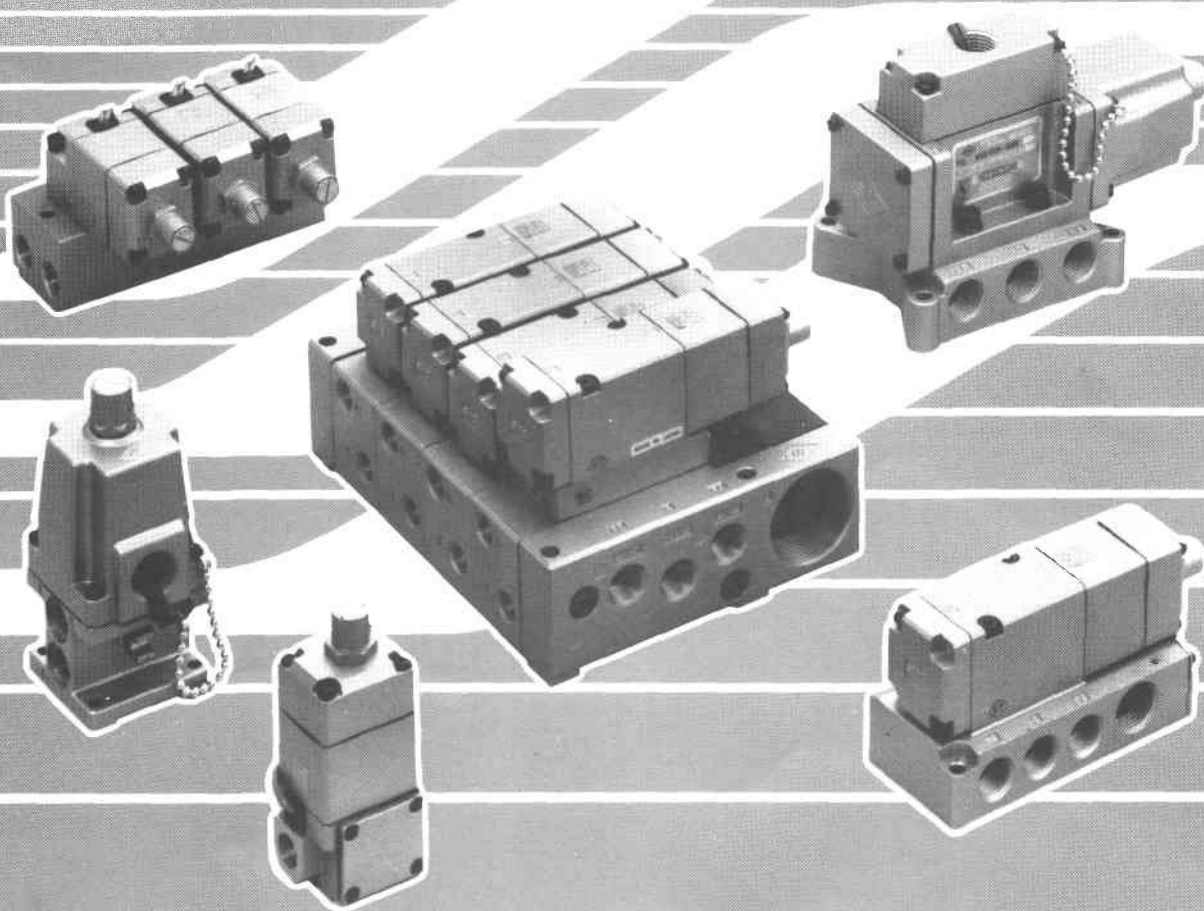


 **SMC<sup>®</sup>**  
**SMC Pneumatics Inc.**

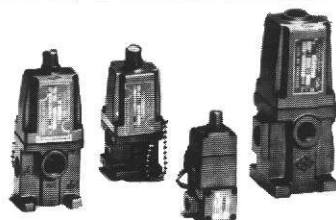
# Direct Solenoid Series NVS

31○5, 4○14/4○2/3/4/54



# DIRECTIONAL AIR VALVE DIRECT SOLENOID OPERATED

Contents	Page
NVS 3 Way	2-7
NVS 4 Way/5 Port (Class 1)	8-14
NVS 4 Way/5 Port (Class 2-5)	15-24



## SPECIFICATIONS

CHARACTERISTICS	VOLTS/HERTZ	NVS 3115	NVS 3125	NVS 3135	NVS 3145
<b>ELECTRICAL:</b>					
Inrush (Amps)	115/50	.52	0.75	0.92	3.8
	120/60	0.55	0.80	0.96	4.0
Holding (Amps)	115/50	0.14	0.19	0.19	0.51
	120/60	0.17	0.20	0.20	0.51
Min. Voltage to Operate (on 60 cycles)		80%	77%	87%	86%
DC		6	13.2	13.2	26
<b>RESPONSE:</b>					
Time to Energize: (Seconds)	115/50	0.012	0.015	0.017	0.018
	120/60	0.012	0.015	0.016	0.017
Time to De-energize: (Seconds)	115/50	0.018	0.025	0.023	0.025
	120/60	0.018	0.025	0.023	0.025

Note: Response times are measured with solenoids at 70°F (21°C), 100% voltage and the valve clean and lubricated. All times were measured by energizing and deenergizing at the zero point of the sine wave.

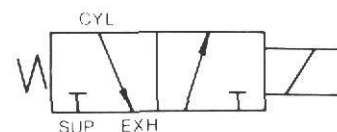
<b>OPERATING:</b>					
Maximum Cycle Rate -	115/50	1200	360	360	150
Continuous Operation: (cycles per minute)	120/50	1200	360	360	150
Maximum Ambient Temperature (At maximum cycle rate and continuous run. For slower cycle rates and intermittent duty, consult factory)	115/50 & 120/60	140°F (60°C)	115°F (46°C)		
<b>SPOOL STROKE:</b> In (mm)		0.126 (3.2)	0.177 (4.5)	0.197 (5.0)	0.386 (9.8)

**Media:** Air (lubricated or oil-free), any non-flammable non-toxic, non-corrosive gases, except oxygen.

**Operating Pressure:** 28" Vacuum to 300 PSIG. (20Kgf/cm<sup>2</sup>)

**Leakage:** Port to port (internal) not to exceed 0.007 cubic feet per minute at 100 PSIG. (6.7 Kgf/cm<sup>2</sup>)

**Materials:** All housing parts aluminum die castings, spool and sleeve 440F stainless, passivated and heat treated to 58-62 Rockwell C. Sleeve O-rings Buna N, Spacer delrin, shock pad urethane rubber.



ANSI Symbol  
(As a normally closed 3-way)

## DESIGN

This design concept consists of a Match-Ground "SPOOL & SLEEVE" assembly which controls the main valving functions. This match-ground fit creates an "Air Bearing" effect for extended and efficient operation and eliminates the need for resilient seals. Large capacity air flows are achieved by application of the SMC U.S. Patents applicable to this type of valve. Should the valve require disassembly for maintenance the Spool and Sleeve should be retained as a unit.

## GENERAL:

Heavy duty air valves built to comply with JIC and all industrial standards. Construction is dust-tight and splash-proof. Recessed non-locking manual operator available on all models. Optional Rubber "Solenoid-Access" plug allows manual operation of the valve without necessity of removing plugs.

## DIRECT SOLENOID OPERATED:

The solenoid operates the spool directly, and a spring returns the spool and solenoid plunger when the solenoid is de-energized.

The spool has no seals, and is balanced to air pressures, so pressure has no effect on the operation of the valve.

## CONTINUOUSLY RATED SOLENOID:

### NVS 3115

The solenoid is a heavy duty push type with coil encapsulated within an aluminum housing for external protection and continuously rated. May be energized indefinitely without damage.

### NVS 3125, 3135, 3145

The solenoid is a heavy duty industrial push-type C-frame with molded encapsulated coil and continuously rated. May be held energized indefinitely without damage.

## MOUNTING:

Intended for foot mounting or are light enough to hang in a pipe line. May be mounted in any position.

## MULTI-PURPOSE FLOW PATTERN:

True multi-purpose valve. Any port may be pressurized, back-pressured, or plugged without affecting the operation of the spool. May be used without modification as a normally open or normally closed 3-way or 2-way, simply by piping and plugging the appropriate ports. May also be piped as a selector or a diverter.

## MULTI-PURPOSE APPLICATIONS

FOR USE AS:	PORT "A"	PORT "P"	PORT "E"
2-Way Normally Closed	Outlet	Supply	Plug
2-Way Normally Open	Outlet	Plug	Supply
3-Way Normally Closed	Outlet	Supply	Exhaust
3-Way Normally Open	Outlet	Exhaust	Supply
Diverter	Supply	Outlet	Outlet
Two-pressure selector	Outlet	Supply 1	Supply 2

## HOW TO ORDER

This model number is a coded number which describes all available options.

**NVS 3 1 1 5 01 09 D P**

**Valve Size** \_\_\_\_\_  
 = Class 1

**Mounting Style** \_\_\_\_\_  
 = Valve unit only - Manifold mounted  
 = Foot mounting, pipe tap in body

**Porting** \_\_\_\_\_  
 = Manifold Mounting (NVS 3114, see pg 7)  
 = 1/8" NPTF (Cv 0.8)  
 = 1/4" NPTF (Cv 1.1)

**Solenoid Type** \_\_\_\_\_  
 = 24 VAC 60Hz  
 = 115/120 V60Hz or 100/110V 50Hz  
 = 230/240 V60Hz or 200/220 V50 Hz  
 = 12 VAC 50 Hz  
 = 12 VDC  
 = 24 VDC\*

Only available for "D" and "O" features.

**Optional**  
 P = External Electrical Plug In  
 P5 = "DIN" Connector (with 6' Cord Assy.)  
 E = 48" Solenoid Leads (24" STD)  
 B = Mounting Base (AXT 338-11)

**Features**  
 D = Recessed non-locking manual operator  
 F = Recessed non-locking manual operator and electrical indicator light.\*  
 K = Recessed locking manual operator  
 J = Recessed locking manual operator and electrical indicator light.\*  
 L = Rubber "Solenoid Access" plug and electrical indicator light\*  
 O = Rubber "Solenoid Access" plug.  
 \*AC Only

## HOW TO ORDER

This model number is a coded number which describes all available options.

**NVS 3 1 2 5 - 02 11 D**

**Valve Size** \_\_\_\_\_  
 = Class 2  
 = Class 3  
 = Class 4

**Mounting Style** \_\_\_\_\_  
 = Mounting, pipe tap in body

**Porting** \_\_\_\_\_  
 = 1/8" NPTF (NVS 3125 only) Cv 0.69  
 = 1/4" NPTF (NVS 3125 only) Cv 0.83  
 = 3/8" NPTF (NVS 3135 only) Cv 2.58  
 = 1/2" NPTF (NVS 3135, 3145 only) 3135 = Cv 2.58; 3145 = Cv 4.17  
 = 3/4" NPTF (NVS 3145 only) Cv 4.50

**Features**  
 D = Recessed non-locking manual operator  
 K = Recessed locking manual operator (AC only)  
 O = Rubber "Solenoid Access" plug (AC only)

**Solenoid Type**  
 03 = 110V 50Hz  
 04 = 220V 50Hz  
 07 = 24 VAC 60Hz  
 09 = 115/120V 60Hz or 100/110V 50Hz  
 10 = 230/240V 60Hz or 200/220V 50Hz  
 11 = 480V 60Hz  
 49 = 12 VAC 50Hz  
 51 = 12 VDC  
 52 = 24 VDC (DC not available on NVS 3125)  
 53 = 48 VDC

## REPLACEMENT SOLENOID ASSEMBLIES

NVS 3115		
Voltage/Hz	Solenoid Assembly Number	
24V 50/60 Hz	A001-07	
24V 50/60 Hz	A001-07P	DIN
110/120V 50/60 Hz	A001-09	
230/240V 50/60 Hz	A001-10	
110/120V 50/60 Hz	A001-09E	Long Lead
110/120V 50/60 Hz	A001-09P	DIN
230/240V 50/60 Hz	A001-10P	DIN
12 VAC 50/60	A001-49	
12 VDC; 24 VDC	A001-51 - A001-52	
24 VDC	A001-52P	DIN
12 VDC	A001-51E	Long Lead
DIN Top w/5 ft. wire	MPM 152-6-150	DIN w/5 ft. prewired

NVS 3125 & 3135	
Voltage/Hz	Solenoid Assembly Number
110/50Hz	A01A-03
220/60Hz	A01A-05
24VAC 50/60Hz	A01A-07
120/50/60Hz	A01A-09
240/50/60Hz	A01A-10
480/60Hz	A01A-11
24VAC/50Hz	A01A-49
48VDC	A06-53 (NVS3125) A07-53 (NVS 3135)
24VDC	A06-52 (NVS3125) A07-52 (NVS 3135)
12VDC	A06-51 (NVS3125) A07-51 (NVS 3135)

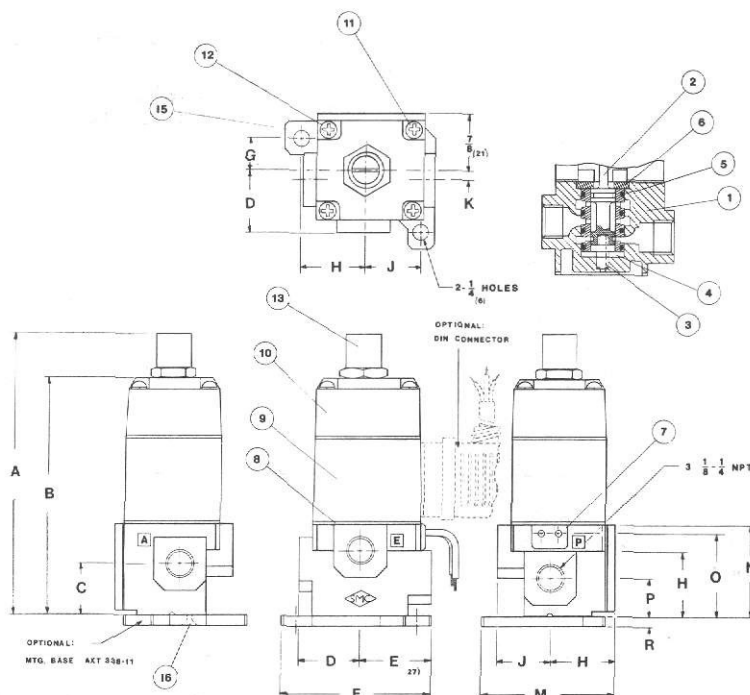
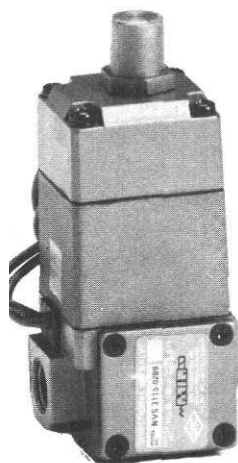
NVS 3145	
Voltage/Hz	Solenoid Assembly Number
110/50Hz	A12A-03
220/60Hz	A12A-05
24VAC 50/60Hz	A12A-07
120/50/60Hz	A12A-09
240/50/60Hz	A12A-10
480/60Hz	A12A-11
24VAC/50Hz	A12A-49
48VDC	A08-53
24VDC	A08-52
12VDC	A08-51

DC not available on NVS 3125

**SERIES**  
**NVS 3115, 3125**  
**NVS 3135, 3145**

**DIRECTIONAL AIR VALVES**  
**DIMENSIONS/PARTS LIST**

**NVS 3115**



**DIMENSIONS**

A	B	C	D	E	F	G	H	J	K	M	N	O	P	R
4.19 (107)	3.50 (89)	0.75 (19)	0.91 (23)	1.06 (27)	2.25 (57)	0.50 (12.7)	0.94 (24.8)	0.88 (22.4)	0.13 (33)	2.00 (50.8)	1.38 (35.1)	1.06 (26.9)	0.56 (14.2)	0.16 (4)

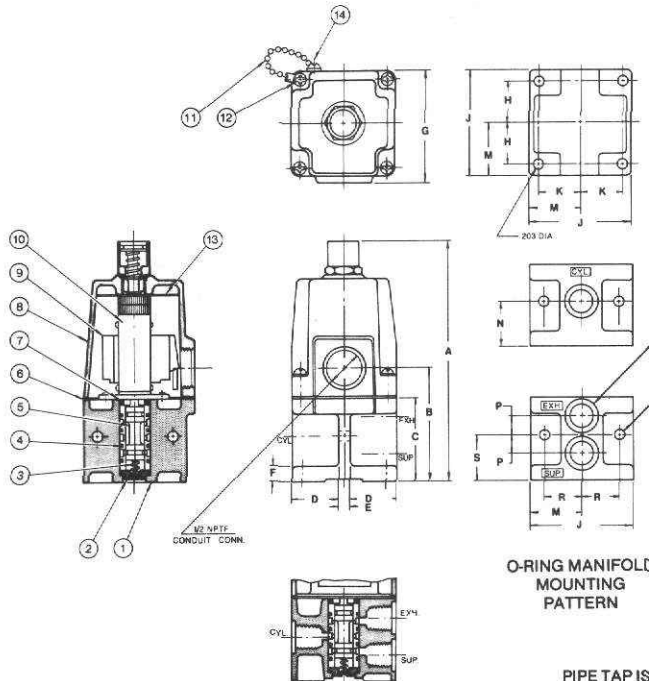
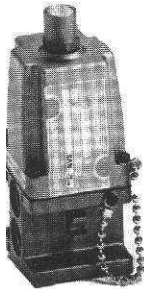
Millimeters in Parentheses

**PARTS LIST**

Detail Ref.	No. Req'd.	Part Name	NVS 3115
1.	1	Body 1/8" Body Assembly - Includes body and (2) locking pins.	
	1	1/4" Body Assembly - Includes body and (2) locking pins.	
2.	1 Set	Spool & Sleeve Ass'y.	
3.	1	Spring	AXT338-6
4.	1	Bumper	AXT338-5
5.	4	O-Ring	ARP568-014
6.	1	Spacer	AXT338-4
7.	1	Grommet	AXT338-9
8.	2	Sol. Gasket	AXT333-14
9.	1	Sol. Assy. 115/120 V 50/60 Hz.	A001-09
	1	220/240 V 50/60 Hz.	A001-10
	1	24 V 50/60 Hz.	A001-07
10A.	1	Sol. Cap Assy. (Rubber access plug)	
B.	1	Sol. Cap Assy. (Recessed non-lock oper.)	
C.	1	Sol. Cap Assy. (Rubber plug and light)	
D.	1	Sol. Cap Assy. (Rec. non-lock oper. and light)	
11.	2	Captive Screws	AXT333-19
12.	2	Self Tapping Screws	AXT333-7-10
13.	1	Manual Operator	PB0101
15.	1	Mounting Base	AXT338-11
16.	2	Mounting Base Screws	M5x10



**NVS 3125**



**FOOT MOUNTING**

Primary mounting method is foot mounting on the end of the body. The valve may be mounted in any position in space, but if it is mounted with the exhaust port pointing up we recommend that you protect the open port with a muffler or an elbow fitting. Maximum length mounting screw is 1" overall including head.

