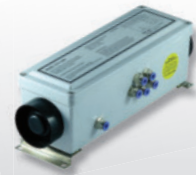




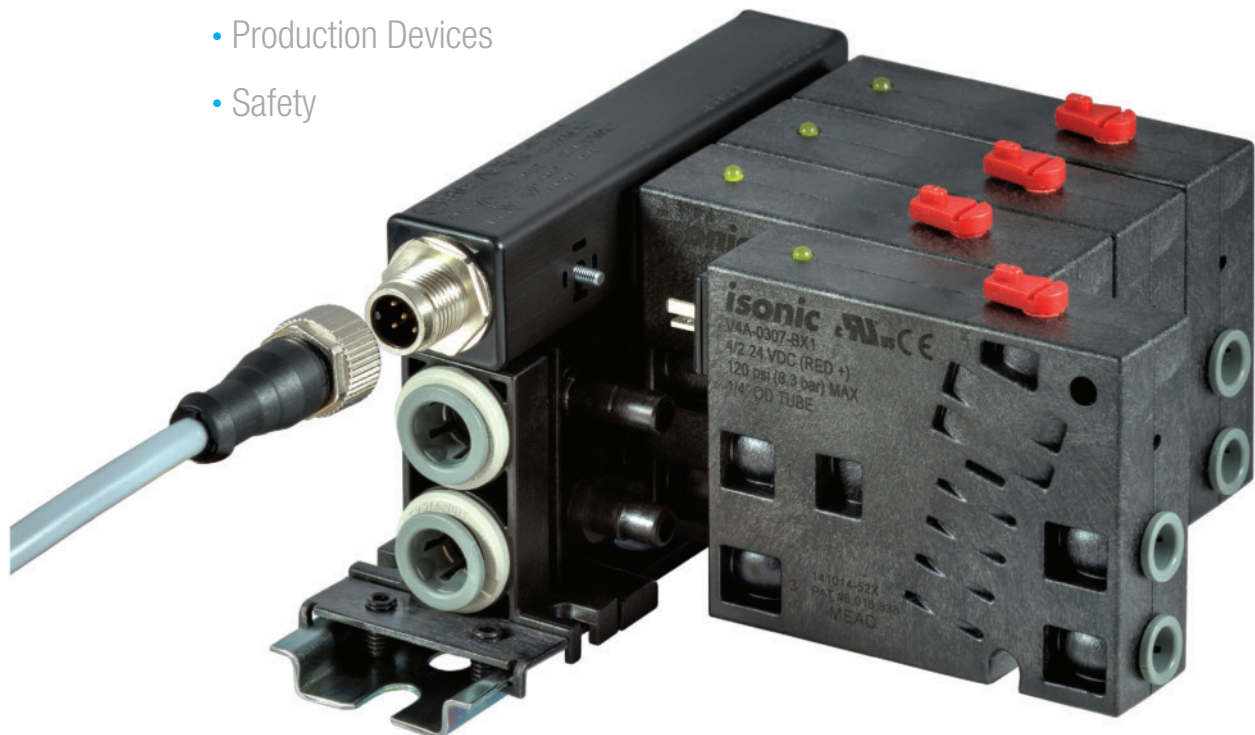
# MEAD

## Full Line Catalog



Setting a new standard for:

- Actuators
- Valves
- Production Devices
- Safety



# Table of Contents

## 1-3 Reference

- 1 Cylinder Finder
- 2-3 Valve Finder

## 4-25 Control Valves

- 4 Isonic®
- 5-6 Isonic® V1000 Series
- 7-9 Isonic® V2000 Series
- 10-11 Isonic® V4000 Series
- 12 Manifold PowerStrip™
- 13 Isonic® Accessories
- 14-15 Nova
- 16-17 Capsula
- 18 Dura-Matic 4-Way Valves
- 19 Ergonomic Low Stress Air Valve
- 20-21 LTV
- 22-23 MV 3-Way Switches
- 24-25 Cam, Foot, Hand and Button Valves

## 26-50 Cylinders

- 26-27 Small Bore Tie Rod
- 28-33 DM1 & DM2 NFPA Interchangeable
- 34-41 HD1 NFPA Heavy-Duty
- 42-43 Large Bore HD NFPA Heavy Duty
- 44-45 Centaur
- 46 Proximity Switches (Reed/Solid State)
- 47 Space Saver
- 48-49 Miniature Air Cylinders
- 50 Single-Acting Air Clamps

## 51-57 Specialty Valves

- 51 Lockout and Easy-Glide Ball Handle Valves
- 52 Mini Solenoid and Binary Valves
- 53 Air Timers and Impulse Relay Valves
- 54 Stroke Sensors and Air to Electric Switches
- 55 Dash/Panel Mount Control Valves
- 56 Dyla-Trol® Flow Controls
- 57 Two-Hand Control Valves

## 58-60 Production Devices

- 58 Air Presses
- 59 Heavy Multi-Stage Press
- 60 Air Press Dimensions

## 62-63 Accessories

- 62 RAF & RAFK: Right Angle Flow Controls
- 62 Female DIN Solenoid Connectors
- 62 Manifold
- 63 Quick Exhaust Valves
- 63 Shuttle Valves
- 63 Check Valves
- 63 Air Silencers & Breathers

## 64-68 Index

- 64 Custom Products
- 65-66 Product Index
- 67-68 Notes



Mead Fluid Dynamics, Inc.

**Mead USA**

4114 N. Knox Ave.

Chicago, IL 60641

Phone: (773) 685-6800

Fax: (773) 685-7002

Customer Service Toll Free Number:

(877) MEAD USA (877-632-3872)

sales@mead-usa.com

Visit [www.mead-usa.com](http://www.mead-usa.com) for downloadable:

- PDF Files
- CAD Drawings
- Exploded Views

# Cylinder Finder

Mead offers a wide selection of cylinder styles.

## Dyna-Mation (DM/DM1/DM2)



NFPA Interchangeable  
Extruded Body Design  
1-1/2" Through 4" Bore Sizes  
3/4" and 1-1/8" Tie Rod Models  
Available

## Heavy-Duty (HD1)



External Rod Bearing  
NFPA Interchangeable  
Tie Rod Design  
1-1/2" Through 6" Bore Sizes

## Large Bore (HD)



NFP Style Cylinders  
Tie Rod Design  
Bore Sizes: 5, 8, 10, 12

## Centaur (C)



Medium Duty Round  
Non-Lube Cylinder  
Easy To Mount  
1-1/8" Through 3" Bore Sizes

## Space Saver (SS)



Highly Compact  
Low Profile Cylinder  
3/4" Through 4" Bore Sizes

## Air Clamps (H)



Single-Acting Cylinders  
Adjustable Stroke  
Models Available  
1" Through 6" Bore Sizes

## Miniature (M)

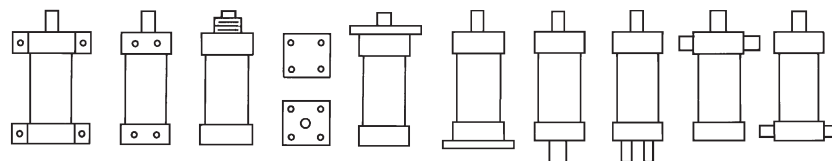


Fractional Stroke Cylinders  
Universal Mounting  
1/4", 3/8" and 1/2" Bores

| Bore   | Model Number   | Rod Diam (in.) | Port Size (NPTF) | Stroke Availability (in.) | Double or Single Acting | Output at 100 PSI (lbs.) | Max. Air Inlet Pressure (PSI) | Max. Oil Inlet Pressure (PSI) | Pages |
|--------|----------------|----------------|------------------|---------------------------|-------------------------|--------------------------|-------------------------------|-------------------------------|-------|
| 1/4"   | MA-250         | .14            | 10-32            | to 2                      | DA/SA                   | 5                        | 125                           | No                            | 49-50 |
|        | MF-250         | .14            | 10-32            | to 2                      | DA/SA                   | 5                        | 125                           | No                            | 49-50 |
| 3/8"   | MA-375         | .17            | 10-32            | to 2                      | DA/SA                   | 11                       | 125                           | No                            | 49-50 |
|        | MF-375         | .17            | 10-32            | to 2                      | DA/SA                   | 11                       | 125                           | No                            | 49-50 |
| 1/2"   | MA-500         | .25            | 10-32            | to 2                      | DA/SA                   | 20                       | 125                           | No                            | 49-50 |
|        | MF-500         | .25            | 10-32            | to 2                      | DA/SA                   | 20                       | 125                           | No                            | 49-50 |
| 3/4"   | DM-075         | 5/16           | 1/8              | Any                       | DA                      | 44                       | 250                           | 1,000*                        | 26-27 |
|        | SS-075         | 5/16           | 10-32            | to 2                      | DA                      | 44                       | 250                           | No                            | 47    |
| 1"     | H-1            | 5/16           | 1/8              | 11/16                     | SA                      | 68                       | 150                           | No                            | 48    |
|        | H0X01          | 5/16           | 1/8              | 0 to 2                    | SA                      | 62                       | 150                           | No                            | 48    |
| 1-1/8" | DM-112         | 5/16           | 1/8              | Any                       | DA                      | 100                      | 250                           | 1,000*                        | 26-27 |
|        | C-112          | 5/16           | 1/4-28 or 1/8    | Any                       | DA                      | 100                      | 250                           | 250                           | 44-45 |
|        | SS-112         | 1/2            | 10-32            | to 3                      | DA                      | 100                      | 150                           | No                            | 47    |
| 1-1/2" | DM1-150        | 5/8            | 1/4              | Any                       | DA                      | 177                      | 250                           | 1,000                         | 28-33 |
|        | DM2-150        | 5/8            | 1/4              | Any                       | DA                      | 177                      | 250                           | 1,000                         | 28-33 |
|        | HD1-150        | 5/8 or 1       | 1/4              | Any                       | DA                      | 177                      | 250                           | 1,000                         | 34-41 |
|        | C-150          | 1/2            | 1/4              | Any                       | DA                      | 177                      | 150                           | 250                           | 44-45 |
| 2"     | SS-150         | 1/2            | 10-32            | to 3                      | DA                      | 177                      | 150                           | No                            | 47    |
|        | DM1-200        | 5/8            | 1/4              | Any                       | DA                      | 314                      | 250                           | 1,000                         | 28-33 |
|        | DM2-200        | 5/8            | 1/4              | Any                       | DA                      | 314                      | 250                           | 1,000                         | 28-33 |
|        | HD1-200        | 5/8 or 1       | 1/4              | Any                       | DA                      | 314                      | 250                           | 1,000                         | 34-41 |
| 2-1/4" | C-200          | 5/8            | 1/4              | Any                       | DA                      | 314                      | 150                           | 250                           | 44-45 |
|        | SS-200         | 5/8            | 1/8              | to 3                      | DA                      | 314                      | 150                           | No                            | 47    |
|        | H-41           | 1/2            | 1/8              | 1                         | SA                      | 316                      | 150                           | No                            | 48    |
| 2-1/2" | H-42           | 1/2            | 1/8              | 2                         | SA                      | 353                      | 150                           | No                            | 48    |
|        | H-43           | 1/2            | 1/8              | 3                         | SA                      | 351                      | 150                           | No                            | 48    |
|        | DM1-250        | 5/8            | 1/4              | Any                       | DA                      | 491                      | 250                           | 1,000                         | 28-33 |
| 3"     | DM2-250        | 5/8            | 1/4              | Any                       | DA                      | 491                      | 250                           | 1,000                         | 28-33 |
|        | HD1-250        | 5/8 or 1       | 1/4              | Any                       | DA                      | 491                      | 250                           | 1,000                         | 34-41 |
|        | C-250          | 3/4            | 1/4              | Any                       | DA                      | 491                      | 150                           | 250                           | 44-45 |
|        | SS-250         | 5/8            | 1/8              | to 3                      | DA                      | 491                      | 150                           | No                            | 47    |
| 3-1/4" | C-300          | 1              | 1/4              | Any                       | DA                      | 707                      | 150                           | 250                           | 44-45 |
|        | SS-300         | 3/4            | 1/8              | to 3                      | DA                      | 707                      | 150                           | No                            | 47    |
|        | H-71, -72, -73 | 3/4            | 1/4              | 1, 2, 3                   | SA                      | 682                      | 150                           | No                            | 48    |
| 4"     | DM1-325        | 1              | 1/2              | Any                       | DA                      | 829                      | 250                           | 700                           | 28-33 |
|        | DM2-325        | 1              | 1/2              | Any                       | DA                      | 829                      | 250                           | 700                           | 28-33 |
|        | HD1-325        | 1 or 1-3/8     | 1/2              | Any                       | DA                      | 829                      | 250                           | 700                           | 34-41 |
|        | DM1-400        | 1              | 1/2              | Any                       | DA                      | 1,257                    | 250                           | 650                           | 28-33 |
| 5"     | DM2-400        | 1              | 1/2              | Any                       | DA                      | 1,257                    | 250                           | 650                           | 28-33 |
|        | HD1-400        | 1 or 1-3/8     | 1/2              | Any                       | DA                      | 1,257                    | 250                           | 650                           | 34-41 |
|        | SS-400         | 3/4            | 1/8              | to 3                      | DA                      | 1,257                    | 150                           | No                            | 47    |
|        | H-122          | 3/4            | 3/8              | 2 5/8                     | SA                      | 1,204                    | 150                           | No                            | 48    |
| 6"     | HD-500         | 1 or 1-3/8     | 1/2              | Any                       | DA                      | 1,964                    | 250                           | 900                           | 42-43 |
|        | DM-600         | 1 3/8          | 3/4              | Any                       | DA                      | 2,827                    | 250                           | 435                           | 28-33 |
| 8"     | HD-600         | 1-3/8 or 1-3/4 | 3/4              | Any                       | DA                      | 2,827                    | 250                           | 435                           | 42-43 |
|        | H-283          | 1-1/4          | 1/2              | 3                         | SA                      | 2,763                    | 150                           | No                            | 48    |
| 10"    | HD-800         | 1-3/8 or 1-3/4 | 3/4              | Any                       | DA                      | 5,027                    | 200                           | 500                           | 42-43 |
|        | HD-1000        | 1-3/4 or 2     | 1                | Any                       | DA                      | 7,854                    | 200                           | 400                           | 42-43 |
| 12"    | HD-1200        | 2 or 2-1/2     | 1                | Any                       | DA                      | 11,310                   | 200                           | 400                           | 42-43 |

\*Specify "FOR HY USE" when ordering

## Available Mounting Styles



Foot Bottom Flush Nose Frt/Rear Flush Front Flange Rear Flange Pivot Clevis Front Trunnion Rear Trunnion

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

## Valve Finder

|                                 | Actuator           | Model Number    | Port Size | Flow (C <sub>v</sub> ) | Return Flow | Flow Pattern | See Page |
|---------------------------------|--------------------|-----------------|-----------|------------------------|-------------|--------------|----------|
| <b>Mechanically Actuated</b>    | Straight Plunger   | MV-5            | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | MV-45           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | LTV-5           | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | LTV-45          | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | FC-51           | 1/8       | 0.81                   | Spring      | 3-Way        | 25       |
|                                 |                    | 3C-1            | 1/4       | 0.48                   | Spring      | 3-Way        | 25       |
|                                 |                    | FC-101          | 3/8       | 1.15                   | Spring      | 3-Way        | 24       |
|                                 | Straight Leaf      | MV-10           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | MV-70           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | LTV-10          | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 | Roller             | MV-15           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | MV-90           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | MV-25, MV-30    | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | MV-75           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | LTV-15          | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | LTV-25, LTV-30  | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | LTV-75          | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 | One-Way Roller     | MV-20           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | MV-80           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | LTV-20          | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
| LTV-80                          |                    | 1/8             | 0.18      | Int. Air               | 4-Way       | 20-21        |          |
| Extended Rod                    | MV-85              | 1/8             | 0.11      | Spring                 | 3-Way       | 22-23        |          |
|                                 | LTV-85             | 1/8             | 0.18      | Int. Air               | 4-Way       | 20-21        |          |
| Ball                            | MV-40              | 1/8             | 0.11      | Spring                 | 3-Way       | 22-23        |          |
|                                 | LTV-40             | 1/8             | 0.18      | Int. Air               | 4-Way       | 20-21        |          |
| <b>Hand (Manually) Actuated</b> | Fingertip Lever    | MV-50           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | LTV-50          | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | N2-HL           | 1/4       | 1.00                   | Spring      | 4-Way        | 14-15    |
|                                 |                    | FT-101          | 3/8       | 1.15                   | Spring      | 3-Way        | 24       |
|                                 |                    | FT-4            | 1/8       | 0.16                   | Spring      | 4-Way        | 24       |
|                                 | Low Stress         | LTV-PBG(F)      | 1/8       | 0.18                   | Int. Air    | 3- or 4-Way  | 19       |
|                                 | Straight Lever     | C2-7            | 1/4       | 0.75                   | Spring      | 4-Way        | 16-17    |
|                                 |                    | C5-7            | 1/2       | 3.17                   | Spring      | 4-Way        | 16-17    |
|                                 |                    | C2-8            | 1/4       | 0.75                   | Hand        | 4-Way        | 16-17    |
|                                 |                    | C5-8            | 1/2       | 3.17                   | Hand        | 4-Way        | 16-17    |
|                                 |                    | 4B-1            | 1/4       | 0.48                   | Hand        | 4-Way        | 25       |
|                                 | Push Button & Palm | MV-140          | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | LTV-125         | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | LTV-140         | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | PC-51           | 1/8       | 0.81                   | Spring      | 3-Way        | 25       |
|                                 |                    | MV-MH           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | LTV-MH          | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | MV-EH & MV-FH   | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | LTV-EH & LTV-FH | 1/8       | 0.18                   | Int. Air    | 4-Way        | 20-21    |
|                                 |                    | MV-ES           | 1/8       | 0.11                   | Spring      | 3-Way        | 22-23    |
|                                 |                    | MV-EMS          | 1/8       | 0.18                   | Detent      | 3-Way        | 22-23    |
|                                 | LTV-ES             | 1/8             | 0.18      | Int. Air               | 4-Way       | 20-21        |          |
|                                 | Double Button      | N2-PB           | 1/4       | 1.00                   | Button      | 4-Way        | 14-15    |
|                                 | Knob (Push-Pull)   | LTV-130         | 1/8       | 0.18                   | Knob        | 4-Way        | 20-21    |
|                                 |                    | PC-51A          | 1/8       | 0.81                   | Knob        | 3-Way        | 25       |
|                                 |                    | ACV-16          | 5/32      | 0.053                  | Knob        | 4-Way        | 55       |
|                                 |                    | ACV-25          | 1/4       | 0.12                   | Knob        | 4-Way        | 55       |
|                                 | Flip Toggle        | MV-35           | 1/8       | 0.11                   | Toggle      | 3-Way        | 22-23    |
|                                 |                    | LTV-35          | 1/8       | 0.18                   | Toggle      | 4-Way        | 20-21    |
| Twist (2 Pos.)                  | MV-TP              | 1/8             | 0.11      | Twist                  | 3-Way       | 22-23        |          |
|                                 | LTV-TP             | 1/8             | 0.18      | Twist                  | 4-Way       | 20-21        |          |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index



|                              | Actuator        | Model Number | Port Size | Flow (C <sub>v</sub> ) | Return Flow        | Flow Pattern | See Page |
|------------------------------|-----------------|--------------|-----------|------------------------|--------------------|--------------|----------|
| <b>Electrically Actuated</b> | Single Solenoid | LTV-115DD    | 1/8       | 0.18                   | Int. Air           | 4-Way        | 20-21    |
|                              |                 | N2-SCD       | 1/4       | 1.00                   | Spring             | 4-Way        | 14-15    |
|                              |                 | C2-4DCD      | 1/4       | 0.75                   | Spring             | 4-Way        | 16-17    |
|                              |                 | C5-4DCD      | 1/2       | 3.17                   | Spring             | 4-Way        | 16-17    |
|                              |                 | V1 (Isonic)  | 5/32 Tube | 0.02                   | Spring             | 3-Way        | 4-6      |
|                              |                 | V2 (Isonic)  | 1/4 Tube  | 0.01, 0.02, 0.05       | Spring or Ext. Air | 3-Way        | 7-9      |
|                              |                 | V4 (Isonic)  | 1/4 Tube  | 0.8                    | Spring             | 4-Way        | 10-13    |
|                              |                 | MB12-3CSC    | 1/8       | 0.035                  | Spring             | 3-Way        | 52       |
|                              |                 | MB12-3USC    | 1/8       | 0.035                  | Spring             | 3-Way        | 52       |
|                              |                 | MC25-3CSC    | 1/4       | 0.035                  | Spring             | 3-Way        | 52       |
|                              |                 | MB12-3USC    | 1/4       | 0.035                  | Spring             | 3-Way        | 52       |
|                              |                 | MB12-2CSC    | 1/8       | 0.035                  | Spring             | 2-Way        | 52       |
|                              |                 | MC25-2CSC    | 1/4       | 0.035                  | Spring             | 2-Way        | 52       |
|                              | Double Solenoid | LTV-120DD    | 1/8       | 0.18                   | Solenoid           | 4-Way        | 20-21    |
|                              |                 | N2-DCD       | 1/4       | 1.00                   | Solenoid           | 4-Way        | 14-15    |
|                              |                 | C2-5DCD      | 1/4       | 0.75                   | Solenoid           | 4-Way        | 16-17    |
|                              |                 | C5-5DCD      | 1/2       | 3.17                   | Solenoid           | 4-Way        | 16-17    |
|                              |                 | C2-6HDCD     | 1/4       | 0.75                   | Solenoid           | 4-Way        | 16-17    |
|                              |                 | C2-6RDCD     | 1/4       | 0.75                   | Solenoid           | 4-Way        | 16-17    |
| <b>Air Actuated</b>          | Single Pressure | LTV-60       | 1/8       | 0.18                   | Int. Air           | 4-Way        | 20-21    |
|                              |                 | LTV-60L      | 1/8       | 0.18                   | Int. Air           | 4-Way        | 20-21    |
|                              |                 | L-10         | 1/8       | 0.11                   | Int. Air           | 4-Way        | 18       |
|                              |                 | K-10         | 1/8       | 0.18                   | Int. Air           | 4-Way        | 18       |
|                              |                 | N2-SP        | 1/4       | 1.00                   | Spring             | 4-Way        | 14-15    |
|                              |                 | V4 (Isonic)  | 1/4 Tube  | 0.80                   | Spring             | 4-Way        | 10-13    |
|                              |                 | W-10         | 1/4       | 0.63                   | Int. Air           | 4-Way        | 18       |
|                              |                 | C2-3         | 1/4       | 0.75                   | Spring             | 4-Way        | 16-17    |
|                              |                 | C5-3         | 1/2       | 3.17                   | Spring             | 4-Way        | 16-17    |
|                              |                 | MV-60        | 1/8       | 0.11                   | Spring             | 3-Way        | 22-23    |
|                              |                 | MPE-BZ       | 1/8       | -                      | Spring             | Spec.        | 54       |
|                              |                 | MPE-BZE      | 1/8       | -                      | Spring             | Spec.        | 54       |
|                              | Double Pressure | LTV-110      | 1/8       | 0.18                   | Ext. Air           | 4-Way        | 20-21    |
|                              |                 | N-10         | 1/8       | 0.11                   | Ext. Air           | 4-Way        | 18       |
|                              |                 | M-10         | 1/8       | 0.18                   | Ext. Air           | 4-Way        | 18       |
|                              |                 | N2-DP        | 1/4       | 1.00                   | Ext. Air           | 4-Way        | 14-15    |
|                              |                 | V4 (Isonic)  | 1/4 Tube  | 0.80                   | Ext. Air           | 4-Way        | 10-13    |
|                              |                 | X-10         | 1/4       | 0.63                   | Ext. Air           | 4-Way        | 18       |
|                              |                 | C2-1         | 1/4       | 0.75                   | Ext. Air           | 4-Way        | 16-17    |
|                              |                 | C5-1         | 1/2       | 3.17                   | Ext. Air           | 4-Way        | 16-17    |
|                              | Single Bleed    | T-10         | 1/8       | 0.11                   | Int. Air           | 4-Way        | 18       |
|                              |                 | O-10         | 1/8       | 0.18                   | Int. Air           | 4-Way        | 18       |
|                              |                 | Y-10         | 1/4       | 0.63                   | Int. Air           | 4-Way        | 18       |
| 404A                         |                 | 1/8          | -         | Spring                 | 2-Way              | 18           |          |
| 405A                         |                 | Spec.        | -         | Spring                 | 2-Way              | 18           |          |
| Double Bleed                 | V-10            | 1/8          | 0.11      | Ext. Bleed             | 4-Way              | 18           |          |
|                              | U-10            | 1/8          | 0.18      | Ext. Bleed             | 4-Way              | 18           |          |
|                              | Z-10            | 1/4          | 0.63      | Ext. Bleed             | 4-Way              | 18           |          |
|                              | N2-DB           | 1/4          | 1.00      | Ext. Bleed             | 4-Way              | 14-15        |          |
| <b>Foot Actuated</b>         | Pedal           | 2060400      | 1/4       | 0.11                   | Spring             | 3-Way        | 23       |
|                              |                 | N2-F4        | 1/4       | 1.00                   | Spring             | 4-Way        | 14-15    |
|                              | Foot Treadle    | 4W-1         | 1/4       | 0.48                   | Foot               | 4-Way        | 25       |
|                              |                 | 201          | 3/8       | 1.15                   | Foot               | 3-Way        | 24       |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index



### The Award-Winning “Half-Shell” Design

The heart of the Isonic® concept is its patented “half-shell” design. Composed of two mirror-image halves, Isonic® allows its flow channels and internal component compartments to be designed directly into these molded body sections. Valve bodies are molded of high-strength, glass-impregnated Ultem thermoplastic.

Assembly is achieved by simply inserting the various valve elements into their corresponding “half-shell” pockets. Internal components are easily positioned to make optimal use of space.

The valve is completed by ultrasonically welding the two valve segments, creating a strong bond and hermetic seal. This design totally eliminates the need for fasteners, adhesives, gaskets and inserts.

### Revolutionary Valve Production

Isonic® technology eliminates all machining operations associated with valve manufacturing. Requiring only simple assembly, Isonic® can be produced quickly and easily with significant cost reduction.

### Design Optimizes Valve Performance

Isonic® 2, 3 and 4-way valves feature a unique, multi-patented design that significantly shrinks valve size while boosting flow capacity. With its design and a state-of-the-art manufacturing process, Isonic® breaks through the restriction and limitations of conventional valve manufacturing.

### Loaded with Standard Features

Along with its size and price advantages, Isonic® offers numerous user features, many of them standard. Most models feature an integral electronic board with surge suppression and LED. A variety of voltages and wiring options are available. This combination of price and versatility makes Isonic® the perfect control choice for pneumatic systems.

### Faster Manifold Connections

The Isonic® manifold system has been designed to virtually eliminate downtime, eliminating all end plates, screws, o-rings and gaskets customarily found in manifold systems. Connecting any valve to the manifold base is as easy as plugging in an electrical cord. With this patented “plug-in” design, replacing an individual valve can be accomplished in seconds, without the aid of any tools!

Available in two, three, four or five station segments, the Isonic® manifold’s unique modular design creates a versatile, expandable control base. For larger manifolds, two or more segments can be easily combined to fulfill any needs. Further, manifold segments are easily isolated for applications with differential pressures.

### Quick-Connect Collets - No Fittings Needed

With its unique design Isonic® eliminates the need for tube fittings. Built-in, push-to-connect collets allow for fast and easy tube and manifold connections.

### Resistant To Harsh Conditions

Molded from a high performance thermoplastic, Isonic® achieves superior heat, impact and chemical resistance. It is listed with both UL and CSA.

### Maximum Air Flow

Instead of the angular passages of most conventional valves, Isonic’s internal channels are aerodynamically shaped for maximum air flow and minimal internal friction. Eliminating sharp corners and abrupt changes in direction reduces air turbulence and energy loss. Normally round air passages are replaced by thin, deep, tape-like channels that conserve space and optimize air flow.

Isonic® V1 and V4 have earned UL recognition and have been tested to the standards of CSA and conforms to the applicable directives of the European Union.



Isonic® is a registered trademark of Mead Fluid Dynamics, Inc.

| Specifications     |  |
|--------------------|--|
| Design:            | Poppet   |
| Media:             | Air or Inert Gas   |
| Lubrication:       | None Required  |
| Filtration:        | 40 Micron  |
| Cycle Life:        | 50,000,000 cycles  |
| Orifice Size:      | A: 0.025" / 0.65mm<br>B: 0.035" / 0.90mm<br>C: 0.055" / 1.4mm              |
| Flow:              | A: 0.01 C <sub>v</sub><br>B: 0.02 C <sub>v</sub><br>C: 0.05 C <sub>v</sub> |
| Maximum Pressure:  | A: 120 PSI / 8.3 Bar<br>B: 120 PSI / 8.3 Bar<br>C: 30 PSI / 2.1 Bar        |
| Vacuum:            | to 28 in. Hg   |
| Temperature Range: | 0° F to 120° F (-18° C to 49° C)   |
| Tubing:            | 5/32" or 4mm   |
| Mounting Holes:    | 0.156 diameter (1 hole, 1 slot)  |
| Seals:             | Viton® and Nitrile   |
| Weight:            | 1.5 oz. (per valve)  |

**Solenoid Data**

| Voltage       | 12DC  | 24DC  | 24AC  | 120AC |
|---------------|-------|-------|-------|-------|
| Amps          | 0.133 | 0.058 | 0.058 | 0.014 |
| Resistance    | 92Ω   | 406Ω  | 406Ω  | 8350Ω |
| Initial Power | 1.6   | 1.4   | 1.4   | 1.7   |
| Continuous On | 1.3   | 1.2   | 1.2   | 1.5   |

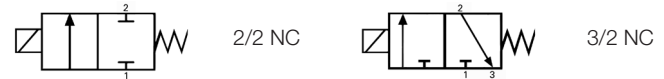
Response Time: 10 milliseconds

Molex Connector: UL and CSA Listed  
 Din Connector: Protection Class- IP 65 according to DIN 40 050  
 Insulation Class- Group C according to VDE 0110  
 Conform to DIN 43650 Form C Specifications

**Manifold**

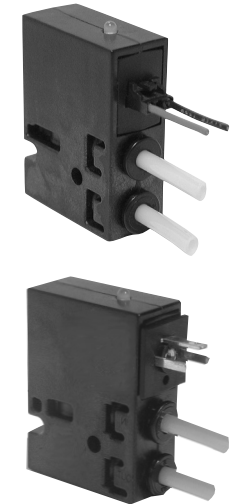
Common Air Inlet: Built-in, push-in fittings for 1/4" OD or 6mm tubing both ends  
 Foot Mounting: 4 slots, 11/16" diameter  
 DIN Rail Mounting: Attaches to 15mm DIN rail

**Valve Symbols:**

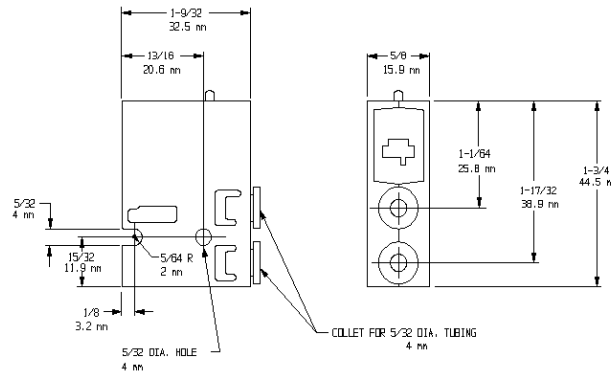


**Dimensions**

**Accessories**



**Valves:**



P1SA1



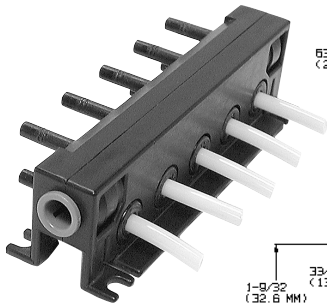
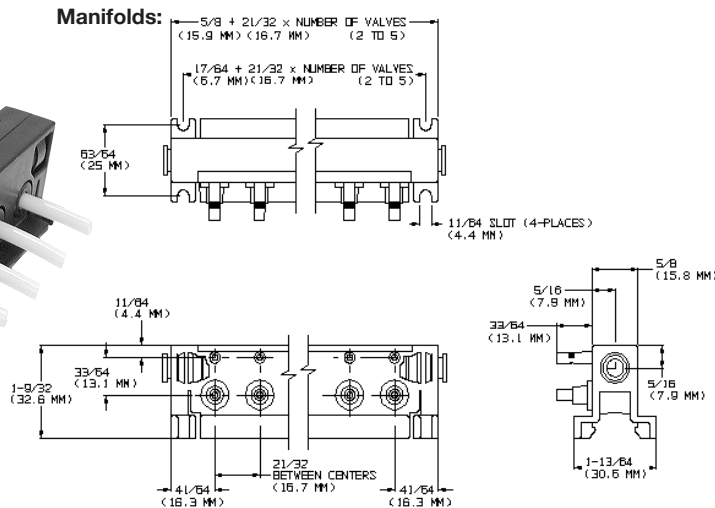
P1SA2



P1Q1

NOTE: One (1) pc. is included with each "W" type valve. 24 AWG wire.

**Manifolds:**



MM-019

Muffer shown here on V1 Valve with T1 option

**How To Order:**

**Valves:**

V 1 B 04 - A W 1 - (\*\*)

**Product Category**

V = Valve

**Family**

1 = Isonic® 1000 (2-way, 3-way)

**Orifice Size**

A = 0.025" (0.6mm)

B = 0.035" (0.9mm)

C = 0.055" (1.2mm)

**Flow Pattern**

02 = 2-Way Normally Closed

04 = 3-Way Normally Closed

05 = Vacuum (3-Way) Normally Closed

06 = Vacuum (2-Way) Normally Closed

**Options**

T1 = Tapped Exhaust (10-32)

T2 = Tapped Exhaust (M5x0.80)

**LED**

0 = No LED

1 = LED (not available with connector Z)

**Connector**

W = Mini Quick Connect

X = 8mm Micro DIN

(connector not included)

Y = Flying Lead

Z = Flying Lead (without LED and Circuit

Protection - DC only)

**Solenoid Voltage**

A = 12 DC

B = 24 DC

D = 24 50/60 Hz AC

F = 120 50/60 Hz AC

**Manifolds:**

M 1 04 - J 0

**Product Category**

M = Manifold

**Family**

1 = Isonic® 1000 (2-Way; 3-Way)

**Number of Stations**

02 = 2 Stations

03 = 3 Stations

04 = 4 Stations

05 = 5 Stations

N = N Stations (modular segments are combined for manifolds over 5 stations)

**Manifold Assembly**

0 = Manifold Only

2 = Assembled Manifold on DIN rail

**Common Air Inlet (Both Ends)**

J = Push-in fitting for 1/4" OD tubing

K = Push-in fitting for 6mm tubing

**Accessories:**

**Electrical Connectors**

8mm Micro DIN Connector . . . . . P1D1

8mm Micro DIN Connector (molded, pre-wired) . . . . . P1D2 (includes 39" / 1m leads)

Mini Quick-Connect . . . . . P1Q1 (includes 18" / 45cm leads; contact factory for longer lengths)

**Manifold Accessories**

15mm DIN Mounting Rail . . . . . P1M1-x (where x = desired number of feet of DIN Rail)

15mm DIN Rail End Stops . . . . . P1S1 (NOTE: two required per Manifold)

4 mm (5/32") Manifold Blocking Plug . . . . . P1B1 (for blocking empty Manifold stations)

1/4" Manifold Inlet Port Plug . . . . . P1P1 (one included with each manifold)

6mm Manifold Inlet Port Plug . . . . . P1P2 (one included with each manifold)

**Miscellaneous**

10-32 Muffler . . . . . MM-019 (to silence exhaust in 10-32 exhaust port)

Port Adapter . . . . . P1SA1 (converts 5/32" port to 1/4" barb OD tube)

Port Adapter . . . . . P1SA2 (converts 5/32" port to 1/4" push-to-connect OD tube)

See additional accessories on page 13.

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

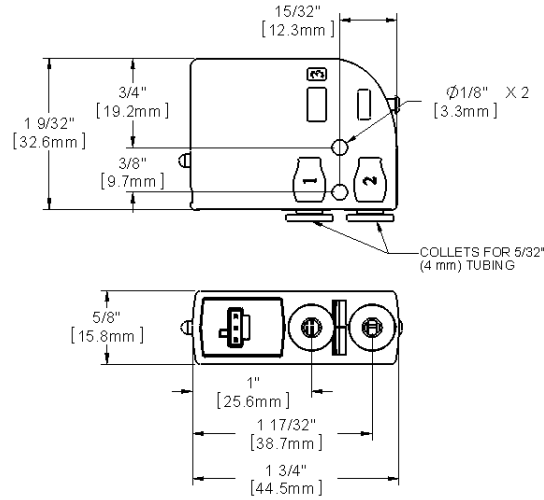
Accessories

Index

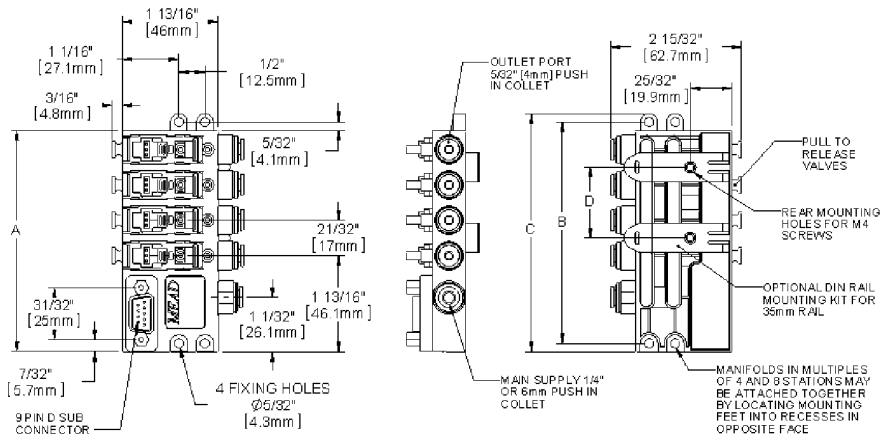
# Isonic® V2000 Series (2 and 3-Way)

## Dimensions

### Valves



### Manifolds

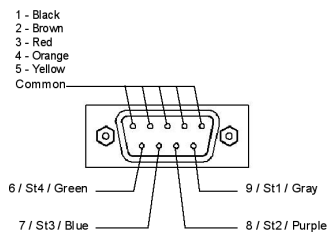


| Manifold  | A              | B              | C               | D            |
|-----------|----------------|----------------|-----------------|--------------|
| 4 Station | 4-3/16 [106.3] | 4-3/16 [106.3] | 4-1/2 [114.3]   | 1-11/32 [34] |
| 8 Station | 6-7/8 [174.3]  | 6-7/8 [174.3]  | 7-13/32 [188.3] | 4-1/32 [102] |

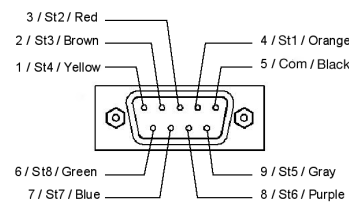
Note: Dimensions in inches [mm]

First numbers are the pin numbers. Center information refers to station. Colors are the wire color of Mead accessories.

9-Pin Sub-D Connector  
(4 Station Manifold Only)



9-Pin Sub-D Connector  
(8 Station Manifold Only)





Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

**Specifications - Normally Closed Version**

|                    |  |
|--------------------|--|
| Design:            | Direct Acting  |
| Media:             | Air or Inert Gas   |
| Lubrication:       | None required  |
| Filtration:        | 40 micron  |
| Cycle Life*:       | 50,000,000 cycles  |
| Orifice Size:      | A: 0.025" / .65mm<br>B: 0.035" / .90mm<br>C: 0.055" / 1.40mm   |
| Flow:              | A: 0.01 C <sub>v</sub><br>B: 0.02 C <sub>v</sub><br>C: 0.05 C <sub>v</sub> (Standard Power only)   |
| Maximum Pressure:  | Standard Power:<br>A: 120 PSI / 8.3 Bar<br>B: 120 PSI / 8.3 Bar<br>C: 30 PSI / 2.1 Bar<br>Low Power:<br>A: 45 PSI / 3 Bar<br>B: 45 PSI / 3 Bar |
| Vacuum:            | To 28 in Hg  |
| Temperature Range: | 0° F to 120° F (-18° C to 49° C)   |
| Tubing:            | 5/32" or 4mm   |
| Mounting Holes:    | 0.156" diameter (2 holes)  |
| Seals:             | Viton® and Nitrile   |
| Weight:            | 1.5 oz. (per valve)  |

**Specifications - Normally Open Version**

|                    |  |
|--------------------|--|
| Design:            | Direct Acting  |
| Media:             | Air or Inert Gas   |
| Lubrication:       | None Required  |
| Filtration:        | 40 micron  |
| Cycle Life*:       | Standard Power: 10,000,000 cycles<br>Low Power: 50,000,000 cycles                                  |
| Orifice Size:      | B: 0.035" / 0.90mm<br>C: 0.055" / 1.40mm (Standard Power only)                                     |
| Flow:              | B: 0.02 C <sub>v</sub><br>C: 0.05 C <sub>v</sub>   |
| Maximum Pressure:  | Standard Power:<br>B: 90 PSI / 6.2 Bar<br>C: 25 PSI / 1.6 Bar<br>Low Power:<br>B: 37 PSI / 2.5 Bar |
| Vacuum:            | To 28 in. Hg   |
| Temperature Range: | 0° F to 120° F (-18° C to 49° C)   |
| Tubing:            | 5/32" or 4mm   |
| Mounting Holes:    | 0.156" diameter (2 holes)  |
| Seals:             | Viton® or Nitrile  |
| Weight:            | 1.5 oz. (per valve)  |

**Solenoid Data**

| Voltage       | 12DC  | 24DC  | 24AC  | 120AC |
|---------------|-------|-------|-------|-------|
| Amps          | 0.133 | 0.058 | 0.058 | 0.014 |
| Resistance    | 92Ω   | 406Ω  | 406Ω  | 8350Ω |
| Initial Power | 1.6W  | 1.4W  | 1.4W  | 1.7W  |
| Continuous On | 1.3W  | 1.2W  | 1.2W  | 1.5W  |

Response Time: 10 milliseconds

Molex Connector: UL and CSA Listed

DIN Connector: Protection Class: IP 65 according to DIN 40 050

Insulation Class: Group C according to VDE 0110

Conform to DIN 43650 Form C Specifications

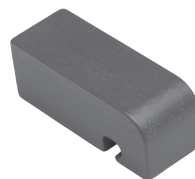
**Manifold**

Common Air Inlet: Built-in, push-in fittings for 1/4" OD or 6mm tubing

Rear Mounting: 2 Holes for M4 screws

DIN Rail Mounting: Attaches to 35mm DIN Rail

**Accessories**



P2B1



P4M1-x



P5-09SCD



P1SA1



P1SA2



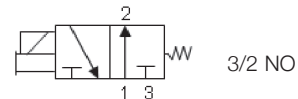
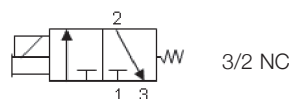
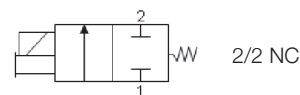
P1Q1

NOTE: One (1) pc. is included with each "W" type valve. 24 AWG wire



P4S1

**Valve Symbols**



Isonic® V2000 Series (2 and 3-Way)

How To Order

Valves:

V 2 B 04 - B W 1 - L - T1

Product Category

V = Valve

Family

2 = Isonic® 2000

Orifice Size

A = 0.025" (0.6mm) (only available on Normally Closed)  
 B = 0.035" (0.9mm)  
 C = 0.055" (1.4mm) (not available with Low Power Option)

Flow Pattern

02 = 2-Way Normally Closed  
 03 = 3-Way Normally Open  
 04 = 3-Way Normally Closed  
 05 = Vacuum (3-Way) Normally Closed  
 06 = Vacuum (2-Way) Normally Closed  
 07 = Vacuum (3-Way) Normally Open

Options

L = Low Power  
 (check chart for voltage options)  
 T1 = Tapped Exhaust (10-32)  
 T2 = Tapped Exhaust (M5x0.80)

LED

0 = No LED (only available with connector Z)  
 1 = LED standard (not available with connector Z)

Connector

W = Mini Quick Connect  
 Required for Manifold  
 X = 8mm Micro DIN  
 (connector not included)  
 Y = Flying Lead  
 Z = Flying Lead (without LED and Circuit  
 Protection - DC only)

Solenoid Voltage (See Option Combination Availability chart below)

A = 12 VDC  
 B = 24 VDC  
 D = 24 50/60 Hz VAC  
 F = 120 50/60 Hz AC  
 R = 5 VDC  
 M = 3 VDC

Manifolds:

M 2 B 08 - 1 1

Product Category

M = Manifold

Family

2 = Isonic® 2000

Inlet Tube Size

A = 1/4" OD Tube Collets  
 B = 6mm OD Tube Collets

Options

0 = No cable or connector  
 5 = With 5.0m cable and connector

Manifold Accessories

0 = Manifold only  
 1 = DIN Rail clips mounted on manifold  
 2 = Manifold mounted on DIN rail

Number of Stations

04 = 4 Station  
 08 = 8 Station

NOTE: Outlet tube size is 5/32" (4mm) OD Tube Collet

Accessories:

Electrical Connectors

8mm Micro DIN Connector ..... P1D1  
 8mm Micro DIN Connector (molded, pre-wired) ..... P1D2 (includes 39" / 1m leads)  
 Mini Quick-Connect ..... P1Q1 (includes 18" / 45cm leads; contact factory for longer lengths)

Manifold Accessories

35mm DIN Mounting Rail ..... P4M1-x (where x = desired number of feet of DIN Rail)  
 35mm DIN Rail End Stops ..... P4S1 (NOTE: two required per Manifold)  
 Manifold Blocking Plug ..... P2B1 (for blocking empty Manifold stations)  
 5.0m Cable and 9 Pin Connector ..... P5-09SDC

Miscellaneous

10-32 Muffler ..... MM-019 (to silence exhaust in 10-32 exhaust port)  
 Port Adapter ..... P1SA1 (converts 5/32" port to 1/4" barb OD tube)  
 Port Adapter ..... P1SA2 (converts 5/32" port to 1/4" push-to-connect OD tube)

Option Combination Availability

| Voltage | Standard Power<br>1.5W, 8 Bar | Low Power<br>(L option)<br>0.5W, 3 Bar |
|---------|-------------------------------|--|
| 3 VDC   |                               | •                                      |
| 5 VDC   |                               | •                                      |
| 12 VDC  | •                             | •                                      |
| 24 VDC  | •                             | •                                      |
| 24 VAC  | •                             |  |
| 120 VAC | •                             |  |

Reference

Control Valves

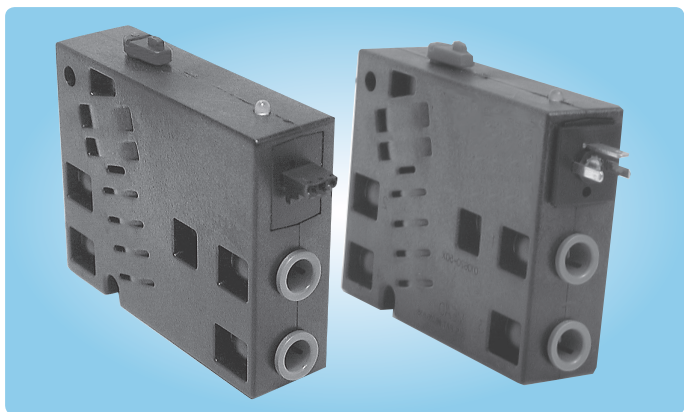
Cylinders

Specialty Valves

Production Devices

Accessories

Index



**Isonic® Control Valves**

While only 20mm in width, these 2 position spool valves provide a surprisingly high flow ( $C_v = 0.8$ ). With its thin, aerodynamic flow passages, Isonic® maintains a higher flow in a smaller area. The pilot piston features an innovative oval design to further facilitate a compact, low-profile power valve.

