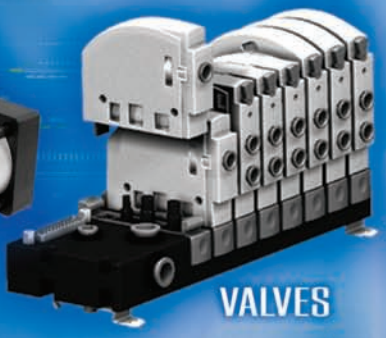
THE BUILDING BLOCKS OF AUTOMATION

CYLINDERS



VALVES

SPECIALTY VALVES

PRODUCTION AIDS

Advanced Technology

INNOVATION

MEAD

Pneumatic Automation Components

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MEAD

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The Building Blocks of Automation

Edition MMV

Cylinder Finder

Mead offers a wide selection of cylinder styles.

Dyna-Mation (DM/DM2)

NFPA Interchangeable
Extruded Body Design
1 ½" Through 4" Bore Sizes
¾" & 1 ⅛" Tie Rod Models Avail.

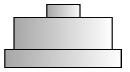
Heavy-Duty (HD1)

External Rod Bearing
NFPA Interchangeable
Tie Rod Design
1½" Through 12" Bore Sizes

Centaur (C)

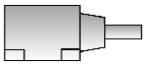
Heavy Duty Round
Non-Lube Cylinder
Easy To Mount
1⅛" Through 3" Bore Sizes

Space Saver™ (SS)



Highly Compact
Low Profile Cylinder
¾" Through 4" Bore Sizes

Air Clamps (H)



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

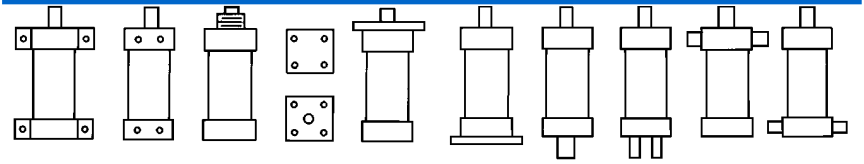
Miniature (M)

Fractional Stroke Cylinders
Universal Mounting
¼", ⅜" & ½" 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)	See Pages
¼"	MA-250	.561	10-32	To 2	DA/SA	5	125	No	52-53
	MF-250	.561	10-32	To 2	DA/SA	5	125	No	52-53
⅜"	MA-375	.687	10-32	To 2	DA/SA	11	125	No	52-53
	MF-375	.687	10-32	To 2	DA/SA	11	125	No	52-53
½"	MA-500	.812	10-32	To 2	DA/SA	20	125	No	52-53
	MF-500	.812	10-32	To 2	DA/SA	20	125	No	52-53
¾"	DM-075	5/16	⅛	Any	DA	44	250	1,000*	30-31
	SS-075	5/16	10-32	To 2	DA	44	250	No	50
1"	H-1	5/16	⅛	11/16	SA	68	150	No	51
	HOXO1	5/16	⅛	0 to 2	SA	62	150	No	51
1 ⅛"	DM-112	5/16	⅛	Any	DA	100	250	1,000*	30-31
	C-112	5/16	¼-28 or ⅛	Any	DA	100	250	250	48-49
	SS-112	½	10-32	To 3	DA	100	150	No	50
1½"	DM1-150	⅝	¼	Any	DA	177	250	1,000	32-37
	DM2-150	⅝	¼	Any	DA	177	250	1,000	32-37
	HD1-150	⅝ or 1	¼	Any	DA	177	250	1,000	38-45
	C-150	½	¼	Any	DA	177	150	250	48-49
	SS-150	½	10-32	To 3	DA	177	150	No	50
2"	DM1-200	⅝	¼	Any	DA	314	250	1,000	32-37
	DM2-200	⅝	¼	Any	DA	314	250	1,000	32-37
	HD1-200	⅝ or 1	¼	Any	DA	314	250	1,000	38-45
	C-200	⅝	¼	Any	DA	314	150	250	48-49
	SS-200	⅝	⅛	To 3	DA	314	150	No	50
2¼"	H-41	½	⅛	1	SA	316	150	No	51
	H-42	½	⅛	2	SA	353	150	No	51
	H-43	½	⅛	3	SA	351	150	No	51
2½"	DM1-250	⅝	¼	Any	DA	491	250	1,000	32-37
	DM2-250	⅝	¼	Any	DA	491	250	1,000	32-37
	HD1-250	⅝ or 1	¼	Any	DA	491	250	1,000	38-45
	C-250	¾	¼	Any	DA	491	150	250	48-49
	SS-250	⅝	⅛	To 3	DA	491	150	No	50
3"	C-300	1	¼	Any	DA	707	150	250	48-49
	SS-300	¾	⅛	To 3	DA	707	150	No	50
	H-71, -72, -73	¾	¼	1, 2, 3	SA	682	150	No	51
3¼"	DM1-325	1	½	Any	DA	829	250	700	32-37
	DM2-325	1	½	Any	DA	829	250	700	32-37
	HD1-325	1 or 1⅜	½	Any	DA	829	250	700	38-45
4"	DM1-400	1	½	Any	DA	1,257	250	650	32-37
	DM2-400	1	½	Any	DA	1,257	250	650	32-37
	HD1-400	1 or 1⅜	½	Any	DA	1,257	250	650	38-45
	SS-400	¾	⅛	To 3	DA	1,257	150	No	50
	H-122	¾	⅜	2⅝	SA	1,204	150	No	51
5"	HD1-500	1 or 1⅜	½	Any	DA	1,964	250	900	46-47
6"	DM-600	1⅜	¾	Any	DA	2,827	250	435	32-37
	HD-600	1⅜ or 1¾	¾	Any	DA	2,827	250	435	38-45
	H-283	1¼	½	3	SA	2,763	150	No	51
8"	HD1-800	1⅜ or 1¾	¾	Any	DA	5,027	200	500	46-47
10"	HD1-1000	1¾ or 2	1	Any	DA	7,854	200	400	46-47
12"	HD1-1200	2 or 2½	1	Any	DA	11,310	200	400	46-47

* Specify "FOR HY USE" when ordering

Available Mounting Styles



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

Valve Finder

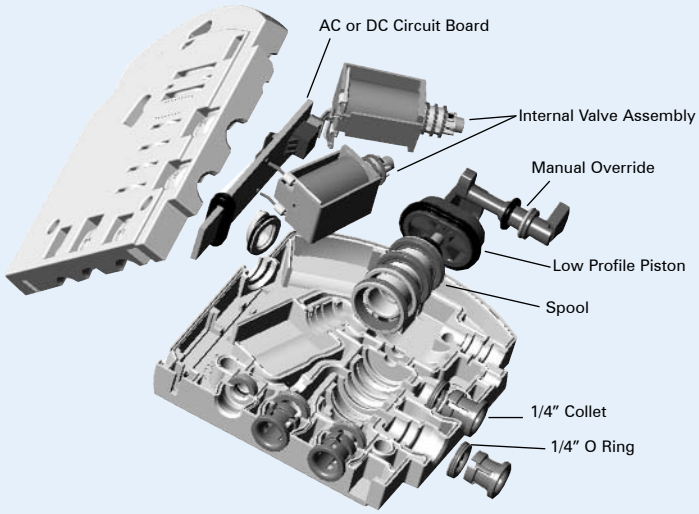
	Actuator	Model Number	Port Size	Flow (Cv)	Return Flow	Flow Pattern	See Pages
Mechanically Actuated	Straight Plunger	MV-5	1/8	0.11	Spring	3-Way	26-27
		MV-45	1/8	0.11	Spring	3-Way	26-27
		LTV-5	1/8	0.18	Int. Air	4-Way	24-25
		LTV-45	1/8	0.18	Int. Air	4-Way	24-25
		FC-51	1/8	0.81	Spring	3-Way	28-29
		3C-1	1/4	0.48	Spring	3-Way	28-29
		FC-101	3/8	1.15	Spring	3-Way	28-29
	Straight Leaf	MV-10	1/8	0.11	Spring	3-Way	26-27
		MV-70	1/8	0.11	Spring	3-Way	26-27
		LTV-10	1/8	0.18	Int. Air	4-Way	24-25
	Roller	MV-15	1/8	0.11	Spring	3-Way	26-27
		MV-90	1/8	0.11	Spring	3-Way	26-27
		MV-25, MV-30	1/8	0.11	Spring	3-Way	26-27
		MV-75	1/8	0.11	Spring	3-Way	26-27
		LTV-15	1/8	0.18	Int. Air	4-Way	24-25
		LTV-25, LTV-30	1/8	0.18	Int. Air	4-Way	24-25
		LTV-75	1/8	0.18	Int. Air	4-Way	24-25
	One-Way Roller	MV-20	1/8	0.11	Spring	3-Way	26-27
		MV-80	1/8	0.11	Spring	3-Way	26-27
		LTV-20	1/8	0.18	Int. Air	4-Way	24-25
		LTV-80	1/8	0.18	Int. Air	4-Way	24-25
	Extended Rod	MV-85	1/8	0.11	Spring	3-Way	26-27
		LTV-85	1/8	0.18	Int. Air	4-Way	24-25
	Ball	MV-40	1/8	0.11	Spring	3-Way	26-27
		LTV-40	1/8	0.18	Int. Air	4-Way	24-25
Hand (Manually) Actuated	Fingertip Lever	MV-50	1/8	0.11	Spring	3-Way	26-27
		LTV-50	1/8	0.18	Int. Air	4-Way	24-25
		N2-HL	1/4	1.00	Spring	4-Way	18-19
		FT-101	3/8	1.15	Spring	3-Way	28-29
		FT-4	1/8	0.16	Spring	4-Way	28-29
	Low Stress	LTV-PBG(F)	1/8	0.18	Int. Air	3 or 4-Way	23
	Straight Lever	C2-7	1/4	0.75	Spring	4-Way	20-21
		C5-7	1/2	3.17	Spring	4-Way	20-21
		C2-8	1/4	0.75	Hand	4-Way	20-21
		C5-8	1/2	3.17	Hand	4-Way	20-21
		4B-1	1/4	0.48	Hand	4-Way	28-29
	Push Button & Palm	MV-140	1/8	0.11	Spring	3-Way	26-27
		LTV-125	1/8	0.18	Int. Air	4-Way	24-25
		LTV-140	1/8	0.18	Int. Air	4-Way	24-25
		PC-51	1/8	0.81	Spring	3-Way	28-29
		MV-MH	1/8	0.11	Spring	3-Way	26-27
		LTV-MH	1/8	0.18	Int. Air	4-Way	24-25
		MV-EH & MV-FH	1/8	0.11	Spring	3-Way	26-27
		LTV-EH & LTV-FH	1/8	0.18	Int. Air	4-Way	24-25
		MV-ES	1/8	0.11	Spring	3-Way	26-27
		LTV-ES	1/8	0.18	Int. Air	4-Way	24-25
	Double Button	N2-PB	1/4	1.00	Button	4-Way	18-19
	Knob (Push-Pull)	LTV-130	1/8	0.18	Knob	4-Way	24-25
		PC-51A	1/8	0.81	Knob	3-Way	28-29
		ACV-16	5/32	0.053	Knob	4-Way	58
		ACV-25	1/4	0.12	Knob	4-Way	58
	Flip Toggle	MV-35	1/8	0.11	Toggle	3-Way	26-27
		LTV-35	1/8	0.18	Toggle	4-Way	24-25
	Twist (2 Pos.)	MV-TP	1/8	0.11	Twist	3-Way	26-27
		LTV-TP	1/8	0.18	Twist	4-Way	24-25

	Actuator	Model Number	Port Size	Flow (Cv)	Return Flow	Flow Pattern	See Pages
Electrically Actuated	Single Solenoid	LTV-115DD	1/8	0.18	Int. Air	4-Way	24-25
		N2-SCD	1/4	1.00	Spring	4-Way	18-19
		C2-4DCD	1/4	0.75	Spring	4-Way	20-21
		C5-4DCD	1/2	3.17	Spring	4-Way	20-21
		V1 (Isonic)	5/32 Tube	0.02	Spring	3-Way	10-13
		V3 (Isonic)	1/4 Tube	0.03, 0.06, 0.11	Spring or Ext. Air	3-Way	4-9
		V4 (Isonic)	1/4 Tube	0.8	Spring	4-Way	10-11, 14-17
		V5 (Isonic)	1/4 Tube	0.8	Spring or Ext. Air	4-Way	32-37
		MB12-3CSC	1/8	0.035	Spring	3-Way	55
		MB12-3USC	1/8	0.035	Spring	3-Way	55
		MB25-3CSC	1/4	0.035	Spring	3-Way	55
		MB12-3USC	1/4	0.035	Spring	3-Way	55
		MB12-2CSC	1/8	0.035	Spring	2-Way	55
		MB25-2CSC	1/4	0.035	Spring	2-Way	55
	Double Solenoid	LTV-120DD	1/8	0.18	Solenoid	4-Way	24-25
		N2-DCD	1/4	1.00	Solenoid	4-Way	18-19
		C2-5DCD	1/4	0.75	Solenoid	4-Way	20-21
		C5-5DCD	1/2	3.17	Solenoid	4-Way	20-21
		C2-6HDCD	1/4	0.75	Solenoid	4-Way	20-21
		C2-6RDCD	1/4	0.75	Solenoid	4-Way	20-21
		V5 (Isonic)	1/4 Tube	0.8	Spring or Ext. Air	4-Way	4-9
Air Actuated	Single Pressure	LTV-60	1/8	0.18	Int. Air	4-Way	24-25
		LTV-60L	1/8	0.18	Int. Air	4-Way	24-25
		L-10	1/8	0.11	Int. Air	4-Way	22
		K-10	1/8	0.18	Int. Air	4-Way	22
		N2-SP	1/4	1.00	Spring	4-Way	18-19
		V4 (Isonic)	1/4 Tube	0.8	Spring	4-Way	10-11, 14-17
		W-10	1/4	0.63	Int. Air	4-Way	22
		C2-3	1/4	0.75	Spring	4-Way	20-21
		C5-3	1/2	3.17	Spring	4-Way	20-21
		MV-60	1/8	0.11	Spring	3-Way	26-27
		MPE-BZ	1/8	-	Spring	Spec.	57
		MPE-BZE	1/8	-	Spring	Spec.	57
	Double Pressure	LTV-110	1/8	0.18	Ext. Air	4-Way	24-25
		N-10	1/8	0.11	Ext. Air	4-Way	22
		M-10	1/8	0.18	Ext. Air	4-Way	22
		N2-DP	1/4	1.00	Ext. Air	4-Way	18-19
		V4 (Isonic)	1/4 Tube	0.8	Ext. Air	4-Way	10-11, 14-17
		X-10	1/4	0.63	Ext. Air	4-Way	52
		C2-1	1/4	0.75	Ext. Air	4-Way	20-21
		C5-1	1/2	3.17	Ext. Air	4-Way	20-21
	Single Bleed	T-10	1/8	0.11	Int. Air	4-Way	22
		O-10	1/8	0.18	Int. Air	4-Way	22
		Y-10	1/4	0.63	Int. Air	4-Way	22
		404A	1/8	-	Spring	2-Way	22
		405A	Spec.	-	Spring	2-Way	22
	Double Bleed	V-10	1/8	0.11	Ext. Bleed	4-Way	22
		U-10	1/8	0.18	Ext. Bleed	4-Way	22
		Z-10	1/4	0.63	Ext. Bleed	4-Way	22
		N2-DB	1/4	1.00	Ext. Bleed	4-Way	18-19
Foot Actuated	Foot Pedal	2060280	1/8	0.11	Spring	3-Way	26-27
		2060400	1/4	0.11	Spring	3-Way	26-27
		N2-F4	1/4	1.00	Spring	4-Way	18-19
	Foot Treadle	4W-1	1/4	0.48	Foot	4-Way	28-29
		201	3/8	1.15	Foot	3-Way	28-29

With an innovative concept and a pioneering approach to valve design, Mead's new technology has directly challenged the conventions of traditional valve manufacturers. In doing so, Mead has overcome many of the restrictions and limitations of conventional valve manufacturing, resulting in a unique design that minimizes valve size, reduces air turbulence and lowers valve costs.

