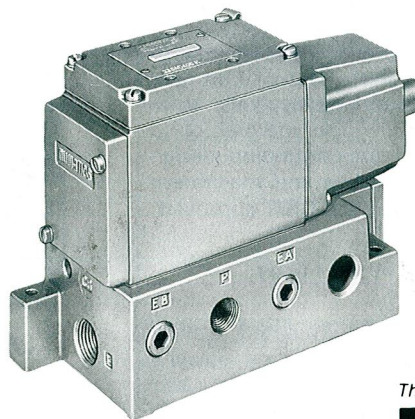
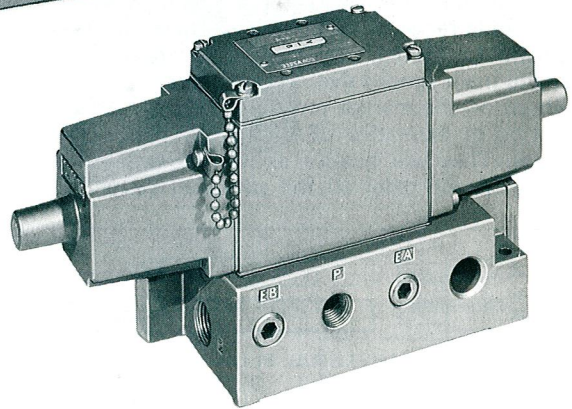
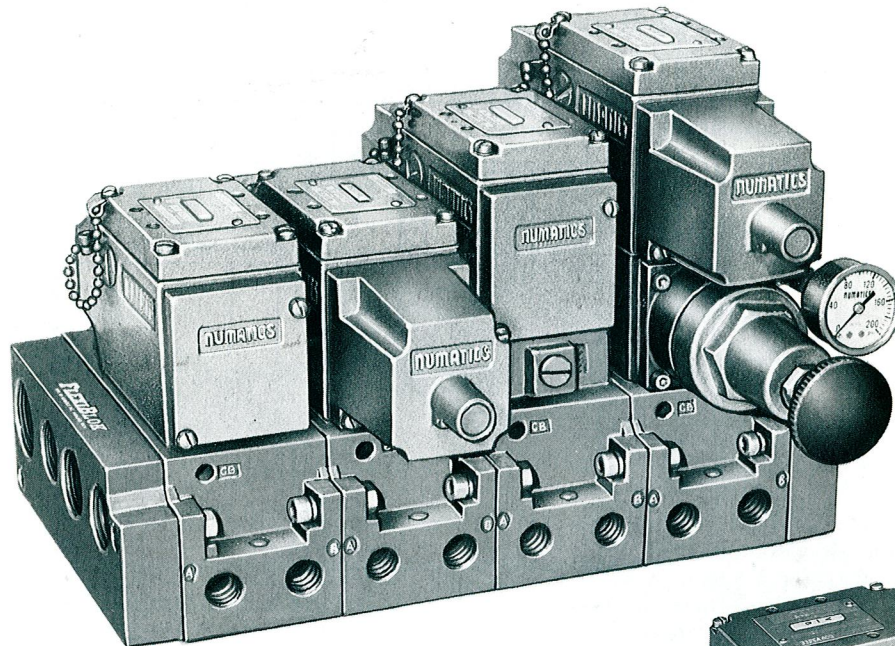


MARK 40TM LINE

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



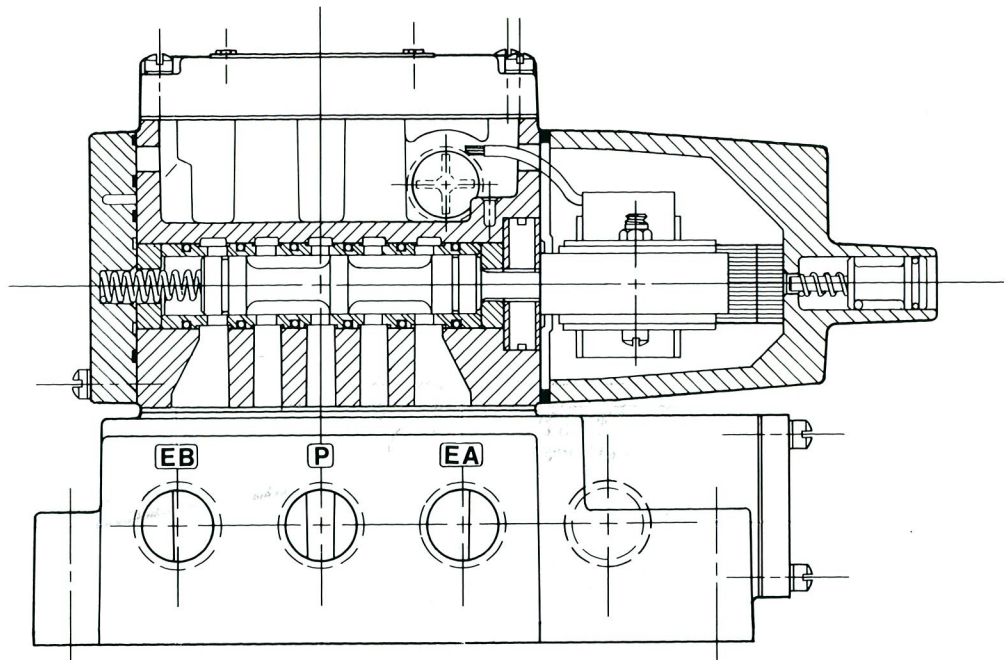
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| Double Solenoid, Momentary Contact (Detented) | 6-7 |
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| Double Solenoid, Spring Centered, Cylinder Ports Blocked in Neutral | 10-11 |
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| Pressure Regulators | 16-19 |
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INCORPORATED
HIGHLAND, MICHIGAN 48031

the

MARK 40 LINE



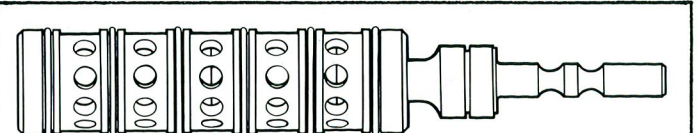
Numatics MARK 40 Line air valves are high speed, heavy duty units, designed for general service on all types of automation, for a wide range of air cylinders. These die cast units are direct solenoid actuated; that is, the solenoid plunger directly actuates the main spool valve. The result is the simplest 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.

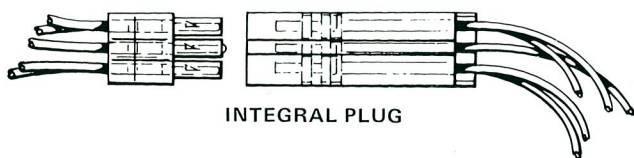
SOLENOID DESIGN

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

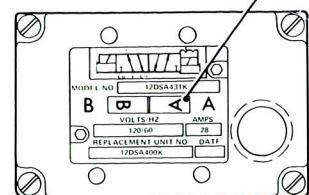
Numatics MARK 40 valves employ the famous, patented, lapped spool and floating sleeve principle for most reliable operation and longest service life. Each MARK 40 valve has its own matched set spool and sleeve, precision machined to millionths of an inch, eliminating always troublesome dynamic o-ring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



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.

BASIC VALVE COMPONENTS & CONSTRUCTION FEATURES

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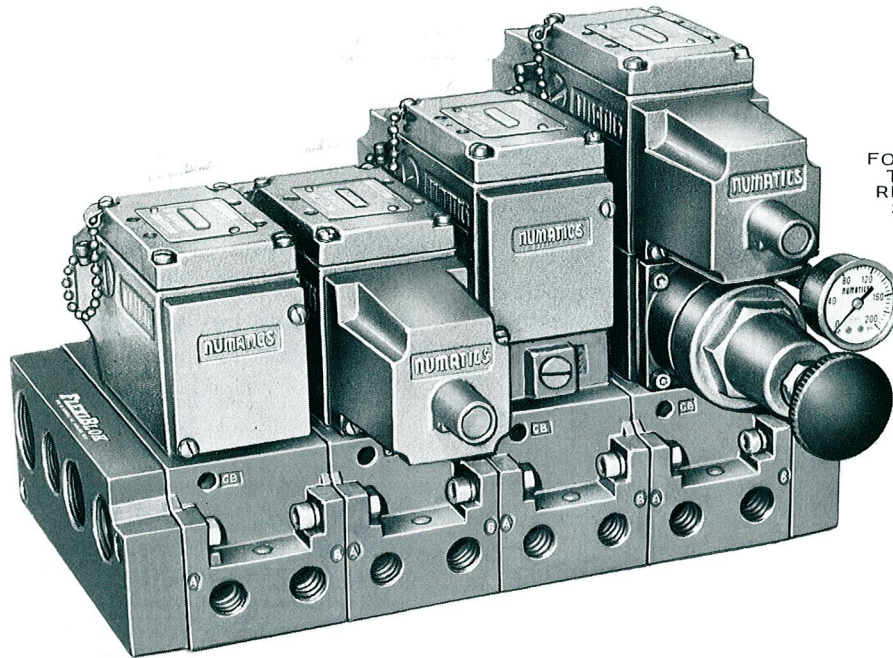
numatics®

MK. 40 LINE

BASE OR MANIFOLD MOUNTING:

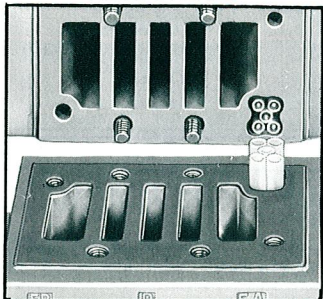
MARK 40 Line valves offer a choice of three base or manifold mounting means. The non plug-in base without electrical provision is side ported, individual exhaust; or side and bottom ported, individual exhaust. The new plug-in base offers an optional integral electrical plug which meets industry standards, 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. Flexi-Blok 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 "bloks", 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.

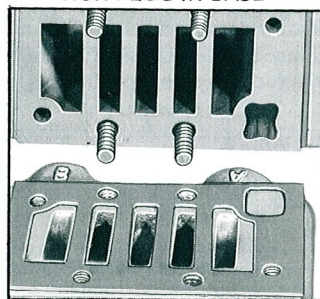


FOR COMPLETE DETAILS ON THE "SANDWICH" STYLE REGULATORS AVAILABLE, SEE PAGES MK40 - 16-19

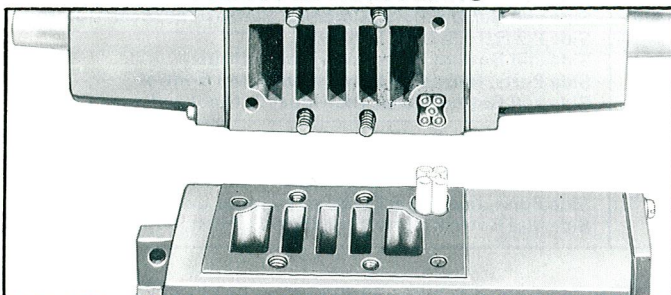
PLUG-IN BASE



NON PLUG-IN BASE

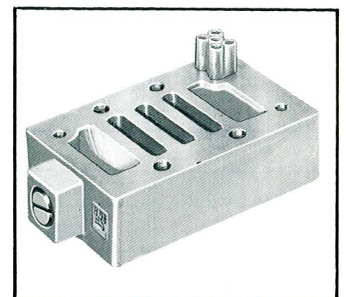


FLEXIBLOK MANIFOLDING



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.

