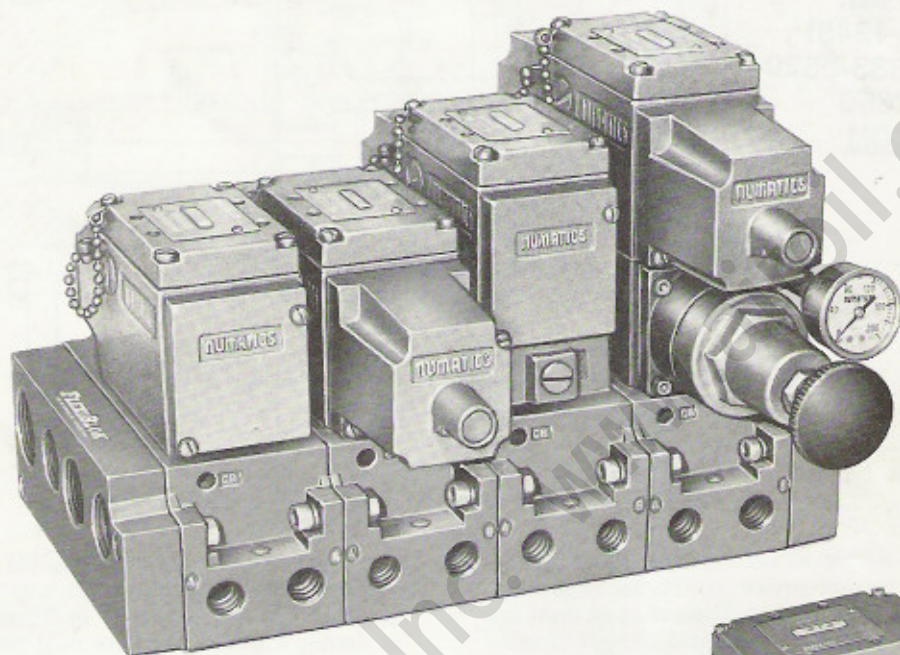
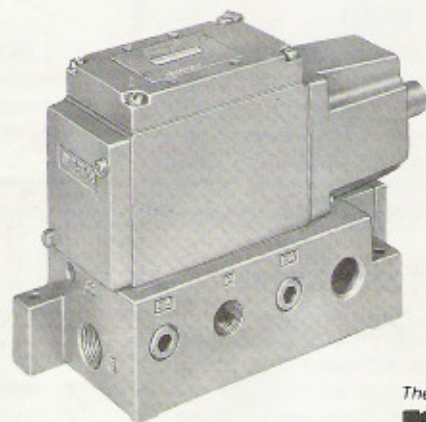
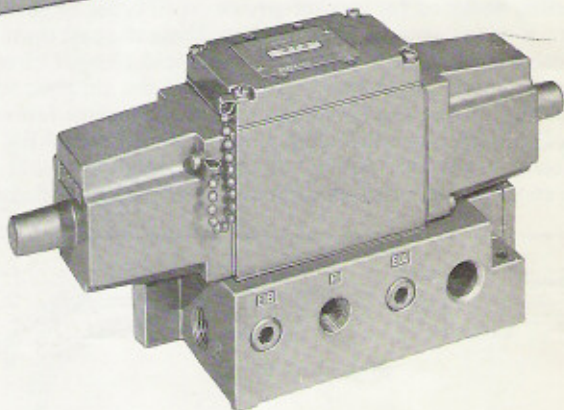


# MARK 40<sup>TM</sup> LINE

A HIGH FLOW, 3/8", 1/2" AND 3/4" TAPPED, DIRECT SOLENOID ACTUATED, MULTI-PURPOSE VALVE SERIES



AIR-OIL SYSTEMS  
753 WAMBOLD RD.  
MAINLAND, PA 19451  
PHONE: 800-333-5520  
FAX: 215-721-7666  
[WWW.AIROIL.COM](http://WWW.AIROIL.COM)



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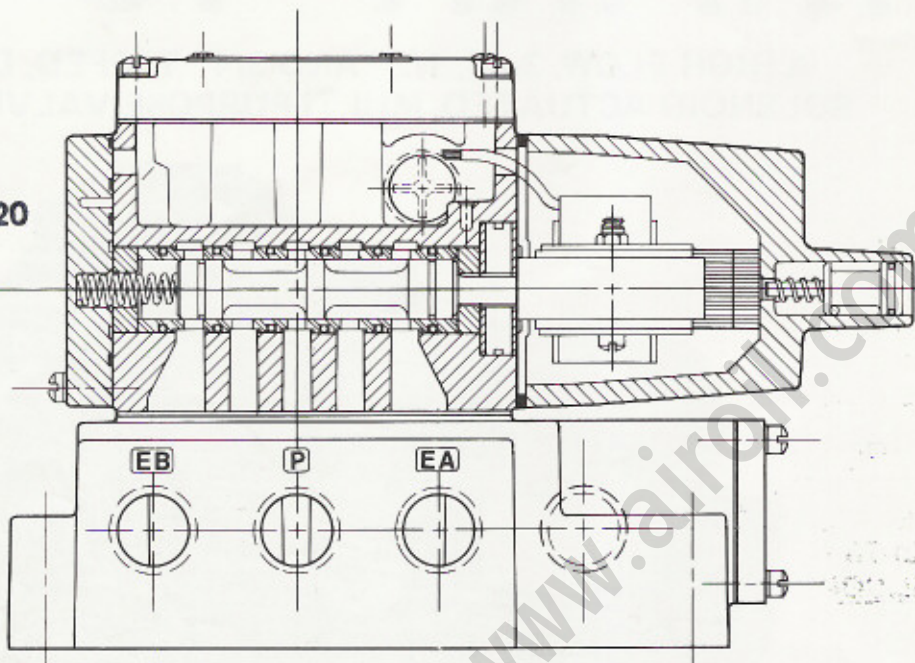
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The air valve people - worldwide

**NUMATICS**<sup>®</sup>  
INCORPORATED  
HIGHLAND, MICHIGAN 48031

# MARK 40 LINE

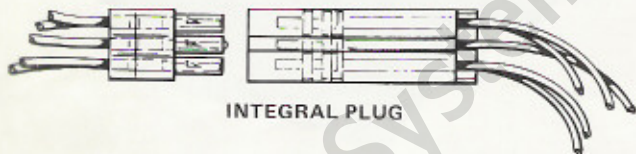
**AIR-OIL SYSTEMS**  
 753 WAMBOLD RD.  
 MAINLAND, PA 19451  
 PHONE: 800-333-5520  
 FAX: 215-721-7666  
 WWW.AIROIL.COM



Numatics MARK 40 Line air valves are high speed, heavy duty units, designed for general service on all types of automation, for a wide range of air cylinders. These die cast units are direct solenoid actuated; that is, the solenoid plunger directly actuates the main spool valve. The result is the simplest valve construction on the market today. MARK 40 valves follow in the tradition of Numatics' JSA Line and smaller MARK 10 Line valves. They are quality air valves, precision built for rugged service, and offer all the advanced design features of

other Numatics valves, including the famous, patented, lapped spool and sleeve. Universal die cast construction permits one body unit to be used for 2- or 3-position 4-way valves, single or double solenoid, single or dual pressure, used any way you can pipe 5 working ports, with service from high vacuum to 300 PSIG.

Sound design permits a number of porting and wiring options in the same unit which, in turn, offer ease in piping and subsequent change in machine application. The MARK 40 Line offers, in a complete family of valves and manifolds, the same durability and performance evident in all Numatics air valves. They will give reliable and troublefree service far exceeding industrial standards of design and performance.

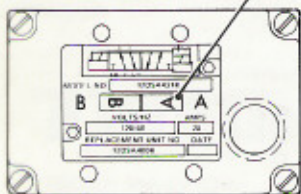


INTEGRAL PLUG

## ELECTRICAL PLUG AND PILOT LIGHT

A plug-in base with either single or double light located in the valve unit conduit cover is available. The unit to base electrical plug permits instant valve unit replacement without disconnecting piping or wiring. The integral plugs grounded, shrouded, polarized and arc-containing design meets JIC, NEMA, CSA, UL, automotive and machinery builders' standards. MARK 40 valves are CSA approved. (See pages MK40-21/22).

PILOT LIGHT



When illuminated, the light indicates that power is being supplied to the valve. Low power draw, low heat generation, and long burning life are featured in a splashproof housing.

## SOLENOID DESIGN

The unique, patented capsule construction feature of Numatics solenoid valves permits rapid valve disassembly WITHOUT LOOSE PARTS! The solenoid is mounted in the cover, and the entire electrical capsule is removed by loosening two captive screws. This complies with JIC requirements by rendering the valve electrically inoperative when the capsule is removed.



## LAPPED SPOOL AND SLEEVE

Numatics MARK 40 valves employ the famous, patented, lapped spool and floating sleeve principle for most reliable operation and longest service life. Each MARK 40 valve has its own matched set spool and sleeve, precision machined to millionths of an inch, eliminating always troublesome dynamic o-ring seals.

## BASIC VALVE COMPONENTS & CONSTRUCTION FEATURES

The air valve people—worldwide

# numatics®

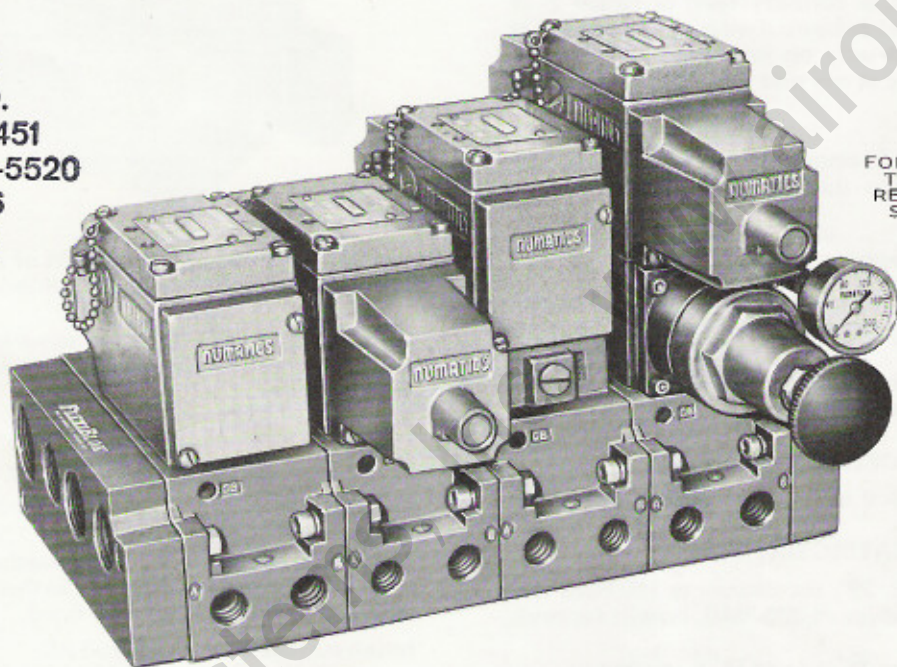
## MK. 40 LINE

### BASE OR MANIFOLD MOUNTING:

MARK 40 Line valves offer a choice of three base or manifold mounting means. The non plug-in base without electrical provision is side ported, individual exhaust; or side and bottom ported, individual exhaust. The new plug-in base offers an optional integral electrical plug which meets industry standards, and is available as a five ported individual or four ported common exhaust base. This base is not field convertible; therefore, individual or common exhausting must be specified on order as determined from the model selection charts. FlexiBlok manifolds permit assembly of MARK 40 Line valves

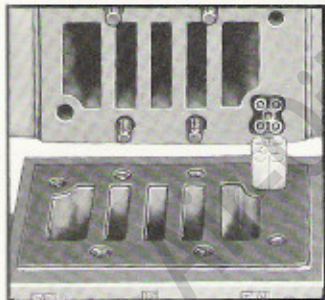
into "stations". This is particularly advantageous where a number of valves are used in the same installation. FlexiBlok manifolding offers major reductions in piping time and piping errors, less installation space, easy station-adding capability, and dramatic improvement in machine appearance. There are two basic "blocs", as illustrated on pages MK40-12-13, which allow for a range of piping options. Each blok will accommodate any of the MARK 40 Line valves. Stations are assembled with end plates.

**AIR-OIL SYSTEMS**  
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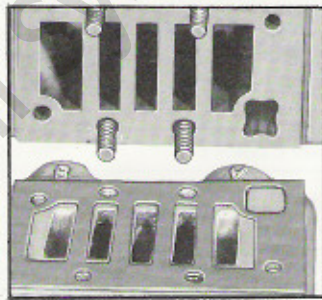


FOR COMPLETE DETAILS ON  
THE "SANDWICH" STYLE  
REGULATORS AVAILABLE,  
SEE PAGES MK40 - 16-19

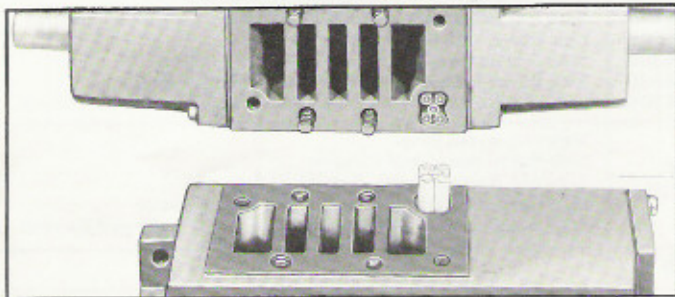
PLUG-IN BASE



NON PLUG-IN BASE

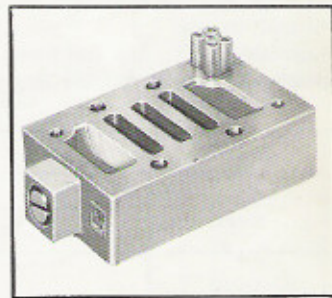


FLEXIBLOK MANIFOLDING



### SPEED CONTROL:

A metering device inserted between valve and base permits adjustment of cylinder speed by throttling the flow of exhaust air.



