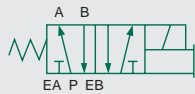


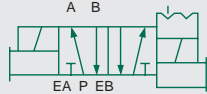


250 Series

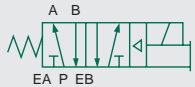
single direct solenoid,
spring return
2 position, 4-way



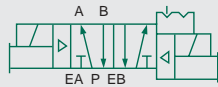
double direct solenoid,
detented
2 position, 4-way



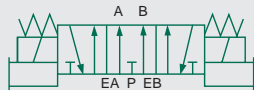
single solenoid air pilot,
spring return
2 position, 4-way



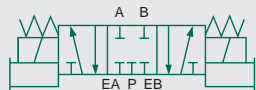
double solenoid air pilot,
detented
2 position, 4-way



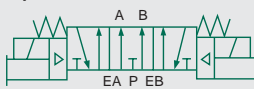
double direct solenoid
3 position, 4-way
open center



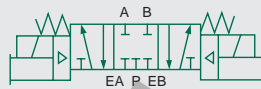
double direct solenoid
3 position, 4-way
closed center



double solenoid air pilot
3 position, 4-way
open center



double solenoid air pilot
3 position, 4-way
closed center



5 Ported, 2 and 3 position, 4-way, Spool and Sleeve
Cv: 4.4 - 5.8

- Plug in solenoid with indicator light
- Comply with automotive interchangeable standards
- For lubricated or unlubricated service
- Solenoid air pilot or direct acting
- Low watt 24 VDC coils
- Color coded solenoids for AC or DC
- Surge protecting bridge rectifier in coil standard for DC application



Technical Data

VALVE DATA		ENGLISH	METRIC
Cv	Direct Acting Solenoid Pilot	4.4 - 5.8	
Flow Capacity	Direct Acting Solenoid Pilot	260 SCFM @ 80 PSIG upstream pressure to atmosphere	5510 Nm ³ @ 6 bar upstream to 5 bar downstream
Operating Pressure Range	Direct Acting Solenoid Pilot	28" Hg. Vacuum to 150 PSIG	Vacuum to 10 bar
Pilot Pressure Range	Solenoid Pilot	14.5 to 125 PISG	1 to 8.6 bar
Temperature Range (Ambient)	Direct Acting Solenoid Pilot	-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)	Direct Acting Solenoid Pilot	N/A 4	N/A N/A
Holding Current (Amps)	Direct Acting Solenoid Pilot	N/A 0.17	0.28 single / 0.24 double 0.06

RESPONSE TIME IN SECONDS		ENERGIZE	DE-ENERGIZE	ENERGIZE	DE-ENERGIZE
2 - Position, Single, Spring Return	Direct Acting Solenoid Pilot	N/A 0.019	N/A 0.079	0.015 0.015	0.030 0.090
2 - Position, Double, Detented	Direct Acting Solenoid Pilot	N/A 0.019	N/A N/A	0.015 0.015	N/A N/A
3 - Position, Spring Centered	Direct Acting Solenoid Pilot	N/A 0.019	N/A 0.079	0.015 0.015	0.030 0.090



250 Series

How to Order

Valve

A23 SA 4 00 S 0 000 30

Valve Series & Port Size

- A23 = Automotive 250 3/8" NPTF
- A24 = Automotive 250 1/2" NPTF
- A25 = Automotive 250 3/4" NPTF
- A26 = Automotive 250 1" NPTF

Valve Type

- SA = Single Solenoid, Spring Return
- SS = Double Solenoid
- BA = Single Solenoid, Air Pilot Spring Return
- BW = Single Solenoid, Air Pilot Air/Spring Return
- BB = Double Solenoid, Air Pilot

Function

- 4 = 2-Position, 4-way
- 5 = 3-Position, 4-way Open Center
- 6 = 3-Position, 4-way closed Center

Mounting Means

- 00 = Valve Unit Only, No Mounting
- 15 = Manifold Block, Sides and Bottom Cylinder Ports
- 3A = Base, Side Ports, Individual Exhaust

Volatge

- 30 = 120 VAC
- 61 = 24 VDC

Special Options

- 13S = Right Angle Mini Plug
- 47E = 5-Pin B.H. Micro Conn. Chrysler
- 56Y = 4-Pin Micro Conn. Pin 1-N/02-12, 3C, 4-14
- 60C = 5-Pin Single Key Way Micro Conn. Chrysler
- 61E = 4-Pin Micro Ford
- 62B = 61E Plus Internal Pilot from Port P

Port Type

- 0 = NPTF (direct acting)
- T = NPTF (air pilot)

Wiring Option

- F = AC with light Hardwired
- K = AC with Light Plug-In
- S = 5-Pin Mini with Light (Ford) AC
- 8 = 5-Pin Mini with Light (Chrysler) AC
- R = Special Wiring, Standard DC

Regulator

A23 RS 1 15 O 0 000 00

Valve Series & Port Size

- A23 = Automotive 250 3/8" NPTF
- A24 = Automotive 250 1/2" NPTF
- A25 = Automotive 250 3/4" NPTF
- A26 = Automotive 250 1" NPTF

Regulator Type

- RS = Single Pressure to "P" Pilot
- RD = Double Pressure to "EA" and "EB" Ports
- RC = Regulator with Non-Relieving Check
- RQ = Regulator with Relieving Checks

Pressure Range

- 1 = 10-130 PSIG
- 3 = 3-30 PSIG
- 4 = 5-60 PSIG

Volatge

- 00 = N/A

Special Options

- 12H = Less Gauge
- 16N = Jumper on "A"
- 16P = Jumper on "B"