Features & Benefits

- Fast Response
- Simultaneous Electrical / Pneumatic Connection to Manifold
- Thermoplastic - Non Metallic
- Compact & Lightweight
- Low Power Consumption
- High Resistance to Chemicals
- Aerodynamic Flow Passages
- Quick-Change Valve System
- 1/4" or 6mm Integral Push-In Fittings
- Pre-Wired Serial (15 or 25 Pin) Manifold Socket
- No Tools or Lubrication Needed
- Optional Separate Main & Air Pilot Air Feed
- Mount Free Standing, DIN Rail or Panel
- Field Bus Controllable

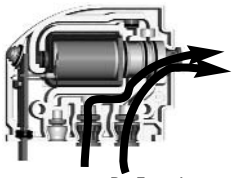


"Half Shell" Design

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. 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.

Maximum Air Flow

Instead of the angular passages of most conventional valves, ***Isonic***® 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.


De-Energize

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, making this system suitable for many environments.

c UL® us (Pending)

CE

The 2 Second Push-On Manifold and Valve System

The ***Isonic***® MOD 3 manifold system has been designed to virtually eliminate downtime, eliminating all end plates, screws, o-rings and gaskets customarily found in manifold systems. With this "plug-in" design, replacing an individual valve can be accomplished in seconds - simultaneously making an electrical and pneumatic connection, without the aid of any tools!

The ***Isonic***® valve series can naturally be implemented as either part of a manifold system or stand alone and have option of either internal or external pilot pressure.

To Remove Valve Press Manifold Release

To Install simply Push Valve onto Manifold

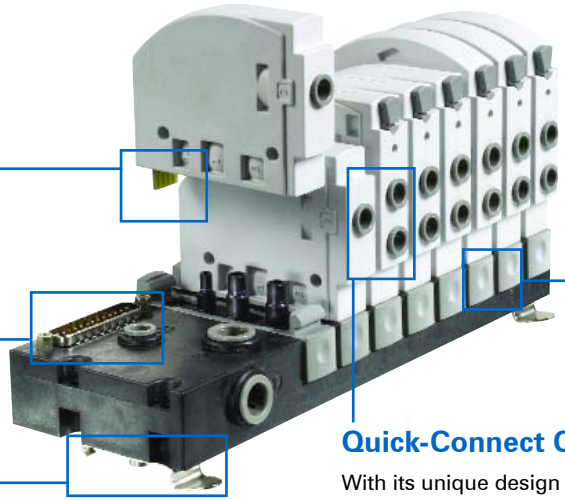
Edge connector requires no wiring and the Valve Ports need no fittings, the MOD 3 modular system is engineered to Push-On, saving time and money on traditional installation.

Versatile

Available in four or eight station segments, the ***Isonic***® MOD 3 manifold's unique modular design creates a versatile, expandable control base. The ***Isonic***® MOD 3 manifold will accept any combination of different function valves. For larger manifolds, two or more segments can be easily combined to fulfill any needs. The manifold has separate mains and pilot air feed and also allows easy isolation of segments for applications with differential pressures.

Edge Connector

The Slot-In electrical Edge Connector reduces the time and expense needed for wiring and connectors.



Manifold Release

Press to Release valve from manifold.

Quick-Connect Collets - No Fittings Needed

With its unique design ***Isonic***® MOD 3 eliminates the need for tube fittings. Built-in, push-to-connect collets allow for fast and easy tube and manifold connections.

Panel or DIN Rail Mounting

Panel Mounted with front or rear screws and can also be DIN rail mounted with clips.

Simplify Wiring Tasks With Field Bus System

DeviceNet InterBus PROFIBUS

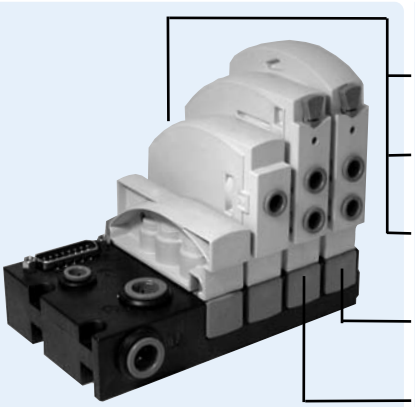
To further reduce set-up time and installation costs, the ***Isonic***® MOD 3 manifold is prewired to accept a single connection. An integrated P.C.B. connects each of the manifold's valve stations. Simply plug in a standard cable to the Sub D connector for quick, clean wiring. A single connector can supply wiring for up to 8 (single or double pilot) valves. The manifold can then be controlled by a standard Field Bus System eg. ***DeviceNet***, ***ProfiBus***, ***Interbus***. A second cable connector is necessary for manifolds of more than 8 valves.

Valve Data

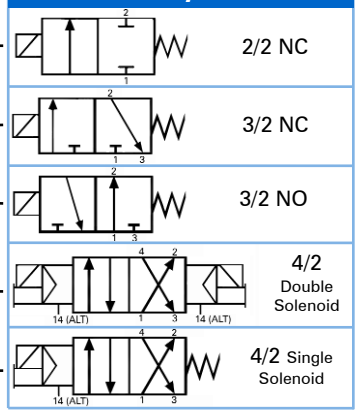
Product / Function	Flow (C_v)	Pressure Range	Vacuum	Orifice Size	Tubing
2/2 Direct Acting	A: 0.03	0-120 PSI (0-8.3 Bar)	Full	A: 0.04 (1.0 mm)	
or	B: 0.06	0-100 PSI (0-6.9 Bar)	Full	B: 0.06 (1.5 mm)	ALL MODELS
3/2 Direct Acting	C: 0.11	0-90 PSI (0-6.2 Bar)	Full	C: 0.08 (2.0 mm)	1/4" (6mm) O.D.
4/2 Single Solenoid Pilot Operated	0.80	30-120 PSI (2.0-8.3 Bar)	Full with External Pilot	0.21" (5.3 mm)	Ports 1, 2, 3, 4 5/32" (4mm) Port 14
4/2 Double Solenoid Pilot Operated	0.80	15-120 PSI (1.0-8.3 Bar)	Full with External Pilot	0.21" (5.3 mm)	Optional

General

Temperature Range :	0^{O}- 120^{O} F (-18^{O} C to + 50^{O} C)
Media:	Air or Inert Gas
Lubrication:	Not Recommended
Filtration:	3 micron
Duty:	100%
Manual Override:	Standard (Pilot Models)
Collets:	1/4" (6 mm) and 5/32" (4mm)
Voltages:	DC: 12 V and 24 V
	AC: 24 V, 110 V @ 50 / 60 Hz
Seals:	Viton® and Nitrile
Body:	GE Thermoplastic
Response Time:	10 ms On; 35 ms Off



Valve Symbols



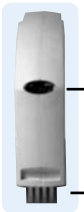
Solenoid Data

Direct Acting

Voltage	Amps	Resistance	Initial Power	100% Duty
12DC	0.169	71 Ω	2.00 W	1.50 W
24DC	0.071	305 Ω	1.70 W	1.28 W
24AC	0.071	305 Ω	1.70 W	1.28 W
110AC	0.016	7143 Ω	1.75 W	1.31 W

Pilot Operated

Amps	Resistance	Initial Power	100% Duty
0.133	92 Ω	1.60 W	1.30 W
0.058	406 Ω	1.60 W	1.20 W
0.058	406 Ω	1.40 W	1.20 W
0.001	8350 Ω	1.70 W	1.50 W



Valve P. C. B. Edge Connector

Pin (View from track side)	Single and Direct Acting Solenoid	Double Solenoid	Signal LED Color
Right	Not Used	+VE Signal Port 1 > 2	Green
Left	+VE Signal	+VE Signal Port 1 > 4	Yellow
Center Right	Ground (0V)	Ground (0V)	-
Center Left	Ground (0V)	Ground (0V)	-

DIN Connector - IP 65

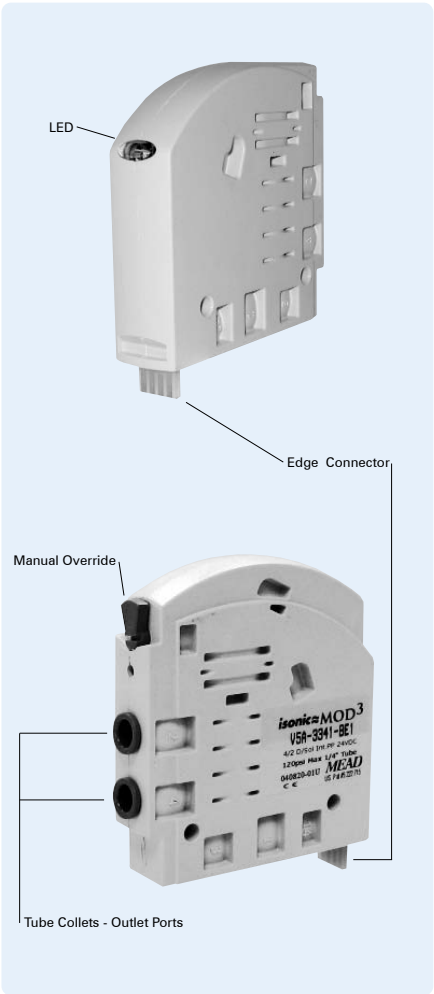
Pin No.	Single and Direct Acting Solenoid	Double Solenoid
1	Ground (0V)	+VE Signal Port 1 > 2
2	+ VE Signal	+VE Signal Port 1 > 4
3	Not Used	Ground (0V)
Earth	Not Used	Not Used

NOTE (DIN Style): Connector P5D1 is shown with valve above. The connector is not included with valve.

Valve Mini-Quick Connector

Pin (View connector side)	Single and Direct Acting Solenoid	Double Solenoid	Wire Color
Right	Ground (0V)	+VE Signal Port 1 > 2	Black
Left	+VE Signal	+VE Signal Port 1 > 4	Red
Center	Ground (0V)	Ground (0V)	White

NOTE (All): Consult Mead for reversed polarity models.



2/2 & 3/2 Valves

V 3 A - B 1 3 1 - B E 1

Product Category
V = Valve

Family
3 = Isonic Mod 3 3000 (2-way; 3-way)

Tube Size
A = 1/4" O.D. Tube Collet
B = 6mm O.D. Tube Collet

Orifice Size
A = 0.040" (1.0mm) Vacuum to 120 PSI (8.3 bar)
B = 0.060" (1.5mm) Vacuum to 100 PSI (6.9 bar)
C = 0.080" (2.0mm) Vacuum to 90 PSI (6.2 bar)

Actuation Type
1 = Normally Closed
2 = Normally Open

Flow Pattern
2 = 2-Way
3 = 3-Way
V = Vacuum

Supply Connections
1 = Main Supply (Port 1)
2 = Alternate Supply (Port 14)

Solenoid Voltage
A = 12 DC
B = 24 DC
D = 24 50/60 Hz AC
F = 110 50/60 Hz AC

Connector
E = Edge Connector (Manifold)
W = Mini Quick Connect
X = 8mm micro DIN Connector (type C)

LED (Standard)

4/2 Valves

V 5 A - 37 4 1 - B E 1

Product Category
V = Valve

Family
5 = Isonic Mod 3 5000 (4 way)

Tube Size
A = 1/4" O.D. Tube Collet
B = 6mm O.D. Tube Collet

Actuation Type
37 = Solenoid spring
33 = Double solenoid

Flow Pattern
4 = 4/2
V = Vacuum

Pilot Connections
1 = Internal Pilot Feed (Port 1)
2 = External Pilot Feed (Port 14)

Solenoid Voltage
A = 12 DC
B = 24 DC
D = 24 50/60 Hz AC
F = 110 50/60 Hz AC

Connector
E = Edge Connector (Manifold)
W = Mini Quick Connect
X = 8mm micro DIN Connector (Type C)

LED (Standard)

Manifolds

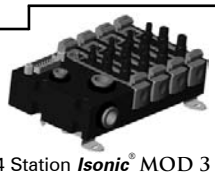
M 5 A - 08 0 8 - 1 1

Product Category
M = Manifold

Family
5 = Isonic Mod 3 3000/5000

Tube Size
A = 3/8" O.D. Tube Collets (Common Air Inlet / Exhaust)
1/4" O.D. Tube Collets (Common Air Pilot Feed)
B = 10 mm O.D. Tube Collets (Common Air Inlet / Exhaust)
6 mm O.D. Tube Collets (Common Air Pilot Feed)

Number of Stations
04 = 4 Stations
08 = 8 Stations
(modular segments are combined for manifolds over 8 stations)



4 Station *Isonic*® MOD 3
Valve Manifold

8 Station *Isonic*® MOD 3
Valve Manifold

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

Connector
4 = 4 station / 15 pin (Sub D)
8 = 8 station / 25 pin (Sub D)
0 = Grommet (Mini Quick and DIN)

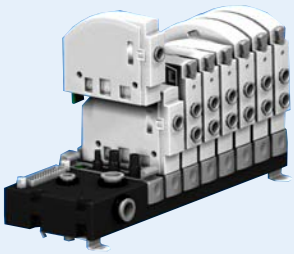
Connector Cable
0 = No cable & Connector
1 = With 1.0m cable Connector
3 = With 3.0m cable & Connector
5 = With 5.0m cable & Connector

Accessories
0 = None
1 = 3/8" Exhaust Muffler
2 = 10mm Exhaust Muffler

Note: Valves will be pre-assembled on the manifold. Contact Mead with specific locations of mixed valve manifolds. An additional charge above the cost of the valves, manifolds and accessories may apply.

General Information

Flow Connections 120 PSI (8.3 Bar)			Electrical Connections	Mounting Options
Supply (Port 1)	Exhaust (Port 3)	Pilot (Port 14)	Sub-D Type	Panel Foot Mounting
A=3/8"	A=3/8"	A=1/4"	15 Pin = 4 Valve Station	Panel Rear Mounting
B= 10mm	B= 10mm	B= 6mm	25 Pin = 8 Valve Station	35mm DIN Rail w/ Optional Kit



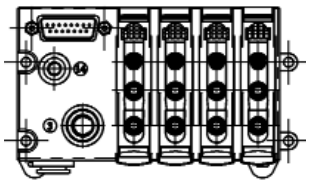
Manifold Sub-D Connections

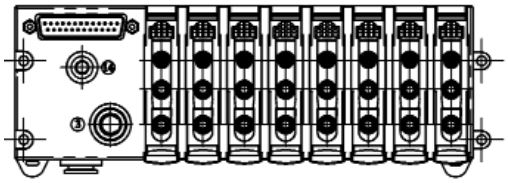
15 Pin +VE Signal

Valve Station No.	1	2	3	4
Valve Type	Pin Connection No.			
Direct Acting Sol.	15	13	11	9
Single and Double Sol. Pilot 1 > 4	15	13	11	9
Double Sol. Pilot Port 1 >2	8	14	12	10

25 Pin +VE Signal

Valve Station No.	1	2	3	4	5	6	7	8
Valve Type	Pin Connection No.							
Direct Acting Sol.	11	13	24	22	20	18	16	14
Single and Double Sol. Pilot 1 > 4	11	13	24	22	20	18	16	14
Double Sol. Pilot Port 1 >2	10	12	25	23	21	19	17	15





Valve Station No.	All	Valve Station No.	All
Common	1, 2, 3, 4	Common	1, 2, 3, 4, 5, 6, 7, 8

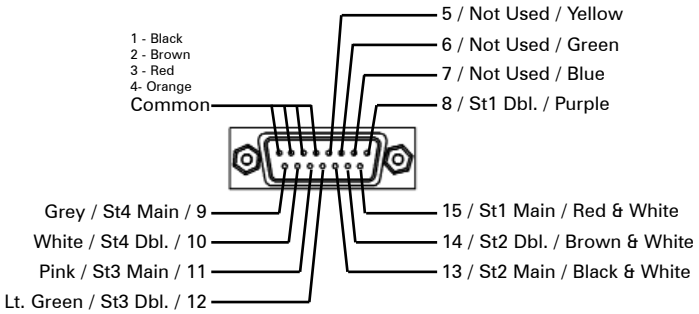
NOTE: Valve 1 is located nearest to Serial Connector, Common Pins are connected internally.