ALL PORTS  
 11/16 DIA. X 3/32 DEEP  
 C BORE FOR APR568 - 112 O-RING

.219 DIA  
 (2) MTG HOLES  
 (CLEARANCE FOR  
 #10-32 SCREW)

**MANIFOLD MOUNTING**

O-ring counterbores on all ports allow manifold mounting on any flat surface.

Screw holes are clearance holes for a #10 screw but can be reamed out to clear a 1/4" screw.

In planning your mounting note that the conduit connection will come out one side. The cover cannot be rotated on the body.

**O-RING MANIFOLD  
 MOUNTING  
 PATTERN**

PIPE TAP IS 1/8" NPTF or 1/4" NPTF  
 AS SPECIFIED BY MODEL  
 NUMBER

**DIMENSIONS**

A	B	C	D	E	F	G	H	J	K	M	N	P	R	S
5.04 (128)	2.40 (61)	1.77 (45)	0.94 (24)	0.24 (6)	0.31 (8)	2.28 (58)	0.83 (21)	2.13 (54)	0.87 (22)	1.06 (27)	0.98 (25)	0.39 (10)	0.79 (20)	0.98 (25)

Millimeters in Parentheses

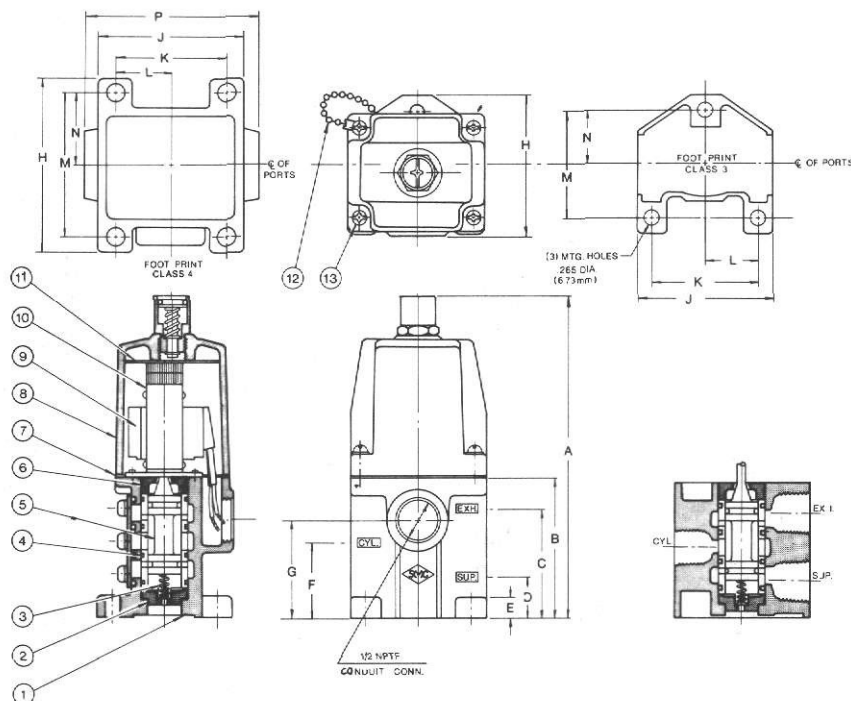
**PARTS LIST**

Detail Ref.	No. Req'd.	Part Name	NVS 3125
1	1	Body Assembly—1/8" NPTF parts. Includes body and (2) locking pins.	
	1	Body Assembly—1/4" NPTF parts. Includes body and (2) locking pins.	
2	1	Spring Seat	AXT018-4
3	1	Spring—spool return	XT005-10
4	4	O-ring—sleeve	ARP568-014
5	1	Spool & Sleeve Ass'y.	
6	1	Gasket—solenoid cover	XT011-8-3
7	1	Spacer	AXT018-5
8	1	Cover assembly—A.C. solenoid. Consists of cover, recessed non-locking operator, and (4) det. 12.	
	or 1	Cover assembly—A.C. solenoid, without manual operator, and with operator mounting hole plugged.	
	1	Manual operator assembly with O-ring	PB0601
9	1	Replacement coil—A.C. solenoid	115/120 V 50/60 Hz. 120/60 C01A-09 240/60 C01A-10 480/60 C01A-11
10	1	Solenoid assembly—A.C. complete with coil.	120/60 A01A-09 240/60 A01A-10 480/60 A01A-11
11	1	Cover chain	NXT010-12
12	4	Captive screw & lock washer	XT010-21
13	1	Shock pad	NXT010-10
14	1	Screw M4x6	NXT011-3

**SERIES**  
**NVS 3115, 3125**  
**NVS 3135, 3145**

**DIRECTIONAL AIR VALVE**  
**DIMENSIONS/PARTS LIST**

**NVS 3135**  
**NVS 3145**



**DIMENSIONS**

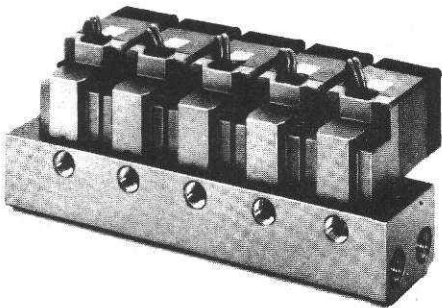
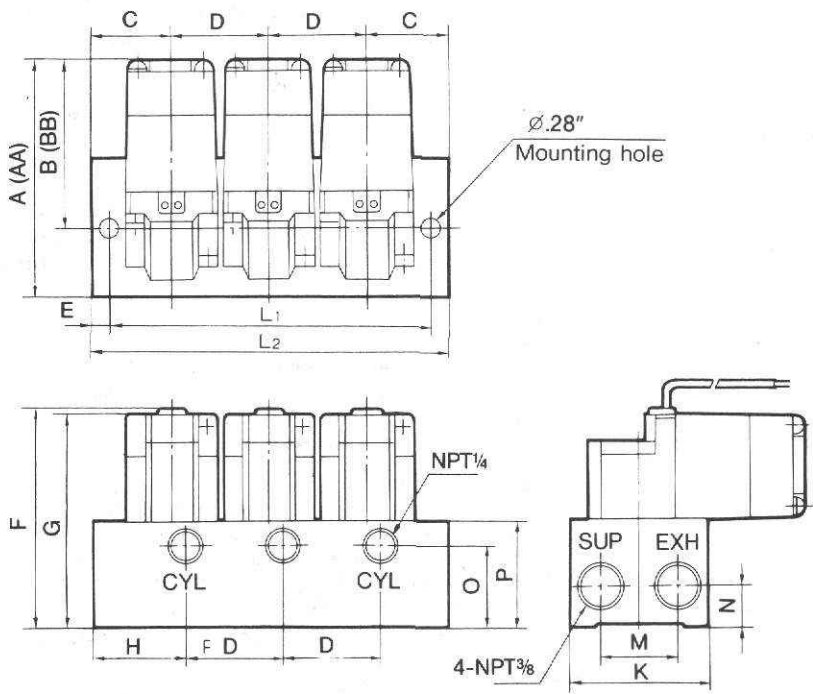
Valve Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P
NVS 3135	5.98 (152)	2.56 (65)	2.01 (51)	0.75 (19)	0.35 (9)	1.38 (35)	1.77 (45)	2.56 (65)	2.52 (64)	1.97 (50)	0.98 (25)	— (50)	0.98 (25)	—
NVS 3145	8.46 (215)	3.46 (88)	2.80 (71)	1.38 (35)	0.47 (12)	2.09 (33)	2.56 (65)	3.19 (81)	2.68 (68)	2.05 (52)	1.02 (26)	2.60 (66)	1.30 (33)	3.23 (82)

Millimeters in Parentheses

**PARTS LIST**

Detail Ref.	No. Req'd.	Part Name	NVS 3135	NVS3145
1	1	Body assembly. Includes body and (2) locking pins		
2	1	Spring seat	XT019-6	XT103-4
3	1	Spring—spool return	XT010-15	XT103-5
4	4	O-ring—sleeve	ARP568-018	ARP568-119
5	1	Spool & Sleeve Ass'y.		
6	1	Spacer	XT013-13-2	XT021-12
7	1	Gasket—Solenoid Cover	XT013-31-2	NXT030-8
8	1	Cover assembly—A.C. solenoid. Consists of cover, recessed non-locking manual operator and (4) detail 13.		
	or 1	Cover assembly—A.C. solenoid, without manual operator, and with operator mounting hole plugged.		
	1	Manual operator assembly with O-ring	PB0201	PB0401
9	1	Replacement coil only—A.C. solenoid	120/60 C01A-09	C12A-09
			240/60 C01A-10	C12A-10
			480/60 C01A-11	C12A-11
10	1	Solenoid assembly—A.C. complete with coil.	120/60 A01A-09	A12A-09
			240/60 A01A-10	A12A-10
			480/60 A01A-11	A12A-11
11	1	Shock Pad	NXT010-10	NXT030-7-3
12	1	Cover chain	NXT010-12	NXT010-12
13	4	Captive screw and lock washer	XT010-21	XT010-21

**VS 3114**  
Optional manifold mounted design is available for the NVS 3115 valves. The block is aluminum bar stock with common supply and exhaust as well as an individual outlet port on the side.



HOW TO ORDER

NVS 3114 - 00 09 - D

Refer to  
Std How to Order  
Page 2

Includes mounting screws and gaskets  
with valve units.  
Hold down bolt: XT012-25D-1

FACTORY ASSEMBLED MANIFOLDS

ORDERING EXAMPLE:

1 PCE—FOUR STATION MANIFOLD

ASSEMBLY COMPRISING:

- STATION 1: NVS3114-0009F
- STATION 2: NVS3114-0052D
- STATION 3: NVS3114-0009D
- STATION 4: NVS3114-0009K

1-MA300-4

WHEN ORDERING MANIFOLD

MA300-“XX”

XX = 2 through 10 stations\*

\*Maximum 10 stations.

BLANK STATION KIT

AXT338-17A

MENSIONS

A	AA*	B	BB*	C	D	E	F	G	H	K	M	N	P
.58 (31)	4.61 (117)	2.56 (65)	3.58 (91)	1.22 (31)	1.50 (38)	0.26 (6.5)	3.29 (83.5)	3.23 (82)	1.42 (36)	2.50 (52)	1.10 (28)	0.59 (15)	1.57 (40)

Dimension if DC Solenoid is Used

Millimeters in Parentheses

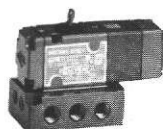
MANIFOLD DIMENSIONS

L	n	2	3	4	5	6	7	8	9	10
L1		3.43 (87)	4.92 (125)	6.42 (163)	7.91 (201)	9.41 (239)	10.91 (277)	12.40 (315)	13.90 (353)	15.39 (391)
L2		3.94 (100)	5.43 (138)	6.93 (176)	8.43 (214)	9.92 (252)	11.42 (290)	12.91 (328)	14.41 (366)	15.91 (404)

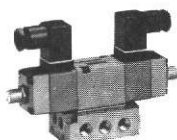
Millimeters in Parentheses

# SERIES NVS 4014

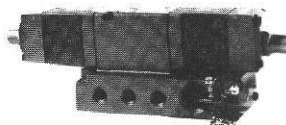
# DIRECTIONAL AIR VALVE DIRECT SOLENOID OPERATED



NVS 4114



NVS 4214



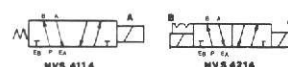
NVS 4314 & NVS 4414

## SPECIFICATIONS

CHARACTERISTICS	Volts Hertz	NVS 4114 & 4214		NVS 4314 & 4414		
ELECTRICAL:	Inrush: (Amps)	AC	DC	AC	DC	
		115/60	0.52	6† WATTS	0.54	_____
		120/60	0.55		0.57	_____
		115/60	0.14		0.14	_____
		120/60	0.17	0.17	_____	
Minimum Voltage to Operate: (On 60 Cycles)	15% to +10% of Rating					
RESPONSE:						
Time to Energize: (Seconds)	115/60	0.012	.042	0.014	_____	
	120/60	0.012		0.014	_____	
Time to De-energize: (Seconds)	115/60	0.018	.011	0.018	_____	
	120/60	0.018		0.018	_____	
Note: Response times are measured with solenoids at 70°F (21°C.), 100% voltage, and the valve clean and lubricated. All times were measured by energizing at the zero point on the sine wave.						
OPERATING:						
Maximum Cycle Rate — Continuous Operation: (Cycles per Minute)	115/60 120/60	1200	_____	360	_____	
Maximum Ambient Temperature: (At maximum cycle rate and continuous run. For slower cycle rates and intermittent duty consult the factory.)	115/60 120/60	140°F (60°C)				
		0.126" (3.2mm)		0.236" (6mm)		
SPOOL STROKE:						
Media:	Air (lubricated or oil-free), any non-flammable non-toxic, non-corrosive gases, except oxygen.					
Operating pressures:	28" vacuum 300 PSIG (20 Kgf/cm <sup>2</sup> )					
Pressure Range:	28" vacuum 300 PSIG (20 Kgf/cm <sup>2</sup> )					
Leakage:	Port to port (internal) not to exceed 0.007 cubic feet per minute at 100 PSIG (6.9 Bar).					
Materials:	All housing parts aluminum die castings, spool and sleeve 440F stainless, passivated and heat treated to 58-62 Rockwell C. Sleeve O-rings Buna N, Spacer delrin, shock pad urethane rubber.					

\* UL 429 Testing Procedure  
† "-X1" DECCO\* solenoid, 19.3 WATTS.

## ANSI Symbols



## DESIGN

This design concept consists of a Match-Ground "SPOOL & SLEEVE" assembly which controls the main valving functions. This match-ground fit creates an "Air Bearing" effect for extended and efficient operation and eliminates the need for resilient seals. Large capacity air flows are achieved by application of the SMC U.S. Patents applicable to this type of valve. Should the valve require disassembly for maintenance the Spool and Sleeve should be retained as a unit.

## GENERAL:

Heavy duty air valves built to comply with JIC and all industrial standards. Construction is dust-tight and splash-proof. Recessed non-locking manual operator available on all models. Optional Rubber "Solenoid- Access" plug allows manual operation of the valve without necessity of removing plugs.

## DIRECT SOLENOID OPERATED:

### Single Solenoid Spring Return

Solenoid operates the spool directly, and a spring returns both spool and solenoid plunger when de-energized.

### Double Solenoid - Detented

Solenoids operate the spool directly. A mechanical detent holds the spool securely in either spool position when the solenoids are deenergized, as required by major automotive safety standards. Thus a momentary electrical pulse to either solenoid will shift the spool, and the detent will hold the spool in the shifted position until the other solenoid is energized to shift the spool back.

### Double Solenoid - 3 Position Spring Centered

Solenoids operate the spool directly, while two centering springs hold the spool in the center position when the solenoids are deenergized. Note that each spring centers the spool by means of a spring seat which seats firmly against the end of the sleeve. Thus the spool always centers accurately. The centering springs do not buck each other as in some spring centered valves.

## MULTI-PURPOSE FLOW PATTERN:

True multi-purpose valves. Any port may be pressurized, back-pressured, or plugged without affecting the spool action. Normally used as a single inlet 4-way to control double acting cylinders. May also be used without modification as a dual pressure 4-way, 3-way, or 2-way.

## CONTINUOUSLY RATED SOLENOID:

The solenoid is heavy duty with coil encapsulated and continuously rated. The solenoid may be energized indefinitely without damage.

## MOUNTING:

Intended for sub-plate or manifold mounting. Electrical wires exit from base of the valve into manifold or individual sub-plate junction boxes for simplification & protection of wiring connections. May be mounted in any position.

## Cv RATINGS:

Cv ratings vary with the pipe size which feeds the valve. Actual Cv ratings on various sub-plates are as follows:

1/8" Cv 0.8

1/4" Cv 1.0

3/8" Cv 1.0

## HOW TO ORDER

This model number is a coded number which describes all available options.