Port Type

- 0 = NPTF

Wiring Option

- O = No Receptacle

Mounting Means

- 00 = Regulator Unit Only, No Mounting
- 15 = Manifold Block, Sides and Bottom Cylinder Ports
- 3A = Base, Side Ports

How To Order A Manifold Assembly

A typical five-station assembly may be as follows:

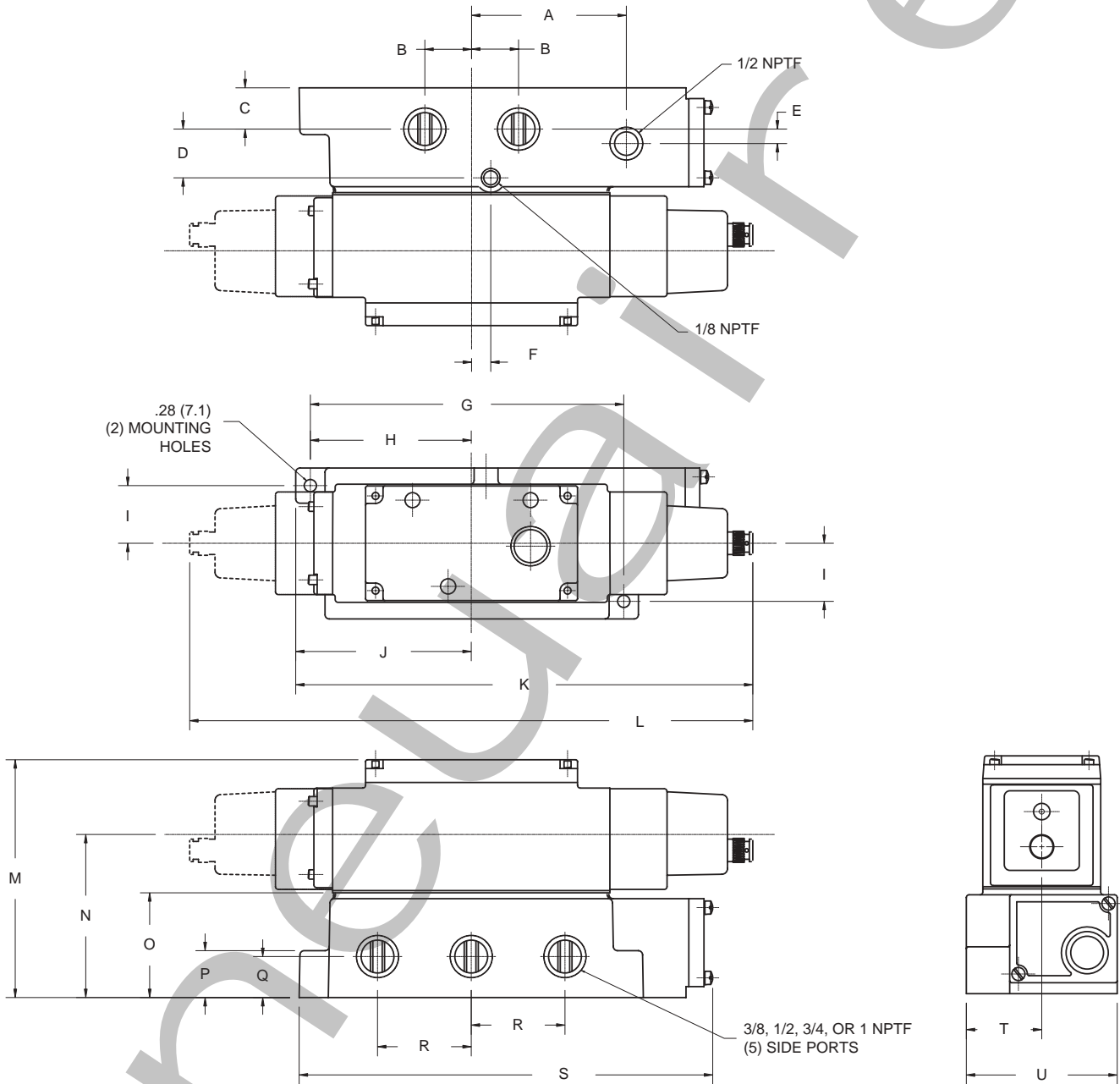
- Assembly Kit AK250-5
 - Station 1 A24BA415RT61E61
 - Station 2 A24BA415RT61E61
 - Station 3 A24BA415RT61E61
 - Blocking Plug (Install in P Gallery)
 - Station 4 A24BB415RT61E61
 - Station 5 A24BB615RT61E61
- ASSEMBLED

NOTE: BA4, BW4, BB4, and BB6 valves are internally piloted from Port P. BB5 valves are internally piloted from Port EA unless ordered with 62B special option.



250 Series

Valve and Base



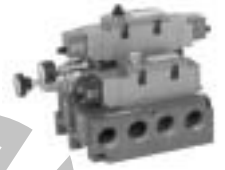
Dimensions

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

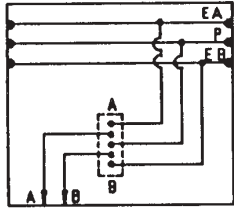
A	B	C	D	E	F	G	H	I	J	K	L	M
3.30 (83.8)	1.00 (25.4)	0.88 (22.3)	1.04 (26.4)	0.31 (7.9)	0.41 (10.4)	6.69 (170.0)	3.44 (87.4)	1.23 (31.2)	3.75 (95.3)	9.75 (247.7)	12.02 (305.3)	5.05 (128.3)
N	O	P	Q	R	S	T	U					
3.48 (88.4)	2.32 (58.6)	1.00 (25.4)	0.88 (22.4)	2.00 (50.8)	8.80 (223.5)	1.61 (40.9)	3.22 (81.8)					