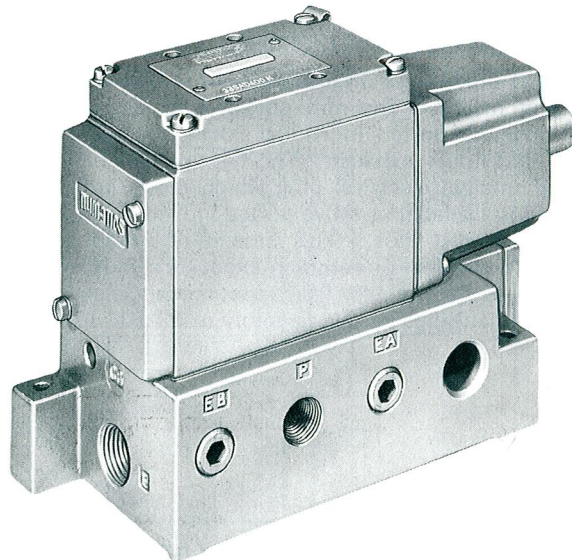
OPERATING DATA

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.

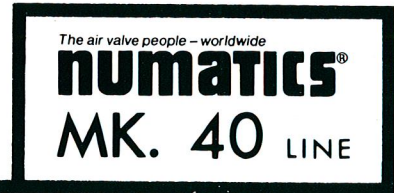
| | | |
|---------------------------------|-----------|------------|
| Inrush current @: | 115/50 AC | 2.8 amps. |
| | 120/60 AC | 2.5 amps. |
| Holding current @: | 115/50 AC | .36 amps. |
| | 120/60 AC | .28 amps. |
| Time to energize, full shift | | .018 secs. |
| Time to de-energize, full shift |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

MODEL SELECTION CHART

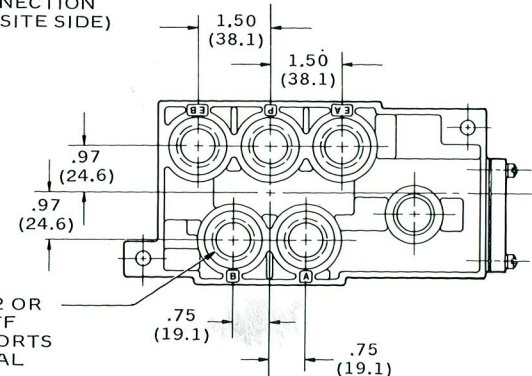
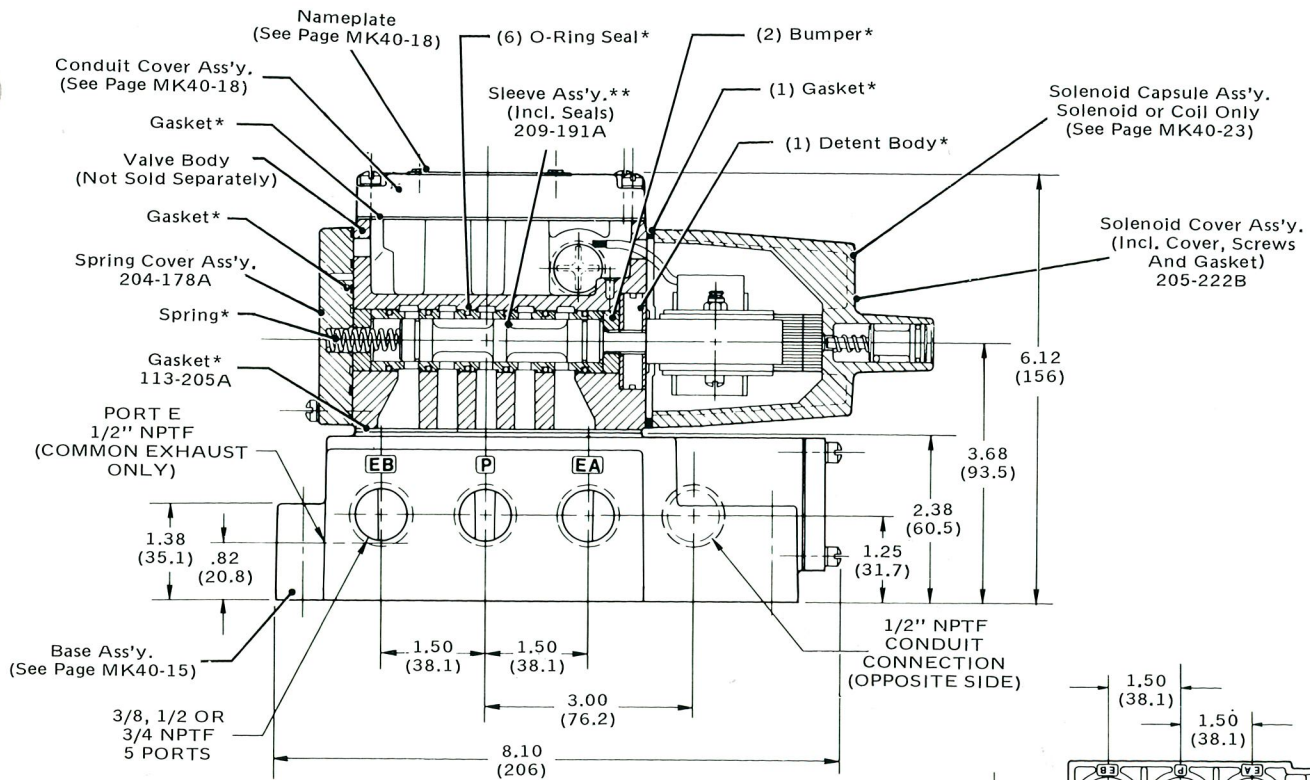
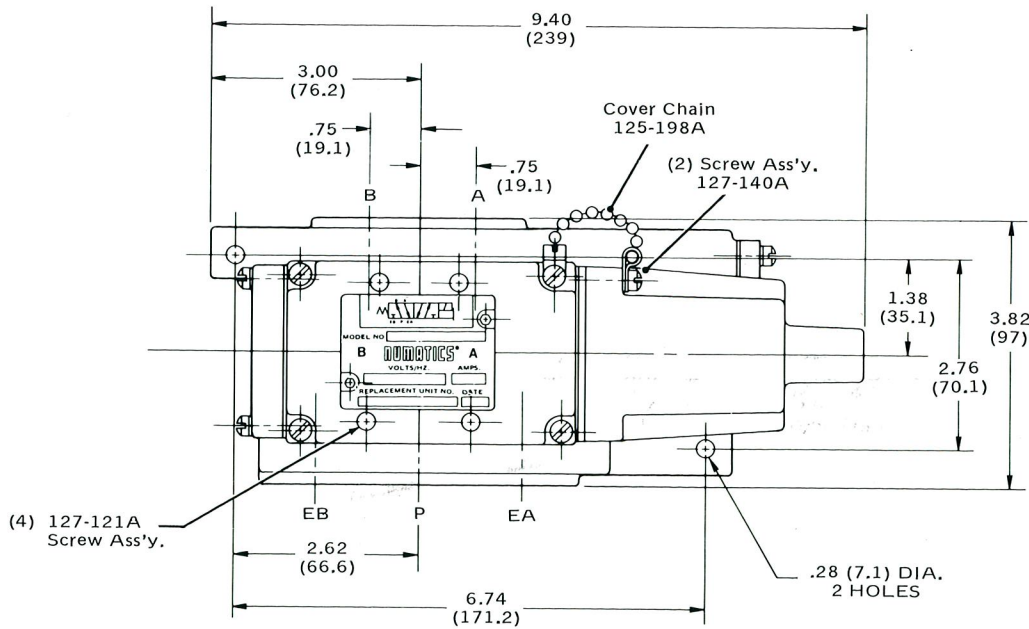
| VALVE TYPE | MODEL NUMBER | | | | BASE DESCRIPTION |
|-------------------------------------|--|---|--|--|---|
| | 1/4 NPTF | 3/8 NPTF | 1/2 NPTF | 3/4 NPTF | |
| PLUG-IN BASE WITH LIGHT AND PLUG | NOT AVAILABLE | 33SAD400K 33SAD431K 33SAD432K 33SAD435K 33SAD436K 33SAD43AK 33SAD43BK 33SAD43CK 33SAD43DK | 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 | 33SAD4000 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

A.N.S.I. SYMBOL



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



BOTTOM PORT LOCATIONS

*REPAIR KIT NO. MK40-K1

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

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MK. 40 LINE

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.