### DESIGN 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.

**SERIES 33SAD4**  
**3/8" 1/2" AND 3/4" TAPPED, J.I.C.**  
**SINGLE SOLENOID, SPRING RETURN**

**SPECIFICATIONS**

33SAD4 series valves are heavy duty, multi-purpose, 2-position, single solenoid operated, spring returned, 4-way air valves. They meet or exceed ALL JIC standards. 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 double acting air cylinders where part stroke stopping or inching of the cylinder is not required. They are true 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**

33SAD4 model valves mount in any position and are available with plug-in or non plug-in bases or FlexiBlok manifold (with or without speed control). Plug-in base is featured on these pages; non plug-in base is shown on page MK40-15. For FlexiBlok options, see pages MK40-12-14.

**OPTIONS**

For electrical and mechanical options, see pages MK40-20-23.

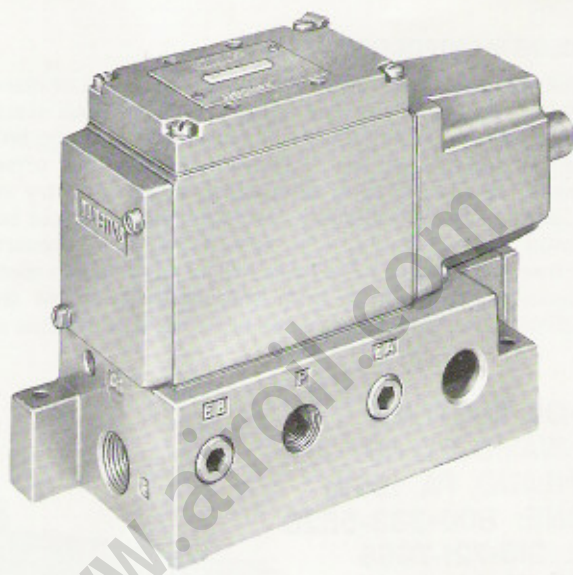
**OPERATING DATA**

**AIR PRESSURE RANGE:** 28" Hg. vacuum to 150 PSIG (for pressures over 150 to a maximum 300 PSIG, consult factory).

**TEMPERATURE RANGE:** -10°F to +115°F ambient.

**SERVICE:** Valves can be used on the following properly filtered media:

Lubricated air, dry (oil-free) air, vacuum, and noncorrosive, nontoxic, nonflammable dry gases. See Numatics' Engineer-



ing and Technical Data for a list of recommended lubricants and filtration requirements for unlubricated service.

**FLOW CAPACITY:** Mark 40 valves have a  $C_v$  as listed below. See Numatics' Engineering & Technical Data for complete flow chart.

33SAD4:	$C_v = 3.0$
34SAD4:	$C_v = 3.5$
35SAD4:	$C_v = 3.7$

**SOLENOIDS:** Standard AC voltages are a combined 115/50-120/60, 220/50 and 230/60. Special AC voltage 12 to 480, 50 or 60 hz., are available. DC solenoids are not available. See Options pages for further data and part numbers. Solenoids are continuous-duty rated.

Inrush current @:	115/50 AC	2.8 amps.
	120/60 AC	2.5 amps.
Holding current @:	115/50 AC	.36 amps.
	120/60 AC	.28 amps.
Time to energize, full shift		.018 secs.
Time to de-energize, full shift		.025 secs.
Max. cycle rate, continuous		350/min.

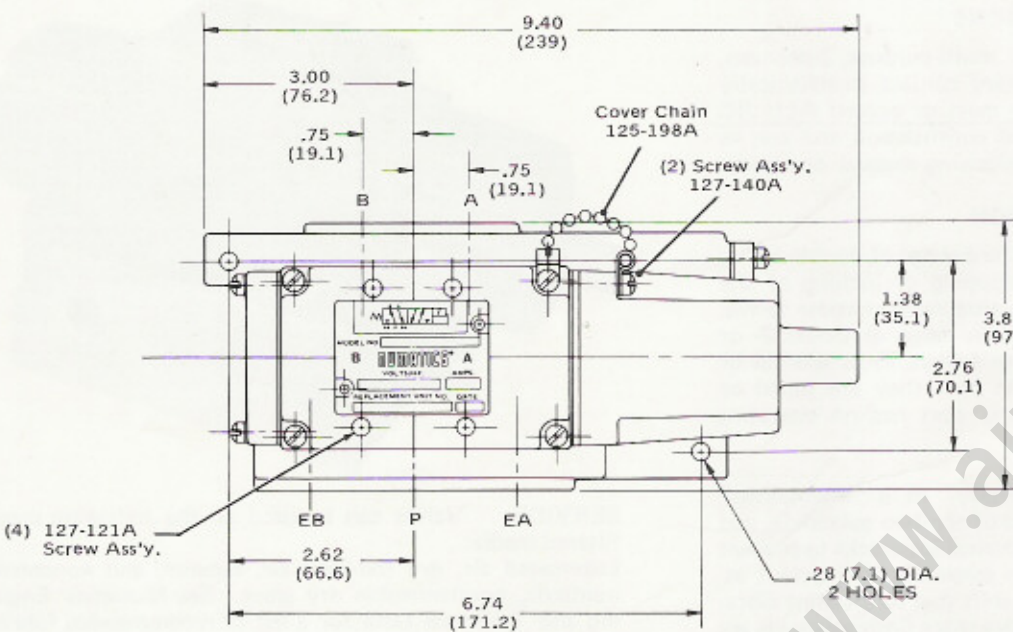
**MODEL SELECTION CHART**

VALVE TYPE	MODEL NUMBER				BASE DESCRIPTION
	1/4 NPTF	3/8 NPTF	1/2 NPTF	3/4 NPTF	
PLUG-IN BASE WITH LIGHT AND PLUG	NOT AVAILABLE	33SAD400K 33SAD431K 33SAD432K 33SAD435K 33SAD436K 33SAD43AK 33SAD43BK 33SAD43CK 33SAD43DK	34SAD431K 34SAD432K 34SAD435K 34SAD436K 34SAD43AK 34SAD43BK 34SAD43CK 34SAD43DK	35SAD431K 35SAD432K 35SAD435K 35SAD436K 35SAD43AK 35SAD43BK 35SAD43CK 35SAD43DK	Valve Unit with Light and Plug, No Base Side Ports, Common Exhaust Side and Bottom Ports, Common Exhaust Side Ports, Common Exhaust, w/Speed Control Side and Bottom Ports, Common Exhaust, w/Speed Control Side Ports, Individual Exhaust Side and Bottom Ports, Individual Exhaust Side Ports, Individual Exhaust, w/Speed Control Side and Bottom Ports, Individual Exhaust, w/Speed Control
NON PLUG-IN WITH HARDWIRED SOLENOID	32SAD4410 32SAD4430 32SAD4460 32SAD4480	33SAD4400 33SAD4410 33SAD4430 33SAD4460 33SAD4480	34SAD4410 34SAD4430 34SAD4460 34SAD4480	NOT AVAILABLE	Valve Unit, No Base Side Ports, Individual Exhaust Side and Bottom Ports, Individual Exhaust Side Ports, Individual Exhaust, w/Speed Control Side and Bottom Ports, Individual Exhaust, w/Speed Control

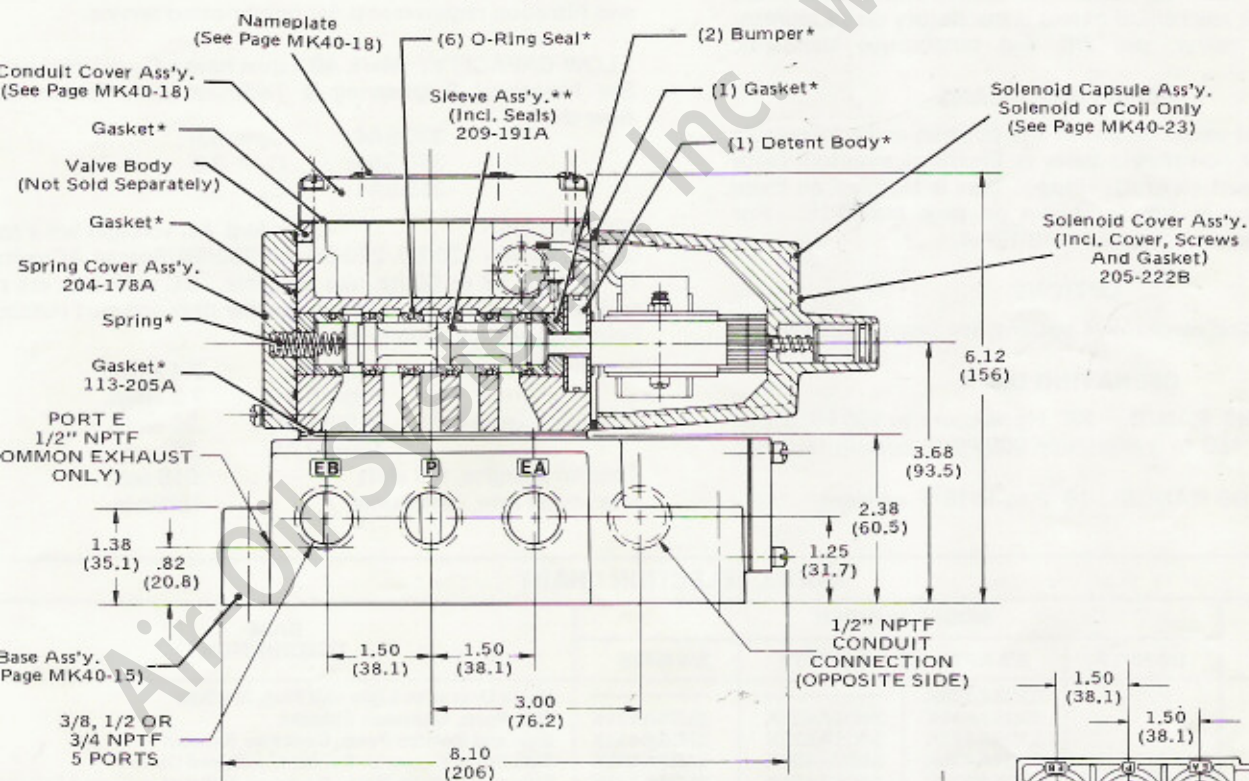
Specify Volts and Hz: 100-115/50; 110-120/60 or 200-220/50; 230-240/60



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

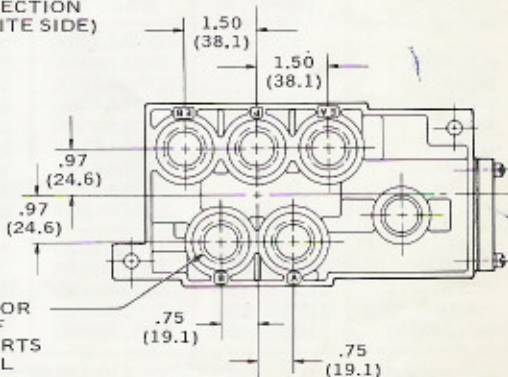


*335A 402K*  
*335A 400K-1*  
*127-240*



\*REPAIR KIT  
 NO. MK40-K1

(5) 3/8, 1/2 OR 3/4 NPTF  
 BOTTOM PORTS  
 OPTIONAL



BOTTOM PORT LOCATIONS

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

**SERIES 33DSA4**  
**3/8", 1/2" AND 3/4" TAPPED, J.I.C.**  
**DOUBLE SOLENOID, DETENTED**

**SPECIFICATIONS**

33DSA4 series valves are heavy duty, multi-purpose, 2-position, double solenoid operated, momentary contact (mechanically detented), 4-way air valves. They meet or exceed ALL JIC standards. They are of splashproof construction and are, as standard, fitted with recessed, nonlocking manual operators.

**APPLICATION**

These valves are used primarily for the control of double acting air cylinders where part stroke stopping or inching of the cylinder is not required. They are true 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**

33DSA4 model valves mount in any position and are available with plug-in or non plug-in bases or FlexiBlok manifold (with or without speed control). Plug-in base is featured on these pages; non plug-in base is shown on page MK40-15. For FlexiBlok options, see pages MK40-12-14.

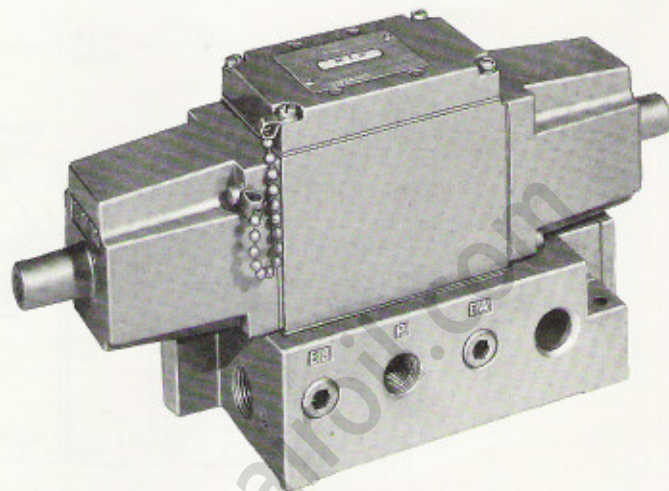
**OPTIONS**

For electrical and mechanical options, see pages MK40-20-23.

