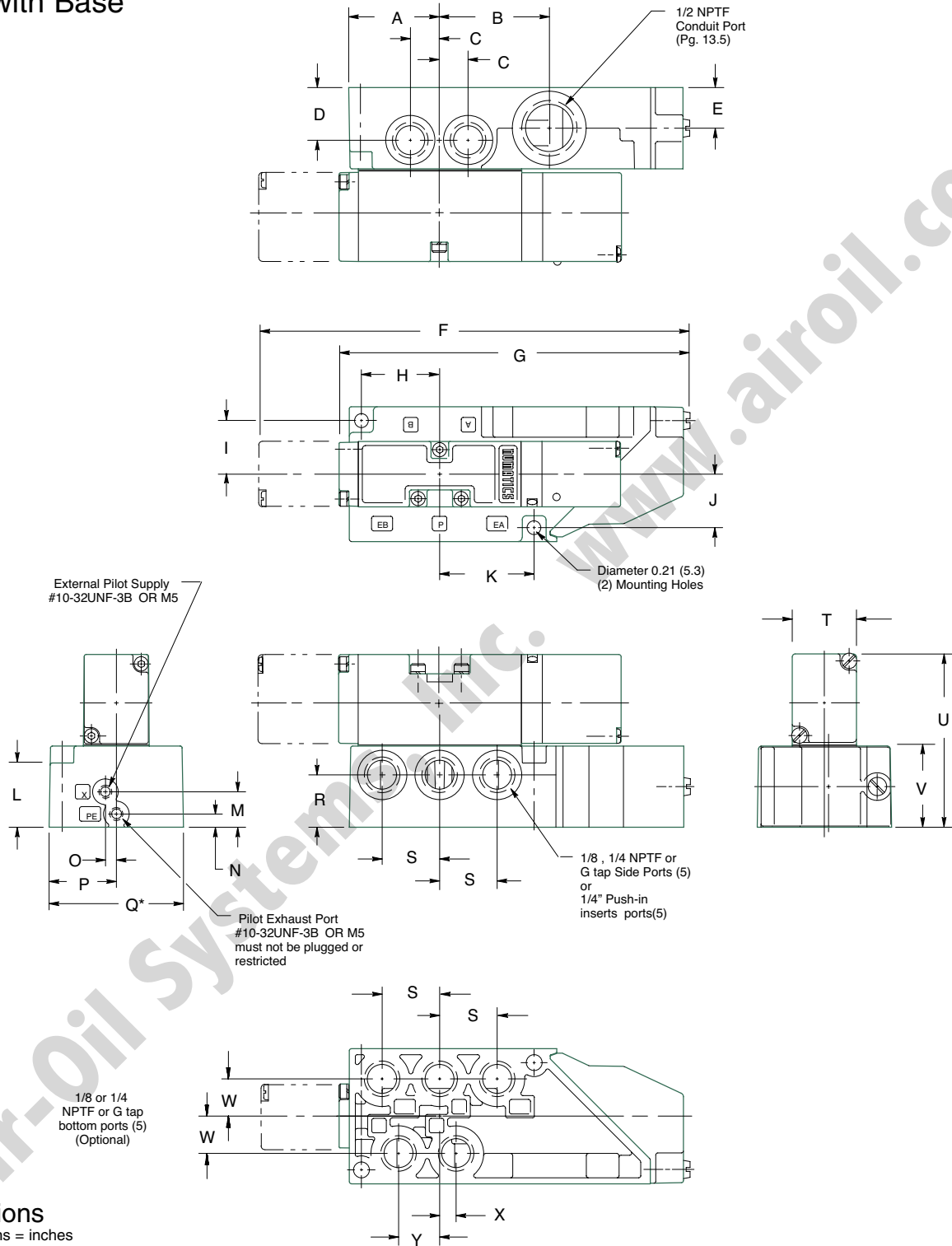
Example order

List in order, left to right, facing cylinder ports

Assembly kit	AK09F00002NSTD
Station 1	091BA415KN00030
Station 2	092BA425KN00030
Station 3	092BS415KN00030
Station 4	092BS415KN00030
Station 5	091BA400KO00030
	092RS115JN00000
Station 6	091BA415KN00030
	ASSEMBLED