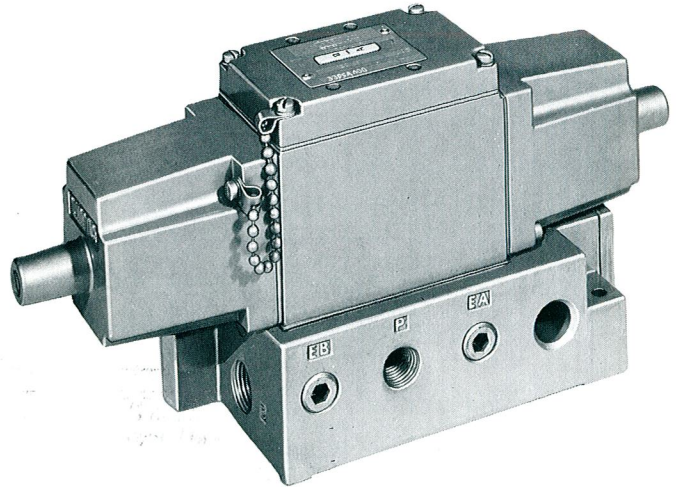
OPTIONS

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 |

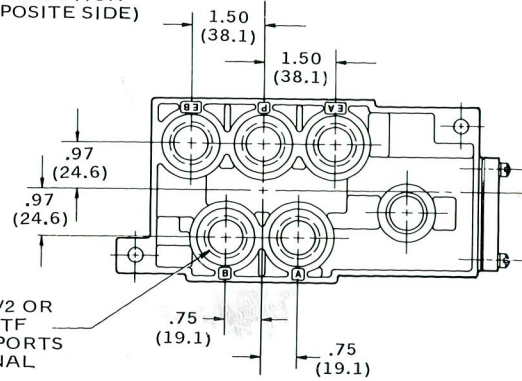
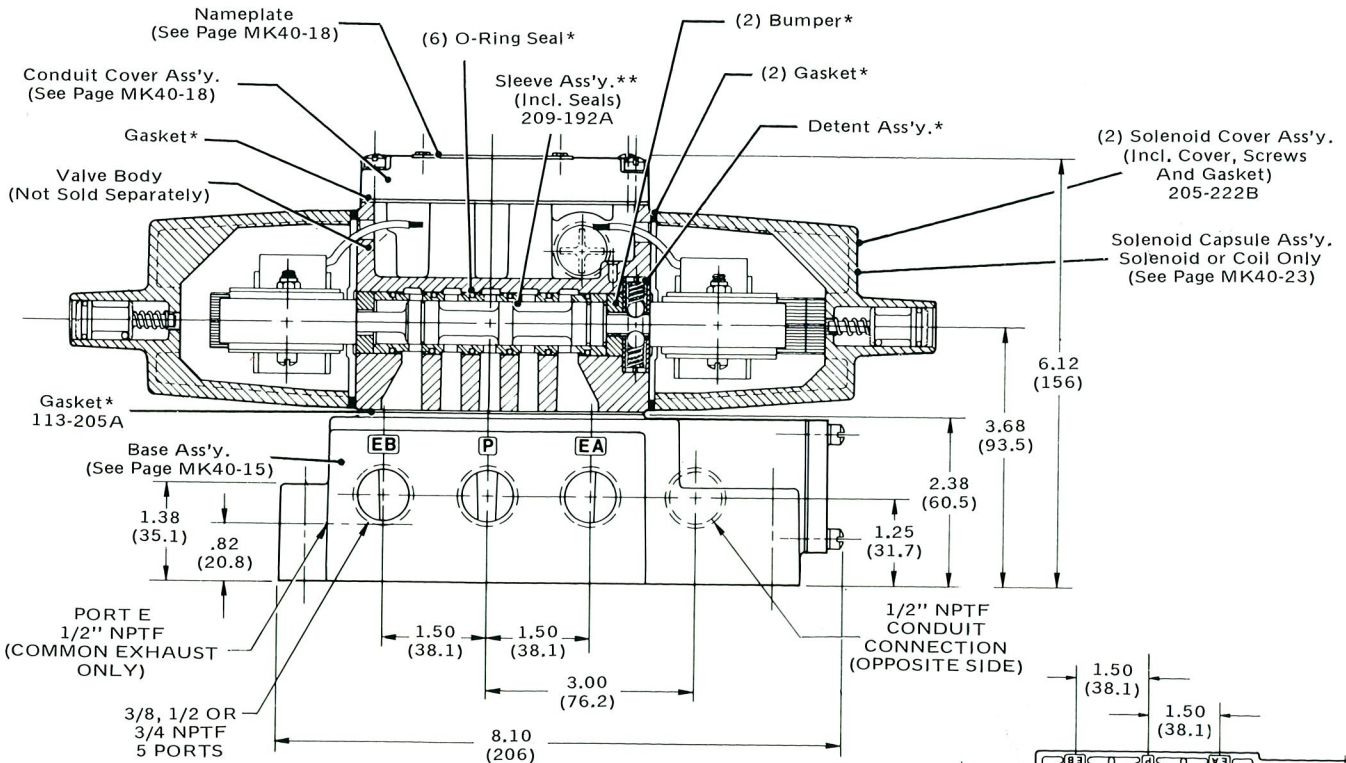
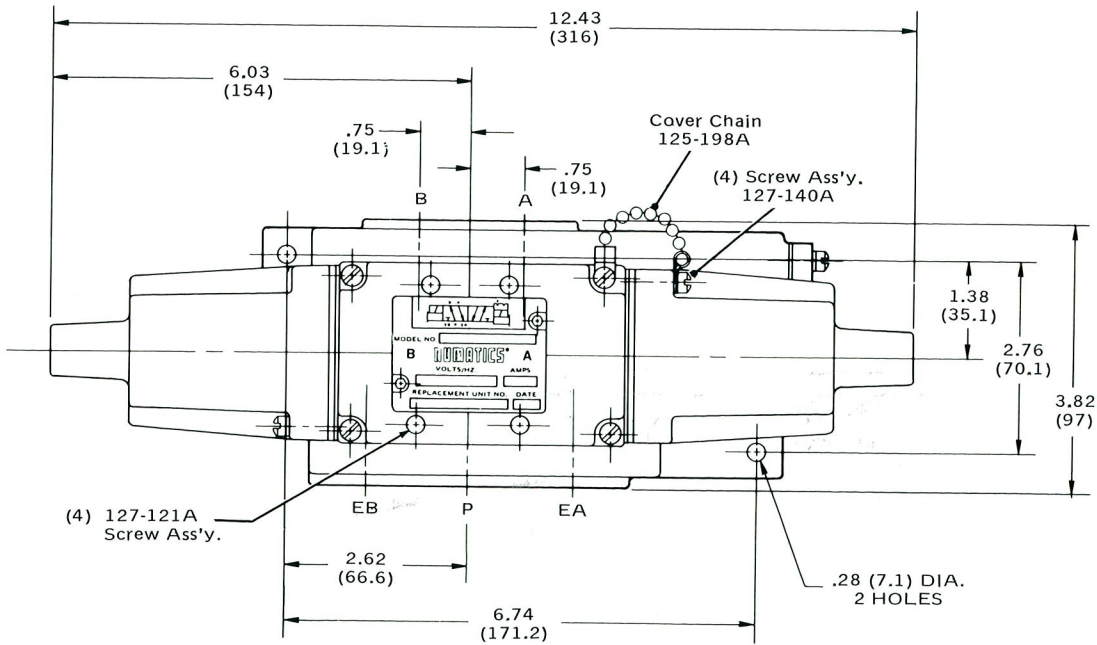
Specify Volts and Hz: 100-115/50; 110-120/60 or 200-220/50; 230-240/60

A.N.S.I. SYMBOL



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numatics®
MK. 40 LINE

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



*REPAIR KIT
 NO. MK40-K2

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

BOTTOM PORT LOCATIONS

SERIES 33DSA5
3/8", 1/2" AND 3/4" TAPPED, J.I.C.
DOUBLE SOLENOID, SPRING CENTERED, 3-POSITION

SPECIFICATIONS

33DSA5 series valves are 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 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 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 (not included with this valve) 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

33DSA5 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.

| | |
|---------|----------------------|
| 33DSA5: | C _v = 2.7 |
| 34DSA5: | C _v = 3.2 |
| 35DSA5: | C _v = 3.4 |

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.

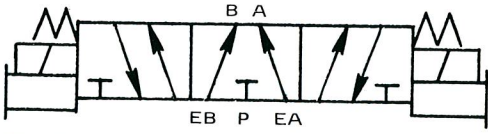
| | | |
|---------------------------------|-----------|------------|
| Inrush current @: | 115/50 AC | 2.4 amps. |
| | 120/60 AC | 2.3 amps. |
| Holding current @: | 115/50 AC | .36 amps. |
| | 120/60 AC | .28 amps. |
| Time to energize, full shift | | .020 secs. |
| Time to de-energize, full shift |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

MODEL SELECTION CHART

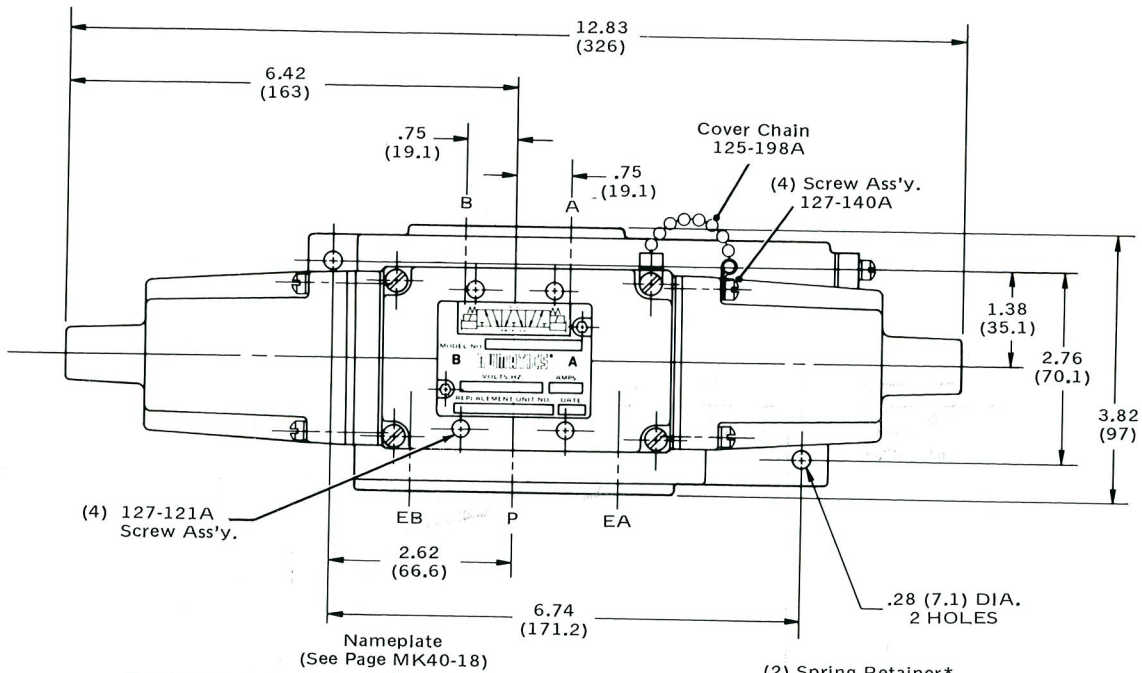
| VALVE TYPE | MODEL NUMBER | | | | BASE DESCRIPTION |
|-------------------------------------|--|---|--|--|---|
| | 1/4 NPTF | 3/8 NPTF | 1/2 NPTF | 3/4 NPTF | |
| PLUG-IN BASE WITH LIGHT AND PLUG | NOT AVAILABLE | 33DSA500K 33DSA531K 33DSA532K 33DSA535K 33DSA536K 33DSA53AK 33DSA53BK 33DSA53CK 33DSA53DK | 34DSA531K 34DSA532K 34DSA535K 34DSA536K 34DSA53AK 34DSA53BK 34DSA53CK 34DSA53DK | 35DSA531K 35DSA532K 35DSA535K 35DSA536K 35DSA53AK 35DSA53BK 35DSA53CK 35DSA53DK | 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 | 32DSA5410 32DSA5430 32DSA5460 32DSA5480 | 33DSA5000 33DSA5410 33DSA5430 33DSA5460 33DSA5480 | 34DSA5410 34DSA5430 34DSA5460 34DSA5480 | 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