**Versatile Mounting**

With a hole and a slot molded into its body, Isonic® valves may be mounted flush to any flat surface. Mounting brackets are also available for individual surface or DIN rail mounting.

**Solenoid Data**

| Voltage | Amps  | Resistance | Initial Power | Continuous On |
|---------|-------|------------|---------------|---------------|
| 12DC    | 0.133 | 92         | 1.6           | 1.3           |
| 24DC    | 0.058 | 406        | 1.4           | 1.2           |
| 24AC    | 0.058 | 406        | 1.4           | 1.2           |
| 120AC   | 0.014 | 8350       | 1.7           | 1.5           |

| Specifications     |  |
|--------------------|--|
| Design:            | Spool (2-Position)   |
| Ports:             | 1/4" OD tube collet or 6mm OD tube collet  |
| Pilot Ports:       | 5/32" (4mm) OD tube collet   |
| Media:             | Air or Inert Gas   |
| Lubrication:       | None Required  |
| Filtration:        | 40 Micron  |
| Cycle Life:        | 20,000,000 (minimum)   |
| Orifice Size:      | 0.2" (5.0mm)   |
| Flow:              | 0.8 $C_v$  |
| Vacuum:            | Air pilot models can be used in vacuum applications with external air signal to pilot ports. |
| Minimum Pressure:  | 30 PSI (2 Bar)   |
| Maximum Pressure:  | 120 PSI (8.3 Bar)  |
| Temperature Range: | 0° F to 120° F (-18° C to 49° C)   |
| Mounting Holes:    | 0.177" (4.5mm) diameter (1 hole, 1 slot)   |
| Weight:            | Solenoid models: 3.1 oz each<br>Air Pilot models: 2.1 oz each                                |

**Materials**

Body ..... GE thermoplastic  
Seals ..... Fluorocarbon and Nitrile

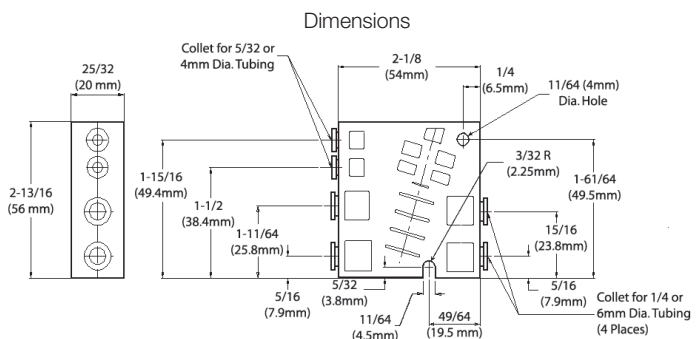
**Electrical**

Voltages ..... DC: 12, 24  
..... AC: 24, 110/120  
Leads ..... 18" standard - 24 AWG wire  
Duty Cycle ..... Continuous duty  
Response Time ..... 16 milliseconds @ 100 PSI  
Manual Override ..... Standard (solenoid models)

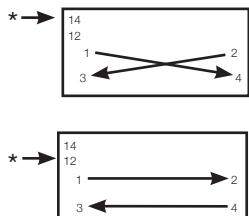


DIN Connector: Protection Class- IP 65 according to DIN 40 050  
Insulation Class- Group C according to VDE 0110  
Conform to DIN 43650 Form C Specifications

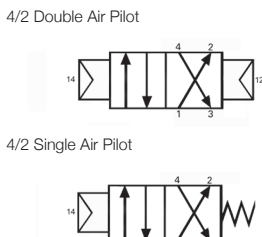
**Pressure Piloted Models**



**Function**



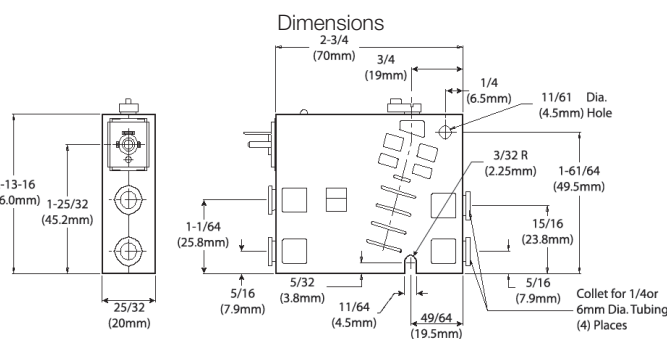
**Symbol**



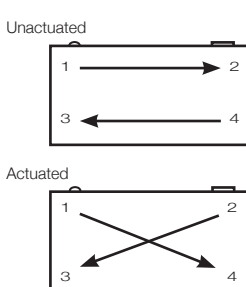
\* Arrow Indicates Pressure applied to Pilot Port

1.....Air Supply      2.....Cylinder  
3.....Common Exhaust      4.....Cylinder

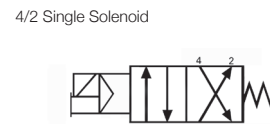
**Solenoid Models**



**Function**



**Symbol**



1.....Air Supply      2.....Cylinder  
3.....Common Exhaust      4.....Cylinder

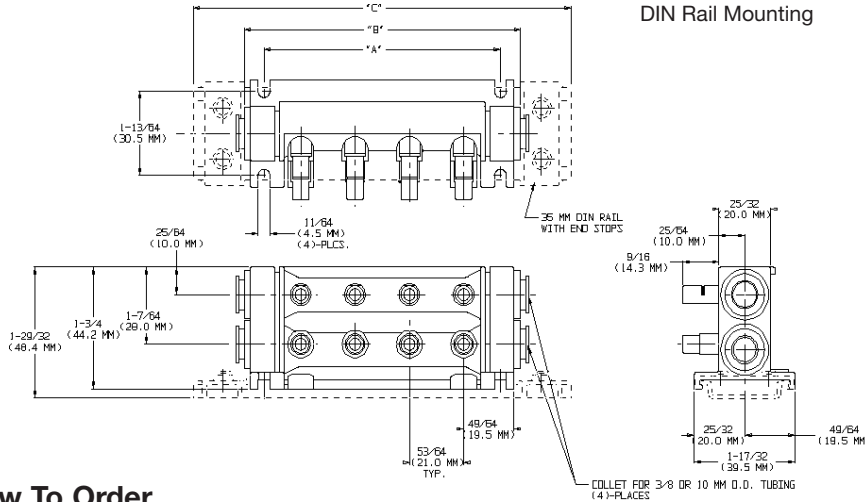
### The Quick-Change Manifold

The Isonic® manifold system has been designed to virtually eliminate downtime. Connecting any valve to the manifold base is as easy as plugging in an electrical cord. With this patented “plug-in” design, replacing an individual valve on the manifold can be accomplished in a matter of seconds!

### Mounting Options

The Isonic® manifold can be either foot mounted or DIN rail mounted. 35mm DIN rail can be ordered from Mead.

### V4 Manifold Dimensions



### Isonic® Manifold Expands With Your Needs

Available in two, three or four station segments, the manifold’s unique modular design creates a versatile, expandable control base. For manifolds larger than four stations, two or more segments can be easily combined to create any size manifold (multiple segments are assembled on DIN rail and secured with end stops). Manifold segments are easily isolated for applications with differential pressures.

### Manifold Specifications

Common Air Inlet  
 Foot Mounting  
 DIN Rail Mounting

Both ends: built in collets for 3/8" OD (or 10mm) tubing  
 0.177 (4.5 mm) diameter  
 Attaches to 35 mm DIN rail

| Stations | "A"                | "B"                | "C"              |
|----------|--------------------|--------------------|------------------|
| 2        | 1-61/64 (49.5 mm)  | 2-35/64 (64.7 mm)  | 4-9/64 (105 mm)  |
| 3        | 2-25/32 (70.5 mm)  | 3-3/8 (85.6 mm)    | 4-15/16 (125 mm) |
| 4        | 3-39/64 (91.5 mm)  | 4-13/64 (106.7 mm) | 5-49/64 (146 mm) |
| 5        | 5-9/64 (130.5 mm)  | 5-57/64 (149.6 mm) | 7-19/64 (185 mm) |
| 6        | 5-31/32 (151.5 mm) | 6-9/16 (166.7 mm)  | 8-1/8 (206 mm)   |
| 7        | 6-51/64 (172.5 mm) | 7-25/64 (187.7 mm) | 8-61/64 (227 mm) |
| 8        | 7-5/8 (193.5 mm)   | 8-7/32 (208.7 mm)  | 9-25/32 (248 mm) |

### How To Order

#### Valves:

**V 4 A- 0307 - A W 1 - (\*\*)**

- Product Category**  
 V = Valve
- Family**  
 4 = Isonic 4000 (4-way)
- Collet Size**  
 A = 1/4" O.D. Tube Collet  
 B = 6mm O.D. Tube Collet
- Actuator Type**  
 0507 = Single Air Pilot, Spring Return  
 0505 = Double Air Pilot  
 0307 = Single Solenoid, Spring Return

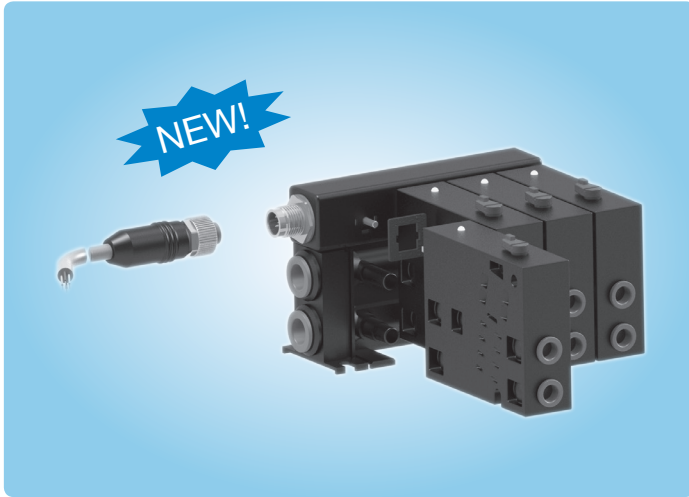
- Options**  
 V = Pilot Breather Vent Filter
- LED**  
 0 = (only available with connector Z)  
 1 = LED (not available with connector Z)
- Connector**  
 0 = None (pressure models)  
 W = Mini Quick Connect  
 X = 8mm Micro DIN Connector  
 Y = Flying Lead  
 Z = Flying Lead (without LED and Circuit Protection - DC only)
- Solenoid Voltage**  
 0 = None (pressure models)  
 A = 12 DC  
 B = 24 DC  
 D = 24 50/60 Hz AC  
 F = 110 / 120 50/60 Hz AC

#### Manifold:

**M 4 A 03 - 2 Y**

- Product Category**  
 M = Manifold
- Family**  
 4 = Isonic 4000 (4-way)
- Collet Size**  
 A = 3/8" O.D. Tube Collets (Common Air Inlet)  
 B = 10mm O.D. Tube Collets (Common Air Inlet)
- Number of Stations**  
 02 = 2 Stations  
 03 = 3 Stations  
 04 = 4 Stations  
 N = N Stations  
 (modular segments are combined for manifolds over 4 stations)

- Wiring Options**  
 N = None  
 Y = Pre-wired 10-pin ribbon connector\* (wiring cover included)  
 C = Manifold with wiring cover
- \* Compatible with mini quick connect valves only.
- Manifold Assembly**  
 0 = Manifold Only  
 2 = Manifold Mounted on DIN rail (required for 5 or more stations)



**Simple, Cost Effective Manifold Wiring**

Mead's Manifold PowerStrip™ (MPS) offers a simple solution to wiring manifold valve stacks. The MPS reduces installation time, simplifies troubleshooting, and provides a clean, space-efficient alternative to individual wiring and costly molded cable sets.

**Features and Benefits**

- Simplify Wiring
  - Eliminates bundled wire sets with a single home-run cable
- Reliable Design
  - IP65 ingress protection
  - Ultrasonic-welded construction
  - Non-metallic, corrosion resistant
- Cost Effective
  - Reduce installation time
  - Replaces individually wired DIN connectors and molded cable sets

| Valve Compatibility |          |                      |
|---------------------|----------|----------------------|
| Valve Series        | Manifold | Manifold PowerStrip™ |
| V4_-0307-_X1_       | M4_-_N   | MPS5_-_              |

| Specifications         |  |
|------------------------|--|
| Compatibility:         | Isonic® V4000 Series                     |
| Voltage Range:         | 0-120 VAC/VDC                            |
| Temperature Range:     | 0° F to 120° F Ambient (-18° C to 49° C) |
| Maximum Coil Power:    | 2W                                       |
| Electrical Connection: | 5-Pin M12 Male                           |
| Enclosure Rating:      | IP65                                     |
| Body Material:         | ABS                                      |

**Product Contents**

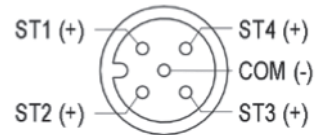
| Model      | Includes   |
|------------|--|
| MPS5_      | Manifold PowerStrip™, Screws, Gaskets                |
| MPS5_-_C10 | Manifold PowerStrip™, Screws, Gaskets, 10m M12 Cable |

**How to Order**

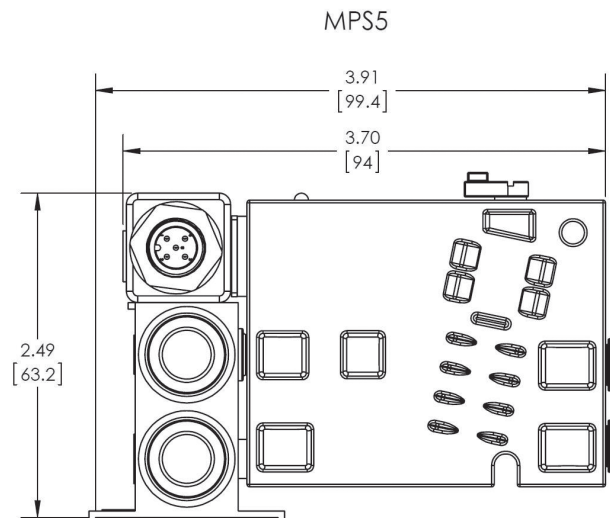
**MPS 5 - 4 - C10**

**Model** \_\_\_\_\_ **Optional Cable**  
 5 - V4000 Series  
 Blank - None  
**Number of Stations** \_\_\_\_\_ C10 - 10M Mating Cable (MPS5)  
 2 - Two (2) Stations  
 3 - Three (3) Stations  
 4 - Four (4) Stations

**Wiring Diagram**



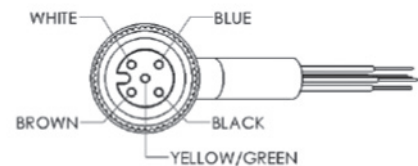
**Dimensions - in [mm]**



**Accessories**



10m M12 Cable  
P/N: P10-5M12C





**Accessories**

**Electrical Connectors**

|   |           |
|---|-----------|
| 8mm Micro DIN Connector . . . . .                         | P1D1      |
| 8mm Pre-wired DIN Connector (includes 39" leads). . . . . | P1D2      |
| Mini Quick-Connect (includes 18" leads) . . . . .         | P1Q1      |
| D-Sub Connector 9-Pin with 5 Meter Cable . . . . .        | P5-09SDC  |
| D-Sub Connector 15-Pin with 3 Meter Cable . . . . .       | P3-15SDC  |
| D-Sub Connector 15-Pin with 10 Meter Cable . . . . .      | P10-15SDC |



P5-09SDC



P1Q1

**Mounting Brackets (For 4-Way Valves Only)**

|   |      |
|---|------|
| Single Valve Mounting Bracket . . . . . | P4SM |
| Single Valve DIN Rail Mount . . . . .   | P4DM |



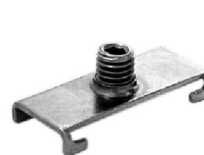
P4SM



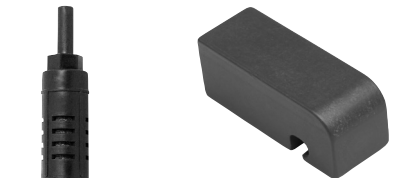
P4DM

**Port Adapter (For 5/32" Ports)**

|   |       |
|---|-------|
| Converts Port to Barb for 1/4" OD Tube . . . . .          | P1SA1 |
| Converts Port to Push-in Fitting (1/4" OD Tube) . . . . . | P1SA2 |



P1SA1



P1SA2

**DIN Rail & Manifold End Stops**

|  |        |
|--|--------|
| 15mm DIN Rail for V1000 (x = # of feet required) . . . . .       | P1M1-x |
| 35mm DIN Rail for V2000/V4000 (x = # of feet required) . . . . . | P4M1-x |
| 15mm Rail End Stop for V1000 . . . . .                           | P1S1   |
| 35mm Rail End Stop V2000/V4000 . . . . .                         | P4S1   |



P1S1



P4S1



P2B1

**Manifold Station Blocking Plugs & Port Plugs**

|  |      |
|--|------|
| 5/32" (4mm) Station Plug (for empty manifold stations) . . . . . | P1B1 |
| Blanking Plug for V2000 Manifolds . . . . .                      | P2B1 |
| 1/4" Station Plug (for empty manifold stations) . . . . .        | P4B1 |
| 6mm Station Plug (for empty manifold stations) . . . . .         | P4B2 |
| 1/4" Port Plug . . . . .   | P1P1 |
| 6mm Port Plug . . . . .  | P1P2 |
| 3/8" Port Plug . . . . .   | P4P1 |
| 10mm Port Plug . . . . .   | P4P2 |



P1P1



P4P1

**Miscellaneous Accessories (for 4-Way Valves Only)**

|  |        |
|--|--------|
| Valve Locking Clip (locks 2 valves in place) . . . . . | P4LC-2 |
| Valve Locking Clip (locks 3 valves in place) . . . . . | P4LC-3 |
| Valve Locking Clip (locks 4 valves in place) . . . . . | P4LC-4 |
| Manifold Valve ID Strip (50 #s per strip) . . . . .    | P4ID   |



P4C1 & P4CA



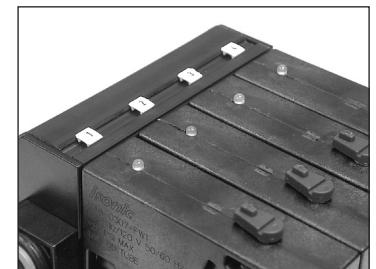
P4LC-4

**Tube Collets (For Replacement Only)**

|                                |      |
|--------------------------------|------|
| For 5/32" (4mm) Port . . . . . | P1C1 |
| For 1/4" Port . . . . .        | P4C1 |
| For 6mm Port . . . . .         | P4C2 |
| For 3/8" Port . . . . .        | P4CA |
| For 10mm Port . . . . .        | P4CB |



P4M1-x



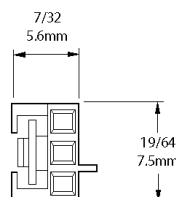
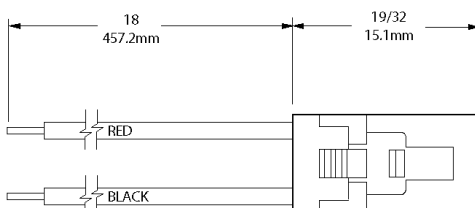
Valve Identifiers (P4ID)

**Push-In Exhaust Mufflers**

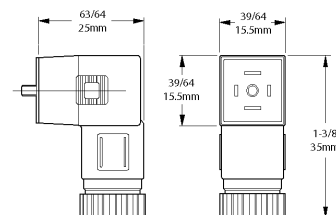
|                          |         |
|--------------------------|---------|
| For 1/4" Port . . . . .  | MMP-250 |
| For 6mm Port . . . . .   | MMP-006 |
| For 3/8" Port . . . . .  | MMP-375 |
| For 10mm Port . . . . .  | MMP-010 |
| For 10-32 Port . . . . . | MM-0019 |

**Wiring Connector Dimensions**

Mini Quick-Connect - 24 AWG wires



8mm DIN Connector



Reference

Control Valves

Cylinders

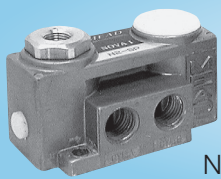
Specialty Valves

Production Devices

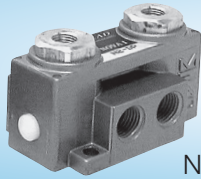
Accessories

Index

Single and Double Air Piloted



N1-SP  
N2-SP



N1-DP  
N2-DP

Single and Double Solenoid



N1-SCD  
N2-SCD



N1-DCD  
N2-DCD

Solenoids shown here with PVD1 (sold separately)

**Designed For Long Life**

Nova 4-way directional control valves offer state-of-the-art air valve design at a remarkably low price. Nova utilizes a single bonded rubber spool with finely ground sealing lands that travel only .047"... less than 1/16th of an inch! This economy of movement assures long valve life yet generates enough flow to power a 4" bore cylinder.

**External Pilot Option (E)**

For solenoid actuation below the stated minimum pilot pressure or for vacuum applications, a 10-32 tapped external air supply allows the solenoid to be operated at different pressures than the power section.

**Large Air Flow With Dual Exhausts**

1/4" NPTF ported Nova valves produce a large output flow of 57 cubic feet per minute at 100 PSI inlet pressure (C<sub>v</sub>=1.0). Each output port has its own exhaust port so that individual exhaust control is possible.

**Ordering Instructions**

**Single Valves:** State model number and voltage, if applicable.

**Stacked Valves:** Add an "M" to the single valve model number and state voltage if applicable - specify number and type of valves in each stack. NOTE: Explosion-proof coils may not be stacked next to each other because of their greater size.

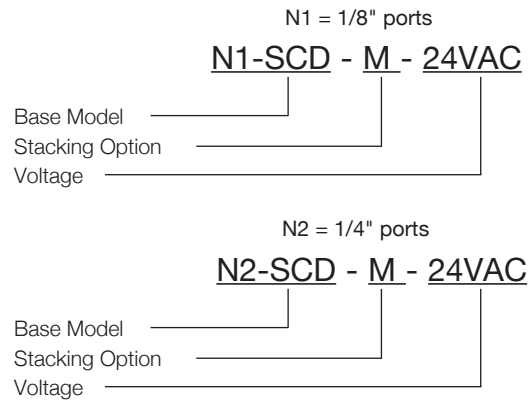
**External Pilot Supply:** Add an "E" to the model number.

**Manual Override as Standard**

All Nova valves are supplied with manual overrides so that valve actuation may be triggered without electricity or air to the pilots.

| Operating Parameters N1 |   | Operating Parameters N2 |   |
|-------------------------|---|-------------------------|---|
| Media:                  | Air or Inert Gas  | Media:                  | Air or Inert Gas  |
| Pressure:               | Vacuum to 120 PSI   | Pressure:               | Vacuum to 120 PSI   |
| Port Size:              | 1/8" NPTF   | Port Size:              | 1/4" NPTF   |
| Pilot Ports:            | 1/8" NPSF   | Pilot Ports:            | 1/8" NPSF   |
| Flow:                   | C <sub>v</sub> = 0.7 (single valves)<br>C <sub>v</sub> = 0.9 (stacked valves) | Flow:                   | C <sub>v</sub> = 1.0 (single valves)<br>C <sub>v</sub> = 1.2 (stacked valves) |
| Temperature:            | 0° F to 120° F<br>(-18° C to 49° C)   | Temperature:            | 0° F to 120° F<br>(-18° C to 49° C)   |
| Lubrication:            | Petroleum Base Oil  | Lubrication:            | Petroleum Base Oil  |
| Filtration:             | 40 Micron Minimum   | Filtration:             | 40 Micron Minimum   |
| Sol Response:           | 30-40 ms  | Sol Response:           | 30-40 ms  |
| Seals:                  | Buna-N  | Seals:                  | Buna-N  |

**Ordering Example:**



**Nova Specifications**

| N1 Model | N2 Model | Actuator    | Return      | Description             | Min. Pilot Pressure | Available Voltages |                | Wiring Type |
|----------|----------|-------------|-------------|-------------------------|---------------------|--------------------|----------------|-------------|
|          |          |             |             |                         |                     | DC                 | AC             |             |
| N1-DP    | N2-DP    | Air Pilot   | Air Pilot   | Double Pressure Piloted | 10 PSI              | -                  | -              | -           |
| N1-SP    | N2-SP    | Air Pilot   | Spring      | Single Pressure Piloted | 40 PSI              | -                  | -              | -           |
| N1-DB    | N2-DB    | Bleed Pilot | Bleed Pilot | Double Bleed Piloted    | 40 PSI              | -                  | -              | -           |
| N1-HL    | N2-HL    | Hand Lever  | Spring      | Light 3lb. Touch        | -                   | -                  | -              | -           |
| N1-PB    | N2-PB    | Push Button | Push Button | Detent                  | 40 PSI              | -                  | -              | -           |
| N1-F4    | N2-F4    | Foot Pedal  | Spring      | Foot Valve w/ Cover     | -                   | -                  | -              | -           |
| N1-SCD*  | N2-SCD*  | Solenoid    | Spring      | DIN Connector Solenoid  | 40 PSI              | 12-24              | 24-120-220-240 | DIN*        |
| N1-SX*   | N2-SX    | Solenoid    | Spring      | Explosion Proof         | 40 PSI              | -                  | 120            | Conduit     |
| N1-DCD*  | N2-DCD*  | Solenoid    | Solenoid    | DIN Connector Solenoids | 10 PSI              | 12-24              | 24-120-220-240 | DIN*        |
| N1-DX    | N2-DX    | Solenoid    | Solenoid    | Explosion Proof         | 10 PSI              | -                  | 120            | Conduit     |

\* Connector not included on N2-SCD and N2-DCD. See "DIN Solenoid Connectors" on following page.

Reference

Control Valves

Cylinders

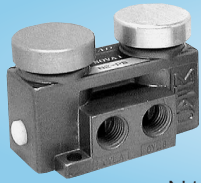
Specialty Valves

Production Devices

Accessories

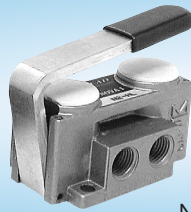
Index

Double Push Button



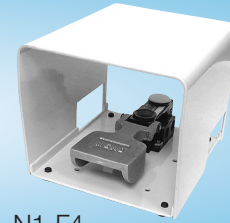
N1-PB  
N2-PB

Hand Lever



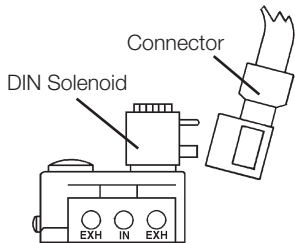
N1-HL  
N2-HL

Foot Pedal



N1-F4  
N2-F4

DIN Solenoid Connectors



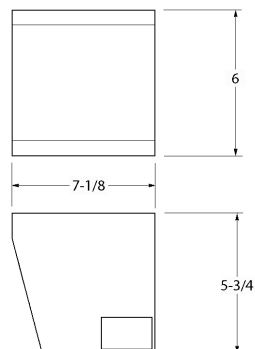
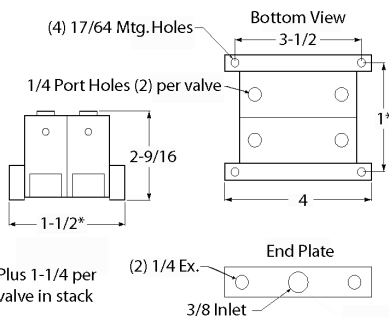
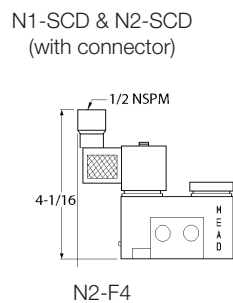
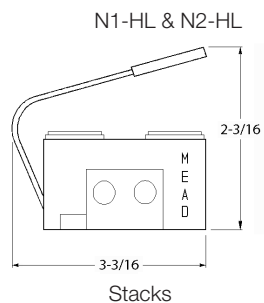
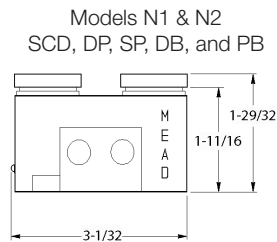
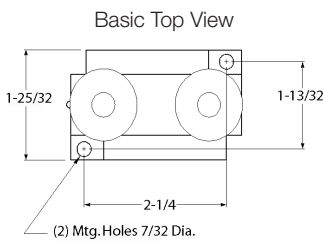
A DIN connector (ordered separately) quickly attaches to the solenoid's prongs and is secured by a single screw.

Model PVD1



Mead offers three (3) types of 12mm industrial B-type DIN connectors to facilitate connections to the solenoid. Model PVD1 is a connector with a 1/2" conduit entry and no lead wires. Model PVD2 also has a 1/2" conduit entry but includes 20" of cabled lead wire. Model PVD3 is a strain relief connector that includes 72" of cabled wire. See page 62.

Dimensions

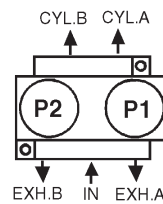


Stacking Options

If your application calls for the use of several valves, it is often advantageous to stack them. Because all valves within a stack are supplied air from a common source and are vented through common exhaust ports, plumbing time and fitting costs are greatly reduced.

Stacking also assures that your control valves are located centrally for more convenient troubleshooting and maintenance. Each stack valve body is attached only to its immediate neighbors so that valve additions, replacements, or deletions are easily achieved.

Flow Patterns

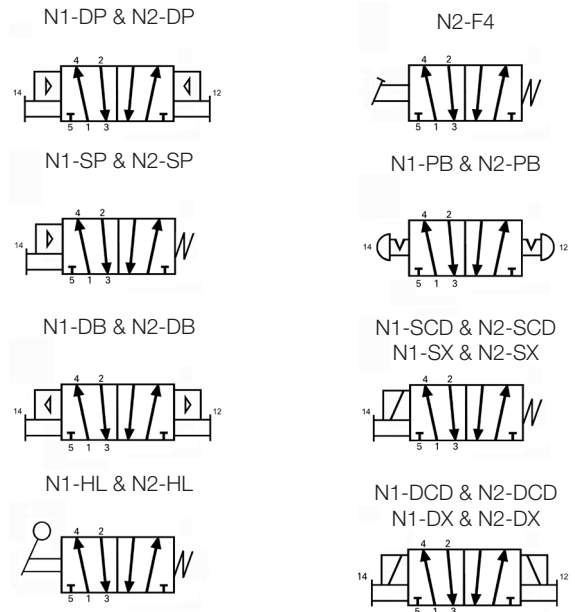


Single-actuated spring return models, including hand lever and foot pedal, have the inlet and Cyl. B ports connected when unactuated. On all double actuated models, except -PB and -DB, signals at P1 cause output at Cyl. A and signals at P2 cause output at Cyl. B. On -PB and -DB models, the reverse occurs.

Easy to Repair

Nova valves are designed to permit complete replacement of all wearing parts in seconds without touching the piping or electrical wiring. All you need are a pair of snap ring pliers and a replacement spool.

Valve Symbols



Reference

Control Valves

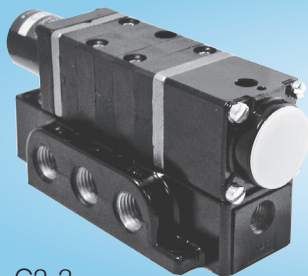
Cylinders

Specialty Valves

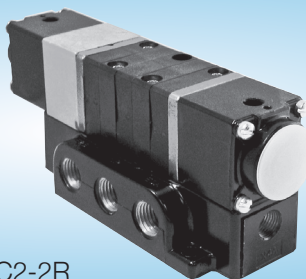
Production Devices

Accessories

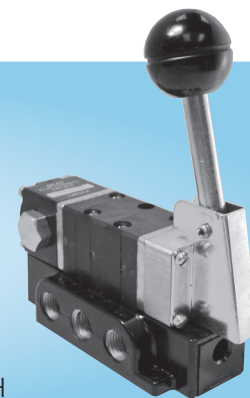
Index



C2-3  
Single Air Piloted



C2-2R  
3 Position, Double Air Piloted



C2-10H  
Hand Valve

### Sub-Base Mounted

Mead's Capsula valves work long and hard even when subjected to dirty air. Their unique patented bi-lobed seals are wear-compensating, self-cleaning, and are completely retained to prevent extrusion.

All models are mounted on a side ported sub-base, 4-way, 5 port. Any valve module may be separated from its base in seconds without disturbing the piping.

### Ordering Instructions

State model number and voltage.

**C2-4DCD - 120AC**

Base Model \_\_\_\_\_

Voltage \_\_\_\_\_

| General Specifications |   |
|------------------------|---|
| Flow:                  | 1/4" Models - C <sub>v</sub> = 0.75 (45 SCFM at 100 PSI)<br>1/2" Models - C <sub>v</sub> = 3.17 (190 SCFM at 100 PSI) |
| Max. Air Pressure:     | 120 PSI   |
| Pilot Ports:           | 1/8" NPT  |
| Filtration:            | 40 Micron (extends valve life)  |
| Lubrication:           | Required for 1/2" and all 3-position models   |
| Response:              | 30-40 ms  |
| Temperature:           | -20° F to 212° F (-29° C to 100° C)   |
| 1/4" Materials:        | Module (ABS Cylolac) - Spool (Delrin AF®)<br>Base (Die cast aluminum) - Dupont Company®                               |
| 1/2" Materials:        | Module (Phenolic) - Spool (Aluminum)<br>Base (Rolled aluminum)  |

| Model Number | Port Size | Actuator   | Return      | Description  | Min. Pilot Pressure (PSI) | Available Voltages |                |
|--------------|-----------|------------|-------------|--|---------------------------|--------------------|----------------|
|              |           |            |             |  |                           | DC                 | AC             |
| C2-1         | 1/4       | Air Pilot  | Air Pilot   | 2-Position, Double Pressure Piloted                      | 20                        | -                  | -              |
| C5-1         | 1/2       | Air Pilot  | Air Pilot   | 2-Position, Double Pressure Piloted                      | 20                        | -                  | -              |
| C2-2H        | 1/4       | Air Pilot  | Spr. Center | 3-Position, Double Pressure, Pressure Held in Center     | 45                        | -                  | -              |
| C2-2R        | 1/4       | Air Pilot  | Spr. Center | 3-Position, Double Pressure, Pressure Released           | 45                        | -                  | -              |
| C2-3         | 1/4       | Air Pilot  | Spring      | 2-Position, Single Pressure Piloted                      | 35                        | -                  | -              |
| C5-3         | 1/2       | Air Pilot  | Spring      | 2-Position, Single Pressure Piloted                      | 35                        | -                  | -              |
| C2-4DCD*     | 1/4       | Solenoid** | Spring      | 2-Position, Single DIN Solenoid                          | 35                        | 12-24              | 24-120-220-240 |
| C5-4DCD*     | 1/2       | Solenoid** | Spring      | 2-Position, Single DIN Solenoid                          | 35                        | 12-24              | 24-120-220-240 |
| C2-5DCD*     | 1/4       | Solenoid** | Solenoid    | 2-Position, Double DIN Solenoid                          | 20                        | 12-24              | 24-120-220-240 |
| C5-5DCD*     | 1/2       | Solenoid** | Solenoid    | 2-Position, Double DIN Solenoid                          | 20                        | 12-24              | 24-120-220-240 |
| C2-6HDCD*    | 1/4       | Solenoid** | Spr. Center | 3-Position, Double DIN Solenoid, Pressure Held in Center | 45                        | 12-24              | 24-120-220-240 |
| C2-6RDCD*    | 1/4       | Solenoid** | Spr. Center | 3-Position, Double DIN Solenoid, Pressure Released       | 45                        | 12-24              | 24-120-220-240 |
| C2-7         | 1/4       | Hand Lever | Spring      | 2-Position Lever, Spring Return                          | -                         | -                  | -              |
| C5-7         | 1/2       | Hand Lever | Spring      | 2-Position Lever, Spring Return                          | -                         | -                  | -              |
| C2-8         | 1/4       | Hand Lever | Hand Lever  | 2-Position Lever, Friction Held                          | -                         | -                  | -              |
| C5-8         | 1/2       | Hand Lever | Hand Lever  | 2-Position Lever, Friction Held                          | -                         | -                  | -              |
| C2-9H        | 1/4       | Hand Lever | Spr. Center | 3-Position Lever, Pressure Held in Center                | -                         | -                  | -              |
| C2-9R        | 1/4       | Hand Lever | Spr. Center | 3-Position Lever, Pressure Released in Center            | -                         | -                  | -              |
| C2-10H       | 1/4       | Hand Lever | Detented    | 3-Position Lever, Pressure Held in Center                | -                         | -                  | -              |
| C2-10R       | 1/4       | Hand Lever | Detented    | 3-Position Lever, Pressure Released in Center            | -                         | -                  | -              |

\* Explosion-proof models available.

\*\* Connector not included on solenoid models; see below.

### DIN Solenoid Connectors

Electrically actuated Capsula valves utilize a 12mm industrial B-type DIN type solenoid. DIN solenoids feature a totally encapsulated coil with 3 prongs, allowing fast and easy connections. DIN connectors are ordered separately. Mead offers 3 types of DIN connectors to facilitate connections to the solenoid. A full description of these connectors can be found on page 62.



Reference

Control Valves

Cylinders

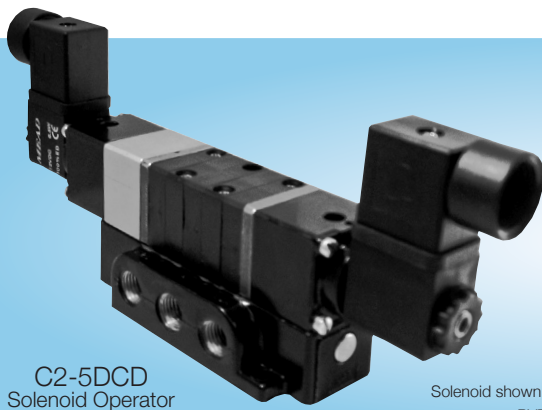
Specialty Valves

Production Devices

Accessories

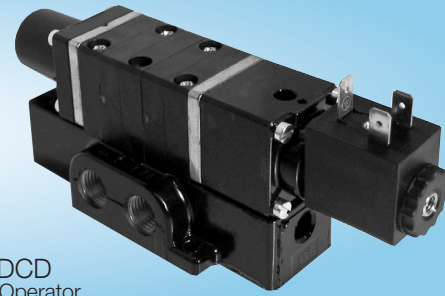
Index





C2-5DCD Solenoid Operator

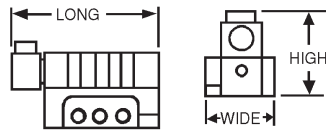
Solenoid shown here with two (2) connectors, PVD1 (sold separately)



C2-4DCD Solenoid Operator

**Dimensions**

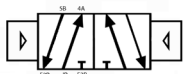
2 mounting holes per valve:  
1/4" valves - 7/32" diameter  
1/4" valves - 9/32" diameter



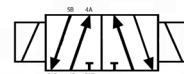
| Model    | Long     | Wide | High   |
|----------|----------|------|--------|
| C2-1     | 4-7/32   | 2    | 2-1/4  |
| C5-1     | 7-7/16   | 3    | 3-1/4  |
| C2-2H    | 7-1/32   | 2    | 2-1/4  |
| C2-2R    | 7-1/32   | 2    | 2-1/4  |
| C2-3     | 4-21/32  | 2    | 2-1/4  |
| C5-3     | 7-31/32  | 3    | 3-1/4  |
| C2-4DCD  | 6-1/2    | 2    | 2-1/4  |
| C5-4DCD  | 10-9/32  | 3    | 3-1/8  |
| C2-5DCD  | 7-3/4    | 2    | 3-9/16 |
| C5-5DCD  | 10-13/16 | 3    | 3-1/8  |
| C2-6HDCD | 10-25/32 | 2    | 3-9/16 |
| C2-6RDCD | 10-25/32 | 2    | 3-9/16 |
| C2-7     | 5-3/8    | 2    | 5-5/8  |
| C5-7     | 9-1/32   | 3    | 8-9/16 |
| C2-8     | 5-7/8    | 2    | 5-5/8  |
| C5-8     | 8-21/32  | 3    | 8-9/16 |
| C2-9H    | 6-1/4    | 2    | 5-5/8  |
| C2-9R    | 6-1/4    | 2    | 5-5/8  |
| C2-10H   | 6-1/4    | 2    | 5-5/8  |
| C2-10R   | 6-1/4    | 2    | 5-5/8  |

**Valve Symbols**

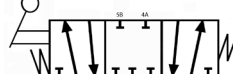
C2-1 & C5-1



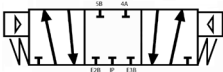
C2-5DCD & C5-5DCD



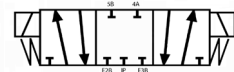
C2-9H



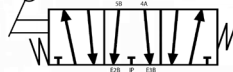
C2-2H



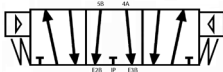
C2-6HDCD



C2-9R



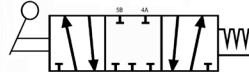
C2-2R



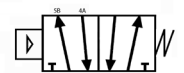
C2-6RDCD



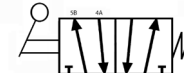
C2-10H



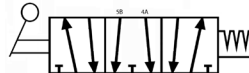
C2-3 & C5-3



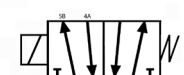
C2-7 & C5-7



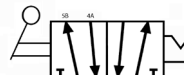
C2-10R



C2-4DCD & C5-4DCD



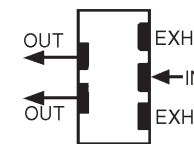
C2-8 & C5-8



**Actuators**

The Capsula line offers a wide variety of actuator styles including single and double air piloting, hand lever operators, and single & double solenoid piloting.

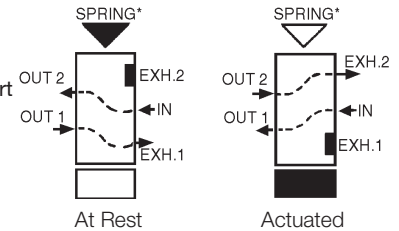
**Flow Patterns**



Capsula valves are 4-way, 5 ported directional control valves. This means that they have one inlet, 2 pressure outputs, and 2 exhaust ports. Dual exhausts facilitate individual flow control of each output port and allow dual pressure and diverter hookups.

**Two Position Models**

Whenever the inlet is charged, flow will occur at one output port or the other.

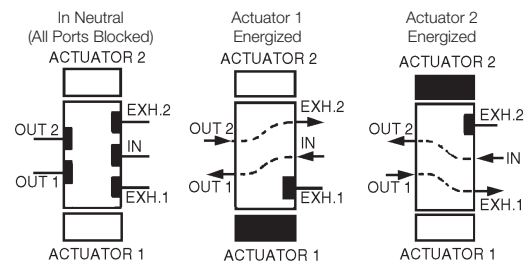


\*On double solenoid or double air piloted models, the second actuator replaces the spring.

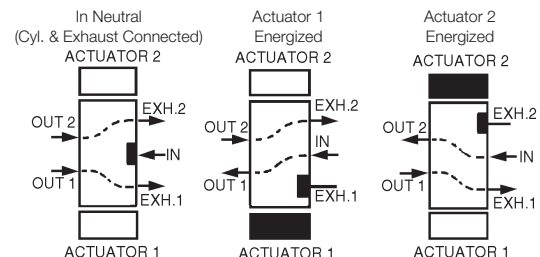
**Three Position Models**

Whenever the inlet is charged and neither actuator is signalled, both output ports will either be blocked (pressure held) or exhausted (pressure released). Pressure held models allow a cylinder to be "inched" along. Pressure released models allow the cylinder piston to float in neutral.

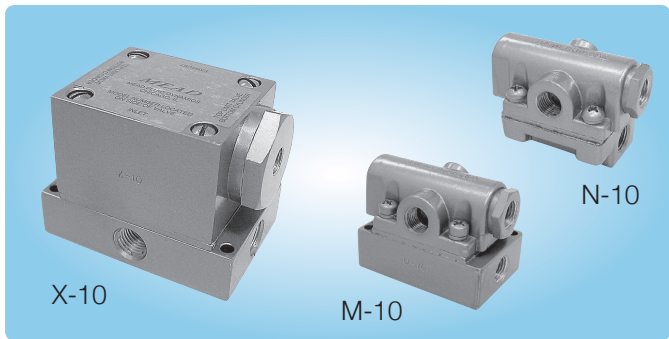
**Pressure Held Type (H Models)**



**Pressure Release Type (R Models)**







| Size (") | Model             | Function        | Flow* | C <sub>v</sub> |
|----------|-------------------|-----------------|-------|----------------|
| 1/8      | K-10              | Single Pressure | 13.6  | .24            |
| 1/8      | M-10              | Double Pressure | 13.6  | .24            |
| 1/8      | O-10              | Single Bleed    | 13.6  | .24            |
| 1/8      | U-10              | Double Bleed    | 13.6  | .24            |
| 1/4      | W-10              | Single Pressure | 48.5  | .63            |
| 1/4      | X-10              | Double Pressure | 48.5  | .63            |
| 1/4      | Y-10              | Single Bleed    | 48.5  | .63            |
| 1/4      | Z-10              | Double Bleed    | 48.5  | .63            |
| 1/8      | L-10 <sup>†</sup> | Single Pressure | 10.1  | .11            |
| 1/8      | N-10 <sup>†</sup> | Double Pressure | 10.1  | .11            |
| 1/8      | T-10 <sup>†</sup> | Single Bleed    | 10.1  | .11            |
| 1/8      | V-10 <sup>†</sup> | Double Bleed    | 10.1  | .11            |

\* Flow at 100 PSI Inlet pressure (in SCFM)

† These models do not have built-in flow controls.

### Built-In Speed Controls

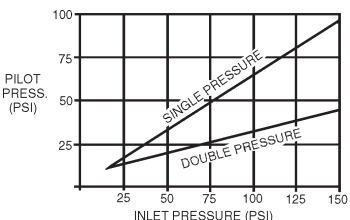
Dura-matic 4-way valves not only control cylinder direction but also control cylinder rod speed. Most models include easy-to-use built-in flow controls that permit the user to establish cylinder speeds right at the directional valve.

### Remote Air Piloting

Air piloting is a simple and economical way to operate cylinders or other air driven devices; it eliminates the need for electric wiring or solenoids. Dura-matic models are available as either pressure or bleed remote piloting depending upon the model selected. Single piloted models require one remote pilot valve and double piloted models require two.

#### Pressure Piloted Valves

These valves shift when pressurized air travels from a remote pilot valve to the pilot port of the Dura-matic valve. The table shows the minimum allowable pilot pressures.