Valve with Base



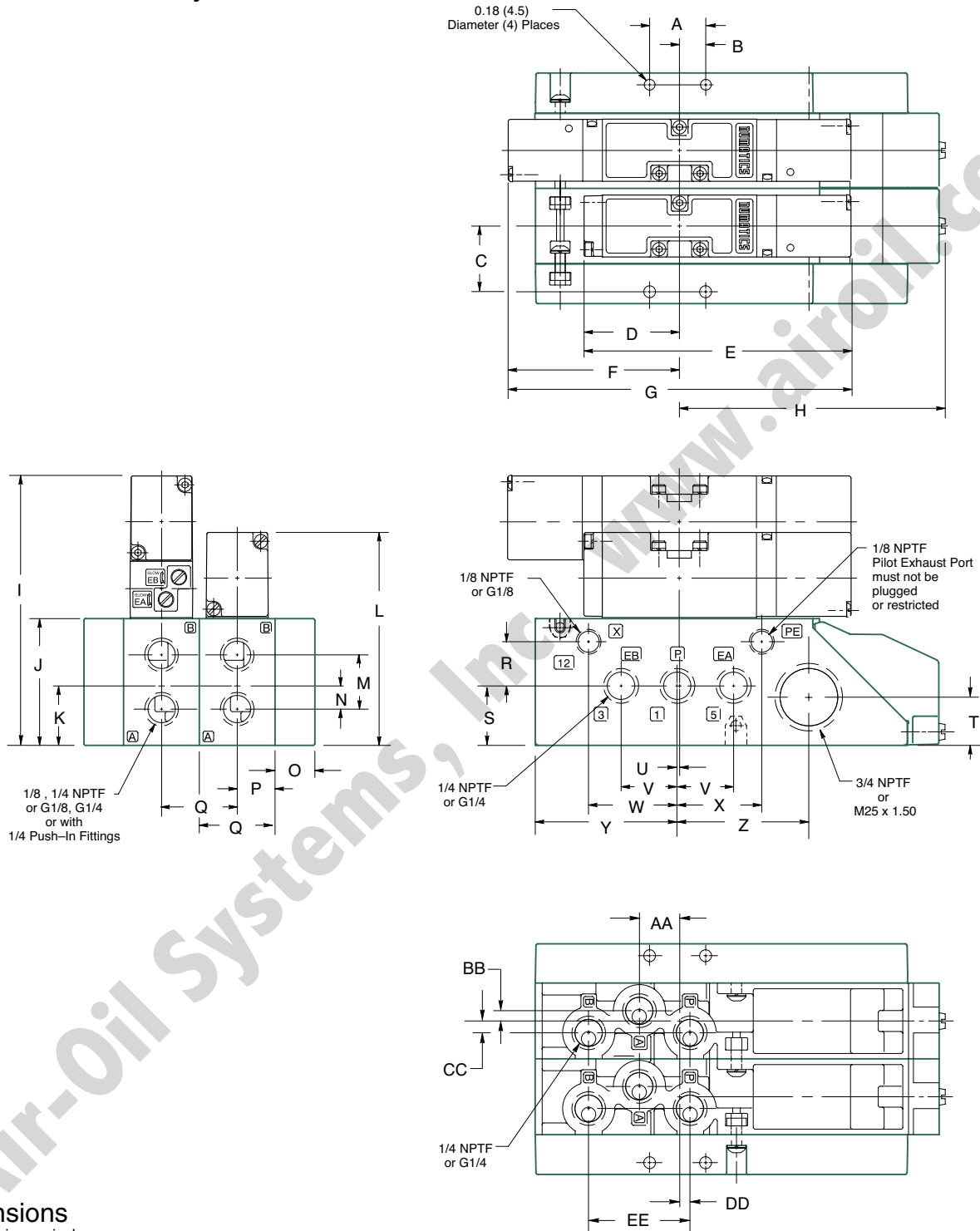
Dimensions

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)	