**OPERATING DATA**

**AIR PRESSURE RANGE:** 28" Hg. vacuum to 150 PSIG (for pressures over 150 to a maximum 300 PSIG, consult factory).

**TEMPERATURE RANGE:** -10°F to +115°F ambient.



**SERVICE:** Valves can be used on the following properly filtered media:  
 Lubricated air, dry (oil-free) air, vacuum, and noncorrosive, nontoxic, nonflammable dry gases. See Numatics' Engineering and Technical Data for a list of recommended lubricants and filtration requirements for unlubricated service.

**FLOW CAPACITY:** Mark 40 valves have a  $C_v$  as listed below. See Numatics' Engineering & Technical Data for complete flow chart.

33DSA4:	$C_v = 3.0$
34DSA4:	$C_v = 3.5$
35DSA4:	$C_v = 3.7$

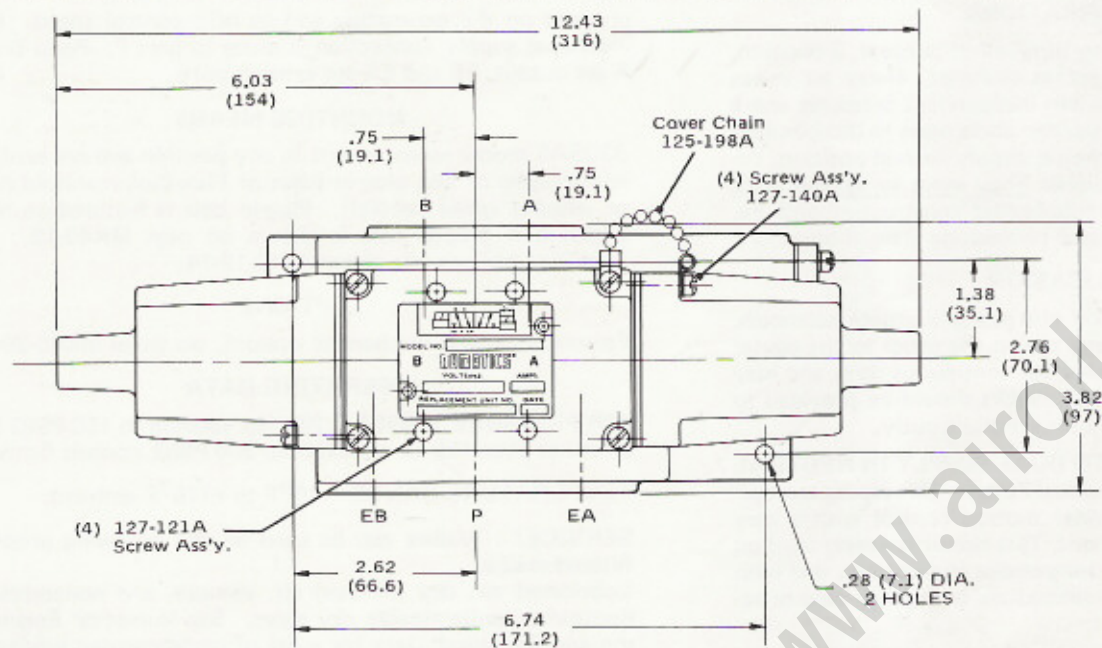
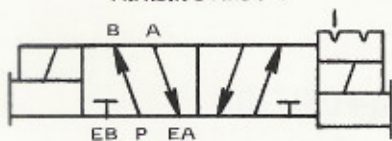
**SOLENOIDS:** Standard AC voltages are a combined 115/50 - 120/60, 220/50 and 230/60. Special AC voltage 12 to 480, 50 or 60 hz., are available. DC solenoids are not available. See Options pages for further data and part numbers. Solenoids are continuous-duty rated.

Inrush current @:	115/50 AC	2.4 amps.
	120/60 AC	2.3 amps.
Holding current @:	115/50 AC	.36 amps
	120/60 AC	.28 amps.
Time to energize, full shift		.018 secs.
Max. cycle rate, continuous		150/min.

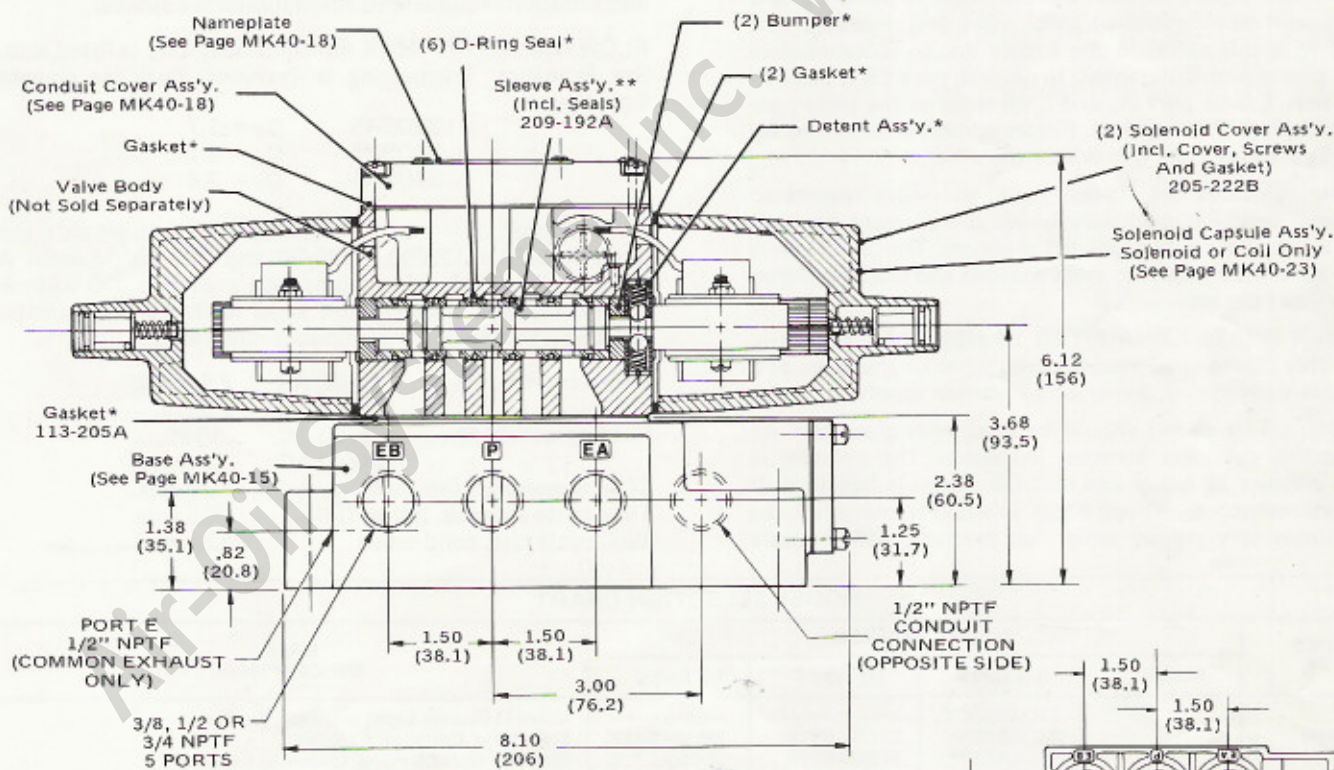
**MODEL SELECTION CHART**

VALVE TYPE	MODEL NUMBER				BASE DESCRIPTION
	1/4 NPTF	3/8 NPTF	1/2 NPTF	3/4 NPTF	
PLUG-IN BASE WITH LIGHT AND PLUG	NOT AVAILABLE	33DSA400K 33DSA431K 33DSA432K 33DSA435K 33DSA436K 33DSA43AK 33DSA43BK 33DSA43CK 33DSA43DK	34DSA431K 34DSA432K 34DSA435K 34DSA436K 34DSA43AK 34DSA43BK 34DSA43CK 34DSA43DK	35DSA431K 35DSA432K 35DSA435K 35DSA436K 35DSA43AK 35DSA43BK 35DSA43CK 35DSA43DK	Valve Unit with Light and Plug, No Base Side Ports, Common Exhaust Side and Bottom Ports, Common Exhaust Side Ports, Common Exhaust, w/Speed Control Side and Bottom Ports, Common Exhaust, w/Speed Control Side Ports, Individual Exhaust Side and Bottom Ports, Individual Exhaust Side Ports, Individual Exhaust, w/Speed Control Side and Bottom Ports, Individual Exhaust, w/Speed Control
NON PLUG-IN WITH HARDWIRED SOLENOID	32DSA4410 32DSA4430 32DSA4460 32DSA4480	33DSA4000 33DSA4410 33DSA4430 33DSA4460 33DSA4480	34DSA4410 34DSA4430 34DSA4460 34DSA4480	NOT AVAILABLE	Valve Unit, No Base Side Ports, Individual Exhaust Side and Bottom Ports, Individual Exhaust Side Ports, Individual Exhaust, w/Speed Control Side and Bottom Ports, Individual Exhaust, w/Speed Control

Specify Volts and Hz: 100-115/50; 110-120/60 or 200-220/50; 230-240/60



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



Gasket\*  
 113-205A

Base Ass'y.  
 (See Page MK40-15)

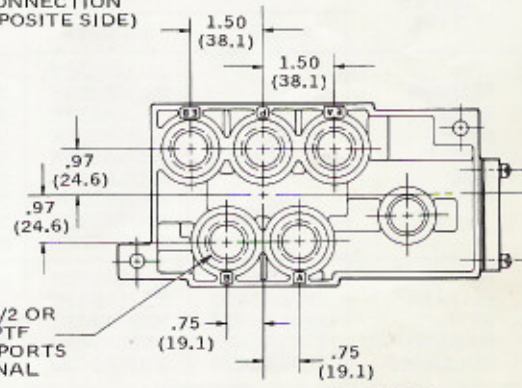
PORT E  
 1/2" NPTF  
 (COMMON EXHAUST  
 ONLY)

3/8, 1/2 OR  
 3/4 NPTF  
 5 PORTS

\*REPAIR KIT  
 NO. MK40-K2

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

(5) 3/8, 1/2 OR  
 3/4 NPTF  
 BOTTOM PORTS  
 OPTIONAL



BOTTOM PORT LOCATIONS





**SERIES 33DSA6**  
**3/8", 1/2" AND 3/4" TAPPED, J.I.C.**  
**DOUBLE SOLENOID, SPRING CENTERED, 3-POSITION**

**SPECIFICATIONS**

33DSA6 series valves are heavy duty, multi-purpose, 3-position, double solenoid operated, spring centered, 4-way air valves with all ports blocked in mid-position. They meet or exceed ALL JIC standards. They are of splashproof construction and are, as standard, fitted with recessed, nonlocking manual operators.

**APPLICATION**

These valves are used primarily for the control of double acting air cylinders when the cylinder must be inched or held in a mid-position for a short period of time. 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, 33DSA5 model valves piped for dual pressure should be used (see page MK 40-8). 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**

33DSA6 model valves mount in any position and are available with plug-in or non plug-in bases or FlexiBlok manifold (with or without speed control). Plug-in base is featured on these pages; non plug-in base is shown on page MK40-15. For FlexiBlok options, see pages MK40-12-14.

**OPTIONS**

For electrical and mechanical options, see pages MK40-20-23.

**OPERATING DATA**

**AIR PRESSURE RANGE:** 28" Hg. vacuum to 150 PSIG (for pressures over 150 to a maximum 300 PSIG, consult factory).

**TEMPERATURE RANGE:** -10°F to +115°F ambient.

**SERVICE:** Valves can be used on the following properly filtered media:

Lubricated air, dry (oil-free) air, vacuum, and noncorrosive, nontoxic, nonflammable dry gases. See Numatics' Engineering and Technical Data for a list of recommended lubricants and filtration requirements for unlubricated service.

**FLOW CAPACITY:** Mark 40 valves have a C<sub>v</sub> as listed below. See Numatics' Engineering & Technical Data for complete flow chart.

33DSA6:	C <sub>v</sub> = 3.0
34DSA6:	C <sub>v</sub> = 3.5
35DSA6:	C <sub>v</sub> = 3.7

**SOLENOIDS:** Standard AC voltages are a combined 115/50 - 120/60, 220/50 and 230/60. Special AC voltage 12 to 480, 50 or 60 hz., are available. DC solenoids are not available. See Options pages for further data and part numbers. Solenoids are continuous-duty rated.

Inrush current @:	115/50 AC	2.4 amps.
	120/60 AC	2.3 amps.
Holding current @:	115/50 AC	.36 amps.
	120/60 AC	.28 amps.
Time to energize, full shift		.020 secs.
Time to de-energize, full shift		.025 secs.
Max. cycle rate, continuous		120/min.

