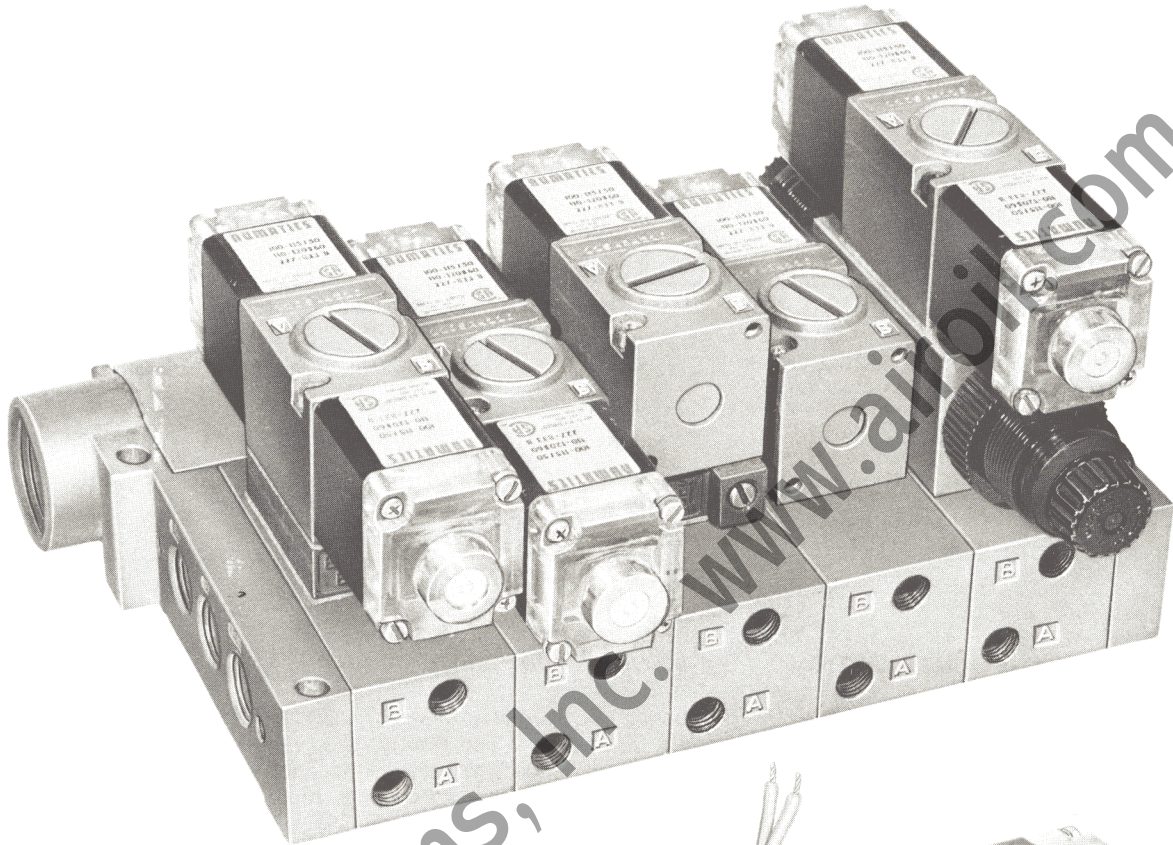
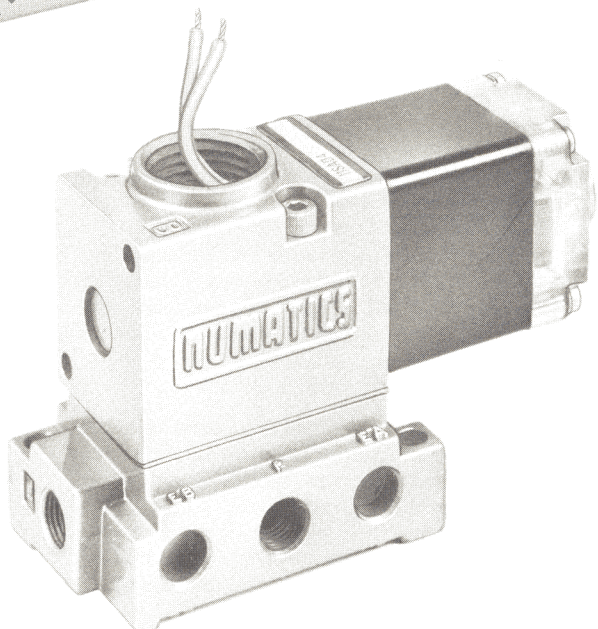


MARK 7TM LINE



A COMPACT, 1/8" TAPPED,
HEAVY DUTY, DIRECT SOLENOID,
MULTI-PURPOSE VALVE SERIES



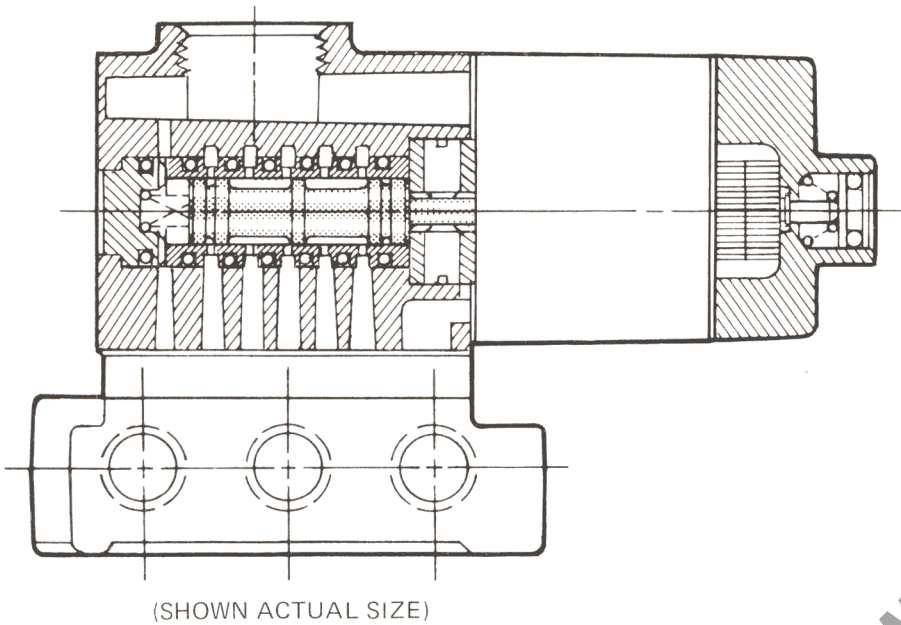
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numatics[®]
INCORPORATED
HIGHLAND, MICHIGAN 48031

the MARK 7 LINE

DESIGNS AND PUBLISHED DATA

All designs and specifications are subject to change without notice. Such changes are not to be considered retroactive, and seller assumes no responsibility for revision of models already in the field. All data is sufficiently accurate for general use, but seller assumes no responsibility for errors or omissions. Certified prints are available on request, at a reasonable charge.



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COMPACT, MULTI-PURPOSE CONSTRUCTION

Numatics MARK 7 Line air valves are die cast, multi-purpose units, designed for applications using small bore air cylinders. The small, compact size of both the valves and the new miniBLOK stackable manifolding system permits installation in a minimum of space, either directly on the machine or in a control cabinet. Small size is basic to the exciting design of the MARK 7 Line, yet size does not compromise Numatics' traditional reliability. These are quality air valves, precision built for rugged service, offering all the advanced design features of larger Numatics valves, including the famous, patented* lapped spool and sleeve. They are very competitive in price. MARK 7 Line valves offer the same durability and performance evident in all Numatics air valves, qualities which have made Numatics a leader in the industry since 1945. They will give years and years of reliable and troublefree service, exceeding industrial standards of design and performance.

MARK 7 Line valves are available as single or double solenoid 2-position valves or as double solenoid 3-position valves. They will provide service from high vacuum to 300 PSIG, and allow a nominal C_v of .4. The sound design of MARK 7 Line valves permits them to give generous wiring space plus ample swing clearance between ports for ease of piping, despite their compact size. They save space and weight in machine design, as well, and can be mounted in control panels.

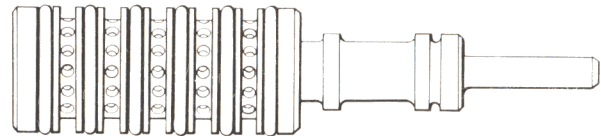
MANUAL OVERRIDE

A nonlocking, manual operator is standard to aid in machine set-up and tryout. The operator is recessed to prevent accidental operation.

*In USA and foreign countries.

LAPPED SPOOL AND SLEEVE

Numatics MARK 7 valves employ the famous, patented, lapped spool and floating sleeve principle for most reliable operation and longest service life. Each MARK 7 valve has its own matched set spool and sleeve, precision machined to millionths of an inch, eliminating always troublesome dynamic O-ring seals.



SOLENOID DESIGN

For all Numatics electric valves, next to the lapped spool and sleeve, the most important single component is the solenoid. Our experience has shown that the most reliable valve operation results from a marriage of the Numatics spool and sleeve with the time tested and proven direct solenoid construction. With this design, the solenoid pushes directly on the spool and produces a very fast response.

The unique molded, capsule construction feature of MARK 7 solenoid valves permits rapid valve disassembly WITHOUT LOOSE PARTS. A clear plastic window displays the T-armature movement, a major assist in troubleshooting and eliminating the need for pilot lights. Optional die cast aluminum covers, with either recessed nonlocking override or 1/8" NPTF pipe plug are available for adverse environments that may affect the plastic cover. Consult the factory.

PRESSURE REGULATORS

MARK 7 Line regulators mount between any valve unit and base or miniBLOK manifold. Single or dual pressure control is available. See pages MK7-16/17.

CONSTRUCTION FEATURES AND MOUNTING MEANS

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MK. 7 LINE

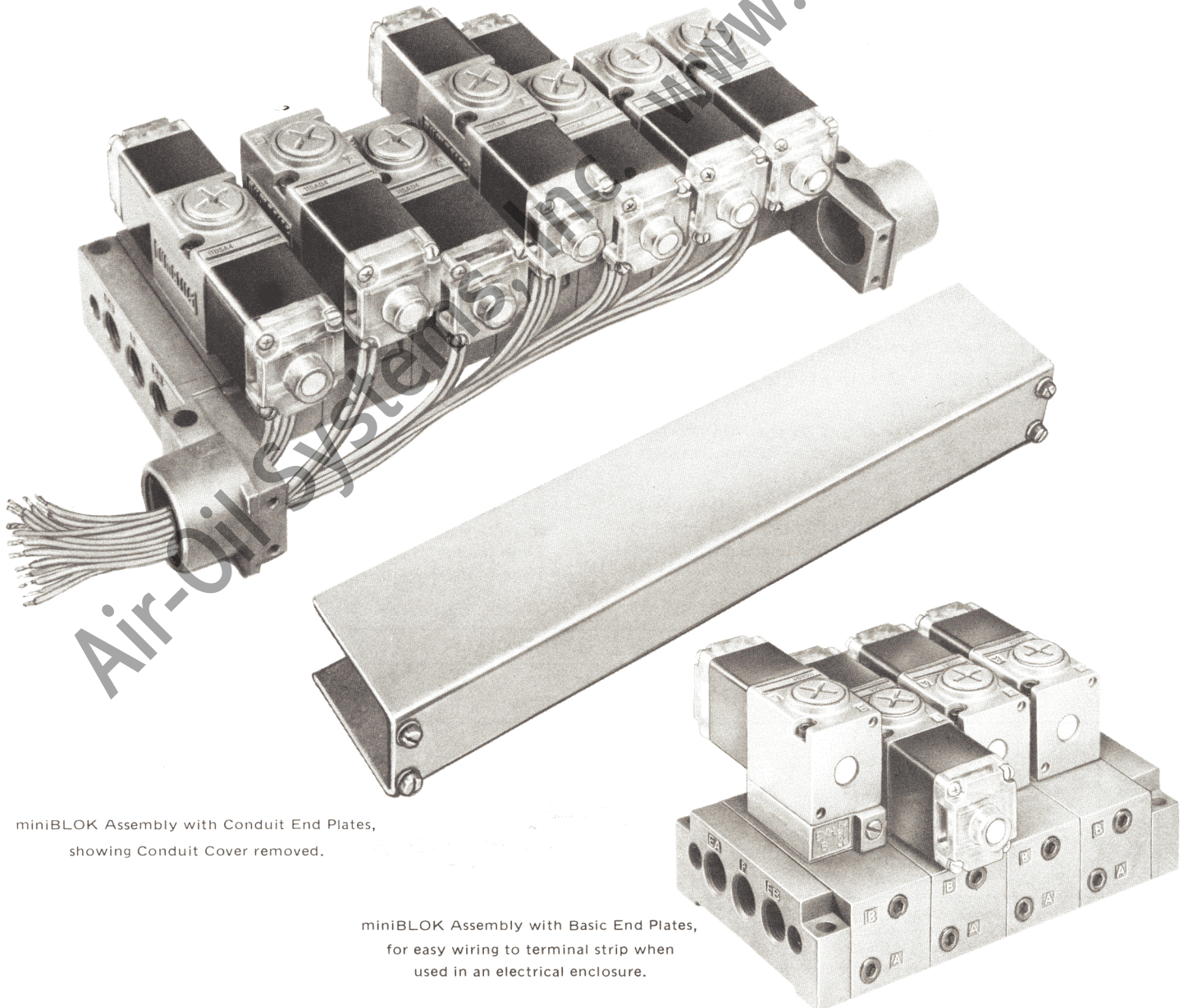
BASE OR MANIFOLD MOUNTING

MARK 7 Line valves offer a choice of 1/8 NPTF or 1/4 NPTF bases or the exciting new miniBLOK manifolding system. Bases come in three porting arrangements to suit any design requirement. The miniBLOK manifolding system permits stackable mounting either directly on a machine or in a panel. It offers major reductions in piping time and piping errors, less installation space, easy station-adding capability, and dramatic improvement in machine appearance.