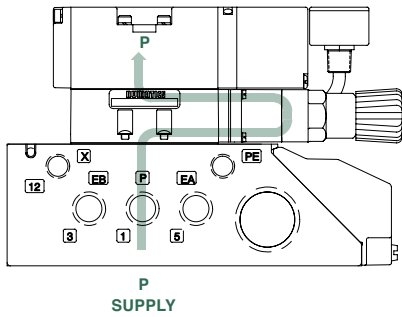
Sandwich Pressure Regulators

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."

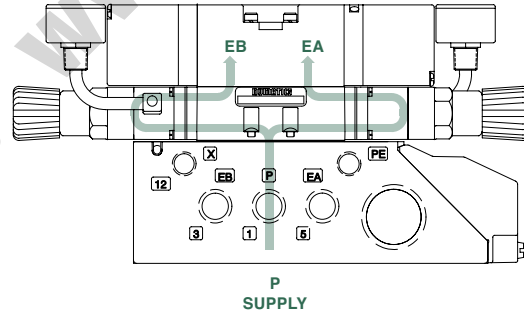
EXAMPLE ORDERS:	TYPE RS	TYPE RD
Valve unit only:	091BA400K000030	091BA400K000030
Regulator + mounting	091RS73AJL00000 ASSEMBLED	092RD711JL00000 ASSEMBLED

Type RS



Single pressure from a single supply.