**MODEL SELECTION CHART**

VALVE TYPE	MODEL NUMBER				BASE DESCRIPTION
	1/4 NPTF	3/8 NPTF	1/2 NPTF	3/4 NPTF	
PLUG-IN BASE WITH LIGHT AND PLUG	NOT AVAILABLE	33DSA600K 33DSA631K 33DSA632K 33DSA635K 33DSA636K 33DSA63AK 33DSA63BK 33DSA63CK 33DSA63DK	34DSA631K 34DSA632K 34DSA635K 34DSA636K 34DSA63AK 34DSA63BK 34DSA63CK 34DSA63DK	35DSA631K 35DSA632K 35DSA635K 35DSA636K 35DSA63AK 35DSA63BK 35DSA63CK 35DSA63DK	Valve Unit with Light and Plug, No Base Side Ports, Common Exhaust Side and Bottom Ports, Common Exhaust Side Ports, Common Exhaust, w/Speed Control Side and Bottom Ports, Common Exhaust, w/Speed Control Side Ports, Individual Exhaust Side and Bottom Ports, Individual Exhaust Side Ports, Individual Exhaust, w/Speed Control Side and Bottom Ports, Individual Exhaust, w/Speed Control
NON PLUG-IN WITH HARDWIRED SOLENOID	32DSA6410 32DSA6430 32DSA6460 32DSA6480	33DSA6000 33DSA6410 33DSA6430 33DSA6460 33DSA6480	34DSA6410 34DSA6430 34DSA6460 34DSA6480	NOT AVAILABLE	Valve Unit, No Base Side Ports, Individual Exhaust Side and Bottom Ports, Individual Exhaust Side Ports, Individual Exhaust, w/Speed Control Side and Bottom Ports, Individual Exhaust, w/Speed Control

Specify Volts and Hz: 100-115/50; 110-120/60 or 200-220/50; 230-240/60

**SERIES 33DSA6**  
**3/8", 1/2" AND 3/4" TAPPED, J.I.C.**  
**DOUBLE SOLENOID, SPRING CENTERED, 3-POSITION**

**SPECIFICATIONS**

33DSA6 series valves are heavy duty, multi-purpose, 3-position, double solenoid operated, spring centered, 4-way air valves with all ports blocked in mid-position. They meet or exceed ALL JIC standards. They are of splashproof construction and are, as standard, fitted with recessed, nonlocking manual operators.

**APPLICATION**

These valves are used primarily for the control of double acting air cylinders when the cylinder must be inched or held in a mid-position for a short period of time. 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, 33DSA5 model valves piped for dual pressure should be used (see page MK 40-8). 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**

33DSA6 model valves mount in any position and are available with plug-in or non plug-in bases or FlexiBlok manifold (with or without speed control). Plug-in base is featured on these pages; non plug-in base is shown on page MK40-15. For FlexiBlok options, see pages MK40-12-14.

**OPTIONS**

For electrical and mechanical options, see pages MK40-20-23.

**OPERATING DATA**

**AIR PRESSURE RANGE:** 28" Hg. vacuum to 150 PSIG (for pressures over 150 to a maximum 300 PSIG, consult factory).

**TEMPERATURE RANGE:** -10°F to +115°F ambient.

**SERVICE:** Valves can be used on the following properly filtered media:

Lubricated air, dry (oil-free) air, vacuum, and noncorrosive, nontoxic, nonflammable dry gases. See Numatics' Engineering and Technical Data for a list of recommended lubricants and filtration requirements for unlubricated service.

**FLOW CAPACITY:** Mark 40 valves have a  $C_v$  as listed below. See Numatics' Engineering & Technical Data for complete flow chart.

33DSA6:	$C_v = 3.0$
34DSA6:	$C_v = 3.5$
35DSA6:	$C_v = 3.7$

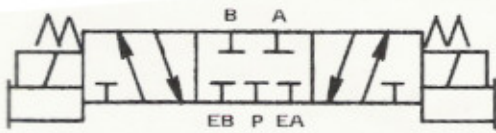
**SOLENOIDS:** Standard AC voltages are a combined 115/50 - 120/60, 220/50 and 230/60. Special AC voltage 12 to 480, 50 or 60 Hz., are available. DC solenoids are not available. See Options pages for further data and part numbers. Solenoids are continuous-duty rated.

Inrush current @:	115/50 AC	2.4 amps.
	120/60 AC	2.3 amps.
Holding current @:	115/50 AC	.36 amps.
	120/60 AC	.28 amps.
Time to energize, full shift		.020 secs.
Time to de-energize, full shift		.025 secs.
Max. cycle rate, continuous		120/min.

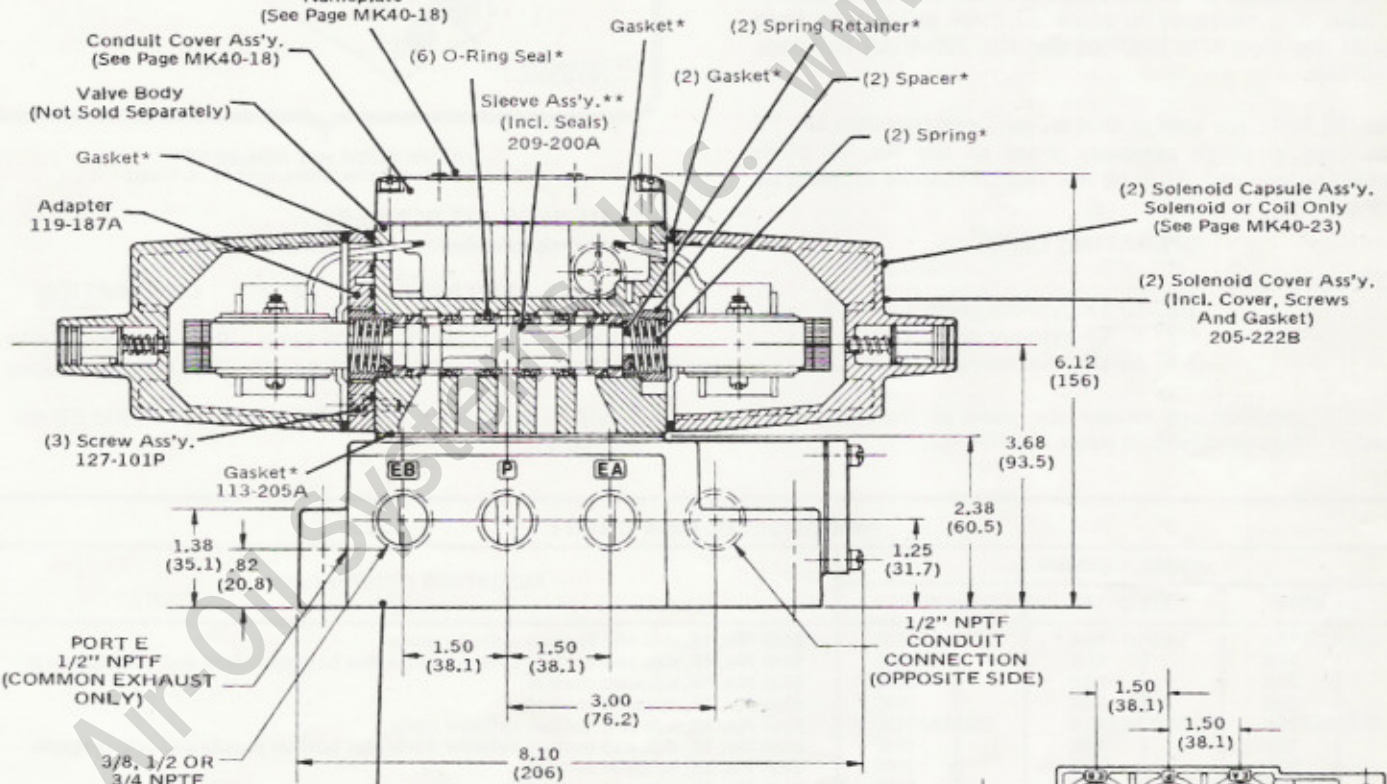
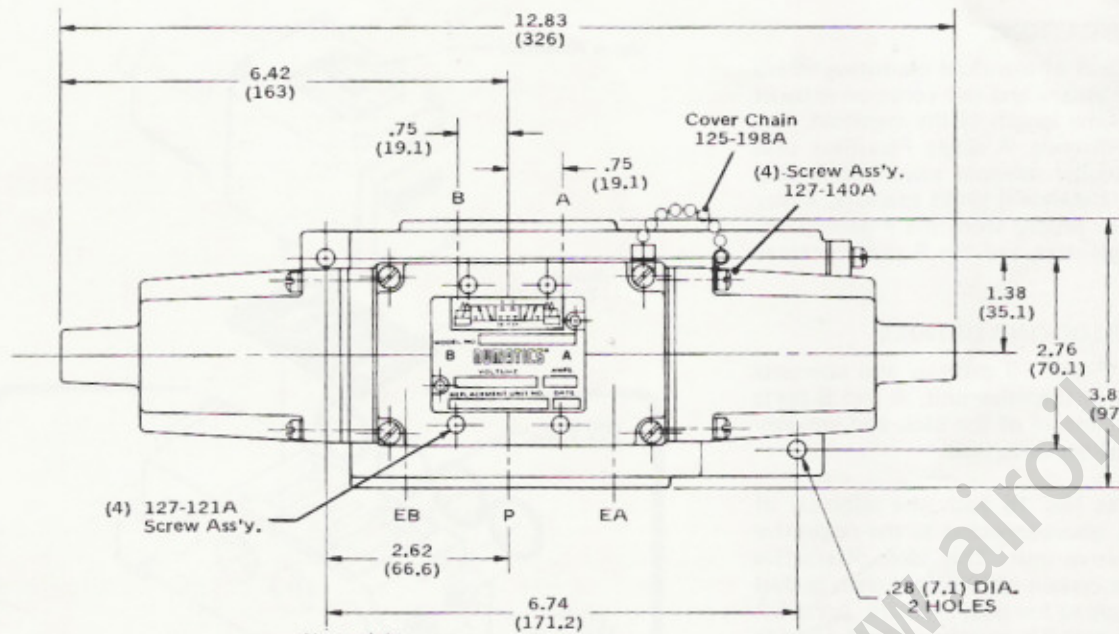
**MODEL SELECTION CHART**

VALVE TYPE	MODEL NUMBER				BASE DESCRIPTION
	1/4 NPTF	3/8 NPTF	1/2 NPTF	3/4 NPTF	
PLUG-IN BASE WITH LIGHT AND PLUG	NOT AVAILABLE	33DSA600K 33DSA631K 33DSA632K 33DSA635K 33DSA636K 33DSA63AK 33DSA63BK 33DSA63CK 33DSA63DK	34DSA631K 34DSA632K 34DSA635K 34DSA636K 34DSA63AK 34DSA63BK 34DSA63CK 34DSA63DK	35DSA631K 35DSA632K 35DSA635K 35DSA636K 35DSA63AK 35DSA63BK 35DSA63CK 35DSA63DK	Valve Unit with Light and Plug, No Base Side Ports, Common Exhaust Side and Bottom Ports, Common Exhaust Side Ports, Common Exhaust, w/Speed Control Side and Bottom Ports, Common Exhaust, w/Speed Control Side Ports, Individual Exhaust Side and Bottom Ports, Individual Exhaust Side Ports, Individual Exhaust, w/Speed Control Side and Bottom Ports, Individual Exhaust, w/Speed Control
NON PLUG-IN WITH HARDWIRED SOLENOID	32DSA6410 32DSA6430 32DSA6460 32DSA6480	33DSA6000 33DSA6410 33DSA6430 33DSA6460 33DSA6480	34DSA6410 34DSA6430 34DSA6460 34DSA6480	NOT AVAILABLE	Valve Unit, No Base Side Ports, Individual Exhaust Side and Bottom Ports, Individual Exhaust Side Ports, Individual Exhaust, w/Speed Control Side and Bottom Ports, Individual Exhaust, w/Speed Control

Specify Volts and Hz: 100-115/50; 110-120/60 or 200-220/50; 230-240/60



Top Dimension = Inc  
Bottom Dimension  
(In Parentheses) = Mll

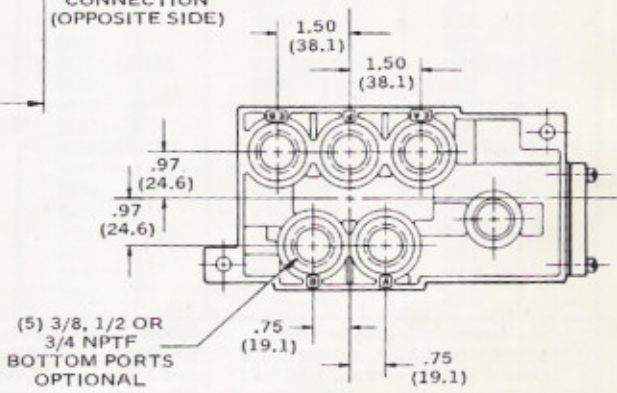


PORT E  
1/2" NPTF  
(COMMON EXHAUST  
ONLY)

Base Ass'y.  
(See Page MK40-15)

\*REPAIR KIT  
NO. MK40-K3

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



BOTTOM PORT LOCATIONS

**SPECIFICATIONS**

FlexiBlok 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 FlexiBlok 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.

**PORTING AND BLOCKING DETAILS**

Blok No. 15 provides EA, P and EB galleries and connects them to corresponding ports of the valve unit. A and B ports located in the "B" side and bottom of the blok and are connected to the A and B ports of the valve unit.

Blok No. 19 is the same as No. 15 with the addition of bottom EA, P and EB ports, also connected to the respective galleries and ports of the valve unit. This blok offers five individual ports, required for certain applications such as dual pressure. When the valve is piped for dual pressure, ports EA and EB are supply ports and port P is an exhaust port. Used in this way, it is necessary to block all three galleries on both sides of the blok with blocking disc No. 229-453A (see page MK40-14).