The 1/8 NPTF base is available as side ported, common exhaust, side ported, individual exhaust, or with side and bottom porting for common or individual exhaust. An optional 1/4 NPTF base is available with side ports, individual exhausts or side and bottom ports, individual exhaust.

Compact miniBLOK manifolds permit assembly of MARK 7 Line valves into "stations". This is particularly advantageous where a number of valves are used in the same installation. This is the same miniBLOK system used on Numatics' PA-7 Line of air pilot actuated valves. Thus, miniBLOK offers even greater opportunities and flexibilities in manifolding both types of valves into a single station.

Manifold stations are assembled with basic end plates having no conduit cover, or with conduit end plates complete with conduit cover. The miniBLOK units are available as side ported or side and bottom ported arrangements. An individual supply port is available on the side and bottom ported arrangement, tapped in the bottom of the blok. These stackable manifolds are of die cast, rugged, lightweight aluminum construction. A typical five-station assembly may weigh only 9 pounds. The conduit cover is removable with just four screws for easy wiring accessibility.



miniBLOK Assembly with Conduit End Plates,
showing Conduit Cover removed.

miniBLOK Assembly with Basic End Plates,
for easy wiring to terminal strip when
used in an electrical enclosure.



**SERIES 11SAD4
1/8 AND 1/4 NPTF
SINGLE SOLENOID, SPRING RETURN**

SPECIFICATIONS

11SAD4 series valves are 1/8" heavy duty, multi-purpose, 2-position, single solenoid operated, spring returned, 4-way air valves. They are of splash-proof construction and are, as standard, fitted with a recessed, nonlocking manual operator.

APPLICATION

These valves are used primarily for the control of small bore, short stroke air cylinders where part stroke stopping or inching of the cylinder is not required. They are genuine multi-purpose valves; that is, they may be used as normally open or closed 2- or 3-way valves, single or dual pressure 4-ways, or as selector or diverter valves, dependent only on how they are piped or plugged. Full back pressure at any port has no operating effect on the valve.

They are actuated by a "maintained" electrical signal. The spring returns the spool to the normal position when the solenoid is de-energized.

MOUNTING MEANS

11SAD4 model valves are available with either 1/8 or 1/4 NPTF bases or miniBLOK mounting, with or without speed control. 1/8 NPTF bases are shown on MK7-5, 1/4 NPTF bases on MK7-19, and miniBLOK on MK7-12-15. Mark 7 valves may be mounted in any position.

OPTIONS

Options are shown on pages MK7-18-19. Pressure regulators are shown on pages MK7-16/17.

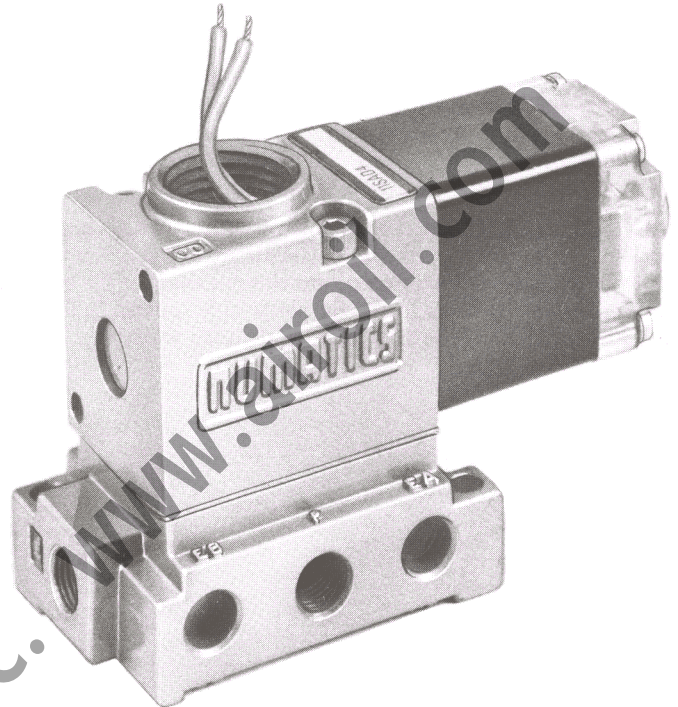
OPERATING DATA

PRESSURE RANGE: 28" Hg. vacuum to 300 PSIG (Specify pressure for operation over 150 PSIG).

TEMPERATURE RANGE: -10°F to +115°F ambient. High temperature coils are not available.

SERVICE: Valves can be used on properly filtered and lubricated air, dry air, vacuum or noncorrosive, nontoxic and nonflammable dry gases.

FLOW CAPACITY: MARK 7 Line 2-position valves have a Cv of .4. At 80 PSIG supply pressure, discharging to atmosphere, the flow is 18 SCFM. See Numatics' Engineering & Technical Data for complete flow chart.



SOLENOID DATA

All solenoids are continuous duty rated. Standard voltages are dual Hz 115/120 - 50/60 Hz, and 220/230 - 50/60 Hz A.C. and 12 or 24 volts D.C.

Special A.C. voltages 8 to 230, 50 or 60 hertz and D.C. voltages 6-250v D.C. are available on special order. Consult factory.

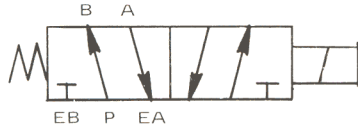
	120/60 A.C.	24v D.C.
Inrush current (amps.)	.40	.25
Holding current (amps.)	.12	.25
D.C. watts, inrush & holding, all voltages (max.)	—	6
Time to energize (secs.)	.012	.028
Time to de-energize (secs.)	.018	.012

MODEL SELECTION CHART

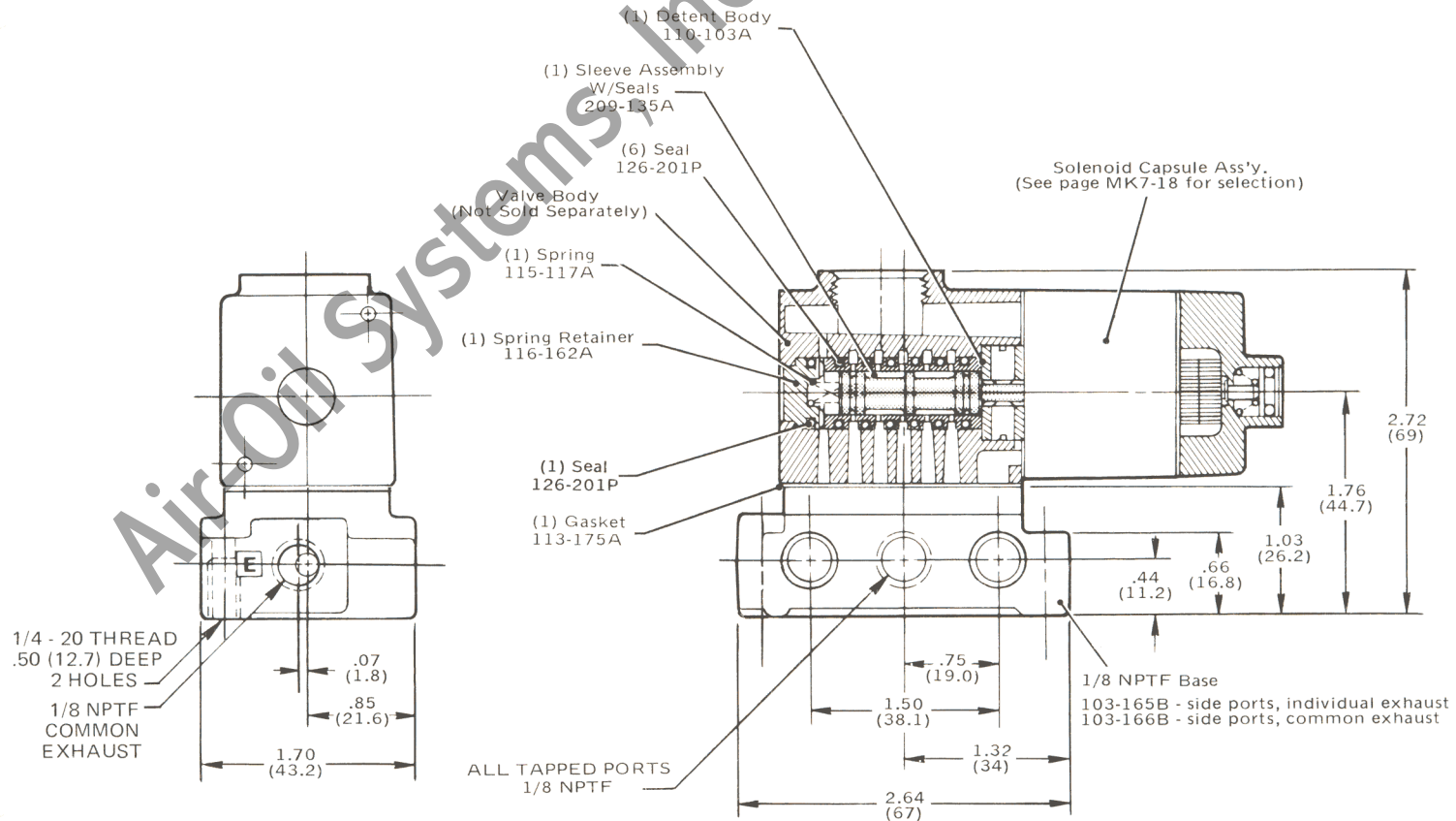
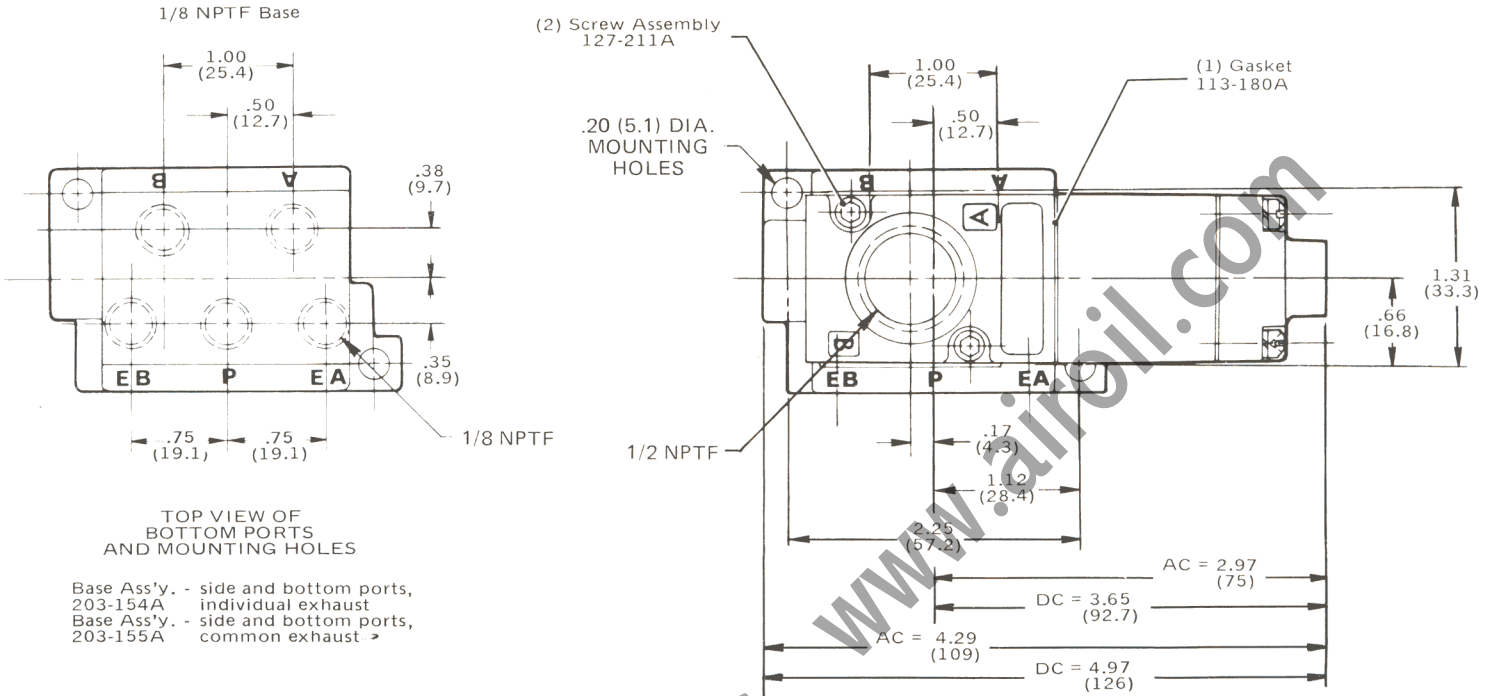
1/8 NPTF BASE	1/4 NPTF BASE	BASE DESCRIPTION	WIRING OPTION
11SAD400 ↓ 41 43 44 54 46 48 49 55	————— 11SAD44A 11SAD44B ————— ————— 11SAD44C 11SAD44D ————— —————	Valve unit only, no base Side ports, individual exhaust Side and bottom ports, individual exhaust Side ports, common exhaust Side and bottom ports, common exhaust No. 41 or No. 4A base with speed control No. 43 or No. 4B base with speed control No. 44 base with speed control No. 54 base with speed control	Add one letter to any model number and specify voltage. O = Std. A.C., hardwired B = Std. D.C., hardwired C = Std. A.C., plug-in E = Std. D.C., plug-in Cord/plug assemblies for options C & E Order separately 4 ft.; 230-213A 6 ft.; 230-215A
For aluminum solenoid cover with pipe plug, add O11A to model number. For aluminum solenoid cover with override, add O11J to model number. For 48" solenoid leads, add O13A to model number.		See page MK7-18.	