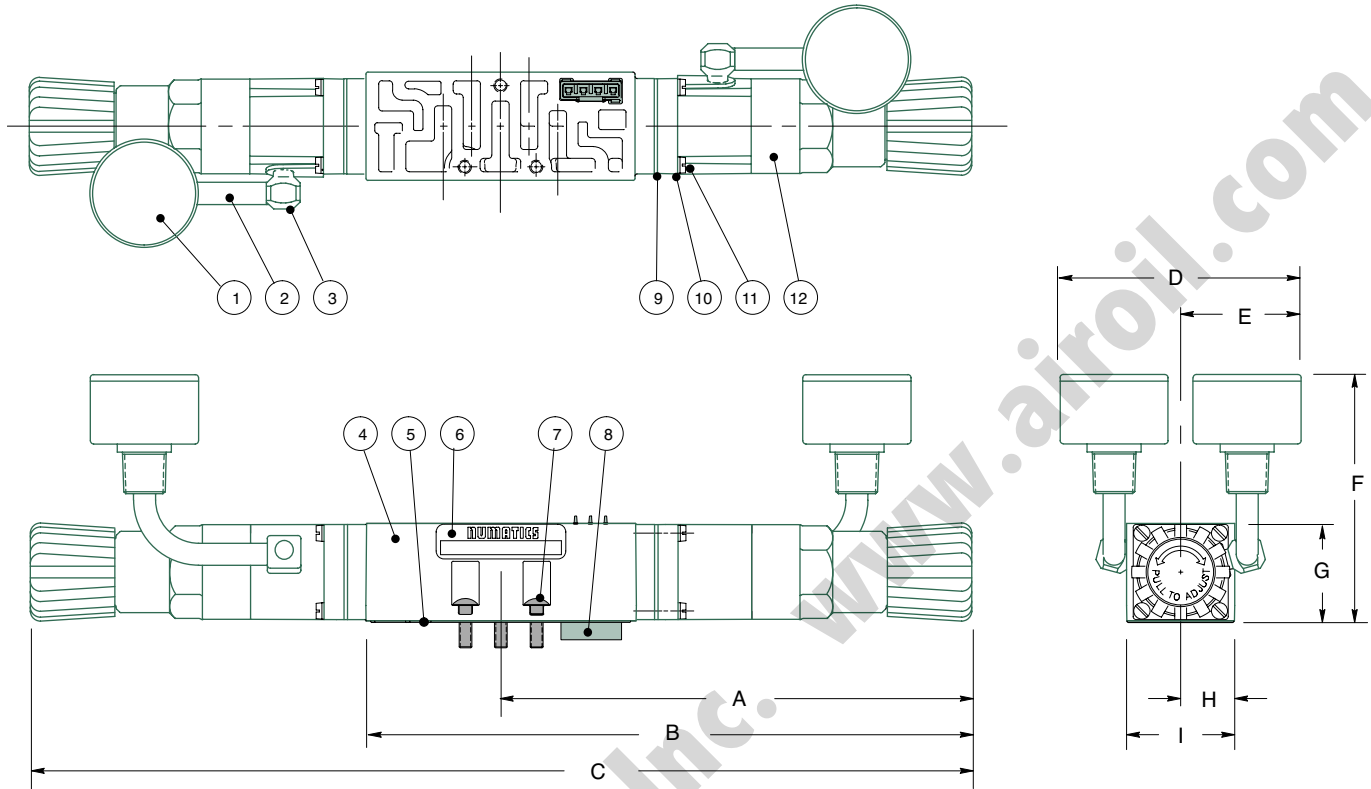
Type RD



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

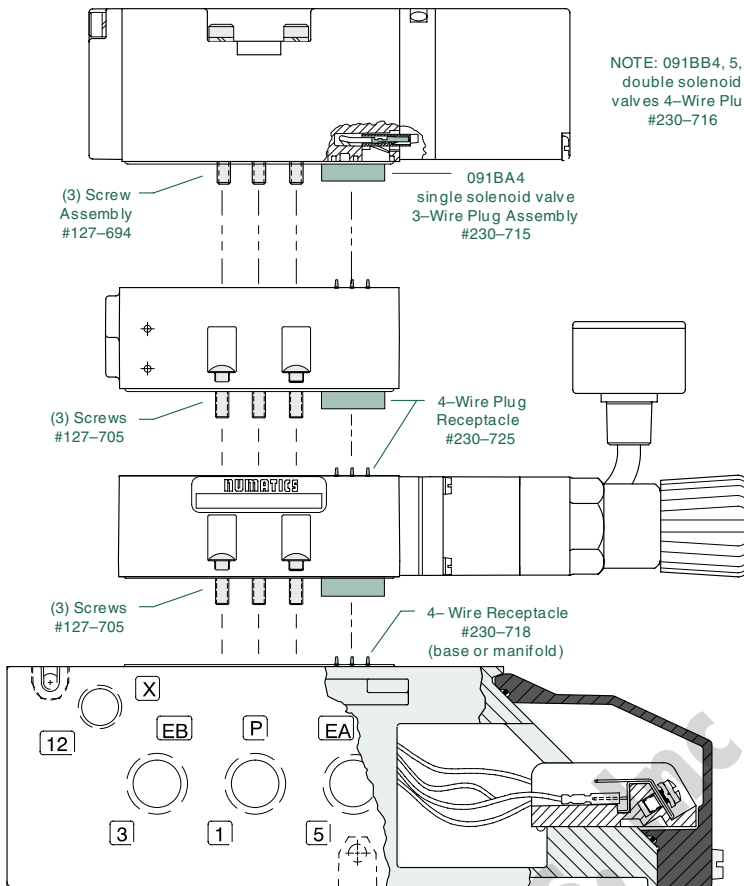
DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	2*	Gauge 0-150 PSIG	214-209
		Gauge 0-60 PSIG	214-216
2	2*	Tube Fitting	134-469
3	2*	Fitting	134-472
4	1	Regulator Block:	RS 125-615
			RD 125-616
5	1	Gasket body/base	113-464
6	1	Nameplate	122-991
7	3	Screw	127-705
8	1	Plug Receptacle	230-725
9	1	Gasket (to regulator 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.