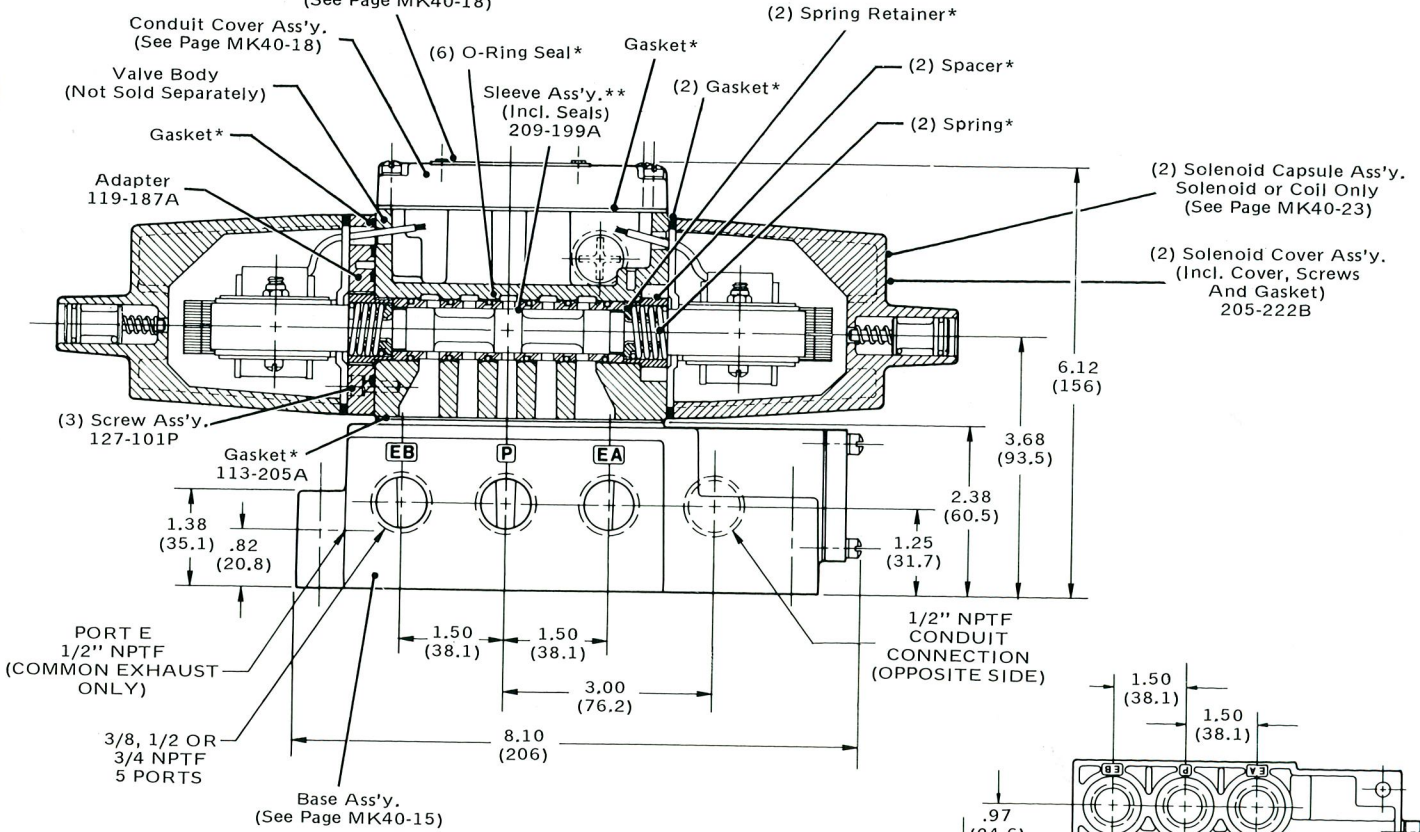
A.N.S.I. SYMBOL



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MK. 40 LINE



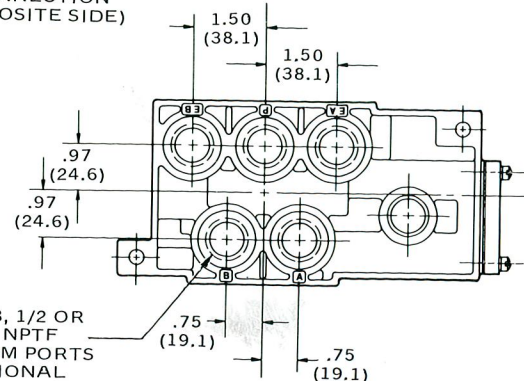
Top Dimension = Inches
 Bottom Dimension
 (In Parentheses) = Millimeters



*REPAIR KIT
 NO. MK40-K3

**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



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: | $C_v = 3.7$ |

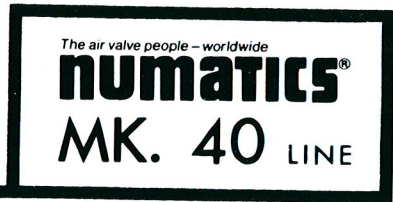
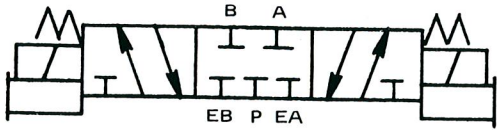
SOLENOIDS: Standard AC voltages are a combined 115/50 - 120/60, 220/50 and 230/60. Special AC voltage 12 to 480, 50 or 60 hz., are available. DC solenoids are not available. See Options pages for further data and part numbers. Solenoids are continuous-duty rated.

| | | |
|---------------------------------|-----------|------------|
| 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. |

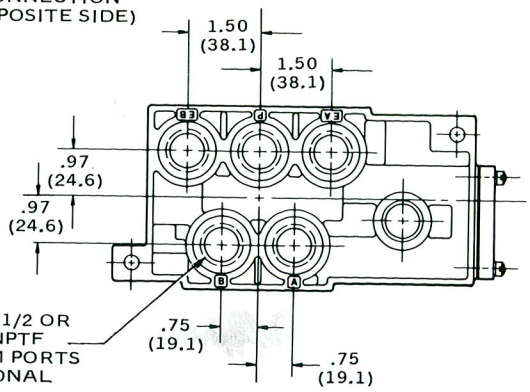
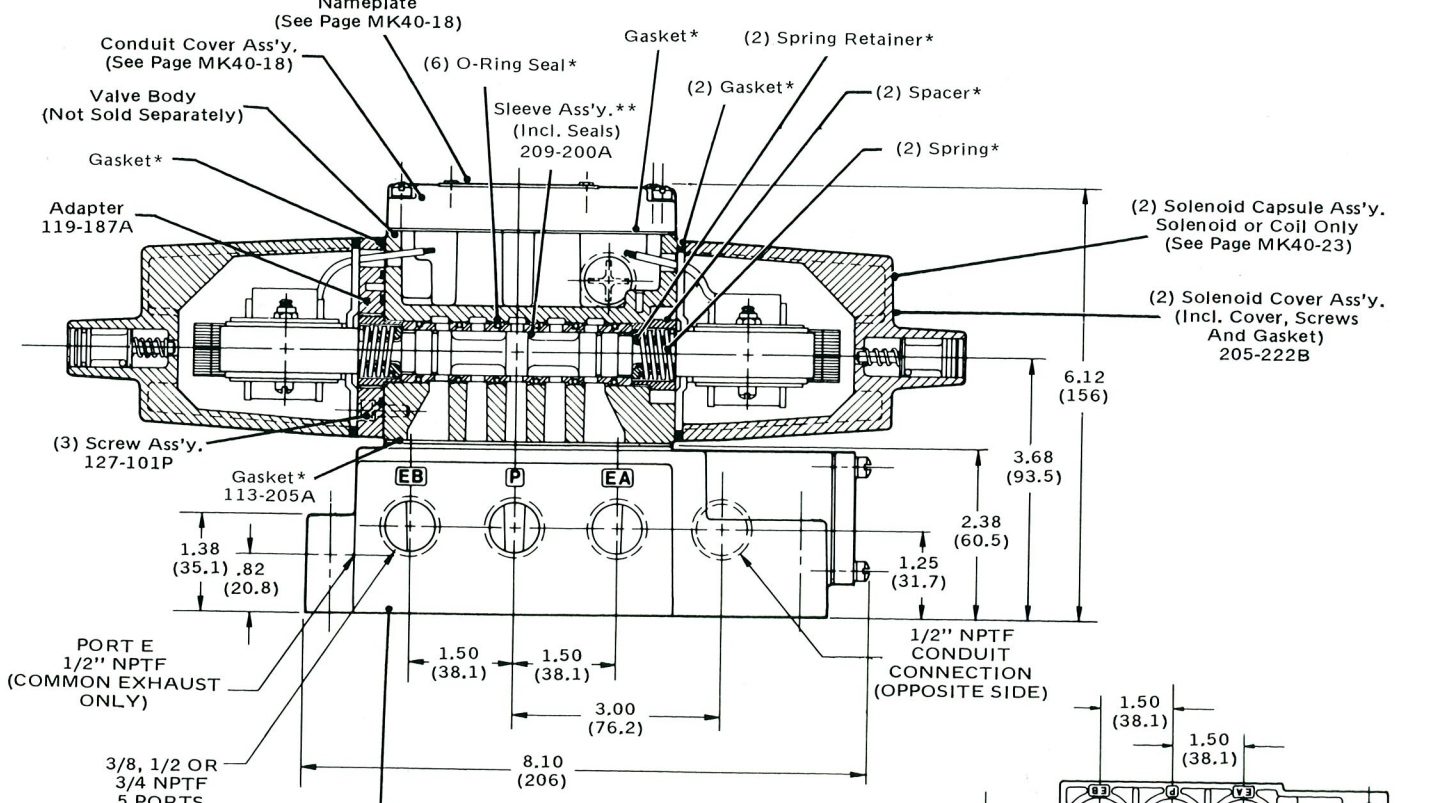
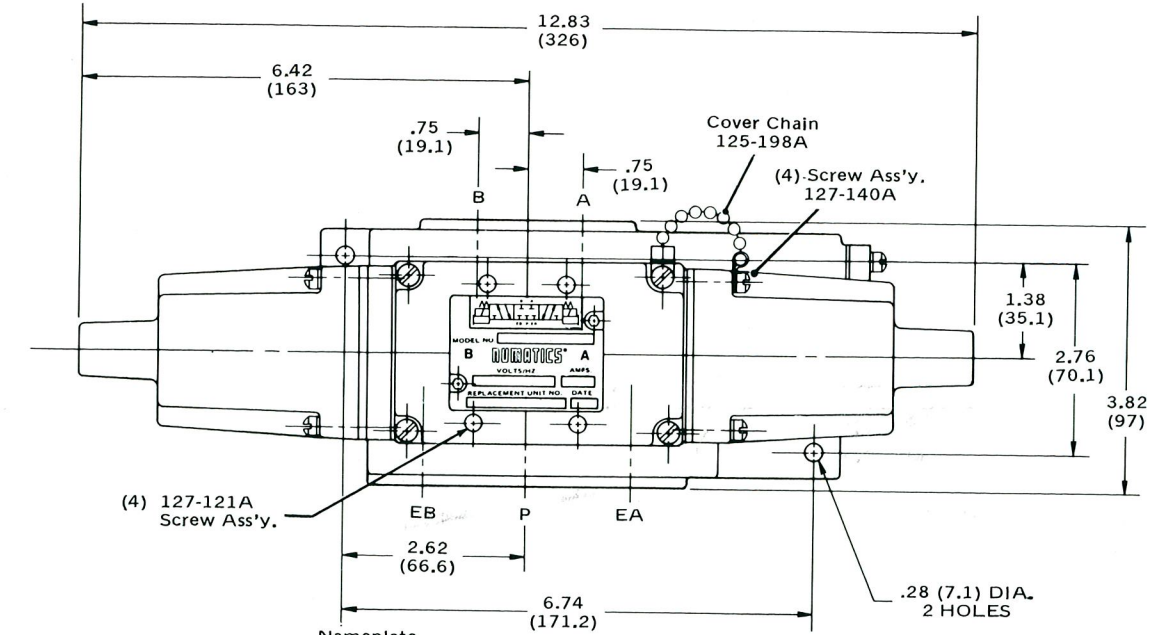
MODEL SELECTION CHART

| 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 | | | | | |

A.N.S.I. SYMBOL



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



*REPAIR KIT
NO. MK40-K3

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

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 to 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).