250 Series



Manifold Dimensions

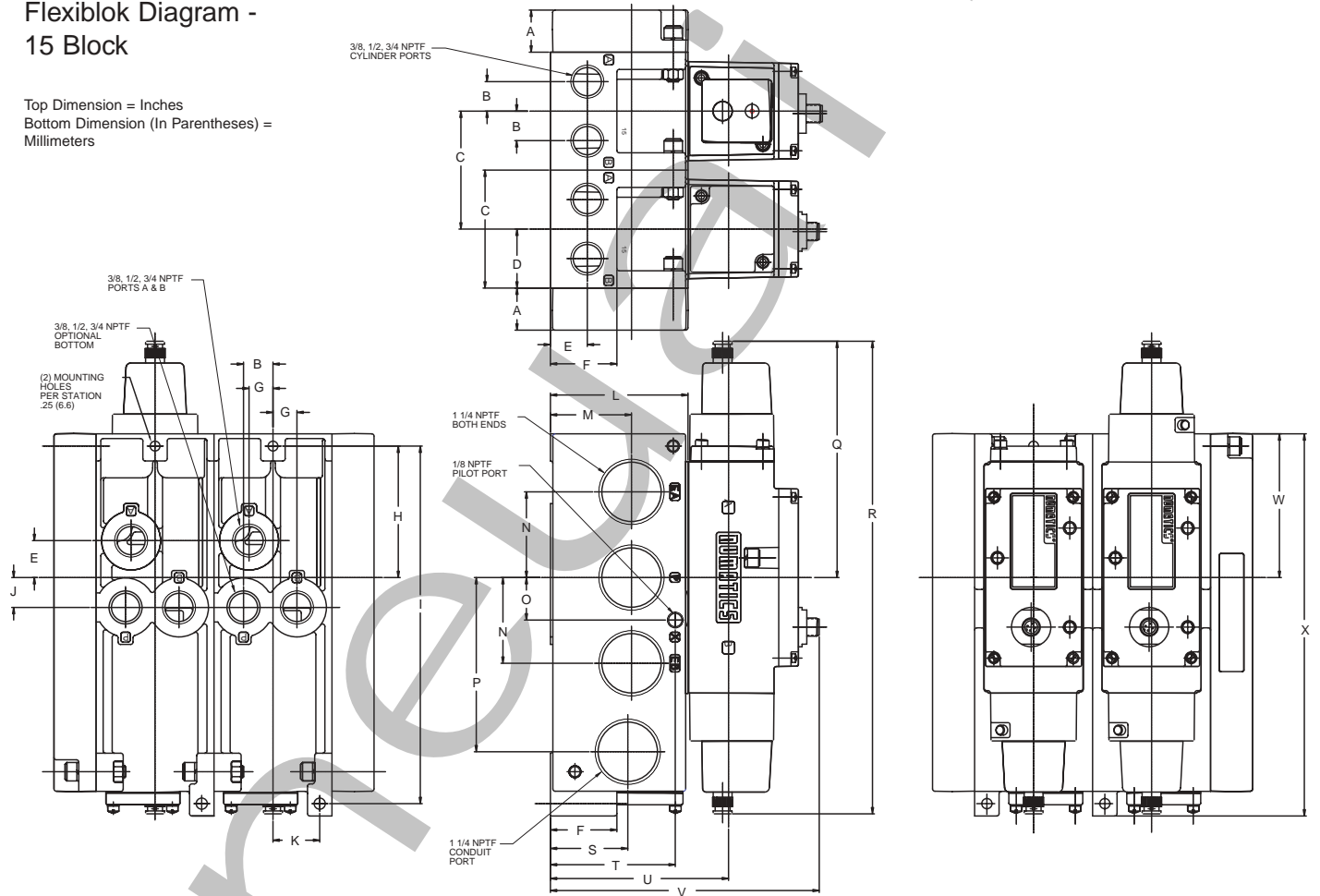


Flexiblok Diagram -
15 Block

Top Dimension = Inches
Bottom Dimension (In Parentheses) =
Millimeters

Manifold Block Kit Numbers

DESCRIPTION	3/8 NPTF	1/2 NPTF	3/4 NPTF
Block without Plug	239-570	239-571	239-572
Block with Plug	239-573	239-574	239-575



Dimensions

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

A	B	C	D	E	F	G	H	I	J	K	L	M
1.07 (27.2)	0.75 (19.0)	3.00 (76.2)	1.50 (38.1)	0.94 (23.9)	1.69 (42.9)	0.61 (15.5)	3.34 (84.8)	9.09 (230.9)	0.76 (19.3)	1.19 (30.2)	3.50 (88.9)	2.06 (52.3)
N	O	P	Q	R	S	T	U	V	W	X		
2.18 (27.4)	1.08 (27.4)	4.43 (112.5)	6.01 (152.7)	12.02 (305.3)	1.97 (50.0)	3.18 (80.8)	4.53 (115.1)	6.84 (173.7)	3.66 (93.0)	9.72 (246.9)		



250 Series

Sandwich Pressure Regulator

Types: RS / RD / RC / RQ

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

Example orders: TYPE RS

TYPE RD

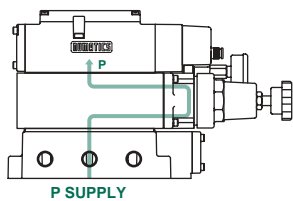
Valve unit only: A23BA400KT00030

A23BA400KT00030

Regulator A24RS115J000000
ASSEMBLED

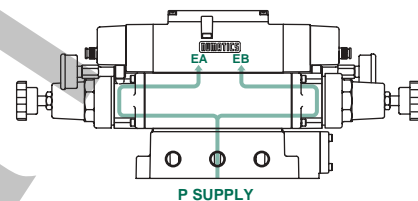
A24RD115J000000
ASSEMBLED

Type RS



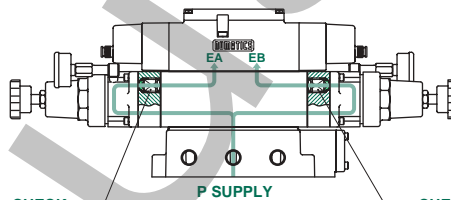
Single pressure from a single supply.