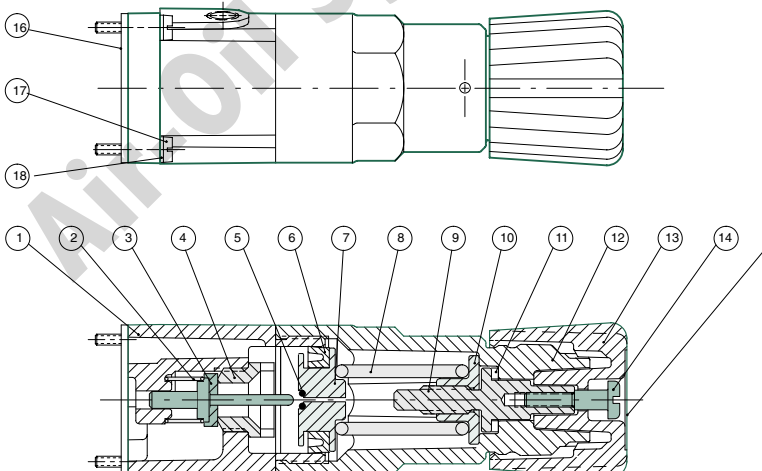
EXAMPLE ORDER:

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

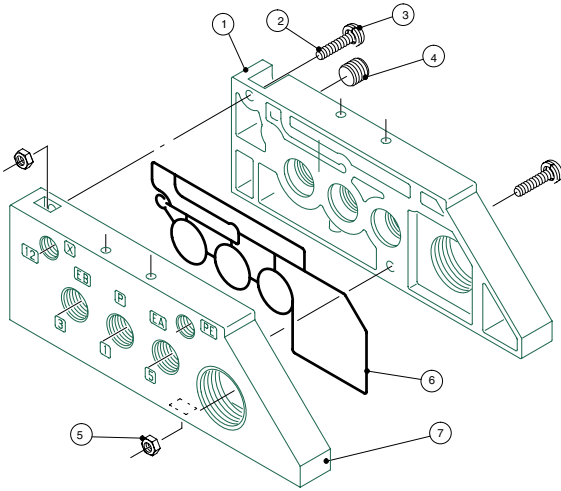
* (2) Required for RD

** (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

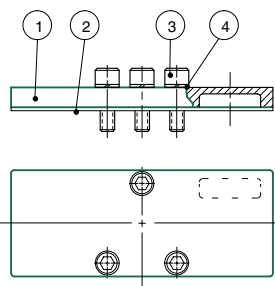


Parts List

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

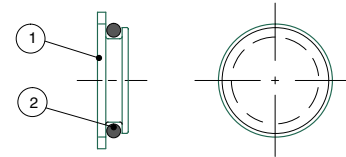


Parts List

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

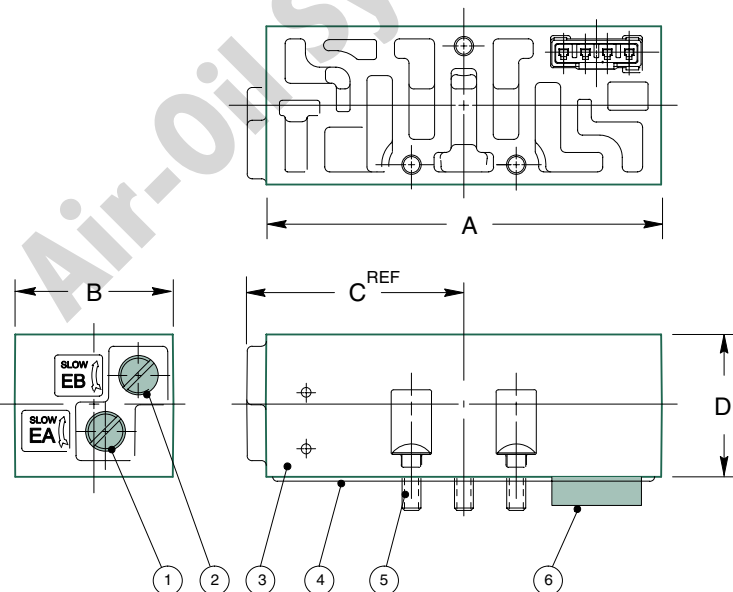


Parts List

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)