**NVS 4 1 1 4 - 00 09 D -**

### Mode of Actuation

- Single Sol./spring return †
- Double Sol./detented †
- Double Sol./spring centered †  
(all ports blocked in neutral)
- Double Sol./spring centered †  
(cyl. ports open to exhaust in neutral).

### Porting

- = Indicates valve unit only / no base  
(Includes sub-plate gasket & hold down bolts)
- \*41 = Mounted on individual sub-plate — 1/8" NPT Side ports (5) — dual exhaust
- \*42 = Mounted on individual sub-plate — 1/4" NPT Side ports (5) — dual exhaust
- \*43 = Mounted on individual sub-plate — 1/8" NPT Side and bottom ports (10) — dual exhaust
- \*44 = Mounted on individual sub-plate — 1/4" NPT Bottom ports (5) — dual exhaust
- \*45 = Mounted on individual sub-plate — 3/8" NPT Side ports (5) — dual exhaust
- \*12 = Mounted on Stacking Manifold Block 1/4" NPT — Side ports (2)
- \*14 = Mounted on Stacking Manifold Block 1/4" NPT — Side and bottom ports (4)
- \*16 = Mounted on Stacking Manifold Block 1/4" NPT — Side (2) and bottom (5) ports

‡ these subplates and manifolds with valves using top outlet (T) or Din connector (P).

### Optional

- E = 48" Electrical Leads
- M = Interface Speed Control
- P = Din Plug-in Connector
- P1 = Din Top with light (not available class 2-5)
- P5 = Din w/6 ft. prewired cord
- P6 = Din Top w/light and 6 ft. prewired cord
- ‡R1 = SPR0101 Single Interface Reg. w/screws
- ‡R2 = SPR0102 Double Interface Reg. w/screws
- ‡R3 = SPR0101 Single Interface Reg. w/gauge 0-60 PSI
- ‡R4 = SPR0101 Single Interface Reg. w/gauge 0-160 PSI
- T = Top wire outlet
- SV-1 = Stop Valve

### Features

- D† = Recessed non-locking manual operator
- F = Recessed non-locking manual operator and electrical indicator light\*\*\*
- L = Rubber "Solenoid Access" plug and electrical indicator light\*\*\*
- O† = Rubber "Solenoid Access" plug

### Solenoid Type

- \* 07 = 24 VAC 50/60 Hz
- 09† = 115/120 V. 60 Hz or 100/110 V. 50 Hz
- 10† = 230 V. 60 Hz or 200 V. 50 Hz
- \* 49 = 12 VAC 50/60 Hz
- 51 = 12 VDC

This Product is Listed by  
Underwriters Laboratories Inc.  
and Bears the Mark:



\*These and other Voltage/Hz Ratings are available by Special Order.  
\*\* Only available as "D" or "O" option and 2 position.  
\*\*\* AC Only  
‡ When mounted on subplate option M must be used.

## SUBPLATES AND MANIFOLDS

(To order valves mounted on subplates or manifolds insert "XX" into valve No.)

Example: NVS 4114-"XX" 09D

### Subplates

Part No.	Porting	No. of Ports	"XX"
P0101	1/8" NPTF Side	5	01
P0102	1/4" NPTF Side	5	02
P0103	1/8" NPTF Side & Bottom	10	03
P0104	1/4" NPTF Bottom	5	04
P0105	3/8" NPTF Side	5	05
XT 333-21	Terminal Block Subplate		—

### Manifolds

Part No.	Porting	No. of Ports	"XX"
IB 4010-02	1/4" NPTF Side	2	11
IB 4011-02	1/4" NPTF Side; 1/4" Bottom A & B	4	13
IB 4210-02	1/4" NPTF Side (2); 1/4" Bottom (5)	7	15

### Subplates \*(Options T & P Only)

Part No.	Porting	No. of Ports	"XX"
P0111	1/8" NPTF Side	5	41
P0112	1/4" NPTF Side	5	42
P0113	1/8" NPTF Side (5); 1/8" NPTF Bottom	10	43
P0114	1/4" NPTF Bottom	5	44
P0115	3/8" NPTF Side	5	45

### Accessories

Part Number	Description	Pcs. Req.
ME 401 LR	Left and Right end plates—Includes (4) NXT010-11 screws Includes (3) O-rings ARP 565-015; Plug AXT 336-9	1 pr.
ME401 SLR	Left and Right end plates—Short w/o conduit NPT threads. Includes (3) O-rings ARP 568-015	1 pr.
AXT 336-5*	Tie-Rods—Includes (2) M6X25 screws per rod	2
NXT 336-4*	Conduit cover Note: Not required if using ME 401 SLR end plates	1
AXT 336-6	Gallery blocking Disc	—
AXT 336-7A	Blank station kit	—
AXT 395	Stop Valve (SV-1)	—
SP 0100	Interface Speed Control (use adder "M")	—
AXT622-5A	Terminal Block	—

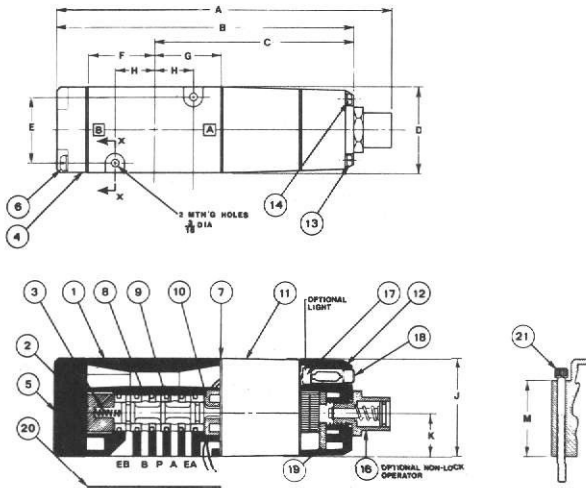
\*add number of stations

### Manifolds \*(Options T & P Only)

Part No.	Porting	No. of Ports	"XX"
MBA 4010-02	1/4" NPTF Side	2	12
MBA 4011-02	1/4" NPTF Side; 1/4" Bottom	4	14
MBA 4210-02	1/4" NPTF Side (2); 1/4" Bottom(5)	7	16



**NVS 4114-00 "XX" D**



**Dimensions**

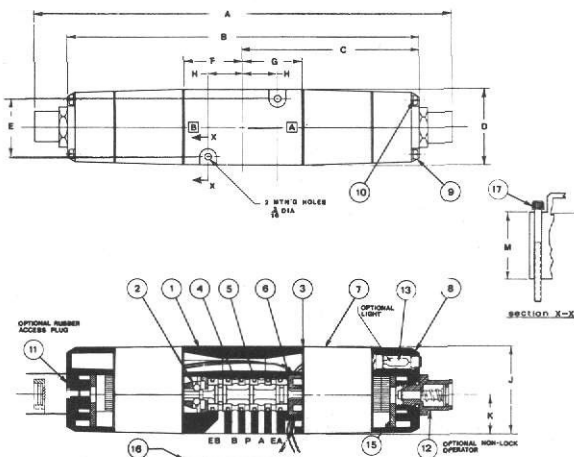
A	B	C	D	E	F	G	H	J	K	M
5.50 (140)	4.88 (122)	3.25 (83)	1.41 (36)	1.08 (28)	1.06 (27)	1.09 (28)	0.64 (16)	1.63 (41)	0.72 (18)	1.41 (36)

Millimeters in Parentheses

Detail Ref.	No. Req'd.	Part Name	NVS 4114
1	1	Valve body	
2	1	Spring seat	AXT 333-8
3	1	Spring-spool return	AXT 333-9-3
4	1	End plate ass'y (includes det 5 & (2) det 6)	EC0101
5	1	End plate	
6	2	Captive screws	XT 011-15
7	3	Gasket (solenoid, solenoid cap & end plate)	AXT 333-14
8	1	Sleeve ass'y. consists of spool & sleeve (matched set) & (6) O rings det 9.	—
9	6	O rings — sleeve	ARP 568-014
10	1	Spacer	AXT 333-10
11	1	Solenoid ass'y. — encapsulated — A.C. 115/120 V. 60 Hz 230/240 V. 60 Hz	A 001-09 A 001-10
12A	1	Solenoid cap ass'y. — includes cap, (1) rubber access plug det 15, (1) det 19, (2) det 13, (2) det 14, and (1) det 7 (valve type "O")	SC 0001
12B	1	Solenoid cap ass'y. — includes cap, (1) recessed non-locking operator det 16, (1) det 19, (2) det 13, (2) det 14, and (1) det 7 (valve type "N")	SC 0002
12C	1	Solenoid cap ass'y. — includes cap, (1) rubber access plug det 15, (1) indicator light assembly det 17 & 18, (1) det 19, (2) det 13, (2) det 14, and (1) det 7 (valve type "L")	SC 0003-XX
12D	1	Solenoid cap ass'y. — includes cap, (1) recessed non-locking operator det 16, (1) indicator light assembly det 17 & 18, (1) det 19, (2) det 13, (2) det 14, and (1) det 7 (valve type "F")	SC 0004-XX
13	2	Captive screws — cap, and solenoid to body	AXT 333-19
14	2	Self tapping screws — cap to solenoid	AXT 333-7-10
15	1	Rubber access plug	AXT 333-16
16	1	Recessed non-locking manual operator & O-ring	PB 0101
17	1	Indicator light ass'y	AXT-333-7L-1-XX
18	1	Indicator light cover	
19	1	Bumper	AXT 333-7-11
20	1	Gasket — valve to sub-plate	AXT 335-12-2
21	2	Hold down bolts and lock washers (8-32 x 1-3/4")	NXT 333-17

NOTE: XX Indicates Voltage

**NVS 4214-00 "XX" D**



**Dimensions**

A	B	C	D	E	F	G	H	J	K	M
7.75 (197)	6.50 (165)	3.31 (84)	1.41 (36)	1.06 (27)	1.06 (27)	1.09 (28)	0.64 (16)	1.63 (41)	0.72 (18)	1.41 (36)

Millimeters in Parentheses

Detail Ref.	No. Req'd.	Part Name	NVS 4214
1	1	Valve body	
2	1	Detent ass'y	AXT 333-20
3	4	Gasket (solenoids & solenoid caps)	AXT 333-14
4	1	Sleeve ass'y. consists of spool & sleeve (matched set) & (6) O rings det 5.	—
5	6	O rings — sleeve	ARP 568-014
6	1	Spacer	AXT 333-10
7	2	Solenoid ass'y. encapsulated — 115/120 V 60 Hz 230/240 V 60 Hz	A 001-09 A 001-10
8A	2	Solenoid cap ass'y. — includes cap, (1) rubber access plug det 11, (1) det 15, (2) det 9, (2) det 10, & (1) det 3 (valve type "O")	SC 0001
8B	2	Solenoid cap ass'y. — includes cap, (1) recessed non-locking operator det 12, (1) det 15, (2) det 9, (2) det 10, & (1) det 3 (valve type "D")	SC 0002
8C	2	Solenoid cap ass'y. — includes cap, (1) rubber access plug det 11, (1) indicator light ass'y. det 13 & 14, (1) det 15, (2) det 9, (2) det 10, & (1) det 3 (valve type "L")	SC 0003-XX
8D	2	Solenoid cap ass'y. — includes cap, (1) recessed non-locking operator det 12, (1) indicator light ass'y. det 13 & 14, (1) det 15, (2) det 9, (2) det 10, & (1) det 3 (valve type "F")	SC 0004-XX
9	4	Captive screws — cap & solenoid to body	AXT 333-19
10	4	Self tapping screws — cap to solenoid	AXT 333-7-10
11	2	Rubber access plug	AXT 333-16
12	2	Recessed non-locking manual operator & O ring	PB 0101
13	2	Indicator light ass'y	AXT-333-7L-1-XX
14	2	Indicator light cover	
15	2	Bumper	AXT 333-7-11
16	1	Gasket — valve to sub-plate	AXT 335-12-2
17	2	Hold down bolts & washers (8-32 x 1-3/4")	NXT 333-17

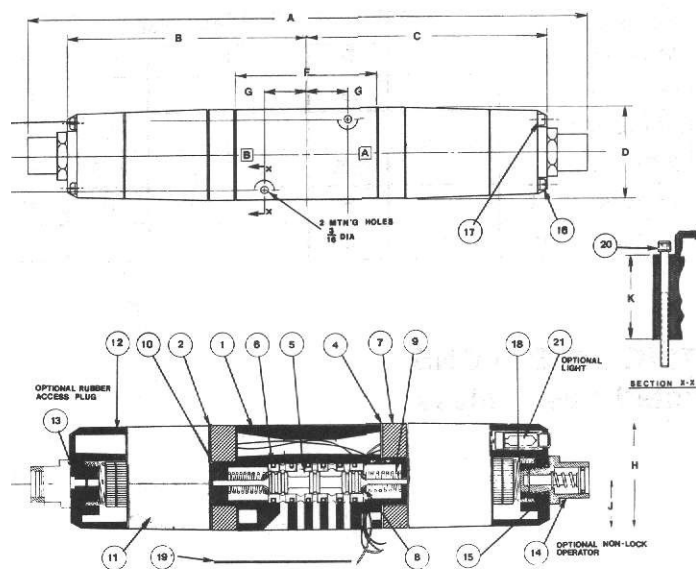
NOTE: XX Indicates Voltage

# DIRECTIONAL AIR VALVE

## DIMENSIONS/PARTS LIST

### INTERFACE SPEED CONTROL

NVS 4314/4414-00 "XX" D



Dimensions

A	B	C	D	E	F	G	H	J	K
8.56 (216)	3.59 (91)	3.63 (93)	1.41 (36)	1.08 (28)	2.94 (75)	0.64 (16)	1.63 (41)	0.72 (18)	1.41 (36)

Millimeters in Parentheses

Detail Ref.	No. Req'd.	Part Name	NVS 4314	NVS 4414
1	1	Valve body		
2	4	Gaskets (Solenoids and Solenoid Caps)	AXT 333-14	AXT 333-14
5	1	Sleeve assembly consists of spools and sleeve (matched set) and (6) O-rings detail 6		
6	6	O-Rings — Sleeve	ARP 568-014	ARP 568-014
7	1	Bushings ("A" end)	AXT 333-22-4A	AXT 333-22-4A
8	2	Spring Seats	AXT 333-22-2	AXT 333-22-2
9	2	Spring, Centering	AXT 333-22-3	AXT 333-22-3
10	1	Bushing ("B" end)	AXT 333-22-4B	AXT 333-22-4B
11	2	Solenoid assembly — 100/110 V, 50 Hz or 115/120 V, 60 Hz Encapsulated — A.C. 200/220 V, 50 Hz or 230/240 V, 60 Hz	A001-09 A001-10	A001-09 A001-10
12A	2	Solenoid cap assembly — includes cap, (1) Rubber access plug detail 13, (1) detail 18, (2) detail 16, (2) detail 17, (1) detail 2 Valve Type "O"	SC 0011	SC 0011
12B	2	Solenoid cap assembly — includes cap, (1) Recessed non-locking operator detail 14, (1) detail 15, (2) detail 17, (1) detail 2, (1) detail 18 Valve Type "D"	SC 0012	SC 0012
12C	2	Solenoid cap assembly — includes cap, (1) rubber access plug detail 13, (1) indicator light assembly detail 21, (1) detail 18, (2) detail 16, (2) detail 17, (1) detail 2 Valve Type "L"	SC 0013-XX	SC 0013-XX
12D	2	Solenoid cap assembly — includes recessed non-locking operator detail 14, (1) indicator light assembly detail 21, (1) detail 15, (2) detail 16, (2) detail 17, (1) detail 2, (1) detail 18 Valve Type "F"	SC 0014-XX	SC 0014-XX
13	2	Rubber access plug (Valve Type "O" & "L")	AXT 333-16	AXT 333-16
14	2	Recessed non-locking manual operator & O-ring detail 15 (Valve Type "D" & "F")	PB 0101	PB 0101
15	2	O-ring, operator	P 10A	P 10A
16	4	Captive screws — Cap, Sol and Spacer to body	DXT 020-36	DXT 020-36
17	4	Self tapping screws — cap to Solenoid	AXT 333-7-10	AXT 333-7-10
18	2	Bumper Spring	AXT 333-7-3	AXT 333-7-3
19	1	Gasket — Valve to subplate	AXT 335-12-2	AXT 335-12-2
20	2	Hold down bolts and washers (3-32 x 1-3/4")	NXT 333-17	NXT 333-17
21	2	Indicator light assembly (Valve Type "F" & "L")	AXT 333-7L-1-XX	AXT 333-7L-1-XX

NOTE: XX Indicates Voltage

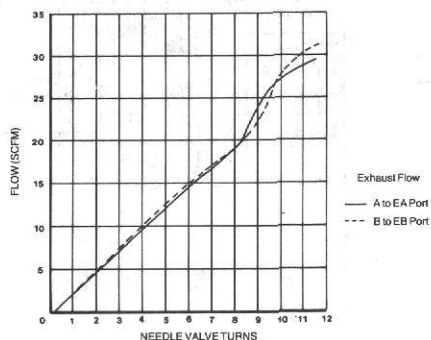
## INTERFACE SPEED CONTROL ("SP0100")

### GENERAL

Speed Control is an Aluminum die cast Interface Plate having its upper surface a mounting pattern which accepts all SMC 1 solenoid and air operated valves and with a lower surface which mounts onto all subplates and manifolds applicable to these 1 valves.