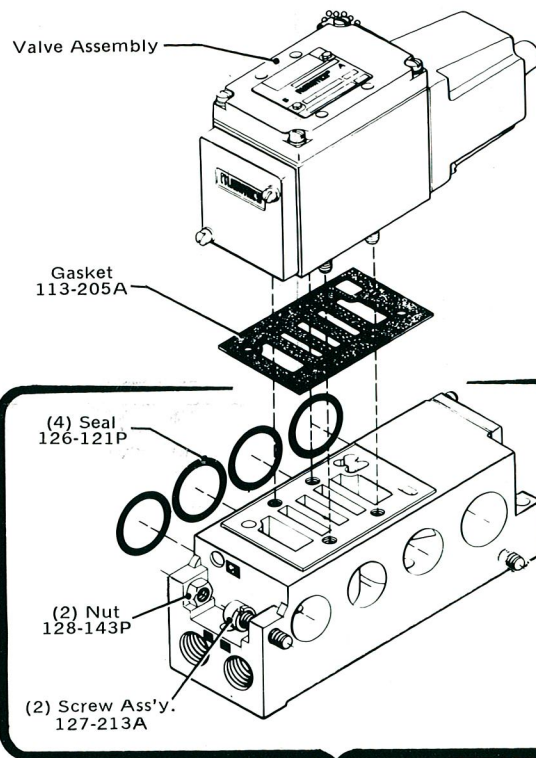
If No. 19 blos are used as dual pressure together with No. 15 blos used as single pressure, group all the No. 19 blos together on one end. Then all No. 15 blos can be supplied by one P gallery.

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 blos.)

| 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 |
| ↓ 19K | ↓ 19K | ↓ 19K | |
| ↓ 20K | ↓ 20K | ↓ 20K | Blok No. 19, side and bottom cylinder ports plus bottom supply and exhaust ports |
| ↓ 25K | ↓ 25K | ↓ 25K | |
| 33DSA415K | 34DSA415K | 35DSA415K | Blok No. 15, w/speed control |
| ↓ 19K | ↓ 19K | ↓ 19K | |
| ↓ 20K | ↓ 20K | ↓ 20K | Blok No. 19, w/speed control |
| ↓ 25K | ↓ 25K | ↓ 25K | |
| 33DSA515K | 34DSA515K | 35DSA515K | Blok No. 15, side and bottom cylinder ports |
| ↓ 19K | ↓ 19K | ↓ 19K | |
| ↓ 20K | ↓ 20K | ↓ 20K | Blok No. 19, side and bottom cylinder ports plus bottom supply and exhaust ports |
| ↓ 25K | ↓ 25K | ↓ 25K | |
| 33DSA615K | 34DSA615K | 35DSA615K | Blok No. 15, w/speed control |
| ↓ 19K | ↓ 19K | ↓ 19K | |
| ↓ 20K | ↓ 20K | ↓ 20K | Blok No. 19, w/speed control |
| ↓ 25K | ↓ 25K | ↓ 25K | |

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 blos are 1/2" NPTF.

FLEXIBLOK®

DIMENSIONS FOR ALL VALVE BLOKS

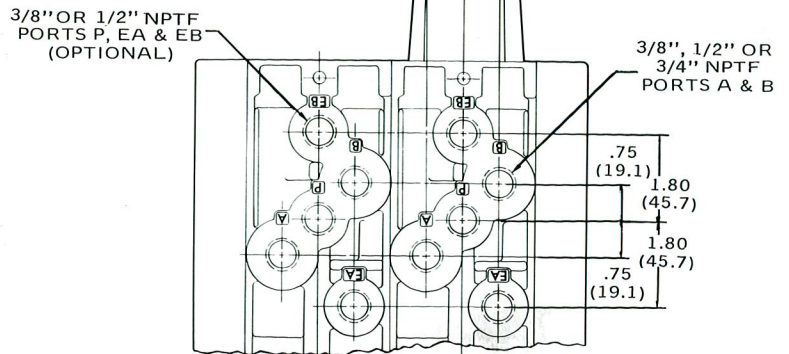
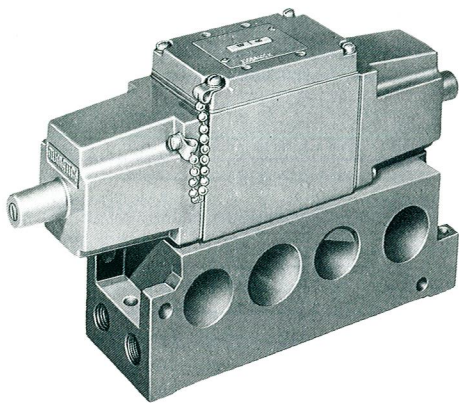
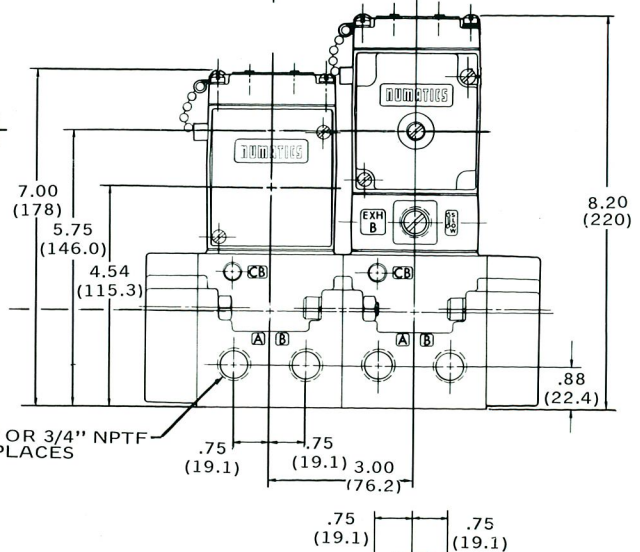
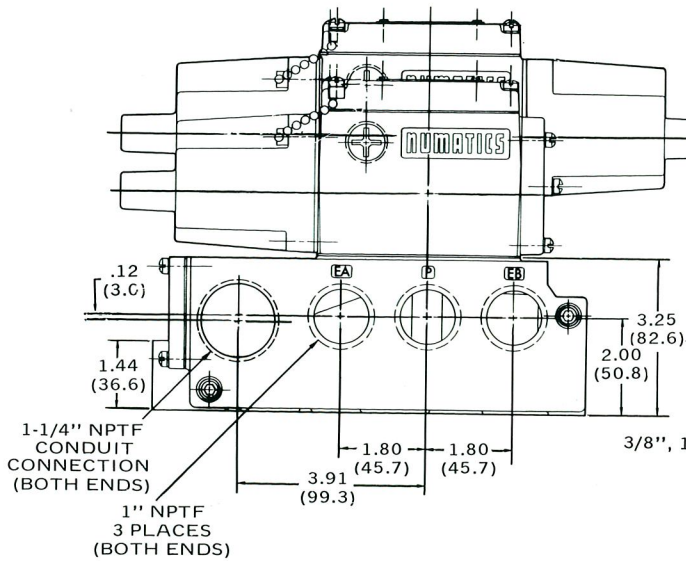
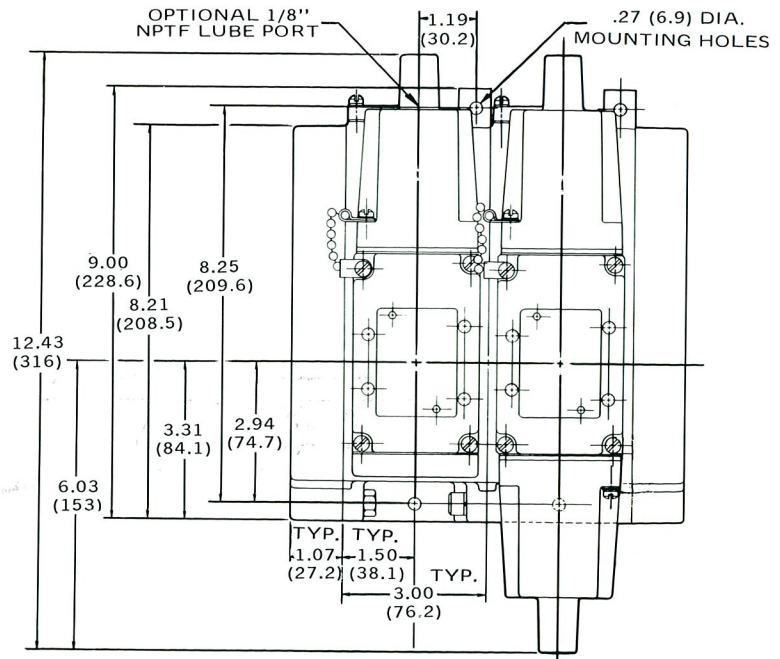
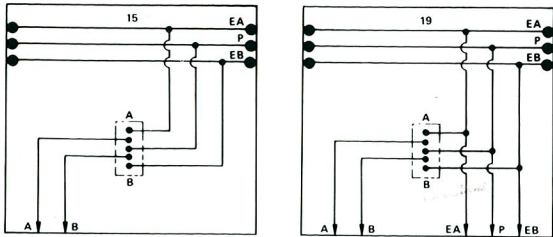
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numatics®
MK. 40 LINE

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



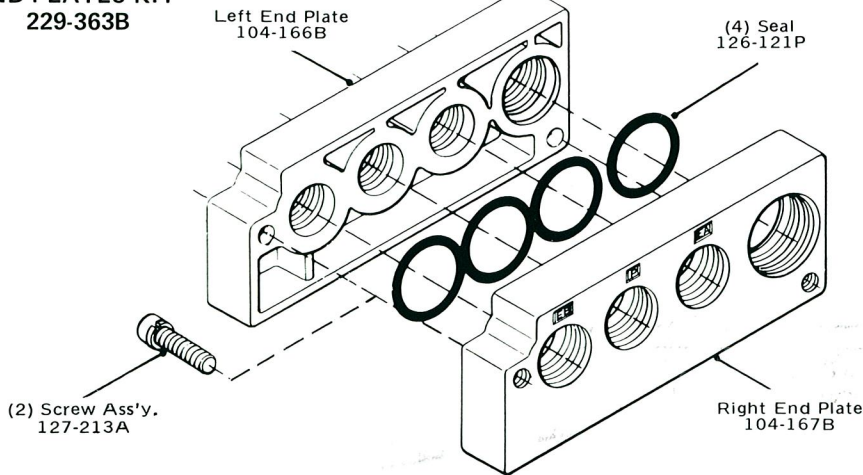
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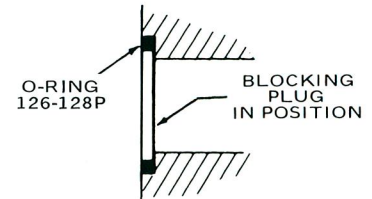
MK. 40 LINE

**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

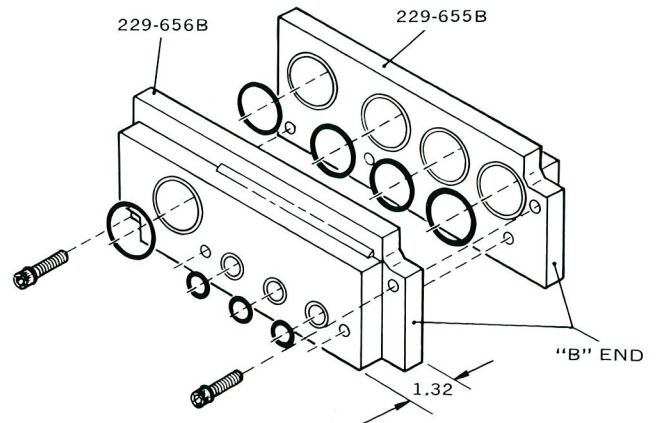
These plates permit the joining of a Numatics MARK 15 FlexiBlok assembly to a MK-40 FlexiBlok assembly.