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SYMBOL



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

*This Spool and Sleeve Assembly is sold as a precision matched set only.
Spools are not interchangeable.

SERIES 11DSA4
1/8 AND 1/4 NPTF
DOUBLE SOLENOID, DETENTED

SPECIFICATIONS

11DSA4 series valves are 1/8" heavy duty, multi-purpose, 2-position, double solenoid operated, momentary contact (mechanically detented), 4-way air valves. They are of splash-proof construction and are, as standard, fitted with recessed, non-locking manual operators.

APPLICATION

These valves are used primarily for the control of small bore, short stroke air cylinders where part stroke stopping or inching of the cylinder is not required. They are genuine multi-purpose valves; that is, they may be used as normally open or closed 2- or 3-way valves, single or dual pressure 4-ways, or as selector or diverter valves, dependent only on how they are piped or plugged. Full back pressure at any port has no operating effect on the valve.

They are actuated by a "momentary" or a "maintained" electrical signal alternately on each of the two solenoids, and care should be taken to provide electrical interlocks to prevent simultaneous energization of both solenoids.

The detent assembly prevents inadvertent spool shift due to machine vibration, shock or electrical power failure when both solenoids are de-energized. A mechanical detent is mandatory on all momentary contact valves, per JIC and automotive standards.

MOUNTING MEANS

11DSA4 model valves are available with either 1/8 or 1/4 NPTF bases or miniBLOK mounting, with or without speed control. 1/8 NPTF bases are shown on MK7-7, 1/4 NPTF bases on MK7-19, and miniBLOK on MK7-12-15. Mark 7 valves may be mounted in any position.

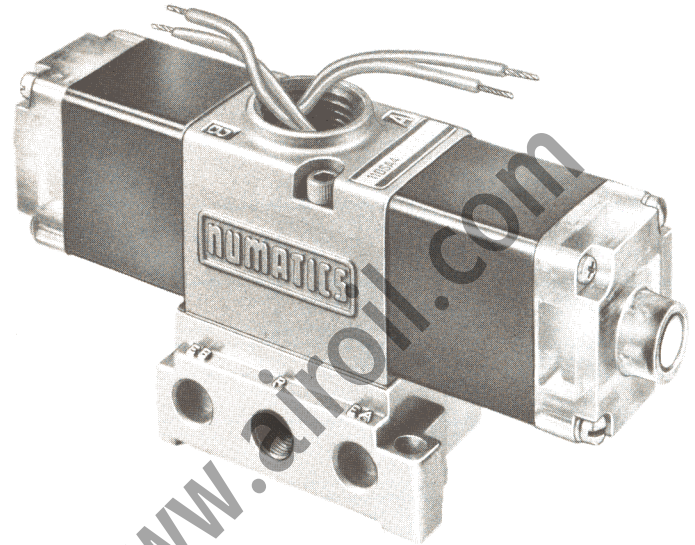
OPTIONS

Options are shown on pages MK7-18-19. Pressure regulators are shown on pages MK7-16/17.

OPERATING DATA

PRESSURE RANGE: 28" Hg. vacuum to 300 PSIG (Specify pressure for operation over 150 PSIG).

TEMPERATURE RANGE: -10°F to +115°F ambient. High temperature coils are not available.



SERVICE: Valves can be used on properly filtered and lubricated air, dry air, vacuum or noncorrosive, nontoxic and nonflammable dry gases.

FLOW CAPACITY: MARK 7 Line 2-position valves have a C_v of .4. At 80 PSIG supply pressure, discharging to atmosphere, the flow is 18 SCFM. See Numatics' Engineering & Technical Data for complete flow chart.

SOLENOID DATA

All solenoids are continuous duty rated. Standard voltages are dual Hz 115/120 - 50/60 Hz, and 220/230 - 50/60 Hz A.C. and 12 or 24 volts D.C.

Special A.C. voltages 8 to 230, 50 or 60 hertz and D.C. voltages 6-250v D.C. are available on special order. Consult factory.

	120/60 A.C.	24v D.C.
Inrush current (amps.)	.40	.25
Holding current (amps.)	.12	.25
D.C. watts, inrush & holding, all voltages (max.)	—	6
Time to energize (secs.)	.010	.028

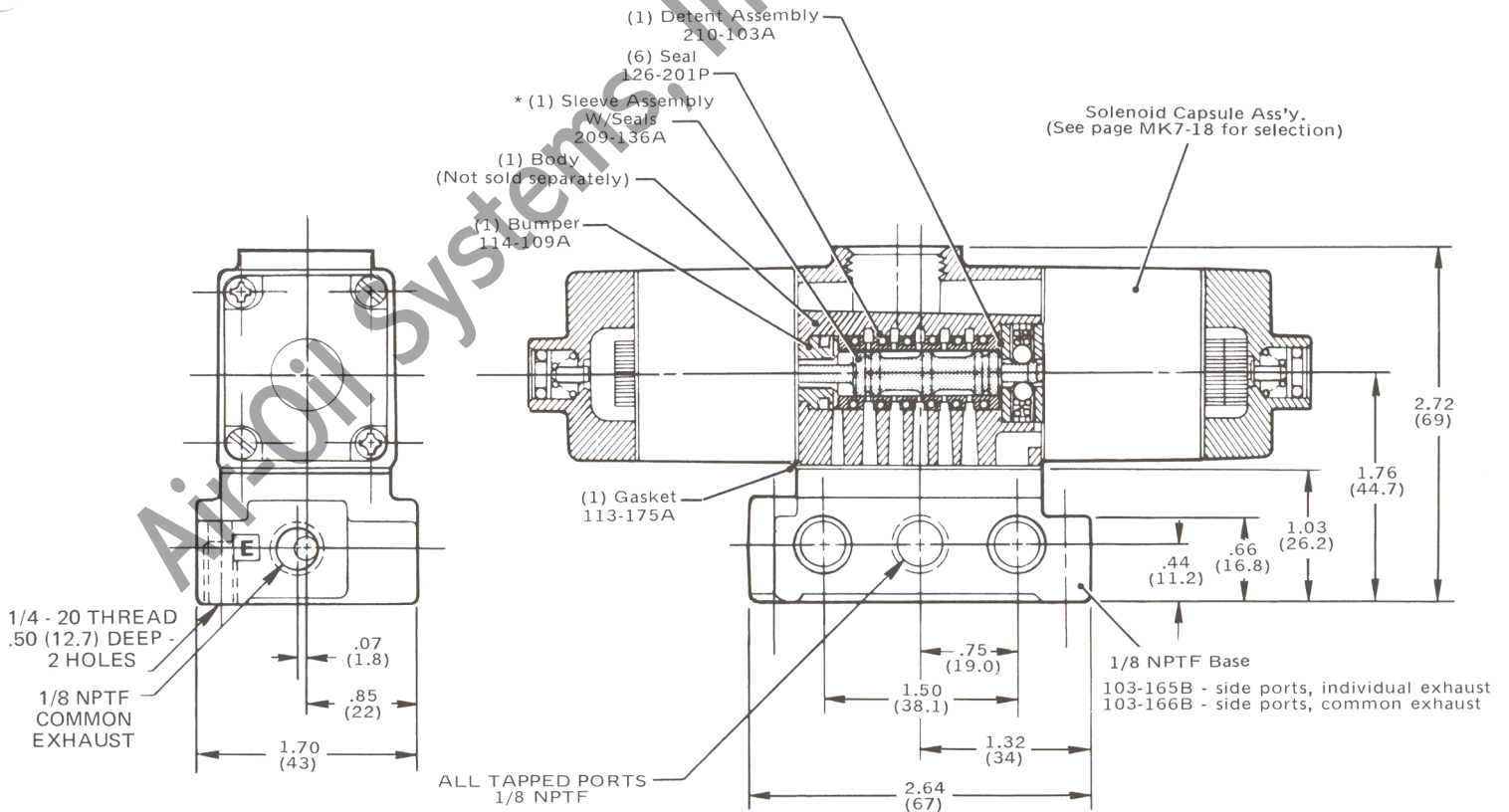
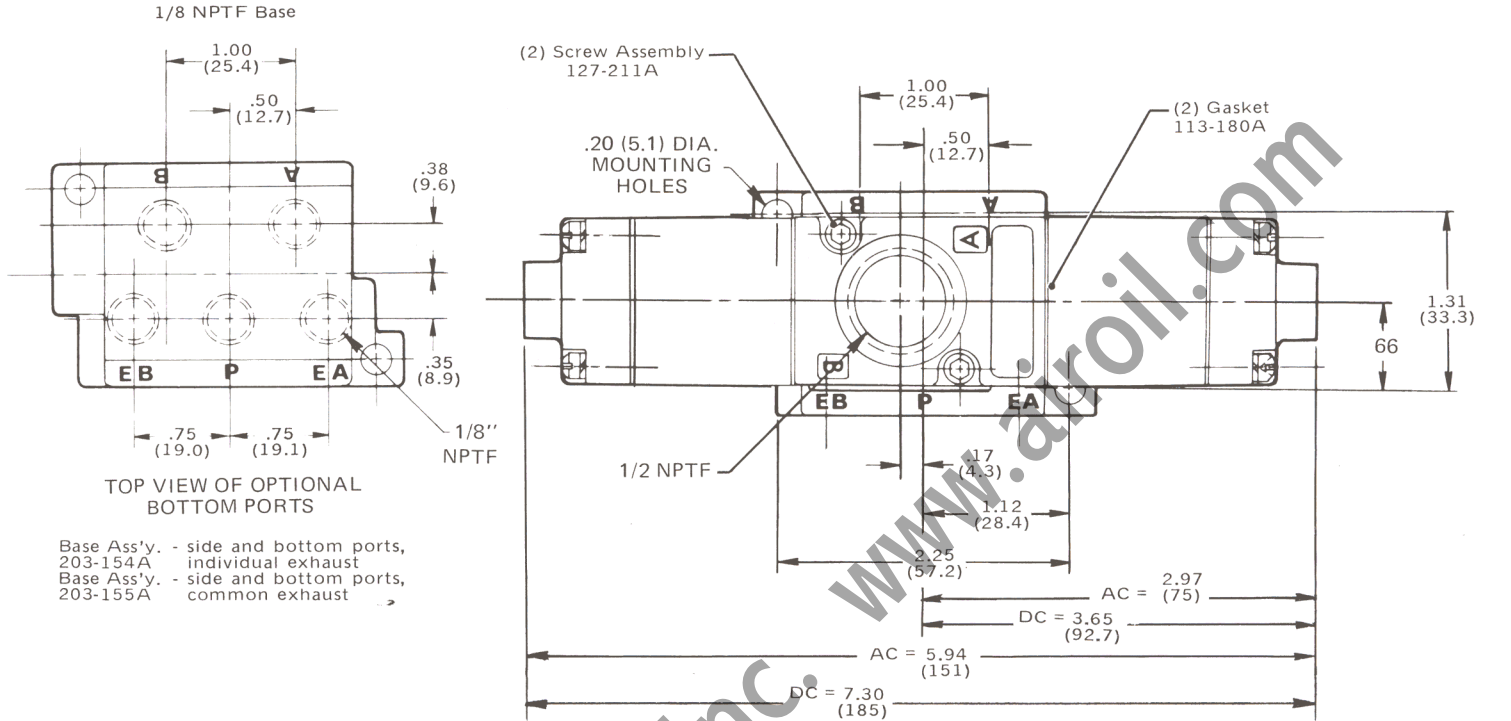
MODEL SELECTION CHART

1/8 NPTF BASE	1/4 NPTF BASE	BASE DESCRIPTION	WIRING OPTION
11DSA400 ↓ 41 43 44 54 46 48 49 55	11DSA44A 11DSA44B _____ 11DSA44C 11DSA44D _____ _____	Valve unit only, no base Side ports, individual exhaust Side and bottom ports, individual exhaust Side ports, common exhaust Side and bottom ports, common exhaust No. 41 or No. 4A base with speed control No. 43 or No. 4B base with speed control No. 44 base with speed control No. 54 base with speed control	Add one letter to any model number and specify voltage. O = Std. A.C., hardwired B = Std. D.C., hardwired C = Std. A.C., plug-in E = Std. D.C., plug-in Cord/plug assemblies for options C & E Order separately 4 ft.; 230-213A 6 ft.; 230-215A
For aluminum solenoid cover with pipe plug, add O11A to model number. For aluminum solenoid cover with override, add O11J to model number. For 48" solenoid leads, add O13A to model number.		See page MK7-18.	