### INSTALLATION

Speed Control is mounted between the subplate/manifold and valve by utilizing 1/2" longer bolts in place of the standard valve hold down bolts. May be field installed without system or piping modifications.



### ORDER FOR FIELD REPLACEMENT

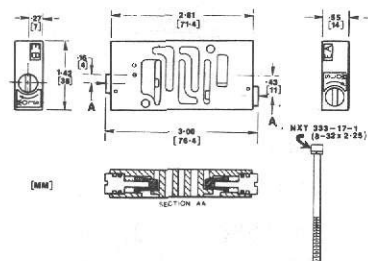
Number	Comprising
0100	1 - # AXT 392 Speed Control Block. 1 - # AXT 335-12-2 Gasket 2 - # NXT 333-17-1 Hold Down Bolts (# 8-32 x 2 1/4")

### FEATURES

1. Eliminates expense of "External" Flow Controls and necessary piping.
2. Simplifies installation by eliminating piping.
3. Provides for "Bleed-Out" flow adjustments from Zero to 90% of valves' Full Flow capacity.
4. Improves system appearance.

### OPERATION

Cylinder speeds may be independently controlled by adjustment of the needle valves in the "EA" & "EB" ports of the speed control block. These needle valves control flows of exhaust air from the valve and are "Vibrationproof" and of "Non-Rising" design.



### TO ORDER AS PART OF VALVE/MANIFOLD ASS'Y

ADD Suffix "M" to part number.

Example: Part Number # NVS 4114-0209DM = A # NVS 4114-0009D valve mounted on #SP0102 subplate with a #SP 0100 Interface Speed Control between.

**General:**

Sub-plates are heavy duty aluminum die castings. All ports are marked with identification in accordance with American National Standards Institute standard ANSI B93.9-1969 "Symbols for Marking Electrical Leads and Ports on Fluid Power Valves."

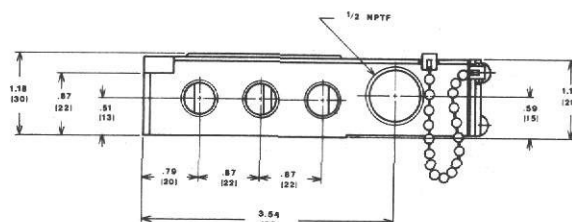
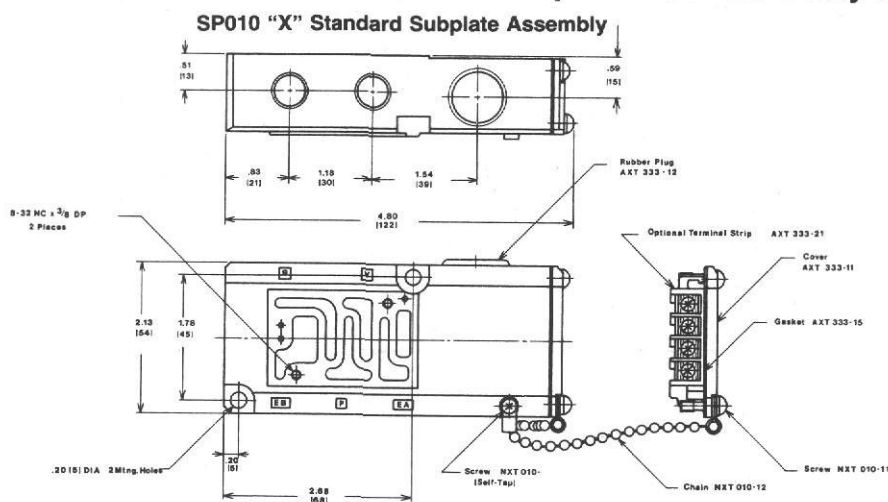
### Electrical Connections:

Class 1 sub-plates provide access of electrical solenoid leads from the valve base into the conduit cavity within the sub-plate diecasting. A removable conduit box cover allows ample room for making electrical connections and is held captive to the sub-plate with a retainer chain. Two ½" NPT ports are provided into the conduit cavity for optional assembly of conduit tubing.

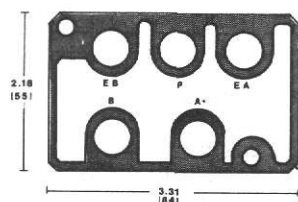
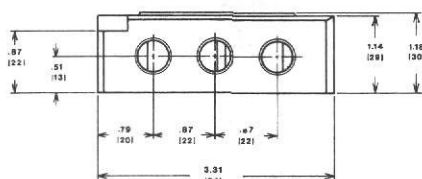
Subplate Model No.	NPTF	Port Location				
		P	A	B	EA	EB
SP0101/SP0111	1/8	S	S	S	S	S
SP0102/SP0112	1/4	S	S	S	S	S
SP0103/SP0113	1/8	S/B	S/B	S/B	S/B	S/B
SP0104/SP0114	1/4	B	B	B	B	B
SP0105/SP0115	3/8	S	S	S	S	S

## VALVE MOUNTING DIMENSIONS

### Subplate mounted 4-way valves

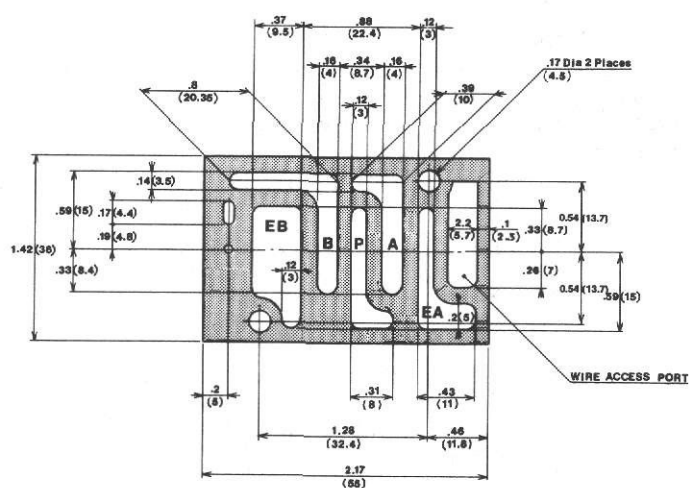


**SP011 "X" T & P Option, Short Subplate**



Shaded section is area in contact with mounting surface

## “FOOTPRINT”



Millimeters in Parentheses

**General:**

In addition to mounting on individual sub-plates, ALL SMC Class 1 solenoid Valves may be "Close-Mounted" in Banks of from two (2) to sixteen (16) valves on "Stacking" manifold assemblies. This arrangement greatly reduces space requirements and simplifies piping layouts. common Pressure Gallery (P) and two common Exhaust Galleries (A & B) interconnect with the pressure and exhaust ports of all the valves within the assembly. Pressure and Exhaust service connections are located at either end of the manifold.

**Critical:**

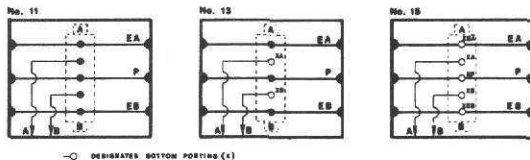
Wires from the solenoids exit from the base of the valves, through the blocks, into a common wiring chamber on the side of the manifold. A removable conduit cover facilitates electrical installation and assures protection of wiring connections. Conduit tube connector ports (NPT) are located at either end of the manifold.

**Mounting:**

To provide maximum versatility for systems design, three Standard manifold blocks are offered:

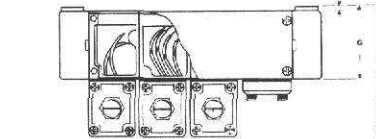
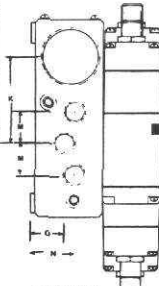
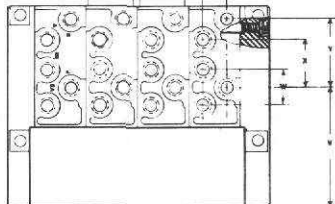
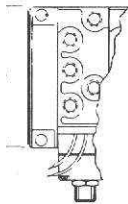
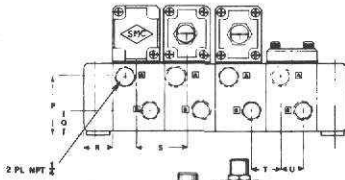
- 1 Block — Cyl. Ports (2) Side 1/4 NPT.  
Press. & Exh. Ports — Gallieried.
- 3 Block — Cyl Ports (4) Side & Bottom 1/4 NPT.  
Press. & Exh. Ports — Gallieried
- 5 Block — Cyl. Ports (4) Side & Bottom 1/4 NPT.  
Press. & Exh. Ports — Gallieried Plus  
(3) ports Bottom 1/4 NPT.

When specifying #15 block it may be necessary to install gallery Blocking discs #AXT 336-6 for the purpose of isolating Pressure and Exhaust ports in the common galleries. This blocking disc replaces the O Ring between individual blocks in any of the three galleries.

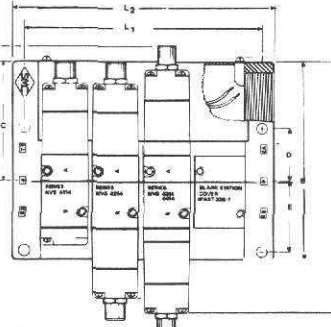
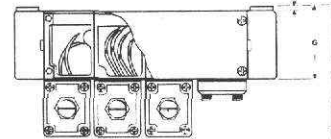


— O — DISINTEGRATES BOTTOM PORTING (A)

STATION 1 STATION 2 STATION 3 STATION 4



Example: NVS 4114-1509D  
(Single solenoid/spring return valve mounted on a manifold block)



St.	L <sub>1</sub>		L <sub>2</sub>	
	In.	(mm)	In.	(mm)
2	4.06	(103)	4.72	(120)
3	5.55	(141)	6.22	(158)
4	7.04	(179)	6.65	(169)
5	8.54	(217)	9.21	(234)
6	10.04	(255)	10.71	(272)
7	11.54	(293)	12.20	(310)
8	13.03	(331)	13.70	(348)
9	14.53	(369)	15.19	(386)
10	16.02	(407)	16.69	(424)
11	17.52	(445)	18.18	(462)
12	19.02	(483)	19.69	(500)
13	20.51	(521)	21.18	(538)
14	22.01	(559)	22.68	(576)
15	23.51	(597)	24.17	(614)
16	25.00	(635)	25.67	(652)

For more than 16 stations consult factory

**Application:**

Normally this manifold arrangement is used for Single pressure four way valve circuitry where pressure is applied to the (P) common gallery and exhausts through the dual (EA & EB) common galleries. However many other circuit capabilities are easily obtained by the intermixing of the different types of SMC Multi-purpose Solenoid and Air Piloted valves in combination with their basic manifold units. The use of Gallery Blocking Discs within the assembly further expands system capabilities. Side cylinder ports "A" & "B" are located on the "B" solenoid side of the manifold and "Station" identification is obtained by numbering from left to right as viewed from the "B" solenoid side.

**To Specify "Factory Built" Valve/Manifold Assembly:**

1. Establish the number of stations required.
2. Select the type of valve required on each station.
3. Choose Manifold Block porting desired. e.g. # 11, # 13 or # 15.
4. To specify a valve mounted on a manifold block — Insert manifold number into valve number i.e. NVS 4114-1109D is a NVS 4114-0009D valve mounted on a # 11 block.
5. Assembly Kit short/long — "XX"

**To Order "Factory Built" Valve/Manifold Assembly:**

Four Station Manifold Ass'y comprising:

- Station 1. NVS 4114-1109D
- Station 2. NVS 4214-1109O
- Station 3. NVS 4314-1109F

- Station 4. (1) Blocking Disc in Pressure Gallery.  
MB4010-02 Manifold Block and Blank Station  
Kit (AXT336-7A)  
1 - ME401LR-4 Assembly Kit

**Directional Terminal Block**  
Ref: AXT 622-5A  
Mounting Screws Included  
(2-M 4x8)

**TERMINAL CLIP - B**  
Ref: AXT 336-13-1

**DIMENSIONS**

A	B	C	D	E	F	G	H	J	K	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
7.48	5.91	3.54	1.54	2.13	8.56	2.13	0.12	3.80	2.58	0.94	1.26	0.98	1.73	0.75	0.87	1.50	0.87	0.63	3.54	1.02	1.34	1.77	0.71	4.13
(190)	(150)	(90)	(39)	(54)	(217.5)	(54)	(3)	(96.5)	(65)	(24)	(32)	(25)	(44)	(19)	(22)	(38)	(22)	(16)	(90)	(26)	(34)	(45)	(18)	(105)

Millimeters in Parentheses

## Interface Regulators

### GENERAL:

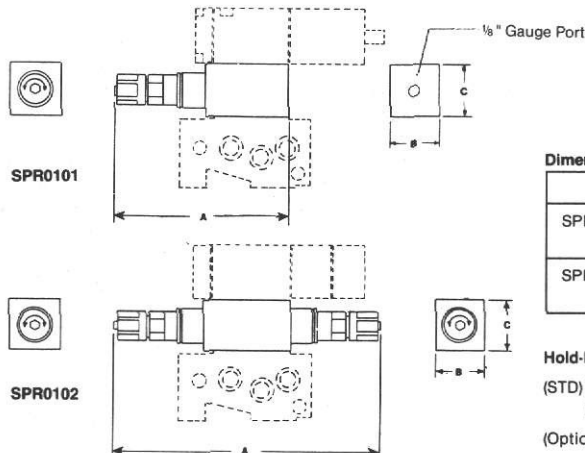
The interface unit is designed to separately control the pressure of one valve and still maintain a common manifold pressure. This unit controls pressure to cylinder ports A & B.

### FEATURES:

1. Eliminates the need for external regulators on manifold assemblies.
2. Simplifies piping arrangements.
3. Full range of pressure regulations from 7 to 120 PSI.
4. Allow regulation of individual valve pressure and still maintain a common supply pressure for complete manifold unit.
5. Improves system appearance.
6. May also be used with interface speed control.

### INSTALLATION:

The interface regulator is mounted between the manifold and valve units as shown in the illustration.



### Operation:

Cylinder pressure is controlled by the adjustment knob located on the regulator block. Select the required pressure and push the knob until it locks. To change pressure: pull out and readjust.

### Dimensions

	A	B	C
SPR0101	5 (127)	1.375 (34.9)	1.50 (38.1)
SPR0102	7.375 (187.3)	1.375 (34.9)	1.50 (38.1)

Millimeters in Parentheses

### Hold-Down Bolts

(STD) Valve & Reg. to Manifold: NXT 333-17-2

(Included in Kit) 8-32 x 3 1/4"

(Optional) Valve/Reg./Speed Control to Manifold: NXT 333-17-3

(Order separately) 8-32 x 3 3/4"

	MOUNTING	SINGLE INTERFACE REG.		DOUBLE INTERFACE REG.	
		SPR 0101		SPR 0102 (3)	
		Reg. Only	Reg. w/SP0100	Reg. Only	Reg. w/SP 0100
SUBPLATES	SP 010X, 011X	NO (1)	YES	NO (1)	YES
MANIFOLDS	MB BLK. 11,13,15	YES		YES	
	MBA BLK. 12,14,16	YES (2)		YES (2)	

(1) Cannot be used because the regulator chamber interconnects with the "EB" exhaust port on the subplates.

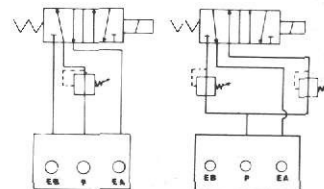
(2) Use option P & T on valves.

(3) Common exhaust through "EA" port

**Note:** NVS 4414 cannot be used in conjunction with the double regulator (SPR0102)

### Gauges: (For use with SPR0101 only)

Option	PSIG	Part No.
R3	0-60	K 22 w/Fittings
R4	0-160	K 10 w/Fittings
R5	0-30	K 20 w/Fittings



### Double Regulator:

**Note:** It is necessary to use gasket # AXT 335-12 on the top and bottom surface to properly seal.

## Stop Valve AXT 395 (Suffix Adder SV-1)

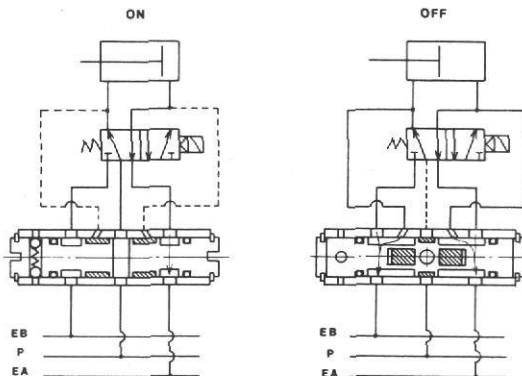
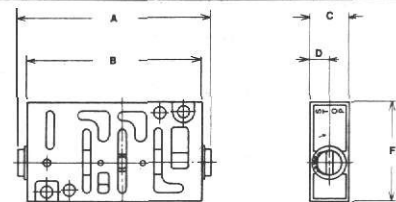
This unit allows a single valve unit to have its pressure shut off for repair or replacement while maintaining pressure to other manifold stations.

To shut off pressure to the valve turn screwdriver slot on either end of valve 90°.

### DIMENSIONS

A	B	C	D	E	F
2.66 (67.5)	2.42 (61.5)	0.55 (14)	0.28 (7)	0.16 (4)	1.42 (36)

Millimeters in Parentheses



This unit is bolted to the manifold #MB 4010-02-1 and requires two (2) hold-down bolts #NXT 333-17-1.