#### Bleed Piloted Valves

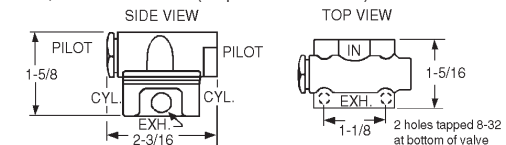
Bleed piloted models output air from the pilot port(s). When the remote pilot valve is actuated the air is exhausted, causing the valve to shift. In contrast to pressure piloting, bleed pilot valves do not need separate air supplies. However, they do continue to bleed air as long as they are actuated. Below are two remote bleed pilot valves:

| Model | Description                         | Length | Width    |
|-------|-------------------------------------|--------|----------|
| 404A  | Bleed Limit Valve; 1/8" NPT Fitting | 2-1/4" | 1/2" Hex |
| 405A  | Bleed Limit Valve; 1/4" OD Tubing   | 2-1/4" | 1/2" Hex |

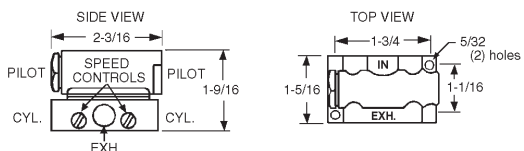
A wide variety of pilot operators are provided in the Micro-Line valves section (pages 20-21). This line of valves can be used to remotely pilot either the pressure or the bleed type.

### Dimensions

L-10, N-10, T-10 and V-10 (all ports 1/8" NPT)



K-10, M-10, O-10 and U-10 (all ports 1/8" NPT)



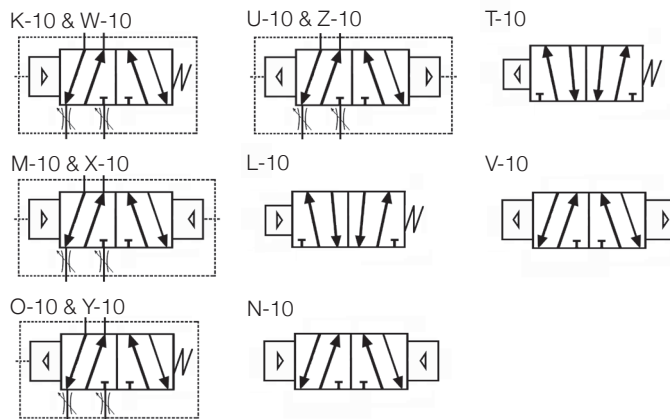
### Technical Specifications

|              |                                     |
|--------------|-------------------------------------|
| Pressure:    | 20 to 150 PSI (min. 30 PSI on W-10) |
| Temperature: | -40° F to 150° F (-40° C to 66° C)  |
| Lubrication: | Petroleum Base Oil                  |
| Filtration:  | 40 Micron                           |

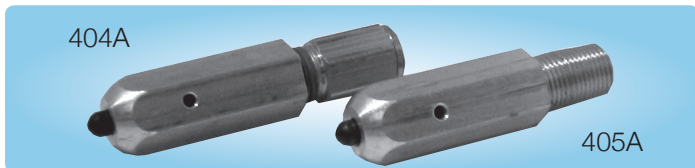
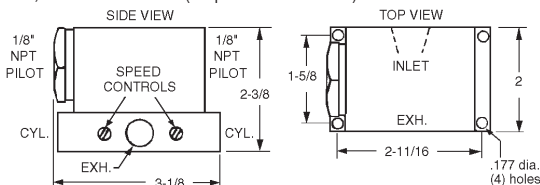
### Construction

|                 |   |
|-----------------|---|
| Type:           | Slide (wear compensating nylon)   |
| Dynamic Seals:  | Buna-N Block Vs   |
| Plate:          | Hardened and lapped aircraft quality steel                                      |
| Exhaust Ports:  | Common to both cylinder ports   |
| Speed Controls: | Needle type with check valve to allow free out flow and controlled exhaust flow |

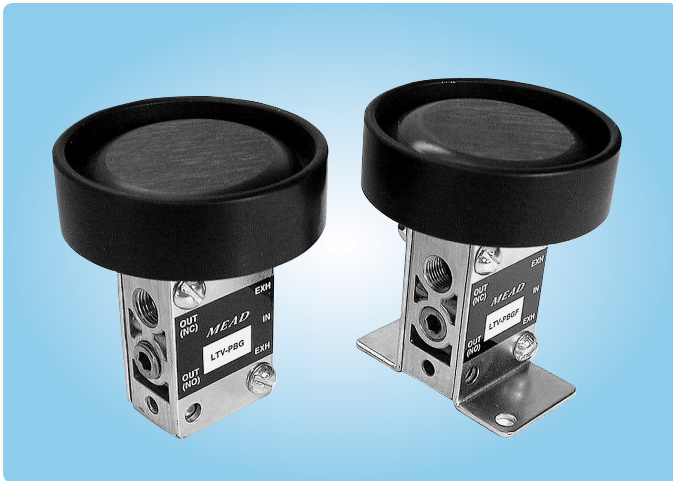
### Valve Symbols



W-10, X-10, Y-10 and Z-10 (all ports 1/4" NPT)



## Ergonomic Low Stress Air Valve



## Reduce the Effects of Repetitive Motion

Many machine operators are required to operate air powered equipment hundreds or thousands of times per day. These types of routines can result in repetitive motion disorders such as Carpal Tunnel Syndrome. The debilitating effects usually result in increasing worker compensation claims and declining employee productivity.

Ergonomically designed to respond to extremely low actuation forces, Mead's Low Stress actuators require as little as 6 ounces of force to initiate a signal. This valve will dramatically reduce the demands on your workers' hands, wrists and arms.

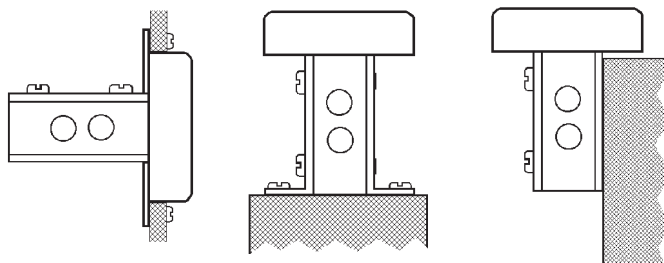
## How to Order

Three actuator stickers (red, green and black) are included with each valve. All models may be configured 3-way normally open, 3-way normally closed or 4-way.

| Model #  | Description                                 |
|----------|---|
| LTV-PB   | Basic Valve (Unguarded); For Side Mounting  |
| LTV-PBG  | Valve with Button Guard; For Side Mounting  |
| LTV-PBGF | Valve with Button Guard; For Foot Mounting  |
| LTV-PBGP | Valve with Button Guard; For Panel Mounting |

## Mounting Options

The Low Stress Series allows you to choose between three distinct mounting options. Mounting holes are located in the valve body for standard side mounting. For foot bracket or panel mounting, be sure to specify the proper model number (listed below).



Panel Mount  
(LTV-PBGP)

Foot Mount  
(LTV-PBGF)

Side Mount  
(LTV-PB, LTV-PBG)

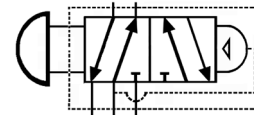
## Operating Specifications

LTV Low Stress valves are ported 1/8" NPT. They are shipped with a 3-way normally closed flow pattern for pilot applications, but can be easily converted to 3-way normally open or 4-way flow by removing a port plug.

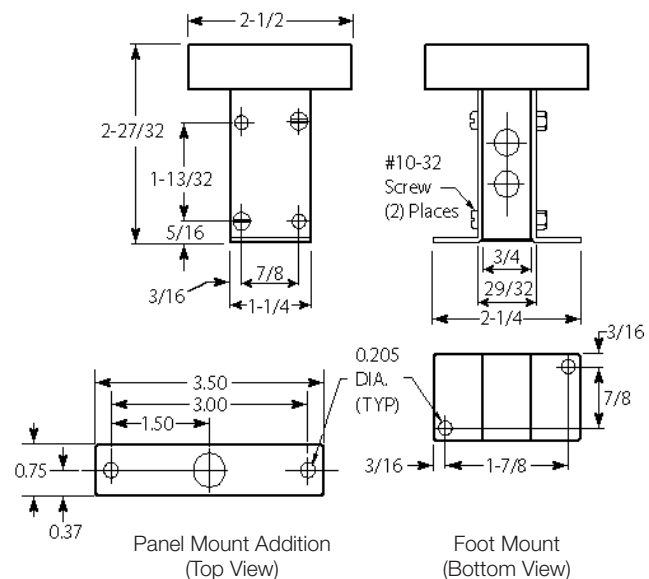
## Technical Specifications

|                  |  |
|------------------|--|
| Temperature:     | 0° F to 115° F (-18° C to 46° C)                           |
| Pressure:        | 25-125 PSI air   |
| Filtration:      | Standard 40 Micron filter recommended to prolong seal life |
| Lubrication:     | Petroleum Based Oil  |
| Flow at 100 PSI: | 14 SCFM  |
| Flow:            | 0.24 C <sub>v</sub>  |

## Valve Symbol - All Models

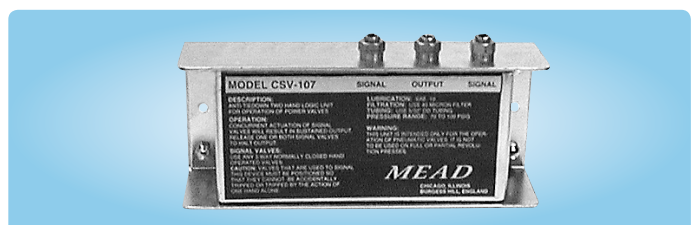


## Dimensions



## Low Stress Two-Hand Control

To provide safer operation of assembly equipment and other machinery, use the LTV Low Stress valves with the CSV-107 two-hand control unit. When used as directed, this unit demands concurrent actuation from two remote inputs before a signal can be initiated. Further, the release of one or both inputs immediately stops the output signal. The unit cannot recycle until both valves are again simultaneously actuated. The CSV-107 requires no electrical connections. For more information regarding the CSV-107, please see page 57.



LTV

LTV-5  
Pin Plunger



LTV-10  
Straight Leaf



LTV-15 Roller Leaf  
LTV-90 Nylon Roller



LTV-20  
One-Way Roller Leaf



LTV-25\*  
Roller Plunger



LTV-30\*  
Cross Plunger



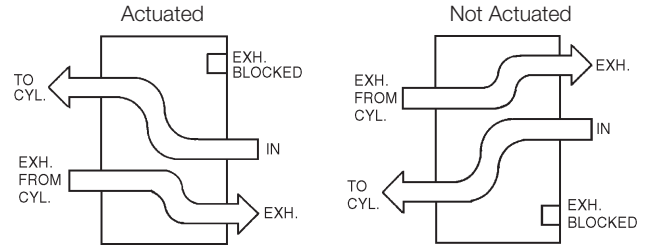
\* For 15/32" panel openings; 15/32-32 UNS

**Light-Touch, Snap-Acting Control Valves**

Mead's LTV valves are compact 1/8" ported 4-way valves that may be actuated by hand, remote air signal, electric signal, or mechanically by a machine element. They are ideal for powering small or medium sized cylinders and for piloting larger valves. Some models require as little as 4 ounces of force and .010" of plunger travel to actuate. See the chart on the opposite page for individual valve specifications.

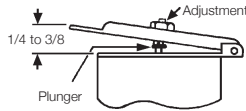
**LTV Flow Patterns**

For all models except LTV-60, which is opposite.



**Micrometer Trip Position Adjustment Available on LTV-10, LTV-15 and LTV-20**

An optional screw adjustment on the valve lever allows the user precision control of the valve actuator. Specify LTV-10A, LTV-15A, or LTV-20A.



**DIN Solenoid Connectors**

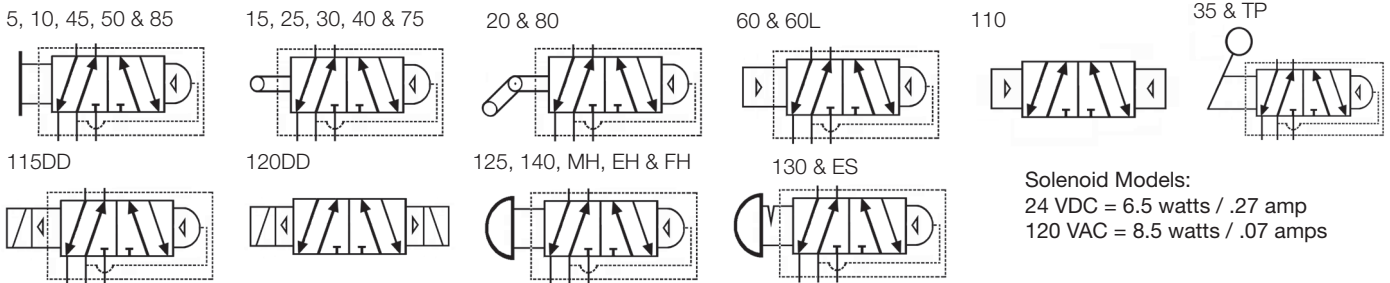
Electrically actuated LTV valves utilize DIN type solenoids. DIN solenoids feature a totally encapsulated coil with 3 prongs, allowing fast and easy connections. DIN connectors are ordered separately. Mead offers 3 types of DIN connectors to facilitate connections to the solenoid. A full description of these connectors can be found on page 62.



Solenoid shown with connector PVD1 (sold separately)

| General Specifications |   |
|------------------------|---|
| Pressure Range:        | 25 to 125 PSI (Solenoid models to 100 PSI)                  |
| Temperature:           | 0° F to 115° F (-18° C to 46° C)                            |
| Flow:                  | 0.24 C <sub>v</sub>   |
| Flow at 100 PSI:       | 14 SCFM   |
| Ports:                 | 1/8" NPT Standard; LTV-60 and LTV-110 pilot ports are 10-32 |
| Lubrication:           | Petroleum Base Oil  |
| Filtration:            | 40 Micron Minimum   |
| Body:                  | Cast Aluminum   |
| Seals:                 | Buna-N  |
| Spool:                 | Aluminum  |
| Response:              | 20-30 ms  |

**Valve Symbols (Only Model Numbers are indicated)**



LTV-75  
Roller



LTV-80  
One-Way Roller



LTV-85  
Extended Rod (6")



LTV-115DD  
Single Solenoid



LTV-120DD  
Double Solenoid



LTV-125, LTV-130  
Knob\* (LTV-125 has threaded stem)



\* For 15/32" panel openings; 15/32-32 UNS

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index



LTV-35\*  
Flip Toggle



LTV-40\*  
Ball Roller



LTV-45\*  
Straight Plunger



LTV-50  
Fingertip Lever



LTV-60 Single Pressure  
LTV-110 Double Pressure

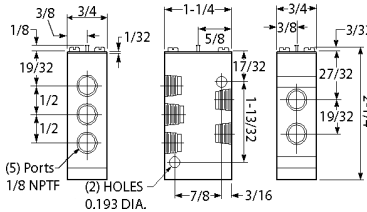


LTV-60L  
Low Pressure



\* For 15/32" panel openings; 15/32-32 UNS

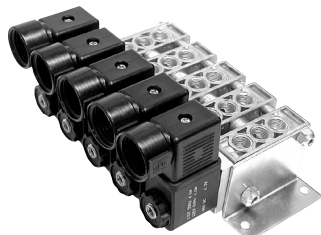
**Basic Dimensions**



NOTE: Envelope dimensions of valves with actuators are shown in the chart on the right.

**LTV Valve Stacks**

Stacked valves reduce piping requirements by eliminating the need for a separate air supply to each valve. All LTV valves are stackable except LTV-75, 80, 85, 140, MH, TP, EH, FH and ES. When LTV-50, LTV-115DD or LTV-120DD valves are stacked, 1/4" spacers are added between valves. To order, add "M" to the model number, specify number, type and position of valves.



Solenoids shown here with connector PVD1 (sold separately)

| Model       | Actuator                | Return         | Act. Force @ 80 PSI | Act. Stroke Distance (") |             | Length (") | Width (") | Height (") |
|-------------|-------------------------|----------------|---------------------|--------------------------|-------------|------------|-----------|------------|
|             |                         |                |                     | Full Open                | Over Travel |            |           |            |
| LTV-5       | Pin Plunger             | Air Spring     | 13 oz.              | .016                     | .094        | 1-1/4      | 3/4       | 2-3/8      |
| LTV-10      | Straight Leaf           | Air Spring     | 5.5 oz.             | .016                     | .156        | 2-3/32     | 3/4       | 2-1/2      |
| LTV-10A     | Adjustable Leaf         | Air Spring     | 5.5 oz.             | .016                     | .156        | 2-3/32     | 3/4       | 2-5/8      |
| LTV-15      | Roller Leaf             | Air Spring     | 5.5 oz.             | .016                     | .156        | 2-5/32     | 3/4       | 2-7/8      |
| LTV-15A     | Adjustable Roller Leaf  | Air Spring     | 5.5 oz.             | .016                     | .156        | 2-5/32     | 3/4       | 3          |
| LTV-20      | 1-Way Roller Leaf       | Air Spring     | 5.5 oz.             | .016                     | .156        | 2-3/32     | 3/4       | 3-11/32    |
| LTV-20A     | Adjustable Roller Leaf  | Air Spring     | 5.5 oz.             | .016                     | .156        | 2-3/32     | 3/4       | 3-15/32    |
| LTV-25      | Roller Plunger          | Air Spring     | 13 oz.              | .016                     | .094        | 1-1/4      | 3/4       | 3-5/8      |
| LTV-30      | Cross Plunger           | Air Spring     | 13 oz.              | .016                     | .094        | 1-1/4      | 3/4       | 3-5/8      |
| LTV-35      | Flip Toggle             | Detent         | 9.25 oz.            | 30°                      | -           | 1-1/4      | 3/4       | 3-25/32    |
| LTV-40      | Ball Roller             | Air Spring     | 13 oz.              | .016                     | .094        | 1-1/4      | 3/4       | 3-1/32     |
| LTV-45      | Straight Plunger        | Air Spring     | 13 oz.              | .016                     | .094        | 1-1/4      | 3/4       | 3-11/32    |
| LTV-50      | Fingertip Lever         | Air Spring     | 5.5 oz.             | .016                     | .156        | 2-17/32    | 3/4       | 2-11/16    |
| LTV-60+     | Single Pressure~        | Air Spring     | -                   | -                        | -           | 1-1/4      | 3/4       | 2-11/32    |
| LTV-60L*    | Low Pressure            | Air Spring     | -                   | -                        | -           | 1-1/4      | 3/4       | 3-3/32     |
| LTV-75      | Heavy-Duty Roller       | Air Spring     | 14 oz.              | .031                     | .313        | 2-7/32     | 3/4       | 4-5/32     |
| LTV-80      | Heavy-Duty 1-Way Roller | Air Spring     | 14 oz.              | .031                     | .313        | 2-13/32    | 3/4       | 3-17/32    |
| LTV-85      | Heavy-Duty Extended Rod | Air Spring     | 4 oz.               | .125                     | .500        | 6- 1/4     | 3/4       | 3-17/32    |
| LTV-90      | Nylon Roller            | Air Spring     | 5.5 oz.             | .016                     | .156        | 2-5/32     | 3/4       | 3          |
| LTV-110     | Double Pressure~        | Ext. Air Pilot | -                   | -                        | -           | 1-1/4      | 3/4       | 2-11/32    |
| LTV-115DD** | Solenoid (DIN)          | Air Spring     | -                   | -                        | -           | 1-5/8      | 7/8       | 3-9/32     |
| LTV-120DD** | Solenoid (DIN)          | Solenoid       | -                   | -                        | -           | 1-5/8      | 7/8       | 4-19/32    |
| LTV-125     | Knob                    | Air Spring     | 13 oz.              | .016                     | -           | 1-1/4      | 5/8       | 3-19/32    |
| LTV-130     | Knob                    | Detent         | 2 lbs.              | .094                     | .125        | 1-1/4      | 5/8       | 3-9/32     |
| LTV-140     | Palm                    | Air Spring     | 13 oz.              | .016                     | .094        | 1-3/8      | 1 3/8     | 3-25/32    |
| LTV-MH^     | Mushroom Head           | Air Spring     | 1 lb.               | .218                     | .047        | 1-5/8      | 1 5/8     | 4-3/16     |
| LTV-TP      | Two Position            | Detent         | -                   | -                        | -           | 1-5/8      | 1 5/8     | 4-5/16     |
| LTV-EH^     | Extended Head           | Air Spring     | -                   | .218                     | .049        | 1-5/8      | 1 5/8     | 3-13/16    |
| LTV-FH^     | Flush Head              | Air Spring     | -                   | .218                     | .049        | 1-5/8      | 1 5/8     | 3-3/4      |
| LTV-ES      | Emergency Stop (Red)    | Detent         | 2 lbs.              | .218                     | .125        | 2-1/2      | 2 1/2     | 4-9/32     |

\* Minimum pilot pressure of 25 PSI required.

\*\* Specify voltage: 12DC, 24DC, 24AC, or 120AC

^ Specify actuator color: red, green or black

+ Pilot pressure must equal at least 60% of inlet pressure. ~ 10-32 pilot port

LTV-140\*  
Palm



LTV-MH\*\*  
Mushroom Head



LTV-TP\*\*  
Two Position Detent



LTV-EH\*\* Extended Head  
LTV-FH\*\* Flush Head



LTV-ES  
Emergency Stop



\* For 15/32" panel openings; 15/32-32 UNS  
\*\* For-1 3/16" panel openings

# MV 3-Way Switches

Reference

Control Valves

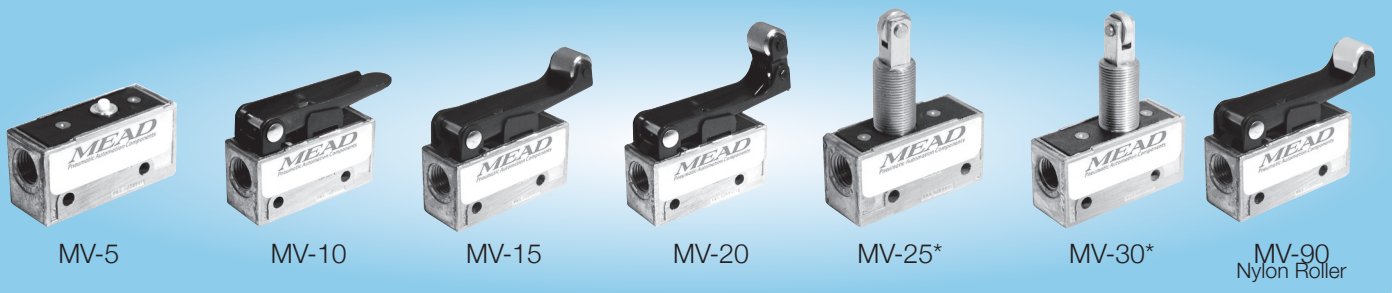
Cylinders

Specialty Valves

Production Devices

Accessories

Index

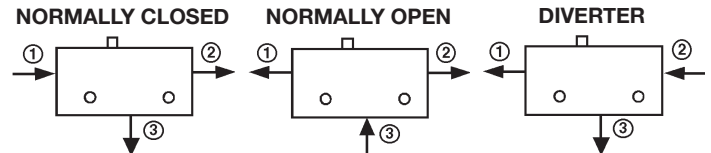


\* For 15/32" panel openings; 15/32-32 UNS

Mead's MV air switches are 3-way 1/8" ported air pilot valves that are identical in size, actuating style, and mounting characteristics to most industrial type electric limit switches. Use them in place of electric limits to save on hookup cost and eliminate spark hazard. MV valves simplify circuits by eliminating the need for wire shielding, transformers, and solenoids.

The MV air switch may be piped normally closed, normally open, or as a diverter. These alternatives are described in detail below.

| General Specifications    |                      |
|---------------------------|----------------------|
| Pressure Range:           | Vacuum to 120 PSI    |
| Media:                    | Air or Inert Gas     |
| Flow:                     | 0.11 C <sub>v</sub>  |
| Flow at 100 PSI:          | 6 SCFM               |
| Ports:                    | 1/8" NPT             |
| Cycle Life:               | 7-10 million         |
| Force to Actuate:         | As Low as 6.4 Ounces |
| Max. Ambient Temperature: | 115° F (46° C)       |
| Lubrication:              | Not Required         |
| Filtration:               | 40 Micron            |
| Seals:                    | Viton                |
| Spool:                    | Dupont Teflon®       |
| Body:                     | Cast Zinc            |



Pressurized air flows from 1 to 2 when button is pushed.

Pressurized air flows from 3 to 2 when button is not pushed.

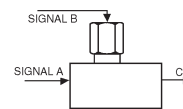
Pressurized air flows from 2 to 1 when button is pushed.

Exhaust air flows from 2 to 3 when button is released.

Exhaust air flows from 2 to 1 when button is pressed.

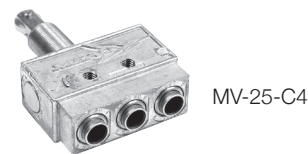
Pressurized air flows from 2 to 3 when button is released. This hookup does not provide for exhaust.

### Perform "AND" Logic Function with MV-60



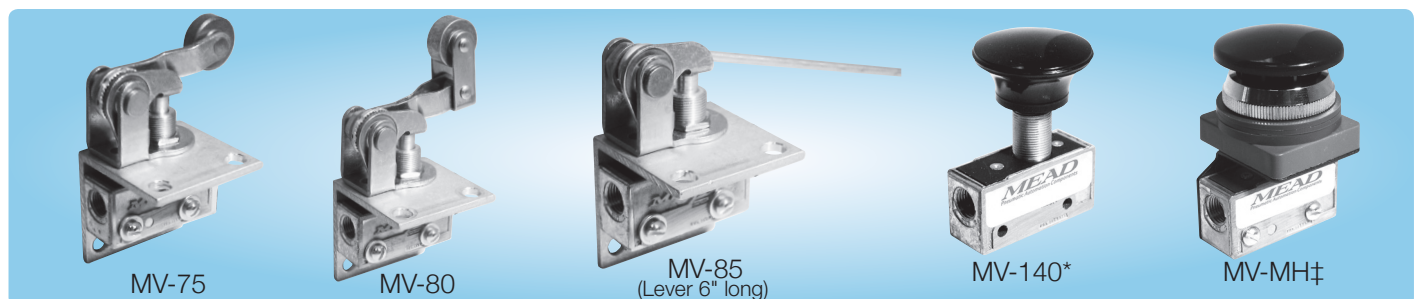
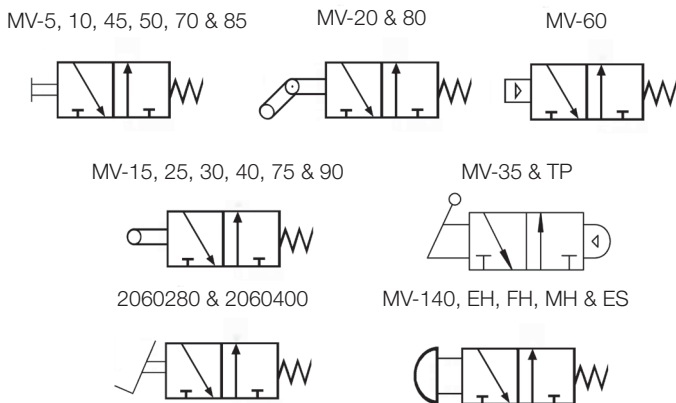
This hookup provides that flow will occur at C only when air signals are received at A and B. The MV-60 is a 3-way air piloted valve.

### Add Push to Connect 1/4" Fittings



MV valves are available with 1/4" brass push to connect fittings. The valve will be provided with a fitting for the inlet, outlet and the exhausts ports. Any MV valve may utilize this option. The valve's body height increases by 5/16" and the mounting holes are 0.532" apart.

### Valve Symbols



\* For 15/32" panel openings; 15/32-32 UNS

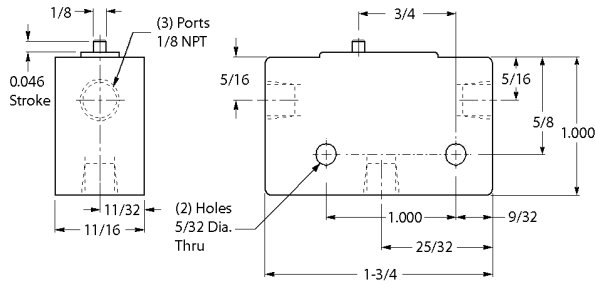


MV 3-Way Switches



Basic Valve Dimensions

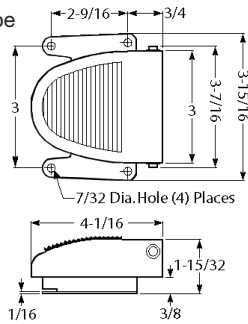
\* For 15/32" panel openings; 15/32-32 UNS



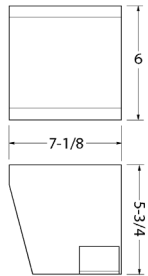
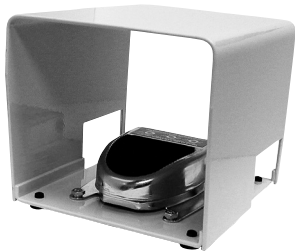
Envelope dimensions of valves are shown in the chart to the right.

Model #2060400

Model has plug-in fittings for 1/4" OD tube



Model #2060400G (Guarded)



NOTE: 2060400 and 2060400G are provided with push to connect fittings as the C4 option (described on opposite page).

| Model  | Actuator          | Act. Force lbs. @ 100 PSI |     |               | Act. Stroke Distance |             |        | Envelope Dimensions |         |  |
|--------|-------------------|---------------------------|-----|---------------|----------------------|-------------|--------|---------------------|---------|--|
|        |                   | NC                        | NO  | To Crack Open | To Full Open         | Over Travel | Len.   | Wid.                | Hgt.    |  |
| MV-5   | Pin Plunger       | 2.5                       | 3.3 | .035          | .046                 | .035        | 1-3/4  | 11/16               | 1       |  |
| MV-10  | Straight Leaf     | 1.2                       | 1.5 | .100          | .137                 | .079        | 2-3/16 | 11/16               | 1-1/4   |  |
| MV-15  | Steel Roller      | 1.0                       | 1.3 | .100          | .137                 | .079        | 2-3/16 | 11/16               | 1-5/8   |  |
| MV-20  | 1-Way Roller Leaf | 1.0                       | 1.3 | .100          | .137                 | .079        | 2-3/16 | 11/16               | 2-1/16  |  |
| MV-25  | Roller Plunger    | 2.8                       | 3.5 | .035          | .046                 | .155        | 1-3/4  | 11/16               | 2-3/16  |  |
| MV-30  | Cross Roller      | 2.8                       | 3.5 | .035          | .046                 | .155        | 1-3/4  | 11/16               | 2-5/16  |  |
| MV-35  | Flip Toggle       | 1.5                       | 2.3 | 35°           | 35°                  | 35°         | 1-3/4  | 11/16               | 2-5/16  |  |
| MV-40  | Ball Roller       | 2.5                       | 3.3 | .035          | .046                 | .035        | 1-3/4  | 11/16               | 1-19/32 |  |
| MV-45  | Straight Plunger  | 2.5                       | 3.3 | .035          | .046                 | .155        | 1-3/4  | 11/16               | 1-29/32 |  |
| MV-50  | Fingertip Lever   | 1.0                       | 1.3 | .100          | .137                 | .079        | 2-5/8  | 11/16               | 1-3/8   |  |
| MV-60  | Pressure Piloted  | 40*                       | 40* | -             | -                    | -           | 1-3/4  | 11/16               | 1-5/8   |  |
| MV-70  | Extended Leaf     | 0.7                       | 1.0 | .255          | .315                 | .195        | 4-1/2  | 11/16               | 1-9/16  |  |
| MV-75  | HD Roller Leaf    | 2.8                       | 3.5 | .093          | .119                 | .129        | 2-1/4  | 1-3/4               | 3-7/16  |  |
| MV-80  | HD 1-Way Roller   | 2.8                       | 3.5 | .093          | .119                 | .129        | 2-1/8  | 1-3/4               | 4-1/8   |  |
| MV-85  | HD Extended Rod   | 0.4                       | 0.6 | .637          | .782                 | .330        | 6-1/4  | 1-3/4               | 3-1/8   |  |
| MV-90  | Nylon Roller      | 1.0                       | 1.3 | .100          | .137                 | .079        | 2-3/16 | 11/16               | 1-5/8   |  |
| MV-140 | Palm Actuator     | 2.5                       | 3.3 | -             | -                    | -           | 1-3/4  | 1-3/8               | 2-1/4   |  |
| MV-MH  | Mushroom Head     | -                         | -   | -             | -                    | -           | 1-3/4  | 1-1/2               | 2-5/8   |  |
| MV-TP  | Two Position      | -                         | -   | -             | -                    | -           | 1-3/4  | 1-1/2               | 3-1/32  |  |
| MV-FH  | Flush Head        | -                         | -   | -             | -                    | -           | 1-3/4  | 1-1/2               | 2-7/32  |  |
| MV-EH  | Extended Head     | -                         | -   | -             | -                    | -           | 1-3/4  | 1-1/2               | 2-13/32 |  |
| MV-ES  | Emergency Stop    | -                         | -   | -             | -                    | -           | 2-1/2  | 2-1/2               | 2-7/8   |  |
| MV-EMS | Emergency Stop    | -                         | -   | -             | -                    | -           | 1-3/4  | 1-5/8               | 3-1/4   |  |

\* PSI  
NO = Normally Open  
NC = Normally Closed



‡ For 1-3/16" panel opening

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

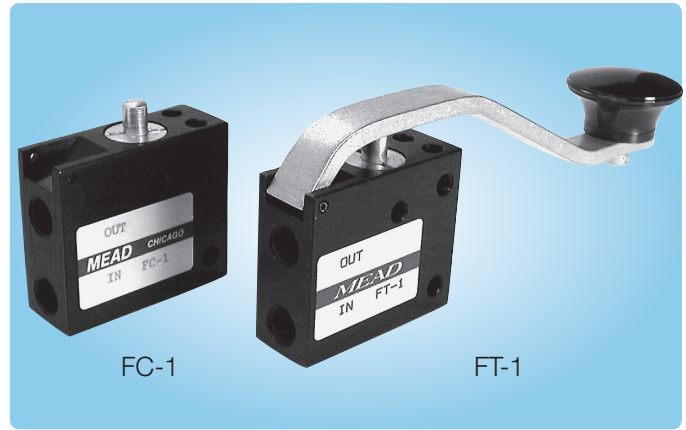
Accessories

Index

These compact air valves provide economical cam, fingertip, palm, hand, and foot actuation. 3-way models are ideal for actuating single-acting cylinders and 4-way directional valves. 4-way models are suitable for the control of double-acting cylinders. Three types of spool designs are available.

**General Specifications**

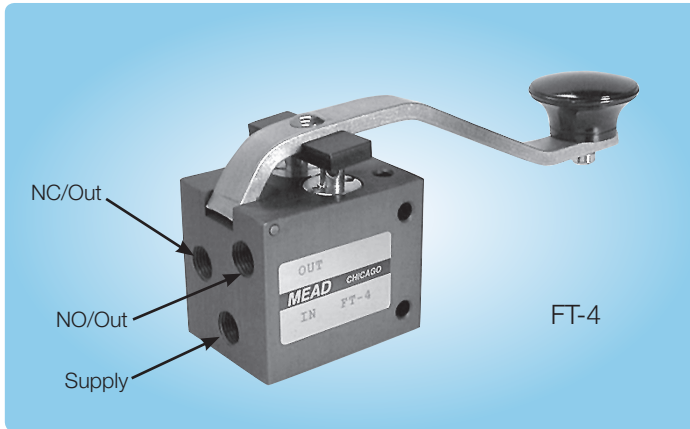
|                                  |                                     |
|----------------------------------|-------------------------------------|
| Media:                           | Air to 150 PSI                      |
| Temperature Range:               | -40° F to 250° F (-40° C to 121° C) |
| Cam Buttons:                     | Hardened Steel                      |
| Spring:                          | Stainless Steel                     |
| Seals:                           | Buna-N                              |
| Body:                            | Machined Aluminum                   |
| Body (4B-1, 4W-1, 201 and 3C-1): | Die Cast Zinc                       |



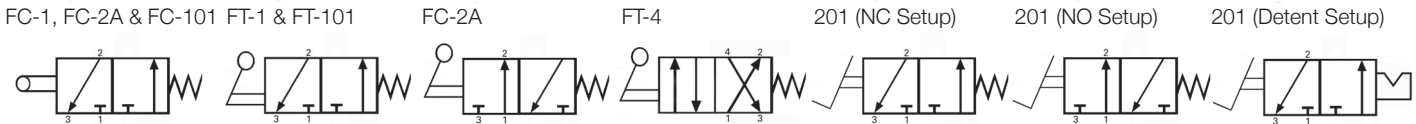
**Poppet Spool Type**

A high degree of reliability is achieved by these valves with the simple yet efficient poppet type design. A short operating stroke assures instantaneous response while minimizing operator fatigue.

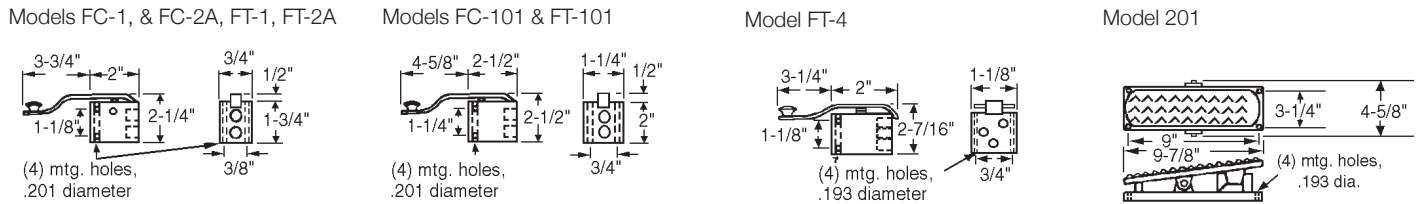
| Model Number | Actuator        | Style    | Port (NPT) | Flow (C <sub>v</sub> ) | Pre-Travel | Over Travel | Force Req. @ 100 PSI |
|--------------|-----------------|----------|------------|------------------------|------------|-------------|----------------------|
| FC-1         | Cam Button      | 3-Way NC | 1/8"       | 0.13                   | 3/64"      | None        | 17lbs.               |
| FC-2A        | Cam Button      | 3-Way NO | 1/8"       | 0.32                   | 1/8"       | 1/8"        | 11lbs.               |
| FC-101       | Cam Button      | 3-Way NC | 3/8"       | 1.15                   | 1/16"      | None        | 30lbs                |
| FT-1         | Fingertip Lever | 3-Way NC | 1/8"       | 0.13                   | 1/4"       | None        | 4lbs.                |
| FT-2A        | Fingertip Lever | 3-Way NO | 1/8"       | 0.32                   | 7/8"       | 1/8"        | 2lbs.                |
| FT-4         | Fingertip Lever | 4-Way    | 1/8"       | 0.16                   | 7/8"       | None        | 3lbs.                |
| FT-101       | Fingertip Lever | 3-Way NC | 3/8"       | 1.15                   | 3/16"      | None        | 8lbs.                |
| 201          | Foot Treadle    | 3-Way    | 3/8"       | 1.15                   | 5/8"       | None        | 7-1/2 lbs.           |



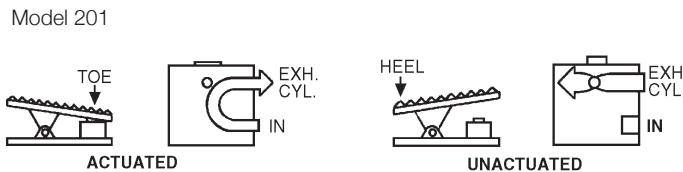
**Valve Symbols**



**Dimensions**



**Flow Patterns**



Model 201 may be adjusted in seconds during installation to be detented or spring return. The valve may be set up as either normally open or normally closed for spring return operation.



201

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

General Purpose Cam, Foot, Hand and Button Valves

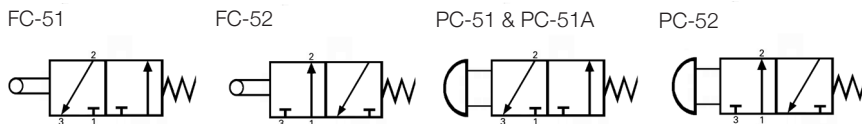


Balanced Spool Type

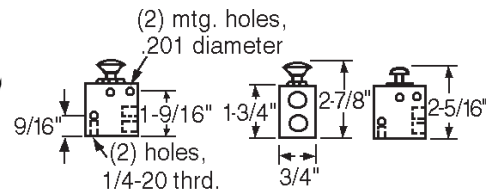
Actuating Force remains constant regardless of air pressure due to the balanced spool design. This series is particularly suited for use in situations where a high rate of flow is required through a 3-Way cam or palm button valve. Additionally, the spool design eliminates the momentary loss of pressure due to valve shifting.

| Model Number | Actuator              | Style    | Port (NPT) | Flow (C.) | Pre-Travel | Over Travel | Force Req. @ 100 PSI |
|--------------|-----------------------|----------|------------|-----------|------------|-------------|----------------------|
| FC-51        | Cam Button            | 3-Way NC | 1/8"       | 0.81      | 1/8"       | 1/8"        | 7lbs.                |
| FC-52        | Cam Button            | 3-Way NO | 1/8"       | 0.68      | 1/8"       | 1/8"        | 5lbs.                |
| PC-51        | Palm Button Spr. Ret. | 3-Way NC | 1/8"       | 0.81      | 1/8"       | 1/8"        | 7lbs.                |
| PC-51A       | Palm Button Detent    | 3-Way NC | 1/8"       | 0.81      | 1/8"       | 1/8"        | 3lbs.                |
| PC-52        | Palm Button           | 3-Way NO | 1/8"       | 0.68      | 1/8"       | 1/8"        | 5lbs.                |

Valve Symbols



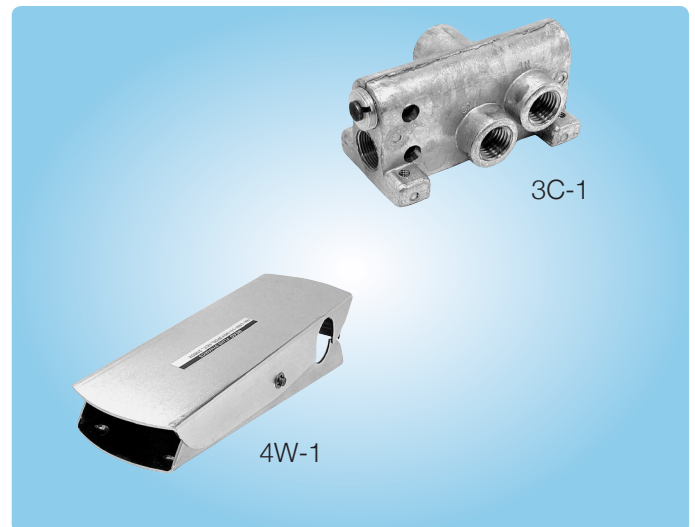
Dimensions



Spool Type - Rugged Conditions

Time-tested reliability is the trademark of these valves. Due to the unique design, performance is not greatly affected by the use of unclean air and operation in chip and dirt-ridden environments.

| Model Number | Actuator     | Style    | Port (NPT) | Flow (C.) | Pre-Travel | Over Travel | Force Req. @ 100 PSI |
|--------------|--------------|----------|------------|-----------|------------|-------------|----------------------|
| 3C-1         | Cam Button   | 3-Way NC | 1/4"       | 0.48      | 1/16"      | None        | 9lbs.                |
| 4W-1         | Foot Treadle | 4-Way    | 1/4"       | 0.48      | 5/16"      | None        | 18lbs.               |



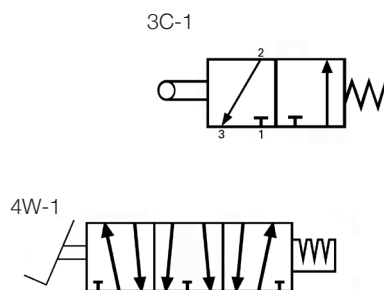
Flow Patterns

Models 4W-1

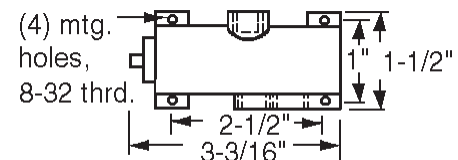


NOTE: In neutral, cylinder ports are dumped to atmosphere.

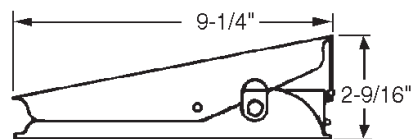
Valve Symbols



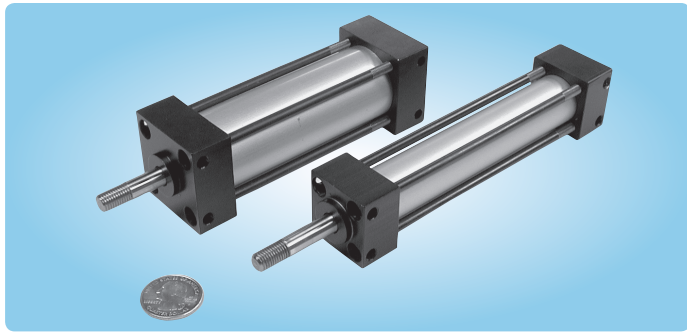
Dimensions



NOTE: height is 1-1/2".



NOTE: width is 3-5/16".



**Cylinder Materials**

- Heads: Machined from solid aluminum; black anodized
- Tubes: Aluminum hard anodized to 60 Rc (16 RMS finish)
- Piston: Solid high alloy aluminum
- Rod: Hard chrome plated ground and polished steel
- Bearing: Long wearing, oil impregnated porous bronze
- Piston and Rod Seals: Wear compensating Buna-N vee rings
- Rod Wiper: PTFE
- Tie Rods: High tensile steel torqued to allow for flexure

**Double-Rod Cylinders**

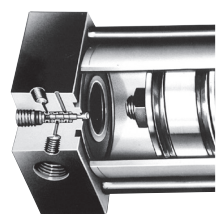
Cylinders having a common piston rod that protrudes from both ends are available in all bore sizes. In addition to providing a dual power source, double rod cylinders serve to minimize rod deflection and to facilitate the control and adjustment of rod travel.

**Specify Cushions for Shock Absorption**

Model DM-112 is available with adjustable cushions that decelerate the piston rod over the last 11/16" of stroke. They allow the user to set the degree of cushioning needed for each specific application.

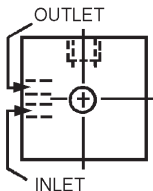
NOTE: Cushions are not recommended for hydraulic use.

**Pneumatic End-of-Stroke Sensors (Inter-Pilots®)**



A miniature 3-way valve built into the cylinder head is actuated by the cylinder piston as it reaches the end of its stroke. Once contacted, the 3-way Inter-Pilot® valve emits an air signal. In this manner, sequencing is achieved without external limit switches and electric wiring.

Inter-Pilots® may be built (10-32 Ports) into either or both cylinder heads. They are not for hydraulic use. Cylinder operating pressure must not exceed pressure used to feed the Inter-Pilot®. Inter-Pilots® are not available on DM-075.