Wiring / 15 & 25 PIN Detail - Cable End (Colors Indicated apply to Mead accessories P(*)-15SDC and P(*)-25SDC)

Numbers near pin lines are the pin numbers. Center information refers to usage (see detailed explanation). Colors indicated on the outside are the wire color of the Mead accessories.

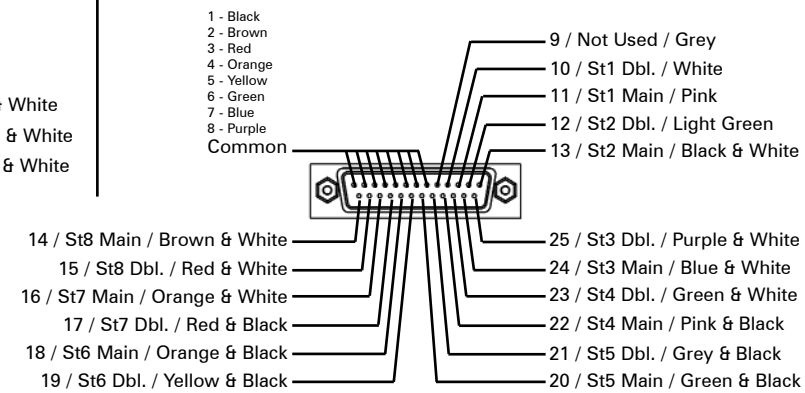
Detailed Explanation: St1 Main = Station 1, Main connection (Used for all valves installed here). St1 Dbl. = Station 1, Double Solenoid Connection (The second connection for a double solenoid type valve - This is only used for the double solenoid type. Remember double solenoids have two connections.)

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



NOTE: All Commons are connected internally on both the 4 and 8 Station Manifolds.

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



Accessories

Electrical Connectors	Model No.
8 mm DIN Connector	P5D1
8 mm DIN w/ 39" Leads	P5D2
Quick-Connect Leads	P5Q1
Sub-D Connector 15 Pin	P5-15SD
Sub-D Connector 25 Pin	P5-25SD
Blocking Plugs	
Manifold Blocking Plug	P5MB
1/4" Port Plug	P1P1
6 mm Port Plug	P1P2

P1-15SD

Sub-D Connector & Cable (for M4 Manifolds)	Model No.
1.0M (15 pin Sub D Connector Included)	P1-15SDC
3.0M (15 pin Sub D Connector Included)	P3-15SDC
5.0M (15 pin Sub D Connector Included)	P5-15SDC
1.0M (25 pin Sub D Connector Included)	P1-25SDC
3.0M (25 pin Sub D Connector Included)	P3-25SDC
5.0M (25 pin Sub D Connector Included)	P5-25SDC

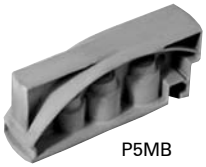
MMP-375 MMP-250

P1P1

P1-15SDC

P4M1-x

P4S1



P5MB

Manifold Accessories	Model No.
DIN Rail Mounting Clip Kit	P5MC
35 mm DIN Rail	P4M1-x*
35 mm DIN Rail End Stop	P4S1
* x = # of feet required	

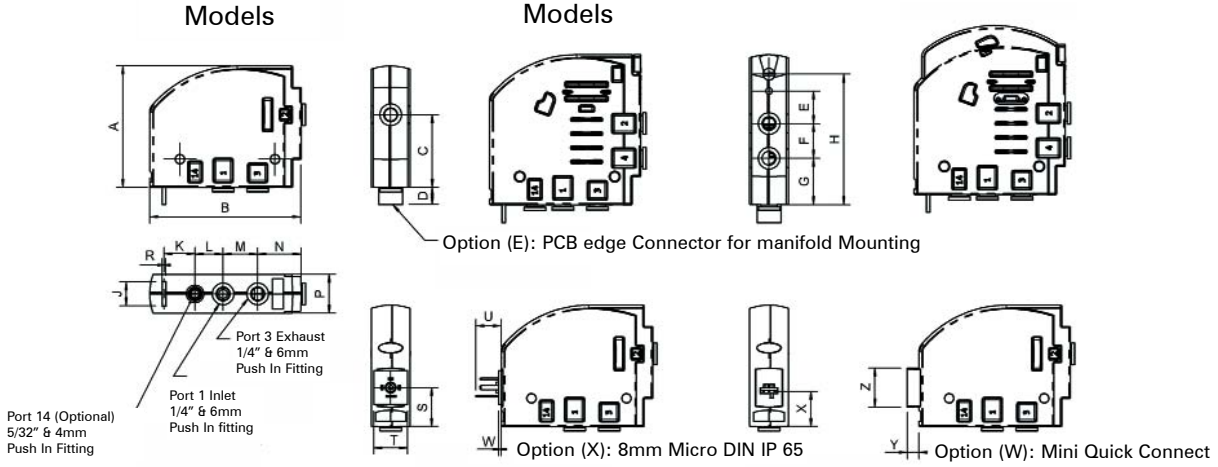
Exhaust Muffler	
1/4" Port (Push-In)	MMP-250
6 mm Port (Push-In)	MMP-006
3/8" Port (Push-In)	MMP-375
10 mm Port (Push-In)	MMP-010
Replacement Collets	
1/4" Tube Collet	P4C1
6 mm Tube Collet	P4C2
5/32" (4 mm) Tube Collet	P1C1
3/8" Tube Collet	P4CA
10 mm Tube Collet	P4CB

Valve Dimensions

Direct Acting Models

Single Solenoid Models

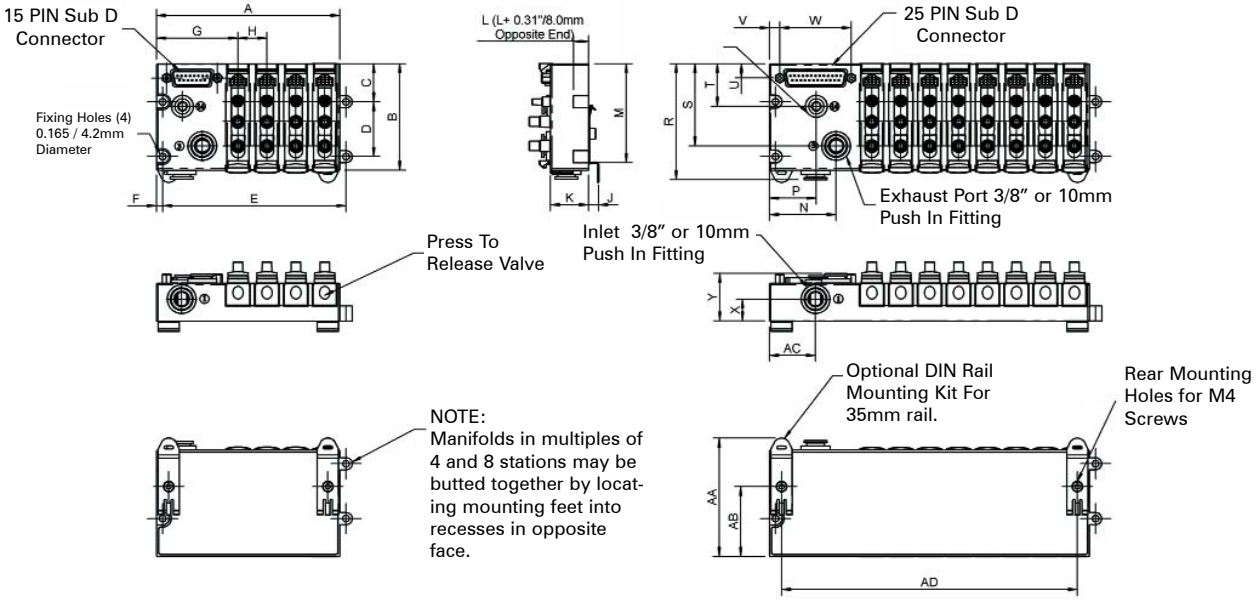
Double Solenoid Models



Valve	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	W	X	Y	Z
2/2 & 3/2	2.20	2.76	1.32	0.43	-	-	-	-	0.43	0.57	0.51	0.63	0.79	0.71	0.06	0.71	0.60	0.65	0.05	0.46	0.22	0.71
	56.0	*70.0*	*33.5*	*10.8*	-	-	-	-	*11.0*	*14.4*	*13.0*	*16.0*	*20.0*	*18.0*	*1.60*	*18.0*	*15.3*	*16.6*	*1.30*	*11.8*	*5.50*	*18.0*
4/2 Single	2.72	2.76	-	0.43	0.59	0.63	0.85	2.37	0.43	0.57	0.51	0.63	0.79	0.71	0.06	0.71	0.60	0.65	0.05	0.46	0.22	0.71
Solenoid	*69.0*	*70.0*	-	*10.8*	*15.0*	*16.0*	*21.5*	*60.3*	*11.0*	*14.4*	*13.0*	*16.0*	*20.0*	*18.0*	*1.60*	*18.0*	*15.3*	*16.6*	*1.30*	*11.8*	*5.50*	*18.0*
4/2 Double	3.07	2.76	-	0.43	0.59	0.63	0.85	2.37	0.43	0.57	0.51	0.63	0.79	0.71	0.06	0.71	0.60	0.65	0.05	0.46	0.22	0.71
Solenoid	*78.0*	*70.0*	-	*10.8*	*15.0*	*16.0*	*21.5*	*60.3*	*11.0*	*14.4*	*13.0*	*16.0*	*20.0*	*18.0*	*1.60*	*18.0*	*15.3*	*16.6*	*1.30*	*11.8*	*5.50*	*18.0*

Note: Sizes are in inches first, millimeters second (italicized).

Manifold Dimensions

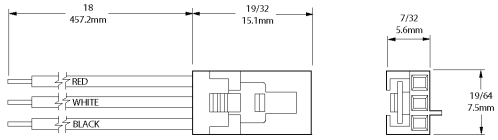


Manifold	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	AA	AB	AC	AD
4	4.74	2.76	0.35	1.42	4.74	0.16	2.10	0.75	0.26	0.98	0.39	2.56	1.18	0.67	2.87	2.13	1.10	0.37	0.26	1.32	0.57	1.21	3.07	1.81	0.67	4.11
Station	*120.5*	*70.0*	*9.00*	*36.0*	*120.5*	*4.00*	*53.5*	*19.0*	*6.60*	*25.0*	*10.0*	*65.0*	*30.0*	*17.0*	*72.8*	*54.0*	*28.0*	*9.40*	*6.70*	*33.4*	*14.5*	*30.8*	*78.0*	*46.0*	*31.5*	*104.5*
8	8.28	2.76	0.35	1.42	8.28	0.16	2.65	0.75	0.26	0.98	0.39	2.56	1.72	1.24	2.87	2.13	1.10	0.37	0.26	1.86	1.57	1.21	3.07	1.81	1.25	7.65
Station	*210.3*	*70.0*	*9.00*	*36.0*	*210.3*	*4.00*	*67.3*	*19.0*	*19.0*	*25.0*	*10.0*	*65.0*	*43.8*	*31.5*	*72.8*	*54.0*	*28.0*	*9.40*	*6.70*	*42.1*	*14.5*	*30.8*	*78.0*	*46.0*	*31.5*	*194.3*

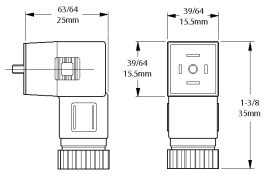
Note: Sizes are in inches first, millimeters second (italicized).

Connector Dimensions

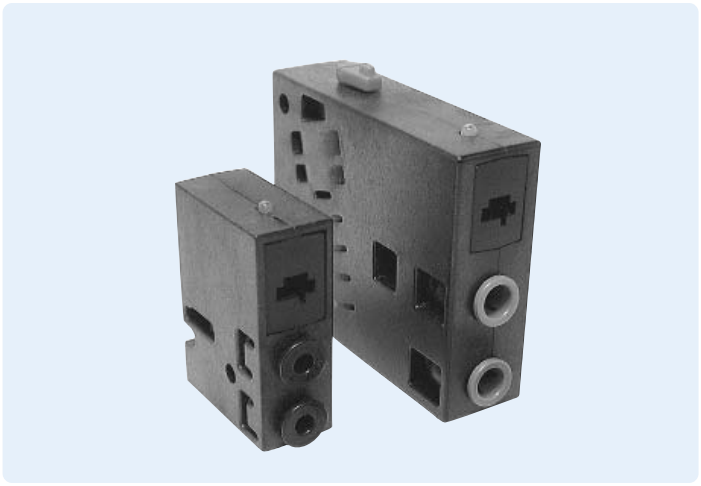
Mini Quick Connect P5Q1



8mm Micro DIN P5D1



Isonic®



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.

...And Cuts Costs!

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.

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.

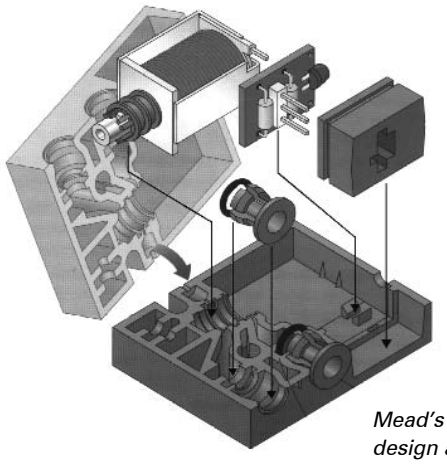
The valve is completed by ultrasonically welding the two valve segments, creating a strong bond and hermetic seal. This design totally eliminates the need for fasteners, adhesives, gaskets and inserts.

New Patents

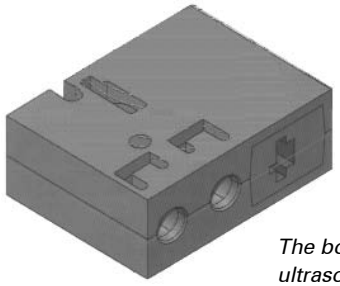
Patent #	Patented Property
5,222,715	"Half-Shell" Valve Construction
5,341,846	Plug-In Valve Stack Assembly

Additional Patents Pending

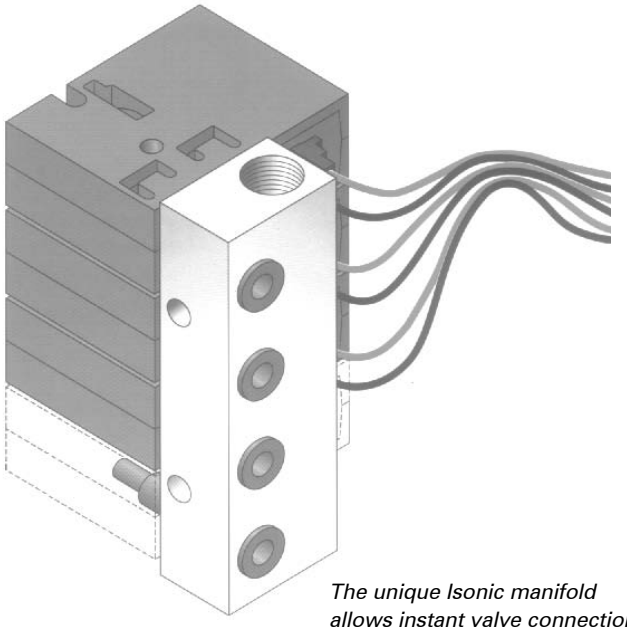
Isonic® has earned UL recognition, is tested to the standards of CSA and conforms to the applicable directives of the European Union.



Mead's patented "half-shell" design allows flow channels and component compartments to be designed directly into the body.