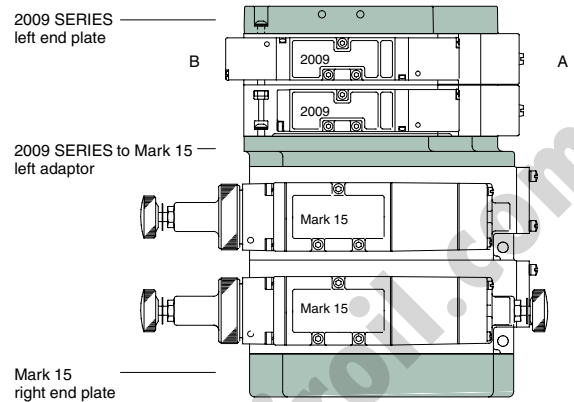
2009 Series

Adaptor Kits with End Plates

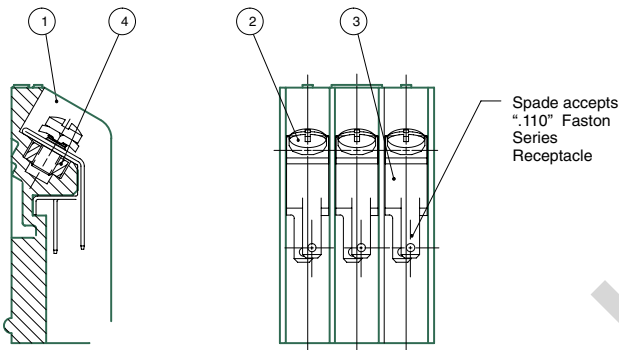
2009 Series LEFT* of Mark 15 (NPTF) 239-766
Includes kit #239-791 (2009 left adaptor, screws, seals)
+ 2009 left end plate & Mark 15 right end plate

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.