Type RD



Dual pressure from a single supply.

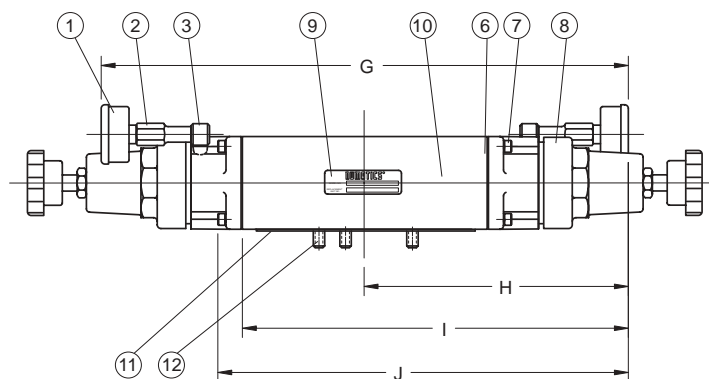
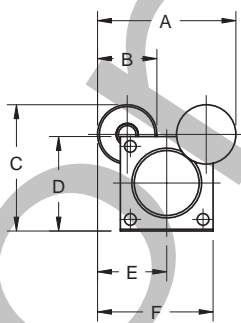
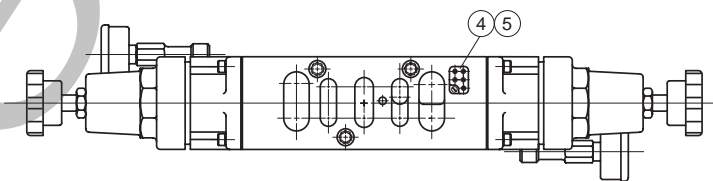
Type RC



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

Type RQ

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



Dimensions

Top Dimension = Inches
Bottom Dimension (In Parentheses) = Millimeters

Parts list on
page 31.

A	B	C	D	E	F	G	H	I	J
3.73 (94.7)	1.60 (40.6)	3.41 (86.6)	2.55 (64.8)	1.87 (47.5)	3.12 (79.2)	14.68 (372.9)	7.34 (186.4)	10.64 (270.3)	11.30 (287.0)



250 Series

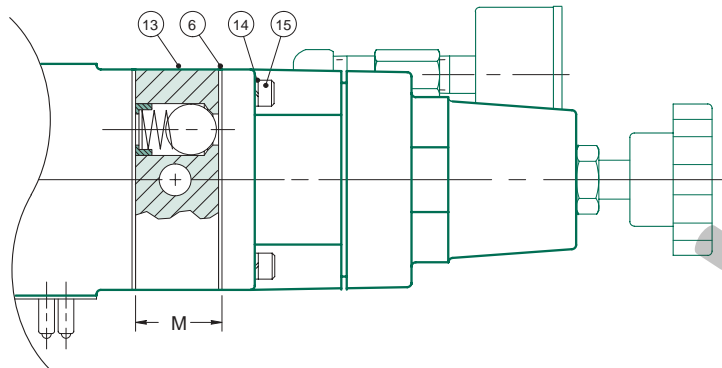


Check Assembly Kits

RC: 239-540

RQ: 239-538

Parts List



DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	2*	Gauge - See Chart Below	
2 *	2*	Fitting	134-221
3 *	2*	Fitting	134-222
4	1	Plug Receptacle (SPA 55)	230-344
5	1	Screw (SPA 55)	127-342
6 *	**	Gasket to Regulator Body	113-234
7	8~	Screw Assembly	127-103
8	2*	Reg. Assembly (not sold separately)	
9 *	1	Nameplate	122-551
10 *	1	Regulator Block	RS 125-360 RD, RC, RQ 125-361 RT 125-363 RE 125-362
11	1	Gasket body/base	113-292
12	3	Studs†	127-339
13 *	2	Check Assembly (not sold separately)	
14	2	Hi-Collar Lockwasher (RC, RQ only)	128-110
15	8	Screw (RC, RQ only)	127-108

*RS models require (1).
 **(1) for RS; (2) for RD; (4) for RC, RQ.
 ~RS models require (4).
 †Secure studs to the mounting with a 5/32 hex wrench.