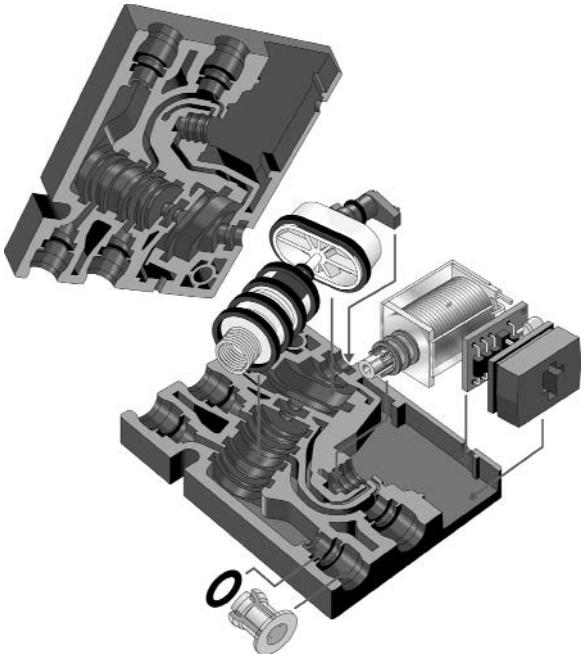
The body halves are joined by ultrasonic welding, creating a strong bond and hermetic seal.



The unique Isonic manifold allows instant valve connection and removal, without the aid of a tool.

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 make Isonic® the perfect control choice for pneumatic systems.



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.

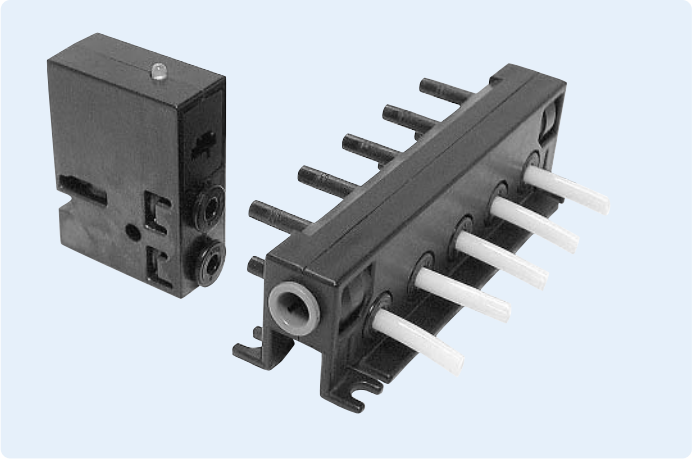
Maximum Air Flow

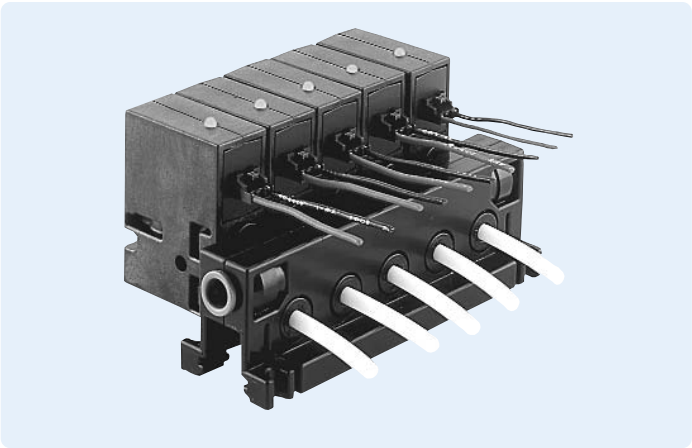
Instead of the angular passages of most conventional valves, Isonic's internal channels are aerodynamically shaped for maximum air flow and minimal internal friction. Eliminating sharp corners and abrupt changes in direction reduces air turbulence and energy loss. Normally round air passages are replaced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

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.





The Isonic® manifold can be either foot mounted or DIN rail mounted.

Isonic® (2 and 3-Way)

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 B: 0.035" / 0.90mm C: 0.055" / 1.4mm
Flow:	A: 0.01 C_v B: 0.02 C_v C: 0.05 C_v
Maximum Pressure:	A: 120 PSI / 8.3 Bar B: 120 PSI / 8.3 Bar C: 30 PSI / 2.1 Bar
Vacuum:	to 28 in .Hg
Temperature Range:	0° - 120°F / 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	120 AC
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

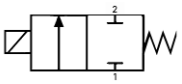
Response Time: 10 milliseconds

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

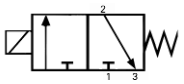
Manifold

Common Air Inlet: Built-in, push-in fittings for 1/4" OD or 6mm tubing both ends
Foot Mounting: 4 slots, 11/64" diameter
DIN Rail Mounting: Attaches to 15mm DIN rail

Valve Symbols:

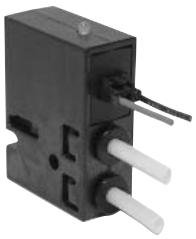


2/2 NC

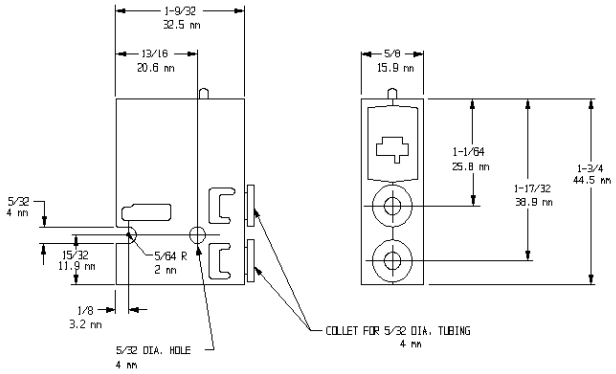


3/2 NC

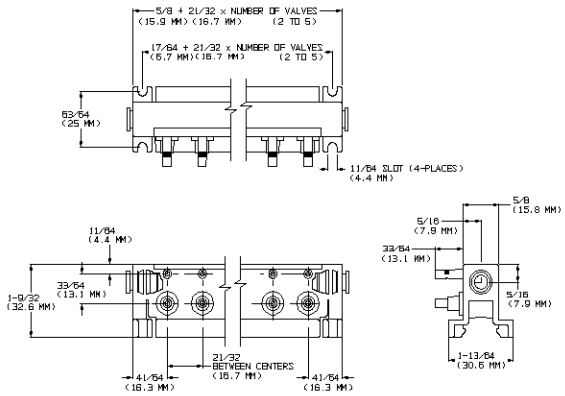
Dimensions



Valves:



Manifolds



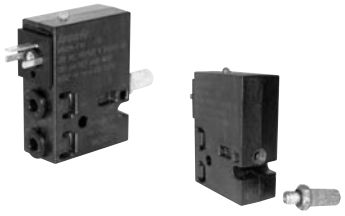
Accessories

P1SA1

P1SA2

P1Q1

NOTE: (1) pc. is included with each "W" type valve.



MM-019

Muffler shown here on V1 Valve with T1 option

How To Order

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

Solenoid Voltage
A = 12 DC
B = 24 DC
D = 24 50/60 Hz AC
F = 120 50/60 Hz AC*
* 120 Volt model is not available with mini quick-connect (option W)

Connector
W = Mini Quick Connect* (with electronic board)
X = 8mm micro DIN (with board) connector not included
Y = Flying Lead (with board)
Z = Flying Lead (no board - DC only)

LED
0 = None
1 = LED (not available with connector Z)

Options
T1 = Tapped Exhaust (10-32)
T2 = Tapped Exhaust (M5x0.80)

Manifolds:

M 1 04 - J O

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)

Common Air Inlet (Both Ends)
J = Push in fitting for ¼″ O.D. tubing
K = Push in fitting for 6mm tubing

Manifold Assembly
0 = Manifold Only
1 = Valves Assembled on Manifold*
2 = Assembled Manifold on DIN rail
3 = Manifold w/valves on DIN rail*
* Valves must be ordered on separate line

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

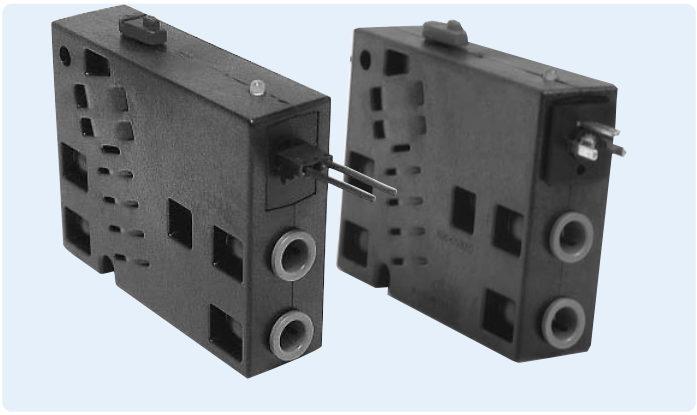
15mm DIN Mounting Rail	P1M1-x	(where x = desired number of feet of DIN rail)
15mm DIN Rail End Stops	P1S1	(note: two required per manifold)
4mm (5/32) Manifold Blocking Plug	P1B1	(for blocking empty manifold stations)
¼″ Manifold Inlet Port Plug	P1P1	(one included with each manifold)
6mm Manifold Inlet 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 ¼″ barb OD tube)
Port Adapter	P1SA2	(converts 5/32″ port to ¼″ push-to-connect OD tube)

See additional accessories on page 17

Isonic® (4-Way)



Isonic® Control Valves

While only 20 mm 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° - 120°F (-18°C - 49°C)
Mounting Holes:	0.177" (4.5mm) diameter (1 hole, 1 slot)
Weight:	Solenoid models 3.1 oz each Air Pilot models 2.1 oz each

Materials

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

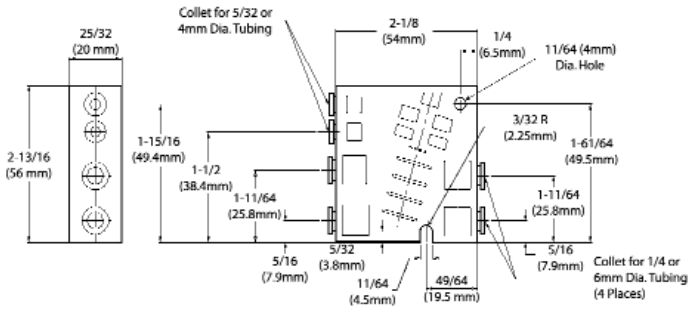
Electrical

Voltages. . . . . DC: 12, 24
. . . . . AC: 24, 110/120
Leads . . . . . 18" standard
Duty Cycle . . . . . Continuous duty
Response Time . . . . . 16 milliseconds @ 100 PSI
Serial Interface . . . . . 10-pin flat cable connector
Manual Override . . . . . Standard (solenoid models)

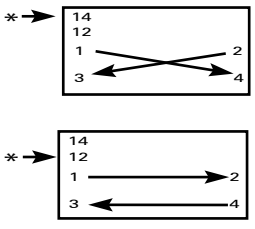
Din Connector: Protection Class- IP 65 according to DIN 40 050
Insulation Class- Group C according to VDE 0110
Conform to DIN 43650 Form C Specifications

Pressure Piloted Models

Dimensions

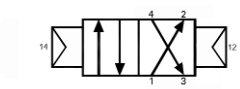


Function

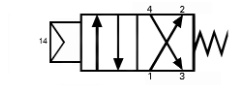


Symbol

4/2 Double Air Pilot



4/2 Single Air Pilot

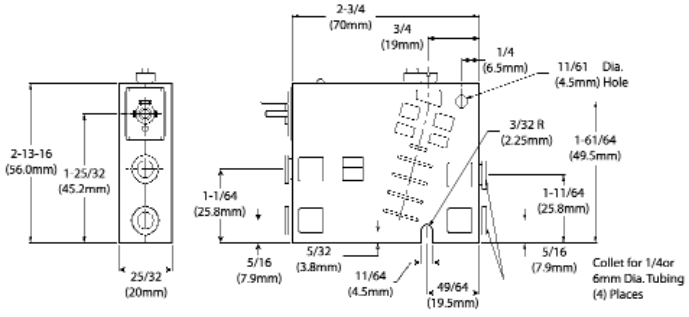


* Arrow Indicates Pressure applied to Pilot Port

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

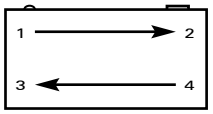
Solenoid Models

Dimensions

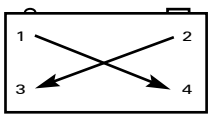


Function

Unactuated

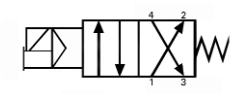


Actuated



Symbol

4/2 Single Solenoid



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!

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.

Isolate Individual Valves On Manifold

Individual valve isolation allows you to control each valve's inlet air separately, if desired. This would allow you to remove and add valves without having to cut air to the manifold, virtually eliminating downtime. See "How to Order" for details on the "S" option.

Mounting Options

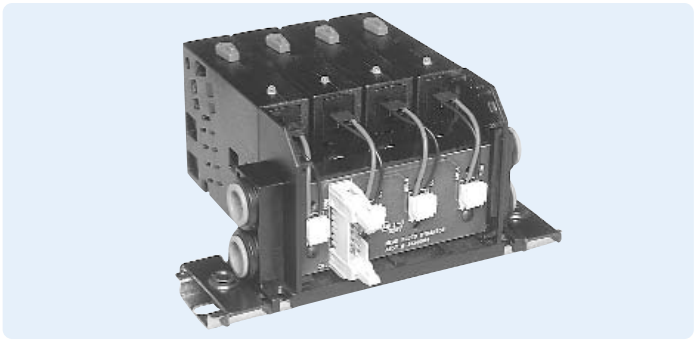
The Isonic® manifold can be either foot mounted or DIN rail mounted. 35mm DIN rail can be ordered from Mead.

Manifold Specifications

Common Air Inlet . . . . . Both ends: built in collets for 3/8" OD (or 10mm) tubing
Foot Mounting. . . . . 0.177 (4.5 mm) diameter
DIN Rail Mounting. . . . . Attaches to 35 mm DIN rail

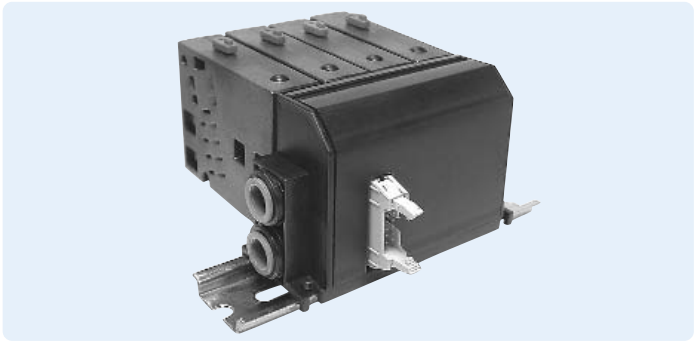
DeviceNet®

Head end and slave units for DeviceNet® interface are available for use with Isonic® valve manifolds. Please consult factory.