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

*This Spool and Sleeve Assembly is sold as a precision matched set only.
Spools are not interchangeable.

SERIES 11DSA5
1/8 AND 1/4 NPTF
DOUBLE SOLENOID, SPRING CENTERED, 3-POSITION

SPECIFICATIONS

11DSA5 series valves are 1/4" heavy duty, multi-purpose, 3-position, double solenoid operated, spring centered, 4-way air valves with cylinder ports open to two independent pressures and a common exhaust, or with cylinder ports open to independent exhausts and a blocked common supply in mid-position, depending on how they are piped. They are of splashproof construction and are, as standard, fitted with recessed nonlocking manual operators.

APPLICATION

These valves are operated by energizing alternate solenoids. When de-energized, the springs return the spool to the center position. Each solenoid is rated for continuous duty and may be held energized. Electrical interlocks should be provided to prevent energizing both solenoids simultaneously.

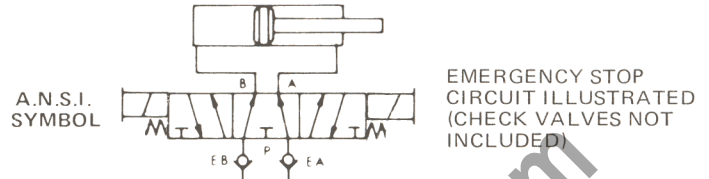
CYLINDER PORTS OPEN TO DUAL SUPPLY IN NEUTRAL (Use Only Bases with 5 Individual Ports): This piping arrangement permits accurate cylinder motion control with a very effective emergency stop circuit. This circuit is widely used on transfer cylinders and other long stroke applications, and with rotary air motors to achieve immediate emergency stop or accurate positioning.

Two individual supply connections are made to Ports EB and EA, each with an independent check valve and regulator in the supply line to accommodate cylinder piston area differential. In neutral, Port EB is open to Port B, Port EA to Port A, and both sides of the piston are pressurized. Port P is blocked. Piston motion is produced by exhausting pressure from one side or the other.

When the solenoids are de-energized, the valve returns to neutral and supply immediately builds the pressure on both sides of the piston up to regulated pressures. The check valves trap the air in the cylinder to snub the load and stop the piston in a very short distance.

CYLINDER PORTS EXHAUSTED IN NEUTRAL (Use Any Base): This piping arrangement permits use of the valve as a double, normally closed, 3-way with common supply.

CAUTION: This circuit should be used with great care on double-acting cylinders because, in neutral, the cylinder is without pressure at either end and the piston is free to drift under external loads. When either solenoid is energized, the piston moves very rapidly under full pressure, with no back pressure on the exhausting end to help control speed. One individual supply connection is made to Port P. Ports B and A are output, EB and EA are exhaust ports.



MOUNTING MEANS

11DSA5 model valves are available with either 1/8 or 1/4 NPTF bases or miniBLOK mounting, with or without speed control. 1/8 NPTF bases are shown on MK7-10, 1/4 NPTF bases on MK7-19, and miniBLOK on MK7-12-15. Mark 7 valves may be mounted in any position.

OPTIONS

Options are shown on pages MK7-18-19.

OPERATING DATA

PRESSURE RANGE: 28" Hg. vacuum to 300 PSIG (Specify pressure for operation over 150 PSIG).

TEMPERATURE RANGE: -10°F to +115°F ambient. High temperature coils are not available.

SERVICE: Valves can be used on properly filtered and lubricated air, dry air, vacuum or noncorrosive, nontoxic and nonflammable dry gases.

FLOW CAPACITY: MARK 7 Line 2-position valves have a C_v of .4. At 80 PSIG supply pressure, discharging to atmosphere, the flow is 18 SCFM. See Numatics' Engineering & Technical Data for complete flow chart.

SOLENOID DATA

All solenoids are continuous duty rated. Standard voltages are dual Hz 115/120 - 50/60 Hz, and 220/230 - 50/60 Hz A.C. and 12 or 24 volts D.C.

Special A.C. voltages 8 to 230, 50 or 60 hertz and D.C. voltages 6-250v D.C. are available on special order. Consult factory.

	120/60 A.C.	24v D.C.
Inrush current (amps.)	.40	.25
Holding current (amps.)	.12	.25
D.C. watts, inrush & holding, all voltages (max.)	—	6
Time to energize (secs.)	.012	.028
Time to de-energize (secs.)	.018	.008

MODEL SELECTION CHART

1/8 NPTF BASE	1/4 NPTF BASE	BASE DESCRIPTION	WIRING OPTION
11DSA500 ↓ 41 43 44 54 46 48 49 55	11DSA54A 11DSA54B — — 11DSA54C 11DSA54D — —	Valve unit only, no base Side ports, individual exhaust Side and bottom ports, individual exhaust Side ports, common exhaust Side and bottom ports, common exhaust No. 41 or No. 4A base with speed control No. 43 or No. 4B base with speed control No. 44 base with speed control No. 54 base with speed control	Add one letter to any model number and specify voltage. O = Std. A.C., hardwired B = Std. D.C., hardwired C = Std. A.C., plug-in E = Std. D.C., plug-in Cord/plug assemblies for options C & E Order separately 4 ft.; 230-213A 6 ft.; 230-215A
For aluminum solenoid cover with pipe plug, add O11A to model number. For aluminum solenoid cover with override, add O11J to model number. For 48" solenoid leads, add O13A to model number.		See page MK7-18.	

**SERIES 11DSA6
1/8 AND 1/4 NPTF
DOUBLE SOLENOID, SPRING CENTERED, 3-POSITION**



SPECIFICATIONS

11DSA6 series valves are 1/4" heavy duty, multi-purpose, 3-position, double solenoid operated, spring centered, 4-way air valves with all ports blocked in mid-position. They are of splashproof construction and are, as standard, fitted with recessed, nonlocking manual operators.

APPLICATION

Blocked port circuits should be used with discretion because of the lack of make-up air to either end of the cylinder. Any leak in the piston or rod packing, air line connections between valve and cylinder, and normal leakage across spool lands allows escape of the trapped air. Eventually the piston will creep, due to area differential between blind and rod ends (particularly where loads must be held in a given position for an extended time). If a cylinder position must be maintained for extended periods, 11DSA5 model valves piped for dual pressure should be used. (See page 8). Supply pressure to the valve must also be maintained.

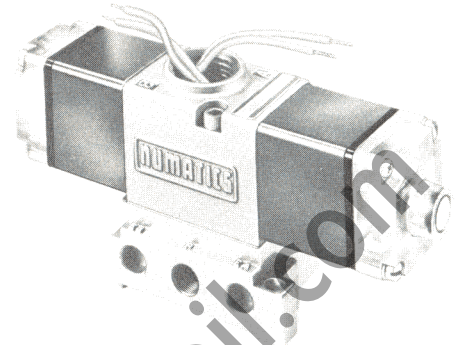
These valves are operated by energizing alternate solenoids. When de-energized, the springs return the spool to the center position. Each solenoid is rated for continuous duty and may be held energized. Electrical interlocks should be provided to prevent energizing both solenoids simultaneously.

SINGLE SUPPLY PIPED TO PORT P (Use Any Mounting Means): This piping arrangement permits the same pressure to be applied to each side of the cylinder piston. One individual supply connection is made to Port P. B and A are outlet ports, EB and EA are exhaust ports.

DUAL SUPPLY PIPED TO PORTS EB AND EA (Use Only Bases with 5 Individual Ports): This piping arrangement permits use of, for example, a higher pressure for the work stroke and a low pressure for the return stroke. Two individual supply connections are made to Ports EB and EA. B and A are outlet ports, P is a common exhaust port.

MOUNTING MEANS

11DSA6 model valves are available with either 1/8 or 1/4 NPTF bases or miniBLOK mounting, with or without speed control. 1/8 NPTF bases are shown on MK7-10, 1/4 NPTF bases on MK7-19, and miniBLOK on MK7-12-15. Mark 7 valves may be mounted in any position.



OPTIONS

Options are shown on pages MK7-18-19.

OPERATING DATA

PRESSURE RANGE: 28" Hg. vacuum to 300 PSIG (Specify pressure for operation over 150 PSIG).

TEMPERATURE RANGE: -10°F to +115°F ambient. High temperature coils are not available.

SERVICE: Valves can be used on properly filtered and lubricated air, dry air, vacuum or noncorrosive, nontoxic and nonflammable dry gases.

FLOW CAPACITY: MARK 7 Line 2-position valves have a C_v of .4. At 80 PSIG supply pressure, discharging to atmosphere, the flow is 18 SCFM. See Numatics' Engineering & Technical Data for complete flow chart.

SOLENOID DATA

All solenoids are continuous duty rated. Standard voltages are dual Hz 115/120 - 50/60 Hz, and 220/230 - 50/60 Hz A.C. and 12 or 24 volts D.C.

Special A.C. voltages 8 to 230, 50 or 60 hertz and D.C. voltages 6-250v D.C. are available on special order. Consult factory.

	120/60 A.C.	24v D.C.
Inrush current (amps.)	.40	.25
Holding current (amps.)	.12	.25
D.C. watts, inrush & holding, all voltages (max.)	—	6
Time to energize (secs.)	.012	.028
Time to de-energize (secs.)	.018	.008

MODEL SELECTION CHART

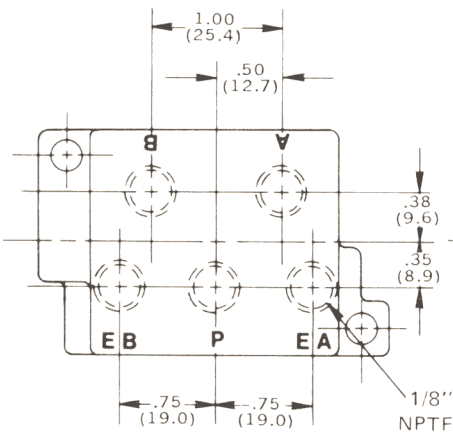
1/8 NPTF BASE	1/4 NPTF BASE	BASE DESCRIPTION	WIRING OPTION
11DSA600 ↓ 41 43 44 54 46 48 49 55	11DSA64A 11DSA64B 11DSA64C 11DSA64D	Valve unit only, no base Side ports, individual exhaust Side and bottom ports, individual exhaust Side ports, common exhaust Side and bottom ports, common exhaust No. 41 or No. 4A base with speed control No. 43 or No. 4B base with speed control No. 44 base with speed control No. 54 base with speed control	Add one letter to any model number and specify voltage. O = Std. A.C., hardwired B = Std. D.C., hardwired C = Std. A.C., plug-in E = Std. D.C., plug-in Cord/plug assemblies for options C & E Order separately 4 ft.; 230-213A 6 ft.; 230-215A
For aluminum solenoid cover with pipe plug, add O11A to model number. For aluminum solenoid cover with override, add O11J to model number. For 48" solenoid leads, add O13A to model number.			