**Operating Parameters**

| Bore Diam. | Thrust* | Thrust Mult.** | Rod Diam. (In.) | Max. Oper. |      |
|------------|---------|----------------|-----------------|------------|------|
|            |         |                |                 | Air        | Oil‡ |
| 3/4"       | 44      | .44            | 5/16            | 250        | 1000 |
| 1-1/8"     | 100     | 1.00           | 5/16            | 250        | 1000 |

\* Pushing force of cylinder at 100 PSI inlet pressure. Pulling force will be about 10% less due to the displacement of the piston rod. NOTE: Actual realizable thrust could be somewhat lower due to side loading and internal friction. It is best to oversize your cylinder by about 25% to assure smooth operation.

\*\* To determine thrust at other inlet pressures, multiply factor by the desired pressure.

‡ DM cylinders are not rated or approved for use in hydraulic circuits where an impulse or pressure spike may occur.

**Operating Specifications**

|              |  |
|--------------|--|
| Temp. Range: | -40° F to 250° F (-40° C to 121° C) (to 400° F [204° C] on request)                    |
| Lubrication: | Not necessary, but will extend cylinder life when operated with dry air.               |
| Filtration:  | Not essential, but a standard 40 micron filter placed upstream will prolong seal life. |

**Pneumatic Stroke Completion Sensors (SCS)**

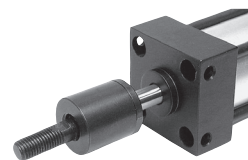


Port mounted SCS valves emit an air signal when the cylinder rod has stopped even if the piston has not contacted the end cap. SCS valves are ideal for use in situations where the full cylinder stroke is not used. See page 54.

| Accessories |                           |         |         |
|-------------|---------------------------|---------|---------|
|             | Bore Diameter             | 3/4"    | 1-1/8"  |
|             | Flex Rod Couplers         | DMA-312 | DMA-312 |
|             | Forged Rod Clevis         | DMC-5   | DMC-5   |
|             | Pivot Bracket             | NA      | DMP-7   |
|             | Clevis Bracket (with pin) | NA      | DMR-7   |

**Self Aligning Rod Couplers**

Rod couplers simplify cylinder alignment problems by compensating for 2Y angular error and 1/16" lateral misalignment on both extension and retraction strokes. Greater reliability is achieved by reducing cylinder and component wear. Order model #DMA-312 for these small bore cylinders. For other models, see page 41 for dimensions.



| Part #   | Rod Thread | Cylinder Type  |
|----------|------------|--|
| DMA-312  | 5/16-24    | C-112, DM-075, DM-112  |
| DMA-375  | 3/8-24     | No Standard  |
| DMA-437  | 7/16-20    | DM-150, DM2-150, HD1-150, DM-200, DM2-200, HD1-200, DM-250, DM2-250, HD1-250 |
| DMA-500  | 1/2-20     | C-150  |
| DMA-625  | 5/18-18    | C-250  |
| DMA-750  | 3/4-16     | DM-325, DM2-325, HD1-325, DM-400, DM2-400, HD1-400                           |
| DMA-875  | 7/8-14     | No Standard  |
| DMA-1000 | 1-14       | C-300, DM-600, HD1-600   |
| DMA-1250 | 1-1/4-12   | No Standard  |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

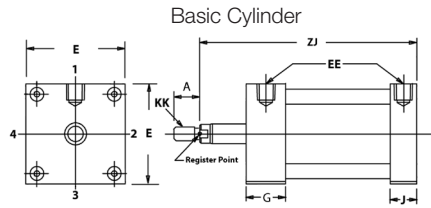


# Small Bore Tie Rod Dimensions and Ordering Information

| Bore      | 3/4        | 1-1/8                       |
|-----------|------------|-----------------------------|
| A         | 1/2        | 1/2                         |
| CB        | -          | 5/8                         |
| CD        | 25/64      | 25/64                       |
| CR        | 2-1/4      | 2-1/4                       |
| CW        | -          | 1/2                         |
| DD        | 13/64      | 13/64                       |
| E         | 1-1/4      | 1-5/8                       |
| EB        | 1-7/16     | 1-7/16                      |
| EE (NPTF) | 1/8        | 1/8                         |
| EF        | 11/32      | 11/32                       |
| EJ        | 13/64      | 13/64                       |
| F         | -          | 1/8                         |
| FB        | 7/32       | 7/32                        |
| G         | 3/4        | 3/4                         |
| J         | 3/4        | 3/4                         |
| KK        | 5/16-24    | 5/16-24                     |
| FL        | 1-1/8      | 5/8 Clevis<br>1-1/4 Pivot   |
| M         | -          | 3/8                         |
| MM        | 5/16       | 5/16                        |
| NT        | 13/64-Thru | 13/64-Thru                  |
| R         | 13/16      | 1-1/8                       |
| RT        | 10-32      | 10-32                       |
| ST        | 9/32       | 9/32                        |
| SV        | 5/16       | 5/16                        |
| TF        | 2-13/32    | 2-25/32                     |
| TN        | 13/16      | 1-1/8                       |
| UF        | 2-29/32    | 3-9/32                      |
| W         | 1/2        | 1/2                         |
| XD        | 11/16      | 11/16                       |
| H         | 7/8        | 7/8                         |
| HA        | 1-1/4      | 1-1/4                       |
| HB        | 1/4        | 1/4                         |
| HC        | 5/8        | 5/8                         |
| HD        | 5/16       | 5/16                        |
| HE        | 3/4        | 3/4                         |
| SN*       | 1-3/4      | 1-3/4                       |
| XD*       | 3-3/4      | 3-7/8 Pivot<br>3-1/4 Clevis |
| ZJ*       | 2-5/8      | 2-5/8                       |
| ZM**      | 3-1/8      | 3-1/8                       |

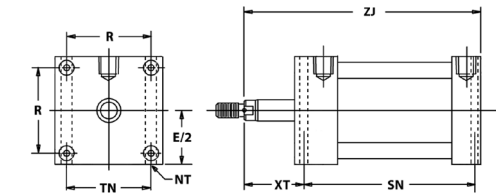
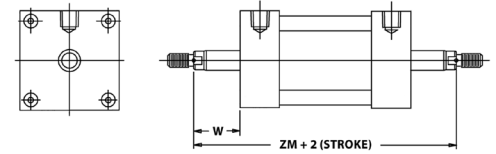
\* Add Stroke Length to Dimension

\*\* Add 2x Stroke Length to Dimension



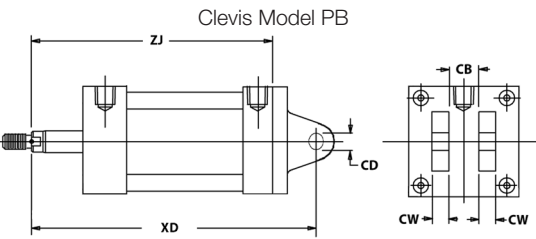
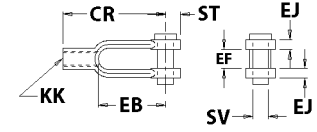
Basic Cylinder

Double Rod Model DR



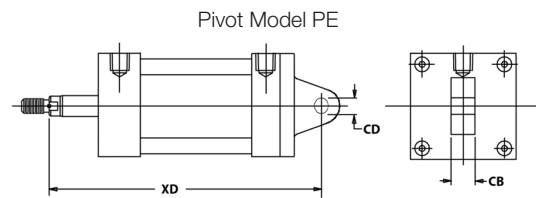
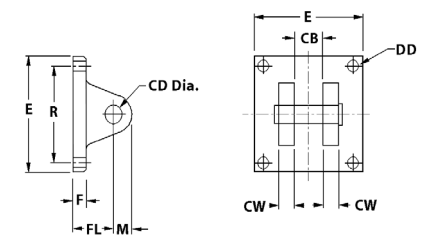
Bottom Flush Model FB

DMC Forged Rod Clevis w/Pin



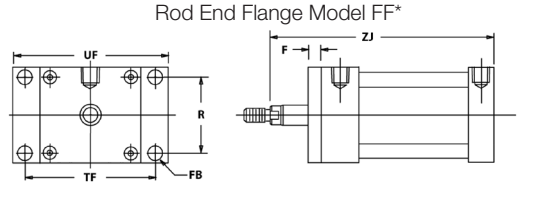
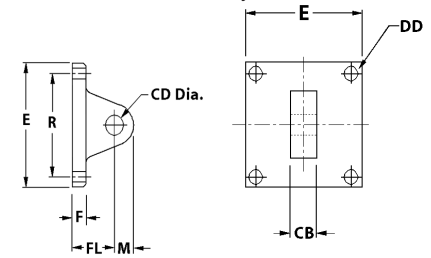
Clevis Model PB

DMR Clevis Bracket w/Pin  
1-1/8" Only



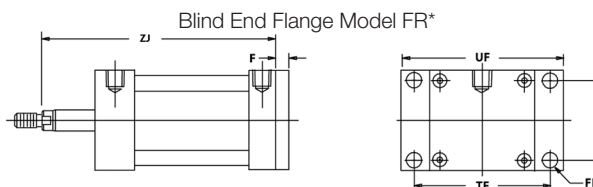
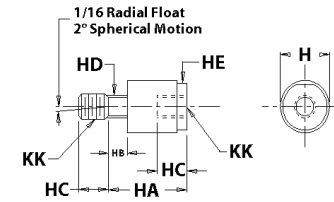
Pivot Model PE

DMP Pivot Bracket  
1-1/8" Only



Rod End Flange Model FF\*

Self Aligning Rod Couplers



Blind End Flange Model FR\*

**\*NOTE:**

- (1) 1-1/8" bore cylinders use two angle brackets for flange mounting (no flange plate)
- (2) On 1-1/8" bore models with ram end cushions and/or Inter-Pilots®, 9/16" must be added to G, ZB, SN, and XD dimensions. For blind end cushions and/or Inter-Pilots®, 5/8" must be added to J, ZJ, SN, and XD dimensions.
- (3) 3/4" and 1-1/8" bore cylinders use spacers for fractional strokes. For dimensioning, use the next even inch stroke. For true fractional stroke cylinders, specify CT (cut to length).
- (4) 3/4" and 1-1/8" bore models have four (4) 10-32 threaded holes for rear flush mounting.

## How To Order

**DM-112 x 10 - FB - DR**

**Base Model**

DM-075 (3/4" Bore)  
DM-112 (1-1/8" Bore)

**Stroke**

State Fractional Strokes as decimals (i.e. 10.5)

**NOTE: These cylinders use spacers for fractional stroke. For dimensioning, use the next even stroke. For true fractional stroke cylinders specify CT (i.e. , 10.5 CT)**

**Mounting**

NOTE: DM-075 only available with FB Mount.

In addition to Models shown above, the DM-112 is available in a Nose Mount (NS). Consult the factory for dimensional information.

**FF Option**

Front Flange - Plate extends beyond the front head. \* On 1-1/8" bore cylinder, two flange bars replace the flange plate.

**Options**

- DR Double Rod
- VI Viton Seals
- HY Hydraulic Use

Options below are only available on DM-112

- CF Front Cushions
- CR Rear Cushions
- CB Cushions Both Ends
- IPF Interpilots - Front Head
- IPR Interpilots - Rear Head
- IPB\* Interpilots - Both Heads

\* IPB must use -CT stroke option.

Reference

Control Valves

Cylinders

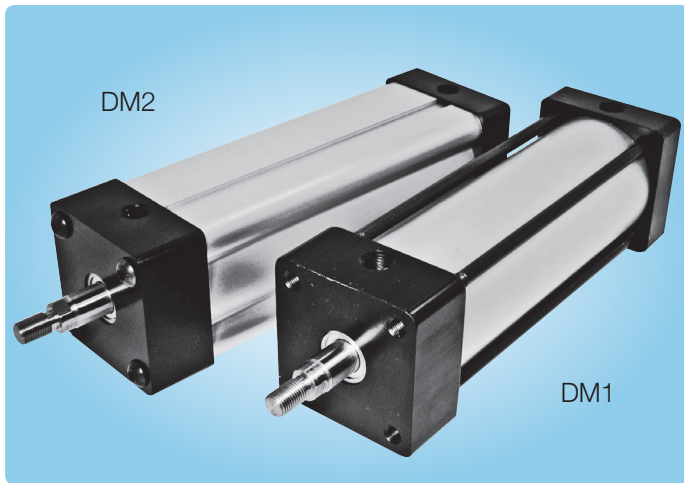
Specialty Valves

Production Devices

Accessories

Index





### Built to Last (Materials)

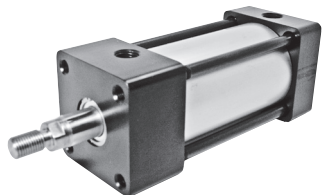
- Cylinder heads are machined from solid aluminum bar stock and black anodized
- Tubes (DM1) and Tube Extrusions (DM2) are aluminum hard anodized to 60 Rc (16 RMS finish)
- Pistons are solid high alloy aluminum
- Pistons have a PTFE wear band
- Dynamic seals are high quality wear-compensating Buna-N block V rings
- Rods are hard chrome plated ground and polished steel
- Rod Wipers are PTFE
- Tie Rods (DM1) are high tensile steel torqued to allow for flexure

### Dyna-Mation vs. HD Models

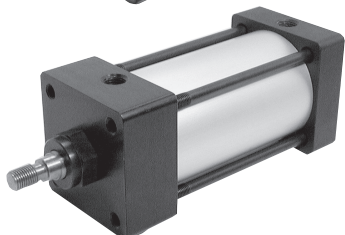
Dyna-Mation cylinders are designed to generate high performance in most applications. However, when operating conditions are severe, heavy duty models (HD Series, see pages 34-43) are recommended. The HD Series boasts the added benefits of a large hard-coated outboard rod bearing. The following profiles illustrate the differences of the rod end head in all three types of cylinders:



DM2  
Extruded Body Design with  
Internal Rod Bearing



DM1  
Internal Bronze Rod  
Bearing Tie Rod Design



HDI  
Heavy Duty Hard-  
Coated Rod Bearing

### Two Designs to Meet Application Demands

Mead Dyna-Mation cylinders are available two design series, the DM1 and the DM2. The DM1 series incorporates tie-rod construction while the DM2 series cylinders are constructed with an extruded body design, making these cylinders better suited for wash down applications and clean environments.

### Specify Cushions for Shock Absorption

Adjustable cushions that decelerate the piston rod over the last 11/16" of stroke may be ordered in either or both ends of Dyna-Mation cylinders. They allow the user to set the degree of cushioning needed for each specific application.

A built-in check valve assures a fast getaway in the opposite direction. The tough cushion seal combines with the ultra-smooth control stem to provide years of reliable service.

### Operating Parameters

| Bore Diam. | Thrust* | Thrust Mult.** | Rod Diam. (In.) | Max. Oper. |      |
|------------|---------|----------------|-----------------|------------|------|
|            |         |                |                 | Air        | Oil† |
| 1-1/2"     | 177     | 1.77           | 5/8             | 250        | 1000 |
| 2"         | 314     | 3.14           | 5/8             | 250        | 1000 |
| 2-1/2"     | 491     | 4.91           | 5/8             | 250        | 1000 |
| 3-1/4"     | 830     | 8.30           | 1               | 250        | 700  |
| 4"         | 1257    | 12.57          | 1               | 250        | 650  |
| 6"         | 2827    | 28.27          | 1-3/8           | 250        | 435  |

\* Pushing force of cylinder at 100 PSI inlet pressure. Pulling force will be about 10% less due to the displacement of the piston rod. NOTE: Actual realizable thrust could be somewhat lower due to side loading and internal friction. It is best to oversize your cylinder by about 25% to assure smooth operation.

\*\* To determine thrust at other inlet pressures, multiply factor by the desired pressure.

† DM cylinders are not rated or approved for use in hydraulic circuits where an impulse or pressure spike may occur.

NOTE: 6" bore only available in DM1 Series.

### Operating Specifications

Temp. Range: -40° F to 250° F (-40° C to 121° C) (to 400° F (204° C) on request)

Lubrication: Not necessary, but will extend cylinder life when operated with dry air.

Filtration: A standard 40 micron filter placed upstream will prolong seal life.

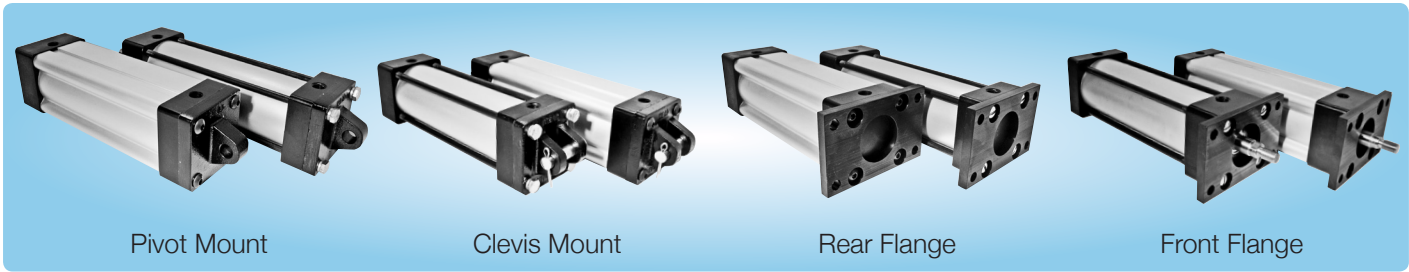
### Double Rod Cylinders

Cylinders having a common piston rod that protrudes from both ends are available in all bore sizes. In addition to providing a dual power source, double rod cylinders serve to minimize rod deflection and to facilitate the control and adjustment of rod travel. See page 30 for ordering instructions.

### Right Angle Flow Controls



Control the speed of your cylinders with Mead Flow Control Valves. Right-angle flow controls can be found on page 62. For precise metering of air, see Mead Dyla-Trol Valves on page 56.



Pivot Mount

Clevis Mount

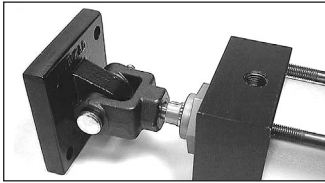
Rear Flange

Front Flange

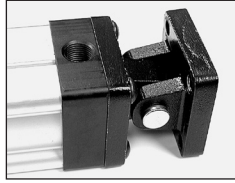
### Accessories

Rod clevises, rod eyes, pivot brackets, clevis brackets, and pivot pins are available in each bore size to accomplish all four of the combinations illustrated below.

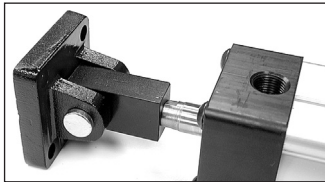
Rod Clevis and Pivot Bracket



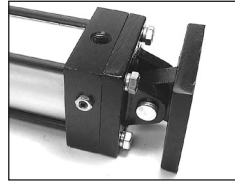
Clevis Bracket and PE Cylinder



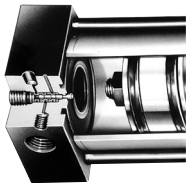
Rod Eye and Clevis Bracket



Pivot Bracket and PB Cylinder



### Pneumatic End-of-Stroke Sensors (Inter-Pilots®)

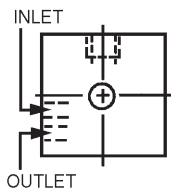


A miniature 3-way valve built into the cylinder head is actuated by the cylinder piston as it reaches the end of its stroke. Once contacted, the 3-way Inter-Pilot® valve emits an air signal. In this manner, sequencing is achieved without external limit switches and electric wiring.

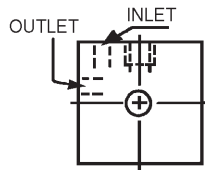
Inter-Pilots® may be built into either or both cylinder heads. They are not for hydraulic use. Cylinder operating pressure must not exceed pressure used to feed the Inter-Pilot®.

### Inter-Pilot® Port Locations

For 1-1/2" Bore Cylinders

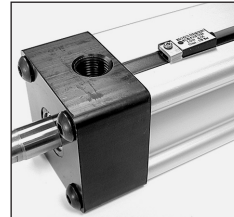


For 2"-4" Bore Cylinders



NOTE: Inter-Pilot® ports are 10-32.

### Rod Position Sensors



Solid State and Reed Switches allow the cylinder user to sense rod position anywhere within the stroke. Switches are available for both models. For the DM1, series the switch attaches to any of the four tie-rods. For the DM2 series, a dovetail slot runs along the cylinder tube to facilitate fast and accurate position setting.

#### Solid State

Solid State effect technology provides contactless switching. With contactless switching there are no moving parts; therefore, reliability and life expectancy are greatly increased. Solid State switches come with built-in indicator lights (3 wire), reverse polarity and surge protection standard. Order either sinking or sourcing depending on logic systems requirements. They have an IP67 protection rating.

| Technical Information   |                      |   |
|---|----------------------|---|
| Operating Voltage:  | 5-28 DC              | Working Temp: 23° F to 194° F (-5° C to 90° C)        |
| Operating Time:   | On 2 ms<br>Off .1 ms | Repeatability: .001 ms<br>Max. Switching Current: .5A |
| Current Sinking: Load connected between output and positive supply. |                      |   |
| Current Sourcing: Load is connected between output and common.      |                      |   |

#### Reed

Mead Reed Switches are epoxy encapsulated and economically priced for reliable low cost position sensing. Reed switches come with wire leads. LED (2 wire, 3m length) included.

NOTE: Not for use with hydraulic cylinders.

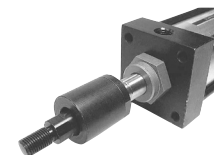
| Technical Information |                               |  |
|-----------------------|-------------------------------|--|
| Operating Voltage:    | 240 AC Max.                   | Working Temp: 67° F to 200° F (19° C to 93° C) |
| Switch Current:       | .5 Amps Max.<br>10 Watts Max. | Operating Time: On .5 ms<br>Off .5 ms          |

### Pneumatic Stroke Completion Sensors (SCS)



Port mounted SCS valves emit an air signal when the cylinder rod has stopped, even if the piston has not contacted the end cap. SCS valves are ideal for use in situations where the full cylinder stroke is not used. SCS valves are available in 1/8", 1/4", 1/2" pipe sizes. See page 54.

### Self Aligning Rod Couplers

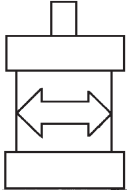


Rod couplers simplify cylinder alignment problems by compensating for 2Y angular error and 1/16" lateral misalignment on both extension and retraction strokes. Greater reliability is achieved by reducing cylinder and component wear. All components are heat treated for wear and corrosion resistance.

\* See page 26 for complete listing of Mead's self aligning rod couplers.

# Ordering Dyna-Mation DM1 & DM2

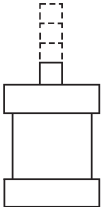
**STEP 1:**



| SELECT A BORE SIZE |         |         |         |         |         |         |
|--------------------|---------|---------|---------|---------|---------|---------|
| Bore               | 1-1/2"  | 2"      | 2-1/2"  | 3-1/4"  | 4"      | 6"      |
| Force*             | 177     | 314     | 491     | 830     | 1257    | 2827    |
| Models Available   | DM1-150 | DM1-200 | DM1-250 | DM1-325 | DM1-400 | DM1-600 |
|                    | DM2-150 | DM2-200 | DM2-250 | DM2-325 | DM2-400 | NA      |

\* Maximum force output at 100 PSI inlet pressure (in lbs.)

**STEP 2:**



| CHOOSE STROKE LENGTH |        |      |        |        |    |        |
|----------------------|--------|------|--------|--------|----|--------|
| PISTON ROD DIAMETERS |        |      |        |        |    |        |
| Bore                 | 1-1/2" | 2"   | 2-1/2" | 3-1/4" | 4" | 6"     |
| Rod Diam.            | 5/8"   | 5/8" | 5/8"   | 1"     | 1" | 1-3/8" |

Non Standard Piston Rods: Special rod threads or extensions are available. Please enclose a sketch of what you require.

NOTE: Stroke costs vary with differing bore sizes. Extra charges may be incurred for fractional strokes and strokes over 12".

**STEP 3:**

|                        |           | SELECT A MOUNTING STYLE |    |        |        |    |    |           |             |   |
|------------------------|-----------|-------------------------|----|--------|--------|----|----|-----------|-------------|---|
|                        | Mead Code | Bore Diameter           |    |        |        |    |    | NFPA Code | Description |   |
|                        |           | 1-1/2"                  | 2" | 2-1/2" | 3-1/4" | 4" | 6" |           |             |   |
| Flush Bottom           |           | FB                      | •  | •      | •      | •  | •  | •         | MS-4        | Four tapped holes on bottom of cylinder.  |
| Long Clevis            |           | PB                      | •  | •      | •      | •  | •  | •         | MP-2        | Two ears extend from rear head (clevis is detachable).  |
| Short Clevis           |           | PF                      | •  | •      | •      | •  | •  | NA        | MP-1        | Two ears extend from rear head (clevis is detachable).  |
| Pivot                  |           | PE                      | •  | •      | •      | •  | •  | NA        | MP-4        | A single ear extends from rear head (pivot is detachable).  |
| Tie Rods Ext. Front    |           | TIF                     | •  | •      | •      | •  | •  | •         | MX-3        | All four tie-rods extend forward from cylinder face. Consult factory for rear extended tie-rods (or both ends). |
| Front Flange NFPA Std. |           | FH                      | •  | •      | •      | •  | •  | •         | MF-1        | Flange plate extends beyond the front head.   |
| Rear Flange            |           | FR                      | •  | •      | •      | •  | •  | •         | MF-2        | Flange plate extends beyond the rear head.  |
| Trunnion Front         |           | TF                      | •  | •      | •      | •  | •  | •         | MT-1        | Two pivot bars extend from two sides of front head. Not available with front Inter-Pilots® or front cushions.   |
| Trunnion Rear          |           | TR                      | •  | •      | •      | •  | •  | •         | MT-2        | Two pivot bars extend from two side of rear head. Not available with rear Inter-Pilots® or rear cushions.       |
| Foot                   |           | FT                      | •  | •      | •      | •  | •  | •         | Non Std.    | A plate with two holes is mounted to the bottom of each head.   |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices


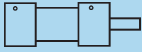
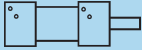
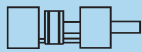



Accessories

Index

## Ordering Dyna-Mation DM1 &amp; DM2

## STEP 4:

## SELECT CYLINDER OPTIONS

|  | Mead Code                               | Bore Diameter |    |        |        |    |    | Description   |
|--|---|---------------|----|--------|--------|----|----|---|
|  |   | 1-1/2"        | 2" | 2-1/2" | 3-1/4" | 4" | 6" |   |
| Double Rod<br>  | DR                                      | •             | •  | •      | •      | •  | •  | Rod extends through both heads: adds to cylinder rigidity   |
| Cushions<br>(not available with Trunnion Mount)<br>     | Front (CF)<br>Rear (CR)<br>Both (CB)    | •             | •  | •      | •      | •  | •  | Dampen the impact and sound that occur at stroke completion; cushions are adjustable.   |
| Inter-Pilots<br>(not available with Trunnion Mount)<br> | Front (IPF)<br>Rear (IPR)<br>Both (IPB) | •             | •  | •      | •      | •  | •  | Inter-Pilots emit an air signal at the end of each stroke. Integral with cylinder head. NOTE: Not available on hydraulic cylinders.                   |
| Non-Rotating Rod<br>(6" Max. Stroke)<br>                | NR                                      | NA            | NA | NA     | •      | •  | •  | Internal bar prevents piston and rod rotation.  |
| Non-Lube Seals<br>                                      | NL                                      | •             | •  | •      | •      | •  | •  | Self-Lubricating seals are used in place of standard Buna-N seals. NOTE: Not available on hydraulic cylinders.  |
| High Temp. Seals<br>(Viton)<br>                         | VI                                      | •             | •  | •      | •      | •  | •  | Viton seals are suitable for high temperature environments (400° F / 204° C max.)   |
| Magnetic Pistons<br>                                    | MP                                      | •             | •  | •      | •      | •  | •  | Enables Reed and Solid State switches to sense piston location. NOTE: Reed switch/Solid State not available on all hydraulic cylinders. Contact Mead. |

## STEP 5:

## BUILD A MODEL NUMBER

| Model Number | Stroke | Mounting Style | Options |
|--------------|--------|----------------|---------|
|--------------|--------|----------------|---------|




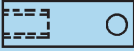


DM2-200 X 10 - PB - CF

2" Bore ————  
 10" Stroke ————  
 Clevis Mount (PB) ————  
 Cushioned Front (CF) ————

When ordering Dyna-Mation cylinders, list the:

1. Model Number
2. Stroke
3. Mounting Style
4. Options (if needed)

## Accessories

|  | Bore Diameter | 1-1/2"  | 2"      | 2-1/2"  | 3-1/4"  | 4"      | 6"       |
|--|---------------|---------|---------|---------|---------|---------|----------|
|  Flex Rod Couplers            | DMA-437       | DMA-437 | DMA-437 | DMA-437 | DMA-750 | DMA-750 | DMA-1000 |
|  Forged Rod Clevis            | DMC-1         | DMC-1   | DMC-1   | DMC-1   | NA      | NA      | NA       |
|  Rod Clevis (NFPA Std.)       | DMC-2         | DMC-2   | DMC-2   | DMC-2   | DMC-4   | DMC-4   | DMC-6    |
|  Machined Rod Eye (NFPA Std.) | DME-1         | DME-1   | DME-1   | DME-1   | DME-2   | DME-2   | DME-3    |
|  Pivot Bracket                | DMP-1         | DMP-2   | DMP-3   | DMP-4   | DMP-5   | NA      | NA       |
|  Clevis Bracket (with Pin)    | DMR-1         | DMR-2   | DMR-3   | DMR-4   | DMR-5   | DMR-8   | DMR-8    |

NOTE: DMP and DMR Pivot and Clevis brackets do not include any mounting hardware. See page 41 for mount kits.

## Solid State Switches

Sourcing  
 For DM1 series: CS-6200P  
 For DM2 series: CS-7500P

Sinking  
 For DM1 series: CS-6200N  
 For DM2 series: CS-7500N

Lead length: 3 meters. Cylinders must have a magnetic piston (MP). For technical information, see page 29.

## Reed Switches

For DM1 series: CS-6200R  
 For DM2 series: CS-7500R  
 Plain Wire Leads

Cylinders must have a magnetic piston (MP). For technical information, see page 29.

## Special Cylinders

We invite inquiries regarding non-standard cylinders. Please call your local Mead representative.

Toll-free 877-MEAD USA

Reference

Control Valves

Cylinders

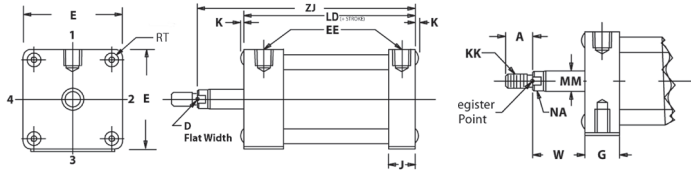
Specialty Valves

Production Devices

Accessories

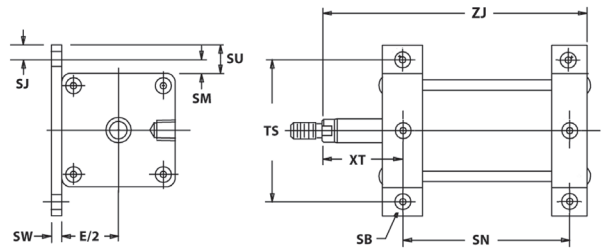
Index

Basic Cylinder

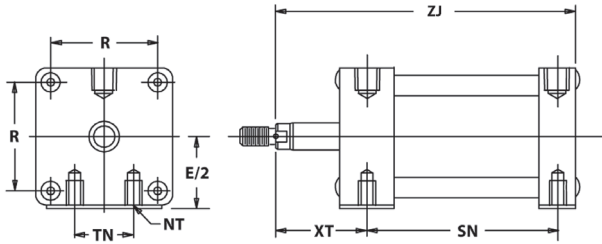


NOTE: DM1 cylinders are constructed with sleeve nuts. For DM1, use RT; K does not exist. For DM2, use K; RT does not exist.

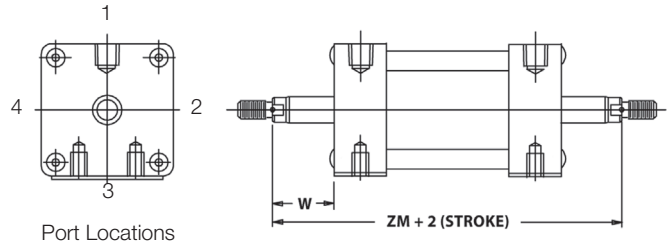
Foot Mount Plate Model FT



Bottom Flush Model FB

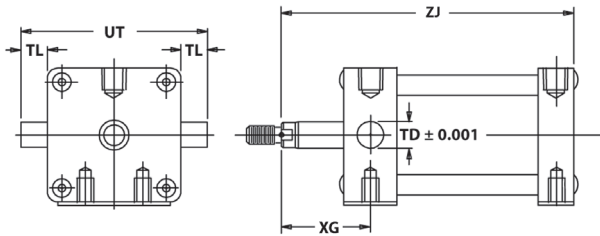


Double Rod Model DR

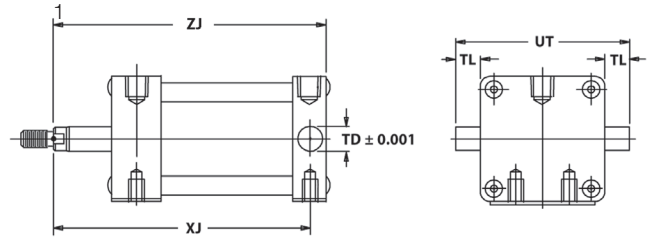


Port Locations

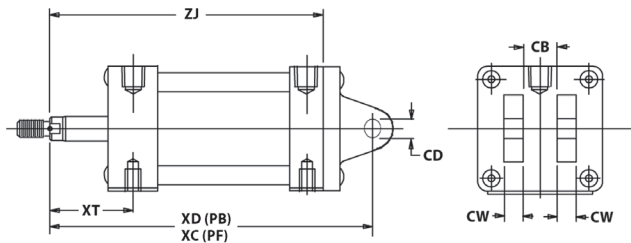
Rod End Trunnion Model TF



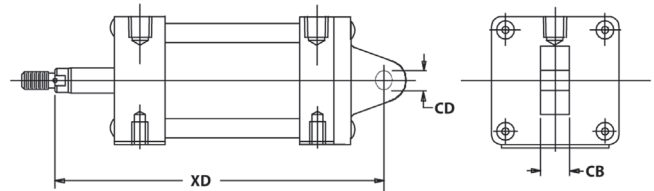
Blind End Trunnion Model TR



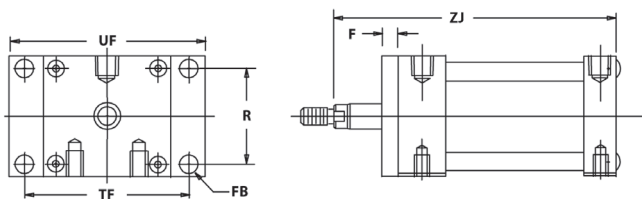
Clevis Model PB and PF



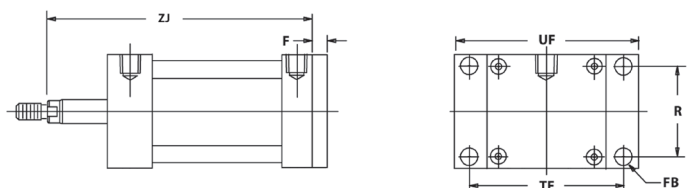
Pivot Model PE



Rod End Flange Model FH\*



Blind End Flange Model FR\*



NOTE: For dimensions of nose mount and tie rod extended models, consult factory.

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

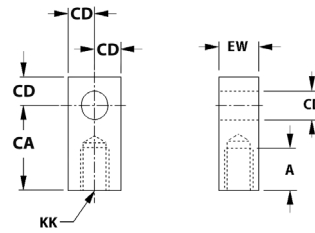


# DM1 & DM2 Dimensions

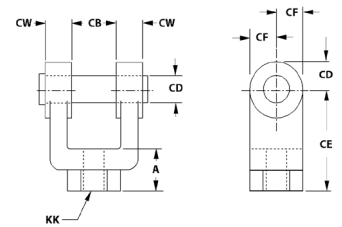
| Bore      | 1-1/2   | 2       | 2-1/2   | 3-1/4   | 4       | 6       |
|-----------|---------|---------|---------|---------|---------|---------|
| A         | 3/4     | 3/4     | 3/4     | 1-1/8   | 1-1/18  | 1-5/8   |
| CA        | 1-1/2   | 1-1/2   | 1-1/2   | 2-1/16  | 2-1/16  | 1       |
| CB        | 3/4     | 3/4     | 3/4     | 1-1/4   | 1-1/4   | 1-1/2   |
| CD        | 1/2     | 1/2     | 1/2     | 3/4     | 3/4     | 1       |
| CE        | 1-1/2   | 1-1/2   | 1-1/2   | 2-3/8   | 2-3/8   | 3-1/8   |
| CW        | 1/2     | 1/2     | 1/2     | 5/8     | 5/8     | 3/4     |
| D         | 1/2     | 1/2     | 1/2     | 7/8     | 7/8     | 1-1/8   |
| DD        | 9/32    | 11/32   | 11/32   | 13/32   | 13/32   | 17/32   |
| E         | 2       | 2-1/2   | 3       | 3-3/4   | 4-1/2   | 6-1/2   |
| EE (NPTF) | 1/4     | 1/4     | 1/4     | 1/2     | 1/2     | 3/4     |
| F         | 3/8     | 3/8     | 1/2     | 5/8     | 5/8     | 3/4     |
| FB        | 5/16    | 3/8     | 3/8     | 7/16    | 7/16    | 9/16    |
| FL        | 1-1/8   | 1-1/8   | 1-1/8   | 1-7/8   | 1-7/8   | 2-1/4   |
| G         | 1-7/16  | 1-7/16  | 1-7/16  | 1-11/16 | 1-11/16 | 2       |
| J         | 15/16   | 15/16   | 15/16   | 1-3/16  | 1-3/16  | 1-1/2   |
| K         | 1/8     | 5/32    | 5/32    | 3/16    | 3/16    | 3/16    |
| KK        | 7/16-20 | 7/16-20 | 7/16-20 | 3/4-16  | 3/4-16  | 1-14    |
| LD        | 4-1/8   | 4-1/8   | 4-1/4   | 4-3/4   | 4-3/4   | 5-1/2   |
| M         | 5/8     | 5/8     | 5/8     | 7/8     | 7/8     | 1-1/8   |
| MM        | 5/8     | 5/8     | 5/8     | 1       | 1       | 1-3/8   |
| NA        | 19/32   | 19/32   | 19/32   | 31/32   | 31/32   | 1-5/16  |
| NT        | 1/4-20  | 5/16-18 | 3/8-16  | 1/2-13  | 1/2-13  | 3/4-10  |
| R         | 1-7/16  | 1-27/32 | 2-3/16  | 2-3/4   | 3-21/64 | 4-7/8   |
| RT        | 1/4-28  | 5/16-24 | 5/16-24 | 3/8-24  | 3/8-24  | 1/2-20  |
| SB        | 17/64   | 21/64   | 25/64   | 33/64   | 33/64   | 33/64   |
| SJ        | 3/8     | 3/8     | 3/8     | 1/2     | 1/2     | 11/16   |
| SM        | 3/8     | 3/8     | 3/8     | 1/2     | 1/2     | 11/64   |
| SU        | 3/4     | 3/4     | 3/4     | 1       | 1       | 11/64   |
| SW        | 3/16    | 3/16    | 1/4     | 1/4     | 1/4     | 7/64    |
| TD        | 1       | 1       | 1       | 1       | 1       | 1-3/8   |
| TF        | 2-3/4   | 3-3/8   | 3-7/8   | 4-11/16 | 5-7/16  | 7-5/8   |
| TK        | 3/8     | 1/2     | 9/16    | 3/4     | 3/4     | 1-1/8   |
| TL        | 1       | 1       | 1       | 1       | 1       | 1-5/8   |
| TN        | 5/8     | 7/8     | 1-1/4   | 1-1/2   | 2-1/16  | 3-1/4   |
| TS        | 2-3/4   | 3-1/4   | 3-3/4   | 4-3/4   | 5-1/2   | 7-7/8   |
| UF        | 3-3/8   | 4-1/8   | 4-5/8   | 5-1/2   | 6-1/4   | 8-5/8   |
| UT        | 4       | 4 1/2   | 5       | 5 3/4   | 6 1/2   | 9 1/4   |
| W         | 1       | 1       | 1       | 1-3/8   | 1-3/8   | 1-5/8   |
| XT        | 1-15/16 | 1-15/16 | 1-15/16 | 2-7/16  | 2-7/16  | 2-13/16 |
| XG        | 1 3/4   | 1 3/4   | 1 3/4   | 2 1/4   | 2-1/4   | 2-13/16 |
| H         | 1-1/4   | 1-1/4   | 1-1/4   | 1-3/4   | 1-3/4   | 2-1/2   |
| HA        | 2       | 2       | 2       | 2-5/16  | 2-5/16  | 2-15/16 |
| HB        | 1/2     | 1/2     | 1/2     | 1/2     | 1/2     | 1/2     |
| HC        | 3/4     | 3/4     | 3/4     | 1-1/8   | 1-1/8   | 1-5/8   |
| HD        | 5/8     | 5/8     | 5/8     | 31/32   | 31/32   | 1-3/8   |
| HE        | 1       | 1       | 1       | 1-1/2   | 1-1/2   | 2-1/4   |
| SN*       | 2-1/4   | 2-1/4   | 2-3/8   | 2-5/8   | 2-5/8   | 3-1/8   |
| XC*       | 5-3/8   | 5-3/8   | 5-1/2   | 6-7/8   | 6-7/8   | 7-7/8   |
| XD*       | 5-3/4   | 5-3/4   | 5-7/8   | 7-1/2   | 7-1/2   | 7-1/2   |
| XJ*       | 4-1/8   | 4-1/8   | 4-1/4   | 5       | 4       | 5-7/8   |
| ZJ*       | 4-5/8   | 4-5/8   | 4-3/4   | 5-5/8   | 5-5/8   | 6-5/8   |
| ZM**      | 6-1/8   | 6-1/8   | 6-1/4   | 7-1/2   | 7-1/2   | 8-3/4   |

NOTE: \* Add Stroke Length to Dimensions Below \*\* Add Twice Stroke to ZM Dimension  
 NOTE: For Inter-Pilot® port locations, see page 27.

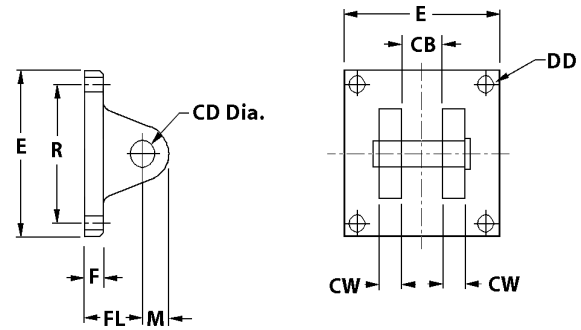
### DME Interchangeable Rod Eye



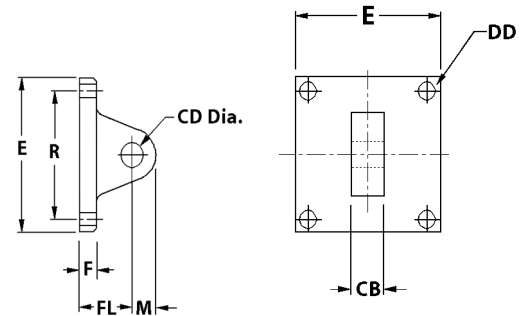
### DMC Interchangeable Rod Clevis with Pin



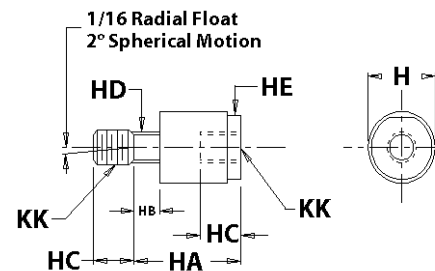
### DMR Clevis Bracket w/Pin (1.5" - 6" Bore Sizes)



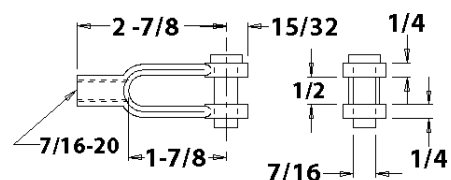
### DMP Pivot Bracket (1.5" - 4" Bore Sizes)



### Self Aligning Rod Couplers



### DMC-1 Forged Rod Clevis w/Pin 1-1/2" through 2-1/2" bores



Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

## Cylinders For Abusive Conditions

Combining NFPA dimensional interchangeability and high quality components, the "HD1" Series offers excellent performance and long service life, even in the most severe of conditions.

### External Bearing Ensures Smooth Motion

HD1 cylinders are fitted with a heavy-duty external rod bearing in the rod end head. Teflon-impregnated and hardcoat anodized, this bearing ensures smooth rod motion while maintaining rod rigidity and stability. The entire rod gland and bearing may be quickly removed and replaced without disassembling the cylinder.

#### Operating Specifications

Temperature Range: -40° F to 250° F (-40° C to 121° C) (to 400° [204° C] F on request)

Lubrication: For maximum cylinder life, non-detergent petroleum-based oil is recommended. Non-lube seals available.

Filtration: Not essential, but a standard 40 micron filter placed upstream will prolong seal life.

## Operating Parameters

| Bore Diam. | Thrust* | Thrust Mult.** | Rod Diam.        | Max. Oper. Pressure |       |
|------------|---------|----------------|------------------|---------------------|-------|
|            |         |                |                  | Air                 | Oil † |
| 1-1/2"     | 177     | 1.77           | 5/8" or 1"       | 250                 | 1000  |
| 2"         | 314     | 3.14           | 5/8" or 1"       | 250                 | 1000  |
| 2-1/2"     | 491     | 4.91           | 5/8" or 1"       | 250                 | 1000  |
| 3-1/4"     | 830     | 8.30           | 1" or 1-3/8"     | 250                 | 700   |
| 4"         | 1257    | 12.57          | 1" or 1-3/8"     | 250                 | 650   |
| 6"         | 2827    | 28.27          | 1-3/8" or 1-3/4" | 250                 | 435   |

\* Pushing force of cylinder at 100 PSI inlet pressure. Pulling force will be about 10% less due to the displacement of the piston rod. NOTE: Actual realizable thrust could be somewhat lower due to side loading and internal friction. It is best to oversize your cylinder by about 25% to assure smooth operation.

\*\* To determine cylinder thrust at other inlet pressures, multiply this factor times the desired inlet pressure.

† HD1 Cylinders are not rated or approved for use in a hydraulic circuits where an impulse or pressure spike may occur.

## Cylinder Construction

### Rod Bearing:

Teflon-impregnated, hardcoated aluminum

### Heads:

Machined from solid aluminum bar; black anodized

### Tubes:

Aluminum hard anodized to 60 Rc (16 RMS finish)

### Piston:

Solid high alloy aluminum and fitted with a PTFE Wear Band.

### Piston Rod:

High tensile ground and polished hard chrome plated steel

### Piston and Rod Seals:

Wear compensating Buna-N vee rings. Non-lube seals are also available (see Option NL).