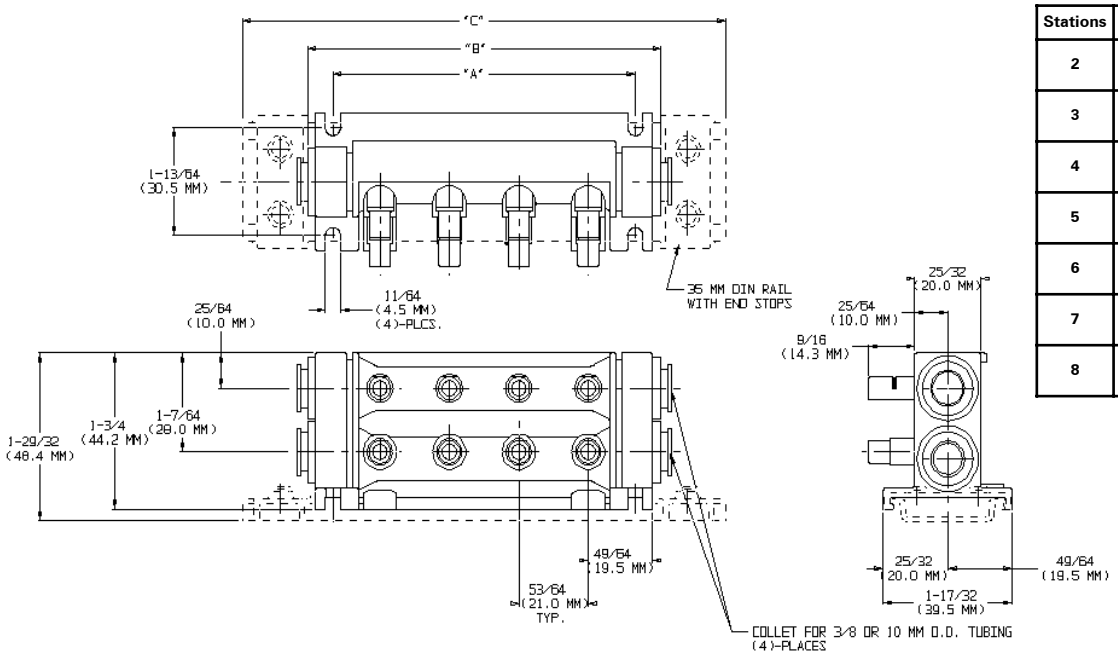
Simplify Wiring Tasks With Cable Connector

To further reduce set-up time and installation costs, the Isonic® manifold can be prewired to accept a single connection. With this option, a printed circuit board connects each of the manifold's valve stations. Simply plug in a standard flat-cable ribbon to the 10-pin connector for quick, clean wiring. A single connector can supply wiring for up to 8 valves. A second cable connector is necessary for manifolds of more than 8 valves.



Pre-wired manifolds are supplied with a protective cover. The cover snaps easily into place to protect the wiring and circuit board. It is easily removed for servicing or replacing a valve.

V4 Manifold Dimensions



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 (145.6 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 (208.7mm)	9-25/32 (248 mm)

Isonic® (4-Way)

How To Order

Valves: V 4 A 0307 - A W 1 - (**)

Product Category
V = Valve

Family
4 = Isonic 4000 (4-way)

Collet Size
A = ¼" 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

Solenoid Voltage
0 = None (pressure models)
R = 5 DC
A = 12 DC
B = 24 DC
D = 24 50/60 Hz AC
F = 110 / 120 50/60 Hz AC*
H = 230 50/60 Hz AC*
* 120 & 230 volt models not available with mini quick-connect (option W)

Connector
0 = None (pressure models)
W = Mini Quick Connect* (w/board)
X = 8mm micro DIN Connector (w/board)
Y = Flying Lead (with board)
Z = Flying Lead (no board - DC only)

LED
0 = None
1 = LED(not available with connector Z)

Options
V = Pilot Breather Vent Filter

Manifold: M 4 A 03 - 2 Y - (**)

Product Category
M = Manifold

Family
4 = ISONIC 4000 (4-way)

Collet Size
A = ⅜" 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)

Manifold Assembly
0 = Manifold Only
1 = Valves Assembled on Manifold*
2 = Manifold Mounted on DIN rail (required for 5 or more stations)
3 = Valves Assembled on Manifold, mounted on DIN rail*

* Valves must be ordered on separate line

Wiring Options
N = None
Y = Pre-wired 10-pin ribbon connector* (wiring cover included)
C = Manifold with wiring cover

* Pre-wired manifolds not available with isolation options nor with valves with DIN connector.

Options
S = Isolation to each valve*

Accessories

Electrical Connectors

8mm Micro DIN Connector P1D1
8mm Pre-wired DIN Connector (includes 39" leads) . . P1D2
Mini Quick-Connect (includes 18" leads) P1Q1

Mounting Brackets (For 4-Way Valves Only)

Single Valve Mounting Bracket P4SM
Single Valve DIN Rail Mount 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

DIN Rail & Manifold End Stops

15mm DIN Rail (x = # of feet required) P1M1-x
35mm DIN Rail (x = # of feet required) P4M1-x
15mm Rail End Stop P1S1
35mm Rail End Stop P4S1

10-Pin Connector & Ribbon Cable (For Pre-Wired Manifolds)

Connector w/ 1.0 meter leads P4RC10
Connector w/ 1.5 meter leads P4RC15
Connector w/ 3.0 meter leads P4RC30

Manifold Station Blocking Plugs & Port Plugs

5/32" (4mm) Station Plug (for empty manifold stations) . P1B1
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

Miscellaneous Accessories

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

Tube Collets (For Replacement Only)

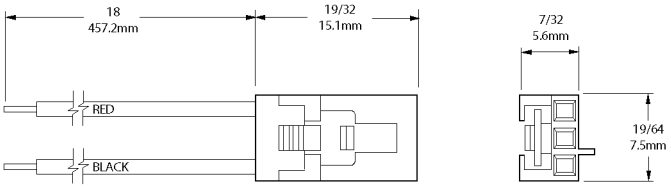
For 1/4" Port P4C1
For 6mm Port P4C2
For 3/8" Port P4CA
For 10mm Port P4CB

Push-In Exhaust Mufflers

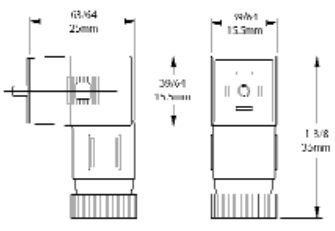
For 1/4" Port MMP-250
For 6mm Port MMP-006
For 3/8" Port MMP-375
For 10mm Port MMP-010

Wiring Connector Dimensions

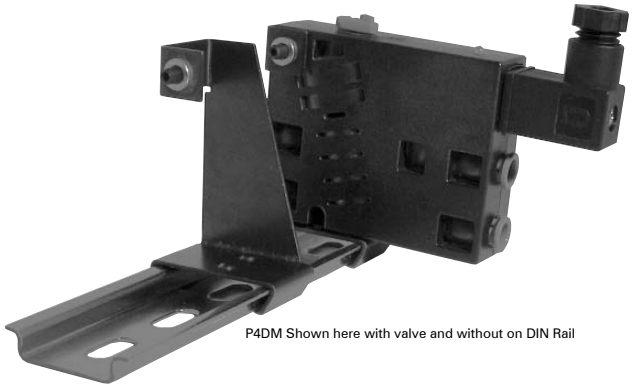
Mini Quick-Connect



8mm DIN Connector

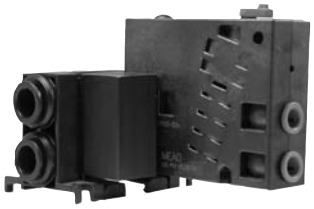


Mounting Bracket (P4DM)



P4DM Shown here with valve and without on DIN Rail

Manifold Accessories



P4B1

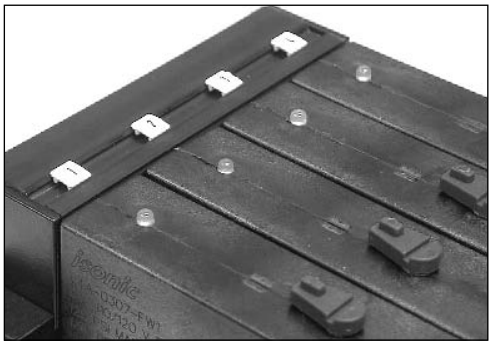
P4LC-4

Collets

P4C1 & P4CA

Manifold Option "S" Valve Isolation

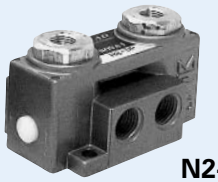
Valve Identifiers (P4ID)



Nova

Single and Double Air Piloted

N2-SP



N2-DP

Single and Double Solenoid

N2-SCD

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 1/16 th of an inch! This economy of movement assures long valve life yet generates enough flow to power a 4" bore cylinder.

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_V=1.0). Each output port has its own exhaust port so that individual exhaust control is possible.

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	
Media:	Air or Inert Gas
Pressure:	Vacuum to 120 PSI
Port Size:	1/4" NPTF
Pilot Ports:	1/8" NPSF
Flow:	C_V = 1.0 (single valves)
	C_V = 1.2 (stacked valves)
Temperature:	0°F to 120°F
Lube:	Petroleum Base Oil
Filtration:	40 Micron Minimum
Solenoid Response:	30-40 ms
Seals:	Buna

External Air Supply to Solenoid (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.

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.

Isolator Discs: Specify isolator discs only if you will need to isolate valves within a stack.

Ordering Example:

N2-SCD - M - 24VAC - 5

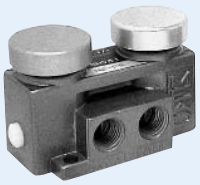
Base Model
Stacking Option
Voltage
Number In Stack

Nova Specifications

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

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

Double Push Button



N2-PB

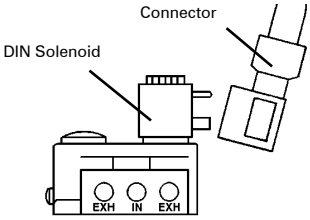
Hand Lever

N2-HL

Foot Pedal

N2-F4

DIN Solenoid Connectors



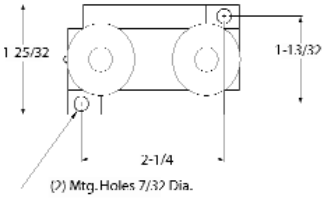
A DIN connector (ordered separately) quickly attaches to the solenoid's prongs and is secured by a single screw.

Model PVD1

Mead offers 3 types of DIN connectors to facilitate connections to the solenoid. Model PVD1 is a connector with a ½" conduit entry and no lead wires. Model PVD2 also has a ½" conduit entry but includes 20" of cabled lead wire. Model PVD3 is a strain relief connector that includes 72" of cabled wire. See page 66.

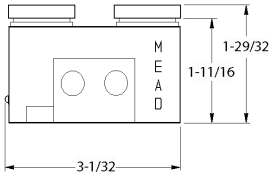
Dimensions

Basic Top View

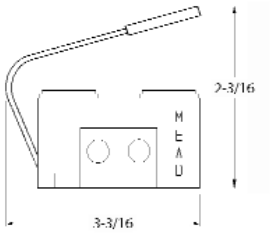


N2-HL

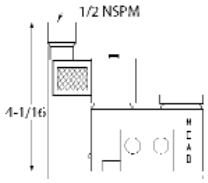
N2-DP, SP, DB, and PB



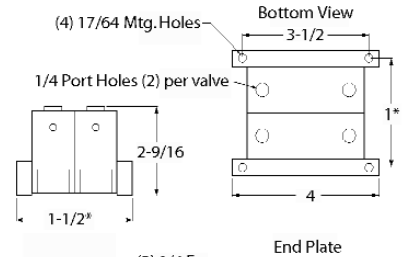
N2-SCD (with connector)

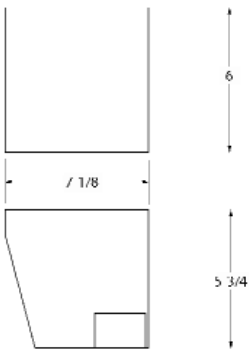


Stacks



N2-F4



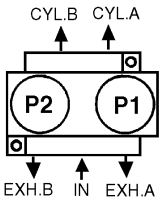


Stacking Options

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 trouble shooting 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



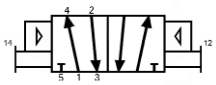
Single-actuated spring return models, including hand lever and foot pedal, have the inlet and Cyl. B ports connected when unactuated. On all double-actuated models, except N2-PB and N2-DB, signals at P1 cause output at Cyl. A and signals at P2 cause output at Cyl. B. On N2-PB and N2-DB models, the reverse occurs.

Easy To Repair

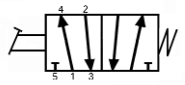
Nova valves are designed to permit complete replacement of all wearing parts in seconds without touching the piping or electrical wiring. All you need are a pair of snap ring pliers and a replacement spool.

Valve Symbols

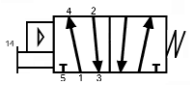
N2-DP



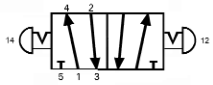
N2-F4



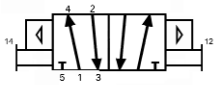
N2-SP



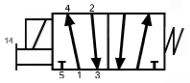
N2-PB



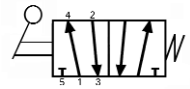
N2-DB



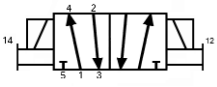
N2-SCD
N2-SX



N2-HL

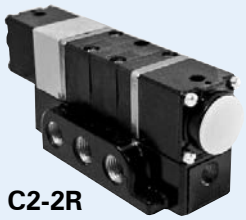


N2-DCD
N2-DX

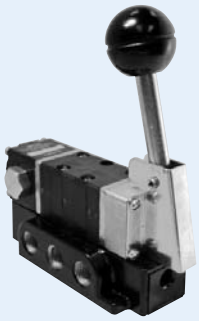


Capsula

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. Any valve module may be separated from its base in seconds without disturbing the piping.

General Specifications	
Flow:	1/4" Models - C_v = 0.75 (45 SCFM at 100 PSI)
	1/2" Models - C_v = 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
1/4" Materials:	Module (Valox) - Spool (Delrin AF®)
	Base (Die cast Aluminum) ®Dupont Company
1/2" Materials:	Module (Phenolic) - Spool (Aluminum)
	Base (Rolled Aluminum)

Ordering Instructions - State model number and voltage.

C2-4DCD - 120AC

Base Model

Voltage

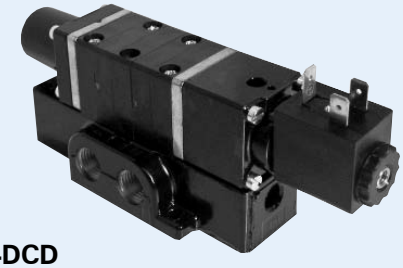
Model Number	Port Size	Actuator	Return	Description	Min. Pilot Press. (PSI)	Available Voltages DC	AC
C2-1	1/4	Air Pilot	Air Pilot	2-Position, Double Pressure Piloted	20	-	-
C5-1	1/2	Air Pilot	Air Pilot	2-Position, Double Pressure Piloted	20	-	-
C2-2H	1/4	Air Pilot	Spr. Center	3-Position, Double Pressure, 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	24-120-240
C5-4DCD	1/2	Solenoid	Spring	2-Position, Single DIN Solenoid	35	12-24	24-120-240
C2-5DCD	1/4	Solenoid	Solenoid	2-Position, Double DIN Solenoid	20	12-24	24-120-240
C5-5DCD	1/2	Solenoid	Solenoid	2-Position, Double DIN Solenoid	20	12-24	24-120-240
C2-6HDCD	1/4	Solenoid	Spr. Center	3-Position, Double DIN Solenoid, Pressure Held In Center	45	12-24	24-120-240
C2-6RDCD	1/4	Solenoid	Spr. Center	3-Position, Double DIN Solenoid, Pressure Released	45	12-24	24-120-240
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	-	-	-

* Connector not included on solenoid models; see below.

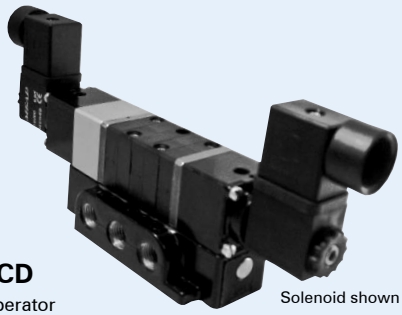
DIN Solenoid Connectors

Electrically actuated Capsula 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 66.