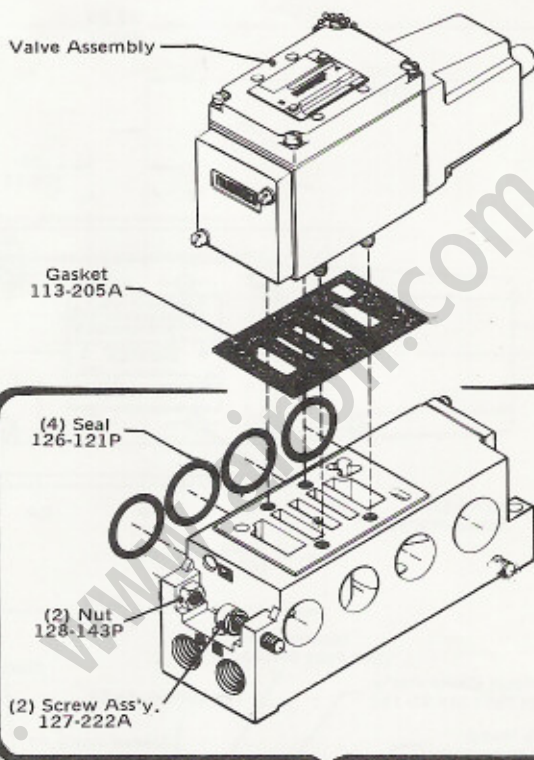
If No. 19 bloks are used as dual pressure together with No. 15 bloks used as single pressure, group all the No. 19 bloks together on one end. Then all No. 15 bloks can be supplied by one P gallery.

**OPERATING DATA**

**FLOW CAPACITY:**

- 3/8" NPTF cylinder ports,  $C_v = 3.5$
- 1/2" NPTF cylinder ports,  $C_v = 4.0$
- 3/4" NPTF cylinder ports,  $C_v = 4.0$

All other specifications remain the same as individual base mounted valves described on pages MK40-4-11.



**VALVE BLOK KIT NUMBERS**  
 (Includes Receptacle, Seals, Screws, & Nuts)

**VALVE BLOK KIT NUMBERS**  
 (For use when ordering separate valve bloks.)

3/8" NPTF	1/2" NPTF	3/4" NPTF	DESCRIPTION
229-365B	229-369B	229-436B	Blok No. 15 - Plug-In
229-367B	229-371B	229-444B*	Blok No. 19 - Plug-In

\*Only A & B ports are 3/4" NPTF; ports P, EA, and EB are 1/2" NPTF.

**MODEL SELECTION CHART**

MODEL NUMBER			MOUNTING DESCRIPTION
3/8 NPTF	1/2 NPTF	3/4 NPTF*	
33SAD415K	34SAD415K	35SAD415K	Blok No. 15, side and bottom cylinder ports
↓	↓	↓	Blok No. 19, side and bottom cylinder ports plus bottom supply and exhaust ports
19K	19K	19K	Blok No. 19, w/speed control
20K	20K	20K	Blok No. 15, w/speed control
25K	25K	25K	Blok No. 15, side and bottom cylinder ports
33DSA415K	34DSA415K	35DSA415K	Blok No. 19, side and bottom cylinder ports plus bottom supply and exhaust ports
↓	↓	↓	Blok No. 19, w/speed control
19K	19K	19K	Blok No. 15, w/speed control
20K	20K	20K	Blok No. 15, side and bottom cylinder ports
25K	25K	25K	Blok No. 19, side and bottom cylinder ports plus bottom supply and exhaust ports
33DSA515K	34DSA515K	35DSA515K	Blok No. 19, w/speed control
↓	↓	↓	Blok No. 15, w/speed control
19K	19K	19K	Blok No. 15, side and bottom cylinder ports
20K	20K	20K	Blok No. 19, side and bottom cylinder ports plus bottom supply and exhaust ports
25K	25K	25K	Blok No. 19, w/speed control
33DSA615K	34DSA615K	35DSA615K	Blok No. 15, w/speed control
↓	↓	↓	Blok No. 15, side and bottom cylinder ports
19K	19K	19K	Blok No. 19, side and bottom cylinder ports plus bottom supply and exhaust ports
20K	20K	20K	Blok No. 19, w/speed control
25K	25K	25K	Blok No. 15, w/speed control

All valves include plug and light. Specify Volts and Hz: 100-115/50; 110-120/60 or 200-240/50; 220-240/60  
 For valve units only, see pages 4, 6, 8, 10. Speed Control, see page 16.  
 \*Only A and B ports are 3/4" NPTF; ports P, EA and EB on No. 19 bloks are 1/2" NPTF.

# FLEXIBLOK<sup>®</sup>

DIMENSIONS FOR ALL  
VALVE BLOKS

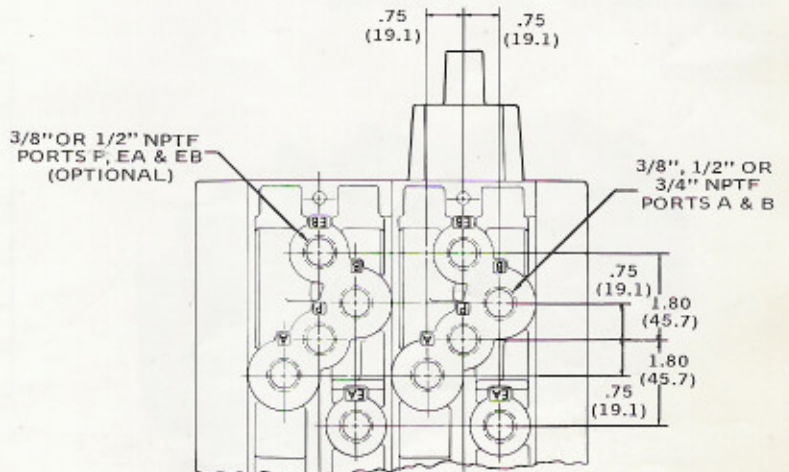
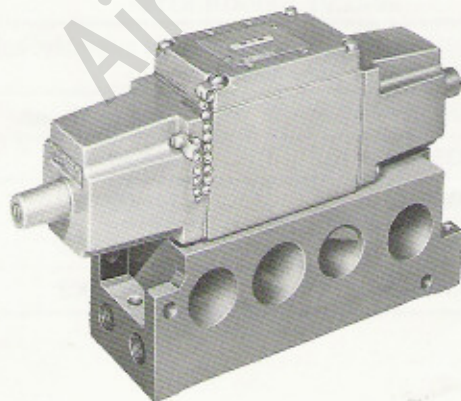
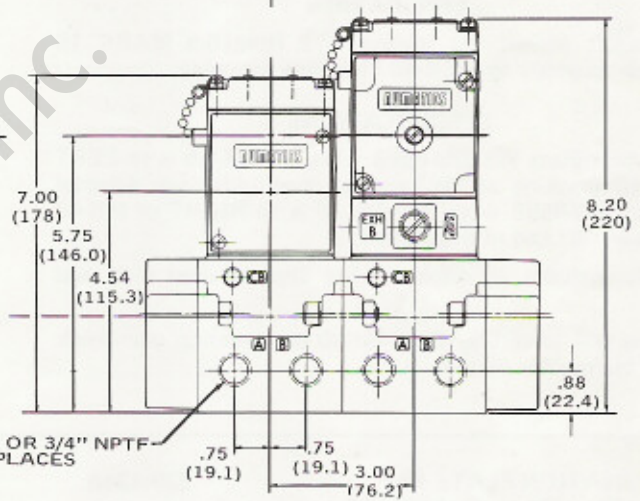
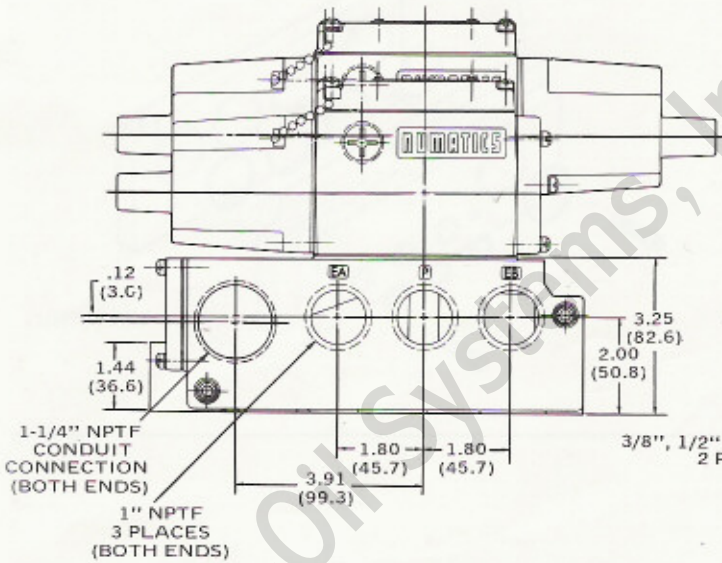
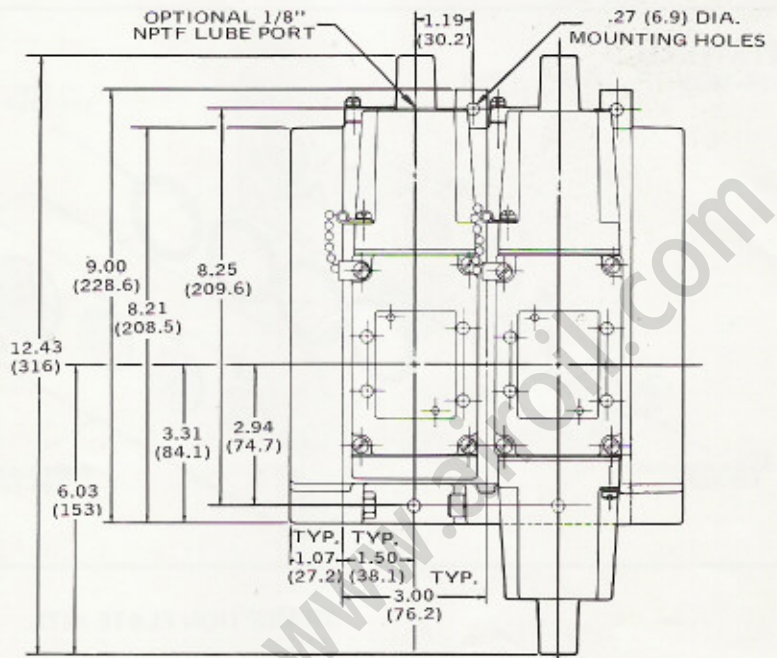
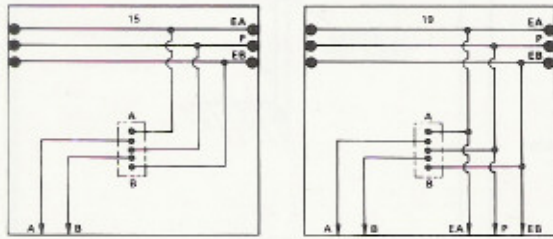
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**numatics<sup>®</sup>**  
MK. 40 LINE

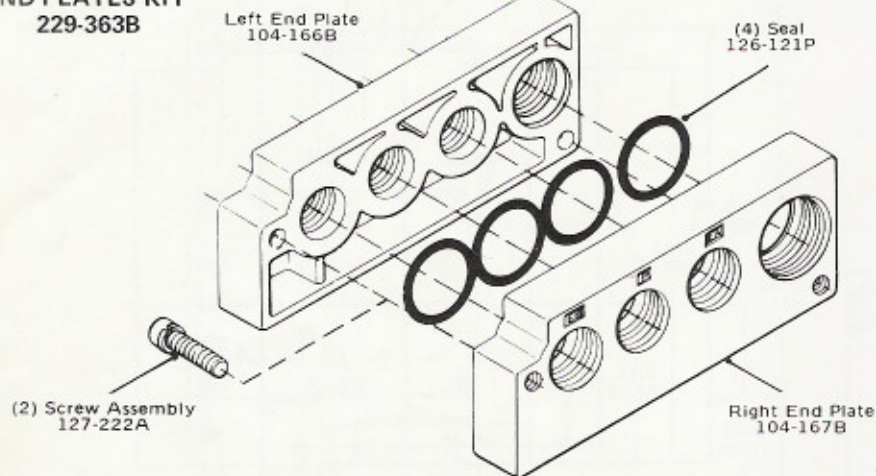
Top Dimension = Inches  
Bottom Dimension  
(In Parentheses) = Millimeters

**NOTE:**

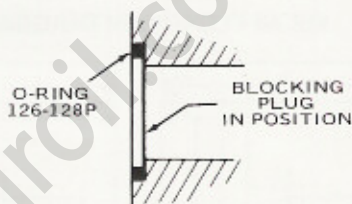
Dimensional details for all FlexiBlok units are the same as shown here.

**MK.40 FLEXIBLOK DIAGRAMS**



**MANIFOLD  
HARDWARE & REPAIR KITS****END PLATES KIT  
229-363B**

**BLOCKING DISC KIT — 229-453A**  
(Includes Plug and O-Ring which Replaces the Standard Square-Cut Seal). Used to interrupt any gallery.

**TRANSITION PLATE KITS****APPLICATION**

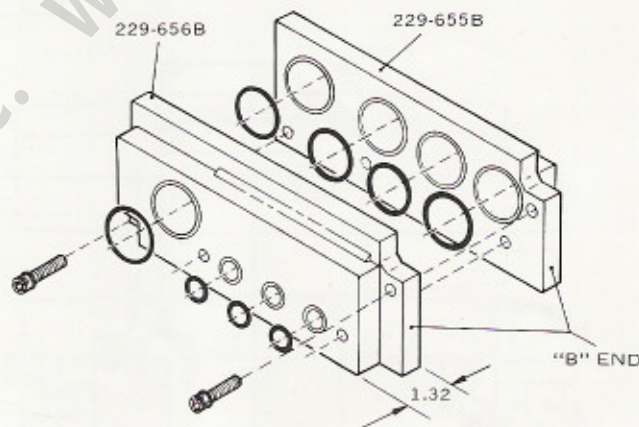
These plates permit the joining of a Numatics MARK 15 FlexiBlok assembly to a MK-40 FlexiBlok assembly.