### Tube Seals:

Buna-N O-rings

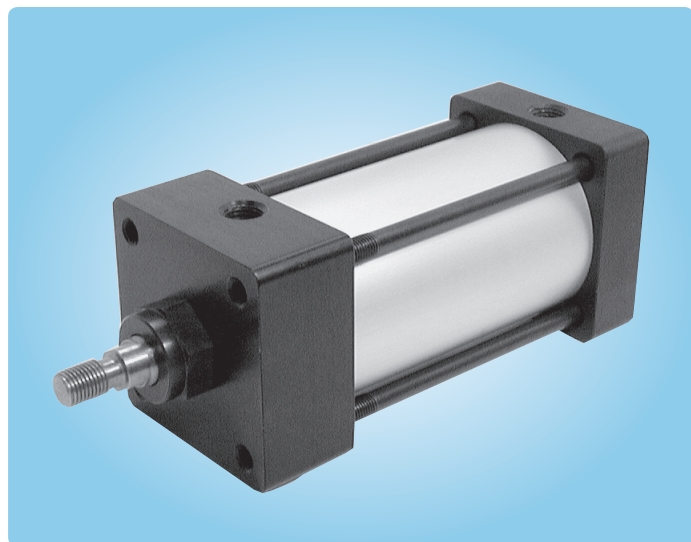
### Rod Wiper:

Dupont Teflon®

### Tie Rods:

High tensile steel torqued to allow for flexure.

NOTE: 6" Bore Cylinders do not have wear bands. (HD)



## Customize Your Cylinder

The HD1 Series offers numerous accessories and design options. With hundreds of possible combinations available, you can "design" your own cylinder for any application.

### Cushions (CR, CF, CB)

For end-of-stroke load deceleration, specify cushions in either or both ends of your cylinder. Cushions decelerate the piston rod over the last 11/16" of stroke. Adjustable, they allow you to set the degree of cushioning needed for each specific application.

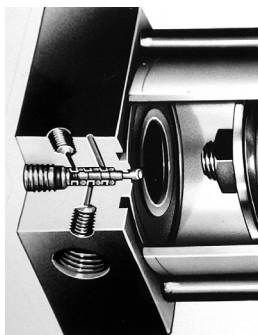
A built-in check valve assures a fast getaway in the opposite direction. A pre-lubricated nitrile cushion seal provides years of reliable service.

NOTE: Cushions are not recommended on hydraulic cylinders.

### Double Rod (DR)

Double rod cylinders have a common piston rod that protrudes from both ends of the cylinder. In addition to providing a dual power source, double rod cylinders serve to minimize rod deflection and to facilitate the control and adjustment of rod travel.

### Inter-Pilots® (IP)

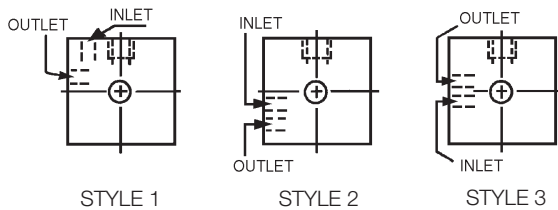


Mead's Inter-Pilot® is a miniature 3-way valve built in the cylinder head. Actuated by the cylinder's piston as it reaches the end of its stroke, the valve emits an air signal. Thus, sequencing is achieved without external limit switches and electric wiring.

Inter-Pilots may be built into either or both cylinder heads. They are not for hydraulic use. Cylinder operating pressure must not exceed pressure used to feed the Inter-Pilot®.

INTER-PILOT® PORT LOCATIONS (Port Size = 10-32): Inter-Pilot port location style that is offered with each cylinder head.

| Bore (Either Head) | 1-1/2" | 2" | 2-1/2" | 3-1/4" | 4" | 6" |
|--------------------|--------|----|--------|--------|----|----|
| Non-Cushion        | 2      | 1  | 1      | 1      | 1  | 3  |
| Cushion            | 2      | 1  | 1      | 1      | 1  | 3  |



### Non-Rotating Rod (NR)

For prevention of piston and rod rotation, an internal rod is embedded internally into both cylinder heads. This rod also passes through the piston and acts as a linear guide for the piston. NOTE: NR option available on 3-1/4", 4" and 6" bore cylinders only.

### Viton™ Seals (VI)

For high temperature environments, Viton™ seals can be specified to replace standard Buna-N seals. While HD1 cylinders are normally rated to 250° F (121° C), cylinders with Viton seals are rated to 400° F (204° C).

### Low Breakaway Option (NL)

For non-lube service, polyurethane seals replace standard piston and rod seals. These specially formulated seals have an inherent lubricity that provides low breakaway between the piston and tube. NOTE: NL seals are not available on hydraulic cylinders.

### Magnetic Piston (MP)

If you will be using either Solid State or Reed switches for sensing rod position, you will need to order your cylinder with a magnetic piston.

Mead's Solid State and Reed switches allow the cylinder user to sense rod position anywhere within the stroke. They emit an electrical signal when the magnetized piston reaches a point opposite their location. The rod mounting facilitates fast and accurate position setting.

### Oversized Rod (OR)

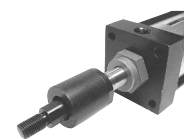
Available on all models: on the HD1-150, 200 and 250, you can order a 1" rod diameter rather than the standard 5/8" diameter; the HD1-325 and HD1-400 with a 1-3/8" rather than the standard 1"; and the HD1-600 with a 1-3/4" rather than the standard 1-3/8".

## Accessories

### Pneumatic Stroke Completion Sensors (SCS)

Port mounted SCS valves emit an air signal when the cylinder rod has stopped, even if the piston has not contacted the end cap. Ideal for use in situations where the full cylinder stroke is not used. See page 54.

### Self Aligning Rod Couplers



Rod couplers simplify cylinder alignment problems by compensating for 2° angular error and 1/16" lateral misalignment on both extension and retraction strokes. Greater reliability is achieved by reducing cylinder and component wear. All components are heat treated for wear and corrosion resistance.

See page 26 for complete listing of Mead's self aligning rod couplers.

### Flow Control Valves



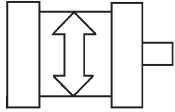
**Dyla-Trol®** - For unprecedented smoothness in cylinder speed control, use Mead's Dyla-Trol® valves with a perfectly tapering flow. Where needle type flow controls generate turbulence as they close, Dyla-Trol® maintains an even 360 laminar flow regardless of the setting. See page 56 for more information.



**Right Angle Flow Controls (RAF)** - RAF flow controls feature push-in-fittings, pre-applied Teflon® based thread sealant, a recessed screw driver adjustment and convenient swivel for ease of tubing alignment. See page 62.

# Order HD1 Cylinder

## STEP 1:

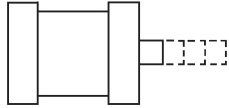


### Select a Bore Size

|        |                |                |                |                |                |               |
|--------|----------------|----------------|----------------|----------------|----------------|---------------|
| Bore   | 1-1/2"         | 2"             | 2-1/2"         | 3-1/2"         | 4"             | 6"            |
| Force* | 177            | 314            | 491            | 830            | 1257           | 2827          |
| Model  | <b>HD1-150</b> | <b>HD1-200</b> | <b>HD1-250</b> | <b>HD1-325</b> | <b>HD1-400</b> | <b>HD-600</b> |

\* Maximum force output (lbs.) at 100 PSI inlet pressure

## STEP 2:



### Choose a Stroke Length

PISTON ROD DIAMETERS:

|            |            |            |            |              |              |                  |
|------------|------------|------------|------------|--------------|--------------|------------------|
| Bore Diam. | 1-1/2"     | 2"         | 2-1/2"     | 3-1/4"       | 4"           | 6"               |
| Rod Diam.  | 5/8" or 1" | 5/8" or 1" | 5/8" or 1" | 1" or 1-3/8" | 1" or 1-3/8" | 1-3/8" or 1-3/4" |

Non-Standard Piston Rods: Special rod threads or extensions are available. Please enclose a sketch of what you require.

## STEP 3:

### SELECT A MOUNTING STYLE

|                         | Mead Code  | Bore Diameter |    |        |        |    |    | NFFPA Code | Description   |
|-------------------------|------------|---------------|----|--------|--------|----|----|------------|---|
|                         |            | 1-1/2"        | 2" | 2-1/2" | 3-1/4" | 4" | 6" |            |   |
| Flush Bottom/Front Rear | <b>FB</b>  | •             | •  | •      | •      | •  | •  | MS-4       | Four tapped holes in bottom and in both cylinder faces (front and rear). Rear sleeve nuts standard.             |
| Long Clevis             | <b>PB</b>  | •             | •  | •      | •      | •  | •  | MP-2       | Two ears extend from rear head (clevis is detachable).  |
| Short Clevis            | <b>PF</b>  | •             | •  | •      | •      | •  | NA | MP-1       | Two ears extend from rear head (clevis is detachable).  |
| Pivot                   | <b>PE</b>  | •             | •  | •      | •      | •  | NA | MP-4       | A single ear extends from rear head (pivot is detachable).  |
| Tie Rods Ext. Front     | <b>TIF</b> | •             | •  | •      | •      | •  | •  | MX-3       | All four tie-rods extend forward from cylinder face. Consult factory for rear extended tie-rods (or both ends). |
| Front Flange NFFPA Std. | <b>FH</b>  | •             | •  | •      | •      | •  | •  | MF-1       | Flange plate extends beyond the thicker front head.   |
| Rear Flange             | <b>FR</b>  | •             | •  | •      | •      | •  | •  | MF-2       | Flange plate extends beyond the rear head.  |
| Trunnion Front          | <b>TF</b>  | •             | •  | •      | •      | •  | •  | MT-1       | Two pivot bars extend from two sides of front head. Not available with front Inter-Pilots® or front cushions.   |
| Trunnion Rear           | <b>TR</b>  | •             | •  | •      | •      | •  | •  | MT-2       | Two pivot bars extend from two sides of rear head. Not available with rear Inter-Pilots® or rear cushions.      |
| Foot                    | <b>FT</b>  | •             | •  | •      | •      | •  | •  | Non Std.   | A plate with two holes is mounted to the bottom of each head.   |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories




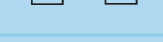




Index



# Order HD1 Cylinders

## STEP 4:

### SELECT CYLINDER OPTIONS

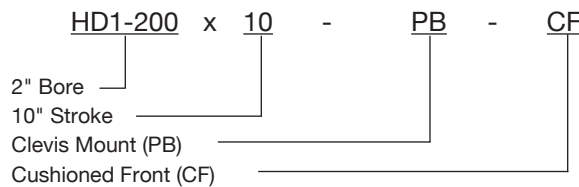
|   | Mead Code                               | Bore Diameter |    |        |        |    |    | Description  |
|---|---|---------------|----|--------|--------|----|----|--|
|   |   | 1-1/2"        | 2" | 2-1/2" | 3-1/4" | 4" | 6" |  |
| Double Rod                                   | DR                                      | •             | •  | •      | •      | •  | •  | Rod extends through both heads: adds to cylinder rigidity  |
| Oversized Rod                                | OR                                      | •*            | •  | •      | •      | •  | •  | Standard rod is replaced by larger diameter rod.   |
| Cushions (not available with Trunnion)       | Front (CF)<br>Rear (CR)<br>Both (CB)    | •*            | •  | •      | •      | •  | •  | Dampen the impact and sound that occur at stroke completion. Adjustable. NOTE: Not available on hydraulic cylinders.                           |
| Inter-Pilots® (not available with Trunnion)  | Front (IPF)<br>Rear (IPR)<br>Both (IPB) | •*            | •  | •      | •      | •  | •  | Inter-Pilots® emit an air signal at the end of each stroke. Integral with cylinder head. NOTE: Not available on hydraulic cylinders.           |
| Non-Rotating Rod (6" Max. Stroke)            | NR                                      | NA            | NA | NA     | •      | •  | •  | Internal bar prevents piston and rod rotation.   |
| Non-Lube Seals*                              | NL                                      | •             | •  | •      | •      | •  | •  | Self-lubricating seals are used in place of standard Buna-N seals. NOTE: Not available on hydraulic cylinders.                                 |
| High Temp. Seals                             | VI                                      | •             | •  | •      | •      | •  | •  | Viton seals are suitable for high temperature environments (400° F / 204° C maximum).  |
| Magnetic Pistons                             | MP                                      | •             | •  | •      | •      | •  | •  | Enables Reed and Solid State switches to sense piston. NOTE: Reed/Solid State switches not available on all hydraulic cylinders. Contact Mead. |

\* Cushions or Inter-Pilots® are not available on the rod end head of 1-1/2" bore cylinders with oversized rod.

## STEP 5:

### Build A Model Number




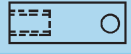


Base Model      Stroke      Mounting Style      Options



When ordering Dyna-Mation cylinders, list the:

1. Base Model
2. Stroke
3. Mounting Style
4. Options (If Needed)

### Accessories

|  | Bore Diameter                                    | Rod Size | 1-1/2"    | 2"        | 2-1/2"    | 3-1/4"    | 4"        | 6"                 |
|--|--|----------|-----------|-----------|-----------|-----------|-----------|--------------------|
|  Flex Rod Couplers            | STD  |          | DMA-437   | DMA-437   | DMA-437   | DMA-750   | DMA-750   | DMA-1000           |
|  | OR   |          | DMA-750   | DMA-750   | DMA-750   | DMA-1000  | DMA-1000  | DMA-1250           |
|  Forged Rod Clevis            | STD  |          | DMC-1     | DMC-1     | DMC-1     | NA        | NA        | NA                 |
|  | OR   |          | NA        | NA        | NA        | NA        | NA        | NA                 |
|  Rod Clevis (NFPA Std.)       | STD  |          | DMC-2     | DMC-2     | DMC-2     | DMC-4     | DMC-4     | DMC-6              |
|  | OR   |          | DMC-4     | DMC-4     | DMC-4     | DMC-6     | DMC-6     | DMC-7              |
|  Machined Rod Eye (NFPA Std.) | STD  |          | DME-1     | DME-1     | DME-1     | DME-2     | DME-2     | DME-3              |
|  | OR   |          | DME-2     | DME-2     | DME-2     | DME-3     | DME-3     | DME-7              |
|  Pivot Bracket Kit            |  | ALL      | HD40-150  | HD40-200  | HD40-250  | HD40-325  | HD40-400  | NA                 |
|  Short Clevis (with pin)      |  | ALL      | HD35S-150 | HD35S-200 | HD35S-250 | HD35S-325 | HD35S-400 | NA                 |
| Clevis Bracket Mounting Kits   | Long Clevis (with pin)                           | ALL      | HD35-150  | HD35-200  | HD35-250  | HD35-325  | HD35-400  | DMR-8 Bracket Only |
|  | Flange Mounting Kits (for front or rear flanges) | ALL      | HD45-150  | HD45-200  | HD45-250  | HD45-325  | HD45-400  | NA                 |

NOTE: All Kits include mounting hardware. For DMC-1 dimensions, see page 33. For all others, see page 41.

### Solid State Switches

#### Model CS-6200P

Sourcing

#### Model CS-6200N

Sinking

Cylinders must have a magnetic piston (MP). For technical information, see page 29.

### Reed Switches

#### Model CS-6200R

Wire Leads

Cylinders must have a magnetic piston (MP). For technical information, see page 29.

### Special Cylinders

We invite inquiries regarding non-standard cylinders. Please call your local Mead representative.

Toll-free 877-MEAD USA

Reference

Control Valves

Cylinders

Specialty Valves

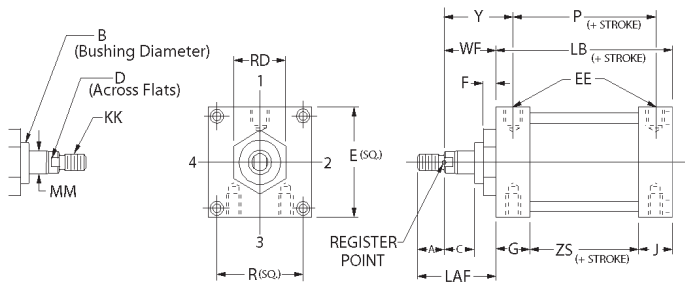
Production Devices

Accessories

Index

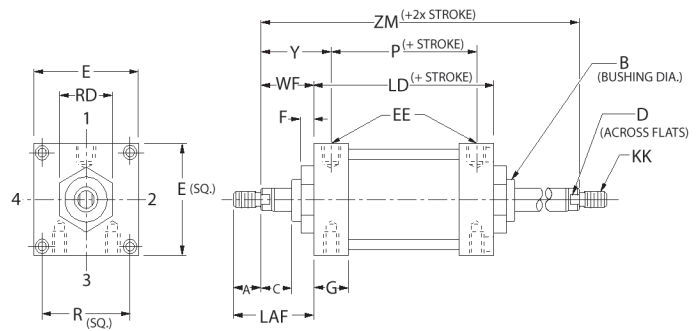
Basic Cylinder

NFPA: MX0



Double Rod

NFPA: MDX0



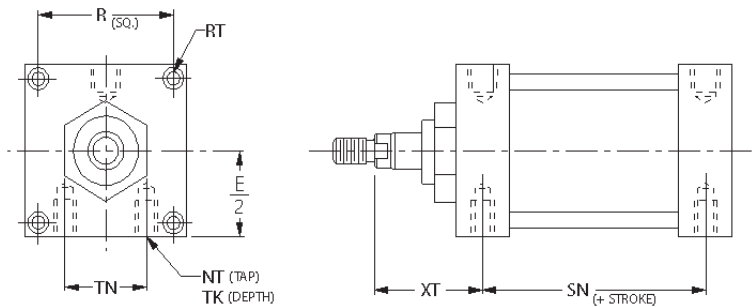
• EE Dimension is NPTF

\* 6" bore HD cylinders have a rear tie rod nut, shown below as the "K" dimension. K = 7/16"

| BORE  | MM ROD | A     | B     | C   | D     | E     | EE  | F   | G       | J      | K    | KK       | LAF   | LB    | LD    | P     | R       | WF    | Y       | ZS    | ZM    | RD    |
|-------|--------|-------|-------|-----|-------|-------|-----|-----|---------|--------|------|----------|-------|-------|-------|-------|---------|-------|---------|-------|-------|-------|
| 1-1/2 | 5/8    | 3/4   | 1-1/8 | 3/8 | 1/2   | 2     | 1/4 | 3/8 | 1-7/16  | 15/16  | -    | 7/16-20  | 1-3/4 | 3-5/8 | 4-1/8 | 2-1/4 | 1-7/16  | 1     | 1-15/16 | 1-1/4 | 6-1/8 | 1-1/8 |
|       | 1      | 1-1/8 | 1-1/2 | 5/8 | 7/8   |       |     |     |         |        |      | 3/4-16   | 2-1/2 |       |       |       |         |       |         |       |       |       |
| 2     | 5/8    | 3/4   | 1-1/8 | 3/8 | 1/2   | 2-1/2 | 1/4 | 3/8 | 1-7/16  | 15/16  | -    | 7/16-20  | 1-3/4 | 3-5/8 | 4-1/8 | 2-1/4 | 1-27/32 | 1     | 1-15/16 | 1-1/4 | 6-1/8 | 1-1/8 |
|       | 1      | 1-1/8 | 1-1/2 | 5/8 | 7/8   |       |     |     |         |        |      | 3/4-16   | 2-1/2 |       |       |       |         |       |         |       |       |       |
| 2-1/2 | 5/8    | 3/4   | 1-1/8 | 3/8 | 1/2   | 3     | 1/4 | 3/8 | 1-7/16  | 15/16  | -    | 7/16-20  | 1-3/4 | 3-3/4 | 4-1/4 | 2-3/8 | 2-3/16  | 1     | 1-15/16 | 1-3/8 | 6-1/4 | 1-1/8 |
|       | 1      | 1-1/8 | 1-1/2 | 5/8 | 7/8   |       |     |     |         |        |      | 3/4-16   | 2-1/2 |       |       |       |         |       |         |       |       |       |
| 3-1/4 | 5/8    | 3/4   | 1-1/8 | 3/8 | 1/2   | 3-3/4 | 1/2 | 5/8 | 1-11/16 | 1-3/16 | -    | 7/16-20  | 1-3/4 | 4-1/2 | 4-3/4 | 2-5/8 | 2-3/4   | 1     | 1-15/16 | 1-3/8 | 7-1/2 | 1-3/4 |
|       | 1-3/8  | 1-5/8 | 2     | 5/8 | 1-1/8 |       |     |     |         |        |      | 3/4-16   | 2-1/2 |       |       |       |         |       |         |       |       |       |
| 4     | 5/8    | 3/4   | 1-1/8 | 3/8 | 1/2   | 4-1/2 | 1/2 | 5/8 | 1-11/16 | 1-3/16 | -    | 7/16-20  | 1-3/4 | 4-1/2 | 4-3/4 | 2-5/8 | 3-21/64 | 1     | 1-15/16 | 1-3/8 | 7-1/2 | 1-3/4 |
|       | 1-3/8  | 1-5/8 | 2     | 5/8 | 1-1/8 |       |     |     |         |        |      | 3/4-16   | 2-1/2 |       |       |       |         |       |         |       |       |       |
| 6     | 5/8    | 3/4   | 1-1/8 | 3/8 | 1/2   | 6-1/2 | 3/4 | 3/4 | 2       | 1-1/2  | 7/16 | 1-14     | 3-1/4 | 5     | 5-1/2 | 3-1/8 | 4-7/8   | 1-5/8 | 2-13/16 | 1-1/2 | 8-3/4 | 2     |
|       | 1-3/8  | 1-5/8 | 2     | 5/8 | 1-1/8 |       |     |     |         |        |      | 1-1/4-12 | 3-7/8 |       |       |       |         |       |         |       |       |       |

Rear, Front & Bottom Tapped (FB)

NFPA: MS4



| BORE  | MM ROD DIA. | NT      | RT      | TK    | TN     | SN    | XT      |
|-------|-------------|---------|---------|-------|--------|-------|---------|
| 1-1/2 | 5/8         | 1/4-20  | 1/4-28  | 3/8   | 5/8    | 2-1/4 | 1-15/16 |
|       | 1           |         |         |       |        |       | 2-5/16  |
| 2     | 5/8         | 5/16-18 | 5/16-24 | 1/2   | 7/8    | 2-1/4 | 1-15/16 |
|       | 1           |         |         |       |        |       | 2-5/16  |
| 2-1/2 | 5/8         | 3/8-16  | 5/16-24 | 9/16  | 1-1/4  | 2-3/8 | 1-15/16 |
|       | 1           |         |         |       |        |       | 2-5/16  |
| 3-1/4 | 5/8         | 1/2-13  | 3/8-24  | 3/4   | 1-1/2  | 2-5/8 | 2-7/16  |
|       | 1-3/8       |         |         |       |        |       | 2-11/16 |
| 4     | 5/8         | 1/2-13  | 3/8-24  | 3/4   | 2-1/16 | 2-5/8 | 2-7/16  |
|       | 1-3/8       |         |         |       |        |       | 2-11/16 |
| 6     | 5/8         | 3/4-10  | 1/2-20  | 1-1/8 | 3-1/4  | 3-1/8 | 2-13/16 |
|       | 1-3/4       |         |         |       |        |       | 3-3/16  |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

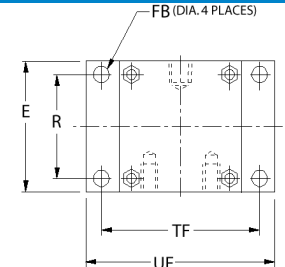
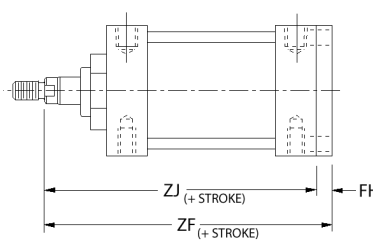
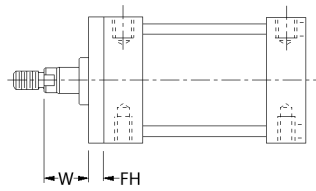
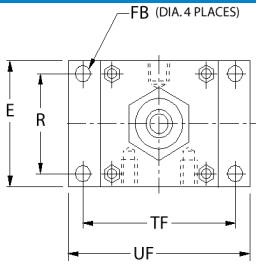
HD1 Dimensions

Front Flange (FH)

NFPA: MF1

Rear Flange (FR)

NFPA: MF2



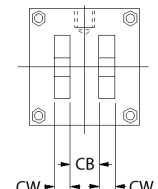
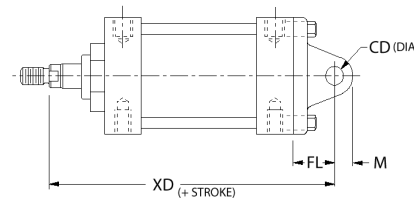
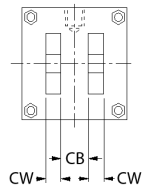
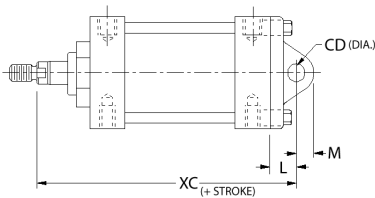
| BORE  | MM ROD DIA. | E     | FB (BOLT) | FH  | R       | TF      | UF    | W     | ZJ    | ZF    |
|-------|-------------|-------|-----------|-----|---------|---------|-------|-------|-------|-------|
| 1-1/2 | 5/8         | 2     | 5/16      | 3/8 | 1-7/16  | 2-3/4   | 3-3/8 | 5/8   | 4-5/8 | 5     |
|       | 1           |       |           |     |         |         |       | 5     |       |       |
| 2     | 5/8         | 2-1/2 | 3/8       | 3/8 | 1-27/32 | 3-3/8   | 4-1/8 | 5/8   | 4-5/8 | 5     |
|       | 1           |       |           |     |         |         |       | 5     |       |       |
| 2-1/2 | 5/8         | 3     | 3/8       | 3/8 | 2-3/16  | 3-7/8   | 4-5/8 | 5/8   | 4-3/4 | 5-1/8 |
|       | 1           |       |           |     |         |         |       | 5-1/8 |       |       |
| 3-1/4 | 1           | 3-3/4 | 7/16      | 5/8 | 2-3/4   | 4-11/16 | 5-1/2 | 3/4   | 5-5/8 | 6-1/4 |
|       | 1-3/8       |       |           |     |         |         |       | 5-7/8 |       |       |
| 4     | 1           | 4-1/2 | 7/16      | 5/8 | 3-21/64 | 5-7/16  | 6-1/4 | 3/4   | 5-5/8 | 6-1/4 |
|       | 1-3/8       |       |           |     |         |         |       | 5-7/8 |       |       |
| 6     | 1-3/8       | 6-1/2 | 9/16      | 3/4 | 4-7/8   | 7-5/8   | 8-5/8 | 7/8   | 6-5/8 | 7-3/8 |
|       | 1-3/4       |       |           |     |         |         |       | 6-7/8 |       |       |

Short Clevis (PF)

NFPA: MP1

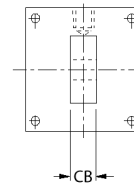
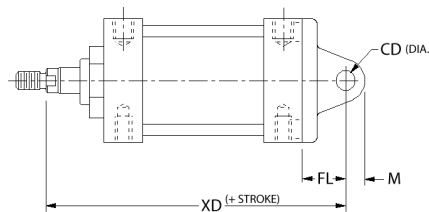
Long Clevis (PB)

NFPA: MP2



Pivot (PE)

NFPA: MP4



| BORE  | MM ROD DIA. | CB    | CD  | CW  | FL           | L     | M     | XC    | XD    |
|-------|-------------|-------|-----|-----|--------------|-------|-------|-------|-------|
| 1-1/2 | 5/8         | 3/4   | 1/2 | 1/2 | 1-1/8        | 3/4   | 5/8   | 5-3/8 | 5-3/4 |
|       | 1           |       |     |     |              |       |       | 6-1/8 |       |
| 2     | 5/8         | 3/4   | 1/2 | 1/2 | 1-1/8        | 3/4   | 5/8   | 5-3/8 | 5-3/4 |
|       | 1           |       |     |     |              |       |       | 6-1/8 |       |
| 2-1/2 | 5/8         | 3/4   | 1/2 | 1/2 | 1-1/8        | 3/4   | 5/8   | 5-1/2 | 5-7/8 |
|       | 1           |       |     |     |              |       |       | 6-1/4 |       |
| 3-1/4 | 1           | 1-1/4 | 3/4 | 5/8 | 1-7/8        | 1-1/4 | 7/8   | 6-7/8 | 7-1/2 |
|       | 1-3/8       |       |     |     |              |       |       | 7-1/8 |       |
| 4     | 1           | 1-1/4 | 3/4 | 5/8 | 1-7/8        | 1-1/4 | 7/8   | 6-7/8 | 7-1/2 |
|       | 1-3/8       |       |     |     |              |       |       | 7-1/8 |       |
| 6     | 1-3/8       | 1-1/2 | 1   | 3/4 | 2-1/4 Clevis | -     | 1-1/8 | NA    | 8-7/8 |
|       | 1-3/4       |       |     |     |              |       |       |       | 9-1/8 |

Reference

Control Valves

Cylinders

Specialty Valves

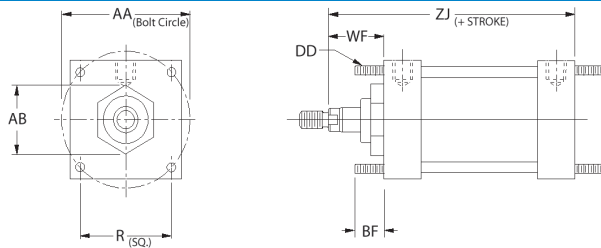
Production Devices

Accessories

Index

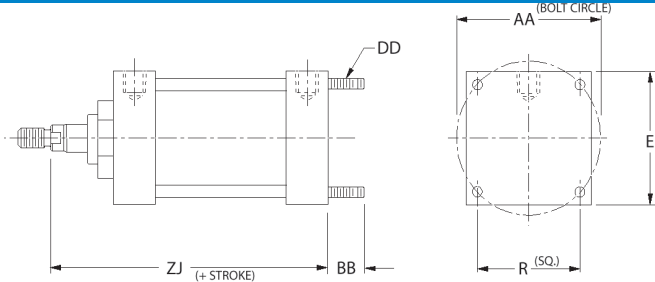
Extended Tie Rods, Both Ends (TIB)

NFPA: MX1



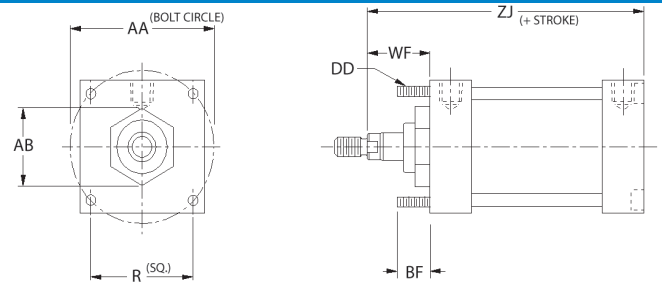
Back End (TIR)

NFPA: MX2



Rod End (TIF)

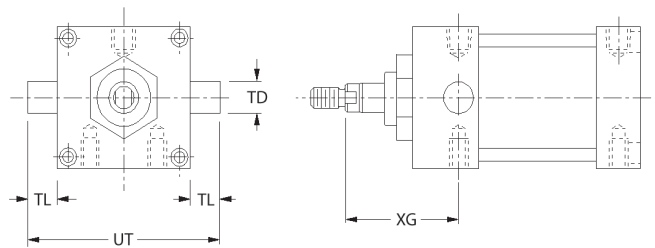
NFPA: MX3



| BORE  | MM ROD DIA. | AA   | BB      | AB     | BF     | DD      | R       | ZJ    |
|-------|-------------|------|---------|--------|--------|---------|---------|-------|
| 1-1/2 | 5/8         | 2.02 | 1       | 1-5/16 | 1-3/8  | 1/4-28  | 1-7/16  | 4-5/8 |
|       | 1           |      |         |        |        |         |         | 5     |
| 2     | 5/8         | 2.6  | 1-1/8   | 1-5/16 | 1-1/2  | 5/16-24 | 1-27/32 | 4-5/8 |
|       | 1           |      |         |        |        |         |         | 5     |
| 2-1/2 | 5/8         | 3.1  | 1-1/8   | 1-3/4  | 1-1/2  | 5/16-24 | 2-3/16  | 4-3/4 |
|       | 1           |      |         |        |        |         |         | 5-1/8 |
| 3-1/4 | 1           | 3.9  | 1-3/8   | 2-1/32 | 2      | 3/8-24  | 2-3/4   | 5-5/8 |
|       | 1-3/8       |      |         |        |        |         |         | 5-7/8 |
| 4     | 1           | 4.7  | 1-3/8   | 2-1/32 | 2      | 3/8-24  | 3-21/64 | 5-5/8 |
|       | 1-3/8       |      |         |        |        |         |         | 5-7/8 |
| 6     | 1-3/8       | 6.9  | 1-13/16 | 2-5/16 | 2-9/16 | 1/2-20  | 4-7/8   | 6-5/8 |
|       | 1-3/4       |      |         |        |        |         |         | 6-7/8 |

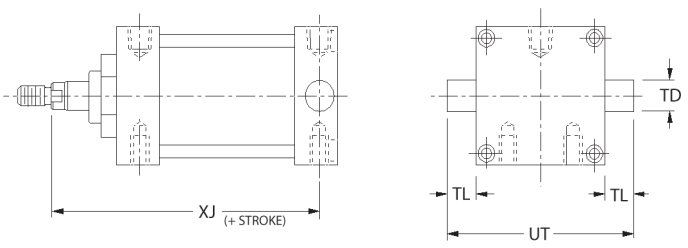
Front Trunnion (TF)

NFPA: MT1



Rear Trunnion

NFPA: MT2



| BORE  | MM ROD DIA. | TD ±0.01 | TL    | UT    | XG    | XJ    |
|-------|-------------|----------|-------|-------|-------|-------|
| 1-1/2 | 5/8         | 1        | 1     | 4     | 1-3/4 | 4-1/8 |
|       | 1           |          |       |       | 2-1/8 | 4-1/2 |
| 2     | 5/8         | 1        | 1     | 4-1/2 | 1-3/4 | 4-1/8 |
|       | 1           |          |       |       | 2-1/8 | 4-1/2 |
| 2-1/2 | 5/8         | 1        | 1     | 5     | 1-3/4 | 4-1/4 |
|       | 1           |          |       |       | 2-1/8 | 4-5/8 |
| 3-1/4 | 1           | 1        | 1     | 5-3/4 | 2-1/4 | 5     |
|       | 1-3/8       |          |       |       | 2-1/2 | 5-1/4 |
| 4     | 1           | 1        | 1     | 6-1/2 | 2-1/4 | 5     |
|       | 1-3/8       |          |       |       | 2-1/2 | 5-1/4 |
| 6     | 1-3/8       | 1-3/8    | 1-3/8 | 9-1/4 | 2-5/8 | 5-7/8 |
|       | 1-3/4       |          |       |       | 2-7/8 | 6-1/8 |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

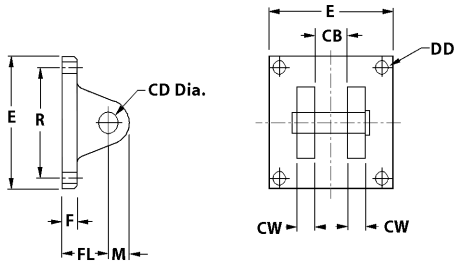
Accessories

Index

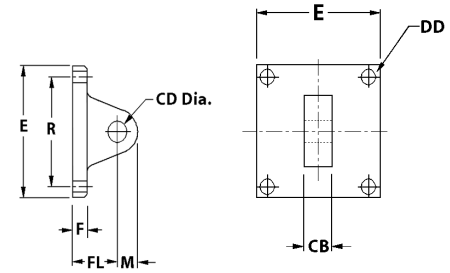


# HD1 Cylinder Dimensions

## Clevis Bracket

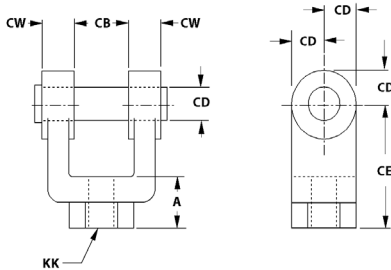


## Pivot Bracket

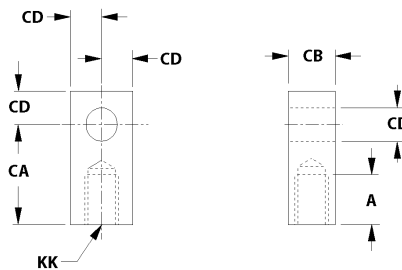


| BORE  | CB    | CD  | CW  | DD    | E     | FL    | M     | R       |
|-------|-------|-----|-----|-------|-------|-------|-------|---------|
| 1-1/2 | 3/4   | 1/2 | 1/2 | 9/32  | 2     | 1-1/8 | 5/8   | 1-7/16  |
| 2     | 3/4   | 1/2 | 1/2 | 11/32 | 2-1/2 | 1-1/8 | 5/8   | 1-27/32 |
| 2-1/2 | 3/4   | 1/2 | 1/2 | 11/32 | 3     | 1-1/8 | 5/8   | 2-3/16  |
| 3-1/4 | 1-1/4 | 3/4 | 5/8 | 13/32 | 3-3/4 | 1-7/8 | 7/8   | 2-3/4   |
| 4     | 1-1/4 | 3/4 | 5/8 | 13/32 | 4-1/2 | 1-7/8 | 7/8   | 3-21/64 |
| 6     | 1-1/2 | 1   | 3/4 | 17/32 | 6-1/2 | 2-1/4 | 1-1/8 | 4-7/8   |

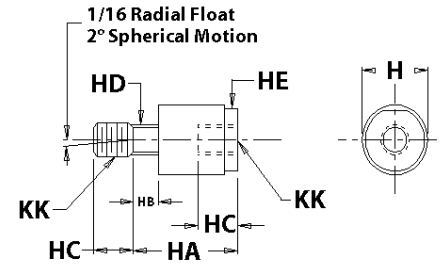
## Rod Clevis



## Rod Eye



## Rod Coupler



| Part #<br>Rod Clevis<br>Rod Eye<br>Rod Coupler | Cylinder   | A     | CA      | CB    | CD    | CE    | CW  | KK       | H     | HA      | HB   | HC    | HD    | HE    |
|--|--|-------|---------|-------|-------|-------|-----|----------|-------|---------|------|-------|-------|-------|
| DMC-2<br>DME-1<br>DMA-437                      | HD1-150<br>HD1-200<br>HD1-250                                | 3/4   | 1-1/2   | 3/4   | 1/2   | 1-1/2 | 1/2 | 7/16-20  | 1-1/4 | 2       | 1/2  | 3/4   | 5/8   | 1-1/8 |
| DMC-4<br>DME-2<br>DMA-750                      | HD1-150 OR<br>HD1-200 OR<br>HD1-250 OR<br>HD1-325<br>HD1-400 | 1-1/8 | 2-1/16  | 1-1/4 | 3/4   | 2-3/8 | 5/8 | 3/4-16   | 1-3/4 | 2-5/16  | 5/16 | 1-1/8 | 31/32 | 1-1/2 |
| DMC-6<br>DME-3<br>DMA-1000                     | HD1-325 OR<br>HD1-400 OR<br>HD-600                           | 1-5/8 | 2-13/16 | 1-1/2 | 1     | 3-1/8 | 3/4 | 1-14     | 2-1/2 | 2-15/16 | 1/2  | 1-5/8 | 1-3/8 | 2-1/4 |
| DMC-7<br>DME-7<br>DMA-1250                     | HD-600 OR  | 1-5/8 | 3-7/16  | 2     | 1-3/8 | 4-1/8 | 1   | 1 1/4-12 | 2-1/2 | 2-15/16 | 1/2  | 1-5/8 | 1-3/8 | 2-1/4 |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

Large Bore Cylinders for Abusive Conditions

Combining NFPA dimensional interchangeability and high quality components, the HD Large Bore Series offers excellent performance and long service life, even in the most severe of conditions. Mead offers 5", 8", 10" and 12" bore sizes to meet your needs.

| Bore Diam. | Thrust* | Thrust Mult.** | Rod Diam.        | Max. Operating Pressure Air |
|------------|---------|----------------|------------------|-----------------------------|
| 5"         | 1964    | 19.64          | 1" or 1-3/8"     | 250 PSI                     |
| 8"         | 5027    | 50.27          | 1-3/8" or 1-3/4" | 200 PSI                     |
| 10"        | 7854    | 78.54          | 1-3/4" or 2"     | 200 PSI                     |
| 12"        | 11310   | 113.1          | 2" or 2-1/2"     | 200 PSI                     |

\*Pushing force of cylinder at 100 PSI inlet pressure. Pulling force will be about 10% less due to the displacement of the piston rod. (Use 15% when Oversized Rods are chosen.) NOTE: Actual realizable thrust could be somewhat lower due to side loading and internal friction. It is best to oversize your cylinder by about 25% to assure smooth operation.

\*\*To determine cylinder thrust at other inlet pressures, multiply this factor times the desired inlet pressure.

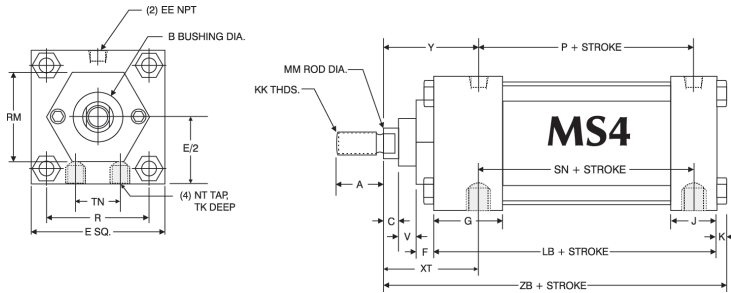
‡HD Cylinders are not rated or approved for use in a hydraulic circuits where an impulse or pressure spike may occur.