Model PVD1



C2-4DCD
Solenoid Operator



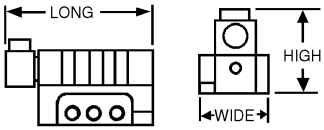
C2-5DCD
Solenoid Operator

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

Dimensions

2 mounting holes per valve:

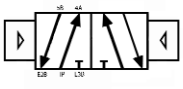
¼″ valves - 7⁄32″ diameter
½″ valves - 9⁄32″ diameter



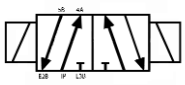
Model	Long	Wide	High
C2-1	4 7⁄32	2	2 1⁄4
C5-1	7 7⁄16	3	3 1⁄4
C2-2H	7 1⁄32	2	2 1⁄4
C2-2R	7 1⁄32	2	2 1⁄4
C2-3	4 21⁄32	2	2 1⁄4
C5-3	7 31⁄32	3	3 1⁄4
C2-4DCD	6 1⁄2	2	2 1⁄4
C5-4DCD	10 9⁄32	3	3 1⁄8
C2-5DCD	7 3⁄4	2	3 9⁄16
C5-5DCD	10 13⁄16	3	3 1⁄8
C2-6HDCD	10 25⁄32	2	3 9⁄16
C2-6RDCD	10 25⁄32	2	3 9⁄16
C2-7	5 3⁄8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

Valve Symbols

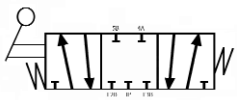
C2-1 & C5-1



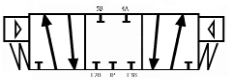
C2-5DCD & C5-5DCD



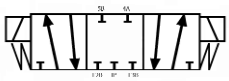
C2-9H



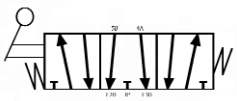
C2-2H



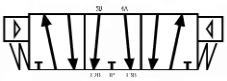
C2-6HDCD



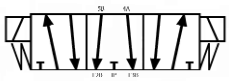
C2-9R



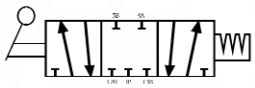
C2-2R



C2-6RDCD

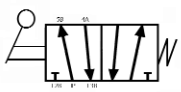


C2-10H

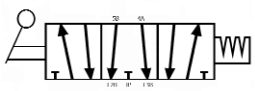


C2-3 & C5-3

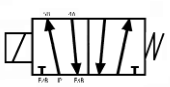
C2-7 & C5-7



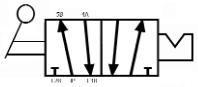
C2-10R



C2-4DCD & C5-4DCD



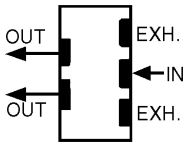
C2-8 & C5-8



Actuators

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

Flow Patterns

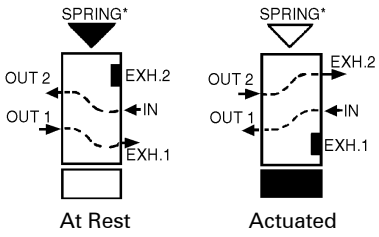


Capsula valves are 4-way, 5 ported directional control valves. This means that they have one inlet, 2 pressure outputs, and 2 exhaust ports. Dual exhausts facilitate individual flow control of each output port and allow dual pressure and diverter hookups.

Two Position Models

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

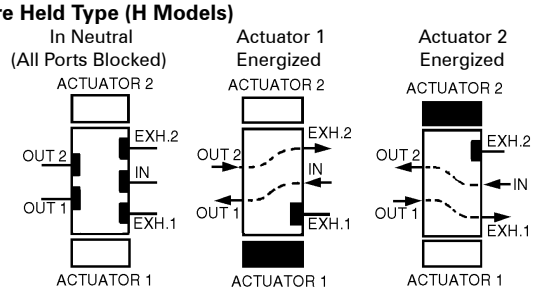
*On double solenoid or double air piloted models, the second actuator replaces the spring.



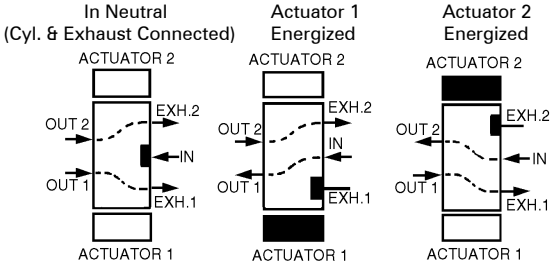
Three Position Models

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 cyl. to be "inched" along. Pressure released models allow the cylinder piston to float in neutral.

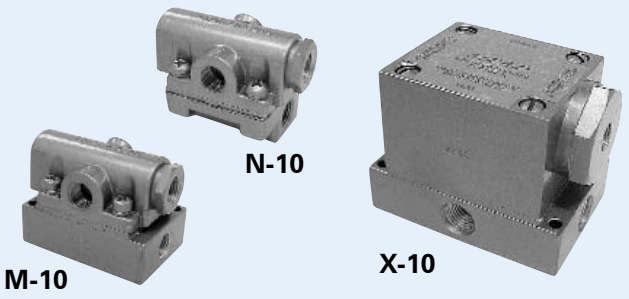
Pressure Held Type (H Models)



Pressure Release Type (R Models)



Dura-Matic 4-Way Valves



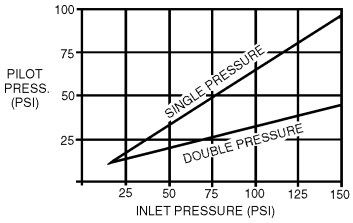
Built-In Speed Controls

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.



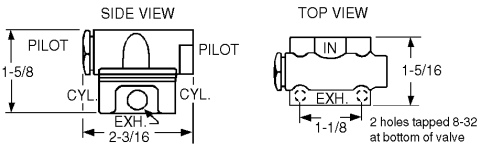
Bleed Piloted Valves:
Bleed piloted models output air from the pilot port(s). When the remote pilot valve is actuated the air is exhausted, causing the valve to shift. In contrast to pressure piloting, bleed pilot valves do not need separate air supplies. However, they do continue to bleed air as long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

Model	Description	Length	Width
404A	Bleed Limit Valve; ⅛" NPT Fitting	2 ¼"	½" Hex
405A	Bleed Limit Valve; ¼" OD Tubing	2 ¼"	½" Hex

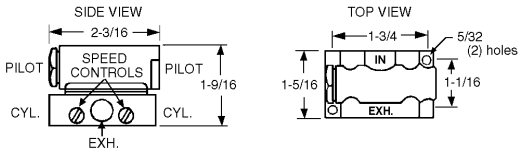
A wide variety of pilot operators are provided in the Micro-Line valves section (pages 26-27). This line of valves can be used to remotely pilot either the pressure or the bleed type.

Dimensions

L-10, N-10, T-10 and V-10 (all ports ⅛" NPT)



K-10, M-10, 0-10 and U-10 (all ports ⅛" NPT)



Size(")	Model	Function	Flow*	C_v
⅛	K-10	Single Pressure	13.6	.24
⅛	M-10	Double Pressure	13.6	.24
⅛	O-10	Single Bleed	13.6	.24
⅛	U-10	Double Bleed	13.6	.24
¼	W-10	Single Pressure	48.5	.63
¼	X-10	Double Pressure	48.5	.63
¼	Y-10	Single Bleed	48.5	.63
¼	Z-10	Double Bleed	48.5	.63
⅛	L-10‡	Single Pressure	10.1	.11
⅛	N-10‡	Double Pressure	10.1	.11
⅛	T-10‡	Single Bleed	10.1	.11
⅛	V-10‡	Double Bleed	10.1	.11

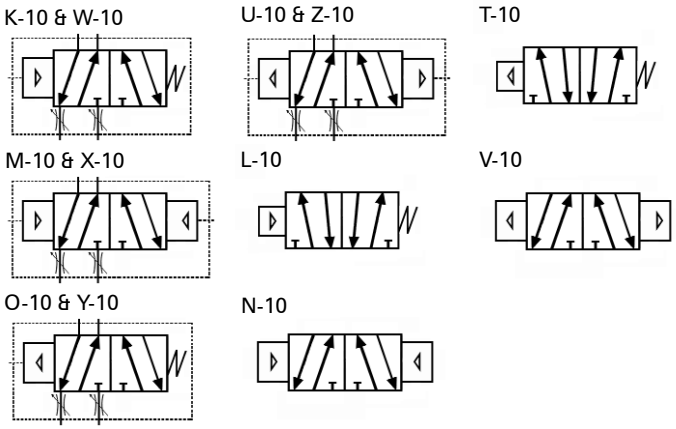
* Flow at 100 PSI Inlet pressure (in SCFM)

‡ These models do not have built-in flow controls

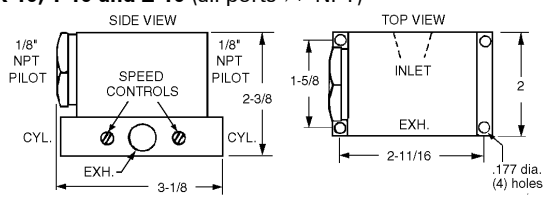
Technical Specifications	
Pressure :	20 to 150 PSI (min. 30 PSI on W-10)
Temperature :	-40°F to +150°F
Lubrication:	Petroleum base oil
Filtration:	40 micron

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

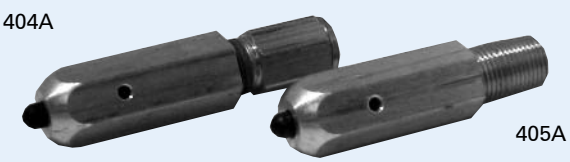
Valve Symbols



W-10, X-10, Y-10 and Z-10 (all ports ¼" NPT)



404A



405A

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.

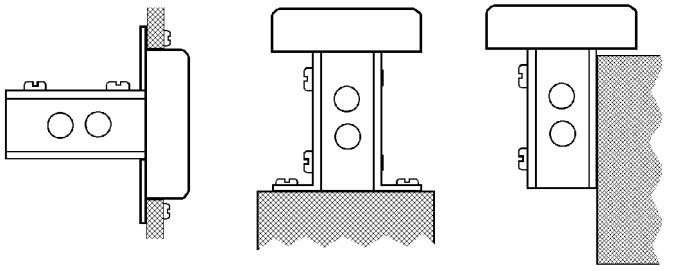
How To Order

Three actuator stickers (red, green & 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 standards side mounting. For foot bracket or panel mounting, be sure to specify the proper model number, listed below.



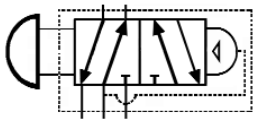
Panel Mount (LTV-PBGP) | **Foot Mount (LTV-PBGF)** | **Side Mount (LTV-PB, LTV-PBG)**

Operating Specifications

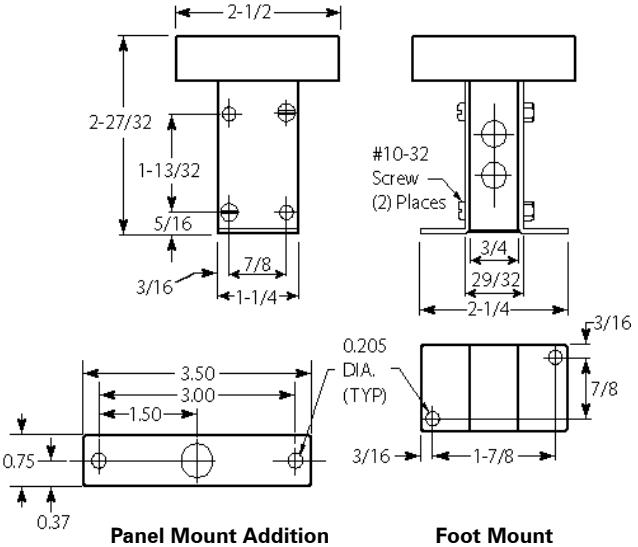
LTV Low Stress valves are ported 1/8" NPT. They are shipped with a 3-way normally closed flow pattern for pilot applications, but can be easily converted to 3-way normally open or 4-way flow by removing a port plug.

Technical Specifications	
Temperature :	0°F to 115°F
Pressure:	25 - 125 PSI air
Filtration:	Standard 40 micron. filter recommended to prolong seal life
Lubrication:	Required
Flow at 100 PSI:	14 SCFM
C_v Factor:	0.24

Valve Symbol - All Models



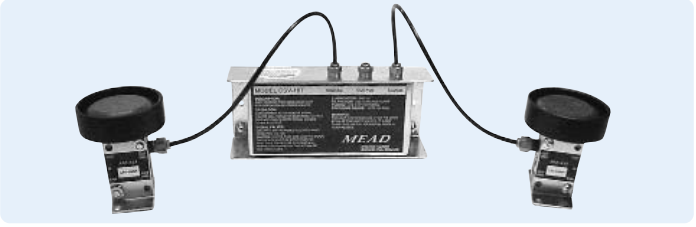
Dimensions



Panel Mount Addition (Top View) | **Foot Mount (Bottom View)**

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 60.



LTV

LTV-5
Pin Plunger

LTV-10
Straight Leaf

LTV-15
Roller Leaf

LTV-20
One-Way Roller Leaf

LTV-25*
Roller Plunger

LTV-30*
Cross Plunger

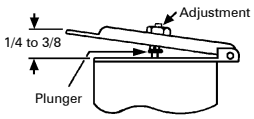
* For 15⁄32″ panel openings; 15⁄32-32 UNS

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.

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

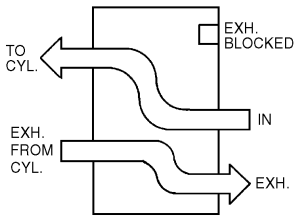
Electrically actuated LTV valves utilize DIN type solenoids. DIN solenoids feature a totally encapsulated coil with 3 prongs, allowing fast and easy connections. DIN connectors are ordered separately. Mead offers 3 types of DIN connectors to facilitate connections to the solenoid. A full description of these connectors can be found on page 66.

Solenoid shown with connector PVD1 (sold separately)

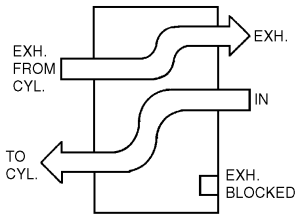
LTV Flow Patterns

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

Actuated



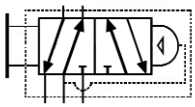
Not Actuated



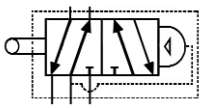
General Specifications	
Pressure Range:	25 to 125 PSI (Solenoid models to 100 PSI)
Temperature:	0°F to 115°F
Flow:	0.24 C_v
Flow at 100 PSI:	14 SCFM
Ports:	1⁄8″ NPT Standard; LTV-60 and LTV-110 pilot ports are 10-32
Lubrication:	Required
Filtration:	40 micron
Body:	Cast Aluminum
Seals:	Buna N
Spool:	Aluminum
Response:	20-30 ms

Valve Symbols (Only Model Numbers are indicated.)

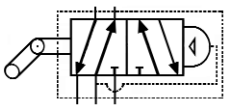
5, 10, 45, 50 & 85



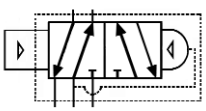
15, 25, 30, 40 & 75



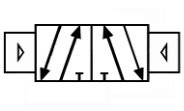
20 & 80



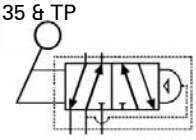
60 & 60L



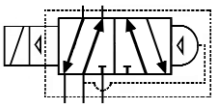
110



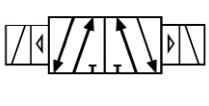
35 & TP



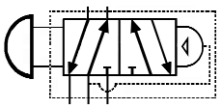
115DD



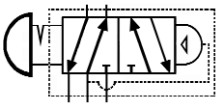
120DD



125, 140, MH, EH & FH

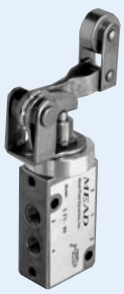


130 & ES



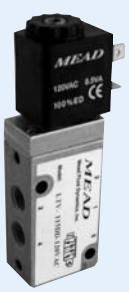
LTV-75
Roller

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

LTV-35* Flip Toggle

LTV-40* Ball Roller

LTV-45* Straight Plunger

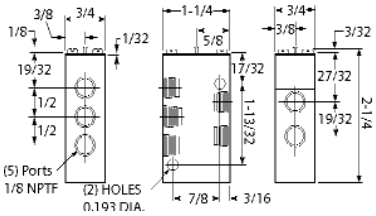
LTV-50 Fingertip Lever

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 & 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(") Full Open	Act. Stroke Distance(") Over Travel	Leng. (")	Width (")	Hgt. (")
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	Manual	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	4 15/32
LTV-85	Heavy-Duty Extended Rod	Air Spring	4 oz.	.125	.500	6 1/4	3/4	3 17/32
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	Manual	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	Manual	-	-	-	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)	Manual	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

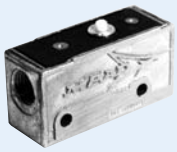
LTV-TP** Two Position

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


MV-5


MV-10


MV-15


MV-20


MV-25*


MV-30*

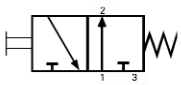
* For $^{15}/_{32}$" panel openings; $^{15}/_{32}$-32 UNS

Mead's MV air switches are 3-way ⅛" 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.