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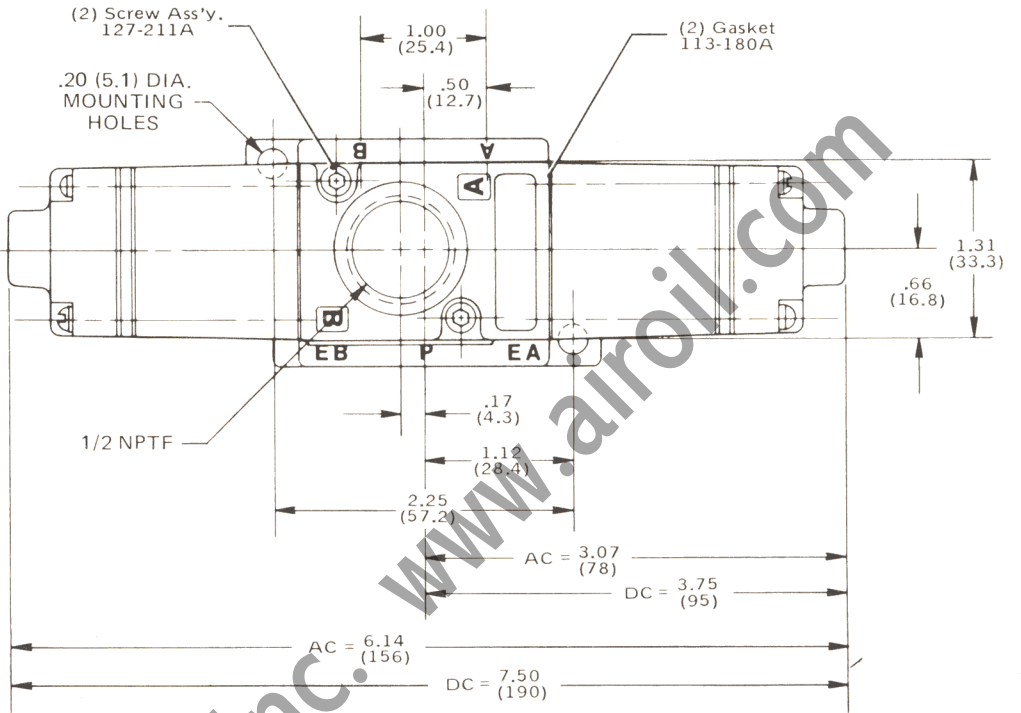
VALVE DIMENSIONS & PARTS
3-POSITION VALVES

1/8 NPTF BASE



TOP VIEW OF OPTIONAL
BOTTOM PORTS

Base Ass'y. - side and bottom ports,
203-154A individual exhaust
Base Ass'y. - side and bottom ports,
203-155A common exhaust



(1) Sleeve Assembly w/seals
Dual supply in neutral 209-244B (shown)
All ports blocked 209-245A

(6) Seal 126-201P

(1) Body
(Not sold separately)

(1) Spacer 116-270A

Solenoid Capsule Assemblies
See Page MK7-18

(1) Spacer 116-269A

(2) Spring 115-200A

(2) Spring Retainer 116-268A

(1) Gasket 113-175A

2.72 (69)

1.76 (44.7)

1.03 (26.2)

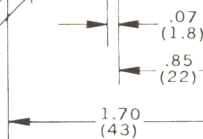
.66 (16.8)

.44 (11.2)

(1) Base - 1/8 NPTF
103-165B - side ports, individual exhaust
103-166B - side ports, common exhaust

1/4 - 20 THREAD
.50 (12.7) DEEP -
2 HOLES

1/8 NPTF
COMMON
EXHAUST



ALL TAPPED PORTS
1/8 NPTF

.75 (19.0)

1.50 (38.1)

1.32 (34)

2.64 (67)

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

*This Spool and Sleeve Assembly is sold as a precision matched set only.
Spools are not interchangeable.

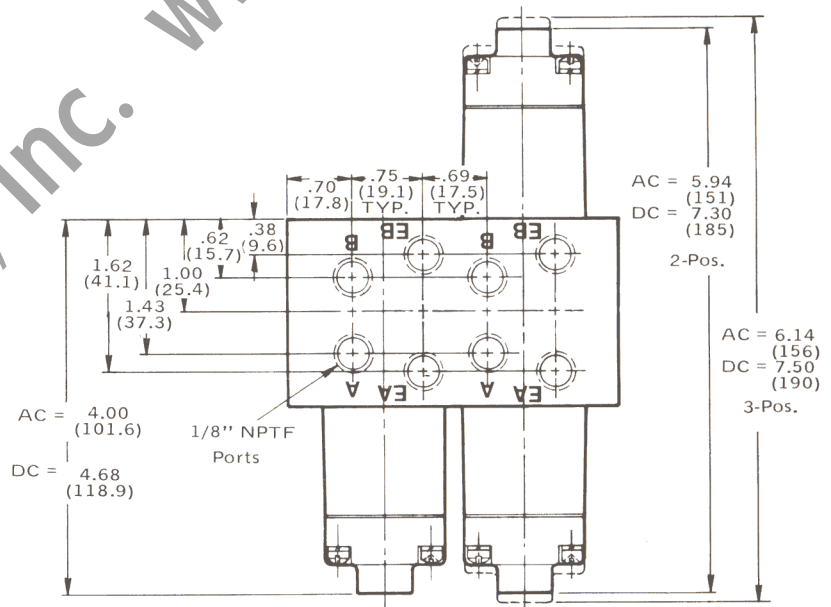
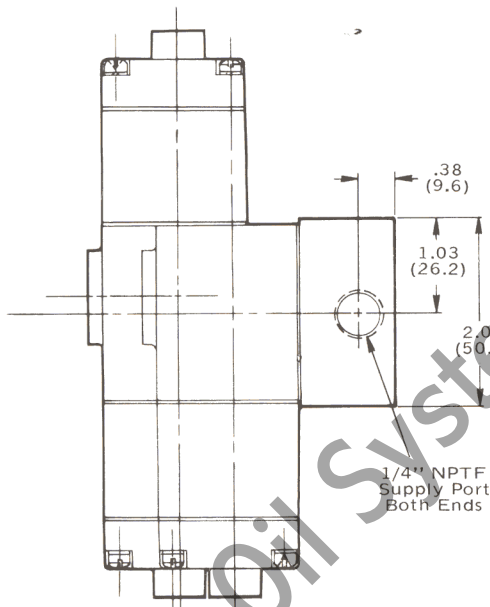
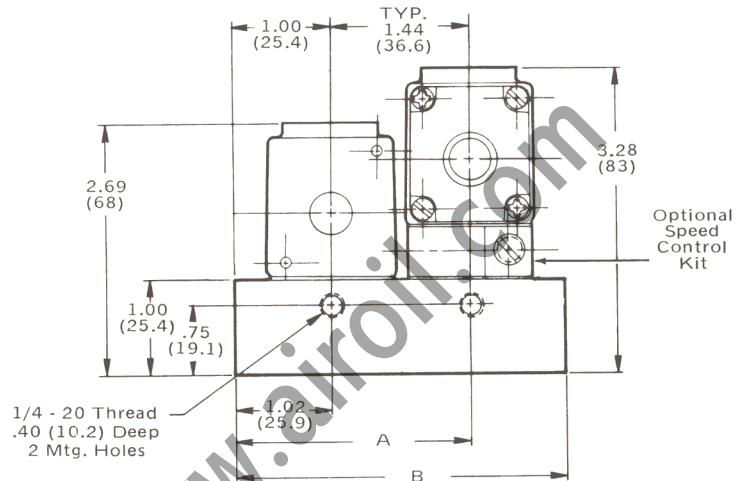
ONE PIECE MANIFOLDS

To order, specify any manifold from the chart and any MARK 7 Line unit valve from the catalog and its location. Stations are numbered left to right looking at the 1/4 - 20 mounting holes. Each MARK 7 valve model number selected must be followed by the Modification Code O and the option suffix 13T, plus the specific voltage desired. For example:

11DSA4000O13T 120/60 - double solenoid MARK 7, standard A.C.

SIZE	A	B
2-STATION	2.46 (62.5)	3.38 (85.8)
3-STATION	3.90 (99.1)	4.82 (122.4)
4-STATION	5.34 (135.6)	6.25 (158.7)

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

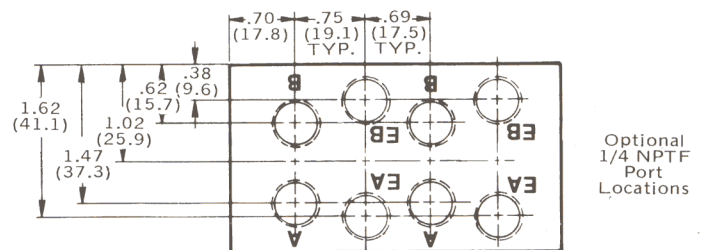


MANIFOLD ORDERING EXAMPLE:

(1) No. 206-344B 4-Station MARK 7 manifold complete with:

- Sta. 1 - 11SAD4000O13T 120/60
- Sta. 2 - 11SAD400BO13T 24v DC
- Sta. 3 - 11SAD401OO13T 120/60
- Sta. 4 - 11DSA4000O13T 120/60

MANIFOLD SELECTION CHART		
SIZE	1/8" NPTF	1/4" NPTF
2-STA.	206-342A	106-251B
3-STA.	206-343A	106-252B
4-STA.	206-344A	106-253B



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numatics[®]

MK. 7 LINE

miniBLOK[™]
MANIFOLD MOUNTINGS

SPECIFICATIONS

miniBLOK is a stackable method of manifold mounting which provides a large single supply gallery and two common exhaust galleries. These passages run the length of the manifold. The end plates are tapped at both ends. A single miniBLOK unit accepts either a single or double solenoid valve and is used most frequently to provide a standard single pressure, 4-way directional valve module with supply from the P gallery, exhausts into the EB and EA galleries, and the B and A ports as cylinder or outlet ports in the "B" side of the blok.

APPLICATION

miniBLOK assemblies can be mounted directly on machines or in panel enclosures. Bloks accept both MARK 7 Line valves and Numatics' PA-7 Line air pilot actuated valves (see Catalog PA-7). Either basic or conduit end plates are available, depending on which wiring arrangement is selected. For out-in-the-open machine assembly, conduit covers fit over recesses on the conduit end plates to conceal all wiring, and are easily removable with just four screws. Basic end plates may be used in panel mounted assemblies where the enclosure protects the various electrical connections and eliminates the need for a conduit cover.

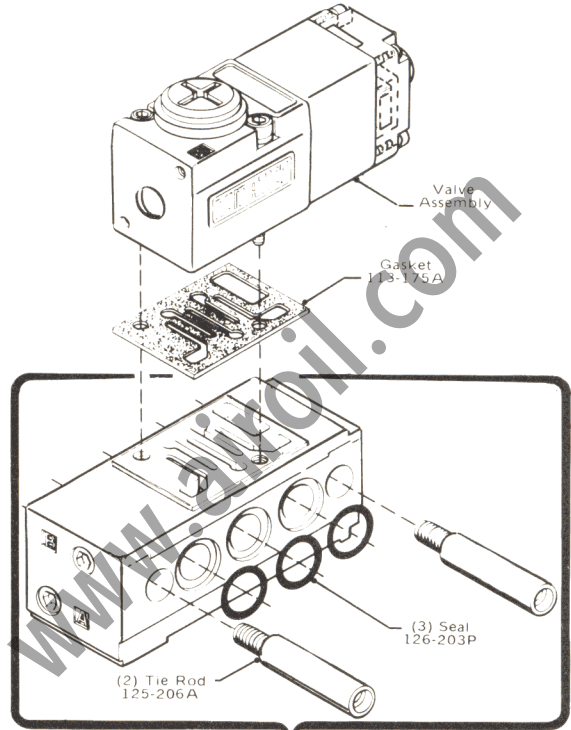
PORTING AND BLOCKING

The standard miniBLOK unit includes side cylinder ports only. Side and bottom porting is an optional extra. On the latter arrangement only, an additional port is tapped in the bottom of the blok which connects directly with the supply gallery. This port, labeled P, may be used as an auxiliary outlet or lubrication port for forced lubrication systems.

A blocking plug is available (see page MK7-14) which fits into any of the three main galleries of the miniBLOK units, permitting interruption of air pressure supply or exhaust between individual bloks in an assembly.

To assemble your own manifold, select stations from the chart below plus hardware from page MK7-14.

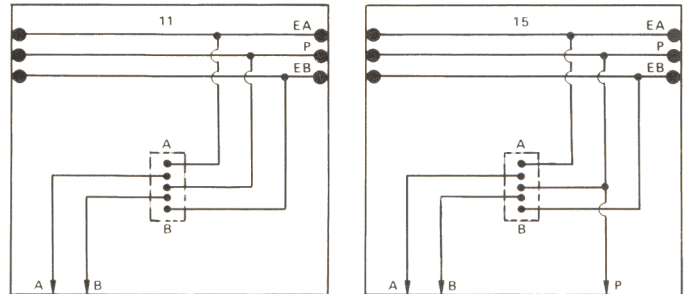
To order a factory assembled and tested manifold, see page MK7-15.



VALVE BLOK KIT NO.

- 229-307A=Blok No. 11, side ports only
- 229-308A=Blok No. 15, side and bottom ports

MARK 7 miniBLOK DIAGRAMS



No. 11 for side ported bloks; No. 15 for side and bottom ported bloks.