Screws for: SV-1 and "M" = NXT 333-17-7  
SV-1 and REG = NXT 333-17-3  
SV-1 and M/REG = N/A

## D C Solenoid

## DIN "Electrical Connector" "AC" Voltage only

DIMENSIONS	A	B	C	D(ε)*		
				4114	4214	
					A	B
DC Solenoid	2.95 (74.9)	1.64 (41.6)	0.72 (18)	4.05 (102.9)	6.26 (158.9)	4.01 (101.9)
DIN Connector	2.12 (54)	3.41 (86.6)	0.67 (17)	—		

\*Centerline measurement from valve center to end of DC Solenoid  
Millimeters in Parentheses

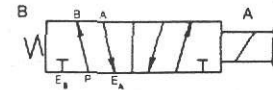


# SERIES NVS 4024, 4044 NVS 4034, 4054

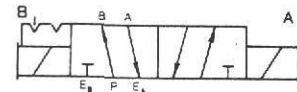
## DIRECTIONAL AIR VALVES DIRECT SOLENOID OPERATED

### SPECIFICATIONS

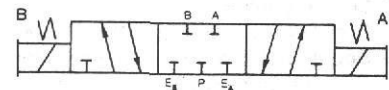
CHARACTERISTICS	Volts/Hz	NVS 4024				NVS 4034				NVS 4044				NVS 4054	
		NVS 4124	NVS 4224	NVS 4324	NVS 4424	NVS 4134	NVS 4234	NVS 4334	NVS 4434	NVS 4144	NVS 4244	NVS 4344	NVS 4444	NVS 4154	NVS 4254
Electrical:															
Inrush (Amps)	115/60 120/60	0.87 0.92	0.87 0.92	1.20 1.24	1.20 1.24	0.92 0.96	0.92 0.96	1.29 1.32	1.29 1.32	3.8 4.0	3.8 4.0	3.6 3.8	3.6 3.8	4.0 4.1	5.0 5.1
Coil (Amps)	115/60 120/60	0.19 0.20	0.19 0.20	0.19 0.20	0.19 0.20	0.19 0.20	0.19 0.20	0.19 0.20	0.19 0.20	0.51 0.51	0.51 0.55	0.50 0.50	0.50 0.50	0.56 0.58	0.56 0.58
Minimum Voltage to Operate: (On 60 Cycle)		-15% to +10% of Rating													
Response:															
Time to Energize (seconds)	115/60 120/60	0.015 0.015	0.012 0.012	0.017 0.017	0.017 0.017	0.017 0.016	0.012 0.012	0.019 0.019	0.019 0.019	0.018 0.017	0.020 0.020	0.020 0.020	0.020 0.020	0.031 0.030	0.030 0.030
Time to De-Energize (seconds)	115/60 120/60	0.025 0.025	— —	0.028 0.028	0.028 0.028	0.023 0.023	— —	0.026 0.026	0.026 0.026	0.025 0.025	— —	0.026 0.026	0.026 0.026	0.024 0.024	— —
<b>Note:</b> Response times are measured with solenoids at 70 °F. (21 °C.), 100% voltage, and the valve clean and lubricated. All times were measured by energizing at the zero point on the sine wave.															
Operating:															
Maximum Cycle Rate	115/60	360	360	180	180	360	360	180	180	150	150	110	110	150	150
Continuous Operation: (Cycles per Minute)	120/60	360	360	180	180	360	360	180	180	150	150	110	110	150	150
Maximum Ambient Temperature: (At maximum cycle rate and continuous run. For slower cycle rates and intermittent duty, consult the factory.)	115/60 & 120/60	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)	115 °F (46 °C)
Spool Stroke: In (mm)		0.177 (4.5)	0.177 (4.5)	0.394 (10)	0.394 (10)	0.197 (5)	0.197 (5)	0.434 (11)	0.434 (11)	0.386 (9.8)	0.386 (9.8)	0.646 (16.4)	0.646 (16.4)	0.543 (13.8)	0.543 (13.8)
Media:	Air (lubricated or oil-free), and non-flammable non-toxic, non-corrosive gases, except oxygen.														
Operating Pressures:	28" vacuum 300 PSIG (20 Kgf/cm <sup>2</sup> )														
Pressure Range:	28" vacuum 300 PSIG (20 Kgf/cm <sup>2</sup> )														
Leakage:	Port to port (internal) not to exceed 0.035 cubic feet per minute at 100 PSIG (6.7 Kgf/cm <sup>2</sup> )														
Materials:	All housing parts aluminum die castings, spool and sleeve 440F stainless, passivated and heat-treated to 58-62 Rockwell C. Sleeve O-rings, Buna N, Spacer and detent housing delrin, shock pads urethane, detent balls and springs stainless steel.														
IL 429 Testing Procedure.															



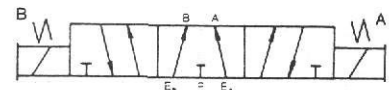
NVS 41 - 4



NVS 42 - 4



NVS 43 - 4



NVS 44 - 4

### SIGN

is design concept consists of a Match-Ground "SPOOL & EEEVE" assembly which controls the main valving functions. is match-ground fit creates an "Air Bearing" effect for extended efficient operation and eliminates the need for resilient seals. ge capacity air flows are achieved by application of the SMC s. Patents applicable to this type of valve. Should the valve re-disassembly for maintenance the Spool and Sleeve should retained as a unit.

### GENERAL:

any duty air valves built to comply with JIC and all industrial standards. Construction is dust-tight and splash-proof. Recessed locking manual operator available on all models. Optional bber "Solenoid-Access" plug allows manual operation of the ve without necessity of removing plugs.

### DIRECT SOLENOID OPERATED:

#### Single Solenoid Spring Return

enoid operates the spool directly, and a spring returns both ol and solenoid plunger when de-energized.

#### Double Solenoid Detent

enoids operate the spool directly. A mechanical detent holds spool securely in either spool position when the solenoids are energized, as required by major automotive safety standards. is a momentary electrical pulse to either solenoid will shift the ol, and the detent will hold the spool in the shifted position il the other solenoid is energized to shift the spool back.

#### Double Solenoid 3 Position Spring Centered

enoids operate the spool directly, while two centering springs d the spool in the center position when the solenoids are de-energized. Note that each spring centers the spool by means of a

spring seat which seats firmly against the end of the sleeve. Thus the spool always centers accurately. The centering springs do not buck each other as in some spring centered valves.

### MULTI-PURPOSE FLOW PATTERN:

True multi-purpose valves. Any port may be pressurized, back-pressured, or plugged without affecting the spool action. Normally used as a single inlet 4-way to control double acting cylinders. May also be used without modification as a dual pressure 4-way, 3-way, or 2-way.

### CONTINUOUSLY RATED SOLENOIDS:

Solenoids are heavy duty industrial push-type C-frame solenoids with molded, encapsulated coils and are continuously rated. May be held energized indefinitely without damage. However, care must be taken to arrange your controls so that you never energize both solenoids simultaneously. If both solenoids are energized, solenoid will burn out.

### MOUNTING:

Intended for sub-plate or manifold mounting. May be mounted in any position where the longitudinal axis of spool is horizontal. Interchangeable with certain competitive valves on their sub-plates.

### CV RATINGS:

Cv ratings vary with the pipe size which feeds the valve. Actual Cv ratings on various sub-plates are as follows:

NVS 4024	NVS 4034	NVS 4044	NVS 4054
1/4" Cv 1.47	3/8" Cv 2.39	1/2" Cv 3.78	3/4" 6.00
3/8" Cv 1.61	1/2" Cv 2.72	3/4" Cv 4.44	1" 6.50

## HOW TO ORDER

This model number is a coded number which describes all available options.

**NVS 4 1 2 4 - 00 09 D -**

### Type of Actuation

- 1 = Single Sol./Spring Return
- 2 = Double Sol./Detented
- \*3 = Double Sol./Spring Centered (All ports blocked in neutral)
- \*4 = Double Sol./Spring Centered (Cylinder ports open to dual supply in neutral)

### Series/C<sub>v</sub>

2	1.61 †
3	2.72 †
4	4.44
5	6.50

\* Not available for class 5.

† This Product is Listed by  
 UNDERWRITERS LABORATORIES INC.  
 and Bears the Mark.



### Porting

00 = Valve Only (W/Gasket Set)

### NVS 4024

- 01 = Mounted on Individual Subplate - 1/4" NPTF Side Ports (5)
- 02 = Mounted on Individual Subplate - 3/8" NPTF Side Ports (5)
- 03 = Mounted on Individual Subplate - 1/4" NPTF Bottom Ports (5)
- 06 = Mounted on Individual Subplate - 1/4" NPTF Bottom Ports (5) & Side Ports (1)
- 21 = Mounted on Stacking Manifold Block - 3/8" NPTF Side Ports (4)
- 23 = Mounted on Stacking Manifold Block - 3/8" NPTF Side Ports (4), Bottom Ports (2)
- 28 = Mounted on Stacking Manifold Block - 3/8" NPTF Side Ports (6), Bottom Ports (5)
- 41 = Mounted on Stacking Manifold Block - 1/2" NPTF Side Ports (4)

### NVS 4034

- 01 = Mounted on Individual Subplate - 3/8" NPTF Side Ports (5)
- 02 = Mounted on Individual Subplate - 1/2" NPTF Side Ports (5)
- 03 = Mounted on Individual Subplate - 3/8" NPTF Side Ports (5) & Bottom Ports (5)
- 31 = Mounted on Stacking Manifold Block - 3/8" NPTF Side Ports (4)
- 33 = Mounted on Stacking Manifold Block - 3/8" NPTF Side Ports (4), Bottom Ports (2)
- 38 = Mounted on Stacking Manifold Block - 3/8" NPTF Side Ports (6), Bottom Ports (5)
- 51 = Mounted on Stacking Manifold Block - 1/2" NPTF Side Ports (4)

### NVS 4044, 4054

- 01 = Mounted on Individual Subplate - 1/2" NPTF Side Ports (5)
- 02 = Mounted on Individual Subplate - 3/4" NPTF Side Ports (5)
- 03 = Mounted on Individual Subplate - 1/2" NPTF Side Ports (5), Bottom Ports (5)
- 04 = Mounted on Individual Subplate - 3/4" NPTF Side Ports (5), Bottom Ports (5)
- 05 = Mounted on Individual Subplate - 1" NPTF Side Ports (5)
- 06 = Mounted on Individual Subplate - 3/4" NPTF Side Ports (5)

### OPTIONS

- M = Interface Speed Control  
(4024, 4034 only)
- P = DIN Connector
- P1 = DIN With Light (AC & DC)

### Features

- D† = Recessed non-locking manual operator
- F\*\* = Recessed non-locking manual operator and electrical indicator light\*
- K\*\* = Recessed locking manual operator†\*
- J\*\* = Recessed locking manual operator and electrical indicator light\*
- L\*\*\* = Rubber "Solenoid Access" plug and electrical indicator light\*
- O† = Rubber "Solenoid Access" plug†\*

\*\* Not available for class 4 & 5.

\* AC Only

\*\*\* Not available w/DC

### Solenoid Type

#### NVS 4024, 4034

- 03 = 110V 50Hz
- 04 = 220V 50Hz
- 07 = 24 VAC 60Hz
- †09 = 115/120V 60Hz 100/110V 50Hz
- †10 = 230/240V 60Hz 200/220V 50Hz
- 11 = 480V 60Hz
- 49 = 12 VAC 50Hz
- 51 = 12 VDC
- 52 = 24 VDC
- 53 = 48 VDC

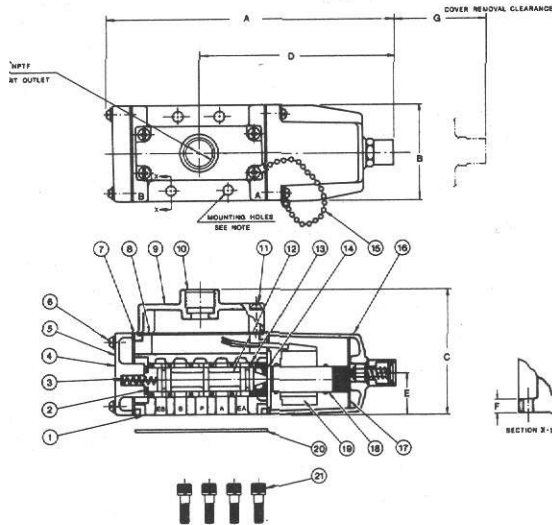
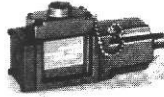
#### NVS 4044, 4054

- 03 = 110V 50Hz
- 04 = 220V 50Hz
- 07 = 24 VAC 60Hz
- 09 = 115/120 60Hz
- 10 = 230/240 60Hz
- 11 = 480V 60Hz

**SERIES**  
NVS 4 24, 4 34  
NVS 4 44, 4 54

**DIRECTIONAL AIR VALVES**  
**DIMENSIONS/PARTS LIST**

**VS 4124, 4134, 4144**



**DIMENSIONS:**

Valve Size	A	B	C	D	E	F	G
VS 4124	6.81 (173)	2.13 (54)	3.27 (83)	4.80 (122)	1.06 (27)	0.35 (9)	2.13 (54)
VS 4134	7.56 (192)	2.52 (64)	3.31 (84)	5.16 (131)	1.06 (27)	0.39 (10)	2.13 (54)
VS 4144	9.69 (246)	2.83 (72)	3.90 (99)	6.77 (172)	1.22 (31)	0.47 (12)	2.64 (67)

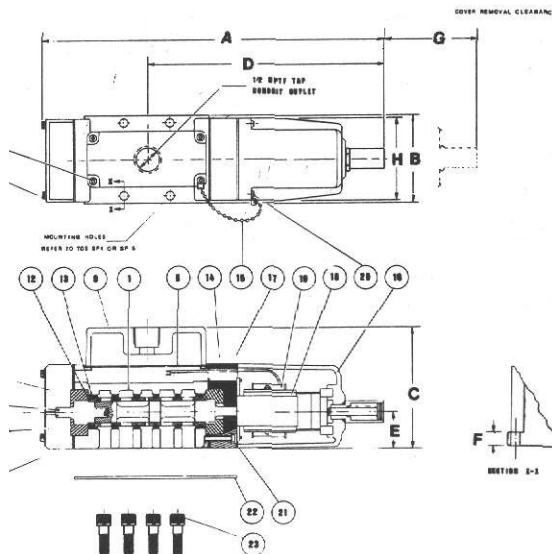
Millimeters in Parentheses

**PARTS LIST**

Det. No.	No. Req'd.	Part Name	NVS4124	NVS4134	NVS4144
1	1	Valve body			
2	1	Bumper	AXT340-10-2	AXT340-10-2	XT021-14
3	1	Spring—Spool return	XT010-15	XT010-15	XT021-13A
4	1	End plate ass'y			
5	1	End plate			
6	8	Captive screw	XT010-21	XT010-21	XT010-21
7	2	Gasket—solenoid cover and end plate	NXT010-8	XT013-31-2	NXT030-8
8	1	Gasket—junction box cover	NXT010-9	XT013-12-2	NXT030-19
9	1	Junction box cover ass'y			
10	1	Cover—junction box			
11	4	Captive screw—junction box cover	XT066-7	XT066-7	NXT013-3
12	1	Sleeve ass'y.—Consists of spool and sleeve (matched set) and (6) O-rings Det. 13.			
13	6	O-ring—sleeve	ARP568-018	ARP568-018	ARP568-119
14	1	Spacer	XT011-9-2	XT013-13-2	XT021-12
15	1	Cover chain	NXT010-12	NXT010-12	NXT010-12
16	1	Cover ass'y.—A.C. solenoid. Includes cover, recessed non-locking manual operator and (4) Det. 6.			
	or 1	Solenoid cover ass'y without manual operator, and with operator mounting hole plugged.			
	1	Recessed non-locking manual operator and O-ring	PB0201	PB0201	PB0401
17	1	Shock pad	NXT010-10	NXT010-10	NXT030-7-3
18	1	Solenoid ass'y. A.C. complete with coil.	120/60 240/60 480/60	A01A-09 A01A-10 A01A-11	A12A-09 A12A-10 A12A-11
19	1	Replacement coil—A.C.	120/60 240/60 480/60	C01A-09 C01A-10 C01A-11	C12A-09 C12A-10 C12A-11
20	1	Gasket—Valve body to sub-plate	NXT010-14	XT016-3	XT021-9
21	4*	Hold-down bolt & lock washer	NXT010-16 (10-24 x 3/4)	NXT020-14 (1/4-20 x 3/4)	NXT030-13 (1/4-20 x 1)

\*Note: NVS 4124 models require only three (3) hold-down bolts.