**SPECIFICATIONS**

Use Adapter Plate Kit 229-656B when MARK 15 is to LEFT of MK-40 (looking at "B" end of manifolds); use Adapter Plate Kit 229-655B when MARK 15 is to RIGHT of MK-40 (looking at "B" end of manifolds).

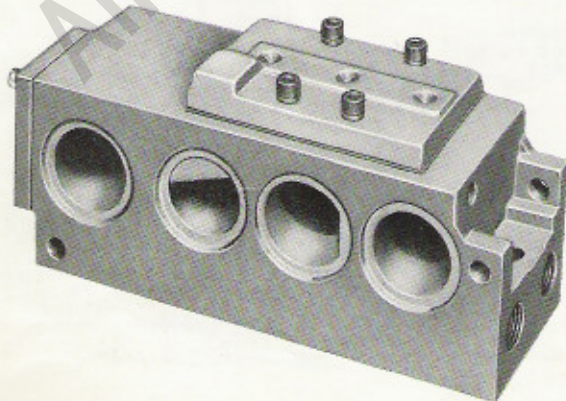
Each kit includes an adapter plate and required seals and screws.

Numatics will assemble MK15-MK40 combination manifolds. Consult factory for details.



**BLANK STATION PLATE KIT**  
(Includes Blank Plate, Gasket and Screws)

229-424A

**VALVE REPAIR KITS**

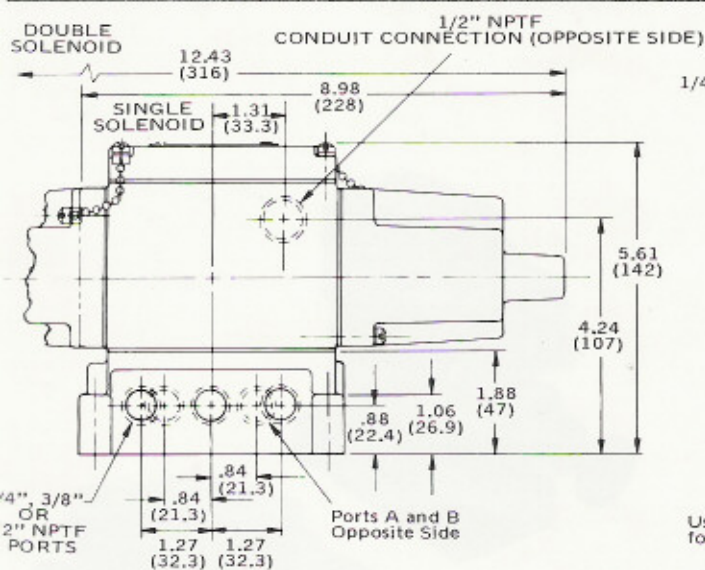
Includes all internal parts except sleeve assembly, coils, or solenoids. Order these separately.

VALVE SERIES	REPAIR KIT NO.
33SAD4	MK40 - K1
33DSA4	MK40 - K2
33DSA5	MK40 - K3
33DSA6	MK40 - K3

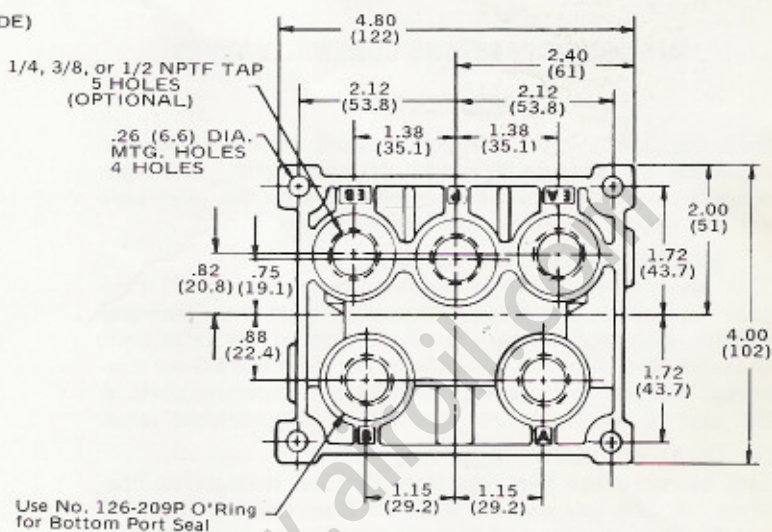
### BASE OPTIONS

## HOW TO ORDER MANIFOLD ASSEMBLIES

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



BASE DIMENSIONS



BOTTOM PORT LOCATIONS

### NON PLUG-IN BASES:

Five threaded plugs are shipped loose with 10-ported bases.

1/4" NPTF	3/8" NPTF	1/2" NPTF	DESCRIPTION
103-401C	103-402C	103-403C	Side ports, individual exhaust
203-328B	203-329B	203-330B	Side and bottom ports, individual exhaust

### PLUG-IN BASES: (Includes electrical receptacle)

Five threaded plugs are shipped loose with 10-ported bases.

3/8" NPTF	1/2" NPTF	3/4" NPTF	DESCRIPTION
203-387B	203-403B	203-419B	Side ports, individual exhaust
203-388B	203-404B	203-420B	Side and bottom ports, individual exhaust
203-389B	203-405B	203-421B	Side ports, common exhaust
203-390B	203-406B	203-422B	Side and bottom ports, common exhaust

NOTE: For separate plug and receptacle hardware, see page MK40-18.

### HOW TO ORDER A FLEXIBLOK ASSEMBLY:

Determine the required circuitry and select FlexiBlok model numbers from page MK40-12. 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	AK401-5
Station 1	33DSA415K 120/60
Station 2	33SAD415K 120/60
Station 3	33SAD425K 120/60
Blocking Plug Kit	229-453A (Install in P gallery)
Station 4	33DSA415K 120/60
Station 5	33DSA415K 120/60

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 end plates, screw assemblies, and assembling and testing. Kits for MARK 40 circuitry assemblies are prefixed with AK401-, and the number following the dash indicates the number of stations in the assembly. Blocking plugs and end plates are NOT counted as stations.

When ordered as stated in the example, Numatics will assemble and test the entire FlexiBlok 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 10 stations per assembly is recommended.

If you wish to assemble your own FlexiBlok, order the required valve stations from page MK40-12 and hardware from page MK40-14. Order the required end plates kit and/or other assembly hardware shown on page MK40-14. Each valve blok comes complete with seals and screw assembly. DO NOT order the assembly kit; this is for factory assembled units only.

### HOW TO PRICE A MARK 40 FlexiBlok ASSEMBLY:

The list price for each FlexiBlok 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 FlexiBlok assembly - assembled, tested and ready to mount on the machine.

## "SANDWICH" PRESSURE CONTROL VALVES

## SPECIFICATIONS

Numatics makes four different pressure control valves for regulating the pressure to MARK 40 valve units. The regulators are sandwich style and mount between the valve unit and any base or FlexiBlok manifold mounting.

## SINGLE PRESSURE (Type RS)

This assembly has a single regulator in the supply (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 respective ports in the base or manifold, and function as in a standard valve.

## II. DUAL PRESSURE (Type RD)

This assembly has two regulators for dual pressure applications. It takes line pressure from the P port of the base, and supplies it to the input of 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, now port P in the valve unit, is connected to port EB in the base or manifold.

## III. EXTERNAL OUTLET (Type RE)

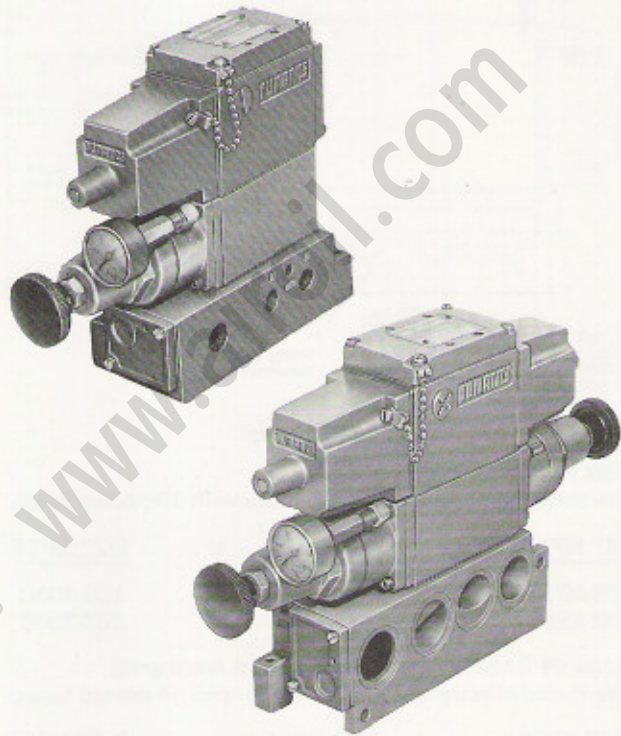
This assembly provides a source of two regulated pressures on a single mounting. A jumper plate is used in place of the valve unit and regulated pressure is delivered to the A and B cylinder ports.

## IV. 2-PRESSURE SELECTOR (Type RT)

This assembly provides two pressures to a top mounted valve unit. The selected output is delivered to an adjacent 4-way valve via a circuit plate. See page MK40-17 for details.

All regulators are available in three different pressure ranges: 3-30 psig, 5-60 psig and 10-130 psig. Gages are included; the ranges are 0-60 psig, 0-100 psig and 0-200 psig, respectively.

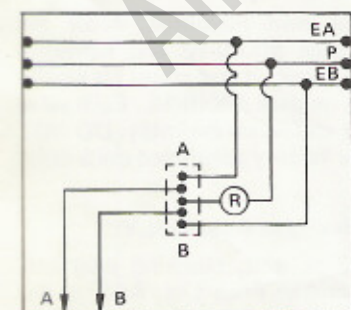
Regulators for use with valve units will be offered only with the integral electrical plug receptacle and the valve unit will be available only with the "K" wiring option (electrical plug and light). The mountings available will be the plug-in style base or FlexiBlok only. These mountings do not include the receptacle since it is mounted in the regulator block.



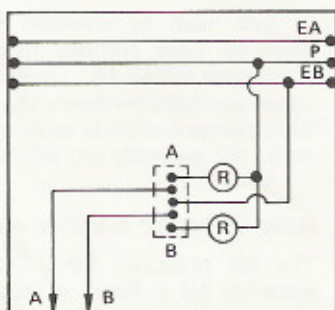
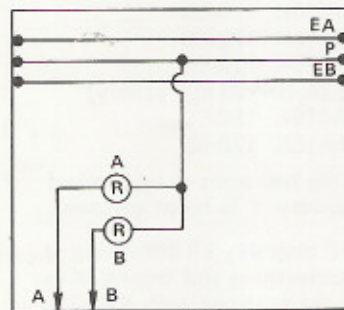
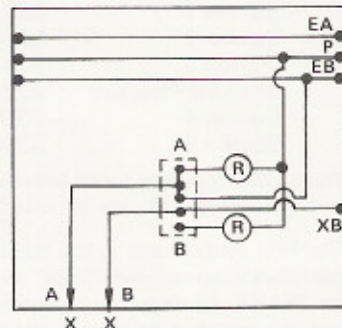
External outlet (Series RE) regulators do not include a valve unit. Use wiring option "O" (no receptacle). Regulators include the top jumper kit.

**NOTE:** The speed control sandwich is not available with a valve-regulator assembly. If speed control is required, use inline flow control valves Series FC2 and FC3.

## FLEXIBLOK DIAGRAMS



SINGLE REGULATOR

DUAL PRESSURE  
REGULATOREXTERNAL OUTLET  
REGULATOR2-PRESSURE SELECTOR  
(SEE MK40-17)



# PRESSURE REGULATORS HOW TO ORDER

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**MK. 40** LINE

To order a valve and regulator mounted on either a base or FlexiBlok, it is necessary to order the valve unit and the regulator with mounting separately.

- Specify any plug-in Mark 40 valve unit from the model selection charts.
- Select the regulator and mounting from the model selection chart below. All models include studs, gasket, fittings and gage. Regulators for use with valve units in-

clude the electrical receptacle (wiring option "C"). External outlet regulators do not include a receptacle (wiring option "O").

Example: Single solenoid, Mark 40 with 10-130 PSIG single regulator mounted on No. 15 FlexiBlok with 1/2 NPTF ports.