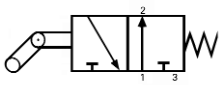
General Specifications	
Pressure Range:	Vacuum to 120 PSI
Media:	Air or Inert Gas
Flow:	0.11 C_v
Flow at 100 PSI:	6 SCFM
Ports:	⅛" NPT
Cycle Life:	7-10 million
Force to Actuate:	As Low as 6.4 Ounces
Max. Ambient Temp.:	115°F
Lubrication:	Not Required
Filtration:	40 Micron
Seals:	Viton
Spool:	Dupont Teflon®
Body:	Cast Zinc

Valve Symbols

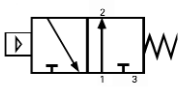
MV-5, 10, 45, 50, 70 & 80



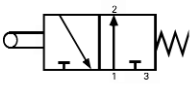
MV-20 & 80



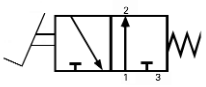
MV-60



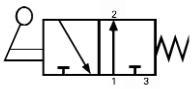
MV-15, 25, 30, 40 & 75



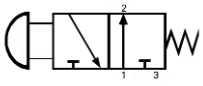
2060280 & 2060400



MV-35 & TP

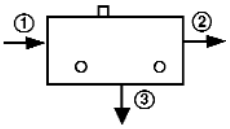


MV-140, EH, FH, MH & ES



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

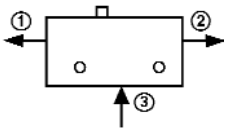
NORMALLY CLOSED



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

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

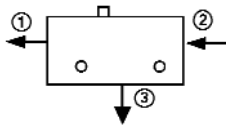
NORMALLY OPEN



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

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

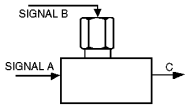
DIVERTER



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

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



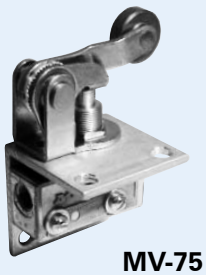
This hookup provides that flow will occur at C only when air signals are received at A and B. The MV-60 is a 3-way air piloted valve.

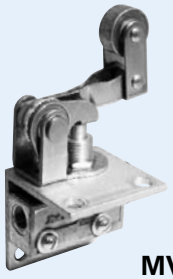
Add Push to Connect 1/4" Fittings

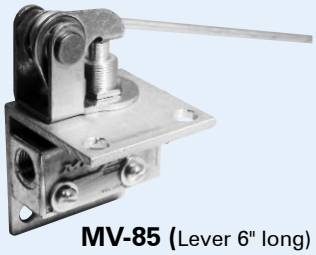

MV-45-C4


MV-25-C5

MV valves are available with brass push to connect fittings. For normally closed applications, specify "C4". The valve will be provided with a fitting for the inlet and outlet; the valve exhausts to atmosphere. For Normally Closed or Diverter applications, specify "C5" (all ports will have push to connect fittings). Any MV valve may utilize this option. The valve's body height increases by 5/16" and the mounting holes are 0.532" apart.


MV-75


MV-80


MV-85 (Lever 6" long)


MV-140*

* For $^{15}/_{32}$" panel openings; $^{15}/_{32}$-32 UNS

MV-35*
Locks In Down Position

MV-40*

MV-45*

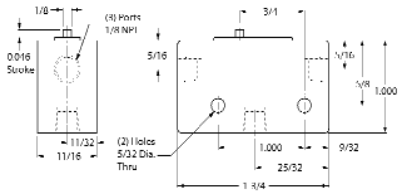
MV-50

MV-60
1/8″ NPT Pilot Port

MV-70
Lever 4 1/4″ long

* For 15/32″ panel openings; 15/32-32 UNS

Basic Valve Dimensions



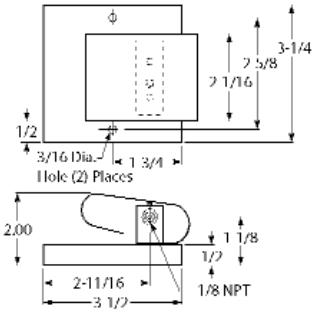
Envelope dimensions of valves are shown in the chart below.

Model	Actuator	Act. Force lbs. @ 100 PSI NC	Act. Force lbs. @ 100 PSI NO	Act. Stroke Distance To Crack Open	Act. Stroke Distance To Full Open	Act. Stroke Distance Over Travel	Envelope Dimensions Len.	Envelope Dimensions Wid.	Envelope Dimensions 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 3/16
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

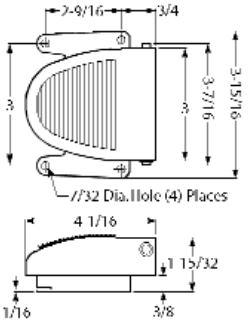
* PSI; NO=Normally Open, NC= Normally Closed

Foot Operated Models

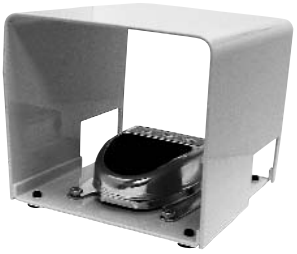
Model #2060280
Model has two 1/8″ NPT ports

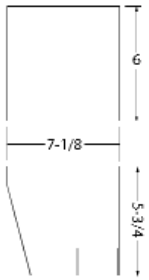


Model #2060400
Model has plug-in fittings for 1/4″ OD tube



Model #2060400G (Guarded)





NOTE: 2060400 and 2060400G are provided with push to connect fittings as the C4 option (described on opposite page). For Normally Open applications or where all ports are needed, specify either 2060400-C5 or 2060400G-C5.

MV-MH‡

MV-TP‡

MV-FH (Button Flush)‡
Specify Red, Green or Black

MV-EH (Button 5/16″ Up)‡
Specify Red, Green or Black

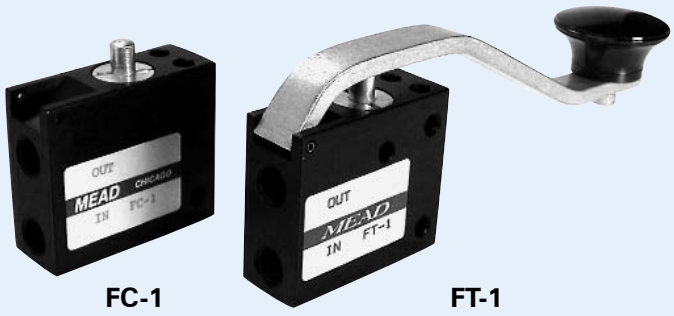
MV-ES‡
Red & Spring Return Only

‡ For 1 3/16″ panel opening

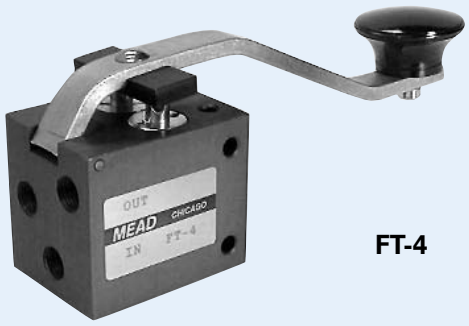
General Purpose Cam, Foot, Hand and Button Valves

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
Cam Buttons:	Hardened Steel
Spring:	Stainless Steel
Seals:	Buna
Body:	Machined Aluminum
Body (4B-1, 4W-1, 201 and 3C-1):	Die Cast Zinc



FC-1 FT-1



FT-4

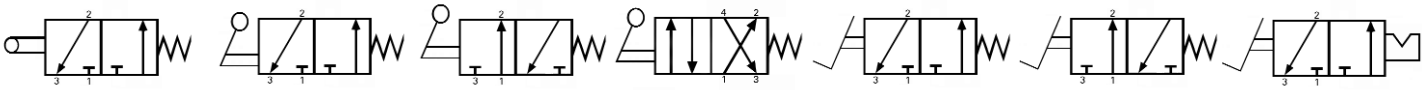
Poppet Spool Type

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 (Cv)	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.

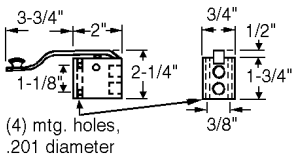
Valve Symbols

FC-1, FC-2A & FC-101 FT-1 & FT-101 FC-2A FT-4 201 (NC Setup) 201 (NO Setup) 201 (Detent Setup)

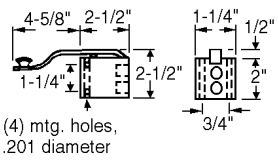


Dimensions

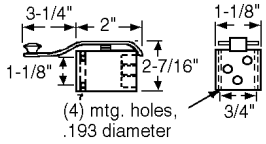
Models FC-1, & FC-2A,FT-1, FT-2A



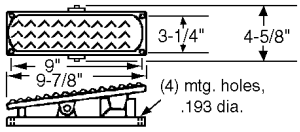
Models FC-101 & FT-101



Model FT-4

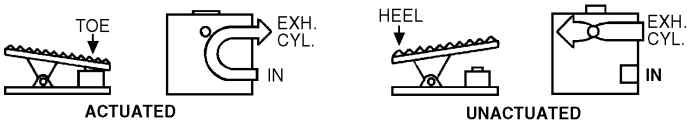


Model 201



Flow Patterns

Model 201



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

201

General Purpose Cam, Foot, Hand and Button Valves

FC-52

PC-51

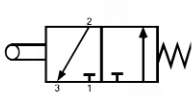
Balanced Spool Type

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.

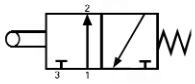
Model Number	Actuator	Style	Port (NPT)	Flow (Cv)	Pre-Travel	Over Travel	Force Req. @ 100 PSI
FC-51	Cam Button	3-Way NC	1/8"	0.81	1/8"	1/8"	7lbs.
FC-52	Cam Button	3-Way NO	1/8"	0.68	1/8"	1/8"	5lbs.
PC-51	Palm Button Spr. Ret.	3-Way NC	1/8"	0.81	1/8"	1/8"	7lbs.
PC-51A	Palm Button Detent	3-Way NC	1/8"	0.81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

Valve Symbols

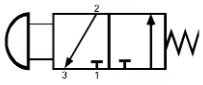
FC-1



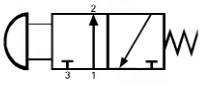
FC-52



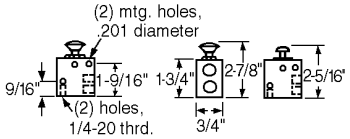
PC-51 & PC-51A



PC-52



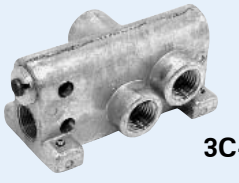
Dimensions



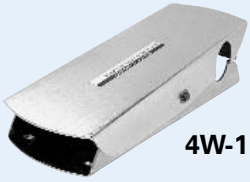
Spool Type - Rugged Conditions

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

Model Number	Actuator	Style	Port (NPT)	Flow (Cv)	Pre-Travel	Over Travel	Force Req. @ 100 PSI
3C-1	Cam Button	3-Way NC	1/4"	0.48	1/16"	None	9lbs.
4B-1	Hand	4-Way	1/4"	0.48	5/8"	None	5lbs.
4W-1	Foot Treadle	4-Way	1/4"	0.48	5/16"	None	18lbs.



3C-1

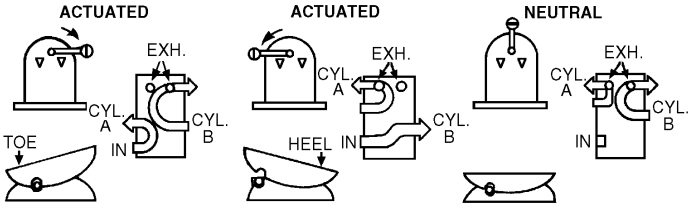


4W-1

4B-1

Flow Patterns

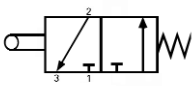
Models 4B-1 and 4W-1



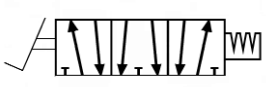
Note: In neutral, cylinder ports are dumped to atmosphere.

Valve Symbols

3C-1

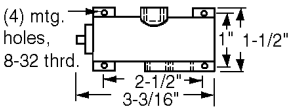


4W-1

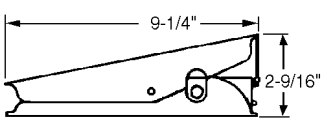


4B-1

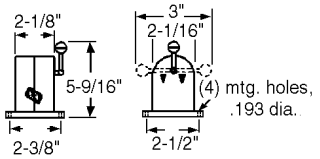
Dimensions



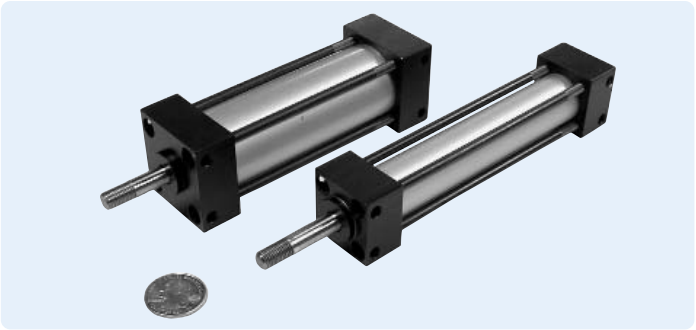
Note: height is 1-1/2"



Note: width is 3-5/16"



Small Bore Tie Rod



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

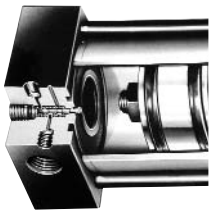
Cylinders having a common piston rod that protrudes from both ends are available in all bore sizes. In addition to providing a dual power source, double rod cylinders serve to minimize rod deflection and to facilitate the control and adjustment or rod travel.

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.

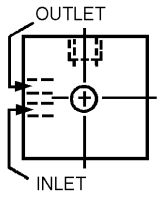
Note: Cushions are not recommended for hydraulic use.

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. Pressure 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 circuit where an impulse or pressure spike may occur.

Operating Specifications	
Temp. Range:	-40 to +250°F (to +400°F 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 pg. 57.