**VS 4154**



**DIMENSIONS:**

Valve Size	A	B	C	D	E	F	G	H
VS 4154	8.7 (221)	2.83 (72)	3.94 (100)	7.76 (197)	1.22 (31)	0.47 (12)	2.99 (76)	2.68 (68)

Millimeters in Parentheses

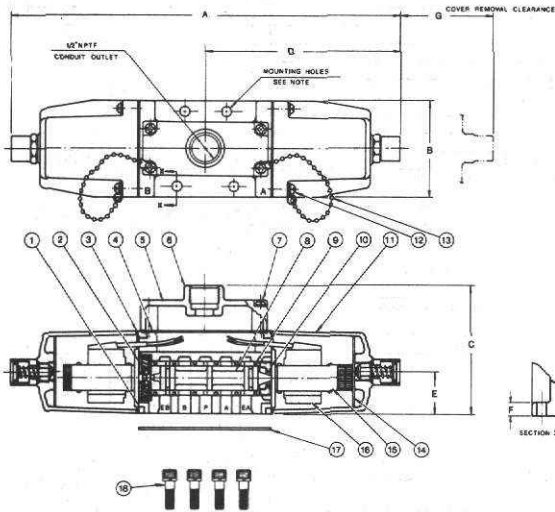
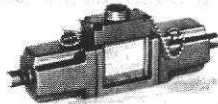
**PARTS LIST**

Det. No.	No. Req'd.	Part Name	NVS 4154
1	1	Valve body	
2	1	Bumper	NXT050-10
3	1	Spring—Spool return	NXT050-8-2
4	1	End plate ass'y. (Includes Det. 5 and (4) Det. 6)	
5	1	End plate	NXT050-9
6	4	Captive screw	AXT334-10
7	3	Gasket—solenoid cover and end plate	NXT030-8
8	1	Gasket—junction box cover	NXT030-19
9	1	Junction box cover ass'y	
10	1	Cover—junction box	
11	4	Captive screw—junction box cover	NXT013-3
12	1	Sleeve ass'y.—Consists of spool and sleeve (matched set) and (6) O-rings Det. 13.	SS4501
13	6	O-ring—sleeve	ARP568-119
14	1	Spacer	NXT050-4
15	1	Cover chain	NXT010-12
16	1	Cover ass'y.—A.C. solenoid. Includes cover, recessed non-locking manual operator and (4) Det. 6.	
	1	Recessed non-locking manual operator and O-ring	PB0401
17	1	Bumper	NXT050-5
18	1	Solenoid ass'y. A.C. complete with coil.	120/60 240/60 480/60
19	1	Replacement coil—A.C.	120/60 240/60 480/60
20	4	Screws—Captive—Sol. Cover	AXT333-17
21	2	Screws—Spacer	XT012-25B
22	1	Gasket—Valve body to sub-plate	XT021-9
23	4	Hold-down bolt & lock washer	NXT030-13

**SERIES**  
**NVS 4 24, 4 34**  
**NVS 4 44, 4 54**

**DIRECTIONAL AIR VALVES**  
**DIMENSIONS/PARTS LIST**

**NVS 4224, 4234, 4244**



**DIMENSIONS**

Valve Size	A	B	C	D	E	F	G
NVS 4224	9.57 (243)	2.13 (54)	3.27 (83)	4.80 (122)	1.06 (27)	0.35 (9)	2.13 (54)
NVS 4324	10.31 (262)	2.52 (64)	3.31 (84)	5.16 (131)	1.06 (27)	0.39 (10)	2.13 (54)
NVS 4244	13.86 (352)	2.83 (72)	3.90 (99)	6.77 (172)	1.18 (30)	0.47 (12)	2.64 (67)

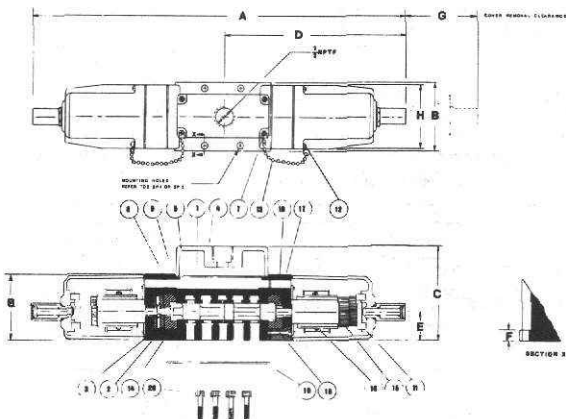
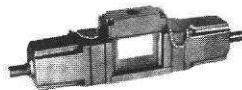
Millimeters in Parentheses

**PARTS LIST**

Det. No.	No. Req'd.	Part Name	NVS4224	NVS4234	NVS4244
1	1	Valve body			
2	1	Detent ass'y.	DA0201	DA0201	DA0401
3	2	Gasket—solenoid cover	NXT010-8	XT013-31-2	XT030-8
4	1	Gasket—junction box cover	NXT010-9	NXT030-19	NXT030-19
5	1	Junction box cover ass'y.			
6	1	Cover—junction box			
7	4	Captive screw—junction box cover	XT066-7	XT066-7	NXT013-3
8	1	Sleeve ass'y.—Consists of spool and sleeve (matched set) and 6 O-rings Det. 9.	SS4202	SS4302	SS4402
9	6	O-ring—sleeve	ARP568-018	ARP568-018	ARP568-119
10	1	Spacer	XT011-9-2	XT013-13-2	XT021-12
11	2	Cover ass'y.-A.C. solenoid—Includes cover, recessed non-locking manual operator and (4) Det. 12	SC0211	SC0311	SC0411
	or 2	Cover ass'y. without manual operator, and with operator mounting hole plugged.	SC0201	SC0301	SC0401
	2	Manual operator assembly, non-locking.	PB0201	PB0201	PB0401
12	8	Captive screw	XT010-21	XT010-21	XT010-21
13	2	Cover chain	NXT010-12	NXT010-12	NXT010-12
14	2	Shock pad	NXT010-10	NXT010-10	NXT030-7-3
15	2	Solenoid ass'y.-A.C. complete with coil.	120/60	A01A-09	A12A-09
			240/60	A01A-10	A12A-10
			480/60	A01A-11	A12A-11
16	2	Replacement coil ass'y. A.C.	120/60	C01A-09	C12A-09
			240/60	C01A-10	C12A-10
			480/60	C01A-11	C12A-11
17	1	Gasket—valve body to sub-plate	NXT010-14	XT016-3	XT021-9
18	4*	Hold-down bolt and lockwasher	NXT020-16 (10-24 x 3/4)	NXT020-14 (1/4-20 x 3/4)	NXT030-13 (1/4-20 x 1)

\* Note: NVS4224 models require only (3) hold-down bolts.

**NVS 4254**



**DIMENSIONS**

A	B	C	D	E	F	G	H
15.593 (396)	2.84 (72)	3.94 (100)	7.75 (197)	1.22 (31)	0.47 (12)	3.00 (76)	2.63 (67)

Millimeters in Parentheses

**PARTS LIST**

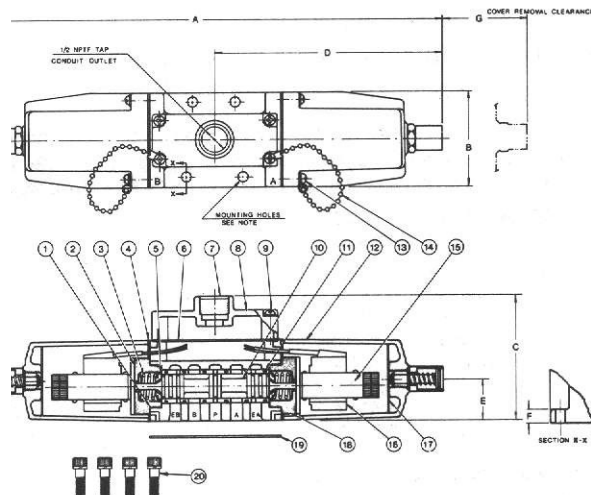
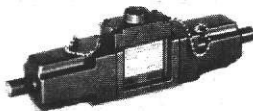
Det. No.	No. Req'd.	Part Name	NVS 4254
1	1	Valve body	—
2	1	Detent ass'y.	DA0401
3	4	Gasket—solenoid cover - spacer	NXT030-8
4	1	Gasket—junction box cover	NXT030-19
5	1	Junction box cover ass'y.	—
6	1	Cover—junction box	—
7	4	Captive screw—junction box cover	NXT013-3
8	1	Sleeve ass'y.—Consists of spool and sleeve (matched set) and 6 O-rings Det. 9.	SS4502
9	6	O-ring—sleeve	ARP568-119
10	2	Spacer	NXT050-4
11	2	Cover ass'y.-A.C. solenoid—Includes cover, recessed non-locking manual operator and (4) Det. 12	SC0511
	2	Manual operator assembly, non-locking	PB0401
12	8	Captive screw	AXT333-17
13	2	Cover chain	NXT010-12
14	1	Bumper	NXT050-5
15	2	Solenoid ass'y.-A.C. complete with coil	120/60 A12A-09 240/60 A12A-10 480/60 A12A-11
16	2	Replacement coil ass'y A.C.	120/60 C12A-09 240/60 C12A-10 480/60 C12A-11
17	1	Bumper	NXT050-6
18	4	Screws-Spacer	XT012-25B
19	1	Gasket—valve body to sub-plate	XT021-9
20	4	Hold-down bolt and lockwasher	NXT030-13

**SERIES**  
**NVS 4024, 4034**  
**NVS 4044, 4054**

**DIRECTIONAL AIR VALVES**  
**DIMENSIONS/PARTS LIST**  
**D.C. SOLENOIDS**

/S 4324, 4334, 4344

/S 4424, 4434, 4444



**DIMENSIONS:**

Valve Size	A	B	C	D	E	F	G
4324, 4424 (289)	11.38 (54)	2.13 (54)	3.25 (82.5)	1.73 (44)	1.06 (27)	0.35 (9)	2.52 (64)
4334, 4434 (305)	12.01 (64)	2.52 (64)	3.31 (84)	6.02 (183)	1.06 (27)	0.39 (10)	2.52 (64)
4344, 4444 (426)	16.77 (426)	2.83 (72)	3.90 (99)	8.50 (216)	1.22 (31)	0.47 (12)	2.99 (76)

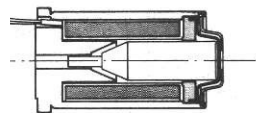
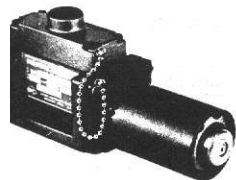
Millimeters in Parentheses

**PARTS LIST**

Det. No.	No. Req'd.	Part Name	NVS4324	NVS4334	NVS4344
1	1	Valve Body ass'y.—includes body and (4) locating pins.			
2	1	Bushing—"B" end.	XT065-3-2A	AXT066-11	NXT033-1-2
3	2	Spring—spool centering	XT066-6-2	XT066-6-2	XT067-8
4	2	Gasket—solenoid cover	NXT010-8	XT013-31-2	XT030-8
5	2	Spring seat	XT066-5	XT066-5	XT067-2
6	1	Gasket—junction box cover	NXT010-9	NXT030-18	NXT030-19
7	1	Junction box cover ass'y. Includes Det. 8 and (4) Det. 9.			
8	1	Cover—junction box.	NXT010-6	NXT020-9-2	NXT030-16-3
9	4	Captive screw—junction box cover	XT066-7	XT066-7	NXT013-3
10	1	Sleeve ass'y.—Consists of spool and sleeve (matched set) and (8) Det. 11 O-Rings.	—	—	—
11	6	O-ring—sleeve	ARP568-018	ARP568-018	ARP568-119
12	2	Cover ass'y.—A.C. solenoid—Includes cover, recessed non-locking operator and (4) Det. 13	—	—	—
	or 2	Cover ass'y. without manual operator, and with operator mounting hole plugged.	—	—	—
	2	Manual operator ass'y. with O-ring seal.	PB0301	PB0301	PB0501
13	8	Captive screw	NXT013-3	NXT013-3	NXT030-17
14	2	Cover chain	NXT010-12	NXT010-12	NXT010-12
15	2	Solenoid Ass'y. A.C. complete with coil	120/60 240/60 480/60	A01-A-09 A01A-10 A01A-11	A12A-09 A12A-10 A12A-11
16	2	Replacement coil—A.C. solenoid	120/60 240/60 480/60	C01A-09 C01A-10 C01A-11	C12A-09 C12A-10 C12A-11
17	2	Shock pad	NXT010-10	NXT010-10	NXT030-7-1
18	1	Bushing—"A" end	XT065-3-1A	AXT066-11	NXT033-1-1
19	1	Gasket—valve body to sub-plate	NXT010-14	XT016-3	XT021-8
20	4*	Hold-down bolt & lock washer	NXT010-16 (10-24 x 3/4)	NXT020-14 (1/4-20 x 3/4)	NXT030-13 (1/4-20 x 1)

\*Note: NVS 4424 models require only (3) hold-down bolts.

**C. SOLENOIDS**



**Power Consumption: (13.2 Watts)**

D.C. solenoids always draw the same amount of power, regardless of the position of the plunger, so the inrush and holding amperage is identical. Because of this, it is usual to state the power draw of the solenoid in watts. To determine the amperage, divide the watts by the voltage.

**Replacement Coils:**

Because the power draw is constant regardless of the position of the solenoid plunger, D.C. solenoids do not burn out when closed open as A.C. solenoids. Therefore, D.C. solenoid coils are considered a replacement item.

**General:**

D.C. solenoids are available for all NVS 4024, 4034, 4044 sub-plate mounted 4-ways. The valves may be ordered from the factory with the D.C. solenoids installed, or they may be converted in the field.

The D.C. solenoid is a self-contained assembly which replaces the A.C. solenoid, the solenoid cover assembly, and the four hold-down screws. It is equipped with a recessed non-locking operator sealed by a synthetic rubber diaphragm, and is splash-proof, oil-tight, and dust-tight.

**Part #**

	NVS 4024		NVS 4034		NVS 4044
	2 Position	3 Position	2 Position	3 Position	2 Position
	4124, 4224	4324, 4424	4134, 4234	4334, 4434	4144, 4244
12 VDC	A06-51	A09-51	A07-51	A10-51	A08-51
24 VDC	A06-52	A09-52	A07-52	A10-52	A08-52
48 VDC	A06-53	A09-53	A07-53	A10-53	A08-53

**Dimensions:**

D.C. solenoids are slightly longer than their corresponding A.C. version, and **each solenoid** adds the following amount to the length dimensions shown on the valve dimensions.

NVS 4024	2 Position: Add 0.52" (13mm) per solenoid 3 Position: Same as A.C. solenoid
NVS 4034	2 Position: Add 0.52" (13mm) per solenoid 3 Position: Subtract 0.039" (1mm) per solenoid



## GENERAL

In addition to mounting on individual subplates, All SMC NVS 4024 & 4034 Valves may be "Close-Mounted" on "Stacking" manifold assemblies. If required, Solenoid, Solenoid/Pilot Operated and Air piloted valves may be intermixed, without modification, on any given valve manifold. This arrangement greatly reduces space requirements and simplifies piping layouts. A common Pressure Gallery (P) and two common Exhaust Galleries (EA & EB) interconnect with the pressure and exhaust ports of all the valves within the assembly. Pressure and Exhaust service connections are located at either end of the manifold. Pilot Air ports (PA & PB) are also standard on all manifold blocks to allow Air Piloted valves, mounted on the manifold, to be operated by means of pilot air supplied through the manifold's pilot air supply ports.

## CONSTRUCTION

Each of the manifold blocks and the manifold End Plates are affixed to its adjacent block by a unique pair of "V" Clamp Plates held together by two bolts and nuts. Additional blocks may be added to an existing manifold assembly, without modification of the assembly or having to disturb the piping other than the Pressure and Exhaust service connections.

## TO SPECIFY "FACTORY BUILT" VALVE/MANIFOLD ASSEMBLY

1. Establish the number of stations required.
2. Select the type and size of valve required at each station.
3. Choose Manifold Block porting desired.
4. To specify a Valve mounted on a manifold block—Insert manifold block number into valve number, e.g. # NVS 4124-2109D is a NVS 4124—0009D valve mounted on a #21 Manifold Block.

## TO ORDER "FACTORY BUILT" VALVE/MANIFOLD ASSEMBLY

**Example** 1 pce. Five Station Manifold Ass'y comprising:

- Station 1. NVS 4124-2109D
- Station 2. NVS 4234-3109D
- Station 3. NVS 4434-3109D
- Station 4. NVS 4124-41N
- (3) Blocking discs in P, EA & EB galleries
- Station 5. NVS 4234-38N
- 1 Pc. ME 403LR—5 Assembly Kit.

## TO ORDER INDIVIDUAL COMPONENTS:

Ref. No.	Part No.	Pcs. Req.	Description
1A	MB 4020-03	—	#21 Manifold Block
1B	MB 4020-04	—	#41 Manifold Block
1C	MB 4021-03	—	#23 Manifold Block
1D	MB 4222-03	—	#28 Manifold Block

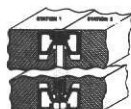
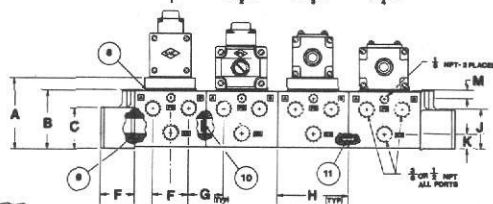
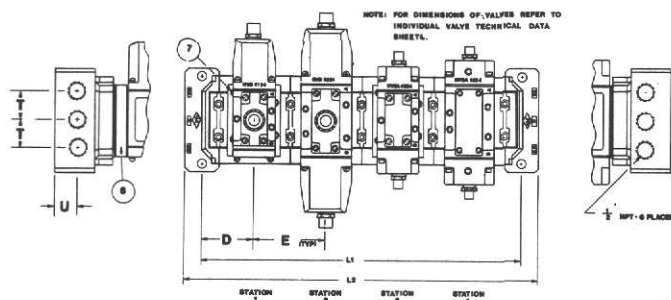
**Note:** Use for mounting NVS 4024 valves. (Includes (1) Ref 6, (4) Ref 7, (1) Ref 8).