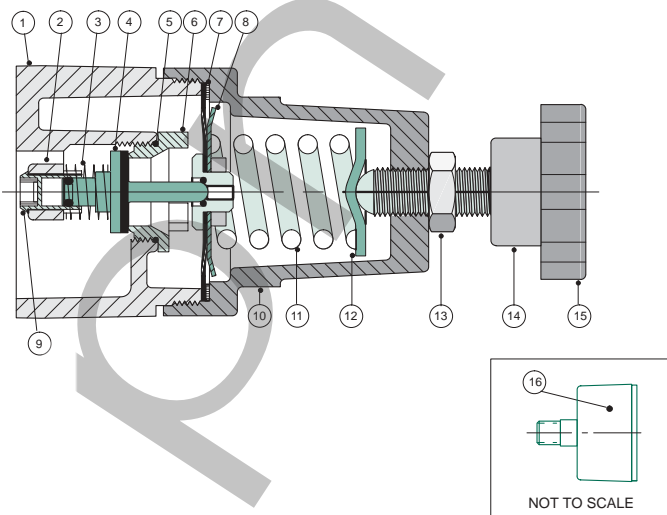
Regulator Service Kit

229-907

RE Jumper Plate Kit 229-840

Jumper Plate Kit 229-539

Parts List



DET. NO.	NO. REQ'D	PART NAME	PRESSURE RANGE PSIG		
			3-30	5-60	10-130
1	1	Regulator Assembly** (not sold separately)			
2	1	Retainer	116-257	116-257	116-257
3 *	1	Spring	115-241	115-241	115-241
4 *	1	Poppet Assembly	221-125	221-125	221-125
5 *	1	O-Ring Seal	126-208	126-208	126-208
6 *	1	Poppet Seat	124-155	124-155	124-155
7 *	1	Washer	116-322	116-322	116-322
8 *	1	Diaphragm Assembly	213-330	213-302	213-302
9	1	Spacer	116-338	116-338	116-338
10	1	Bonnet	125-371	125-371	125-371
11	1	Bonnet Spring	115-237	115-238	115-239
12	1	Spring Guide	112-268	112-268	112-268
13	1	Locknut	128-107	128-107	128-107
14	1	Knob Assembly	123-143	123-143	123-143
15	1	Pressure Label	122-611	122-612	122-613
16	1	Regulator Gauges (with PSIG of...)	214-116 (0-60)	214-117 (0-100)	214-103 (0-160)

**Regulator Unit Kits (includes regulator assembly, gaskets, and screws)
 229-902 229-903 229-904

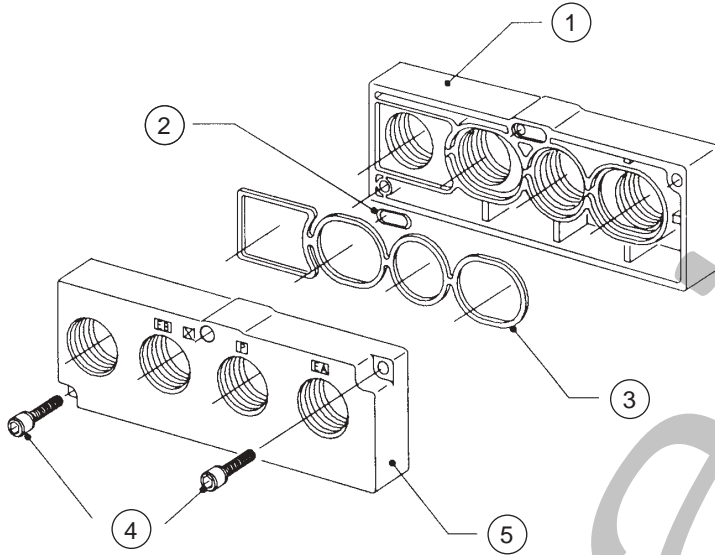


250 Series

End Plate Kit

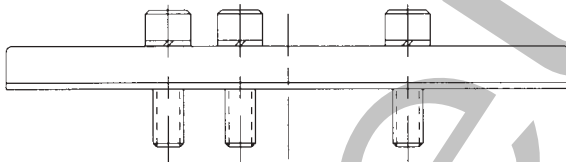
239-565

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Right End Plate	104-481
2	1	O-Ring	126-205
3	1	Gasket	113-291
4	2	Screw Assembly	127-222
5	1	Left End Plate	104-480



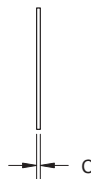
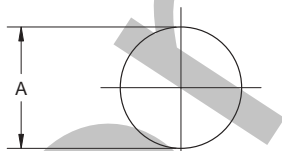
Blank Station Plate Kit

239-577

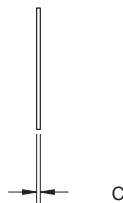
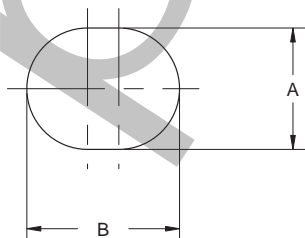


Blocking Disc

Port P



Ports EA and EB

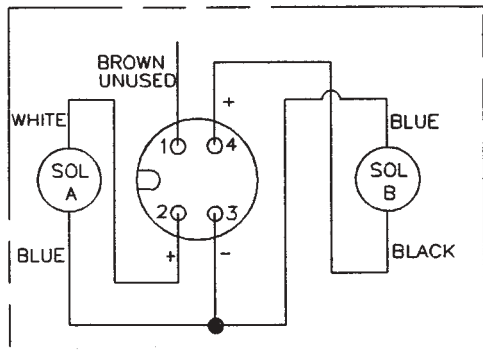


PORT	PART NO.	A	B	C
P	124-153	1.56	1.96	0.05
EA and EB	124-154	(39.6)	(49.8)	(1.3)

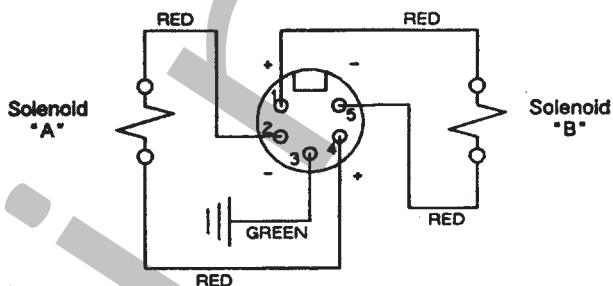


250 Series

Wiring Diagram for Options 8 & 9 (Chrysler)