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).

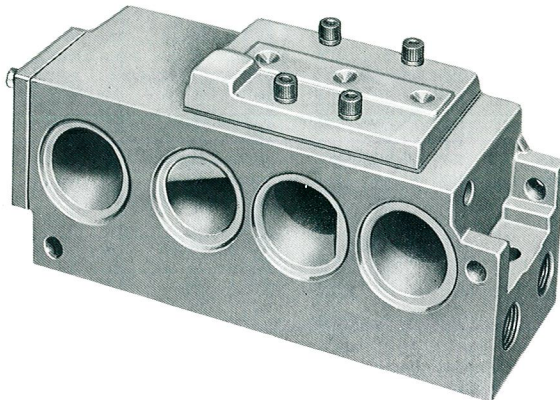
Each kit includes an adapter plate and required seals and screws.

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

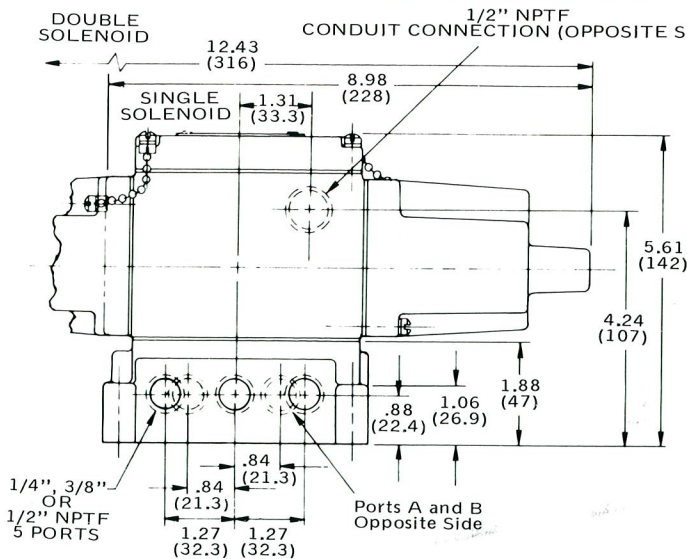
Includes all internal parts except sleeve assembly, coils, or solenoids. Order these separately.

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

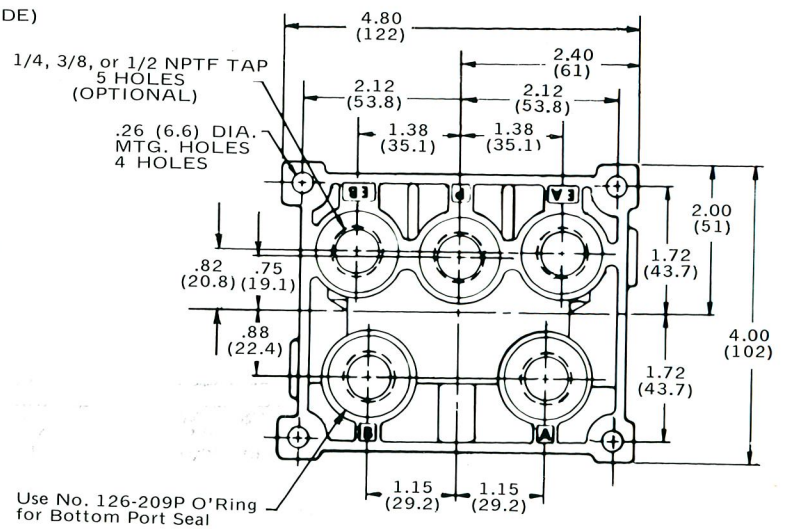
BASE OPTIONS

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 |
|-----------|-----------|-----------|
| 103-401C | 103-402C | 103-403C |
| 203-328B | 203-329B | 203-330B |

DESCRIPTION

Side ports, individual exhaust
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 |
|-----------|-----------|-----------|
| 203-387B | 203-403B | 203-419B |
| 203-388B | 203-404B | 203-420B |
| 203-389B | 203-405B | 203-421B |
| 203-390B | 203-406B | 203-422B |

DESCRIPTION

Side ports, individual exhaust
Side and bottom ports, individual exhaust
Side ports, common exhaust
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.

I. 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 the respective ports 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)

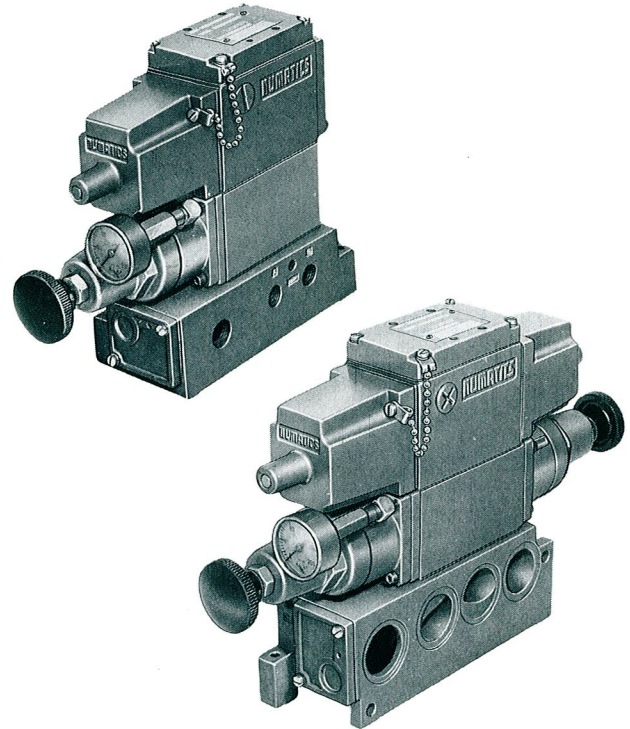
This assembly provides a source of two regulated pressures on a single mounting. A jumper plate is used in place of the valve unit and regulated pressure is delivered to the A and B cylinder ports.

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.

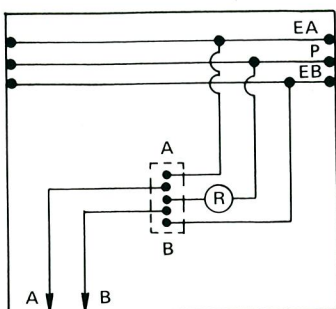
Regulators for use with valve units will be offered only with the integral electrical plug receptacle and the valve unit will be available only with the "K" wiring option (electrical plug and light). The mountings available will be the plug-in style base or FlexiBlok only. These mountings do not include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



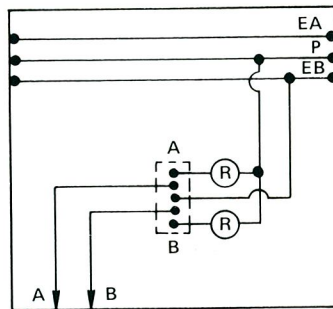
External outlet (Series RE) regulators do not include a valve unit. Use wiring option "O" (no receptacle). Regulators include the top jumper kit.

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.

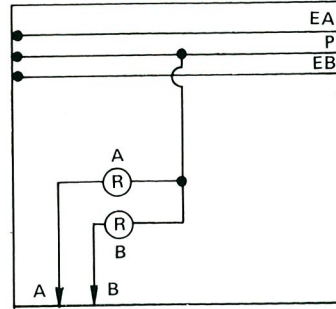
FLEXIBLOK DIAGRAMS



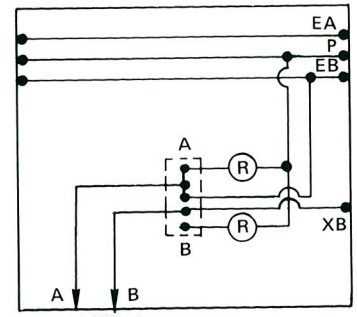
SINGLE REGULATOR



DUAL PRESSURE REGULATOR



EXTERNAL OUTLET REGULATOR



2-PRESSURE SELECTOR (SEE MK40-17)

PRESSURE REGULATORS HOW TO ORDER

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numatics® 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.

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

1. Specify any plug-in Mark 40 valve unit from the model selection charts.
2. 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-