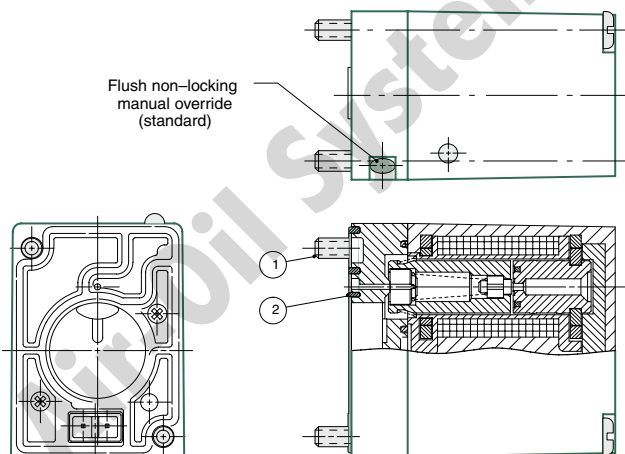
Terminal Block Kit 230-719



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

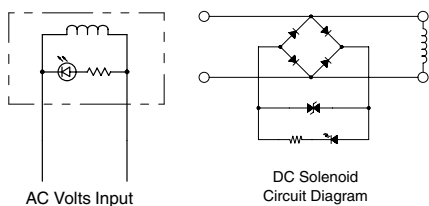
Solenoid Pilot Assemblies



Parts List

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

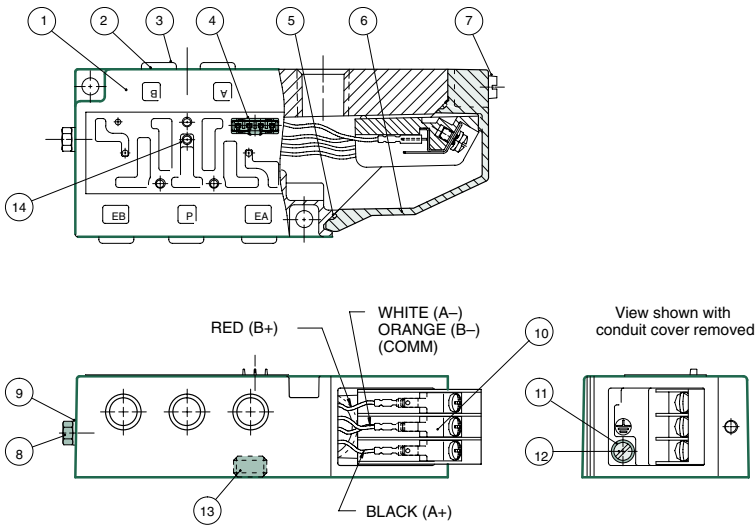
VERRIDE DESCRIPTION	120/60 V AC	24 VDC
Flush non-locking override with light (standard)	237-881	236-468
Flush locking override with light (add option "011B" to valve number)	237-880	236-230



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

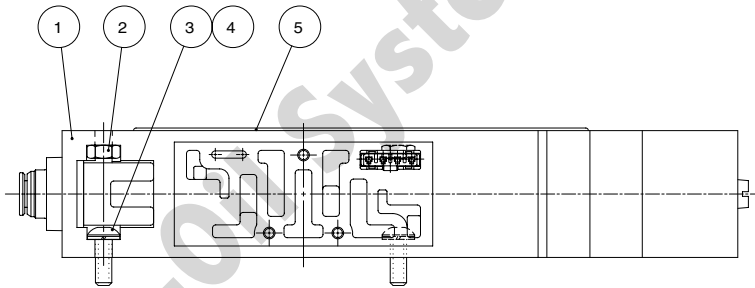
* Details 8 & 9 omitted on external pilot option.

** 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

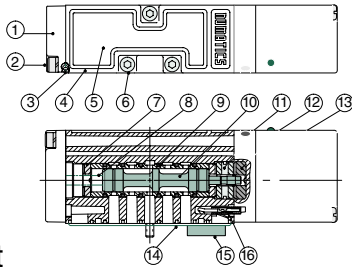
* Used on #15 Flexibloks only (3 plugs supplied on #15 w/ bottom P port option)

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

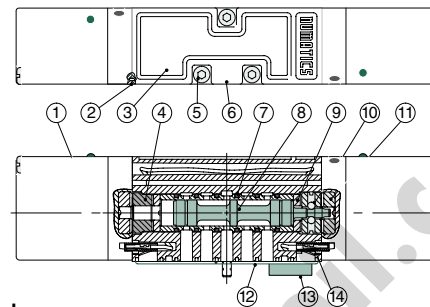
Kit No. 2009-K1 (For Models 091BA4, 092BA4)



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)

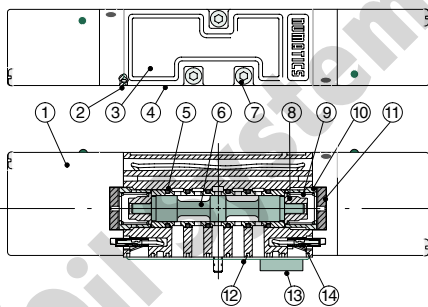


Parts List

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

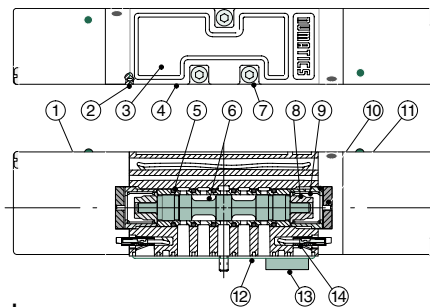
Kit No. 2009-K3 (For Models 091BB5, 092BB5)



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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