Wiring Diagram for Options 47E & 47J

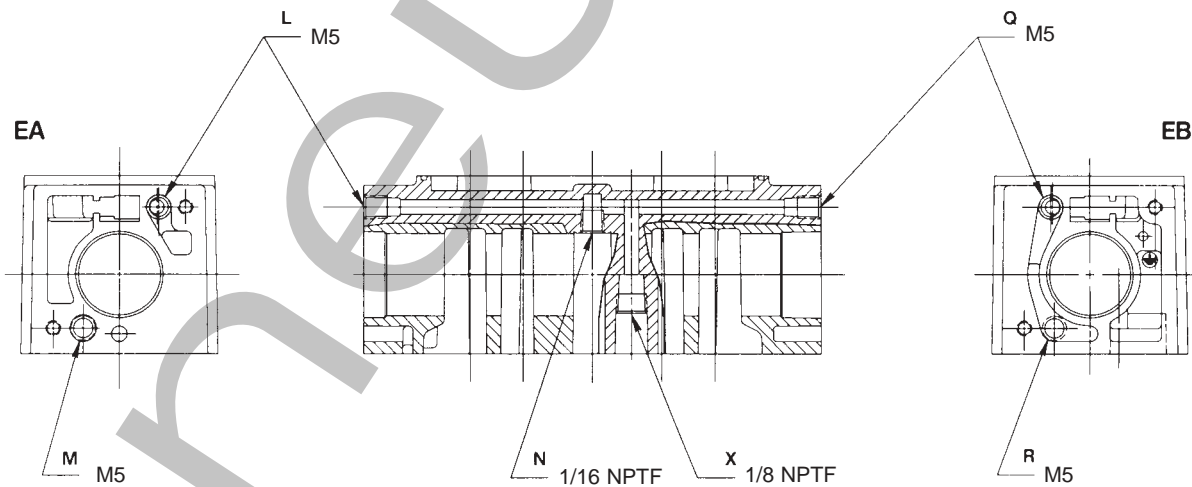


Pilot Port Plugging Arrangements For SPA 250 Series

The Numatics valve bodies used for the 250 Series have a number of pilot passages. Simply by opening or plugging certain passages, a number of different pilot supply options are available.

These views show the location of all passages. The letters do not appear on the casting. They are used only to identify the ports and the locations on the valve body. Pilot port X accepts a 1/8 NPTF pipe plug (129-110). Pilot port N accepts a 1/16 NPTF pipe plug (129-118). Pilot ports L, M, Q, and R accept set screw (127-589).

A cross section of the valve body and both end views are shown below.

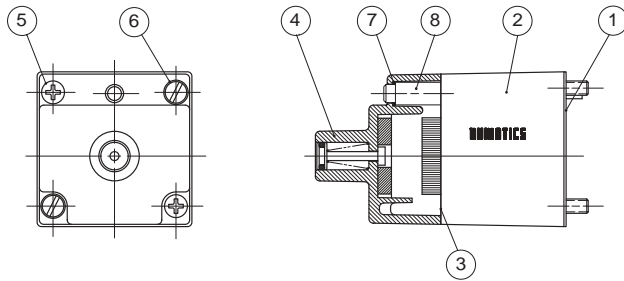


PILOT PLUG	INTERNAL FROM PORT "P"		INTERNAL FROM PORT "EA"		INTERNAL PORT "EB"		Internal From Port "X"	
	SINGLE SOLENOID-PILOT	DOUBLE SOLENOID-PILOT	SINGLE SOLENOID-PILOT	DOUBLE SOLENOID-PILOT	SINGLE SOLENOID-PILOT	DOUBLE SOLENOID-PILOT	Single Solenoid-Pilot	Double Solenoid-Pilot
L	Plug	Open		Open	Plug	Open	Plug	Open
M	Plug	Plug		Open	Plug	Plug	Plug	Plug
N	Open	Open	NOT AVAILABLE	Plug	Plug	Plug	Plug	Plug
X	Plug	Plug		Plug	Plug	Plug	Open	Open
Q	Open	Open		Open	Plug	Open	Open	Open
R	Plug	Plug		Plug	Open	Open	Plug	Plug



250 Series

Solenoid Capsule Assembly

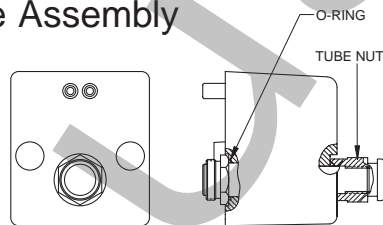


DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Gasket	113-293
2	1	Solenoid Assembly	See Chart Below
3	1	Gasket	113-294
4	1	End Cap Assembly	204-316
5	2	Screw	127-337
6	2	Screw	127-338
7	1	Seal	126-144
8	1	Light Assembly	See Chart Below

		VOLTAGE - AC				
		VALVE FUNCTION	PLUG-IN STYLE	100-115/50 110-120/60	200-230/50 220-240/60	24/50-60
Solenoid Capsule Assembly	Single Solenoid	2 position	Std. w/light	237-475	237-474	237-476
	Double Solenoid	3 position	Std. w/light	237-487	237-486	237-488
	Double Solenoid	Detented	Std. w/light	237-484	237-483	237-485
Solenoid Assembly	*Solenoids Only	Single Solenoid	Std. Plug-in	228-714	228-713	228-715
		Double Solenoid	Std. Plug-in	228-717	228-716	228-718
Indicator	Light Only			230-235	230-236	230-284