33SAD400K 120/60  
34RS1215C  
Assembled

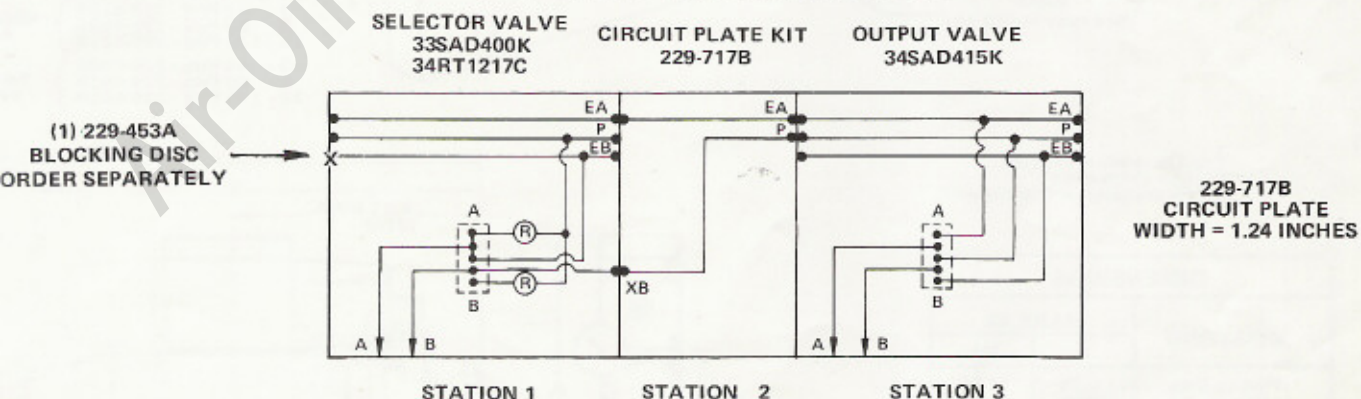
## REGULATOR SELECTION CHART

MOUNTING PORT SIZE	REGULATOR TYPE	PRESSURE RANGE	FUNCTION	MOUNTING MEANS	WIRING OPTION	SPECIAL OPTIONS
33	RS	1	2	15	C	012H
33 = 3/8 NPTF* 34 = 1/2 NPTF 35 = 3/4 NPTF	RS = Single Pressure to "P" Port RD = Dual Pressure to EA and EB Ports RE = External Pressure to A & B Cylinder Ports** RT = 2-Pressure Selector to Adjacent Valve	1 = 10-130 PSIG 3 = 3-30 PSIG 4 = 5-60 PSIG	2 = 2-Way	00 = Regulator Unit Only, No Base 15 = FlexiBlok, Side and Bottom Cylinder Ports 17 = FlexiBlok, Alternate Outlet (2-Pressure Selector Only) 19 = FlexiBlok, Side and Bottom Cylinder Ports plus Bottom Supply and Exhaust Ports 31 = Plug-in Base, Side Ports, Common Exhaust 32 = Plug-in Base, Side and Bottom Ports, Common Exhaust 3A = Plug-in Base, Side Ports, Individual Exhaust 3B = Plug-in Base, Side and Bottom Ports, Individual Exhaust	C = Electrical Plug O = No Plug (Use for type "RE" only)	012H = Less Gage 014M = Tamperproof (Locking) 016N = Jumper on A 016P = Jumper on B 027J = 012H + 016N 027K = 012H + 016P

\*3/8" is Basic Size, Use For Units Only (No, "00" Mounting)

\*\*Includes Top Jumper Kit 229-424A (No Valve Unit)

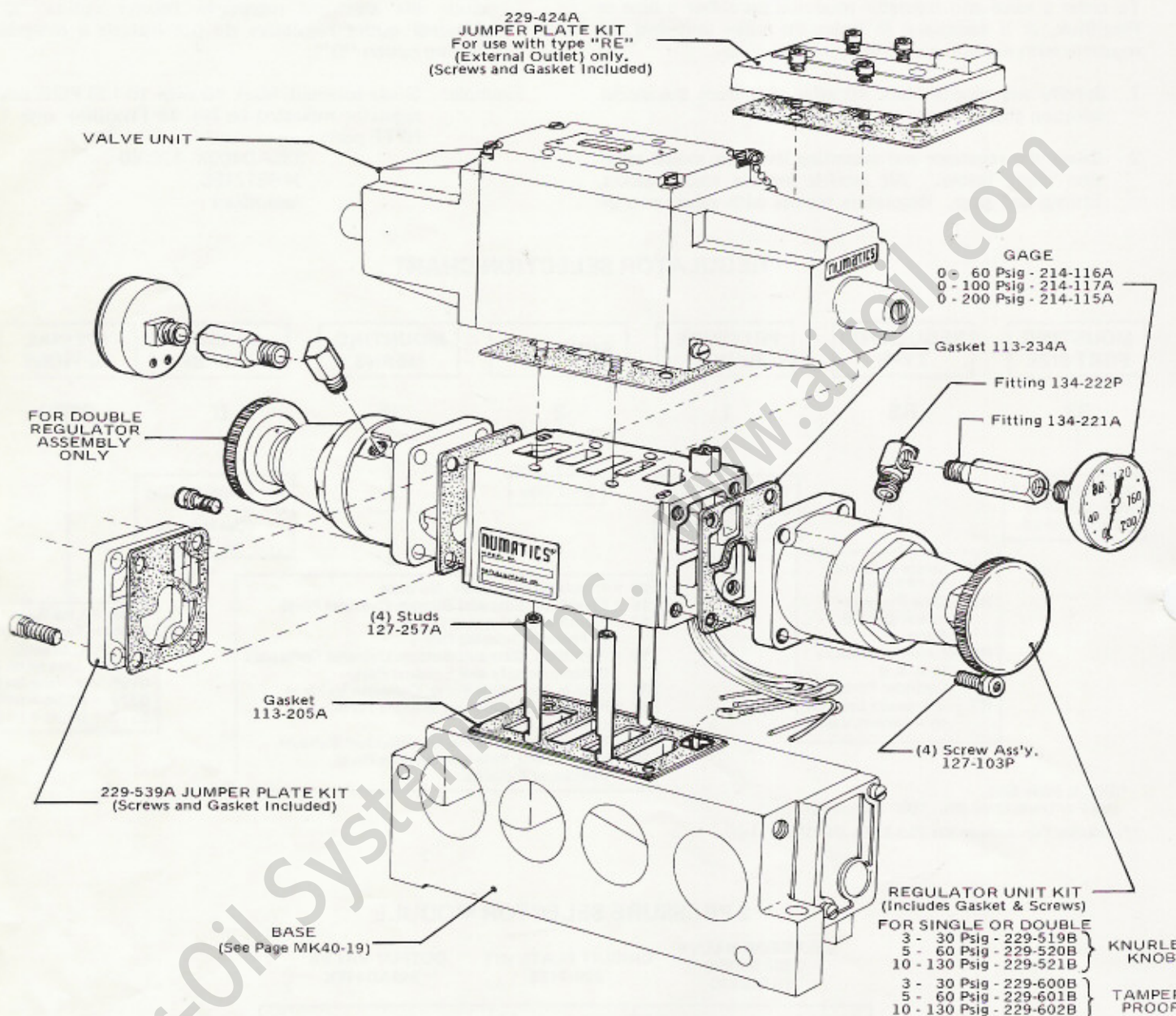
## 2-PRESSURE SELECTOR MODULE



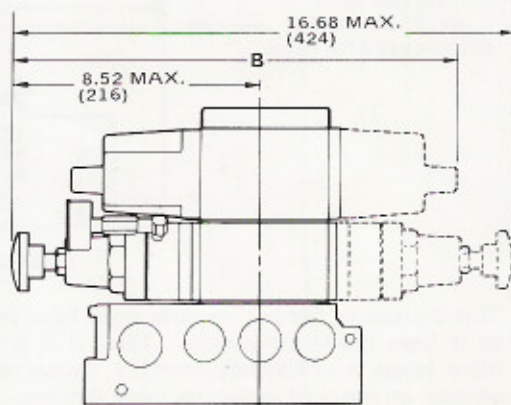
This 2-pressure selector module must have pressure supplied to it from the left end only. Thus, if it is to be used with other valves in a FlexiBlok assembly, always put the 2-pressure selector on the right as the last three stations.

To order, specify from left to right looking at the cylinder ports. Model numbers are given as examples only. Select any plug-in, Mark 40 from the catalog and a 2-pressure selector regulator from the above chart.

## REGULATOR PARTS & DIMENSIONS



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



DIMENSIONS		
MOUNTING	MARK 40	
	A	B*
Plug-in Base "31" Series	8.65 (220)	14.56 (370)
FlexiBlok "15" Series	9.52 (242)	14.56 (370)

\*B dimension is shown for double solenoid valves only.

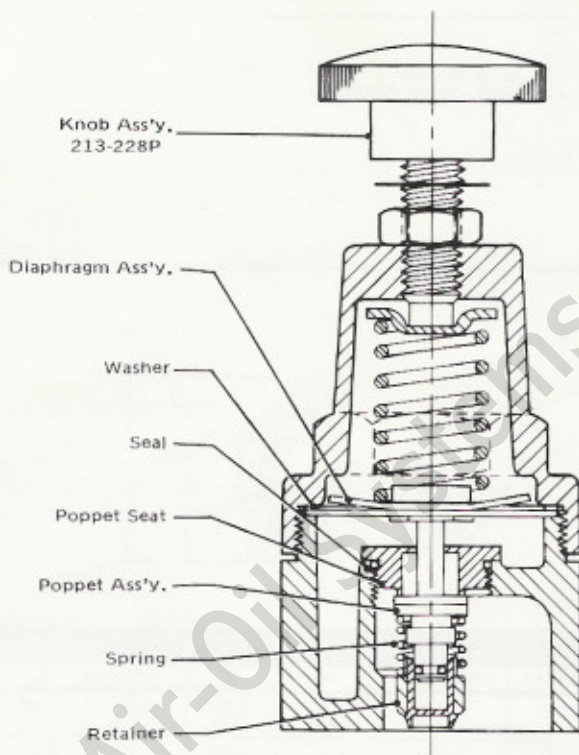
# MOUNTING PART NUMBERS, REPAIR KIT TAMPERPROOF OPTION

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MK. 40 LINE

## REGULATOR MOUNTINGS

BASE OR FLEXIBLOK		TAP SIZE (NPTF)		
TYPE	DESCRIPTION	3/8	1/2	3/4
No. 31 No. 32	Plug-in base, side ports, common exhaust Plug-in base, side and bottom ports, common exhaust	203-381B 203-382B	203-397B 203-398B	203-413B 203-414B
No. 3A No. 3B	Plug-in base, side ports, individual exhaust Plug-in base, side and bottom ports, individual exhaust	203-379B 203-380B	203-399B 203-396B	203-411B 203-412B
No. 15 No. 17 No. 19	Blok No. 15, side and bottom ports Blok No. 17, two pressure selector only Blok No. 19, side and bottom ports, plus bottom supply and exhaust ports	229-364B 229-723B 229-366B	229-368B 229-716B 229-370B	229-435B 229-724B 229-443B

NOTE: Bases do not include an electrical receptacle. It is included with the regulator.

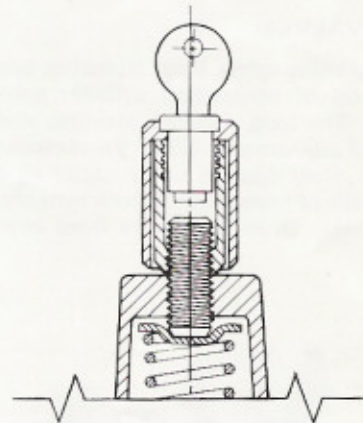


Repair Kit No. 229-595A  
Includes Parts Shown  
Except Knob Ass'y.

Any standard "40" Series regulator may be converted to "Tamperproof" by removing knob assembly No. 213-228P and the locknut and installing kit No. 229-604A.

1. Install screw and adjust with a 1/4 inch hex key wrench.
2. Tighten down the locknut.
3. Place the cap over the assembly, remove the key, and the assembly is locked.

NOTE: The key does not turn. Removing the key allows dogs to retain the cap. To remove the cap for pressure adjustment, simply insert the key and remove the cap.



Tamperproof  
(Locking) Kit  
229-604A

**SPEED CONTROL KIT:**

**APPLICATION**

The MARK 40 speed control kit mounts between any MARK 40 Line valve unit and any base or FlexiBlok mounting means. The EB and EA ports of this kit contain needle valves which can be adjusted to throttle the flow of exhaust air out of the valve unit. Thus, the speeds of the extend and retract strokes of a cylinder piston can be adjusted independently.

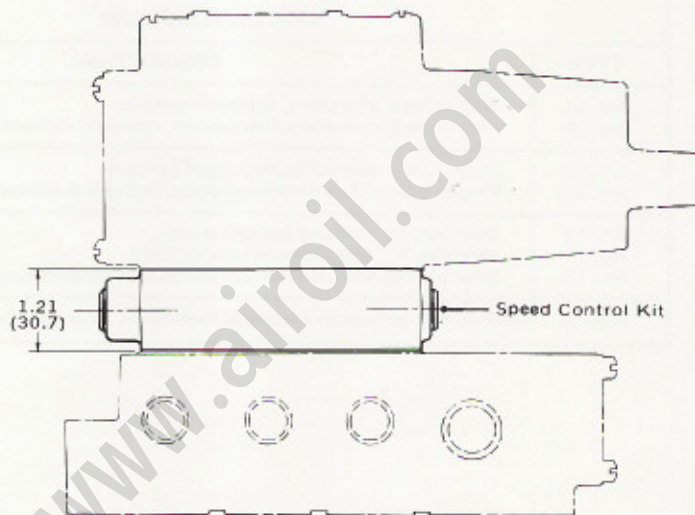
**NOTE:** The speed control kit should be used only on single pressure applications with supply pressure piped to port "P". Do not use on dual pressure applications.

**MODEL SELECTION**

Model numbers for MARK 40 valves with speed control are found in the Model Selection Charts on pages MK40-4-12. To order a valve unit with speed control, without any base mounting, add code 01 to the valve Series number (e.g. 33DSA401). When an assembly is ordered with speed control, longer-than-standard mounting screws are used in the valve to reach through the speed control kit and secure both it and the valve to the base or FlexiBlok mounting.

Individual speed control kit is No. 229-388B (without electrical plug) or No. 229-389B (with electrical plug). Its flow capacity ( $C_v$ ) is 3.7. The complete kit includes gasket, screws and lockwashers; the unit for plug-in valves also includes the plug assembly. The same plug assembly is used in the speed control kit as is used in the base of FlexiBlok mountings.