1E	MB 4030-03	—	#31 Manifold Block
1F	MB 4030-04	—	#51 Manifold Block
1G	MB 4031-03	—	#33 Manifold Block
1H	MB 4232-03	—	#38 Manifold Block

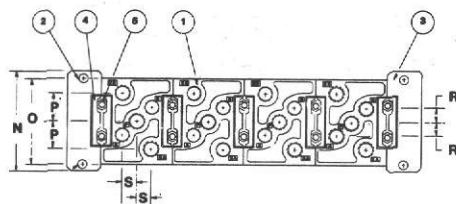
**Note:** Use for mounting NVS 4034 valves.

**Note:** All above Manifold Blocks include (2) Ref. 4, (2) Ref. 5, and (3) Ref. 9.

Ref. No.	Part No.	Qty.	Description
2 & 3	ME 403 LR	1	Right & Left End Blocks. Incl. (2) Ref. 4, (2) Ref. 5 and (3) Ref. 9.
4	AXT 228-3	2	Top or Bottom "V" Clamp Plates.
5	M6 x 60	2	Bolt and nut for "V" Clamp Plates.
6	MA 403-2	—	NVS 4024 to NVS 4034 mounting. Adaptor Plate.
7	NXT 020-14A	4	Bolts, Adaptor Plate. 1/4-20x5/8.
8	NXT 016-3-1	1	Gasket, Adaptor Plate.
9	P 20	3	O Ring, Manifold Block galleries.
10	AXT 228-4A	—	Blocking Disc. Gallery.
11	NXT 010-17-4	2	Pin, Manifold Block alignment. Necessary for assemblies over four (4) valves.



MANIFOLD BLOCK CONNECTOR CLAMP AND BOLT DETAIL



Manifold Dimensions

No. of Stations	L1	L2
2	8.82 (224)	10.55 (268)
3	12.36 (314)	14.09 (358)
4	15.91 (404)	17.64 (448)
5	19.45 (494)	21.18 (538)
6	22.99 (584)	24.72 (628)
7	26.54 (674)	28.27 (718)
8	30.08 (764)	31.81 (808)

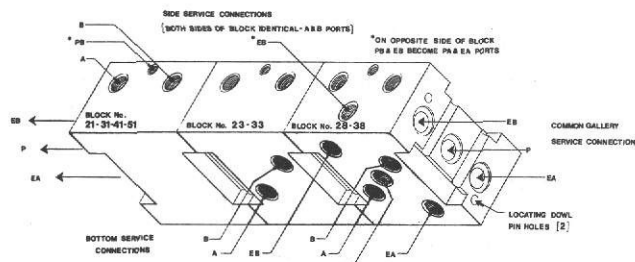
Millimeters in Parentheses

More than 8 stations, contact factory.

## DIMENSIONS

A	B	C	D	E	F	G	H	J	K	M	N	O	P	R	S	T	U
3.43 (87)	2.83 (72)	1.89 (48)	2.64 (67)	3.54 (90)	1.73 (44)	1.81 (46)	3.54 (90)	1.97 (50)	0.79 (20)	0.35 (9)	5.12 (130)	4.33 (110)	1.38 (35)	0.67 (17)	0.71 (18)	1.34 (34)	1.18 (30)

Millimeters in Parentheses



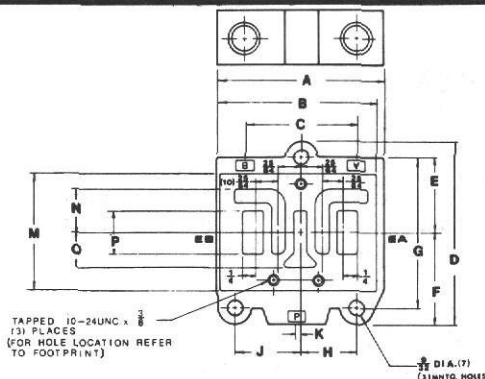
## DIRECTIONAL AIR VALVES SUBPLATES

**/S 4024 SUBPLATES**

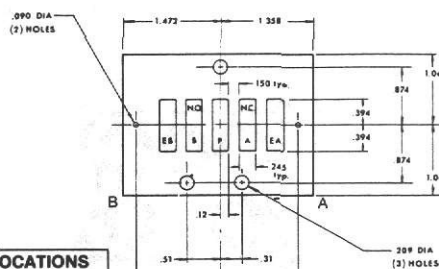
neral:

3-plates are heavy duty aluminum die castings. All ports are marked with identification in accordance with American National Standards Institute standard ANSI B93.9-1969 "Symbols for Marking Electrical Leads and Ports on Fluid Power Valves."

Standard sub-plates do not provide for pilot pressure connections through the sub-plate.



### VALVE MOUNTING DIMENSIONS



SUB-PLATE MODEL NO.	N <sub>P</sub> T <sub>F</sub>	PORT LOCATIONS				
		P	A	B	EA	EB
SP0201	1/4	S	S	S	S	S
SP0202	3/8	S	S	S	S	S
SP0203	1/4	B	B	B	B	B
SP0206	1/4	S/B	B	B	B	B

**SIDE**

**BOTTOM**

S/B = SIDE & BOTTOM

## DIMENSIONS

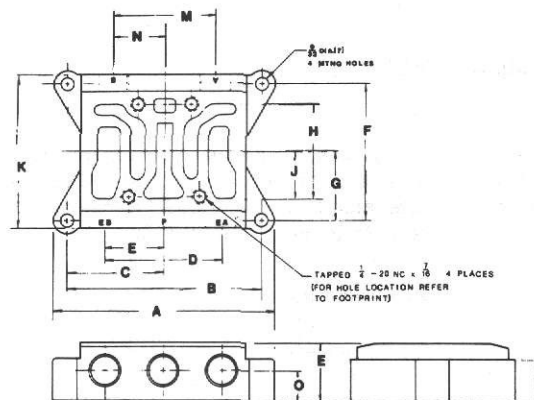
A	B	C	D	E	F	G	H	J	K	M	N	O
3.03	2.88	2.00	3.31	1.38	1.85	2.78	0.98	1.18	0.08	2.13	0.79	0.63
(77)	(73)	(51)	(84)	(35)	(42)	(70)	(26)	(30)	(2)	(54)	(20)	(18)

Millimeters in Parentheses

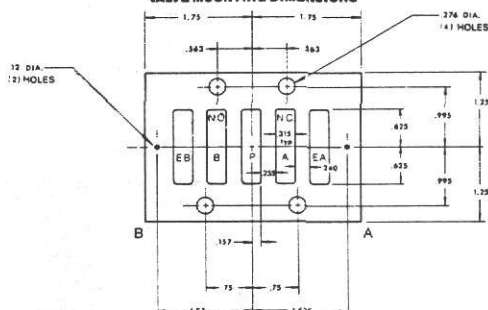
**7/S 4034 SUBPLATES**

neral:

plates are heavy duty aluminum die castings. All ports are marked with identification in accordance with American National Standards Institute standard ANSI B93.9-1969 "Symbols for Marking Electrical Leads and Ports on Fluid Power Valves."



### VALVE MOUNTING DIMENSIONS



SUB-PLATE MODEL NO.	N <sub>P</sub> T <sub>F</sub>	PORT LOCATIONS				
		P	A	B	EA	EB
SP0301	3/8	S	S	S	S	S
SP0302	1/2	S	S	S	S	S
SP0303	3/8	S/B	S/B	S/B	S/B	S/B

**= SIDE**

= BOTTOM

S/B = SIDE & BOTTOM

### DIMENSIONS

A	B	C	D	E	F	G	H	J	K	M	N	O	P	R	S
4.72 (120)	40.9 (104)	2.05 (52)	2.52 (64)	12.6 (32)	2.91 (74)	1.46 (37)	2.05 (52)	1.02 (26)	3.31 (84)	2.20 (56)	1.10 (28)	0.67 (17)	0.94 (24)	1.73 (44)	0.87 (22)

Millimeters in Parentheses

## NVS 4044 SUBPLATES

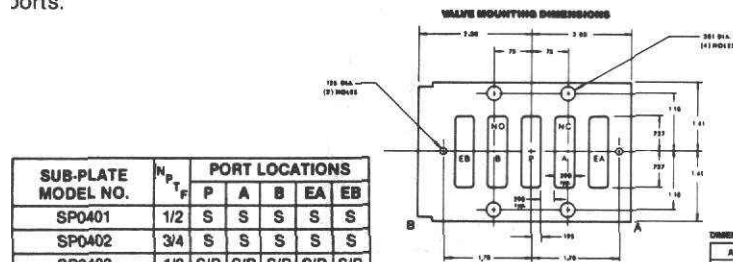
**General:**

Sub-plates are heavy duty aluminum die castings. All ports are marked with identification in accordance with American National Standards Institute standard B93.9-1969 "Symbols for Marking Electrical Leads and Ports on Fluid Power Valves."

### Pilot Connections in Sub-Plate:

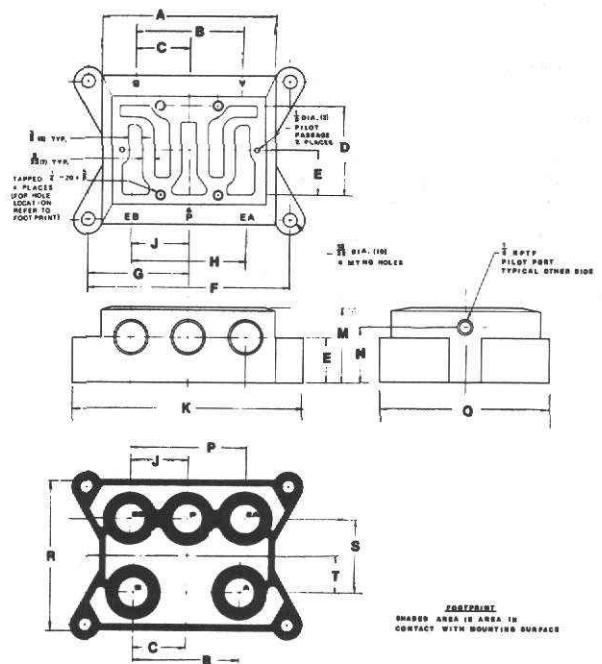
All models have two 1/8" NPTF pilot ports in the ends of the subplate which interconnect with pilot passages in the mounting surface of NVSA valves.

Refer SP0403, 0404. All side and bottom port sub-plates are shipped with (5) loose socket head flush pipe plugs to plug the unused ports.



SUB-PLATE MODEL NO.	N <sub>PT</sub>	PORT LOCATIONS				
		P	A	B	EA	EB
SP0401	1/2	S	S	S	S	S
SP0402	3/4	S	S	S	S	S
SP0403	1/2	S/B	S/B	S/B	S/B	S/B
SP0404	3/4	S/B	S/B	S/B	S/B	S/B

S = SIDE  
B = BOTTOM                      S/B = SIDE & BOTTOM



DIMENSIONS																
A	B	C	D	E	F	G	H	J	K	M	N	O	P	R	S	T
4.48 (114)	2.75 (70)	1.38 (35)	2.38 (60)	1.18 (30)	5.24 (133)	2.84 (87)	2.99 (76)	1.50 (38)	5.98 (152)	2.81 (51)	1.50 (38)	4.37 (111)	2.99 (76)	3.66 (93)	2.01 (51)	0.98 (25)

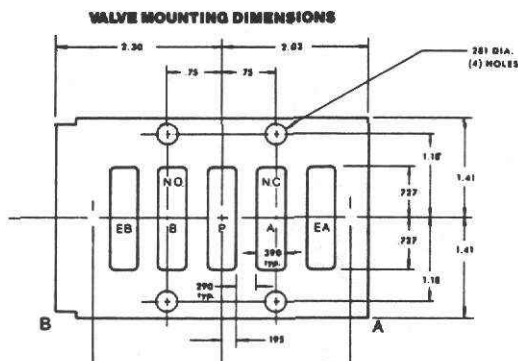
Millimeters in Parentheses

**Note:** NVS 4044 valves may be used on NVS 4054 Subplates

## NVS 4054 SUBPLATES

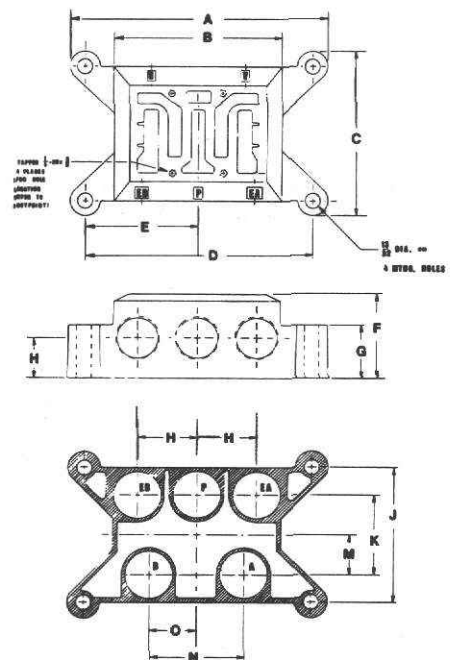
**General:**

Sub-plates are heavy duty aluminum die castings. All ports are marked with identification in accordance with American National Standards Institute standard B93.9-1969 "Symbols for Marking Electrical Leads and Ports on Fluid Power Valves."



SUB-PLATES MODEL NO.	N <sub>P</sub> <sub>T</sub> <sub>F</sub>	PORT LOCATIONS				
		P	A	B	EA	EB
SP0501	3/4	S	S	S	S	S
SP0502	1	S	S	S	S	S

**S = SIDE**



DIMENSIONS												
A	B	C	D	E	F	G	H	J	K	M	N	O
7.96 (162)	4.88 (124)	0.48 (123)	8.81 (180)	3.31 (84)	2.48 (63)	1.57 (40)	1.18 (30)	3.94 (100)	2.38 (60)	1.18 (30)	2.76 (70)	1.38 (35)

Millimeters in Parentheses

**Note:** NVS 4044 valves may be used on NVS 4054 Subplates

## INTERFACE SPEED CONTROL

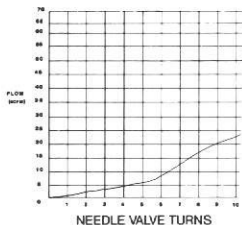
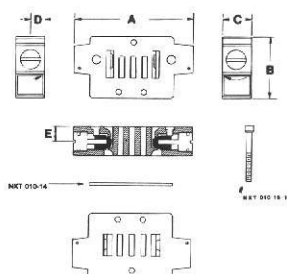
### GENERAL

This Speed Control is an Aluminum die cast Interface Plate having on its upper surface a mounting pattern which accepts SMC NVS 4024 or NVS 4034 solenoid operated valves and with a lower surface which mounts onto all subplates and manifolds applicable to these valves.

### INSTALLATION

This Speed Control is mounted between the subplate/manifold and the valve by utilizing 1" longer bolts in place of the standard valve Hold Down bolts. May be field installed without system or piping modifications.

**NVS 4024**



**TO ORDER FOR FIELD REPLACEMENT**  
Kit Number **SP 0200** Comprising

- 1 — # AXT 394 Speed Control Block
- 1 — # NXT 010-14 Gasket
- 3 — # NXT 010-16-1 Hold Down Bolts (10-24 x 1 3/4")

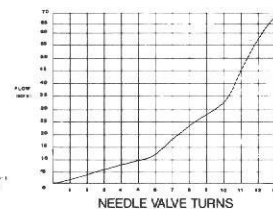
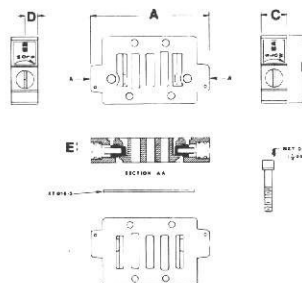
**TO ORDER AS PART OF VALVE/MANIFOLD ASS'Y**  
ADD Suffix "M" to part number.  
Example: Part # NVS4124-0209DM-A#NVS 4124-00090 mounted on a #SP0202 subplate with A#SP0200 Interface speed control between.

### DIMENSIONS

A	B	C	D	E
4.01 (102)	2.13 (54)	0.98 (25)	0.47 (12)	0.31 (8)

Millimeters in Parentheses

**NVS 4034**



**TO ORDER FOR FIELD REPLACEMENT**  
Kit Number **SP 300** 1 — # AXT 393 Speed Control Block

- 1 — # XT 016-3 Gasket
- 4 — # NXT 020-14-1 Hold Down Bolts (1/4-20 x 1 1/4")

**TO ORDER AS PART OF VALVE/MANIFOLD ASS'Y**  
ADD Suffix "M" to part number.  
Example: Part Number # NVS 4134-0209DM = A # NVS 4134-0009D valve mounted on # SP 0302 subplate with A# SP 0300 Interface Speed Control between.