*End cap, screws and gaskets not included

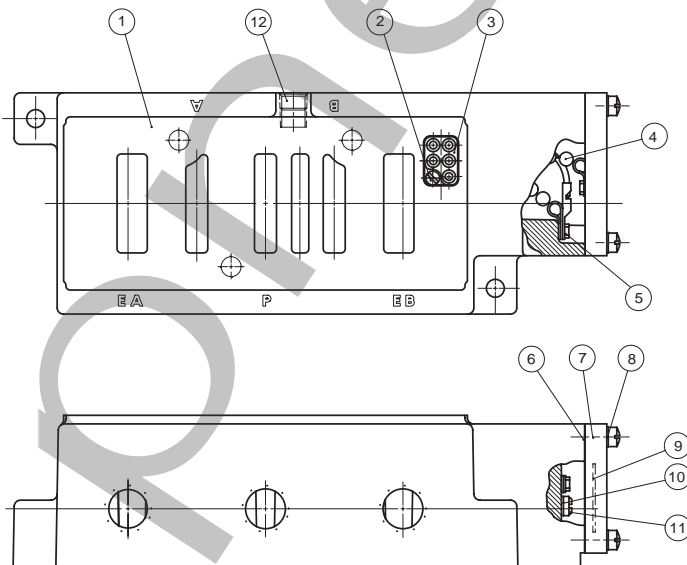
Solenoid - Pilot Capsule Assembly



VOLTAGE	PART NUMBER
24 VDC	236-384
100-115/50 110-120/60	237-1045

Includes core tube plunger and solenoid diffusion nut.

Base Assembly Kit



Base Assemblies, Side Ports

PORT SIZE	PART NUMBER
3/8 NPTF	203-798
1/2 NPTF	203-800
3/4 NPTF	203-802
1 NPTF	203-804

DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Base 3/8 NPTF	103-702
		Base 1/2 NPTF	103-703
		Base 3/4 NPTF	103-704
		Base 1 NPTF	103-705
2	1	Screw	127-342
3	1	Recept. Assembly	230-615
4	1	Chain Cover	125-185
5	2	Screw	127-180
6	1	Gasket	113-265
7	1	Conduit Cover	105-240
8	2	Screw Assembly	127-296
9	1	Label	122-355
10	1	Washer	128-162
11	1	Screw	127-176
12	1	Pipe Plug	129-100

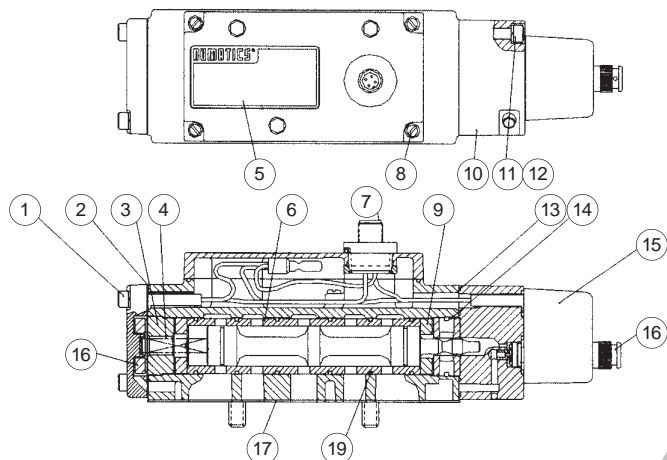


250 Series



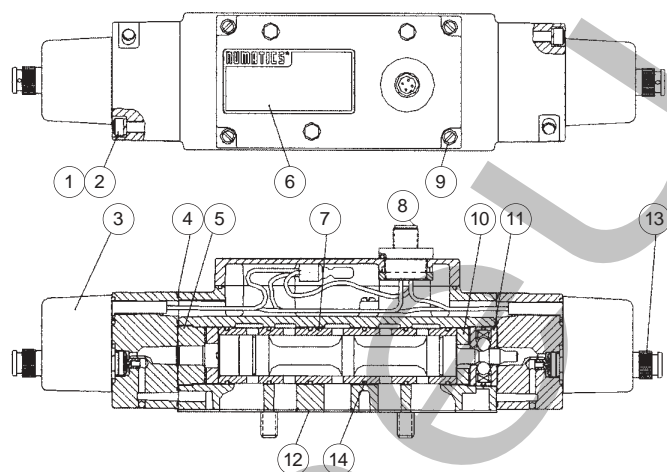
Service Kits and Parts

Kit No. A23SPA-K1 (For Models A22, A23, A24, BA4)



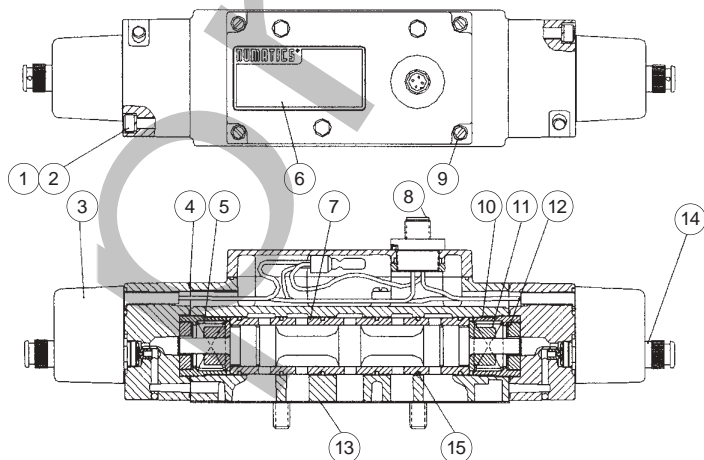
DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	2	Screw Assembly	127-103
2	1	Gasket	113-293
3	1	Spacer	116-317
4	1	Spring	115-165
5	1	Nameplate	122-944
6	1	Sleeve Assembly w/seals	209-410
7	1	Connector 4 Pin DC	230-972
7	1	Connector 5 Pin AC	230-533
8	4	Screw Assembly	127-296
9	2	Bumper	114-110
10	1	Adaptor Assembly	219-279
11	2	Screw	127-200
12	2	Lockwasher	128-110
13	1	Gasket	113-461
14	1	Detented Body	110-115
*15	1	Pilot Assembly DC Blue	See p. 34
*15	1	Pilot Assembly AC Black	See p. 34
16	1	Spacer	116-423
17	1	Gasket	113-439
18	1	Diffusion Nut	128-317
19	6	O-Ring	126-209