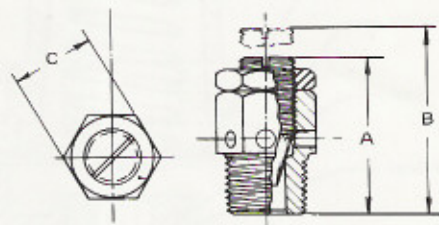
Top Dimension = Inches  
 Bottom Dimension  
 (In Parentheses) = Millimeters



- Includes:  
 (1) 113-205A Gasket  
 (4) 127-240P Screw Assembly

**METERING VALVES:**

MV Series metering valves fit in Numatics bases and provide a simple method of controlling cylinder speed by throttling exhaust air. The long, tapered, stainless steel needle gives a wide range of adjustment. Since the metering valves have no moving parts, they operate safely under all conditions. The bodies are made of brass, and the lock nuts are a special, corrosionproof steel. Order separately from any valve assembly.



DIMENSIONS AND FLOW*					
VALVE NO.	PIPE SIZE	A	B	C	$C_v$
MV-25	1/4" NPTF	1.37 (35)	1.50 (38)	.69 (17.5)	1.80
MV-37	3/8" NPTF	1.31 (33.3)	1.50 (38.1)	.69 (17.5)	1.80
MV-50	1/2" NPTF	1.62 (41.1)	2.00 (50.8)	.87 (22.1)	3.38

\* Top dimension = inches, bottom dimension = millimeters.  
 $C_v$  = measured at full open position

**INTEGRAL PLUG (For Plug-In Base):**

Numatics' MARK 40 Line valves offer an optional integral plug of outstanding design for use with the plug-in base or FlexiBlok assemblies. This integral plug meets ALL MINIMUM JIC, NEMA, CSA and UL STANDARDS. The design criteria for these standards are:

1. Presence of a ground pole (the third pole in a 3-pole plug for single solenoid valves, and the fifth in a 5-pole plug for double solenoid valves).
2. Ground pole shall be first to enter female receptacle and the last to leave.
3. All poles shall be shrouded or skirted to contain arcing.
4. Male plug shall be connected to the load (valve solenoid) and the female receptacle connected to the electrical supply.
5. Plug shall be polarized. (The MARK 40 valve and plug assembly are polarized so the valve and plug cannot be improperly installed on the mounting.)
6. Plug shall be mechanically secured in the valve and the base.
7. Plug shall be protected from ambient and valve contaminants.

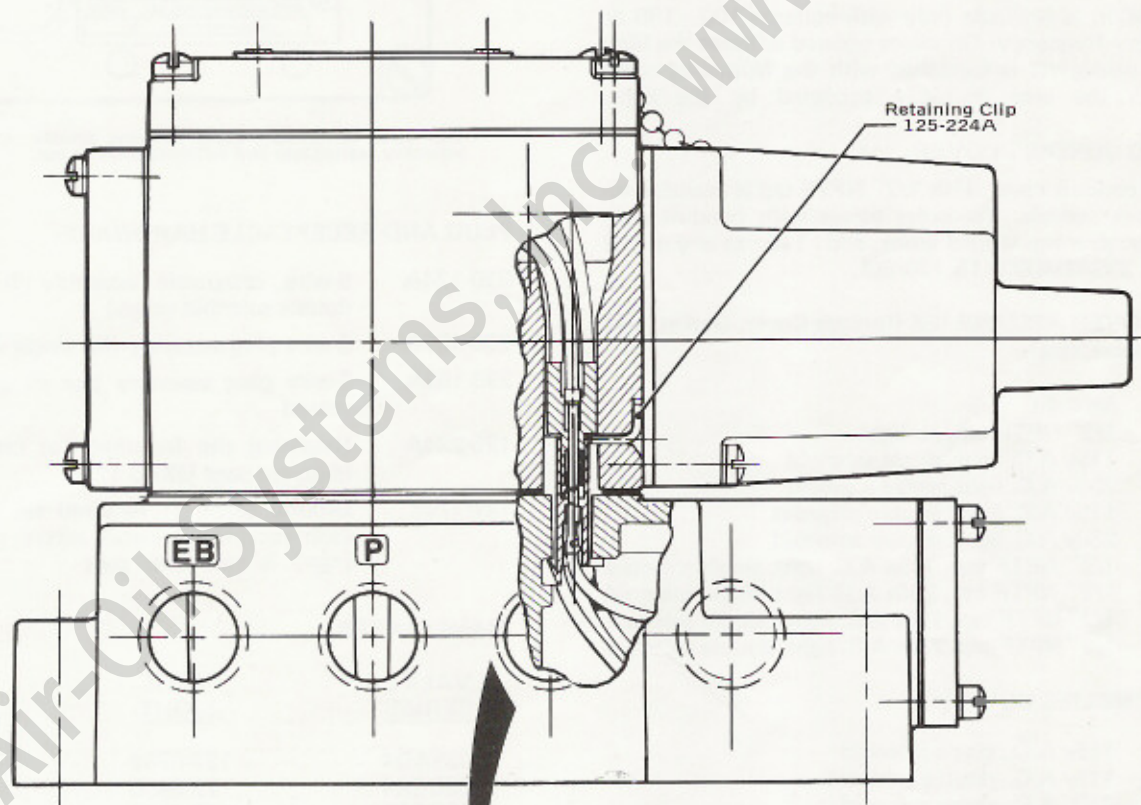
The MARK 40 Line's integral plug design meets or exceeds all of the above criteria.

On single solenoid valve units, of course, only the ground lead and the two solenoid leads are installed in the male half of the hard nylon plug body. On both the single and double solenoid units, the ground wires (covered with green vinyl insulation and with ring-type connectors) are firmly secured to the valve housing and plug-in base with screws. The ground symbol ( $\frac{—}{—}$ ) and solenoid identifiers "A" and "B" are cast into the integral junction box of the valve unit and on both the plug-in and FlexiBlok bases.

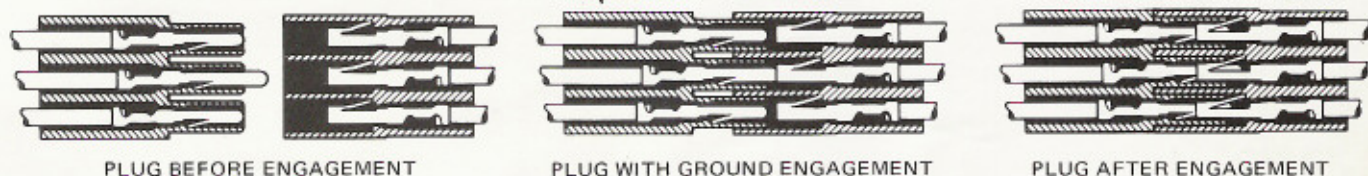
The "A" solenoid leads are covered with orange vinyl insulation, marked with an "A" every 3/8" (9.5 mm), and are terminated with ring-type connectors. The "B" solenoid leads are covered with brown vinyl insulation, marked with a "B" every 3/8" (9.5 mm), and are also terminated with ring-type connectors.

On both the plug-in base and the FlexiBlok bases with plug, the female receptacle has all five leads installed, although the two "B" leads are tucked out of the way on single solenoid valves. This makes field conversion from single to double solenoid very easy.

The MARK 40 Line integral plug is available on valves with or without the Speed Control Kit options. See page MK40-18 for details.



For Complete Part Number Information,  
See Page MK40-22.



3 POLES ONLY SHOWN FOR CLARITY

#### CONDUIT COVER COMPLETE WITH LIGHT:

MARK 40 Line valves may be ordered complete with a light, for single or double solenoids. When the light is illuminated it indicates that power is being supplied to the valve. The splash-proof neon light glows brightly, yet draws only about 0.1 watt. Low power draw and low heat generation assure thousands of hours of operation. This option is a time-saving aid during machine set-up, and also simplifies maintenance troubleshooting.

MARK 40 Line valves come complete with a die cast conduit cover designed to keep out dirt, water, coolants, etc. The etched nameplate mounted on the cover identifies the valve model number (both mounted and replacement unit numbers), the valve function (ANSI symbol), the manufacturing date, and the volts/hz and amps. On single solenoid valves, the entire light housing illuminates when the valve is energized. On double solenoid valves, A or B sides will illuminate when the corresponding solenoid is energized.

The light option is available only with voltages 100 - 130 or 200 - 260, any frequency. On valves ordered without the light option, the nameplate is furnished with the Numatics name imprinted in the area normally occupied by the light.

#### TOP-TAPPED CONDUIT COVER:

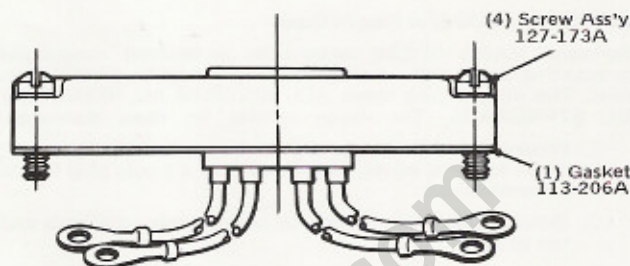
An optional conduit cover with 1/2" NPTF tap is available on all non-plug-in models. To order valves with conduit connections through a top-tapped cover, add 11E to any model number (e.g. 33SAD400011E 120/60).

#### CONDUIT COVER ASSEMBLIES (Include Cover, Gasket, and Screws; No Nameplate):

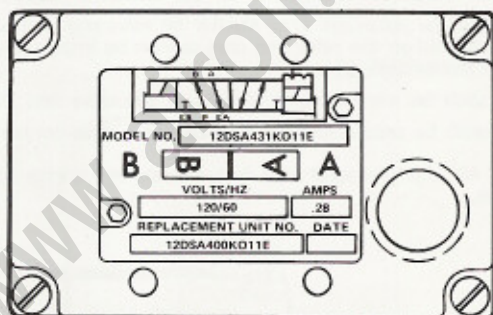
205-212A	No light
205-213A	1/2" NPTF tap, no light
205-214A	115v A.C. light, single solenoid
205-215A	230v A.C. light, single solenoid
205-216A	115v A.C. light, double solenoid
205-217A	230v A.C. light, double solenoid
205-218A	1/2" NPTF tap, 115v A.C. light, single solenoid
205-219A	1/2" NPTF tap, 230v A.C. light, single solenoid
205-220A	1/2" NPTF tap, 115v A.C. light, double solenoid
205-221A	1/2" NPTF tap, 230v A.C. light, double solenoid

#### LIGHT ASSEMBLIES ONLY:

230-110A	115v A.C., single solenoid
230-111A	115v A.C., double solenoid
230-114A	230v A.C., single solenoid
230-115A	230v A.C., double solenoid



Side view, conduit cover with double light assembly.



Top view of conduit cover showing double solenoid light assembly, nameplate and optional conduit tap.

#### PLUG AND RECEPTACLE HARDWARE:

230-124A	5-wire receptacle assembly (for single and double solenoid valves)
230-181A	3-wire plug assembly (for single solenoid valves)
230-182A	5-wire plug assembly (for all double solenoid valves)
125-224A	Retaining clip (required for unit plug assemblies, see page MK40-17)
127-176P	Ground screw (1 required for each plug and each receptacle; install where ground symbol (≡) is cast into part)

#### NAMEPLATES:

VALVE SERIES	WITH LIGHT	WITHOUT LIGHT
33SAD4	122-396B	122-397B
33DSA4	122-398B	122-399B
33DSA5	122-400B	122-401B
33DSA6	122-402B	122-403B

## ELECTRICAL OPTIONS

The air valve people - worldwide  
**numatics**<sup>®</sup>  
**MK. 40** LINE

### AC SOLENOID PART NUMBERS (All Valve Models, 12 Volts Min. - 480 Volts Max.):

#### ALL SINGLE SOLENOID MODELS

##### WITHOUT LIGHT OR PLUG

VOLTAGE (All Models)	SOLENOID CAPSULE ASSEMBLY
24/60	227-948B
110 - 120/60 100 - 115/50	227-944B
230 - 240/60 200 - 220/50	227-945B
230 - 240/50	227-946B
460/60	227-947B
Other, Specify	227-949B

SOLENOID ONLY	COIL ONLY
228-643B	139-399P
228-639B	139-395P
228-640B	139-396P
228-641B	139-397P
228-642B	139-398P
228-644B	139-400P

##### WITH LIGHT OR PLUG

SOLENOID CAPSULE ASSEMBLY	SOLENOID ONLY	COIL ONLY
227-856B	228-582B	139-352P
227-853B	228-554B	139-330P
227-854B	228-618B	139-380P
227-858B	228-584B	139-354P
227-857B	228-583B	139-353P
227-859B	228-585B	139-355P

#### ALL DOUBLE SOLENOID MODELS

##### WITHOUT LIGHT OR PLUG

24/60	227-936B
110 - 120/60 100 - 115/50	227-932B
230 - 240/60 200 - 220/50	227-933B
230 - 240/50	227-934B
460/60	227-935B
Other, Specify	227-937B

228-637B	139-393P
228-633B	139-389P
228-634B	139-390P
228-635B	139-391P
228-636B	139-392P
228-638B	139-394P

##### WITH LIGHT OR PLUG

227-812B	228-511B	139-313P
227-809B	228-506B	139-308P
227-810B	228-616B	139-378P
227-814B	228-513B	139-315P
227-813B	228-512B	139-314P
227-815B	228-515B	139-317P

#### CIRCUITBREAKERS - SINGLE AND DOUBLE SOLENOID VALVES:

Circuitbreakers are available for use on FlexiBlok or plug-in bases, 120/60 only. They are not available on standard bases. To order, add 13F to any applicable model number (e.g. 33SAD431KO13F).