Large Bore Cylinder Construction

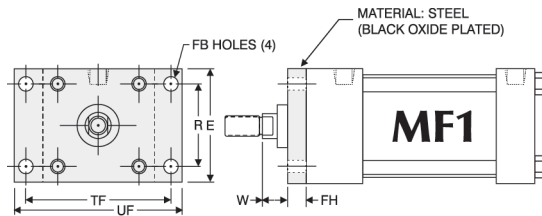
|                       |  |
|-----------------------|--|
| Floating Rod Bushing  | Precision machined from 150,000 PSI rated graphite-filled cast iron and PTFE coated to reduce friction and extend cycle life. Bushing design "traps" lubrication in effective bearing area.                            |
| Head, Cap & Retainer  | Precision machined from high strength 6061-T6 aluminum alloy.  |
| Cylinder Tube         | Precision machined from 6063-T6832 high tensile aluminum alloy and hard coat to 60 Rc for wear resistance and extended cycle life.   |
| Piston Rod            | Precision machined from high yield, polished and hard chrome plated steel.   |
| Piston & Rod Seals    | Heavy lip design Carboxylated Nitrile construction. Seals are pressure activated and wear compensating for long life. (Self lubricating material.)   |
| Rod Wiper             | Abrasion resistant urethane provides aggressive wiping action in all environments. External lip design prevents debris from entering cylinder.   |
| Piston                | Precision machined from 6061-T651 alloy aluminum. Provides an excellent bearing surface for extended cylinder life.  |
| Tie Rods              | Pre-stressed high carbon steel tie rod construction eliminates axial loading of cylinder tube and maintains compression on tube and seals.   |
| Permanent Lubrication | Permanently lubricated with Magna-Lube G PTFE-based grease on all internal components. This is a non-migratory type high performance grease providing outstanding service life. No additional lubrication is required. |

Dimensions

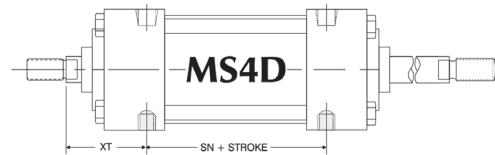
Bottom Flush Model FB



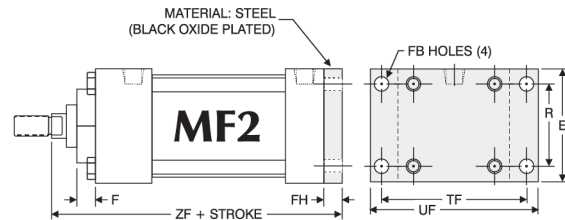
Rod End Flange Model FH (5" Bore Only)



Double Rod Model DR



Blind End Flange Model FR (5" Bore Only)



| Bore | Rod Dia. | A    | AA   | B    | BB   | C   | CB   | CD   | CW   | DD     | E     | EE  | F   | FB  | FH  | FL   | G    | J    | K   | KK      | L    | LB   | M    | MM   | NT     | P    | R    | RM   | SB  |
|------|----------|------|------|------|------|-----|------|------|------|--------|-------|-----|-----|-----|-----|------|------|------|-----|---------|------|------|------|------|--------|------|------|------|-----|
| 5    | 1 STD    | 1.13 | 5.8  | 1.50 | 1.81 | .50 | 1.25 | .75  | .63  | .50-20 | 5.50  | .50 | .63 | .56 | .63 | 1.88 | 1.75 | 1.25 | .44 | .75-16  | 1.25 | 4.50 | .88  | 1    | .63-11 | 3    | 4.10 | 2.75 | .81 |
|      | 1.38 OR  | 1.63 |      | 2    |      | .63 |      |      |      |        |       |     |     |     |     |      |      |      |     | 1-14    |      |      |      | 1.38 |        |      |      | 3.50 |     |
| 8    | 1.38 STD | 1.63 | 9.1  | 2    | 2.31 | .63 | 1.50 | 1    | .75  | .63-18 | 8.50  | .75 | .63 | .69 | .63 | NA   | 2    | 1.50 | .56 | 1-14    | 1.50 | 5.13 | 1    | 1.38 | .75-10 | 3.38 | 6.44 | 3.50 | .81 |
|      | 1.75 OR  | 2    |      | 2.38 |      | .75 |      |      |      |        |       |     |     |     |     |      |      |      |     | 1.25-12 |      |      |      | 1.75 |        |      |      | 5    |     |
| 10   | 1.75 STD | 2    | 11.2 | 2.38 | 2.69 | .75 | 2    | 1.38 | 1    | .75-16 | 10.6  | 1   | .63 | .81 | .63 | NA   | 2.25 | 2    | .69 | 1.25-12 | 2.13 | 6.38 | 1.38 | 1.75 | 1-8    | 4.31 | 7.92 | 3.50 | -   |
|      | 2 OR     | 2.25 |      | 2.63 |      | .88 |      |      |      |        |       |     |     |     |     |      |      |      |     | 1.50-12 |      |      |      | 2    |        |      |      | 5    |     |
| 12   | 2 STD    | 2.25 | 13.3 | 2.63 | 2.69 | .88 | 2.50 | 1.75 | 1.25 | .75-16 | 12.75 | 1   | .75 | .81 | .75 | NA   | 2.25 | 2    | .69 | 1.50-12 | 2.25 | 6.88 | 1.75 | 2    | 1-8    | 4.81 | 9.40 | 5    | -   |
|      | 2.50 OR  | 3    |      | 3.13 |      | 1   |      |      |      |        |       |     |     |     |     |      |      |      |     | 1.88-12 |      |      |      | 2.50 |        |      |      | 5    |     |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

# HD Large Bore Tie Rod

## How To Order

**HD-800 x 10 - FB - DR**

### Base Model

- HD-500 (5" Bore)
- HD-800 (8" Bore)
- HD-1000 (10" Bore)
- HD-1200 (12" Bore)







### Stroke

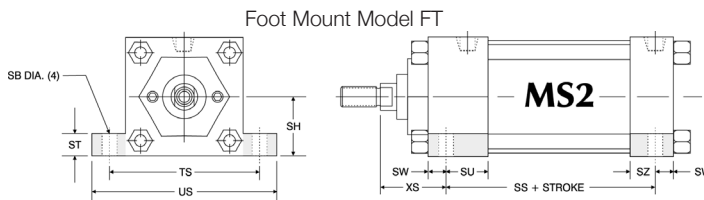
State Fractional Strokes as decimals (i.e. 10.5)

### Mounting

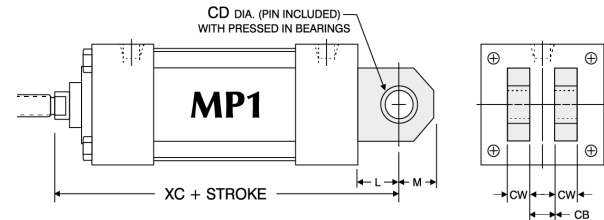
| Description                                       | NFPA Code | Restrictions      |
|---|-----------|-------------------|
| FB Four tapped holes in bottom                    | MS-4      | None              |
| FH Flange Plate extends beyond front head         | MF-1      | None              |
| FR Flange Plate extends beyond rear head          | MF-2      | None              |
| FT Lugs extend from bottom of head                | MS-2      | None              |
| PB Two Ears extend from rear head                 | MP-1      | 12" not available |
| PF Two Ears extend from rear head (detachable)    | MP-2      | None              |
| TIF Four Tie Rods extend forward                  | MX-3      | None              |
| TF Pivot bars extend from two sides of front head | MT-1      | None              |
| TR Pivot bars extend from two sides of rear head  | MT-2      | None              |

### Options

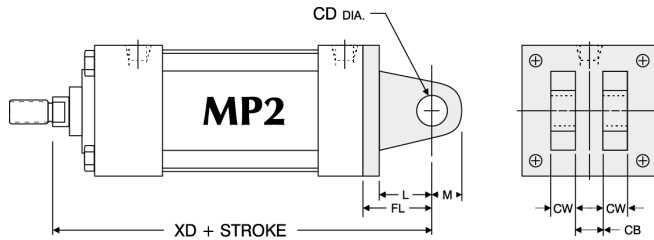
- DR  Double Rod
- VI  Viton Seals
- CF  Front Cushions
- CR  Rear Cushions
- CB  Cushions Both Ends
- MP  Magnetic Piston



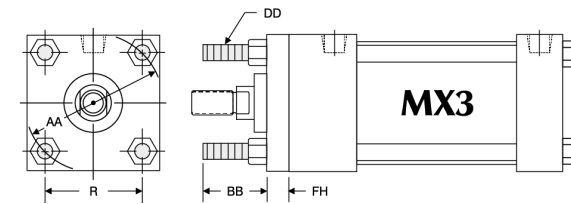
Clevis Mount Model PB



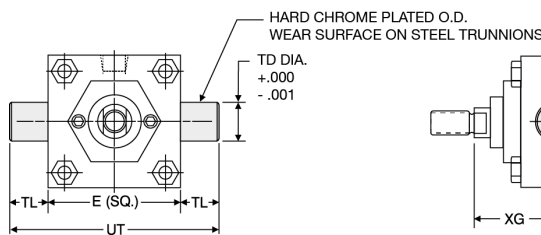
Clevis Mount Model PF



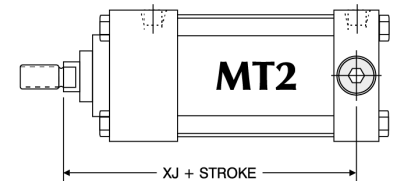
Tie Rods Extended Front Model TIF



Trunnion Front Mount Model TF

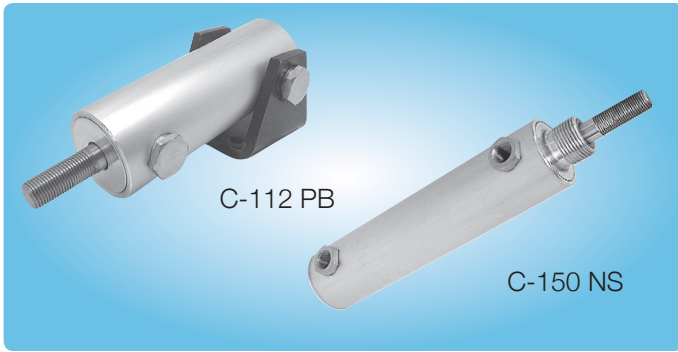


Trunnion Rear Mount Model TR



NOTE: Consult factory for additional mounting options.

| Bore | Rod Dia. | SH   | SN   | SS   | ST | SU   | SW  | SZ  | TD   | TE   | TF   | TK   | TL   | TN   | TS   | UF   | UM    | US    | UT    | V   | W    | XC    | XD    | XG   | XJ   | XS   | XT   | Y    | ZB   | ZF   |
|------|----------|------|------|------|----|------|-----|-----|------|------|------|------|------|------|------|------|-------|-------|-------|-----|------|-------|-------|------|------|------|------|------|------|------|
| 5    | 1 STD    | 2.75 | 2.88 | 3.73 | 1  | 1.06 | .69 | .56 | 1    | -    | 6.63 | 1    | 1    | 2.69 | 6.88 | 7.63 | 8.25  | 8.25  | 7.50  | .25 | .75  | 7.13  | 7.75  | 2.25 | 5.25 | 2.06 | 2.44 | 2.38 | 6.31 | 6.50 |
|      | 1.38 OR  |      |      |      |    |      |     |     |      |      |      |      |      |      |      |      |       |       |       |     | .38  | 1     | 7.38  | 8    | 2.50 | 5.50 | 2.31 | 2.69 | 2.63 | 6.56 |
| 8    | 1.38 STD | 4.25 | 3.25 | 3.75 | 1  | 1.31 | .69 | .81 | 1.38 | 7.57 | NA   | 1.13 | 1.38 | 4.50 | 9.88 | NA   | 12.50 | 11.25 | 11.25 | .50 | 1.63 | 8.25  | NA    | 2.63 | 6    | 2.31 | 2.81 | 2.75 | 7.31 | 6.75 |
|      | 1.75 OR  |      |      |      |    |      |     |     |      |      |      |      |      |      |      |      |       |       |       |     | .50  | 1.88  | 8.50  | NA   | 2.88 | 6.25 | 5.56 | 3.06 | 3    | 7.56 |
| 10   | 1.75 STD | -    | 4.13 | -    | -  | -    | -   | -   | -    | 9.40 | NA   | 1.50 | -    | 5.50 | -    | NA   | -     | -     | -     | .50 | 1.88 | 10.38 | NA    | -    | -    | -    | 3.13 | 3.06 | 8.94 | 8.25 |
|      | 2 OR     |      |      |      |    |      |     |     |      |      |      |      |      |      |      |      |       |       |       |     | .38  | 2     | 10.50 | NA   | -    | -    | -    | 3.25 | 3.19 | 9.06 |
| 12   | 2 STD    | -    | 4.63 | -    | -  | -    | -   | -   | -    | 11.1 | NA   | 1.50 | -    | 7.25 | -    | NA   | -     | -     | -     | .38 | 2    | 11.13 | NA    | -    | -    | -    | 3.25 | 3.19 | 9.56 | 8.88 |
|      | 2.50 OR  |      |      |      |    |      |     |     |      |      |      |      |      |      |      |      |       |       |       | .50 | 2.25 | 11.38 | NA    | -    | -    | -    | 3.50 | 3.44 | 9.81 | 9.13 |



C-112 PB

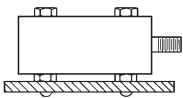
C-150 NS

### Low Cost Mounting

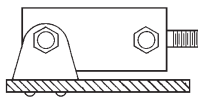
The flush bottom cylinder mounts directly onto a base plate with only two bolts... no need for mounting brackets or other hardware. The pivot bracket is built-in for easy pivoting at the inlet axis. The bracket pivots within the cylinder length to save space and to eliminate one entire bracket that would be needed to mount other cylinders.

Because Centaur's trunnions serve both as mounts and as assembly elements, they cost less than any other trunnion mount on the market.

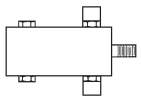
Flush Bottom (FB)



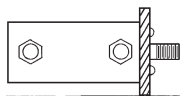
Pivot Bracket (PB)



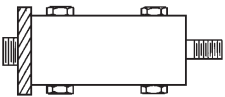
Trunnion Rear (TR)  
Trunnion Front (TF)



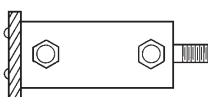
Flush Front (FF)  
1-1/2", 2", 2-1/2" & 3" bores only



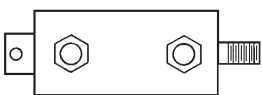
Flush Rear (FR)  
1-1/8" bore only



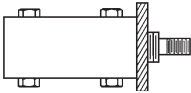
Flush Rear (FR)  
1-1/2", 2", 2-1/2" & 3" bores only



Pivot Extended (PE)  
1-1/8", 1-1/2" & 2" bores only



Threaded Nose (NS)  
Std. on all 1-1/8" bore mounts  
1-1/8", 1-1/2" & 2" bores only



### Technical Specifications

Pressure: 150 PSI Air, 250 PSI Hydraulic

Bore Sizes: 1-1/8", 1-1/2", 2", 2-1/2" and 3"

Body: Hard Coated Aluminum

Rod Bearing: Oil Impregnated Porous Bronze

Temperature Range: -40° F to 250° F (-40° C to 121° C) (to 400° F [204° C] on request)

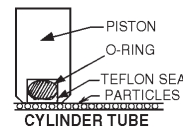
### Economical & Repairable

Mead Centaur cylinders are built to match tie-rod performance, but are up to 45% less expensive and offer lubrication-free service. Centaur cylinders are not permanently crimped like most other round cylinders, so they can be disassembled for maintenance.

### Teflon Seals Create Smooth Breakaway

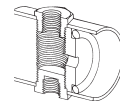
Centaur's unique Teflon® piston seal eliminates the forward lurch that occurs when rubber seals breakaway from the cylinder tube surface. Rod motion remains smooth throughout the stroke.

### Non-Lube



During the cylinder break-in period, molecules from the unique graphite-filled Teflon® piston seal became embedded in the pores of the hard coated aluminum cylinder tube. This forms a long-lasting, super-smooth, self-lubricated surface.

### Built-In Bumpers Absorb Impact



Rubber bumpers are built into each cylinder head to eliminate the metallic "clank" that occurs at stroke completion.

### Self Aligning Rod Couplers

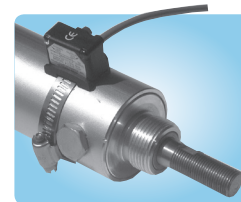


Rod couplers simplify cylinder alignment problems by compensating for 2° angular error and 1/16" lateral misalignment on both extension and retraction strokes.

See page 26 for complete listing of Mead's self-aligning rod couplers.

| Model       | C-112   | C-150   | C-200   | C-250   | C-300    |
|-------------|---------|---------|---------|---------|----------|
| Rod Coupler | DMA-312 | DMA-500 | DMA-625 | DMA-750 | DMA-1000 |

### Proximity Switches



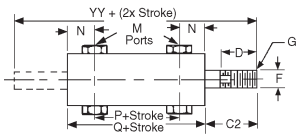
Solid State and Reed switches can sense rod position anywhere within the stroke. A stainless steel clamp facilitates mounting at any location along the cylinder tube. Switches may be used singly or in multiples and positioned at any point around the cylinder tube. The cylinder must have a magnetic piston. For technical information, see page 29.

| Model    | C-112 | C-150        | C-200        | C-250        | C-300        |
|----------|-------|--------------|--------------|--------------|--------------|
| Sinking  | N/A   | CS-6100N-150 | CS-6100N-200 | CS-6100N-250 | CS-6100N-300 |
| Sourcing | N/A   | CS-6100P-150 | CS-6100P-200 | CS-6100P-250 | CS-6100P-300 |
| Reed     | N/A   | CS-6100R-150 | CS-6100R-200 | CS-6100R-250 | CS-6100R-300 |

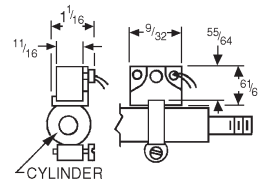


# Centaur Dimensions and Ordering Information

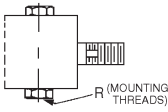
## Basic Dimensions



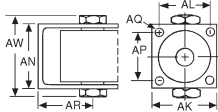
## Hall Effect



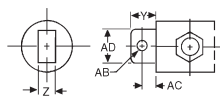
### Flush Bottom (FB)



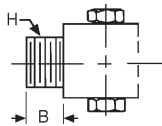
### Pivot Bracket (PB)



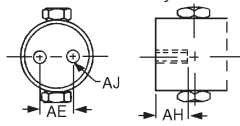
### Pivot Extended (PE) 1-1/8", 1-1/2" & 2" bores only



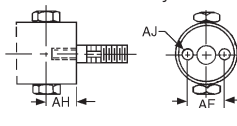
### Flush Rear (FR) 1-1/8" bore only



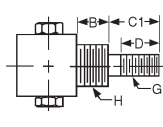
### Flush Rear (FR) 1-1/2", 2", 2-1/2" & 3" bores only



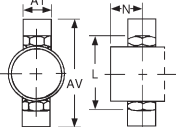
### Flush Front (FF) 1-1/2", 2", 2-1/2" & 3" bores only



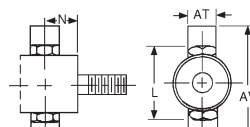
### Threaded Nose (NS) Std. on all 1 1/8" bore mounts 1-1/8", 1-1/2" & 2" bores only



### Trunnion Rear (TR)



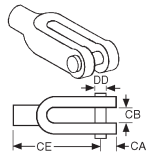
### Trunnion Front (TF)



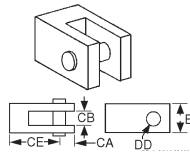
## Accessories

### Rod Clevis w/Pin (CEC)

1-1/8" & 1-1/2" bores



2" & 3" bores



### Nose Nuts (CN) 1-1/8", 1-1/2" & 2" bores only



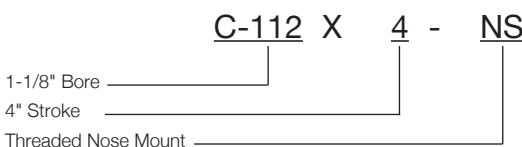
NOTE: For DMC-4, refer to pages 41.

## Air Reservoirs

Two Centaur rear heads and a tube form an economical air tank. Consult factory for more information. Simply add AR to model.

## Ordering Information

When ordering Centaur cylinders, list the model number, stroke length and mounting option(s) required. Please consult the factory for stainless steel rods, air reservoirs or any special cylinder need.



|                | Bore Sizes |          |          |          |          |
|----------------|------------|----------|----------|----------|----------|
|                | 1-1/8"     | 1-1/2"   | 2"       | 2-1/2"   | 3"       |
| A              | 1-3/8      | 1-3/4    | 2-1/4    | 2-3/4    | 3-1/4    |
| B              | 5/8        | 13/16    | 13/16    | -        | -        |
| C1             | 5/8        | 1-5/8    | 1-7/8    | -        | -        |
| C2             | -          | 1-7/16   | 1-11/16  | 1-3/4    | 2-1/16   |
| D              | 1/2        | 1-1/4    | 1-1/2    | 1-1/2    | 1-3/4    |
| F              | 5/16       | 1/2      | 5/8      | 3/4      | 1        |
| G              | 5/16-24    | 1/2-20   | 5/8-18   | 3/4-16   | 1-14     |
| H              | 3/4-16     | 1-14     | 1 1/4-12 | -        | -        |
| L              | 2-3/32     | 2-1/8    | 2-5/8    | 3-1/8    | 3-5/8    |
| M              | 1/8 NPT*   | 1/4 NPSF | 1/4 NPSF | 1/4 NPSF | 1/4 NPSF |
| N              | 7/16       | 51/64    | 51/64    | 51/64    | 51/64    |
| P+Stroke       | 1-21/64    | 1-27/32  | 1-59/64  | 2-3/64   | 2-11/64  |
| Q+Stroke       | 2-13/64    | 3-7/16   | 3-1/2    | 3-5/8    | 3-3/4    |
| R              | 10-32      | 3/8-24   | 3/8-24   | 3/8-24   | 3/8-24   |
| Y              | 5/8        | 15/16    | 1-1/8    | -        | -        |
| Z              | 3/8        | 11/16    | 3/4      | -        | -        |
| AB             | 1/4        | 3/8      | 1/2      | -        | -        |
| AC             | 3/8        | 9/16     | 5/8      | -        | -        |
| AD             | 5/8        | 1        | 1-1/4    | -        | -        |
| AE             | -          | 1-1/8    | 1-1/2    | 1-3/4    | 2        |
| AH             | -          | 1/2      | 5/8      | 3/4      | 7/8      |
| AJ             | -          | 1/4-28   | 5/16-24  | 3/8-24   | 1/2-20   |
| AK             | 1-5/8      | 2-1/4    | 2-1/4    | 2-7/8    | 3-1/8    |
| AL             | 1-1/4      | 1-5/8    | 1-5/8    | 2-1/8    | 2-3/8    |
| AN             | 1-3/4      | 2-13/32  | 2-29/32  | 3-13/32  | 3-29/32  |
| AP             | 1          | 1-1/8    | 1-5/8    | 2-1/8    | 2-5/8    |
| AQ             | 13/64      | 9/32     | 9/32     | 9/32     | 9/32     |
| AR             | 31/32      | 1-9/16   | 1-13/16  | 1-15/16  | 2-5/16   |
| AT             | .418       | .731     | .731     | .731     | .731     |
| AV             | 2-5/32     | 3-5/8    | 4-1/8    | 4-5/8    | 5-1/8    |
| AW             | 2-17/64    | 2-13/16  | 3-5/16   | 3-13/16  | 4-5/16   |
| YY + (2 X STK) | 4-23/32    | 6-5/16   | 6-7/8    | 7-1/8    | 7-1/8    |

\* 1-1/8 bore model with trunnion mounts has 1/4-28 ports.

## Rod Clevis Accessory Dimensions

| Bore   | E     | CA    | CB    | CE      | DD   |
|--------|-------|-------|-------|---------|------|
| 1-1/8" | -     | 19/64 | 11/32 | 13/16   | 5/16 |
| 1-1/2" | -     | 15/32 | 9/16  | 1-13/16 | 1/2  |
| 2"     | 1-1/4 | 7/16  | 5/8   | 2-1/16  | 1/2  |
| 2-1/2" | 1-1/2 | 3/4   | 1-1/4 | 2-3/8   | 3/4  |
| 3"     | 1-1/4 | 7/16  | 5/8   | 2-1/16  | 1/2  |

## Model Numbers

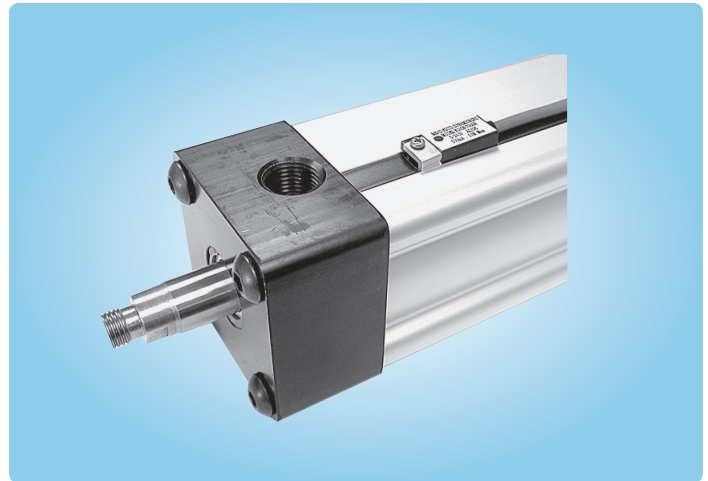
| Bore Sizes Accessory | 1-1/8"  | 1-1/2"  | 2"      | 2-1/2" | 3"      |
|----------------------|---------|---------|---------|--------|---------|
| Rod Clevis, Pin      | CEC-112 | CEC-150 | CEC-200 | DMC-4  | CEC-300 |
| Nose Nut             | CN-112  | CN-150  | CN-200  | -      | -       |

| Bore Model              | 1-1/8"<br>C-112 | 1-1/2"<br>C-150 | 2"<br>C-200 | 2-1/2"<br>C-250 | 3"<br>C-300 |
|-------------------------|-----------------|-----------------|-------------|-----------------|-------------|
| Nose Mount (NS)         | •               | •               | •           | NA              | NA          |
| Flush Bottom (FB)       | •               | •               | •           | •               | •           |
| Flush Front (FF)        | NA              | •               | •           | •               | •           |
| Flush Rear (FR)         | •               | •               | •           | •               | •           |
| Pivot Bracket (PB)      | •               | •               | •           | •               | •           |
| Pivot Extended (PE)     | •               | •               | •           | NA              | NA          |
| Trunnion Front (TF)     | •               | •               | •           | •               | •           |
| Trunnion Rear (TR)      | •               | •               | •           | •               | •           |
| Other Options:          | •               | •               | •           | •               | •           |
| Double Rod (DR)         | Δ               | •               | •           | •               | •           |
| Dupont Viton Seals (VI) | •               | •               | •           | •               | •           |
| Magnetic Piston (MP)    | NA              | •               | •           | •               | •           |
| Air Reservoir (AR)      | •               | •               | •           | •               | •           |

Δ Nose (NS) mounts standard on both ends of 1 1/8" bore model with double rod.

**Installation and Operation**

Proximity switches provide contactless switching capabilities and allow you to sense cylinder rod position practically anywhere within the stroke. Switches are easily mounted on any point along the cylinder body. The switch will provide an electrical signal when subjected to the magnetic field created by a cylinder piston that is specially fitted with a captivated magnet.



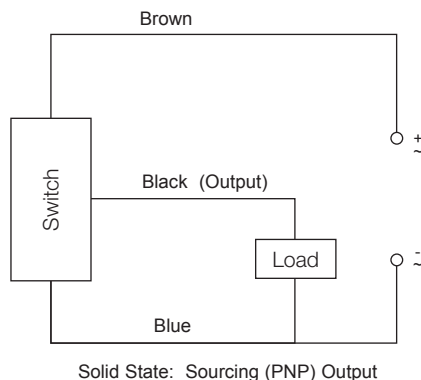
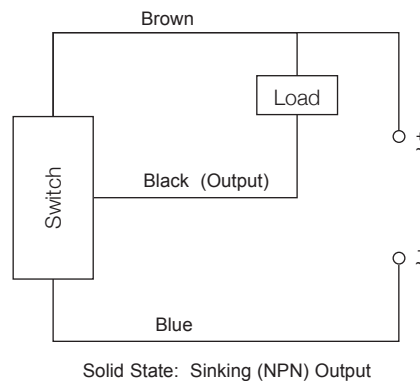
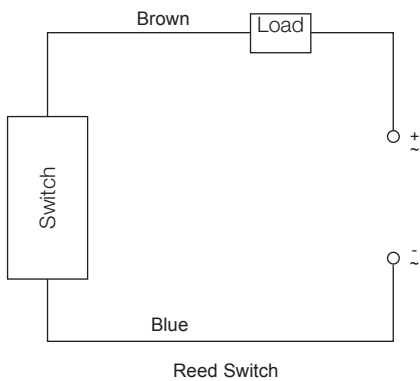
| Switch  | Compatible with               |
|---------|-------------------------------|
| CS-6100 | Centaur Round Body Cylinders  |
| CS-6200 | DM1 and HD1 Tie Rod Cylinders |
| CS-7500 | DM2 Extruded Body Cylinders   |

| Model Number | Switch Type             | Switching Logic    | Operating Voltage         | Switching Current | Switching Power | Switching Drop          | Magnetic Sensitivity |
|--------------|-------------------------|--------------------|---------------------------|-------------------|-----------------|-------------------------|----------------------|
| CS-7500R     | Reed Switch             | Normally Open SPST | 5~240 VDC/<br>VAC 50/60Hz | 1 Amp. Max.       | 30 Watts Max.   | 3.5 V Max.              | 85 Gauss             |
| CS-6100R     |                         |                    |                           |                   |                 |                         |                      |
| CS-6200R     |                         |                    |                           |                   |                 |                         |                      |
| CS-7500P*    | Solid State (MR) Sensor | Normally Open      | 5~28 VDC                  | 1 Amp. Max.       | 24 Watts Max.   | 1.5 V Max.<br>(0.5 Amp) | 85 Gauss             |
| CS-6100P*    |                         |                    |                           |                   |                 |                         |                      |
| CS-6200P*    |                         |                    |                           |                   |                 |                         |                      |
| CS-7500N*    |                         |                    |                           |                   |                 |                         |                      |
| CS-6100N*    |                         |                    |                           |                   |                 |                         |                      |
| CS-6200N*    |                         |                    |                           |                   |                 |                         |                      |

\* P = Sourcing, N = Sinking

3m cable leads on switches

**Connection Diagrams**



Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

## Space Saver



## Offers A Wide Range Of Power

| Bore                  | 3/4" | 1-1/8" | 1-1/2" | 2"  | 2-1/2" | 3"  | 4"   |
|-----------------------|------|--------|--------|-----|--------|-----|------|
| Force @ 100 PSI (lbs) | 44   | 100    | 177    | 314 | 491    | 707 | 1257 |

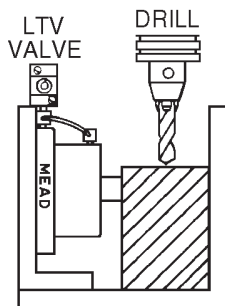
NOTE: Pull force is approximately 10% less.

## Mounting Options

Uniform base thickness makes mounting easy regardless of stroke.

## Perfect for Tooling

Space Saver cylinders are ideal for use on drill fixtures and other automated tooling to provide compact, lightweight holding power.



## Valving

Efficient 4-way LTV valves, shown on pages 20-21, are perfect as actuators of Space Saver cylinders. Valve hookup is made easy because the top cylinder port reindexes to any position.

## Stroke Availability

| Model  | Bore   | Stroke Lengths |      |     |     |     |     |     |   |       |   |       |   |
|--------|--------|----------------|------|-----|-----|-----|-----|-----|---|-------|---|-------|---|
|        |        | 1/8            | 3/16 | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-1/2 | 2 | 2-1/2 | 3 |
| SS-075 | 3/4"   | X*             | -    | X*  | X   | X   | X   | X   | X | X     | X | -     | - |
| SS-112 | 1-1/8" | X*             | X*   | X*  | -   | X   | -   | X   | X | X     | X | X     | X |
| SS-150 | 1-1/2" | X*             | -    | X   | -   | X   | -   | X   | X | X     | X | X     | X |
| SS-200 | 2"     | X              | -    | X   | -   | X   | -   | X   | X | X     | X | X     | X |
| 22-250 | 2-1/2" | X              | -    | X   | -   | X   | -   | X   | X | X     | X | X     | X |
| SS-300 | 3"     | X              | -    | X   | -   | X   | -   | X   | X | X     | X | X     | X |
| SS-400 | 4"     | X              | -    | X   | -   | X   | -   | X   | X | X     | X | X     | X |

\* Includes special fitting

NOTE: To obtain a 1/8" or 3/16" stroke on 3/4" on 1-1/8" bore models, a 1/4" stroke cylinder is used and spacers are added.

Non-standard strokes subject to special machining charge.

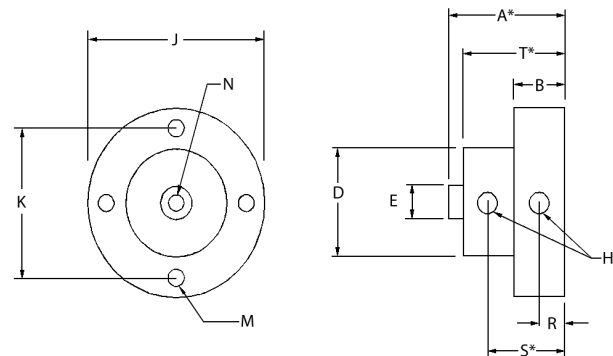
## Full Power in Half the Space

Space Saver cylinders provide the power and stroke of standard cylinders in less than half the space. They are ideally suited for use in machinery where space and weight are at a premium. Best of all, Space Saver cylinders cost up to 50% less than standard models.

## Built to Last

- Oil impregnated sintered bronze rod bearing and hard chrome plated piston rod work together to prolong cylinder life.
- Hard coated cylinder bore eliminates cylinder wall scoring.

## Dimensions



NOTE: 3/4" - 2" Bore Models have two (2) Mounting Holes. See Dimension M.

| Bore | 3/4"            | 1-1/8"           | 1-1/2"           | 2"              | 2-1/2"          | 3"              | 4"              |
|------|-----------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|
| A*   | 0.77            | 0.78             | 0.91             | 1.06            | 1.08            | 1.37            | 1.52            |
| B    | 0.50            | 0.50             | 0.50             | 0.56            | 0.56            | 0.75            | 0.75            |
| D    | 1.00            | 1.38             | 1.75             | 2.25            | 2.75            | 3.25            | 4.25            |
| E    | 0.31            | 0.50             | 0.50             | 0.63            | 0.63            | 0.75            | 0.75            |
| H    | #10-32          | #10-32           | #10-32           | 1/8 NPT         | 1/8 NPT         | 1/8 NPT         | 1/8 NPT         |
| J    | 1.74            | 2.12             | 2.49             | 3.11            | 3.74            | 4.24            | 5.22            |
| K    | 1.41            | 1.78             | 2.16             | 2.72            | 3.25            | 3.78            | 4.78            |
| M    | 0.19            | 0.19             | 0.19             | 0.19            | 0.27            | 0.27            | 0.27            |
| N    | #10-32<br>X .25 | 5/16-24<br>X .38 | 5/16-24<br>X .38 | 3/8-24 X<br>.38 | 3/8-24 X<br>.38 | 1/2-20 X<br>.50 | 1/2-20 X<br>.50 |
| R    | 0.16            | 0.16             | 0.16             | 0.31            | 0.31            | 0.33            | 0.33            |
| S*   | 0.38            | 0.38             | 0.51             | 0.69            | 0.68            | 0.91            | 1.04            |
| T*   | 0.76            | 0.77             | 0.90             | 1.05            | 1.06            | 1.36            | 1.50            |

\* Plus Stroke

NOTE: To obtain a 1/8" or 3/16" stroke on 3/4" or 1-1/8" bore models, a 1/4" stroke cylinder is used and spacers are added.

## Specifications

Pressure: 0-150 PSI, Air only

Temperature: -40° F to 250° F (-40° C to 121° C) (to 400° F [204° C] with Viton)

Lubrication: Petroleum base oil

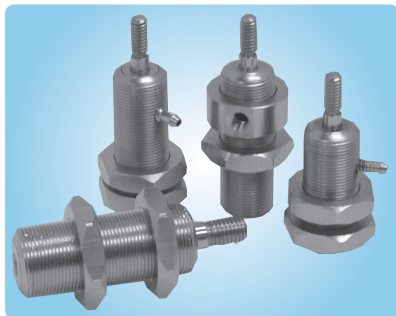
Filtration: 40 Micron minimum

Seals: Buna-N

## Options &amp; Ordering Information

When ordering, specify model number, stroke length, and Viton seal option if required.

**Example:** SS-150 X 0.25 - FB-VI



### MA Series - Mini Adjustable Location Cylinders

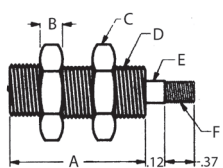
These threaded body cylinders install quickly and easily without special mounting devices. Either drill a hole, insert your cylinder, and position with the pair of jam nuts or tap a hole and lock into position with a single jam nut. The MA-Series cylinders are electroless nickel plated for excellent corrosion resistance and a gleaming appearance.

Non-rotating: This option is available on 3/8" and 1/2" bore, single-acting, spring return cylinders.

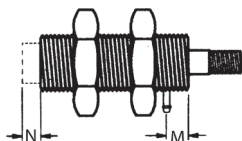
### Stroke Length Availability - MA Series

The MA-250 (1/4" Bore) single acting is only available in 1/4" stroke lengths. The MA-250 double acting is available in 1/4", 1/2" and 1" stroke lengths. The MA-375 (3/8" Bore) and MA-500 (1/2" Bore) single acting is available in 1/4" and 1/2"; the double acting version is available in 1/4", 1/2", 1", 1 1/2" and 2" stroke lengths. By adding a spacer, all models are also available in fractional stroke lengths for no additional charge. (Dimensionally the cylinder will be the same as the next closest size up.) If other strokes are required, contact Mead to quote a custom stroke length.

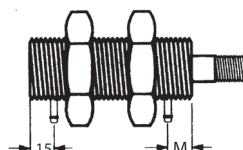
### MA Cylinder Dimensions



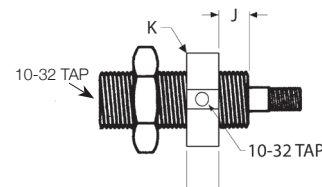
Basic Cylinder



Spring Extend Only



6-32 Barbs  
(for use with 1/16" ID Hose)



Side and Rear Tapped

| Bore | A=Stroke+ | B   | C   | D      | E   | F      | I   | J   | K   | M   | N   |
|------|-----------|-----|-----|--------|-----|--------|-----|-----|-----|-----|-----|
| 1/4" | 0.81      | .15 | .62 | 3/8-32 | .14 | 6-32   | .31 | .06 | .62 | .20 | .10 |
| 3/8" | 1.00      | .18 | .75 | 1/2-32 | .17 | 8-32   | .31 | .21 | .75 | .37 | .18 |
| 1/2" | 1.06      | .18 | .87 | 5/8-32 | .25 | 1/4-28 | .31 | .21 | .87 | .37 | -   |

### Ordering Miniature Cylinders:

**MA - 500 x 1.00 DA - R B (\*\*\*)**

**Family**  
 MA = Mini Adjustable  
 MF = Mini Flat

**Bore**  
 250 = 1/4" Bore  
 375 = 3/8" Bore  
 500 = 1/2" Bore

**Stroke (in inches)**  
 See "Stroke Length Availability..." for particular series

**Type**  
 DA = Double Acting  
 SR = Spring Return  
 SE = Spring Extended

**Options**  
 V = Viton Seals  
 NR = Non-Rotating (Hex Rod) (MA Series only)

**Front Port**  
 O = None (Spring Return)  
 S = Side Tapped (10-32)  
 B = 6-32 Barb (for 1/16" ID Hose)

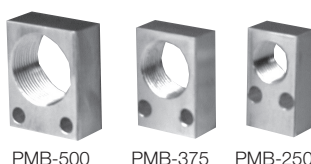
**Rear Port**  
 O = None (Spring Extend)  
 R = Rear Tapped (10-32)  
 S = Side Tapped (10-32)\*  
 B = 6-32 Barb (for 1/16" ID Hose)

\* Special Order (non-stock; contact factory)

### Accessories

- Fitting: 10-32 to 1/16" ID Hose .....PMHF
- Fitting: 6-32 Barb to 1/16" ID Hose .....PMBF
- Hex Nut for 1/4" Bore Cylinder .....PMH-250
- Hex Nut for 3/8" Bore Cylinder .....PMH-375
- Hex Nut for 1/2" Bore Cylinder .....PMH-500
- 1/16" ID Tube Clear Polyurethane (50 ft.) .....11NAT

### Mounting Blocks

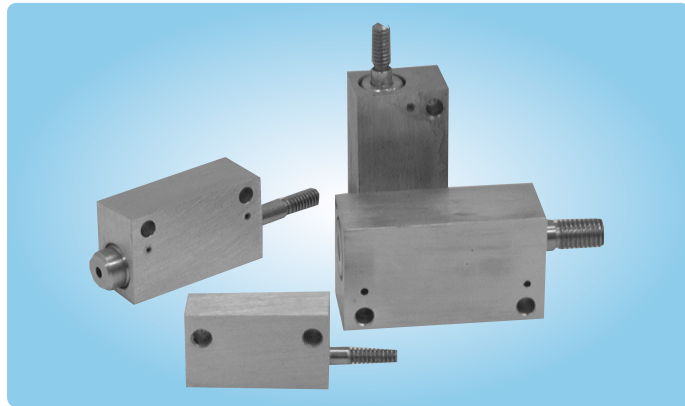


| Bore     | PMB 250<br>1/4" | PMB 375<br>3/8" | PMB 500<br>1/2" |
|----------|-----------------|-----------------|-----------------|
| Width    | 0.503           | 0.626           | 0.75            |
| Height   | 0.879           | 0.876           | 0.94            |
| Depth    | 0.314           | 0.314           | 0.38            |
| Hole (2) | 0.14            | 0.139           | 0.136           |

# Miniature Air Cylinders

## Mini Cylinders Mount Anywhere!

Mead's line of miniature air cylinders offers users a wide range of low-profile linear actuators. These versatile cylinders are available in both single-acting and double-acting models. They are ideal actuators in any application where space is limited.



| General Specifications |  |
|------------------------|--|
| Seals:                 | Buna-N (Viton Optional)                          |
| Temperature:           | Buna-N seals = 0° F to 220° F (-18° C to 104° C) |
| Viton Seals:           | 0° F to 400° F                                   |
| Operating Pressure:    | to 125 PSI                                       |
| Piston Rods:           | Stainless Steel                                  |
| Rod Bearings:          | 660 Bronze                                       |
| Lubrication:           | Recommended - non detergent petroleum based      |
| Filtration:            | 40 Micron  |

## MF Series - Mini Flat Mount Cylinders

Mead's MF Series are miniature, rectangular flat mount cylinders. MF cylinders are available in both single and double-acting models with strokes up to 2".

All ports are tapped 10-32 except the front ports of 1/4" bore models, which have a 6-32 barb fitting. The standard location for the rear extend port is denoted by location "N" on the dimensional drawing. As an option, a rear side port can be ordered special. Contact Mead for details.

### Stroke Length Availability - MF Series

This series is available in 1/4" and 1/2" standard stroke lengths.\* By adding a spacer, all models are also available in fractional stroke lengths for no additional charge. (Dimensionally the cylinder will be the same as the next closest size up.) If other strokes are required, contact Mead to quote a custom stroke length.

\*NOTE: The MF-250 (1/4" bore), Single Acting (SR or SE) is only available in 1/4" standard stroke length.

## MF Cylinder Dimensions

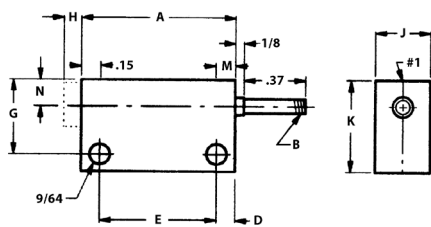


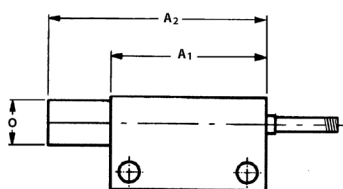
Figure 1:  
For strokes up to 1/2"

# 1  
Indicates port locations. The H dimension is for spring extend cylinders only.

When nominal forces are adequate, this table may be helpful.

| Typical Spring Forces |                  |                   |                  |
|-----------------------|------------------|-------------------|------------------|
| Spring Return         |                  | Spring Extend     |                  |
| 250 - 1/4" stroke     | ..... 14-18 ozs. | 250 - 1/4" stroke | ..... 25-29 ozs. |
| 375 - 1/4" stroke     | ..... 22-26 ozs. | 375 - 1/4" stroke | ..... 30-34 ozs. |
| 375 - 1/2" stroke     | ..... 22-26 ozs. | 375 - 1/2" stroke | ..... 54-58 ozs. |
| 500 - 1/4" stroke     | ..... 42-46 ozs. | 500 - 1/4" stroke | ..... 62-66 ozs. |
| 500 - 1/2" stroke     | ..... 51-55 ozs. | 500 - 1/2" stroke | ..... 78-80 ozs. |

| Bore | Stroke | A    | B      | D   | E    | G     | H   | I   | J    | K    | M   | N   | O     | Front Port | Rear Port |
|------|--------|------|--------|-----|------|-------|-----|-----|------|------|-----|-----|-------|------------|-----------|
| 1/4" | 1/4"   | 1.06 | 6-32   | .12 | 0.81 | 7/16" | .10 | .31 | 3/8" | 5/8" | .20 | .18 | 5/16" | 6-32       | 10-32     |
|      | 1/2"   | 1.31 | 6-32   | .12 | 1.06 | 7/16" | -   | .31 | 3/8" | 5/8" | .20 | .18 | 5/16" | Barb       | Tap       |
| 3/8" | 1/4"   | 1.25 | 8-32   | .15 | 0.93 | 5/8"  | .18 | .37 | 1/2" | 3/4" | .37 | .25 | 7/16" | 10-32      | 10-32     |
|      | 1/2"   | 1.50 | 8-32   | .15 | 1.18 | 5/8"  | .18 | .37 | 1/2" | 3/4" | .37 | .25 | 7/16" | Tap        | Tap       |
| 1/2" | 1/4"   | 1.31 | 1/4-28 | .15 | 1.00 | 3/4"  | -   | .37 | 5/8" | 7/8" | .37 | .31 | 9/16" | 10-32      | 10-32     |
|      | 1/2"   | 1.56 | 1/4-28 | .15 | 1.25 | 3/4"  | -   | .37 | 5/8" | 7/8" | .37 | .31 | 9/16" | Tap        | Tap       |

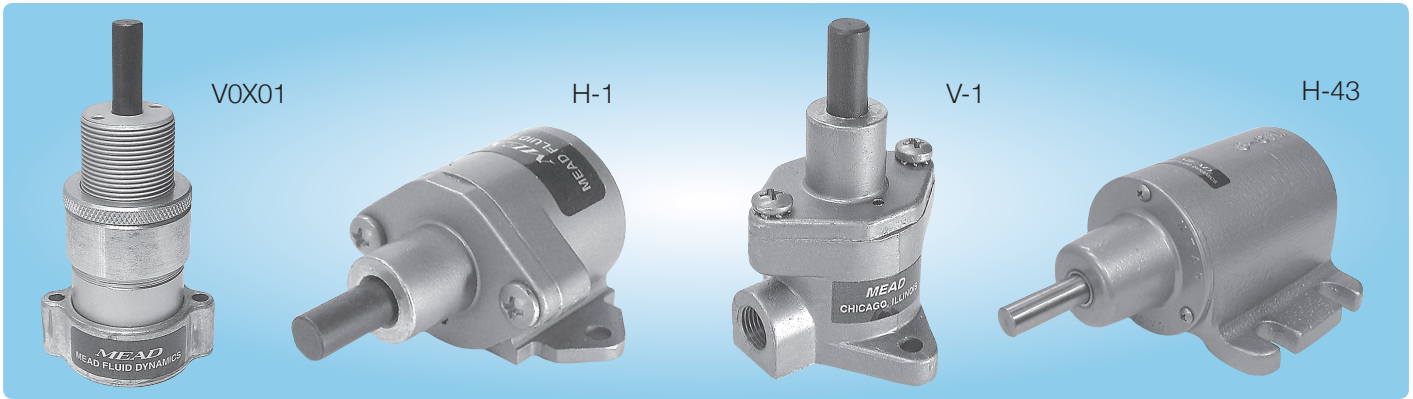


Dimensions For Cylinders With Strokes Over 1/2"

| Bore | A <sub>1</sub> | A <sub>2</sub> |
|------|----------------|----------------|
| 1/4" | 1.06           | 0.81 + Stroke  |
| 3/8" | 1.25           | 1.00 + Stroke  |
| 1/2" | 1.31           | 1.06 + Stroke  |

Figure 2: For strokes over 1/2"





Economical single-acting air clamps provide gripping power on the out stroke and spring retraction. They are ideal for use in drill fixtures and for bending, swaging, forming, crimping, and pressing operations. Because 3-way valves may be used, hook-ups are quick and easy.

**Adjustable Stroke Models**

H0X01, H1X12, V0X01, and V1X12 models are supplied with an adjustable front head so that the user may adjust the length of the stroke by as much as one inch.

| Specifications |  |
|----------------|--|
| Pressure:      | Air to 150 PSI   |
| Temperature:   | -40° F to 250° F (-40° C to 121° C)  |
| Rod Material:  | Nitrotec plated steel on 1" bore models, ground and polished on all others.                    |
| Seals:         | Custom molded one-piece neoprene cups  |
| Body & Cover:  | Aluminum on adjustable models, cast aluminum on all other models. Cast iron on H-12 and H-283. |
| Lubrication:   | Petroleum base oil   |
| Filtration:    | 40 Micron minimum  |

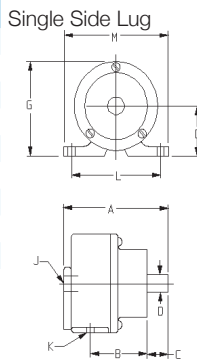
| Models        | Return‡ | Bore(") | Stroke(") | Output* |
|---------------|---------|---------|-----------|---------|
| H-1 & V-1     | 4       | 1       | 11/16     | 68      |
| H0X01 & V0X01 | 5       | 1       | 0 to 1    | 62      |
| H1X12 & V1X12 | 5       | 1       | 1 to 2    | 61      |
| H-41 & V-41   | 9       | 2-1/4   | 1         | 361     |
| H-42          | 10      | 2-1/4   | 2         | 353     |
| H-43          | 11      | 2-1/4   | 3         | 351     |
| H-71          | 18      | 3       | 1         | 682     |
| H-72          | 13      | 3       | 2         | 675     |
| H-73          | 14      | 3       | 3         | 679     |
| H-12          | 39      | 4       | 2         | 1206    |
| H-122         | 27      | 4       | 2-5/8     | 1204    |
| H-283         | 40      | 6       | 3         | 2763    |

‡ Maximum weight in pounds that spring will return.

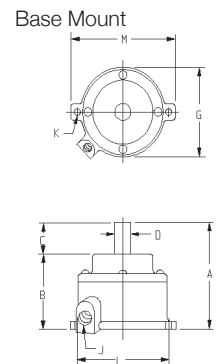
\* Force in pounds at 100 PSI input pressure with maximum spring resistance.

Contact factory for threaded ports.