Kit No. A23SPA-K2 (For Models A22, A23, A24, BB4)



DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	4	Screw	127-200
2	4	Lockwasher	128-110
*3	2	Pilot Assembly DC Blue	See p. 34
*3	2	Pilot Assembly AC Black	See p. 34
4	2	Gasket	113-461
5	1	Spacer	116-317
6	1	Nameplate	122-944
7	1	Sleeve Assembly w/seals	209-410
8	1	Connector 4 Pin DC	230-972
8	1	Connector 5 Pin AC	230-533
9	4	Screw Assembly	127-296
10	2	Bumper	114-110
11	1	Detent Assembly	210-119
12	1	Gasket	113-439
13	2	Diffusion Nut	128-317
14	6	O-Ring	126-209

Kit No. A23SPA-K3 (For Models A22, A23, A24, BB5, BB6)



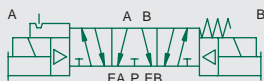
DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	4	Screw	127-200
2	4	Lockwasher	128-110
*3	2	Pilot Assembly DC Blue	See p. 34
*3	2	Pilot Assembly AC Black	See p. 34
4	2	Gasket	113-461
5	2	Spring	115-242
6	1	Nameplate	122-944
7	1	Sleeve Assembly Closed	209-408
7	1	Sleeve Assembly Open	230-409
8	1	Connector 4 Pin DC	230-972
8	1	Connector 5 Pin AC	230-533
9	4	Screw Assembly	127-296
10	2	Spacer	116-343
11	2	Spring Retainer	116-333
12	2	Bumper	114-108
13	1	Gasket	113-439
14	2	Diffusion Nut	128-317
15	6	O-Ring	126-209



250 Series

Special 250 - 3 Position

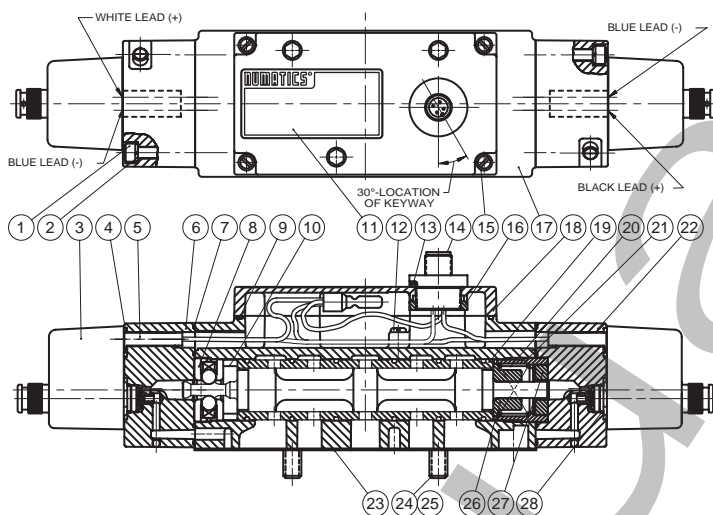
solenoid air pilot
3 position, open center
spring center "B" end
detented on "A" end



DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	4	Screw	127-200
2	4	Lockwasher	128-110
3	2	Pilot Assembly	236-384
4	2	O-Ring Seal	126-204
5	2	Receptacle Housing	125-309
6	1	Adaptor Assembly	219-279
7	2	Gasket	113-461
8	1	Detent Assembly	210-155
9	1	Gasket	113-420
10	1	Spacer	116-486
11	1	Nameplate	122-944
12	1	Screw	127-176
13	1	O-Ring Seal	126-206
14	1	Connector Assembly	230-972
15	4	Screw Assembly	127-296
16	1	Locknut	128-314
17	1	Body	101-566
18	1	Conduit Cover	105-316
19	1	Sleeve Assembly w/Seals	209-613
20	1	Spring	115-242
21	1	Spacer	116-343
22	1	Adaptor Assembly	219-280
23	1	Gasket	113-439
24	3	Screw	127-232
25	3	Lockwasher	128-140
26	1	Spring Retainer	116-333
27	1	Bumper	114-108
28	2	O-Ring Seal	126-133
29	1	Pipe Plug	129-100
30	2	Socket Set Screw	127-589

250 Series

92272U-DC



Technical Data

VALVE DATA	ENGLISH	METRIC
Cv	Direct Acting Solenoid Pilot 1.8 - 2.3	
Flow Capacity	Direct Acting Solenoid Pilot 97 SCFM @ 80 PSIG upstream pressure to atmosphere	2066 NI/m @ 6 bar upstream to 5 bar downstream
Operating Pressure Range	Direct Acting Solenoid Pilot 28" Hg. Vacuum to 150 PSIG	Vacuum to 10 bar
Pilot Pressure Range	Solenoid Pilot 14.5 to 125 PSIG	1 to 8.6 bar
Temperature Range (Ambient)	Direct Acting Solenoid Pilot -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)	Direct Acting Solenoid Pilot 6 4	N/A N/A
Holding Current (Amps)	Direct Acting Solenoid Pilot 0.25 0.17	0.09 0.06

RESPONSE TIME IN SECONDS		ENERGIZE	DE-ENERGIZE	ENERGIZE	DE-ENERGIZE
2 - Position, Single, Spring Return	Direct Acting	0.038	0.012	0.012	0.012
	Solenoid Pilot	0.014	0.038	0.009	0.040
2 - Position, Double, Detented	Direct Acting	0.012	N/A	0.012	N/A
	Solenoid Pilot	0.014	N/A	0.009	N/A
3 - Position, Spring Centered	Direct Acting	0.012	0.012	0.012	0.012
	Solenoid Pilot	0.014	0.038	0.012	0.040