MODEL SELECTION CHART

VALVE TYPE	MODEL NUMBER	MOUNTING DESCRIPTION	WIRING OPTION
Single Solenoid 2-Position Spring Return	11SAD411	Side Cylinder Ports	Add one letter to any model number and specify voltage. O = Std. A.C. Hardwired B = Std. D.C. Hardwired C = Std. A.C. Plug-in E = Std. D.C. Plug-in
	11SAD415	Side and Bottom Cylinder Ports	
	11SAD421	Side Cylinder Ports with Speed Control	
	11SAD425	Side and Bottom Cylinder Ports with Speed Control	
Double Solenoid 2-Position Detented	11DSA411	Side Cylinder Ports	Cord/Plug Assemblies for Options C & E Order Separately
	11DSA415	Side and Bottom Cylinder Ports	
	11DSA421	Side Cylinder Ports with Speed Control	
	11DSA425	Side and Bottom Cylinder Ports with Speed Control	
Double Solenoid 3-Position Dual Pressures in Neutral	11DSA511	Side Cylinder Ports	4 ft.; 230-213A 6 ft.; 230-215A
	11DSA515	Side and Bottom Cylinder Ports	
	11DSA521	Side Cylinder Ports with Speed Control	
	11DSA525	Side and Bottom Cylinder Ports with Speed Control	
Double Solenoid 3-Position All Ports Blocked in Neutral	11DSA611	Side Cylinder Ports	
	11DSA615	Side and Bottom Cylinder Ports	
	11DSA621	Side Cylinder Ports with Speed Control	
	11DSA625	Side and Bottom Cylinder Ports with Speed Control	

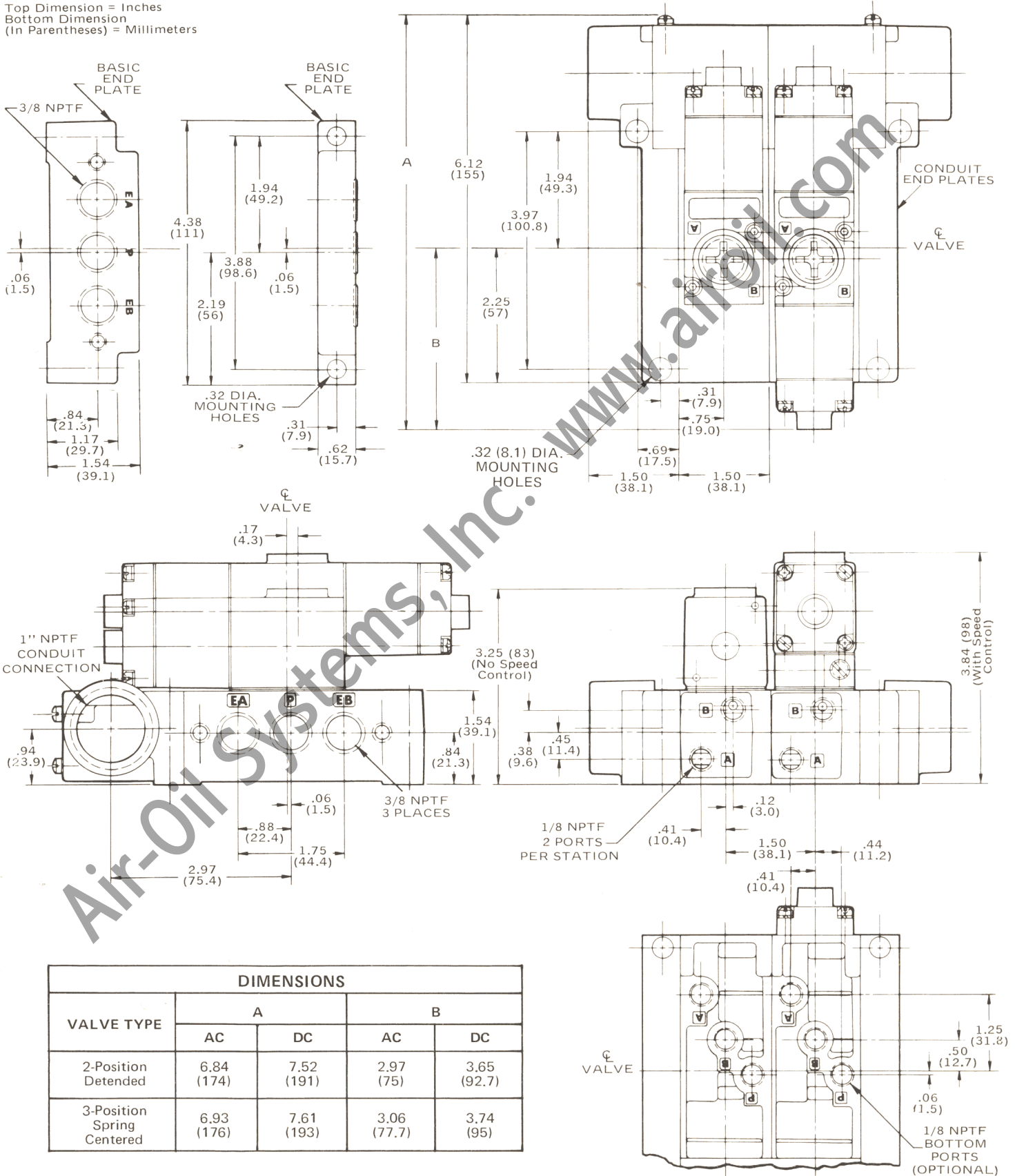
Specify Volts and Hz: 100-115/50; 110-120/60 or 200-240/50; 220-120/60
For valve units only, see pages 4, 6, 8, 9. Speed Control, see page 19.

miniBLOK[®]

DIMENSIONS FOR ALL VALVE BLOKS

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MK. 7 LINE

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

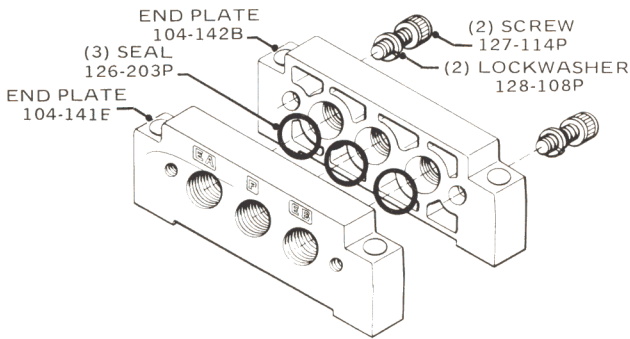


DIMENSIONS				
VALVE TYPE	A		B	
	AC	DC	AC	DC
2-Position Detended	6.84 (174)	7.52 (191)	2.97 (75)	3.65 (92.7)
3-Position Spring Centered	6.93 (176)	7.61 (193)	3.06 (77.7)	3.74 (95)

BASIC END PLATES KIT

229-311A

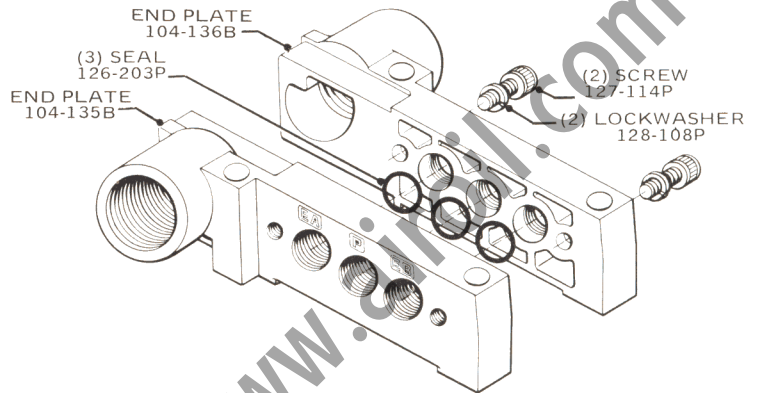
For use on assemblies without conduit cover.



CONDUIT END PLATES KIT

229-309A

For use on assemblies with conduit cover.



CONDUIT COVER ASSEMBLY
(Incl. screws and lockwashers)

- 1 Station 229-315A
- 2 Stations 229-316A
- 3 Stations 229-317A
- 4 Stations 229-318A
- 5 Stations 229-319A
- 6 Stations 229-320A
- 7 Stations 229-321A
- 8 Stations 229-322A
- 9 Stations 229-323A
- 10 Stations 229-324A
- 11 Stations 229-325A
- 12 Stations 229-326A
- 13 Stations 229-327A
- 14 Stations 229-328A
- 15 Stations 229-329A



BLOCKING DISC

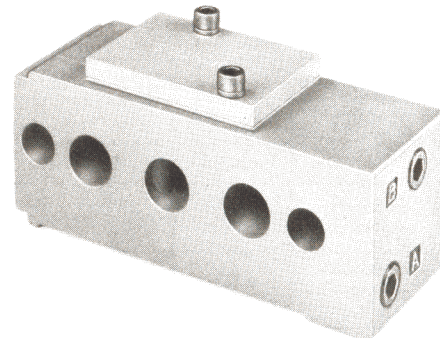


Used to block the P gallery to permit, for example, A different pressure to be supplied to either end of the FlexiBlok assembly.

TIE ROD (2 Required)
125-206A



BLANK STATION PLATE KIT - 229-314A
(Incl. plate, gasket, screws and lockwashers)



VALVE REPAIR KITS

Includes all internal parts except sleeve assembly, coils, or solenoids. Order these separately.

VALVE SERIES	REPAIR KIT NO.
11SAD4	MK 7 - K1
11DSA4	MK 7 - K2
11DSA5	MK 7 - K3
11DSA6	MK 7 - K3

BASE MOUNTING INSTRUCTIONS

HOW TO ORDER A **miniBLOK** ASSEMBLY



BASE MOUNTING INSTRUCTIONS

MK-7 base-mounted valves are shipped assembled. To mount the base, valve may be pivoted for access to base mounting holes without removing valve from base. This procedure was so designed to permit maintaining the valve's compact size.

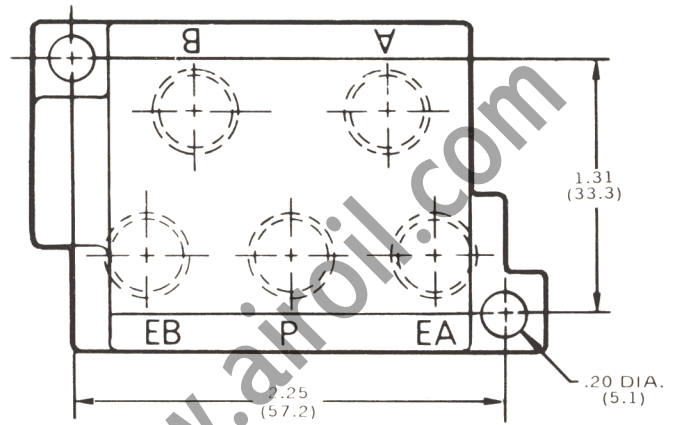
To mount, remove either valve screw assembly and merely loosen the other screw. Pivot valve to expose base mounting holes, and mount. (Careful pivoting will avoid tearing the base gasket). Resecure valve to base.

The full size base template at the right may be used to locate the two mounting holes. The base may be mounted in the following three ways:

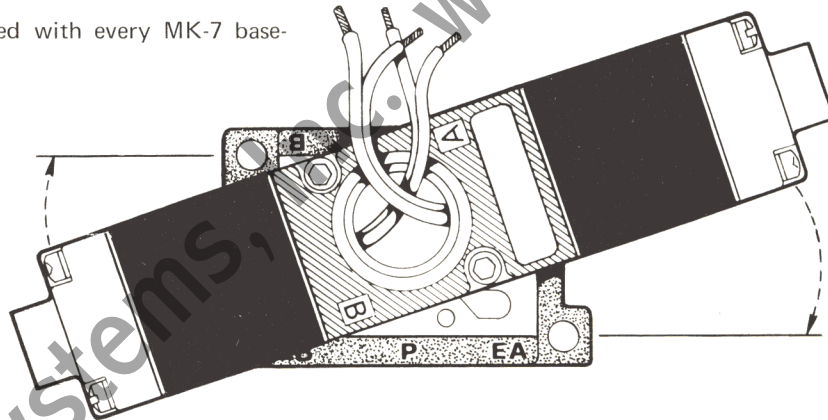
1. Drill two .20 dia. clearance holes in the mounting surface and mount with No. 10 screws, nuts and lockwashers.
2. Tap two No. 10 holes in the mounting surface for mounting the base from the top.
3. Drill two .26 dia. clearance holes in the mounting surface for mounting the base with 1/4-20 screws from the back side.

The above instructions are included with every MK-7 base-mounted valve.

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



MK-7 BASE TEMPLATE (FULL SIZE)



HOW TO ORDER A **miniBLOK** ASSEMBLY:

Determine the required circuitry and select miniBLOK model numbers from page MK7-12. Determine if any blocking plugs will be needed. List the units and plugs in order from left to right, facing cylinder ports A and B of the assembly. A typical five-station assembly may be as follows:

Assembly Kit	AK71-5
Station 1	11DSA4110
Station 2	11SAD4110
Station 3	11SAD4210
Blocking Plug	124-120A (Install in P gallery)
Station 4	11DSA4110
Station 5	11DSA4110

The blocking plug is listed between the two units to be blocked and you must indicate in which gallery it is to be installed.

The first item above is the standard assembly kit consisting of conduit end plates, conduit cover, necessary tie rods and screws, and assembling and testing. Kits for circuitry assemblies are prefixed with AK, and the number following the dash indicates the number of stations in the assembly. Blocking plugs and end plates are NOT counted as stations. If basic end plates and no

conduit cover are required, order kit number AK72-, followed by the number of stations.

When ordered as stated in the example, Numatics will assemble and test the entire miniBLOK for proper operation. It will be supplied ready for installation and connection to the supply and cylinder ports. Due to flow, wiring and practical assembly limitations, a maximum of 15 stations per assembly is recommended.

If you wish to assemble your own miniBLOK, order the required station by the same model number as if the bloks were assembled. Order the required end plates kit and/or other assembly hardware shown on page MK7-14. Each valve blok comes complete with tie rods and seals. DO NOT order the assembly kit; this is for factory assembled units only.