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

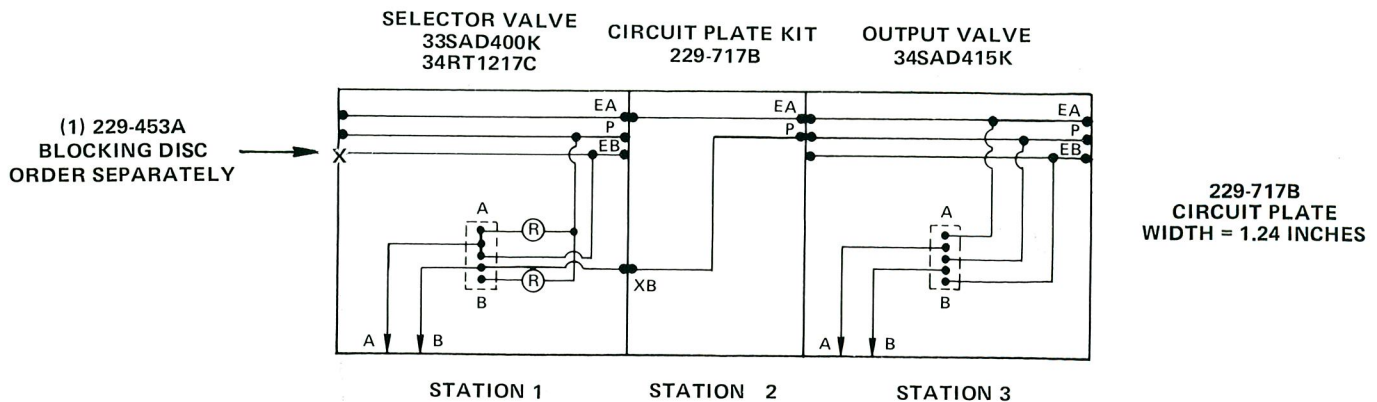
REGULATOR SELECTION CHART

| 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



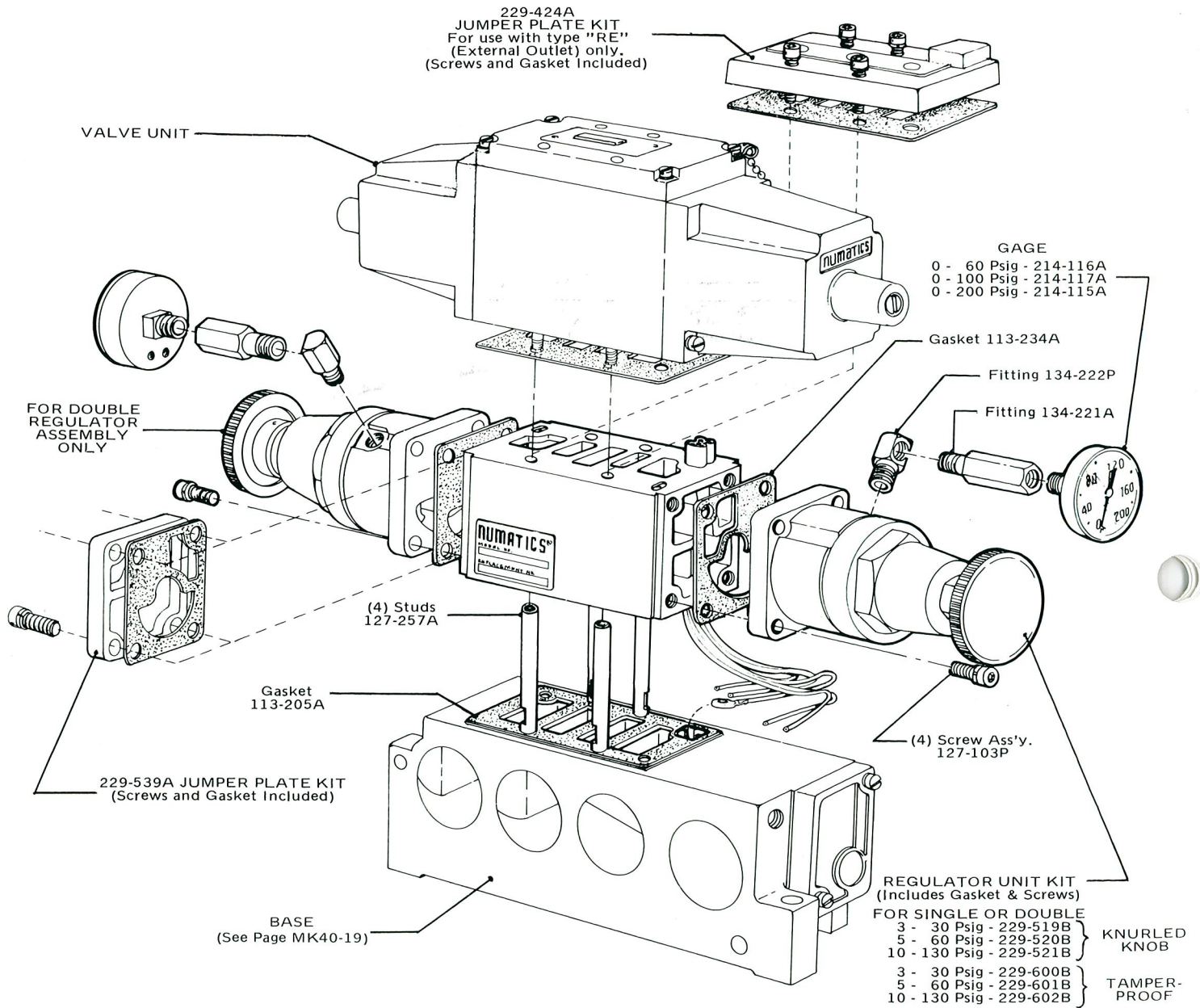
This 2-pressure selector module must have pressure supplied to it from the left end only. Thus, if it is to be used with other valves in a FlexiBlok assembly, always put the 2-pressure selector on the right as the last three stations.

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.

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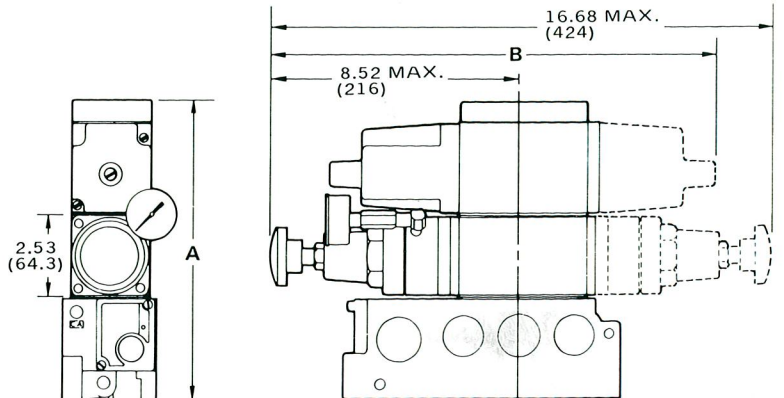
NUMATICS[®] MK. 40 LINE

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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numatics[®]

MK. 40 LINE

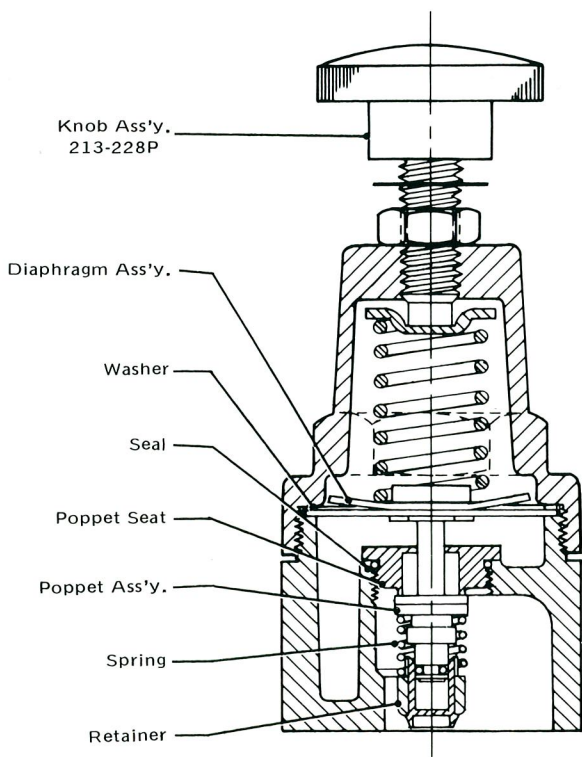
| REGULATOR MOUNTINGS | | | | |
|----------------------------|---|----------------------------------|----------------------------------|----------------------------------|
| BASE OR FLEXIBLOK | | TAP SIZE (NPTF) | | |
| TYPE | DESCRIPTION | 3/8 | 1/2 | 3/4 |
| No. 31 No. 32 | Plug-in base, side ports, 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 | 203-395B 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.

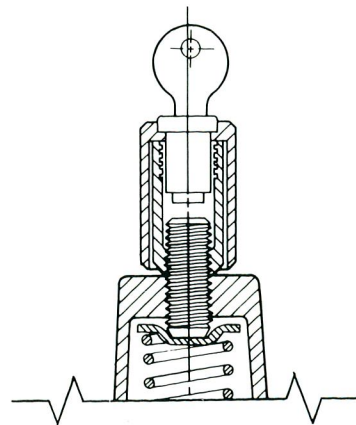
Any standard "40" Series regulator may be converted to "Tamperproof" by removing knob assembly No. 213-228P and the locknut and installing kit No. 229-604A.

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.



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



Tamperproof
(Locking) Kit
229-604A

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MK. 40 LINE

**MECHANICAL
OPTIONS**

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.

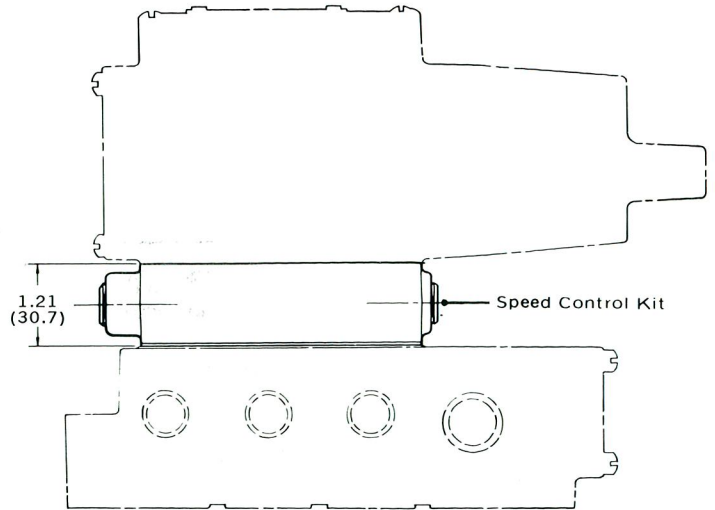
NOTE: The speed control kit should be used only on single pressure applications with supply pressure piped to port "P". Do not use on dual pressure applications.

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.

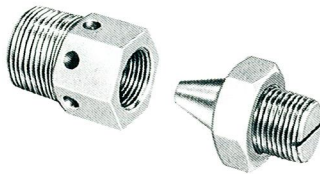
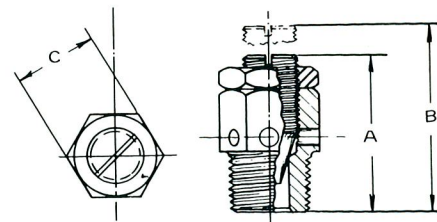
Top Dimension = Inches
Bottom Dimension
(In Parentheses) = Millimeters



- 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

ELECTRICAL OPTIONS

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MK. 40 LINE

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.

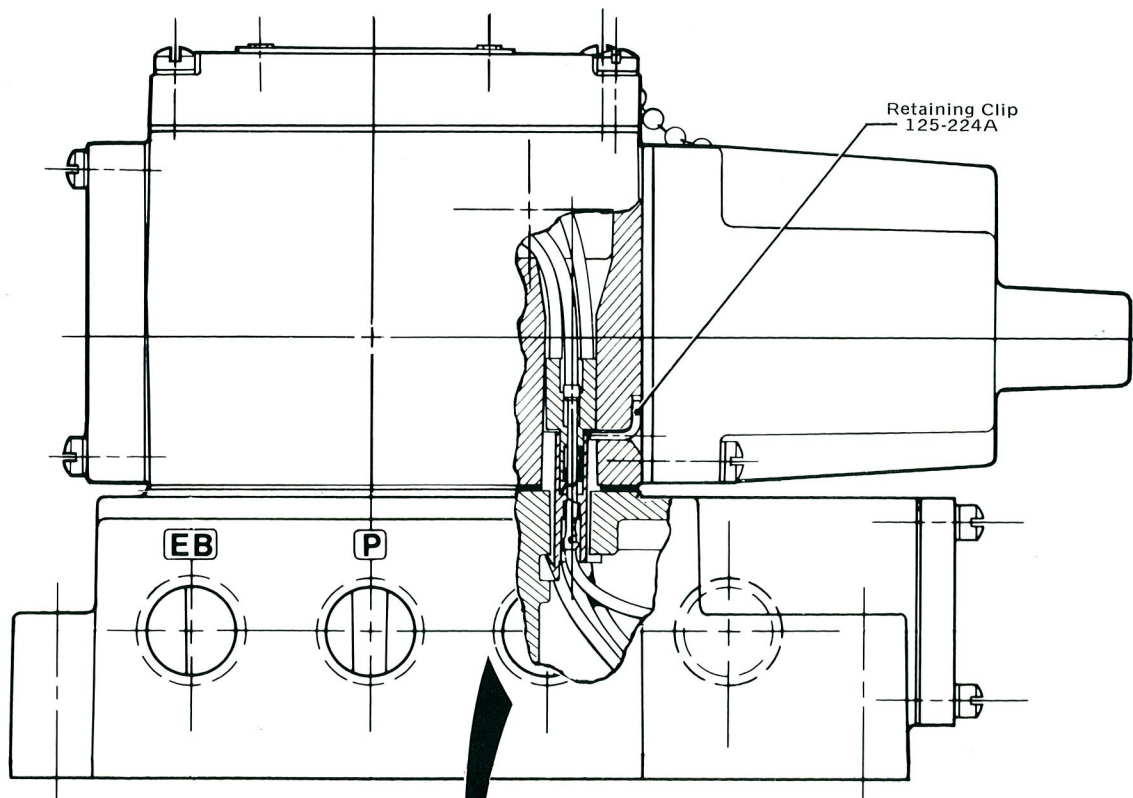
The MARK 40 Line's integral plug design meets or exceeds all of the above criteria.