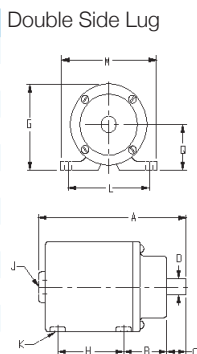
|   | H-1      | H0X-01   | H1X-12 | H-41     | H-71     |
|---|----------|----------|--------|----------|----------|
| A | 2-25/32  | 4        | 5      | 4-7/8    | 5-5/16   |
| B | 1-11/32  | Var.     |        | 2-1/4    | 2-3/4    |
| C | 5/8      | Var.     |        | 1-1/2    | 1-7/16   |
| D | 5/16     | 5/16     |        | 1/2      | 3/4      |
| G | 1-1/4    | 1-9/16   |        | 3-1/16   | 3-23/32  |
| J | 1/8 NPTF | 1/8 NPTF |        | 1/8 NPTF | 1/4 NPTF |
| K | 3/16     | .200     |        | 1/2 Slot | 21/64    |
| L | 1-5/8    | 1-5/8    |        | 3 1/2    | 4-5/8    |
| M | 2        | 2-1/8    |        | 4-7/16   | 5-3/8    |
| Q | 5/8      | 13/16    |        | 1-9/16   | 1-15/16  |



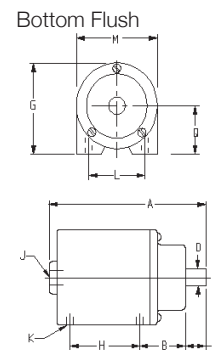
|   | V-1      | V0X-01   | V1X-12  | V-41     |
|---|----------|----------|---------|----------|
| A | 2-5/8    | 3-13/16  | 4-13/16 | 4-5/8    |
| B | 1-15/16  | Var.     |         | 3-3/16   |
| C | 11/16    | Var.     |         | 1-7/16   |
| D | 5/16     | 5/16     |         | 1/2      |
| G | 1-9/16   | 1-3/4    |         | 3        |
| J | 1/8 NPTF | 1/8 NPTF |         | 1/8 NPTF |
| K | 3/16     | .200     |         | .257     |
| L | 1-11/16  | 1-5/8    |         | 3-3/4    |
| M | 2-1/8    | 2        |         | 4-1/4    |



|   | H-43     | H-72     | H-73     | H-12     | H-283    |
|---|----------|----------|----------|----------|----------|
| A | 7-1/4    | 6-5/16   | 7-5/16   | 7        | 9        |
| B | 2-3/4    | 2-3/16   | 2-3/16   | 2-9/16   | 3-1/2    |
| C | 1-7/16   | 1-7/16   | 1-7/16   | 1-7/16   | 1-7/16   |
| D | 1/2      | 3/4      | 3/4      | 3/4      | 1-1/4    |
| G | 3-1/16   | 3-11/16  | 3-11/16  | 5-1/16   | 7-1/16   |
| H | 2        | 2-1/16   | 3-1/16   | 2-5/16   | 7-1/16   |
| J | 1/8 NPTF | 1/4 NPTF | 1/4 NPTF | 3/8 NPTF | 1/2 NPTF |
| K | 1/2 Slot | 21/64    | 21/64    | 1/2 Slot | 1/2-13   |
| L | 4        | 4-5/8    | 4-5/8    | 5-1/2    | 5-5/8    |
| M | 5-1/8    | 5-1/4    | 5-1/4    | 7        | 6-3/4    |
| Q | 1-9/16   | 1-7/8    | 1-7/8    | 2-9/16   | 3-9/16   |



|   | H-42     | H-122    |
|---|----------|----------|
| A | 5-13/16  | 7-9/16   |
| B | 2-5/8    | 2-5/8    |
| C | 1-7/16   | 1-7/16   |
| D | 1/2      | 3/4      |
| G | 3-1/16   | 4-31/32  |
| H | -        | 2-1/2    |
| J | 1/8 NPTF | 3/8 NPTF |
| K | 1/4-20   | 5/16-18  |
| L | 2-1/4    | 2-1/4    |
| M | 3        | 4-13/16  |
| Q | 1-9/16   | 2-9/16   |



## Lockout and Easy-Glide Ball Handle Valves

## Slide/Lockout Valve

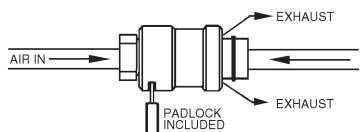
Mead's Slide/Lockout Valves (SLV) are designed to comply with OSHA Standard Rule 29 CFR1910.147. SLVs exhaust downstream air to atmosphere when the valve is in the closed position. This prohibits the unexpected cycling of equipment due to stored energy in the air line. These valves can only be locked in the closed position, rendering any downstream machinery or equipment completely inoperable. The aluminum sleeve is anodized bright gold for easy identification.

## Put a Lock on Plant Accidents

In the open position, air flows freely through the valve to downstream equipment or tool.



In the closed position, air from compressor side is restricted while exhaust air bleeds to atmosphere, rendering downstream equipment inoperable. Lockout is only possible in the closed position.



## "Gang Lock" Option

SLVs may be ordered with a gang lock adapter rather than the standard Mead padlock. The adapter permits the use of one or multiple standard padlocks. To order, add a "G" to the model (i.e. SLVG-50).

## OSHA Rule 29 CFR1910.147\*

To protect employees from the unexpected energization or release of stored energy during repair, maintenance and associated activities, this standard requires potentially hazardous energy sources for certain equipment to be disabled and either be locked or labeled with a warning tag to prevent unauthorized start-up of these machines or equipment.

\*Copies of the actual OSHA standard may be obtained from the U.S. Department of Labor, Occupational Safety and Health Administration, Office of Publications, Room N3101, Washington, D.C. 20210.

## Easy Glide Ball Handle Valves (MHL SERIES)



MHL-3/MHL-4

## General Specifications

|                    |                                     |
|--------------------|-------------------------------------|
| Flow:              | 0.14 C <sub>v</sub>                 |
| Ports:             | 1/8" NPT                            |
| Temperature Range: | -40° F to 250° F (-40° C to 121° C) |
| Lubrication:       | SAE 10                              |
| Pressure Range:    | 0 to 150 PSI (Air Only)             |
| Seals:             | Buna-N                              |



SLV-37

## Specifications

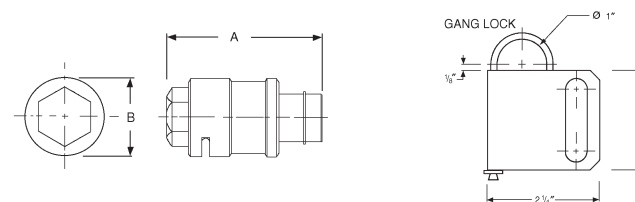
|                    |                                    |
|--------------------|------------------------------------|
| Temperature Range: | -50° F to 180° F (-46° C to 82° C) |
| Pressure Range:    | 0 to 150 PSI                       |

## Material:

|                 |                             |
|-----------------|-----------------------------|
| Body:           | Black Anodized Aluminum     |
| Sleeve:         | Gold Anodized Aluminum      |
| Retaining Ring: | Steel                       |
| O-Rings:        | Buna-N                      |
| Lock:           | Solid Brass (Steel Shackle) |

Warning: SLVs are not to be used for lockout of hydraulic fluid.

## Dimensions



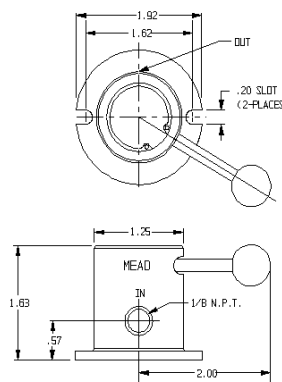
## Ordering Information

| Model  | Model (with Gang Lock) | Port Size | C <sub>v</sub> | A (in.)  | B (in.) |
|--------|------------------------|-----------|----------------|----------|---------|
| SLV-25 | SLVG-25                | 1/4" NPT  | 0.94           | 2-9/16"  | 1-1/4"  |
| SLV-37 | SLVG-37                | 3/8" NPT  | 2.00           | 2-15/16" | 1-7/16" |
| SLV-50 | SLVG-50                | 1/2" NPT  | 3.18           | 3-11/32" | 1-5/8"  |

NOTE: Use part #LCK100 to order replacement lock and key set.  
Use part #2028002 to order replacement gang lock.

## Low Friction Motion

MHL valves provide either 3-way pilot control (MHL-3) or 4-way directional control (MHL-4). To operate MHL valves, simply move the ball handle across the slot on the valve body. The handle rotates a precision-lapped disc to control the directional flow of air. The hardcoat anodized aluminum disc allows virtually effortless handle motion. The handle will hold in any position. Air exhausts through the disc and out to atmosphere.



## Low Friction Motion

Base mount holes make mounting and removal quick and easy. Further, MHL valves are easy to disassemble. By simply removing the ball handle and snap ring, any part worn by use can be found and replaced.

General Purpose 2 and 3-Way Mini Solenoid Valves

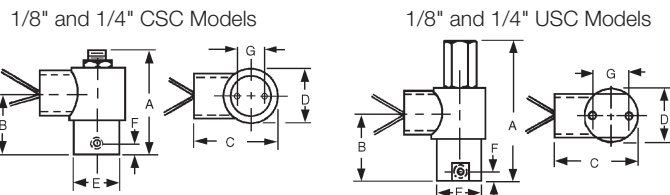


Dyna-Coil valves are used when you need to convert an electrical signal into a flow of air. 2-way models allow air to flow through the valve when energized. 3-way models allow air to flow through the valve when energized and exhaust when de-energized.

Normally closed means inlet air is blocked until the valve is energized. Normally open means inlet air flows through the valve and is blocked when energized.

| General Specifications |                                       |
|------------------------|---------------------------------------|
| Media:                 | Air (Max. Temperature 185° F / 85° C) |
| Pressure:              | Vacuum to 120 PSI                     |
| Orifice:               | 0.038"                                |
| Conduit:               | 1/2" NPS                              |
| Response:              | 20-30 ms                              |
| Base:                  | Aluminum                              |
| Mounting Holes (2):    | 8-32 UNC-2B Threads                   |
| Lubrication:           | None Required                         |
| Filtration:            | 40 Micron Minimum                     |

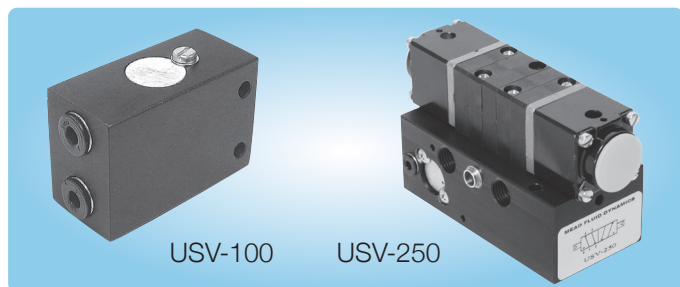
Basic Dimensions



| Model      | Ports    | Style        | Exhaust        | Voltage                                  | Cv (In) | Cv (Exh) | A       | B     | C       | D      | E      | F    | G     |
|------------|----------|--------------|----------------|--|---------|----------|---------|-------|---------|--------|--------|------|-------|
| MB12-2CSC  | 1/8" NPT | 2-Way NC     | None           | 24 VAC, 120 VAC, 240 VAC, 12 VDC, 24 VDC | .035    | -        | 2-5/16  | 1-3/8 | 1-27/32 | 1-3/16 | 1      | 9/32 | .738  |
| MB25-2CSC  | 1/4" NPT | 2-Way NC     | None           | 24 VAC, 120 VAC, 240 VAC, 12 VDC, 24 VDC | .035    | -        | 2-3/8   | 1-1/2 | 1-27/32 | 1-3/16 | 1-3/16 | 5/16 | 29/32 |
| MB12-3CSC  | 1/8" NPT | 3-Way NC     | Free to Atmos. | 24 VAC, 120 VAC, 240 VAC, 12 VDC, 24 VDC | .035    | .050     | 2-5/16  | 1-3/8 | 1-27/32 | 1-3/16 | 1      | 9/32 | .738  |
| MB12-3USC* | 1/8" NPT | 3-Way NC, NO | Piped          | 24 VAC, 120 VAC, 240 VAC, 12 VDC, 24 VDC | .035    | .050     | 2-23/32 | 1-3/8 | 1-27/32 | 1-3/16 | 1      | 9/32 | .738  |
| MB25-3CSC  | 1/4" NPT | 3-Way NC     | Free to Atmos. | 24 VAC, 120 VAC, 240 VAC, 12 VDC, 24 VDC | .035    | .050     | 2-3/8   | 1-1/2 | 1-27/32 | 1-3/16 | 1-3/16 | 5/16 | 29/32 |
| MB25-3USC* | 1/4" NPT | 3-Way NC, NO | Piped          | 24 VAC, 120 VAC, 240 VAC, 12 VDC, 24 VDC | .035    | .050     | 2-27/32 | 1-1/2 | 1-27/32 | 1-3/16 | 1-3/16 | 5/16 | 29/32 |

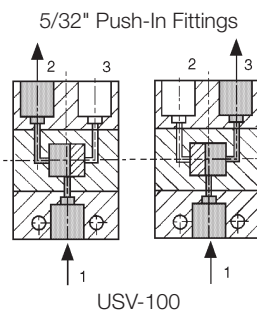
\*Valve can be piped either normally closed (NC) or normally open (NO).

NOTE: All models consume 7 watts of power. Lead wires measure 16" in length.



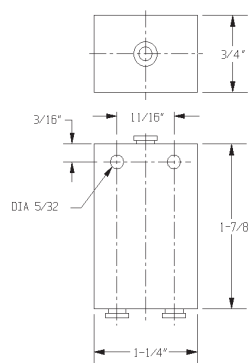
Binary Valves

The USV-100 provides alternating outputs from a single input port. The valve has two outputs which are selected alternately by applying a pulsing, on-off air signal to the input port. USV-100 will not function properly with a sustained signal.

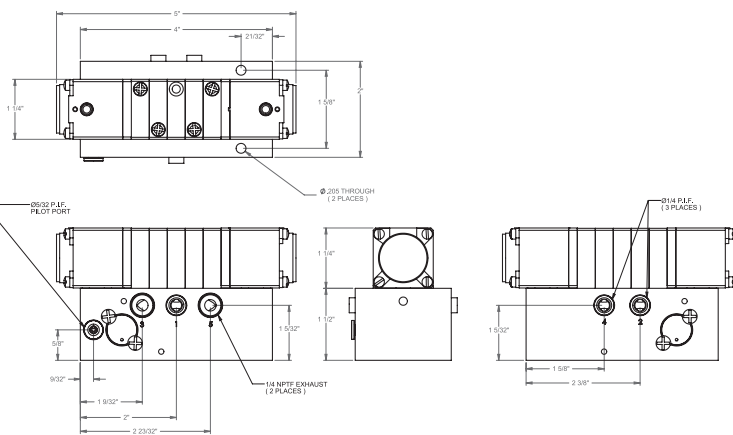


When pressure is applied to port 1, it flows through the valve to provide an output at port 2. When the pressure is released from port 1, the valve changes over so that when pressure is next applied at port 1, air flows out through port 3. Release of the pressure again changes the valve back to its original position. Therefore, each time pressure is applied and released to port 1, outputs 2 and 3 change over. NOTE: The air signal must be fully exhausted to enable the valve to change over properly.

USV-100 Dimensions



Power models (USV-250) provide the same binary function as the 100 model but, in addition, offer full 4-way control power. They are suitable for direct connection to double-acting air cylinders. The USV-250 features a positive feed back from the outputs, eliminating incorrect sequential operation caused by poor signal performance.



| Technical Specification | 100 Model                         | 250 Model                         |
|-------------------------|-----------------------------------|-----------------------------------|
| Operating Pressure      | 35-100 PSI                        | 35-100 PSI                        |
| Flow to atmosphere      | 4 SCFM @ 100 PSI                  | 36.9 SCFM @ 100 PSI               |
| Permissible Mediums     | Air and Inert Gas                 | Air and Inert Gas                 |
| Ambient Temp. Range     | 10° F to 120° F (-12° C to 49° C) | 10° F to 120° F (-12° C to 49° C) |
| Lubrication             | Recommended                       | Not Necessary                     |
| Flow                    | .12 C <sub>v</sub>                | 0.75 C <sub>v</sub>               |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

# Air Timers and Impulse Relay Valves

## Air Timers Delay Signal

Air timers are used to delay the air signal coming in or out of an air component. Depending on the model, the delay may be adjusted from 0.75 to 60 seconds. Input port is indicated by a yellow dot.



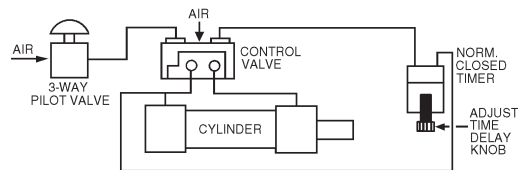
Timers are available in either normally closed (NC) or normally open (NO) models. Normally closed models are used to time in and normally open models are used to time out. Once set, timers are accurate for repeatability to 10% with regulated air pressure.

| General Specifications |                                  |
|------------------------|----------------------------------|
| Filtration:            | 40 Micron filtration recommended |
| Lubrication:           | 30 wt. non-detergent oil         |
| Pressure Range:        | 50-150 PSI (NC); 40-150 (NO)     |
| Mounting:              | (2) 11/64 clearance holes        |
| Life Expectancy:       | 1,000,000 cycles                 |
| Temperature Range:     | 50° F to 120° F (10° C to 49° C) |
| Port Sizes/Material:   | 1/8" / Acrylic                   |

| Model Number |         | Range         | Ports | Length | Width  | Height |
|--------------|---------|---------------|-------|--------|--------|--------|
| NC           | NO      |               |       |        |        |        |
| KLC-101      | KLH-101 | 0-1 sec.      | 1/8"  | 4"     | 1"     | 1-1/2" |
| KLC-105      | KLH-105 | 0.75-6 sec.   | 1/8"  | 4"     | 1"     | 1-1/2" |
| KLC-110      | KLH-110 | 1-11 sec.     | 1/8"  | 4"     | 1"     | 1-1/2" |
| KLC-212      | KLH-212 | 15 sec-2 min. | 1/8"  | 4 7/8" | 1-1/2" | 1 7/8" |
| KLC-230      | KLH-230 | 2-30 sec.     | 1/8"  | 4 7/8" | 1-1/2" | 1-7/8" |
| KLC-260      | KLH-260 | 10-60 sec.    | 1/8"  | 4 7/8" | 1-1/2" | 1 7/8" |

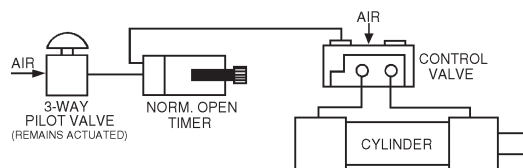
NOTE: NC timers have a green spool; NO timers have a red spool. For specific timers, consult factory.

## Timing In (Normally Closed) Circuit

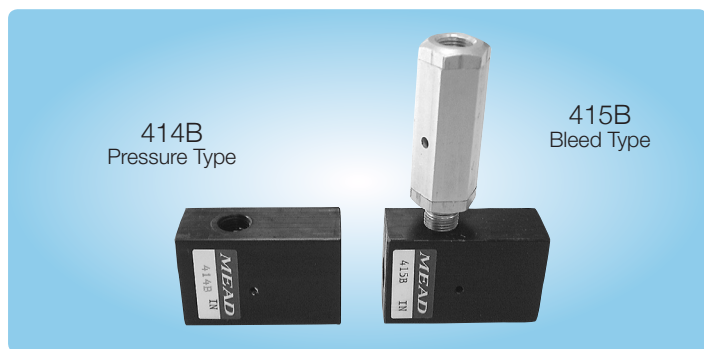


In this circuit, the 3-way valve is actuated and air is sent to the control valve. The control valve shifts, sending air through port A to the cylinder, which extends. Air also flows to the timer where it begins to time to the pre-setting. Once reached, the timer opens, allowing the air to flow through to the control valve's other pilot port, shifting the valve back. Air flows through port B, retracting the cylinder.

## Timing Out (Normally Open) Circuit



When the 3-way valve is actuated, air flows through the NO timer to the control valve. The 3-way valve remains actuated. The control valve shifts, sending air through port A to the cylinder, which extends. At the same time, the timer begins to time to the pre-setting. Once reached, the timer closes, blocking off the air flow to the control valve, which spring returns. Air flows through port B, retracting the cylinder.



## Pneumatic Impulse Relay Valves

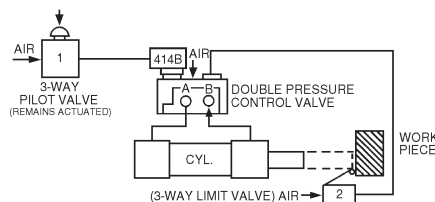
Impulse relay valves allow you to shift a double-pressure piloted or double bleed piloted valve, even though there are overlapping pilot signals. Relay valves convert a sustained air flow from a three-way pilot valve into a momentary pulse or bleed, which shifts a control valve and then closes.

| General Specifications |  |
|------------------------|--|
| Mounting:              | Mounts directly to control valve with nipple fitting |
| Body Construction:     | Aluminum   |
| Pressure Range:        | 35 to 125 PSI  |
| Lubrication:           | 10 wt. non-detergent oil                             |

NOTE: Required inlet pressure must be delivered all at once.

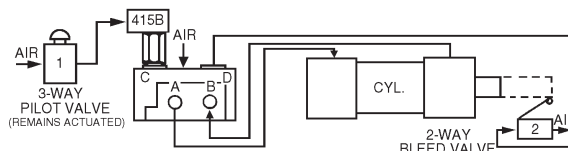
| Model Number | Ports     | Type     | Length   | Width | Height   |
|--------------|-----------|----------|----------|-------|----------|
| 414B         | 1/8" NPTF | Pressure | 1-59/64" | 3/4"  | 1-1/4"   |
| 415B         | 1/8" NPTF | Bleed    | 1-59/64" | 3/4"  | 3-11/16" |

## Sample Circuit Using 414B (Pressure Type)



When actuated, the 3-way valve sends a signal to 414B, which emits a signal to the control valve. The 3-way valve remains actuated. The valve shifts, allowing air to flow through port A, extending the cylinder. 414B senses the back pressure caused by the shifted valve, closes, and exhausts. Since the signal from valve #1 is blocked by the closed 414B, valve #2 (when actuated) shifts the control valve back. Air flows through port B, retracting the cylinder.

## Sample Circuit Using 415B (Bleed Type)



Air enters a double bleed piloted valve, flows through ports C and D, and is blocked by the 415B relay and valve #2. When actuated, the 3-way valve #1 sends an air signal to the 415B. The 3-way valve remains actuated, 415B exhausts, shifting the control valve and extending the cylinder. The 415B senses the back pressure from the shifted valve and closes, blocking off the air flow from valve #1. This allows valve #2 (when actuated) to bleed air, allowing the control valve to shift. Air flows through port B, retracting the cylinder.



Reference

Control Valves

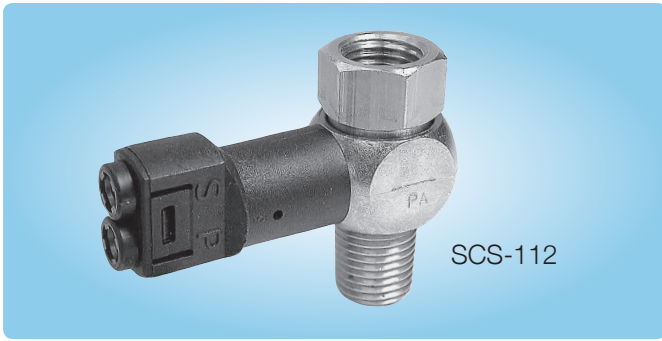
Cylinders

Specialty Valves

Production Devices

Accessories

Index

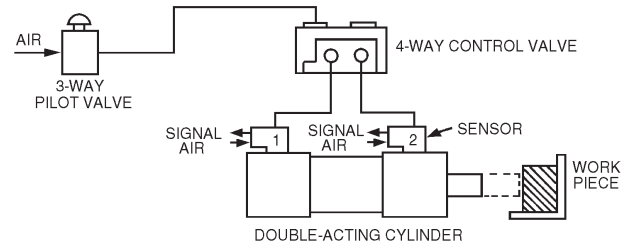


SCS-112

### Pneumatic Stroke Completion Sensors

Stroke Completion Sensors (SCS) mount directly on cylinder ports to provide an air signal when rod motion stops, even when the full stroke length is not used. Stroke completion sensors automatically adjust to variable strokes, replacing limit and reed switches in clamping, holding and sequencing tasks.

Sensors work by comparing supply pressure to exhaust pressure. Once the pressure drops on the exhaust side of the cylinder, the sensor will emit an air signal. Stroke completion sensors are not recommended for cylinder “inching” operations with pressure held valves.



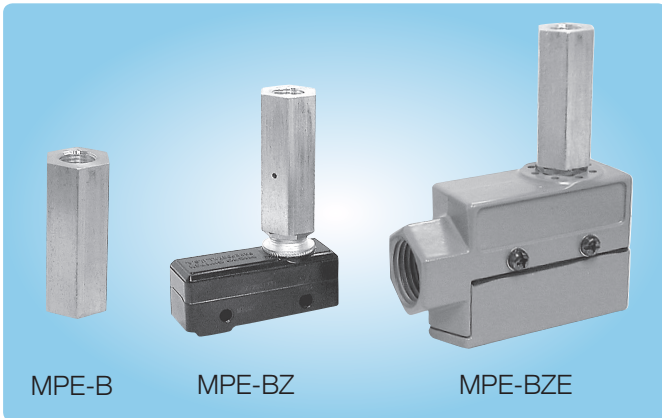
In this sample circuit, sensor #1 provides an air signal when the cylinder rod is retracted. When the four-way control valve shifts, air flows to the cylinder, which extends. This causes sensor #1 to shut off. The cylinder rod stops when it reaches the work piece or end of stroke, causing sensor #2 to emit an air signal. This air signal may be used to actuate another valve or for sequencing operations.

When using a flow control valve in conjunction with a stroke completion sensor, place the flow control valve between the control valve and the sensor.

### Specifications & Dimensions

| Model Number | Mtg. Thread | Pilot Tubing | Pressure Range | Length  | Width    | Height  |
|--------------|-------------|--------------|----------------|---------|----------|---------|
| SCS-112      | 1/8" NPT    | 5/32" OD     | 60 to 120 PSI  | 2 3/16" | 29/32"   | 1"      |
| SCS-250      | 1/4" NPT    | 5/32" OD     | 60 to 120 PSI  | 2 3/16" | 29/32"   | 1"      |
| SCS-375      | 3/8" NPT    | 5/32" OD     | 60 to 120 PSI  | 2 3/4"  | 1 17/64" | 1 1/16" |
| SCS-500      | 1/2" NPT    | 5/32" OD     | 60 to 120 PSI  | 2 3/4"  | 1 17/64" | 1 1/16" |

Temperature Range 5° F to 140° F



MPE-B

MPE-BZ

MPE-BZE

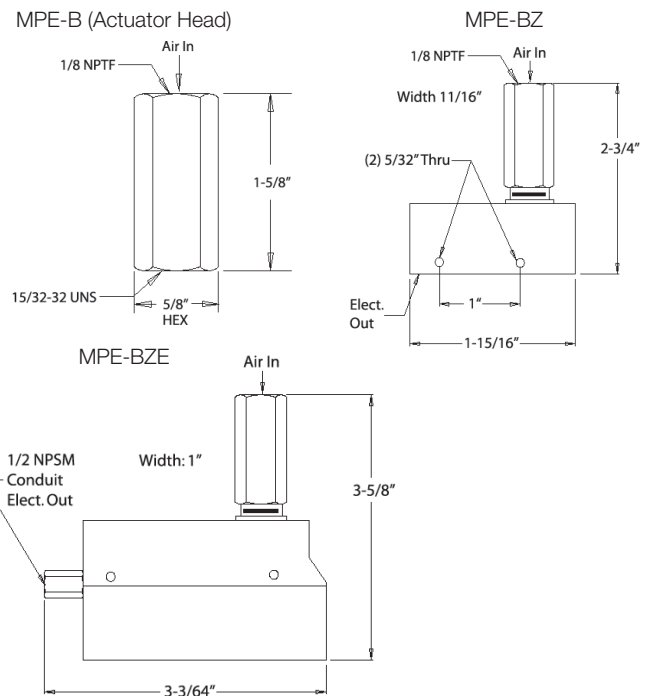
### Air to Electric Switches

Air to electric switches convert air signals into electrical signals, which is ideal for actuating solenoid power valves or other electric components. Switches may be wired normally closed or normally open.

Actuator head model MPE-B may be easily mounted on any plunger-type switch; operating range is 8 PSI (minimum) to 100 PSI (maximum) and is not adjustable to a specific pressure.

Switch models MPE-BZ and MPE-BZE are single pole double throw (SPDT), have a 15 amp capacity for normal, low resistance electrical circuits and are UL and CSA listed. Solder terminals accept up to #14 wire.

### Dimensions



### Specifications

| Model Number | Description                                 |
|--------------|---|
| MPE-B        | Actuator Head Only                          |
| MPE-BZ       | Actuator Head and Switch, 15 Amp            |
| MPE-BZE      | Actuator Head, Switch and Enclosure, 15 Amp |



## Dash / Panel Mount Control Valves

Unactuated

Actuated



ACV-R25



ACV-R25-SR

### Ideal for Mobile Equipment Applications

2-position ACV valves can be used for four-way directional control or as a three-way pilot valve. Its function indicator has been designed directly into the control knob and is visible only when the valve is in the energized or open position. In the unoperated (closed) position, the indicator ring is concealed within the knob assembly.

ACV features an optional interlock reset port which can be used to automatically return the valve to the closed position. Designed for mobile equipment operations to avoid stall conditions, the interlock feature is used to ensure that the PTO cannot be operated while the vehicle is in motion.

### Air or Electric Reset

The reset port can be connected to the handbrake line to force valve "shutoff" whenever the handbrake is released. This would prevent the simultaneous consumption of energy from auxiliary equipment and the moving vehicle, a situation likely to result in a stall condition or equipment damage. On electrical interlock models, removing the electrical supply will force shutoff.

ACVs are rear ported to simplify dashboard or panel mounting. All mountings are supplied with integral push-in fittings (for 6mm or 1/4" tube). Simply push the tube directly into the valve.

### How To Order

ACV - R 25 - AR - B

**Family Category**

ACV = Air Control Valve

**Knob Color**

R = Red  
B = Black  
G = Green

**Port Size**

25 = 1/4"  
6M = 6mm

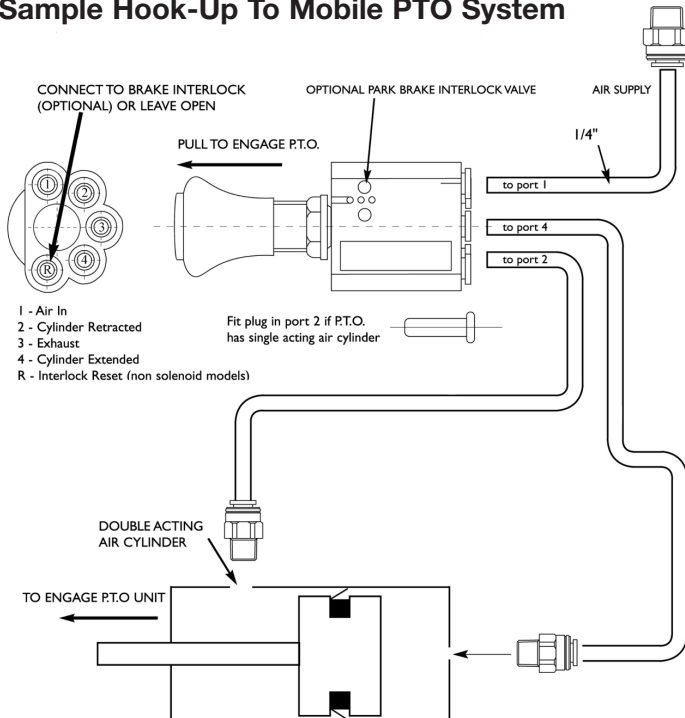
**Solenoid**

A = 12 VDC  
B = 24 VDC

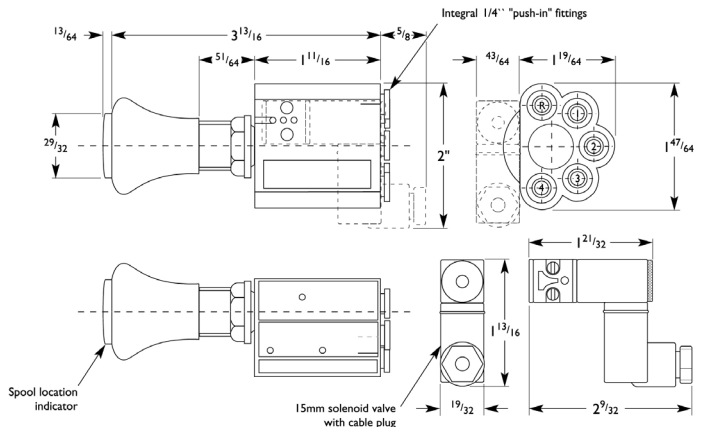
**Feature**

AR = Air Released  
AP = Air Applied  
SR = Solenoid with Air Released

### Sample Hook-Up To Mobile PTO System



### Dimensions 1/4" Models



### General Specifications

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Media:                            | Air to 145 PSI (10 Bar)           |
| Min. Pressure to Reset Port:      | 35 PSI                            |
| Flow (5/32" models):              | 0.053 C <sub>v</sub>              |
| Flow (1/4" models):               | 0.12 C <sub>v</sub>               |
| Neck Diameter for Panel Mounting: | 11/16"                            |
| Body:                             | Plastic                           |
| Spool:                            | Brass                             |
| Fittings:                         | Brass and Plastic                 |
| Seals:                            | PTFE-filled Nitrile               |
| Temperature:                      | -4° F to 122° F (-20° C to 50° C) |
| Cycle Life:                       | >15 Million                       |

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

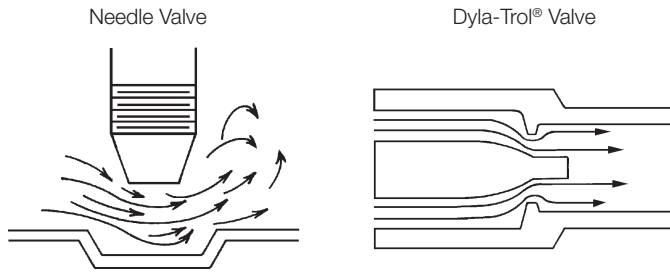
Accessories

Index



### Smooth Laminar Flow

The unique construction of Dyla-Trol® assures a perfectly tapering flow. This unprecedented smoothness is made possible by the “iris” type orifice mechanism. Where needle-type flow controls generate turbulence as they close, Dyla-Trol® maintains an even 360° laminar flow regardless of the setting.



### High Repeatability

The fast-acting check mechanism in each free flow model responds to very slight changes in pressure. This guarantees fast resetting and dependable repeatability with each cycle.

### Models and Specifications

| Flow Direction       | MF1-02                        | MF1-04                        | MF1-06                        | MF1-08                        | MF1-12                         | MF1-25                         | MF1-37                          | MF1-50                          |
|----------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|
|                      |                               |                               |                               |                               |                                |                                |                                 |                                 |
| Max. Pressure in PSI | 250 Air<br>250 Oil            | 250 Air<br>250 Oil            | 250 Air<br>250 Oil            | 250 Air<br>250 Oil            | 250 Air<br>1000 Oil            | 250 Air<br>1000 Oil            | 250 Air<br>1000 Oil             | 250 Air<br>1000 Oil             |
| Max. Flow @ 100 PSI  | 8 CFM<br>C <sub>v</sub> = 0.1 | 7 CFM<br>C <sub>v</sub> = 0.1 | 7 CFM<br>C <sub>v</sub> = 0.1 | 7 CFM<br>C <sub>v</sub> = 0.1 | 47 CFM<br>C <sub>v</sub> = 0.8 | 66 CFM<br>C <sub>v</sub> = 1.2 | 149 CFM<br>C <sub>v</sub> = 2.6 | 173 CFM<br>C <sub>v</sub> = 3.1 |
| Body                 | Brass                         | Brass                         | Brass                         | Brass                         | Aluminum                       | Aluminum                       | Aluminum                        | Aluminum                        |
| Length               | 1-1/4"                        | 2-1/2"                        | 2-7/16"                       | 2-1/2"                        | 2"                             | 2-1/2"                         | 2-7/8"                          | 3-1/4"                          |

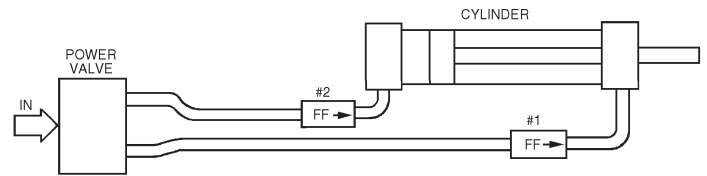
### Precise-Metering Flow Control

Fine tune the speed of your cylinders with precise-metering Dyla-Trol® valves. No other flow control provides such accurate control of cylinder motion.

For best results, locate flow control valves right on the cylinder ports with the “free flow” direction pointing toward the cylinder. Air exhausting from the cylinder will then be metered. Controlling air entering the cylinder produces a less smooth motion.

NOTE: While Dyla-Trol® are most often used to adjust cylinder speed, they are ideal for use wherever air or oil flow is to be controlled.

### Typical Cylinder Hook-Up



In this circuit, flow control #1 controls the outward movement of the cylinder rod and flow control #2 controls the return speed.

### Compact Inline Design

The convenient inline design makes flow setting and plumbing easy. The hexagonal adjusting sleeve, which may be turned by hand, is only slightly greater in diameter than the tubing and has no protuberances to impair hook-up.

### Each Valve Factory “Tuned” for Accuracy

To accomplish the perfect orifice concentricity that is necessary to produce the high performance of Dyla-Trols, each sleeve and body set is permanently mated during production.

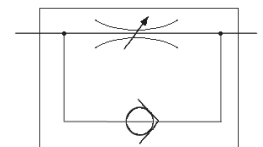
### Temperature Range

-40° F to 250° F (-40° C to 121° C)

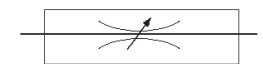
### Control

Models **MF1-12**, **MF1-25**, **MF1-37** and **MF1-50** are controlled flow in one direction, free flow in the other. **MF2-12**, **MF2-25**, **MF2-37** and **MF2-50** are controlled flow in both directions.

### Symbols



MF1 Style



MF2 Style

## Two-Hand Control Valves



CSV-101LS



CSV-102



CSV-102W



CSV-107

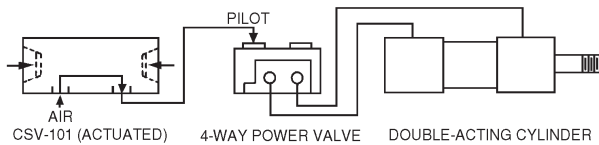
### Function of CSVs

Concurrent actuation of the recessed buttons generates a signal. Releasing one or both buttons immediately stops the signal which cannot be re-instituted until both buttons are again actuated concurrently.

Low Stress (LS) models are for high production applications where operator fatigue is a concern. Needing only 6 ounces of force to actuate, LS units ease the stress on worker's hands and wrists and greatly reduce the risk of repetitive motion disorders. Standard models require 18 ounces of force to actuate.

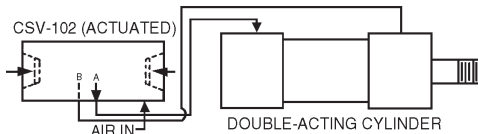
Consult website for dimensional drawings.

### CSV-101, CSV-101LS & CSV-101W



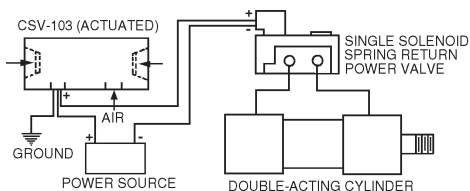
Actuates any 3 or 4-way air piloted, spring return power valve or small single-acting cylinders. ( $C_v = 0.11$ )

### CSV-102, CSV-102LS & CSV-102W



Complete power package containing a 4-way power valve ( $C_v=1.00$ ) for direct actuation of single-acting or double acting air cylinders. Actuation sends a sustained air flow to one cylinder port. Releasing one or both buttons shifts the flow to the other cylinder port. Built-in mufflers reduce sound levels.

### CSV-103



Converts an air signal into an electrical signal for actuating solenoid valves or other electrical devices. Concurrent actuation of the recessed buttons produces an electrical output. Releasing one or both buttons stops the output. The CSV-103 will not recycle until both triggers are released and again actuated concurrently. Internal switch rated at 15 amps, 480 VAC. Includes lead wire and receptacle.

### For Safer Operation of Your Machinery

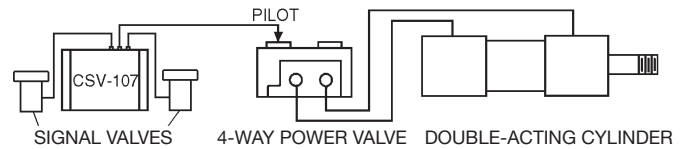
CSVs are two-hand anti-tiedown controls. When used, they provide safer operation of air presses, drill fixtures, clamping fixtures, cylinders, valves, or light assembly equipment. Models 101, 101LS, 102, 102LS and 103 have compact and completely self-contained controls, recessed actuation buttons built in the ends and a universal mount for convenient positioning. For remote two-hand, anti-tiedown operations, see model CSV-107.

### CSV-101W & CSV-102W

CSVs are designed for use in a wash-down environment. The units provide the same pilot and power functionality of the CSV-101 and CSV-102, respectively. The logic circuitry is housed in a fiberglass industrial control panel enclosure, providing excellent chemical and corrosion resistance.

### CSV-107 Logic Unit Responds To Remote Signals

CSV-107 is designed to actuate 3 or 4-way air piloted, spring return power valves or directly power smaller single-acting cylinders. A signal can only be initiated by concurrent actuation from two remote inputs. Releasing one or both buttons immediately stops the signal and the unit cannot recycle until both signals are again simultaneously actuated. ( $C_v = 0.11$ )



The CSV-107 may be purchased alone or with low stress signal valves (LS1, LS2). For information on Mead Low Stress Valves, which are offered with CSV Low Stress (LS) units, please refer to page 19. Push-to-connect fittings included on all pneumatic models.

| Model No.  | Function                                      | Ports (NPTF)      |
|------------|---|-------------------|
| CSV-101    | Actuation of Power Valve                      | (2) 1/8"          |
| CSV-101W   | Actuation of Power Valve                      | (3) 1/8"          |
| CSV-101LS  | CSV-101, with Low Stress Actuation            | (2) 1/8"          |
| CSV-102    | Direct Actuation of Air Cylinder or Air Press | (3) 1/4" Fittings |
| CSV-102W   | Direct Actuation of Air Cylinder or Air Press | (6) 1/4" Fittings |
| CSV-102LS  | CSV-102, with Low Stress Actuation            | (3) 1/4" Fittings |
| CSV-103    | Electrical Actuation of Solenoid Valve        | (1) 1/8"          |
| CSV-107    | Remote Logic Unit Only                        | (3) Fittings      |
| CSV-107LS1 | Logic Unit, (2) LTV-PBG Low Stress Valves     | Included for      |
| CSV-107LS2 | Logic Unit, (2) LTV-PBGF Low Stress Valves    | 5/32" OD Tube     |

NOTE: Operating pressure range is 70-100 PSI.

**Warning:** CSVs are intended to operate pneumatic valves and cylinders. They are not meant to be used on full or partial revolution fly wheel presses, power brakes, or other similar devices.

**Warning:** Actuators for CSV-107 must be positioned so that they may not be accidentally tripped or operated in an unsafe manner. Do not actuate CSV-107 with foot operated valves.

Reference

Control Valves

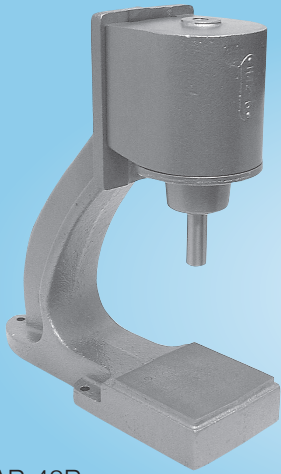
Cylinders

Specialty Valves

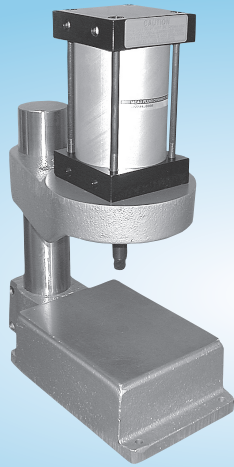
Production Devices

Accessories

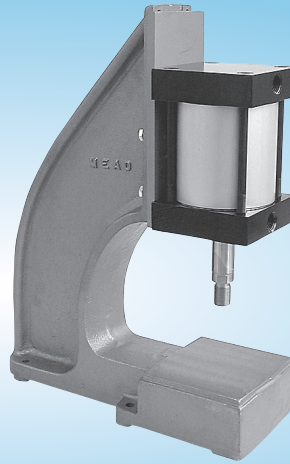
Index



**AP-42P**  
1/4 Ton Arbor Press  
Versatile, light-duty press.  
Single-acting, spring return.



**CP-400P**  
3/4 Ton Column Press  
Column provides infinitely  
variable daylight settings and  
permits radial swing.



**AP-400P**  
3/4 Ton Arbor Press  
Heavy-duty cast iron frame  
is extremely rigid.



**AP-600P**  
1-3/4 Ton Arbor Press  
Welded steel plate frame. Cylinder  
mount and table are milled to  
provide precise rod alignment.

### Air Presses Automate Tasks

Economical air powered presses reduce production costs by automating crimping, heat sealing, bending, forming, pressing, swaging, riveting and burnishing operations. Easy hook-up. Just attach to your shop air supply. No wiring, pumps, or motors needed.

### Single-Acting Air Presses

Besides the AP-42P shown on this page, Mead offers two other single-acting alternatives. AP-122 combines a 4" bore single-acting cylinder (H-122) with the AP-400M press stand. AP-283 combines a 6" bore cylinder (#6030403) with the AP-600M press stand. A PL-600 cylinder-to-stand adapter plate is required for mounting this cylinder on the stand. Full dimensional drawings are given on page 60.

| Description                                       | 1/4 Ton Arbor Press | 3/4 Ton Column Press | 3/4 Ton Arbor Press | 1-3/4 Ton Arbor Press |
|---|---------------------|----------------------|---------------------|-----------------------|
| Press Stand Only                                  | AP-42M              | CP-400M              | AP-400M             | AP-600M               |
| Cylinder Mounted on Stand **                      | AP-42P              | CP-400P              | AP-400P             | AP-600P               |
| Complete Press with Two Hand Controls (Not Piped) | -                   | CP-400C              | AP-400C             | AP-600C               |
| Double Rod Option (DR)                            | NA                  | •                    | •                   | •                     |
| Non-Rotating Option (NR)                          | NA                  | •                    | •                   | •                     |
| Specifications                                    |                     |                      |                     |                       |
| Cylinder Bore (in.)                               | 2-1/4               | 4                    | 4                   | 6                     |
| Thrust at 100 PSI (lbs.)                          | 353                 | 1257                 | 1257                | 2827                  |
| Standard Stroke Length (in.)                      | 2 (Spr. Ret.)       | 4*                   | 2 1/2*              | 4*                    |
| Surface Table Width and Depth (in.)               | 3 x 3               | 6-7/8 x 8-3/4        | 5 x 5               | 8 x 8                 |

NOTE: Standard column for Column Press is 14" long. Longer column (18" max.) is available upon request.  
\* Additional stroke available to 4" on AP-400 and to 6" on AP-600. Consult factory.  
\*\* Consult website for press hookups.

### Press Options

#### Rod Speed Reduction

To control the downward speed of double-acting presses, place a Mead Dyla-Trol valve (see page 56) in the bottom cylinder port so that incoming air flows freely and exhausting air is metered. Model MF1-25 is suitable for the control of all presses under most conditions.

#### Two Hand Control Unit

Models with a "C" suffix are supplied with a two hand anti-tiedown unit. Recessed trigger buttons, located in each end of the compact unit, require the press operator to use both hands concurrently to operate the press. Models CP-400C and AP-400C include the CSV-102, which has a built-in power valve. Model AP-600C includes the CSV-101 and a 1/2" power valve (C5-3). All air logic. No electrical wiring. See page 57 for the two hand controls. See pages 16-17 for the power valve.