HOW TO PRICE A MARK 7 **miniBLOK** ASSEMBLY:

The list price for each miniBLOK unit, blocking plug and assembly kit is listed in the Numatics Price List. Add up the individual prices and you will have the list price of the miniBLOK assembly - assembled, tested and ready to mount on the machine or in the control panel.

**INDIVIDUAL
PRESSURE
REGULATORS**

"SANDWICH" PRESSURE CONTROL VALVES

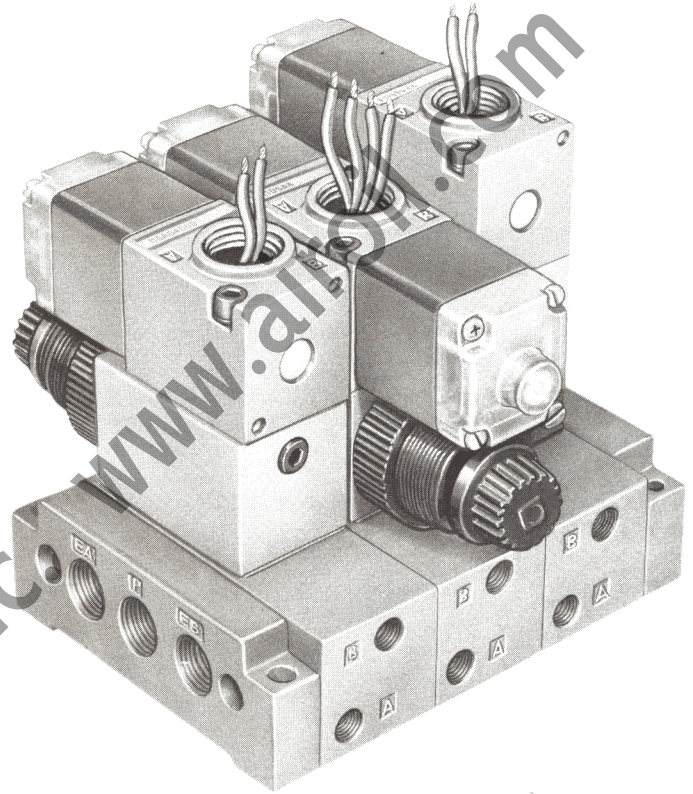
SPECIFICATIONS

Two different pressure control valves are available for regulating the pressure to MARK 7 Line valve units. The regulators are sandwich style and mount between the valve unit and any base or miniBLOK manifold mounting.

One assembly has a single regulator in the "P" flow path. It receives line pressure from the P port of the base and supplies regulated pressure to the P port of the valve unit. Cylinder ports A and B and exhaust ports EA and EB are connected through the regulator back to the mounting means.

The second assembly has two regulators for dual pressure applications. It takes line pressure from the P port of the base, splits the flow path and sends it to two regulators. The regulator outputs are supplied to ports EA and EB of the valve unit. Cylinder ports A and B are connected through the regulator back to ports A and B in the base. Common exhaust, port P in the valve unit, is connected to port EB in the mounting means.

All regulators are available in three different pressure ranges: 3 - 30 psig, 5 - 60 psig, and 10 - 120 psig. The plastic bonnet assemblies have color coded locking rings for pressure identification. Single pressure regulators have a 1/8" NPTF gage port opposite the adjusting knob; double pressure regulators do not have gage ports available. Gages are not furnished with the regulator assemblies. **NOTE: On double regulator units, a gage may be temporarily connected in the cylinder port lines to set the downstream pressure.**



ORDERING PROCEDURE

To order valves and regulators factory assembled, specify any MARK 7 valve, the regulator by its part number, and say "Assembled". Example: (1) 11SAD4110 120/60
(1) 229-465A Regulator
Assembled

MODEL SELECTION CHART

Regulator Kit Description (Includes Studs, Nuts, Lockwashers and Gasket)	PRESSURE RANGE		
	3 - 30 PSIG Green Ring	5 - 60 PSIG Yellow Ring	10 - 120 PSIG Red Ring
Single Regulator - For use without speed control	229-463A	229-464A	229-465A
Single Regulator - For use with speed control	229-474A	229-475A	229-476A
Double Regulator - For use without speed control*	229-466A	229-467A	229-468A

*Double Regulators CANNOT be used with valves using speed control.

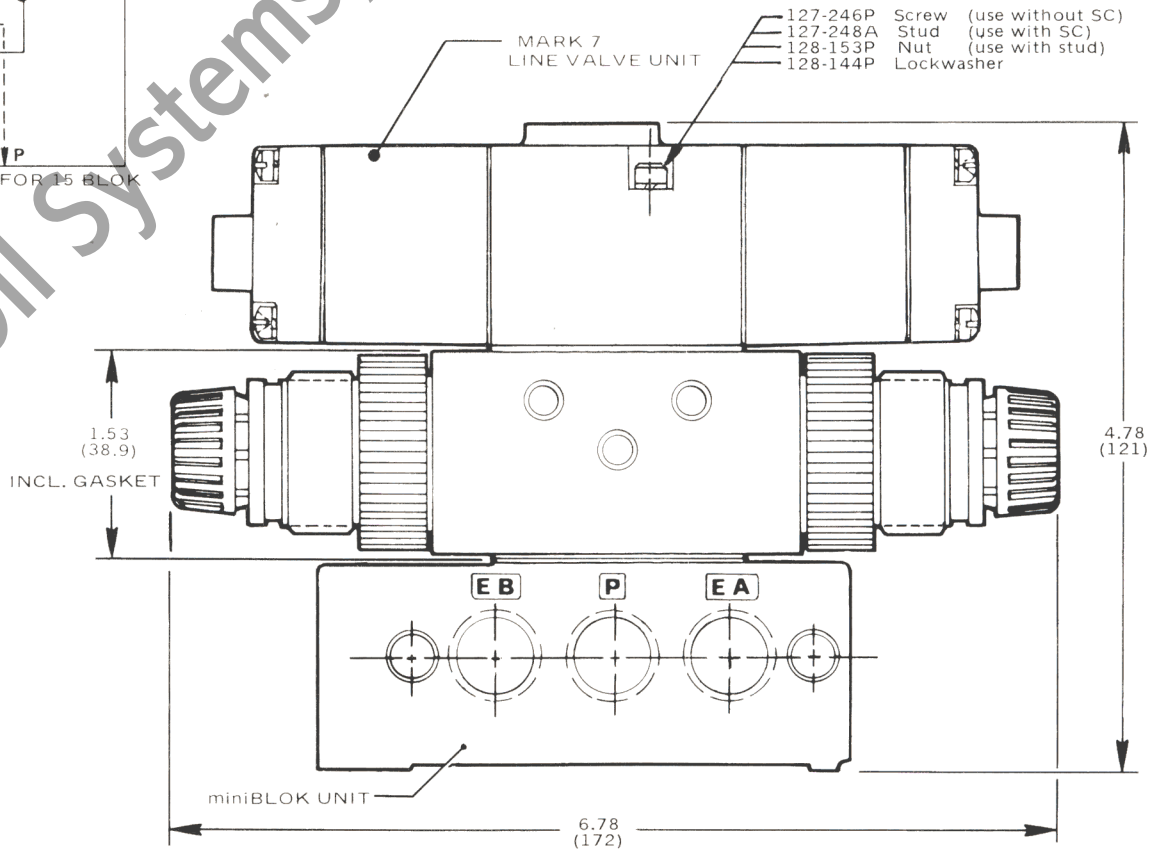
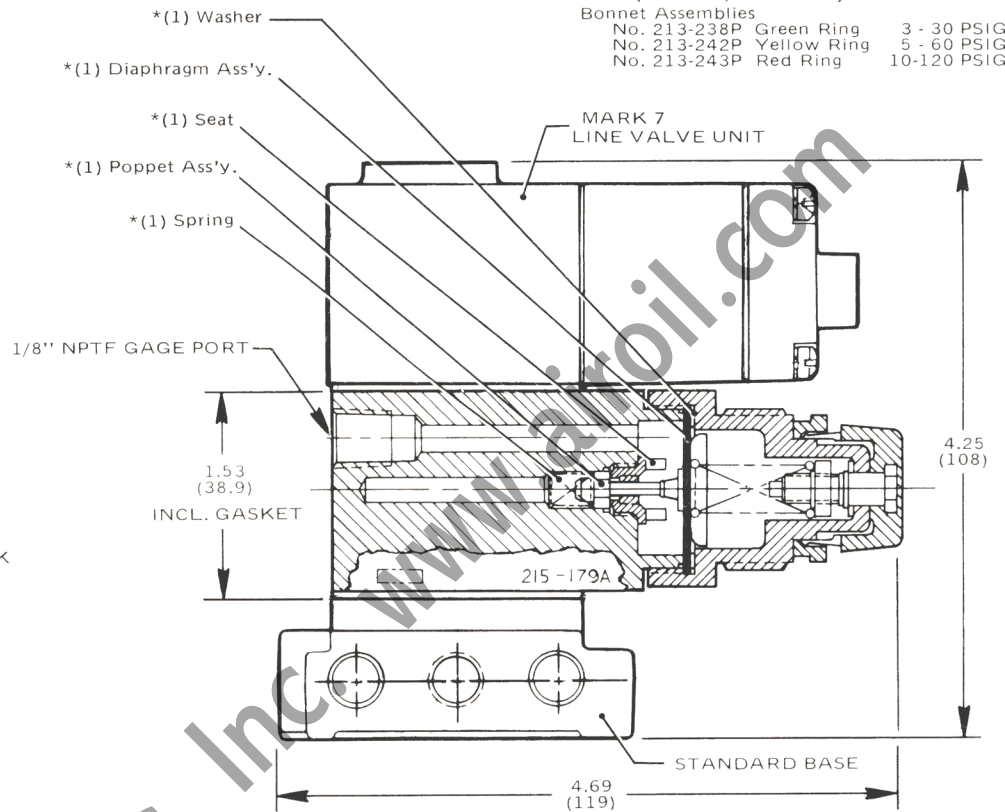
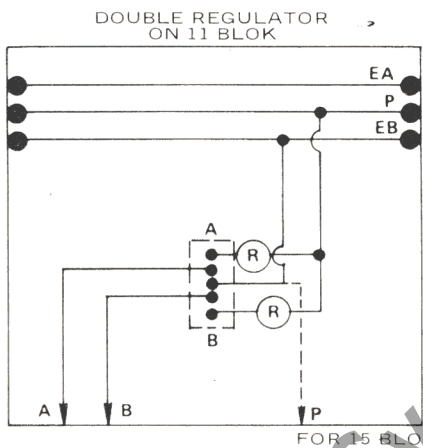
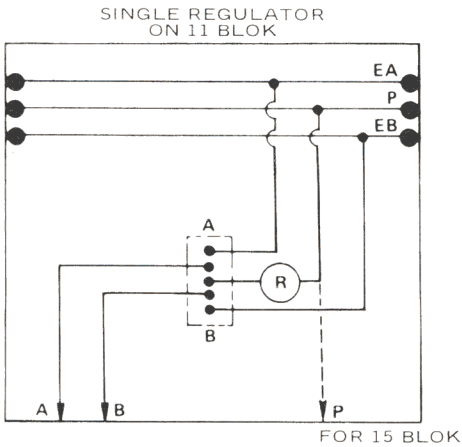
PRESSURE REGULATORS DIMENSIONS AND PARTS

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numatics
MK. 7 LINE

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

*Regulator Repair Kit No. 229-102P
(includes parts with *)

Bonnet Assemblies		
No. 213-238P	Green Ring	3 - 30 PSIG
No. 213-242P	Yellow Ring	5 - 60 PSIG
No. 213-243P	Red Ring	10-120 PSIG



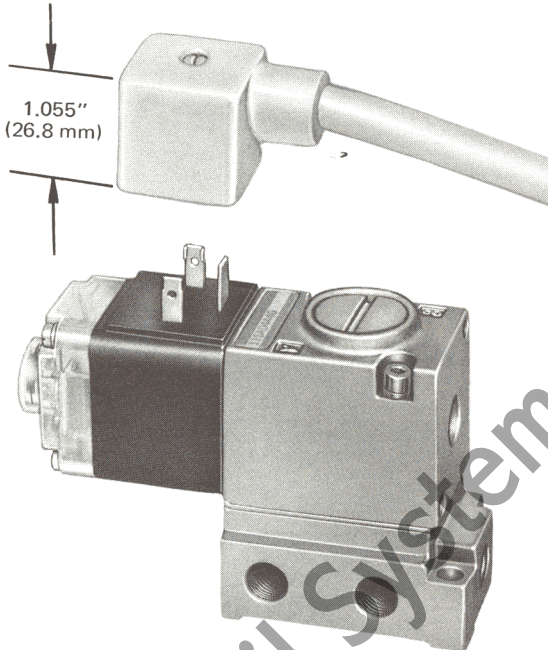
OPTIONAL PLUG-IN SOLENOID

The solenoid has two horseshoe-shaped prongs which provide the line connections to the solenoid, and a single flat spade prong which grounds the solenoid through the cable assembly when it is properly terminated. The mating plug/cord assembly has two horseshoe receptacles and two flat receptacles. The two opposite, flat receptacles are connected together and to the green ground wire. This plug arrangement allows it to be reversed 180° on the solenoid and also prevents incorrect installation at 90° positions.