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 (\perp) 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.

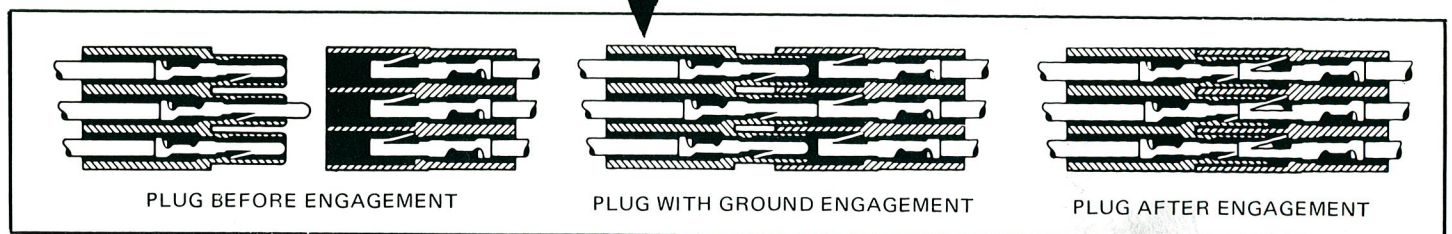
The "A" solenoid leads are covered with orange vinyl insulation, marked with an "A" every 3/8" (9.5 mm), and are terminated with ring-type connectors. The "B" solenoid leads are covered with brown vinyl insulation, marked with a "B" every 3/8" (9.5 mm), and are also terminated with ring-type connectors.

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

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MK. 40 LINE

**ELECTRICAL
OPTIONS**

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 and filled 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:

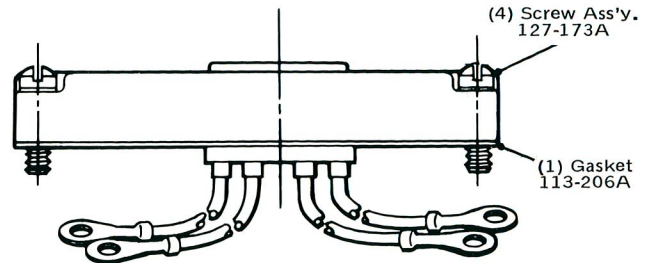
An optional conduit cover with 1/2" NPTF tap is available on all non-plug-in models. To order valves with conduit connections through a top-tapped cover, add 11E to any model number (e.g. 33SAD400011E 120/60).

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

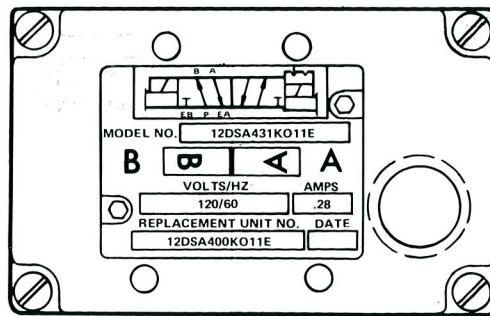
| | |
|----------|---|
| 205-212A | No light |
| 205-213A | 1/2" NPTF tap, no light |
| 205-214A | 115v A.C. light, single solenoid |
| 205-215A | 230v A.C. light, single solenoid |
| 205-216A | 115v A.C. light, double solenoid |
| 205-217A | 230v A.C. light, double solenoid |
| 205-218A | 1/2" NPTF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

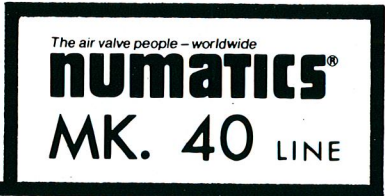
PLUG AND RECEPTACLE HARDWARE:

| | |
|----------|--|
| 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:

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

**ELECTRICAL
OPTIONS**



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

ALL SINGLE SOLENOID MODELS

WITHOUT LIGHT OR PLUG

WITH LIGHT OR PLUG

| VOLTAGE (All Models) | SOLENOID CAPSULE ASSEMBLY | SOLENOID ONLY | COIL ONLY | SOLENOID CAPSULE ASSEMBLY | SOLENOID ONLY | COIL ONLY |
|-------------------------|------------------------------|------------------|--------------|------------------------------|------------------|--------------|
| 24/60 | 227-948B | 228-643B | 139-399P | 227-856B | 228-582B | 139-352P |
| 110 - 120/60 | 227-944B | 228-639B | 139-395P | 227-853B | 228-554B | 139-330P |
| 100 - 115/50 | | | | | | |
| 230 - 240/60 | 227-945B | 228-640B | 139-396P | 227-854B | 228-618B | 139-380P |
| 200 - 220/50 | | | | | | |
| 230 - 240/50 | 227-946B | 228-641B | 139-397P | 227-858B | 228-584B | 139-354P |
| 460/60 | 227-947B | 228-642B | 139-398P | 227-857B | 228-583B | 139-353P |
| Other, Specify | 227-949B | 228-644B | 139-400P | 227-859B | 228-585B | 139-355P |

ALL DOUBLE SOLENOID MODELS

WITHOUT LIGHT OR PLUG

WITH LIGHT OR PLUG

| | | | | | | |
|----------------|----------|----------|----------|----------|----------|----------|
| 24/60 | 227-936B | 228-637B | 139-393P | 227-812B | 228-511B | 139-313P |
| 110 - 120/60 | 227-932B | 228-633B | 139-389P | 227-809B | 228-506B | 139-308P |
| 100 - 115/50 | | | | | | |
| 230 - 240/60 | 227-933B | 228-634B | 139-390P | 227-810B | 228-616B | 139-378P |
| 200 - 220/50 | | | | | | |
| 230 - 240/50 | 227-934B | 228-635B | 139-391P | 227-814B | 228-513B | 139-315P |
| 460/60 | 227-935B | 228-636B | 139-392P | 227-813B | 228-512B | 139-314P |
| Other, Specify | 227-937B | 228-638B | 139-394P | 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).



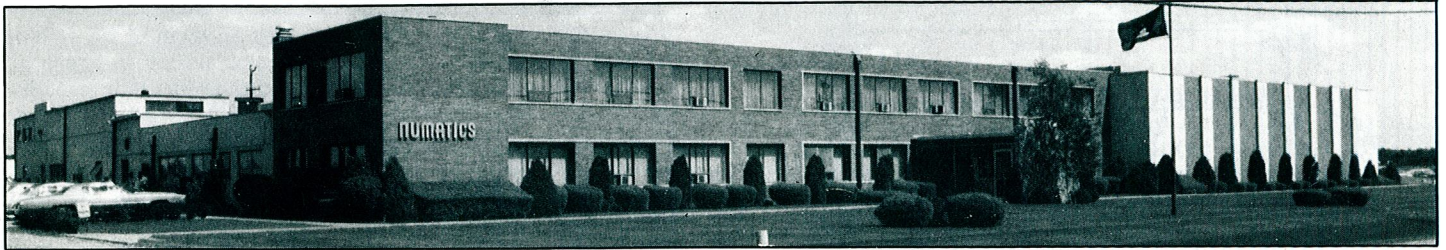
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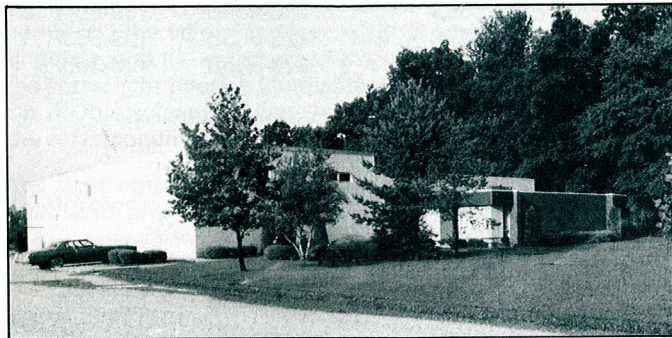
INCORPORATED

1450 N. MILFORD ROAD
HIGHLAND, MICHIGAN 48031

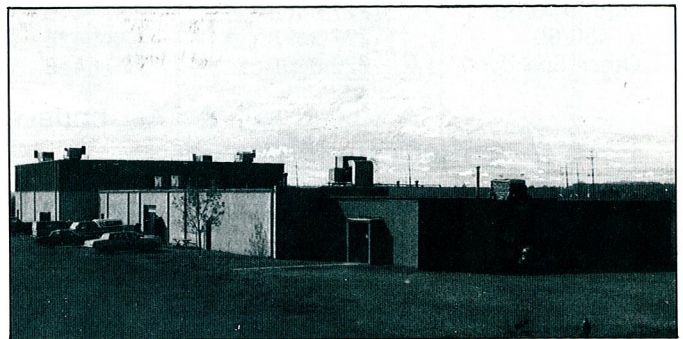
PHONE (313) 887-4111 TELEX 297772 NIHD UR



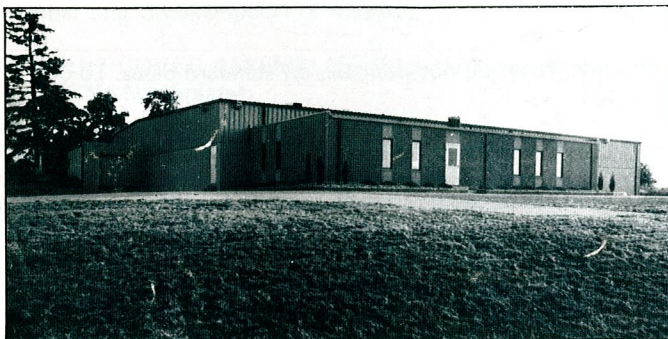
Main Plant - Highland, Michigan U.S.A.



East Highland, Michigan



Sandusky, Michigan



Owosso, Michigan



London, Ontario, Canada

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