### DIMENSIONS

A	B	C	D	E
4.41 (112)	2.68 (68)	0.98 (25)	0.47 (12)	0.31 (8)

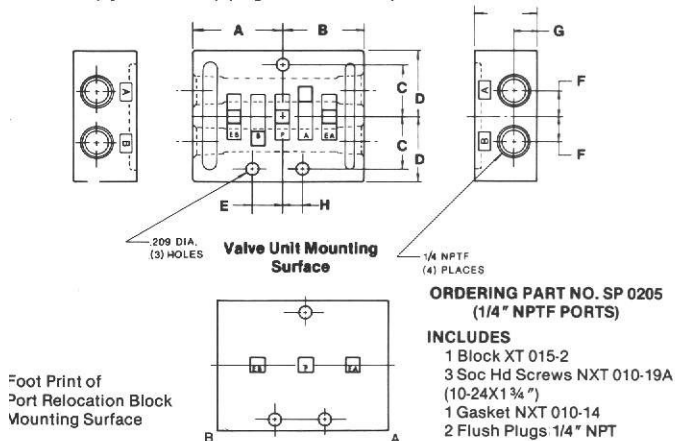
Millimeters in Parentheses

## PORT RELOCATION BLOCK

The cylinder port relocation block is an aluminum die cast sandwich plate which mounts between the valve unit and the sub-plate.

It provides two sets of cylinder ports emerging at right angles to the supply port (out under the ends of the valve.)

This useful accessory can be used to ease piping problems in those tight places where there is simply no room for piping out the normal cylinder ports in the sub-plate.



**ORDERING PART NO. SP 0205**  
(1/4" NPTF PORTS)

- INCLUDES**
- 1 Block XT 015-2
  - 3 Soc Hd Screws NXT 010-19A (10-24X1 3/4")
  - 1 Gasket NXT 010-14
  - 2 Flush Plugs 1/4" NPT

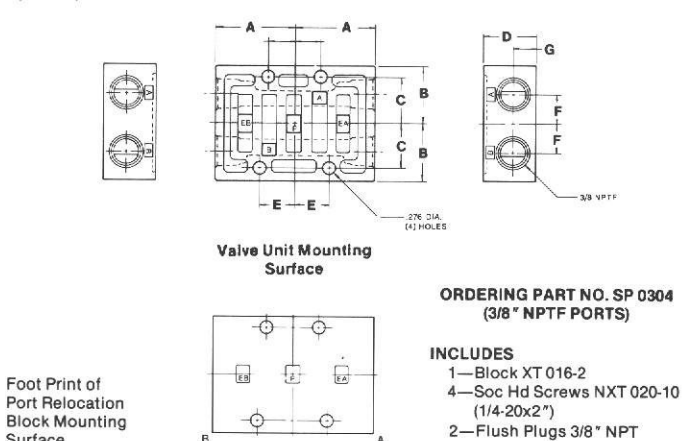
### DIMENSIONS

A	B	C	D	E	F	G	H
1.47 (37)	1.36 (34.5)	0.874 (22.2)	1.10 (27.9)	0.51 (12.9)	0.433 (10.9)	0.42 (10.7)	0.31 (7.9)

Millimeters in Parentheses

It also provides additional cylinder ports for those situations where the valve serves more than one cylinder, or where pressure indicators must be mounted in the on-going cylinder lines.

**Note:** Each cylinder port relocation block is shipped complete with the necessary extra-long hold-down bolts, one sub-plate gasket, and two flush pipe plugs to plug the unused cylinder ports in the block.



**ORDERING PART NO. SP 0304**  
(3/8" NPTF PORTS)

- INCLUDES**
- 1—Block XT 016-2
  - 4—Soc Hd Screws NXT 020-10 (1/4-20x2")
  - 2—Flush Plugs 3/8" NPT

### DIMENSIONS

A	B	C	D	E	F	G	H
1.75 (44.4)	1.25 (31.7)	0.995 (25.3)	1.14 (28.9)	0.75 (19.1)	0.63 (16.0)	0.47 (11.9)	0.56 (14.2)

Millimeters in Parentheses

# SERIES NVS 4024, 4034 NVS 4044, 4054

## DIRECTIONAL AIR VALVES ACCESSORIES

### INDICATOR LIGHT ASSYS

Pilot lights are a troubleshooting aid and are connected in parallel with the solenoid coil, so they light when the solenoid coil leads are energized.

The SMC pilot light assembly is a special junction box carrying either one or two lights, depending on whether the valve is a single solenoid or a double solenoid valve.

The amber lenses are located just above the solenoid they serve, on opposite ends of the junction box, so there is no possibility of confusion as to which solenoid is energized, as sometimes happens in the case of lights having a single lens but two bulbs. The lenses protrude slightly so they may be seen through a wide field of view.

Lenses are sealed by a special O-ring, and are splashproof, oil-tight, and dust-tight. Bulbs are small neon bulbs fed through a built-in resistor, with low power draw, and have demonstrated long cycle life, over more than 20,000,000 cycles, and have demonstrated continuous life of over 17,000 hours.

A.C. lights may be used on either 50 or 60 cycle service. Special voltages available to order.

**Pilot Lights  
HOW TO ORDER**  
Complete assembly consists of junction box cover (housing), with pilot light or lights installed, (4) captive screws and (1) gasket.

JC 02 04 - 01

#### Valve Size

02 = NVS 4024  
03 = NVS 4034  
04 = NVS 4044, NVS 4054

#### Number of Lights

04 = One Light  
05 = Two Lights

#### Electrical Characteristics

09 = 110/120 V 60Hz  
10 = 220/240 V 60Hz  
11 = 460/480 V 60Hz  
51 = 12 Volt D.C.\*  
52 = 24 Volt D.C.\*  
53 = 48 Volt D.C.\*\*

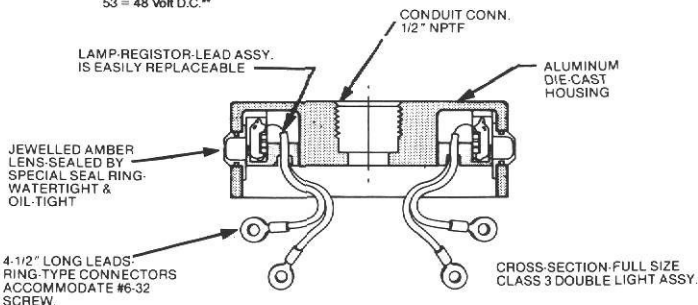
Replacement Lamp Assembly consists of lamp, lamp body, resistor, and leads with ring-type connectors installed.

AXT 200- 10 B- 01

**Lamp Size**  
10 = For NVS 4024  
11 = For NVS 4044, 4054

\* Not available: Class 4, 5  
\*\* By special order only

**Electrical Characteristics**  
09 = 110/120 V 60Hz  
10 = 220/240 V 60Hz  
11 = 460/480 V 60Hz  
51 = 12 Volt D.C.\*  
52 = 24 Volt D.C.\*  
53 = 48 Volt D.C.\*\*



### DIN CONNECTOR

DIN CAP PART # NL-1

The DIN connector provides plug-in flexibility on electrical leads.

- Optional neon lights mounted in junction cover
- May be used on Sgl. or Dbl. solenoid valves
- Top can be rotated any of 4 positions
- Cord retainer may be removed and 1/2" conduit may be substituted

#### OPTIONS: DP, KP, OP

Valve Size	Sgl. Sol. Valve w/o Lights	Dbl. Sol. Valve w/o Lights
4124	JCD 0206	—
4134	JCD 0306	—
4144	—	—
4154	JCD 0406	—
4224	—	JCD 0207
4324	—	—
4424	—	—
4234	—	JCD 0307
4334	—	—
4434	—	—
4244	—	JCD 0407
4354	—	—
4454	—	—

#### OPTIONS: FP, JP, LP

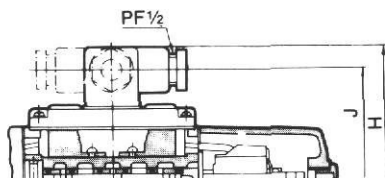
Valve Size	Sgl. Sol. Valve w/Light	Dbl. Sol. Valve w/Lights
4124	JCD 0204—"XX"	—
4134	JCD 0304—"XX"	—
4144	—	—
4154	JCD 0404—"XX"	—
4224	—	JCD 0205—"XX"
4324	—	—
4424	—	—
4234	—	JCD 0305—"XX"
4334	—	—
4434	—	—
4244	—	JCD 0405—"XX"
4354	—	—
4454	—	—

"XX" — 09 = 110 50/60  
10 = 220 50/60  
52 = 24 VDC

#### DIMENSIONS

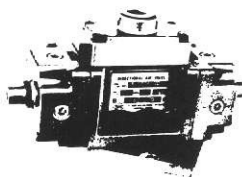
Valve	H	J
NVS 4024	5.47 (139)	5.00 (127)
NVS 4034	5.49 (139.5)	5.02 (127.5)
NVS 4044, NVS 4054	6.79 (172.5)	6.32 (160.5)

Millimeters in Parentheses



### ADAPTER PLATE FOR NVS 4024 VALVE UNITS TO NUMATICS SA JR. SUB-PLATES (SP0204)

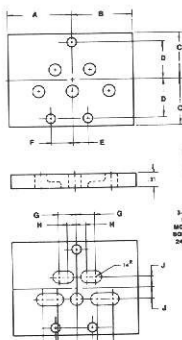
This adapter is an aluminum die cast sandwich plate bearing on its upper surface a mounting pattern which accepts all NVS 4024 valves, and with a lower surface which mounts on the Numatics SA Jr. Sub-plate.



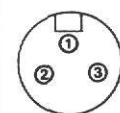
#### DIMENSIONS

A	B	C	D	E	F	G	H	J	K	M
1.46 (37)	1.36 (35)	1.06 (27)	0.87 (22)	0.31 (7.9)	0.51 (12.9)	0.39 (9.9)	0.22 (5.6)	0.25 (6.4)	0.44 (11.2)	0.81 (20.6)

Millimeters in Parentheses

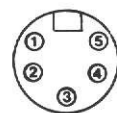


### JOY CONNECTORS



3 POLE

1. Green
2. Black
3. White



5 POLE

1. White
2. Red
3. Green
4. Orange
5. Black

A receptacle and cord assembly which may be installed and wired into the conduit opening in the junction cover. The Joy Connector provides quick detachment of electrical power to the solenoid(s) on the valve. Two (2) types of Joy Connectors are available:  
A three (3) wire assembly for single solenoid valves and a five (5) wire assembly for double solenoid valves.

#### To Order:

# of Poles	Receptacle Only	Cord and Receptacle
3	9613-3	9614-3
5	9613-5	9614-5



# World Wide SMC Support...

**North American Branch Offices** For a branch office near you call: 1-800-SMC-SMC1 (762-7621)

**SMC Pneumatics Inc. (Atlanta)**  
1440 Lakes Parkway, Suite 600  
Lawrenceville, GA 30043  
Tel: (770) 624-1940  
FAX: (770) 624-1943

**SMC Pneumatics Inc. (Cleveland)**  
2305 East Aurora Rd., Unit A-3  
Twinsburg, OH 44087  
Tel: (330) 963-2727  
FAX: (330) 963-2730

**SMC Pneumatics Inc. (Milwaukee)**  
16850 W. Victor Road  
New Berlin, WI 53151  
Tel: (414) 827-0080  
FAX: (414) 827-0092

**SMC Pneumatics Inc. (Richmond)**  
5377 Glen Alden Drive  
Richmond, VA 23231  
Tel: (804) 222-2762  
FAX: (804) 222-5221

**SMC Pneumatics Inc. (Austin)**  
2324-D Ridgpoint Drive  
Austin, TX 78754  
Tel: (512) 926-2646  
FAX: (512) 926-7055

**SMC Pneumatics Inc. (Columbus)**  
3687 Corporate Drive  
Columbus, OH 43231  
Tel: (614) 895-9765  
FAX: (614) 895-9780

**SMC Pneumatics Inc. (Mnpls.)**  
990 Lone Oak Road, Suite 162  
Eagan, MN 55121  
Tel: (651) 688-3490  
FAX: (651) 688-9013

**SMC Pneumatics Inc. (Rochester)**  
245 Summit Point Drive  
Henrietta, NY 14467  
Tel: (716) 321-1300  
FAX: (716) 321-1865

**SMC Pneumatics Inc. (Boston)**  
Zero Centennial Drive  
Peabody, MA 01960  
Tel: (978) 326-3600  
Fax: (978) 326-3700

**SMC Pneumatics Inc. (Dallas)**  
12801 N. Stemmons Frwy, Ste. 815  
Dallas, TX 75234  
Tel: (972) 406-0082  
FAX: (972) 406-9904

**SMC Pneumatics Inc. (Nashville)**  
5000 Linbar Drive, Suite 297  
Nashville, TN 37211  
Tel: (615) 331-0020  
FAX: (615) 331-9950

**SMC Pneumatics Inc. (S.F.)**  
85 Nicholson Lane  
San Jose, CA 95134  
Tel: (408) 943-9600  
FAX: (408) 943-9111

**SMC Pneumatics Inc. (Charlotte)**  
5029-B West W.T. Harris Blvd.  
Charlotte, NC 28269  
Tel: (704) 597-9292  
FAX: (704) 596-9561

**SMC Pneumatics Inc. (Detroit)**  
2990 Technology Drive  
Rochester Hills, MI 48309  
Tel: (248) 299-0202  
FAX: (248) 293-3333

**SMC Pneumatics Inc. (Newark)**  
3434 US Hwy. 22 West, Ste. 110  
Somerville, NJ 08876  
Tel: (908) 253-3241  
FAX: (908) 253-3452

**SMC Pneumatics Inc. (St. Louis)**  
4130 Rider Trail North  
Earth City, MO 63045  
Tel: (314) 209-0080  
FAX: (314) 209-0085

**SMC Pneumatics Inc. (Chicago)**  
27725 Diehl Road  
Warrenville, IL 60555  
Tel: (630) 393-0080  
FAX: (630) 393-0084

**SMC Pneumatics Inc. (Houston)**  
9001 Jameel, Suite 180  
Houston, TX 77040  
Tel: (713) 460-0762  
FAX: (713) 460-1510

**SMC Pneumatics Inc. (Phoenix)**  
2001 W. Melinda Lane  
Phoenix, AZ 85027  
Tel: (623) 492-0908  
FAX: (623) 492-9493

**SMC Pneumatics Inc. (Tampa)**  
8507-H Benjamin Road  
Tampa, FL 33634  
Tel: (813) 243-8350  
FAX: (813) 243-8621

**SMC Pneumatics Inc. (Cincinnati)**  
4598 Olympic Blvd.  
Erlanger, KY 41018  
Tel: (606) 647-5600  
FAX: (606) 647-5609

**SMC Pneumatics Inc. (L.A.)**  
14191 Myford Road  
Tustin, CA 92780  
Tel: (714) 669-1701  
FAX: (714) 669-1715

**SMC Pneumatics Inc. (Portland)**  
14107 N.E. Airport Way  
Portland, OR 97230  
Tel: (503) 252-9299  
FAX: (503) 252-9253

**SMC Pneumatics Inc. (Tulsa)**  
10203 A East 61st Street  
Tulsa, OK 74146  
Tel: (918) 252-7820  
FAX: (918) 252-9511

**Europe**  
ENGLAND  
**SMC Pneumatics (U.K.) Ltd.**  
GERMANY  
**SMC Pneumatik GmbH**  
ITALY  
**SMC Italia SpA**  
FRANCE  
**SMC Pneumatique SA**  
HOLLAND  
**SMC Controls BV**  
SWEDEN  
**SMC Pneumatics Sweden AB**  
SWITZERLAND  
**SMC Pneumatik AG**  
AUSTRIA  
**SMC Pneumatik GmbH**  
SPAIN  
**SMC España, S.A.**  
IRELAND  
**SMC Pneumatics (Ireland) Ltd.**  
**Asia**  
JAPAN

**SMC Corporation**  
KOREA  
**SMC Pneumatics Korea Co., Ltd.**  
CHINA  
**SMC (China) Co., Ltd.**  
HONG KONG  
**SMC Pneumatics (Hong Kong) Ltd.**  
SINGAPORE  
**SMC Pneumatics (S.E.A.) Pte. Ltd.**  
PHILIPPINES  
**SMC Pneumatics (Philippines), Inc.**  
MALAYSIA  
**SMC Pneumatics (S.E.A.) Sdn. Bhd.**  
TAIWAN  
**SMC Pneumatics (Taiwan) Co., Ltd.**  
THAILAND  
**SMC Thailand Ltd.**  
INDIA  
**SMC Pneumatics (India) Pvt., Ltd.**  
**North America**  
CANADA  
**SMC Pneumatics (Canada) Ltd.**  
MEXICO  
**SMC Pneumatics (Mexico) S.A. de C.V.**

**South America**  
ARGENTINA  
**SMC Argentina S.A.**  
CHILE  
**SMC Pneumatics (Chile) Ltda.**

**Oceania**  
AUSTRALIA  
**SMC Pneumatics (Australia) Pty. Ltd.**  
NEW ZEALAND  
**SMC Pneumatics (N.Z.) Ltd.**

## SMC offers the same quality and engineering expertise in many other pneumatic components

**Valves**  
Directional Control Valves  
Manual Valves  
Mufflers  
Exhaust Cleaners  
Quick Exhaust Valves

**Valves**  
Proportional Valves  
Mechanical Valves  
Miniature Valves  
Fluid Valves

**Cylinders/Actuators**  
Compact Cylinders  
Miniature Cylinders  
Rodless Cylinders  
Rotary Actuators  
Pneumatic Grippers

**Vacuum**  
Vacuum Ejectors  
Vacuum Accessories  
**Instrumentation**  
Pneumatic Positioners  
Pneumatic Transducers

**Air Preparation Equipment**  
Filters-Regulators-Lubricators  
Coalescing Filters  
Micro Mist Separators  
**Fittings**  
Air Fittings

## SMC Pneumatics Inc.

P.O. Box 26640, Indianapolis, IN 46226  
Tel: (317) 899-4440 • FAX: (317) 899-3102