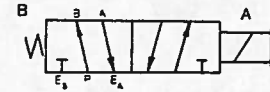


SERIES
NVS 4024, 4044
NVS 4034, 4054

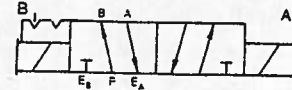
DIRECTIONAL AIR VALVES
DIRECT SOLENOID OPERATED

SPECIFICATIONS

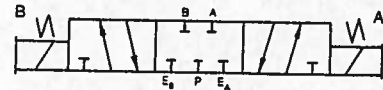
CHARACTERISTICS	Volts/Hz	NVS 4024				NVS 4034				NVS 4044				NVS 4054	
		NVS 4124	NVS 4224	NVS 4324	NVS 4424	NVS 4134	NVS 4234	NVS 4334	NVS 4434	NVS 4144	NVS 4244	NVS 4344	NVS 4444	NVS 4154	NVS 4254
Electrical:															
Inrush (Amps)	115/60 120/60	0.87 0.92	0.87 0.92	1.20 1.24	1.20 1.24	0.92 0.96	0.92 0.96	1.29 1.32	1.29 1.32	4.0 4.0	3.8 4.0	3.6 3.8	3.6 3.8	4.0 4.1	5.0 5.1
Holding (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	0.58 0.56
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 0.023	— —	0.026 0.026	0.026 0.025	0.025 —	— —	0.026 0.026	0.026 0.026	0.024 0.024	— —	— —
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	115/60 120/60	360 360	360 360	180 180	180 180	360 360	360 360	180 180	180 180	150 150	150 150	110 110	110 110	150 150	150 150
Continuous Operation: (Cycles per Minute)															
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 Kg/cm ²)*														
Pressure Range:	28" vacuum 300 PSIG (20 Kg/cm ²)														
Leakage:	Port to port (internal) not to exceed 0.035 cubic feet per minute at 100 PSIG (6.7 Kg/cm ²)														
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.														
*UL 429 Testing Procedure.															



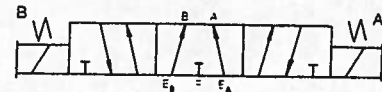
NVS 41 - 4



NVS 42 - 4



NVS 43 - 4



NVS 44 - 4

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 Detent

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 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" Cv 6.00
3/8" Cv 1.61	1/2" Cv 2.72	3/4" Cv 4.44	1" Cv 6.50

SERIES

NVS 4 24, 4 34

NVS 4 44, 4 54

**DIRECTIONAL AIR VALVES
DIRECT SOLENOID OPERATED**

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/Cv

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)
- P5 = Din w/5' cord*

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 "Solenoind Access" plug and electrical indicator light*
- O† = Rubber "Solenoind 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

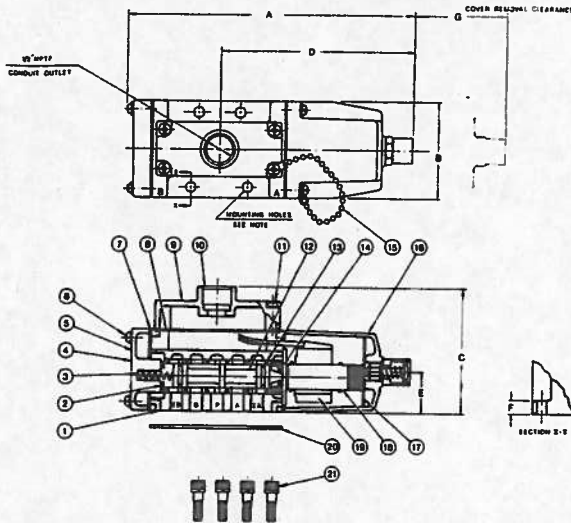
NVS 4044, 4054

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

SERIES
NVS 424, 434
NVS 444, 454

DIRECTIONAL AIR VALVES
DIMENSIONS/PARTS LIST

NVS 4124, 4134, 4144



DIMENSIONS:

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

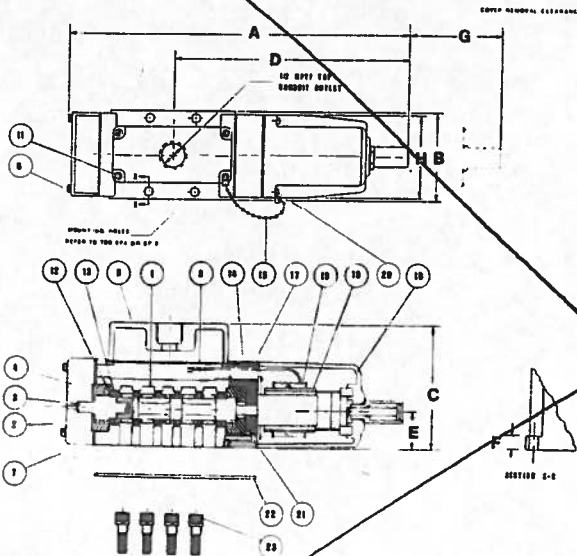
Millimeters in Parentheses

PARTS LIST

Det. No.	No. Req'd.	Part Name	NVS4124	NVS4134	NVS4144
1	1	Valve body			
2	1	Bumper			
3	1	Spring—Spool return	AXT340-10-2	AXT340-10-2	XT021-14
4	1	End plate ass'y	XT010-15	XT010-15	XT021-13A
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			
12	1	Sleeve ass'y.—Consists of spool and sleeve (matched set) and (6) O-rings Det. 13.	XT066-7	XT066-7	NXT013-3
13	6	O-ring—sleeve	ARP568-018	ARP568-018	ARP568-118
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.			
17	1	Recessed non-locking manual operator and O-ring	PB0201	PB0201	PB0401
18	1	Shock pad	NXT010-10	NXT010-10	NXT030-7-3
19	1	Solenoid ass'y—A.C. complete with coil.	120/80 240/80 480/80	A01A-09 A01A-10 A01A-11	A12A-09 A12A-10 A12A-11
20	1	Replacement coil—A.C.	120/80 240/80 480/60	C01A-09 C01A-10 C01A-11	C12A-09 C12A-10 C12A-11
21	4*	Gasket—Valve body to sub-plate	NXT010-14	XT018-3	XT021-8
		Hold-down bolt & lock washer	NXT010-18 (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.

NVS 4154



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	NXT050-9-2
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	
12	1	Sleeve ass'y.—Consists of spool and sleeve (matched set) and (6) O-rings Det. 13.	NXT013-3
13	6	O-ring—sleeve	SS4801
14	1	Spacer	ARP568-119
15	1	Cover chain	NXT050-4
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.	120/80 240/80 480/60
19	1	Replacement coil—A.C.	120/80 240/80 480/60
20	4	Screws—Captive—Sol. Cover	AXT333-17
21	2	Screws—Spacer	XT012-25B
22	1	Gasket—Valve body to sub-plate	XT021-8
23	4	Hold-down bolt & lock washer	NXT030-13

DIMENSIONS

A	B	C	D	E	F	G	H
10.87 (278)	2.83 (72)	3.94 (100)	7.76 (197)	1.22 (31)	0.47 (12)	2.99 (76)	2.68 (68)

Millimeters in Parentheses

**SERIES
NVS 4 24, 4 34**

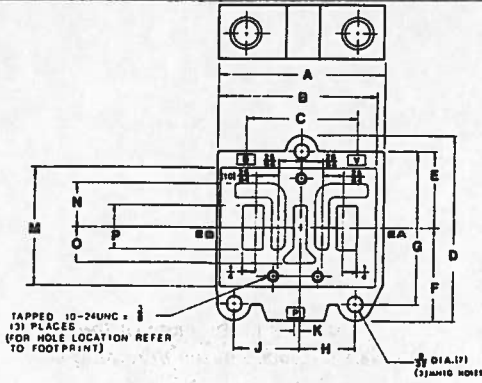
**DIRECTIONAL AIR VALVES
SUBPLATES**

NVS 4024 SUBPLATES

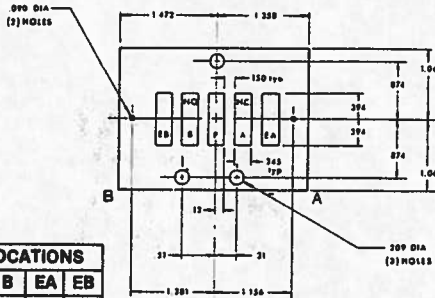
General:

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."

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



VALVE MOUNTING DIMENSIONS



SUB-PLATE MODEL NO.	N _P F	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	

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

DIMENSIONS

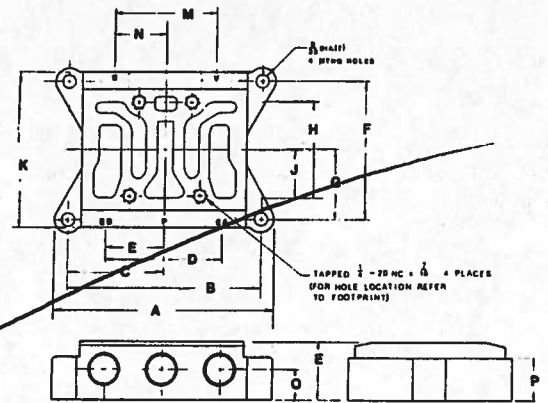
A	B	C	D	E	F	G	H	J	K	M	N	O
3.03 (77)	2.88 (73)	2.00 (51)	3.31 (84)	1.38 (35)	1.85 (47)	2.76 (70)	0.88 (22)	1.18 (30)	0.08 (2)	2.13 (54)	0.70 (20)	0.83 (16)

Millimeters in Parentheses

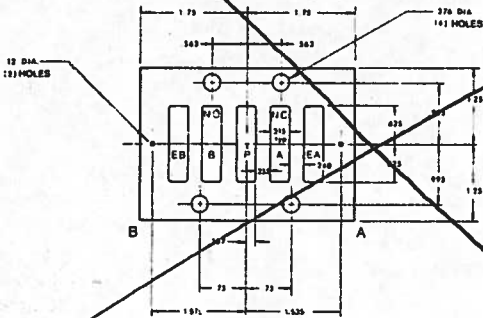
NVS 4034 SUBPLATES

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."



VALVE MOUNTING DIMENSIONS



SUB-PLATE MODEL NO.	N _P F	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	

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
4.72 (120)	40.9 (104)	2.05 (52)	2.82 (71)	12.8 (32)	2.81 (71)	1.48 (37)	2.05 (52)	1.02 (26)	3.31 (84)	2.20 (56)	1.10 (28)	0.67 (17)	0.84 (21)	1.73 (44)	0.87 (22)

Millimeters in Parentheses