#### Double Rod Option (DR)

Double-acting press cylinders may be ordered with the piston rod extending from both ends. This minimizes rod deflection and make it possible to adjust stroke length. When a CP-400 is ordered with double rod, spacers are supplied to facilitate adjustment.

#### Press Speed Boost

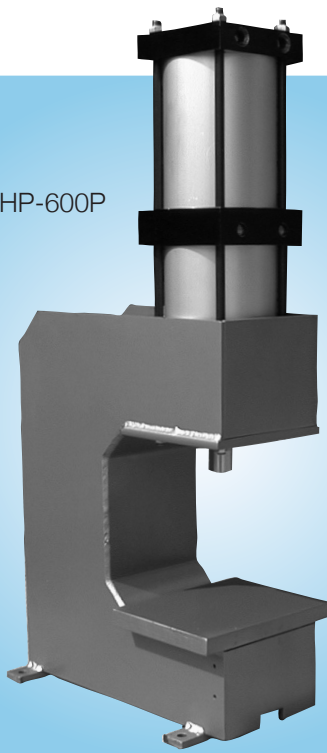
Quick exhaust valves increase rod speed by allowing exhaust air to be dumped right at the cylinder instead of passing back through the directional valve. If speed is to be increased in both directions on double-acting presses, use one QEV in each port. Use model QEV-3 with 1/4 ton presses and model QEV-2B on 3/4 and 1-3/4 ton models. See page 63 for more information regarding QEVs.

See page 60 for Air Press dimensions.



# Heavy Multi-Stage Press

HP-600P



Mead's latest press utilizes multiple stages to achieve a dramatically increased output force. A standard shop air input (110 PSI) can achieve a push output force of up to 6057 lbs. The standard model has two stages, but upon request Mead can provide more stages which means higher output force at an even lower input force.

Economical air powered presses reduce production costs by automating crimping, heat sealing, bending, forming, pressing, swaging, riveting and burnishing operations. Easy hook-up: just attach to your shop air supply. No wiring, pumps, or motors needed.

| Operating Specifications |  |
|--------------------------|--|
| Temperature Range:       | -40° F to 250° F (-40° C to 121° C) (to 400° F [204° C] on request)                                    |
| Lubrication:             | For maximum cylinder life, non-detergent petroleum-based oil is recommended. Non-lube seals available. |
| Filtration:              | Standard 40 micron filter for maximum life.  |
| Maximum Pressure:        | 110 PSI  |
| Maximum Output Force:    | 6057 lbs.  |
| Thrust Multiplier:       | 55*  |

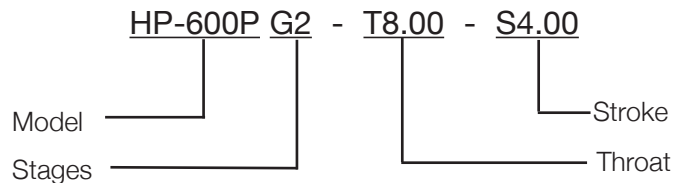
\* To determine thrust at other inlet pressure, multiply factor by desired pressure.

## Ordering Information

| Model No. | Description                                     |
|-----------|---|
| HP-600M   | Press stand only                                |
| HP-600P   | Cylinder mounted on stand                       |
| HP-600C   | Complete press with 2 hand controls (not piped) |

Specify:  
 Throat dimension "T" Min= 1/2" Max=9"  
 Stroke dimension "S" Min= 1/4" Max=9"

### Sample Part #



Contact Mead to consult for more than the standard two stages.

**NOTE:** Stroke cannot exceed throat.

### Available Cylinder Options:

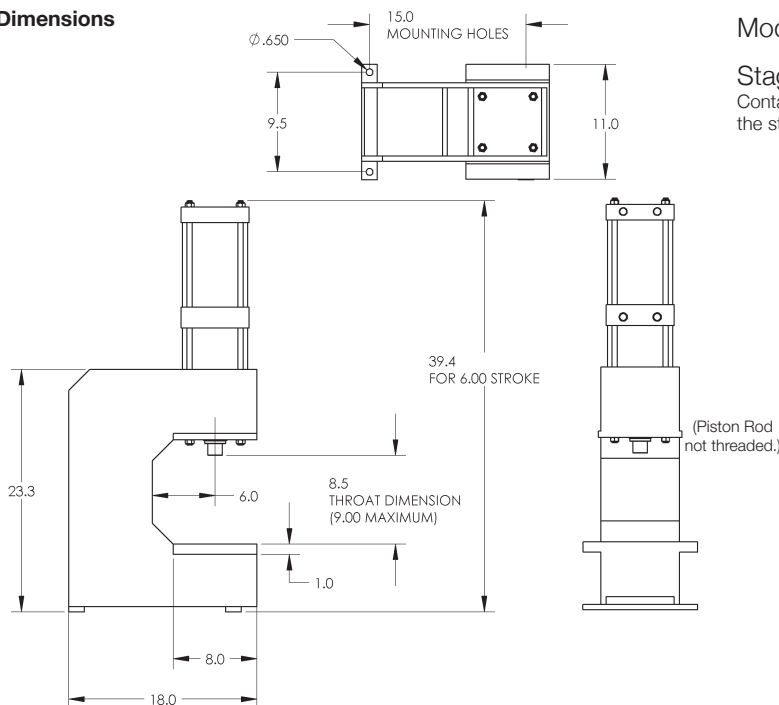
- CR = Cushion Rear
- IPR = Inter-Pilot Rear
- MP = Magnetic Piston

Consult Factory for Other Options.

Consult Factory for Press Hook-ups.

| Materials             |  |
|-----------------------|--|
| Rod Bearing:          | Teflon-impregnated, hardcoated aluminum  |
| Heads:                | Machined from solid aluminum bar; black anodized   |
| Tubes:                | Aluminum hard anodized to 60 Rc  |
| Piston:               | Solid high alloy aluminum  |
| Piston Rod:           | High tensile ground and polished hard chrome plated steel                                  |
| Piston and Rod Seals: | Wear compensating Buna-N vee rings. Self-lubricating seals also available (see Option NL). |
| Tube Seals:           | Buna-N O-rings   |
| Rod Wiper:            | Dupont Teflon®   |
| Tie Rods:             | High tensile steel torqued to allow for flexure.   |
| Stand:                | Welded steel frame   |
| Weight:               | 250 lbs.   |

## Dimensions



NOTE: For each inch of stroke overall height increases by 2".

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index



Reference

Control Valves

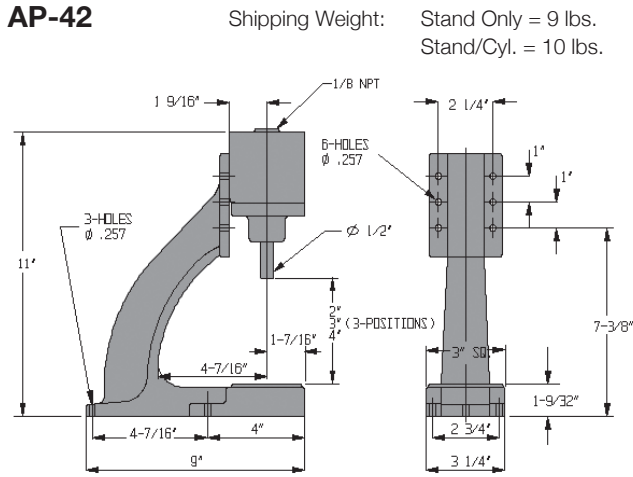
Cylinders

Specialty Valves

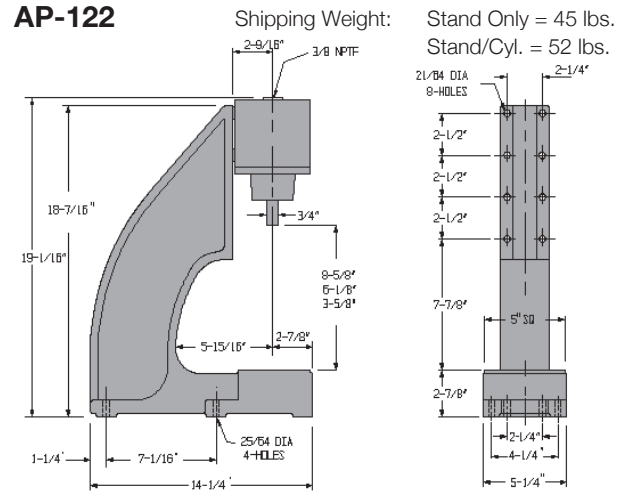
Production Devices

Accessories

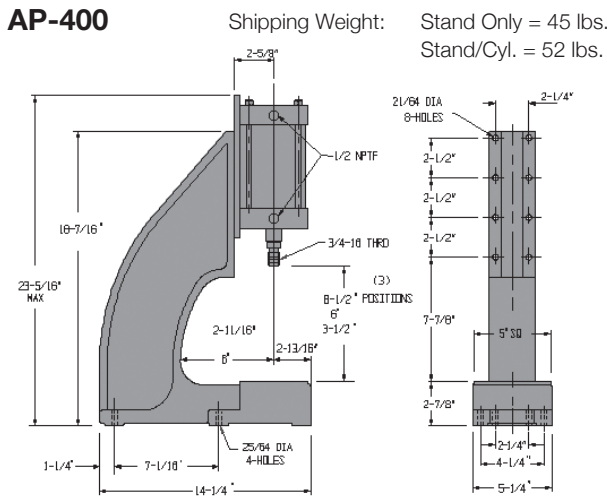
Index



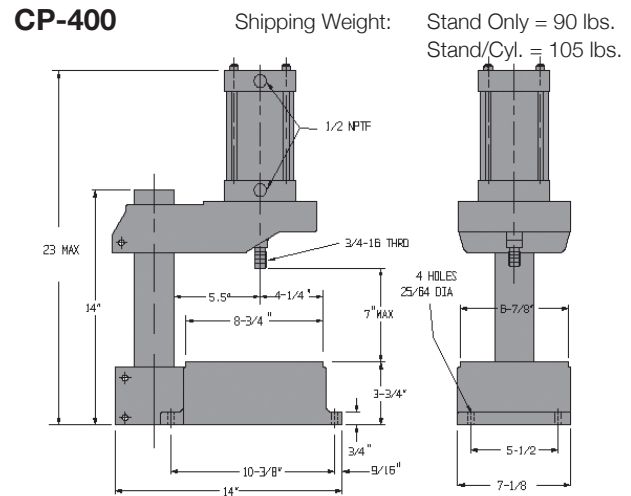
This press combines the AP-42M press stand with a Mead H-42 single-acting cylinder (2 1/4" bore, 2" stroke). Cylinder details are on page 48.



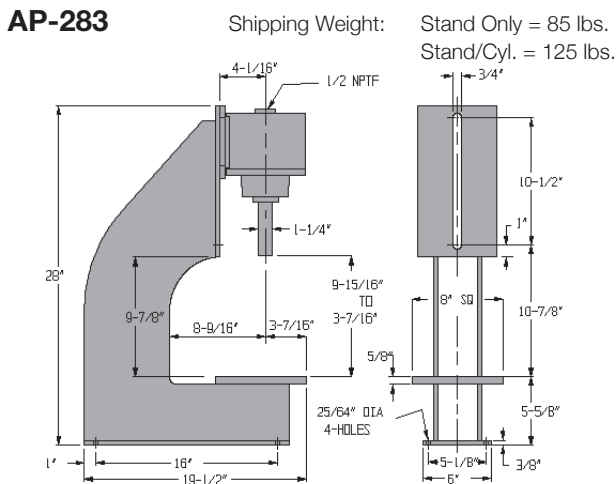
This press combines the AP-400M press stand with a Mead H-122 single-acting cylinder (4" bore, 2 5/8" stroke). Cylinder details are on page 48.



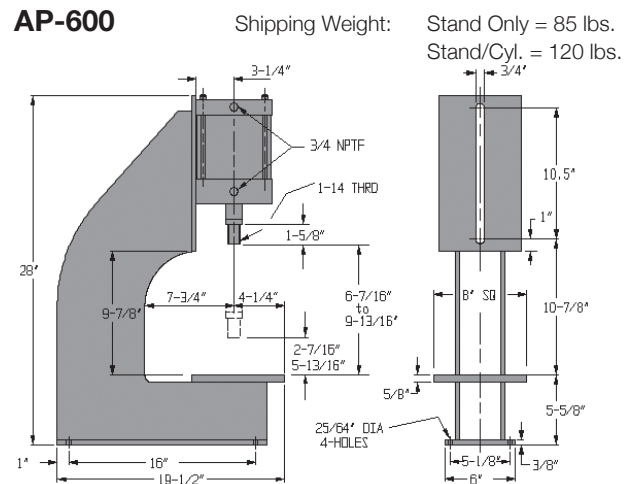
For non-standard double-acting service with strokes up to 4", use pages 30-31 to create a 4" bore cylinder for use with this stand. The PL-400 cylinder-to-stand adapter plate will be required.



For other stroke lengths, heavy-duty or other options, use pages 30-31 to create any 4" bore cylinder for use with this press stand.



This press combines the AP-600M stand with Mead's #6040303 (H-283 with 3" longer ram, p. 48) single-acting cylinder (6" bore, 3" stroke). A PL-600 cylinder-to-stand adapter plate is required to mount this cylinder.



For non-standard double-acting service with strokes up to 6", use pages 30-31 to design a 6" bore cylinder for use with this stand.

**Right Angle Flow Controls (RAF and RAFK)**

Mead's right-angle flow control valves provide fast, accurate control in a convenient, compact package. Designed specifically for controlling flow to pneumatic actuators, they come standard with push-in fittings, pre-applied Teflon based thread sealant, an adjustment depending on the type, and convenient swivel feature for ease of tubing alignment. Both the RAF and RAFK mount directly to your cylinder's ports. The RAF adjustment is a recessed screw driver slot. The RAF-K has a knob adjustment that can be tightened once set. For precision in-line flow controls, see Mead's Dyla-Trol® flow controls on page 56.

Reference

Control Valves

Cylinders

Specialty Valves

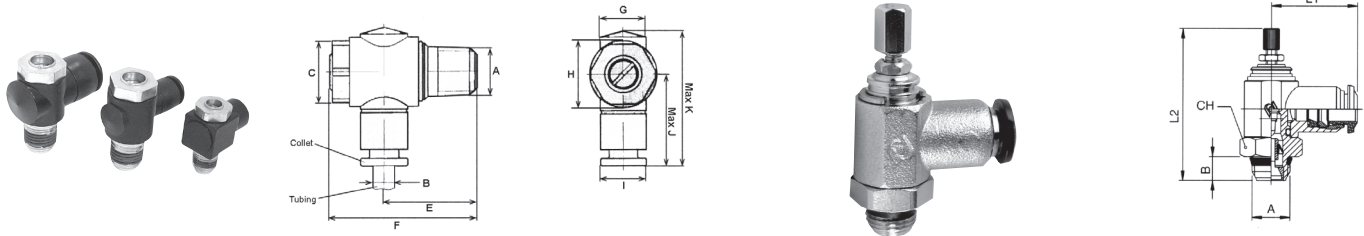
Production Devices

Accessories

Index

| Specifications - RAF |  |
|----------------------|--|
| Materials:           | Black Anodized Aluminum Body<br>Zinc Plated Brass Fittings<br>Stainless Steel Needle<br>Buna-N Seals |
| Pressure:            | 15 - 145 PSI   |
| Temperature:         | -14° F to 160° F (-26° C to 71° C)   |
| Cracking Pressure:   | 5 PSI  |

| Specifications - RAFK |   |
|-----------------------|---|
| Materials:            | Brass-Nickel Plated Body<br>NBR 70 Seals<br>C72 Dacromet Shaft Clip |
| Pressure:             | 15 - 145 PSI  |
| Temperature:          | 0° F to 160° F (-18° C to 71° C)                                    |



**Ordering and Specification:**

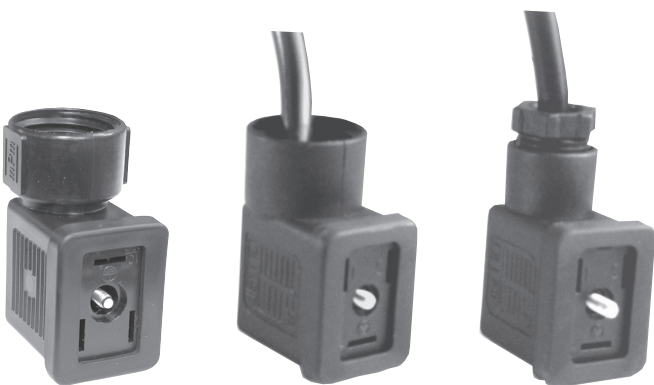
| Model Number | A        | B     | C    | E    | F    | G    | H    | I    | J    | K    |
|--------------|----------|-------|------|------|------|------|------|------|------|------|
| RAF-5/32x2   | 1/8 NPFT | 5/32" | .511 | .780 | 1.26 | .433 | .591 | .433 | .843 | 1.24 |
| RAF-4x2      | 1/8 NPFT | 1/4"  | .511 | .780 | 1.26 | .512 | .591 | .512 | .944 | 1.33 |
| RAF-4x4      | 1/4 NPFT | 1/4"  | .669 | 1.02 | 1.61 | .512 | .748 | .512 | 1.06 | 1.50 |
| RAF-6x4      | 1/4 NPFT | 3/8"  | .669 | 1.02 | 1.61 | .709 | .748 | .709 | 1.06 | 1.57 |
| RAF-8x8      | 1/2 NPFT | 1/2"  | .866 | 1.14 | 1.85 | .709 | .939 | .709 | 1.14 | 1.73 |

| Tube Part No. | O.D. | A   | B    | L1   | L2    | L2    | CH   |
|---------------|------|-----|------|------|-------|-------|------|
| RAFK-2x2      | 1/8  | 1/8 | .217 | .827 | 1.614 | 1.830 | .551 |
| RAFK-5/32x2   | 5/32 | 1/8 | .217 | .827 | 1.614 | 1.830 | .551 |
| RAFK-4x2      | 1/4  | 1/8 | .217 | .866 | 1.614 | 1.830 | .551 |
| RAFK-4x4      | 1/4  | 1/4 | .276 | .984 | 1.850 | 2.086 | .669 |

**Female DIN Solenoid Connectors**

Mead's 11mm Industrial B-type DIN solenoids feature a totally encapsulated coil with 3 male prongs, allowing fast and easy connections. A female DIN connector (ordered separately) quickly attaches to the solenoid's prongs and is secured by a single screw.

Mead offers 3 types of DIN connectors to facilitate connections to the solenoid. Model PVD1 is a connector with a 1/2" conduit entry and no lead wires. Model PVD2 also has a 1/2" conduit entry but includes 20" of cabled lead wire. Model PVD3 is a strain relief connector that includes 72" of cabled lead 18ga wire.

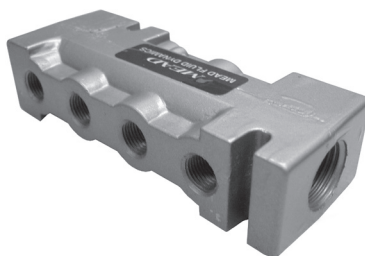
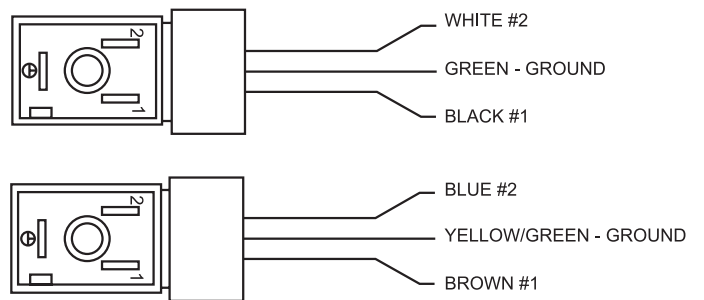


Model PVD1

Model PVD2

Model PVD3

**DIN Connector Hook-Up Diagram (Not Polarity Sensitive)**



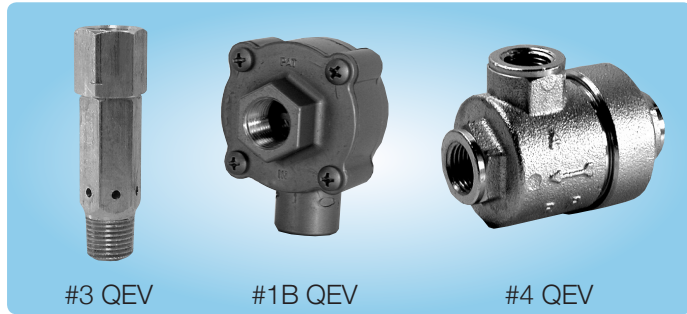
**Manifold**

Use the #20 die cast aluminum manifold to simplify piping and cut down on plumbing time. A 3/8" NPTF inlet port provides a common air source for up to eight 1/8" NPTF outlets.

| Dimensions   |        |        |        |
|--------------|--------|--------|--------|
| Model Number | Length | Height | Width  |
| #20          | 4"     | 1"     | 1-1/2" |

Circuit Aids

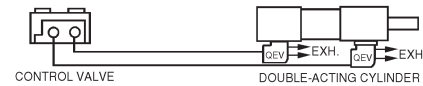
Circuit with Quick Exhaust Valves



Quick Exhaust Valves

Quick exhaust valves (QEV) increase cylinder rod speed by dumping exhaust air directly at the cylinder instead of back through the control valve. Use one QEV in each cylinder port to increase rod speed in both directions.

Using a quick exhaust valve to increase cycling speed allows a smaller, less expensive control valve to be used.



Flow Patterns

#1B and #2B

#4, #5 and #6



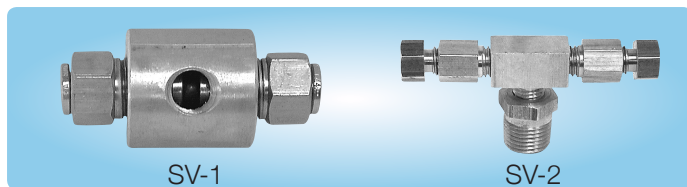
Specifications and Dimensions

| Model No. | Port | C <sub>v</sub> | Length | Width  | Height |          |
|-----------|------|----------------|--------|--------|--------|----------|
| #3 QEV    | 1/8" | .10*           | .13‡   | 1/2"   | 1/2"   | 1-13/16" |
| #1B QEV   | 1/4" | 2.71*          | 2.83‡  | 1-3/4" | 1-7/8" | 2-17/32" |
| #2B QEV   | 3/8" | 3.13*          | 3.43‡  | 1-3/4" | 1-7/8" | 2-17/32" |
| #4 QEV    | 1/2" | 3.25*          | 3.52‡  | 2.89"  | 1.02"  | 2-17/32" |
| #5 QEV    | 3/4" | 3.78*          | 4.08‡  | 3.43"  | 1.26"  | 2.55"    |
| #6 QEV    | 1"   | 4.12*          | 4.40‡  | 4.26"  | 3.15"  | 3.29"    |

\* Inlet port through cylinder port

‡ Cylinder port through exhaust port

Pressure: 30 - 125 PSI #3 QEV, #1B QEV and #2B QEV  
15 - 150 PSI #4 QEV, #5 QEV and #6 QEV



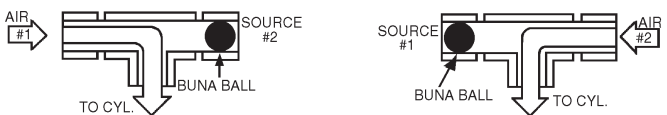
Shuttle Valves

Use shuttle valves to actuate a cylinder or valve from either of two air sources. Available for 1/8" and 1/4" tubing.

Flow Patterns

Cylinder Actuated by Source #1

Cylinder Actuated by Source #2



Specifications & Dimensions

| Model No. | Port    | C <sub>v</sub> | Tubing  | Body  | Length | Width     | Height |
|-----------|---------|----------------|---------|-------|--------|-----------|--------|
| SV-2      | 1/8-27* | .04            | 1/8" OD | Brass | 2"     | 7/16" Hex | 15/16" |
| SV-1      | 1/8"    | .32            | 1/4" OD | Alum. | 2 3/4" | 1"        | 1"     |

\* 1/8-27 NPT male

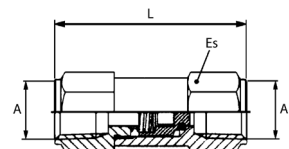
Check Valves

Mead check valves are designed to allow full flow in one direction, and check or stop flow in the other direction.

| Specifications     |   |
|--------------------|---|
| Materials:         | Nickel Plated Brass Body and Piston<br>NBR 70 Seals<br>Steel Spring |
| Pressure:          | 30-120 PSI  |
| Temperature:       | 0° F to 160° F (-18° C to 71° C)                                    |
| Cracking Pressure: | 3 PSI   |

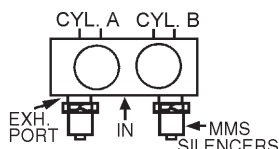
Check Valve Dimensions

| Part No. | A NPTF | L     | Es   |
|----------|--------|-------|------|
| CV-2     | 1/8    | 1.437 | .512 |
| CV-4     | 1/4    | 1.850 | .669 |



Air Silencers & Breathers

MM, MMS, and MML air silencers reduce exhaust noise by approximately 20%. MMB breather vents prevent contaminants from entering the air component. All models are constructed of sintered bronze (MML are also housed in plastic). MML is designed to have 15% less pressure drop than MM or MMS models. MMP air silencers feature a unique stem for quick connections to tube collets.



MMS Silencers not only serve as sound reducers, but are also low cost speed controls. An adjustable needle valve in the top of each MMS allows for the setting of exhaust rates.

Specifications and Dimensions

| Model No. | Pipe Size    | Length   | Width      | Height | Per Box |
|-----------|--------------|----------|------------|--------|---------|
| MM-019    | #10-32*      | 45/64"   | 5/16" Hex  | 45/64" | 20      |
| MMB-125   | 1/8" NPT     | 7/16"    | 7/16" Hex  | 7/16"  | 20      |
| MM-125    | 1/8" NPT     | 1-1/8"   | 7/16" Hex  | 7/16"  | 20      |
| MMS-125   | 1/8" NPT     | 29/32"   | 1/2" Hex   | 1/2"   | 20      |
| MML-125   | 1/8" NPT     | 2-1/8"   | 13/16"     | 13/16" | 20      |
| MMB-250   | 1/4" NPT     | 5/8"     | 9/16" Hex  | 9/16"  | 10      |
| MM-250    | 1/4" NPT     | 1-3/8"   | 9/16" Hex  | 9/16"  | 10      |
| MMS-250   | 1/4" NPT     | 1-11/64" | 9/16" Hex  | 9/16"  | 10      |
| MML-250   | 1/4" NPT     | 2-1/4"   | 13/16"     | 13/16" | 5       |
| MMP-250   | 1/4" OD Stem | 2-47/64" | 13/16"     | 13/16" | 1       |
| MMP-006   | 6mm OD Stem  | 2-47/64" | 23/32"     | 23/32" | 1       |
| MMB-375   | 3/8" NPT     | 3/4"     | 11/16" Hex | 11/16" | 5       |
| MM-375    | 3/8" NPT     | 1-1/2"   | 11/16" Hex | 11/16" | 5       |
| MMS-375   | 3/8" NPT     | 1-17/64" | 11/16" Hex | 11/16" | 5       |
| MML-375   | 3/8" NPT     | 3-7/16"  | 1-1/4"     | 1 1/4" | 5       |
| MMP-375   | 3/8" OD Stem | 3-7/64"  | 23/32"     | 23/32" | 1       |
| MMP-010   | 10mm OD Stem | 3-7/64"  | 23/32"     | 23/32" | 1       |
| MMB-500   | 1/2" NPT     | 7/8"     | 7/8" Hex   | 7/8"   | 5       |
| MM-500    | 1/2" NPT     | 1-7/8"   | 7/8" Hex   | 7/8"   | 5       |
| MMS-500   | 1/2" NPT     | 1-17/64" | 7/8" Hex   | 7/8"   | 5       |
| MML-500   | 1/2" NPT     | 3-9/16"  | 1-1/4"     | 1-1/4" | 5       |

\* Furnished with gasket

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

Special Applications

When you have a difficult or special application, Mead welcomes the opportunity to design the right product for your application. The following are some of the applications where we have designed a product to solve a problem.

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index



CAR WASH EQUIPMENT



FUEL TREATMENT EQUIPMENT



HOSPITAL EQUIPMENT



DENTAL EQUIPMENT



PRINTING PRESSES



AUTO ASSEMBLY



LIQUID DISPENSING APPLICATIONS



NUCLEAR FUEL REFINING



SEWING MACHINES



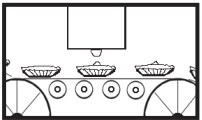
ROBOTIC APPLICATIONS



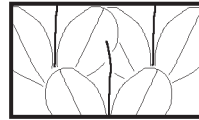
SHOE ASSEMBLY EQUIPMENT



SAFETY EQUIPMENT

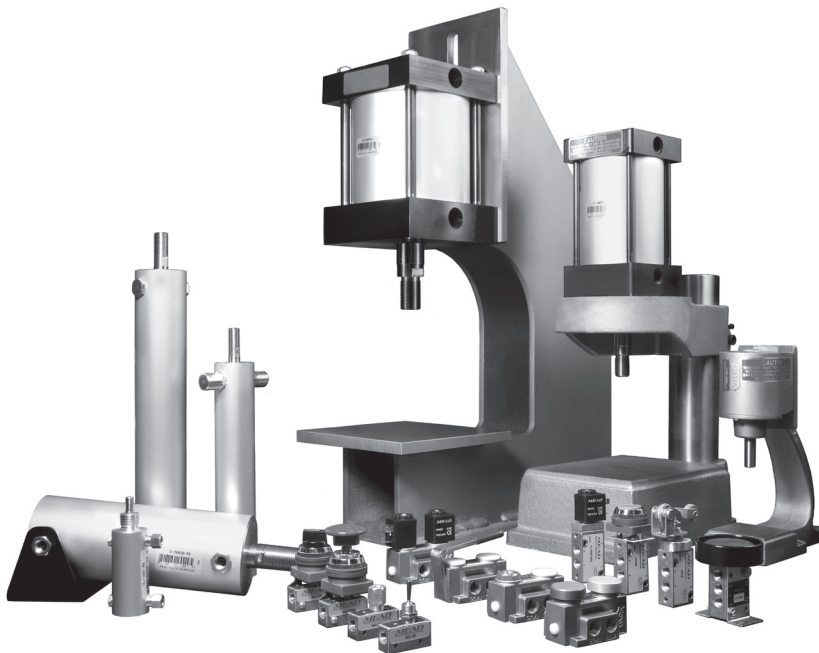


FOOD PROCESS EQUIPMENT



AGRICULTURAL EQUIPMENT

Contact Mead today for help solving your special application needs.





- A**
- Adjustable Lever Valve ..... 20
  - Adjustable Stroke Cylinder ..... 48
  - Air Clamps ..... 48
  - Air Collet Fixtures ..... 61
  - Air Cylinders (see Cylinders)
  - Air Exhaust Silencers ..... 63
  - Air Hammer ..... 61
  - Air Piloted Valves ..... 10-13
  - Air Presses (See Presses)
  - Air Timer ..... 53
  - Air to Electric Converter ..... 54
  - Air Valves (See Valves)
  - Air Tools ..... 61
  - Anti-Tie Down Devices ..... 57
- B**
- Ball Actuated Valves ..... 18-21
  - Binary Valves ..... 52
  - Bleed Type Valves ..... 18
  - Breathers ..... 63
  - Button Operated Valves ..... 14-25
- C**
- Cam Operated Valves ..... 20-25
  - Capsula Valves ..... 16-17
  - Centaur Cylinders ..... 44-45
  - Clevis Brackets ..... 33-39
  - Clevis Mounted Cylinders ..... 26-45
  - Collet Fixtures ..... 61
  - Compact Cylinders ..... 47
  - Controls, Presses ..... 57
  - Controls, Valves ..... 4-58
  - Cylinders
    - See "Cylinder Finder" ..... 1
    - Adjustable Stroke ..... 48
    - Clevis Mounted ..... 26-44
    - Compact ..... 47
    - Cushioned ..... 26-44
    - Double Acting ..... 26-44
    - Double Rod ..... 26-44
    - Dyna-Mation ..... 28-33
    - End of Stroke Sensors ..... 54
    - Flange Mount (Front) ..... 26-33
    - Flange Mount (Rear) ..... 26-33
    - Flat Type ..... 49
    - Flush Mounted ..... 26-44
    - Foot Mounted ..... 26-50
- Cylinders (Continued)**
- HD1 Series ..... 34-41
  - HD Series ..... 42-43
  - Hydraulic ..... 26-42
  - Interchangeable (JIC) ..... 34-43
  - Interchangeable (NFPA) ..... 34-43
  - Inter-piloted ..... 29-44
  - Low Profile ..... 47
  - Miniature ..... 49-56
  - Non-Lubricated ..... 26-43
  - Nose Mounted ..... 26-43
  - Pivot Brackets ..... 26-43
  - Pivot Mounted ..... 26-43
  - Reed Switches ..... 29-47
  - Rod Clevis ..... 31-42
  - Rod Eyes ..... 31-42
  - Round Type ..... 44-45
  - Single Acting ..... 48
  - Space Saver ..... 47
  - Spring Return ..... 49-50
  - Square End ..... 26
  - Stroke Sensors ..... 54
  - Tie Rod Type ..... 26-42
  - Trunnion Mounted ..... 26-42
- D**
- DIN Connector ..... 62
  - DIN Connector Solenoid ..... 4-20
  - Directional Control Valves ..... 4-25
  - Double Acting Cylinders
    - Centaur ..... 44-45
    - Cushioned ..... 26-42
    - Double Rod ..... 26-42
    - DM1 ..... 26-33
    - DM2 ..... 26-44
    - Dyna-Mation ..... 28-33
    - Interchangeable (NFPA) ..... 34-43
    - Low Profile ..... 47
    - Non-Lubricated ..... 26-43
    - Round Type ..... 26-44
    - Space Saver ..... 47
    - Tie Rod Type ..... 26-44
  - Double Air Piloted Valves ..... 11-22
  - Double Bleed Valves ..... 18
  - Double Rod Cylinders ..... 26-33
  - Double Solenoid Valves ..... 4-21
  - Dura-Matic Valve ..... 18
- Dyla-Trol Flow Controls** ..... 56
- Dyna-Coil Valves** ..... 52
- Dyna-Mation Cylinders** ..... 28-33
- E**
- Electric Switches ..... 54
  - Emergency Stop Valves ..... 21-23
  - End of Stroke Sensors ..... 54
  - Exhaust Silencers ..... 63
- F**
- Fingertip Operated Valves ..... 21-25
  - Flange Mounted Cylinders
    - Front ..... 26-41
    - Rear ..... 26-41
  - Flat Cylinders ..... 47-50
  - Flow Control Valves
    - Air Exhaust Silencer Type ..... 63
    - Built-In Valve ..... 18
    - Dyla-Trol ..... 56
    - Inline Type ..... 56
    - Right Angle ..... 62
  - Flush Mounted Cylinders ..... 26-41
  - Foot Mounted Cylinders ..... 26-41
  - Foot Operated Valves
    - Pedal Type ..... 15-21
    - Treadle Type ..... 25
  - Four-Way Valves ..... 4-25
- G**
- General Purpose Valves ..... 24-25
- H**
- HD1 Cylinders ..... 34-41
  - Solid State Switches ..... 29-47
  - Hammers, Air ..... 61
  - Hand Operated Valves ..... 15-56
  - Heavy Duty Cylinders ..... 34-43
  - Hydraulic Cylinders ..... 26-44
- I**
- Impulse Relay Valves ..... 53
  - Isonic Valves ..... 4-13
  - Isonic 2 & 3-Way Valves ..... 4-9
  - Isonic 4-Way Valves ..... 10-11
- J**
- JIC Interchangeable Cylinders ..... 28-43
- K**
- Knob Actuated Valves ..... 20-55
- L**
- Lever Operated Valves ..... 15-52
- Lockout Valve** ..... 51
- Low Stress Valve** ..... 19
- M**
- Manifold PowerStrip ..... 12
  - Manifold Valves ..... 4-21
  - Manifolds ..... 62
  - Manual Overrides ..... 4-15
  - Micro-Line Valves ..... 22-23
  - Mufflers ..... 63
- N**
- Normally Closed Valves ..... 4-55
  - Normally Open Valves ..... 4-55
  - Nova Valves ..... 14-15
- O**
- One-Way Roller Leaf Valves ..... 20-22
- P**
- Palm Operated Valves ..... 19-23
  - Panel Mounted Valves ..... 21-35
  - Pilot Valves ..... 10-24
  - Pin Plunger Operated Valves ..... 20-23
  - Plunger Operated Valves ..... 20-23
  - Poppet Type Valves ..... 5-25
  - Press Controls ..... 57
  - Presses, Air
    - Arbor Type ..... 58
    - Bench ..... 58
    - Column Type ..... 58
    - Stand ..... 58
  - PTO Valves ..... 55
  - Pulse Valves ..... 53
  - Pushbutton Operated Valves ..... 15-20
- Q**
- Quick Exhaust Valves ..... 63
- R**
- Reed Switches ..... 29-47
  - Rod Actuated Valves ..... 20-22
  - Rod Alignment Couplers ..... 29
  - Rod Clevises ..... 29-44
  - Rod Eyes ..... 26-31
  - Roller Operated Valves ..... 20-22
  - Round Cylinders ..... 44



## S

|                              |             |
|------------------------------|-------------|
| Safety Devices.....          | 21-23       |
| Selector Valve.....          | 52          |
| Shuttle Valves.....          | 63          |
| Single Solenoid Valves       |             |
| Direct Acting.....           | 4-52        |
| Pilot.....                   | 4-52        |
| Slide Type Valves.....       | 51          |
| Solenoid Valves              |             |
| DIN Connector Type.....      | 4-23        |
| Double.....                  | 4-23        |
| Plug -In Type.....           | 4-23        |
| Single (Direct).....         | 4-23        |
| Single (Pilot).....          | 4-23        |
| Speed Control Valves         |             |
| (See Flow Control Valves)    |             |
| Spool Type Valves.....       | 4-25        |
| Spring Return Cylinders..... | 54          |
| Stacked Valves.....          | 4-13, 18-19 |
| Sub-Base Mounted Valves..... | 16-18       |
| Switches                     |             |
| Air Operated.....            | 8-17, 18-21 |
| Bleed Limit.....             | 18          |
| Electric.....                | 54          |
| Limit.....                   | 20-23       |
| Reed.....                    | 29-47       |
| Solid State.....             | 29-47       |

## T

|                                |       |
|--------------------------------|-------|
| Three Position Valves.....     | 21    |
| Three Way Valves.....          | 4-23  |
| Timers, Air.....               | 53    |
| Toggle Lever Valves.....       | 20-23 |
| Treadle Type Foot Valve.....   | 25    |
| Trunion Mounted Cylinders..... | 28-44 |
| Two-Hand Anti Tie Down.....    | 57    |

|                          |       |
|--------------------------|-------|
| Twist Valves.....        | 20-23 |
| Two Position Valves..... | 4-52  |
| Two Way Valves           |       |
| Poppets.....             | 5-25  |
| Solenoid.....            | 4-52  |

## V

|                                |       |
|--------------------------------|-------|
| Valves                         |       |
| See "Valve Finder".....        | 2-3   |
| ACV Valve.....                 | 55    |
| Adjustable Lever.....          | 20-22 |
| Air Piloted.....               | 10-24 |
| Air to Electric Converter..... | 54    |
| Ball Actuated.....             | 20-23 |
| Bleed Type.....                | 14    |
| Button Operated.....           | 15-23 |
| Cam Operated.....              | 20-23 |
| Capsula.....                   | 16-17 |
| Dash Mounted.....              | 55    |
| DIN Type.....                  | 46    |
| Directional Control.....       | 4-23  |
| Double Air Pilot.....          | 10-21 |
| Double Bleed.....              | 14    |
| Double Solenoid.....           | 4-20  |
| Dura-Matic.....                | 18    |
| Dyal-Trol.....                 | 56    |
| Dyna-Coil.....                 | 52    |
| Electric Switches.....         | 54    |
| Emergency Stop.....            | 21-23 |
| Fingertip Operated.....        | 21    |
| Flow Control.....              | 62    |
| Flow Control Air Exhaust       |       |
| Silencers.....                 | 63    |
| Four Way.....                  | 4-21  |
| Hand Operated.....             | 15-26 |

## Valves (Continued)

|                           |       |
|---------------------------|-------|
| Impulse Relays.....       | 53    |
| Knob Actuated.....        | 20-23 |
| Lever Operated.....       | 15-23 |
| LTV Type.....             | 20-21 |
| Manifold.....             | 4-21  |
| Manual Overrides.....     | 4-15  |
| MHL Valves.....           | 51    |
| Micro-Line.....           | 22    |
| Nova.....                 | 14    |
| One Way Roller Leaf.....  | 20-22 |
| Palm Operated.....        | 20-21 |
| Panel Mounted.....        | 20-56 |
| Pilot.....                | 8-22  |
| Pin Plunger.....          | 20-23 |
| Plug In Solenoid.....     | 4-22  |
| Poppet Type.....          | 7-23  |
| Press Control.....        | 57    |
| Pressure Held.....        | 16    |
| Pressure Released.....    | 16    |
| Pressure Piloted.....     | 10-16 |
| PTO.....                  | 55    |
| Pulse Type.....           | 53    |
| Push Button Operated..... | 20-25 |
| Quick Exhaust.....        | 63    |
| Rod Actuated.....         | 20-23 |
| Roller Actuated.....      | 20-23 |
| Safety.....               | 20-23 |
| Selector Valve.....       | 20-23 |
| Shuttle.....              | 63    |
| Time Delay.....           | 53    |
| Toggle Lever.....         | 20-23 |
| Twist.....                | 20-23 |
| Two Position.....         | 4-25  |
| Two Way.....              | 4-25  |
| Vacuum.....               | 4-25  |



Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

Reference

Control Valves

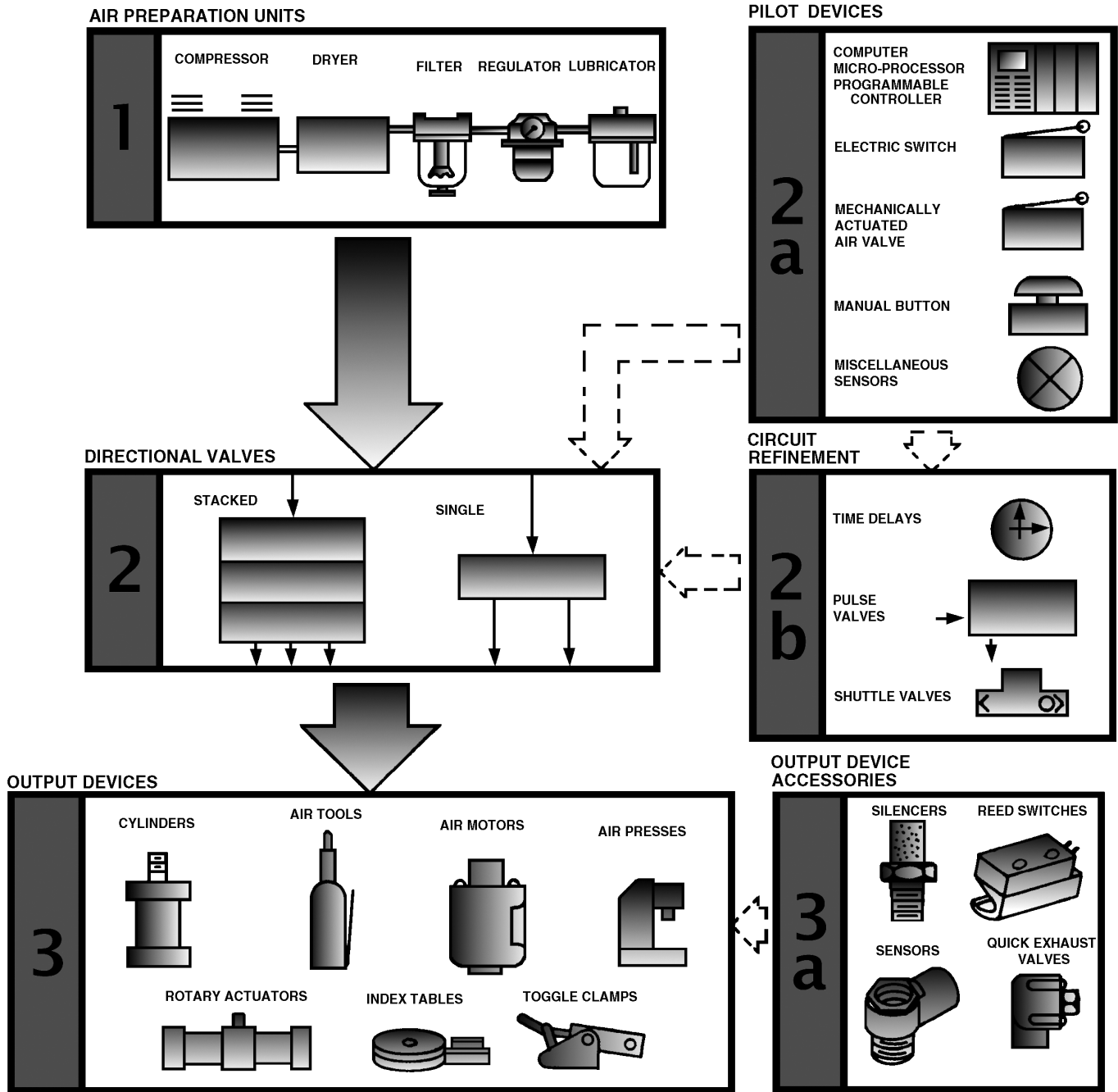
Cylinders

Specialty Valves

Production Devices

Accessories

Index



### 1. Air Preparation Units

Air is compressed by the compressor, moisture is removed by the dryer, cleaned by the filter, adjusted to the correct pressure by the regulator and an oil mist is added by the lubricator. This process results in properly prepared air.

### 2. Directional Valves

Compressed air is fed to directional valves. Directional valves may be single valves or a stack of two or more valves with a common inlet.

### 2a. Pilot Devices

Pilot devices are used to shift the directional valves in Step 2.

### 2b. Circuit Refinement

The output from Step 2a may be refined by using timers, impulse relays, shuttle valves, or other circuit aids.

### 3. Output Devices

Shown is a sampling of air devices that may be controlled by Steps 1 through 2b.

### 3a. Output Device Accessories

Output device accessories may be used to control the speed or sense a position in the output device.

Reference

Control Valves

Cylinders

Specialty Valves

Production Devices

Accessories

Index

Your stocking distributor is:



**Mead Fluid Dynamics**

4114 North Knox Avenue Chicago, IL 60641  
Phone: 773-685-6800 Toll Free: 877-MEAD-USA Fax: 773-685-7002  
Email: sales@mead-usa.com www.mead-usa.com

**Bimba Manufacturing Headquarters**

P.O. Box 68 Monee, Illinois 60449-0068  
Phone: 708-534-8544 Toll Free: 800-44-BIMBA Fax: 708-235-2014  
Email: cs@bimba.com www.bimba.com

**BIMBA BRANDS | ACRO | MEAD | MFD | PNEUMADYNE | TRD**

PNEUMATIC • ELECTRIC • HYDRAULIC ACTUATORS FITTINGS — MANIFOLDS — VALVES — AIR PREPARATION — SAFETY & PRODUCTION



Worldwide distribution means there is a professional stocking  
Bimba distributor nearby ready to service your needs.