The cord, which is molded to the PVC receptacle assembly is of type STO, yellow jacketed, 3-conductor, 18 AWG wire. The assembly is available with either four or six feet of cord. The molded receptacle has a raised resilient lip which provides a splash resistant connection without the need of a gasket. It is secured to the solenoid by a single captive screw. The plug/cord assemblies must be ordered separately:

4' cord, No. 230-213A

6' cord, No. 230-215A



SOLENOID OVERRIDE ASSEMBLIES		
DESCRIPTION	PART NUMBER	OPTION NUMBER
Standard, Plastic	204-149A	—
Pipe Plug, Aluminum	204-171A	11A
Flush Locking, Aluminum	204-200A	11B
Flush Non-locking, Aluminum	204-172A	11J
Extended Button, Non-locking, Aluminum	204-203A	11Y
Extended, Knurled Rod, Locking, Aluminum	204-201A	11Z

48" SOLENOID LEADS

Optional 48" solenoid leads are available for both A.C. and D.C. solenoids. The standard lead length is 15".

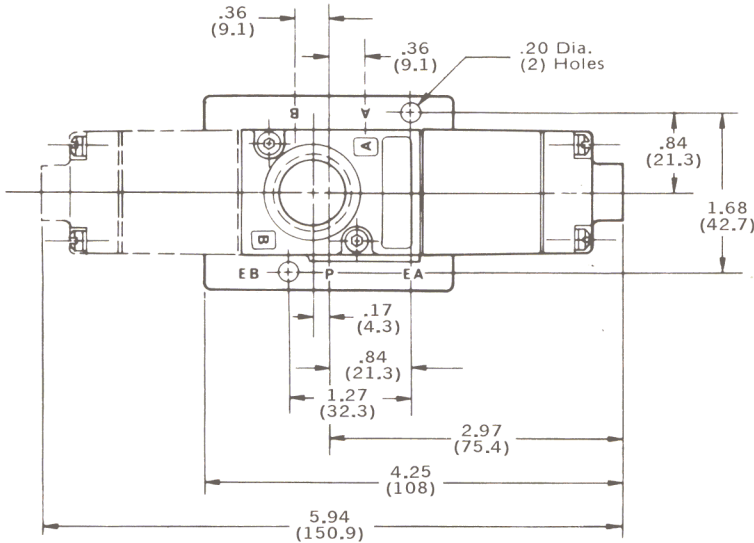
To order, add O13A to any model number.

SOLENOID CAPSULE ASSEMBLIES (Includes Plastic, Flush Non-locking Override Cap, Screws, and Gaskets)						
Solenoid Type	Valve Action	100-115/50 110-120/60	200-230/50 220-240/60	VOLTAGE		
				24/50-60	12 VDC	24 VDC
15" Leads	2-Position	227-833B	227-892B	227-891B	226-271B	226-272B
	3-Position	237-289B	237-290B	237-291B	226-486B	226-487B
Plug in	2-Position	237-214B	237-215B	237-216B	226-410B	226-411B
	3-Position	237-293B	237-294B	237-295B	226-489B	226-490B

Optional aluminum solenoid caps are available - Consult Factory.

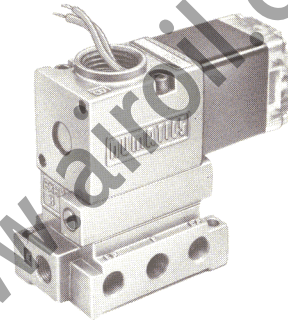
OPTIONS

OPTIONAL 1/4 NPTF BASE



SPEED CONTROL

The MARK 7 Speed Control Kit mounts between any MARK 7 Line valve and any base or miniBLOK mounting means. The EB and EA ports of this unit contain needle valves which can be adjusted to throttle the flow of exhaust air out the valve unit. Thus, the speeds of the two strokes of a cylinder piston can be adjusted independently. The needle valves are vibration-proof, nylon locking units. The kit adds .59" (15.0 mm) to the overall height of any assembly.



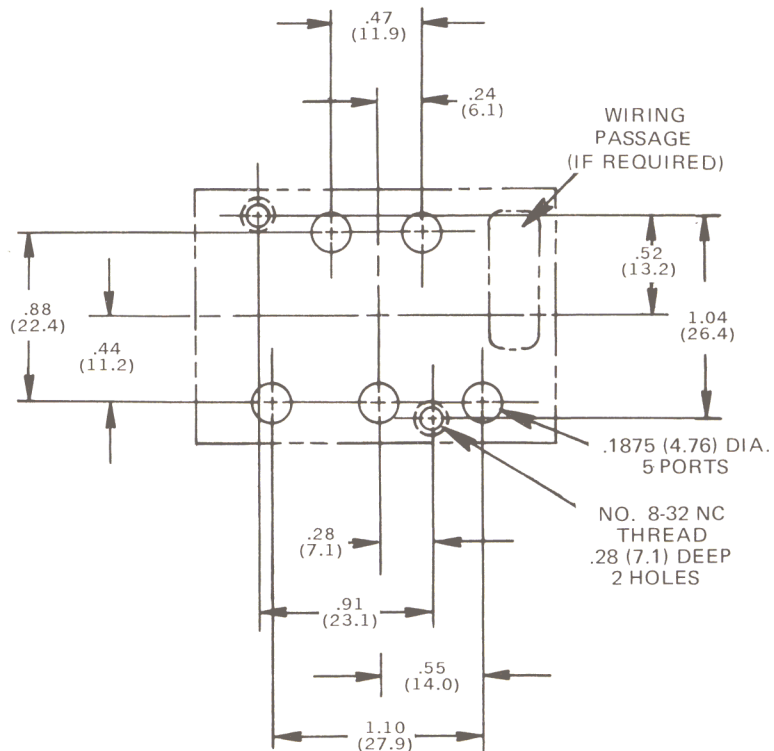
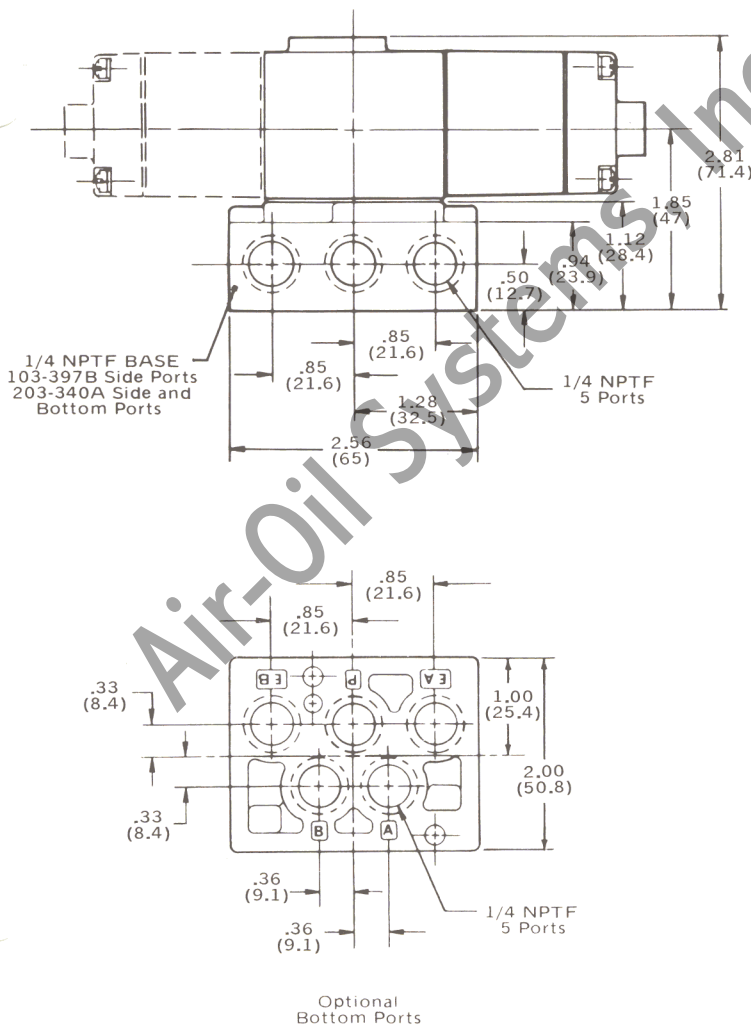
- Includes**
- (1) 113-175A Gasket
 - (2) 127-212A Screw Ass'y.

SPEED CONTROL KIT

229-310A

MOUNTING PATTERN FOR MARK 7 VALVES

There may be occasions when MARK 7 valves must be mounted on other than Numatics bases or manifolds. The drawing below locates the mounting holes and ports required for each valve.



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

TOP VIEW OF
 MOUNTING SURFACE
 (ACTUAL SIZE)

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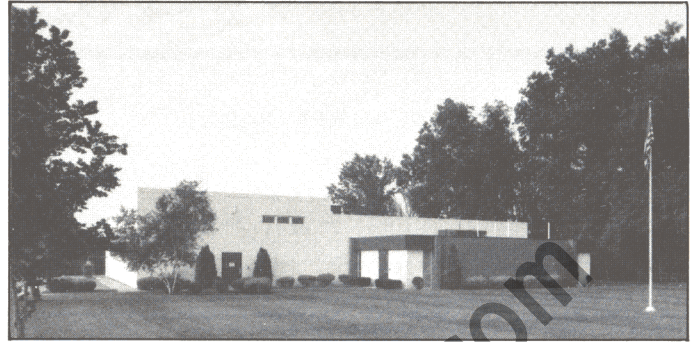
NUMATICS®

1450 N. MILFORD ROAD, HIGHLAND, MICHIGAN 48031

PHONE: (313) 887-4111 · TELEX: 297772 NIHD UR · FAX: (313) 887-9190



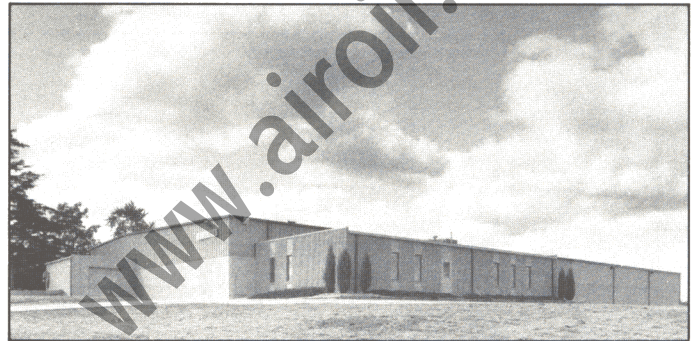
Main Plant - Highland, Michigan U.S.A.



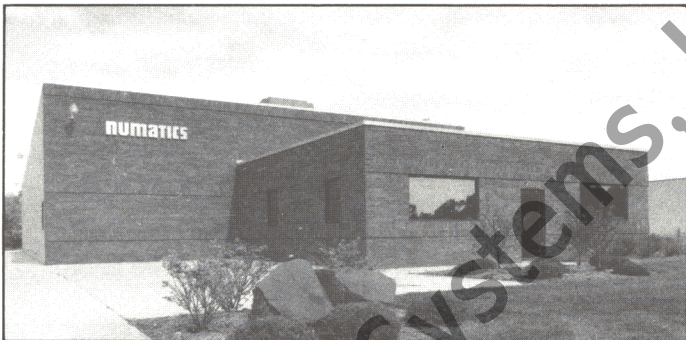
East Highland, Michigan



Sandusky, Michigan



Owosso, Michigan



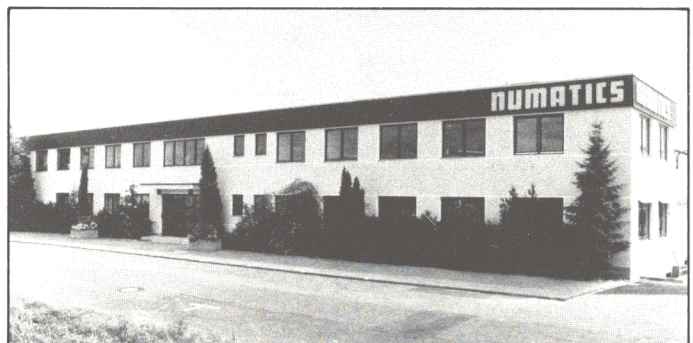
Wixom, Michigan



Angola, Indiana



London, Ontario, Canada



St. Augustin-Menden, West Germany

FOREIGN SUBSIDIARY

Canada:
NUMATICS LTD.
363 Sovereign Road
London, Ontario, Canada N6M 1A3
Phone: (519) 452-1777 · Telex: 064-7505
FAX: 519-452-3995

FOREIGN SUBSIDIARY

England:
NUMATICS LIMITED
P.O. Box 18
Leighton Buzzard, Beds
England LU7 7DJ
Phone: 0526 370735 · Telex: 826978
FAX: 0525 382567

FOREIGN SUBSIDIARY

Europe:
NUMATICS GmbH
Otto von Guericke Str. 13
5205 St. Augustin 3
West Germany
Phone: (02241) 311064, -065, -066, -067, -068, -069
Telex: 889-645 FAX: 02241 31 33 73

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