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 2° 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 45 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

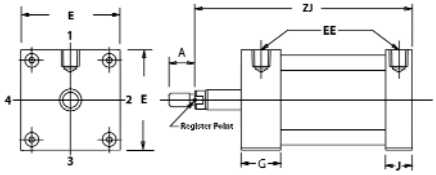
Small Bore Tie Rod Dimensions and Ordering Information

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 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
XT	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 3/8 Pivot 3 1/4 Clevis
ZJ*	2 5/8	2 5/8
ZM**	3 1/8	3 1/8

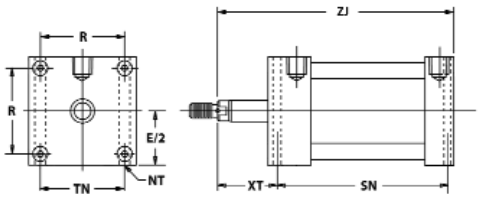
* Add Stroke Length to Dimension

** Add 2 x Stroke Length to Dimension

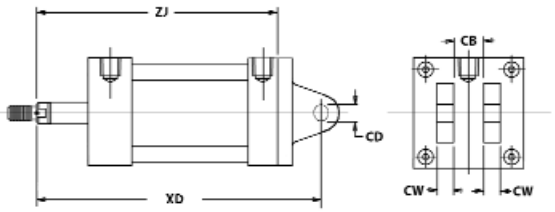
Basic Cylinder



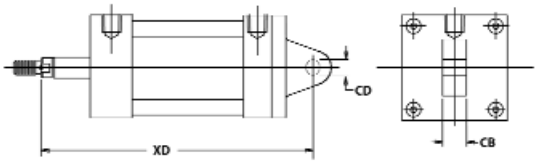
Bottom Flush Model FB



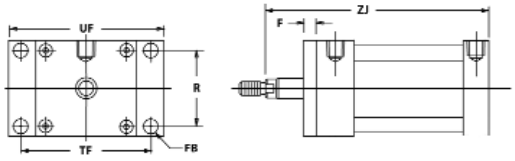
Clevis Model PB



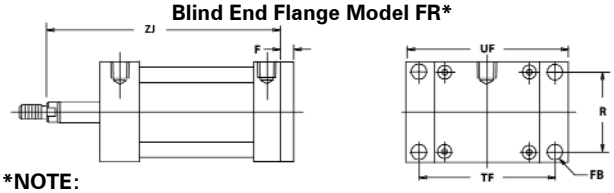
Pivot Model PE



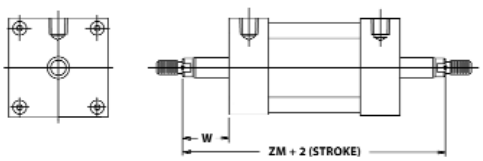
Rod End Flange Model FH*



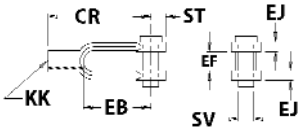
Blind End Flange Model FR*



Double Rod Model DR

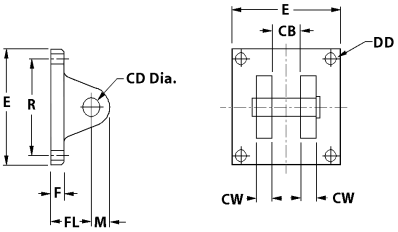


DMC Forged Rod Clevis w/Pin



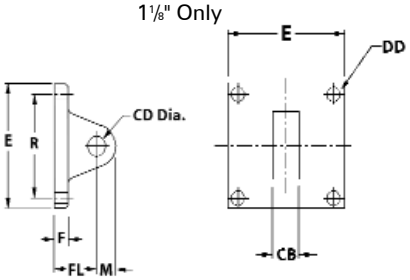
DMR Clevis Bracket w/Pin

1 1/8" Only

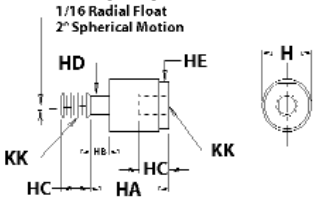


DMP Pivot Bracket

1 1/8" Only



Self Aligning Rod Couplers



***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 **CL** (cut to length).

(4) 3/4" and 1 1/8" bore models have (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.

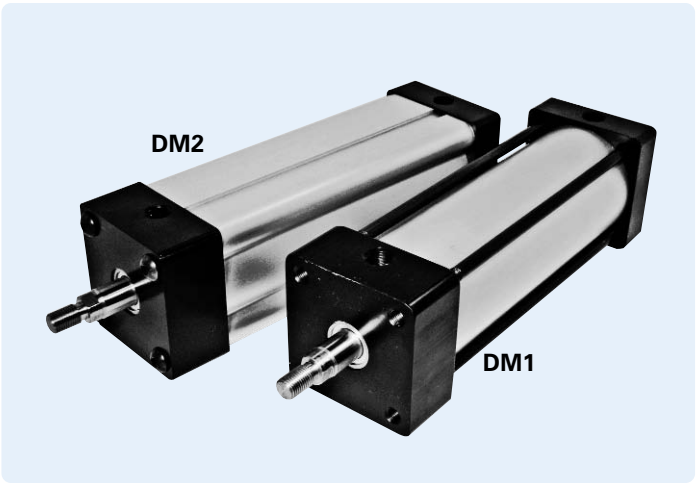
Options

DR		Double Rod
VI	HOT	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

Dyna-Mation Series: DM1 & DM2



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 38-47) 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

HD1
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. Pressure 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 circuit where an impulse or pressure spike may occur.

NOTE: 6" bore only available in DM1 Series.

Operating Specifications	
Temp. Range:	-40 to +250°F (to +400°F 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.

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 35 for ordering instructions.

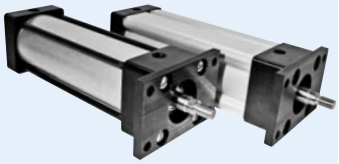
Right Angle Flow Controls

Control the speed of your cylinders with Mead Flow Control Valves. Right-angle flow controls can be found on page 63. For precise metering of air, see Mead Dyla-Trol Valves on page 66.


Pivot Mount


Clevis Mount

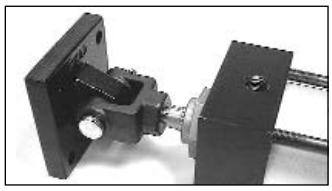

Rear Flange


Front Flange

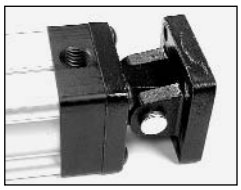
Accessories

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.

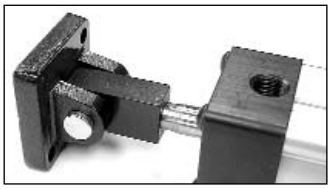
Rod Clevis and Pivot Bracket



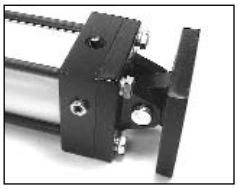
Clevis Bracket and PE Cylinder



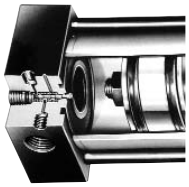
Rod Eye and Clevis Bracket



Pivot Bracket and PB Cylinder



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

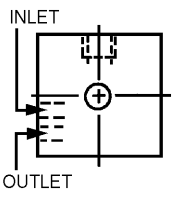


A miniature 3-way valve built into the cylinder head is actuated by the cylinder piston as it reaches the end of its stroke. Once contacted, the 3-way Inter-Pilot® valve emits an air signal. In this manner, sequencing is achieved without external limit switches and electric wiring.

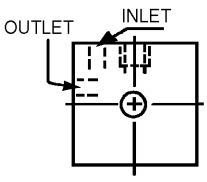
Inter-Pilots® may be built into either or both cylinder heads. They are not for hydraulic use. Cylinder operating pressure must not exceed pressure used to feed the Inter-Pilot®.

Inter-Pilot® Port Locations

For 1 ½" Bore Cylinders

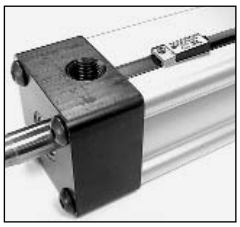


For 2"-4" Bore Cylinders



Note: Inter-Pilot® ports are 10-32.

Rod Position Sensors



Hall Effect 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.

Hall Effect

Hall effect technology provides contactless switching. With contactless switching there are no moving parts; therefore, reliability and life expectancy are greatly increased. Hall Effect 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 to 194°F
Operating Time:	On 2 ms	**Repeatability:**	.001 ms
	Off .1 ms	**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) included.

Note: Not for use with hydraulic cylinders.

Technical Information			
Operating Voltage:	240 AC Max.	**Working Temp:**	67 to 200°F
Switch Current:	.5 Amps Max.	**Operating Time:**	On .5 ms
	10 Watts Max.		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 ⅛" , ¼", ½" pipe sizes. See pg. 57.

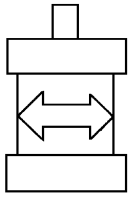
Self Aligning Rod Couplers

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 30 for complete listing of Mead's self aligning rod couplers.

Ordering Dyna-Mation DM1 & DM2

STEP 1:

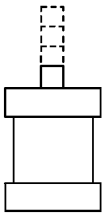


SELECT A BORE SIZE

Bore	1½″	2″	2½″	3¼″	4″	6″
Force*	177	314	491	830	1257	2827
Models	**DM1-150**	**DM1-200**	**DM1-250**	**DM1-325**	**DM1-400**	**DM-600**
Available	**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

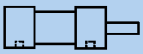
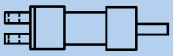
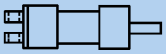
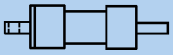
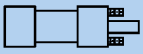
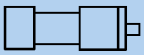
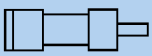
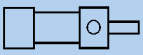
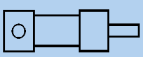
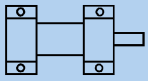
PISTON ROD DIAMETERS:						
Bore	1½″	2″	2½″	3¼″	4″	6″
Rod Diam.	⅝″	⅝″	⅝″	1″	1″	1⅜″

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:

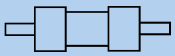
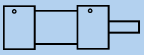
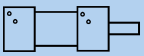
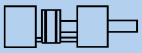
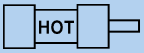
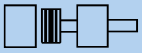
SELECT A MOUNTING STYLE

		Mead Code	Bore Diameter 1½″	2″	2½″	3¼″	4″	6″	NFPA Code	Description
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**	•	•	•	•	•	•	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 sides 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.

Ordering Dyna-Mation DM1 & DM2

STEP 4:

SELECT CYLINDER OPTIONS

		Mead Code	Bore Diameter 1½″	2″	2½″	3¼″	4″	6″	Description
Double Rod		**DR**	●	●	●	●	●	●	Rod extends through both heads: (adds to cylinder rigidity)
Cushions (Not available with Trunnion Mount)		**Front CF Rear CR Both CB**	●	●	●	●	●	●	Dampen the impact and sound that occur at stroke completion; cushions are adjustable.
Inter-Pilots (Not available with Trunnion Mount)		**Front IPF Rear IPR 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 (Viton)		**VI**	●	●	●	●	●	●	Viton™ seals are suitable for high temperature environments (400°F Max.)
Magnetic Pistons		**MP**	●	●	●	●	●	●	Enables Reed & Hall Effect switches to sense piston location. Note: Reed switch/Hall Effect not available on all hydraulic cylinders. (Contact Mead)

STEP 5:

When ordering Dyna-mation cylinders, list the:

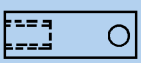
1. *Model Number*
2. *Stroke*
3. *Mounting Style*
4. *Options (If Needed)*

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)

Accessories

	Bore Diameter	1½″	2″	2½″	3¼″	4″	6″
	Flex Rod Couplers	DMA-437	DMA-437	DMA-437	DMA-750	DMA-750	DMA-1000
	Forged Rod Clevis	DMC-1	DMC-1	DMC-1	NA	NA	NA
	Rod Clevis (NFPA Std.)	DMC-2	DMC-2	DMC-2	DMC-4	DMC-4	DMC-6
	Machined Rod Eye (NFPA Std.)	DME-1	DME-1	DME-1	DME-2	DME-2	DME-3
	Pivot Bracket	DMP-1	DMP-2	DMP-3	DMP-4	DMP-5	DMP-8
	Clevis Bracket (with Pin)	DMR-1	DMR-2	DMR-3	DMR-4	DMR-5	DMR-8

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

Hall Effect Switches

Sourcing
For DM1 series: CS-6200P
For DM2 series: CS-7003P
Sinking
For DM1 series: CS-6200N
For DM2 series: CS-7003N

Cylinders must have a magnetic piston (MP). For technical information, see page 33.

Reed Switches

For DM1 series: CS-6200R
For DM2 series: CS-7003R
Plain Wire Leads

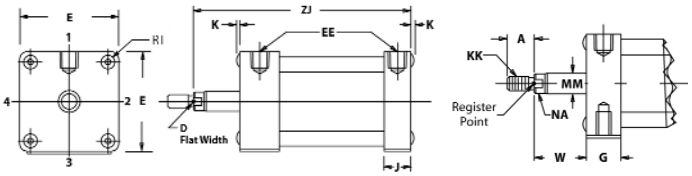
Cylinders must have a magnetic piston (MP). For technical information, see page 33.

Special Cylinders

We invite inquiries regarding non-standard cylinders. Please call 773-685-6800 or your local Mead representative.

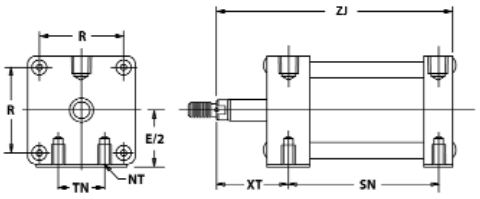
DM1 & DM2 Dimensions

Basic Cylinder

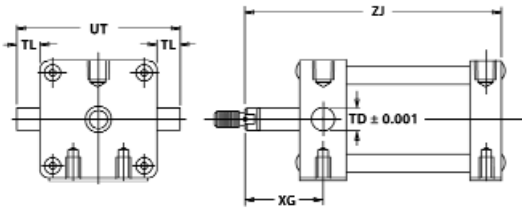


NOTE: DM1 Cylinders are constructed with sleeve nuts; use RT, K does not exist. DM2 use K; RT does not exist.

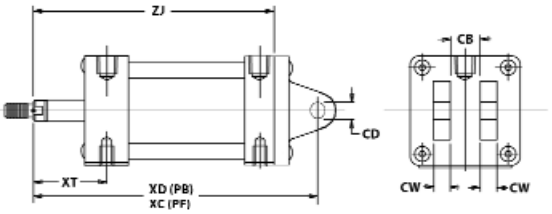
Bottom Flush Model FB



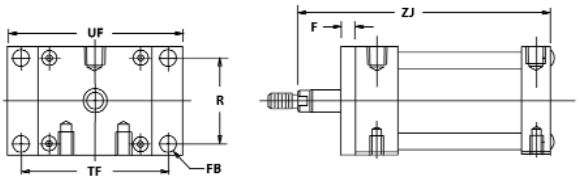
Rod End Trunnion Model TF



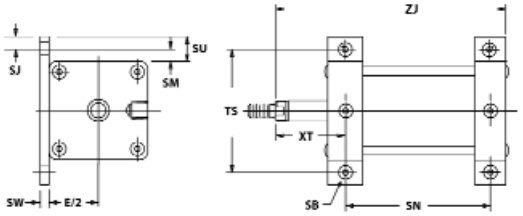
Clevis Model PB and PF



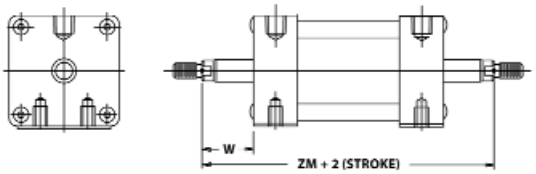
Rod End Flange Model FH*



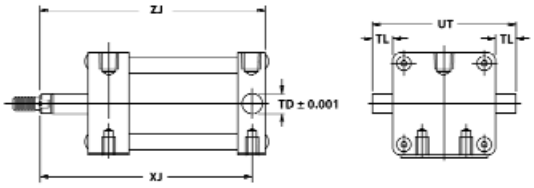
Foot Mount Plate Model FT



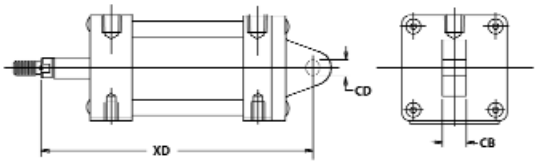
Double Rod Model DR



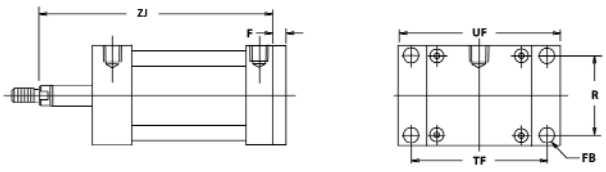
Blind End Trunnion Model TR



Pivot Model PE



Blind End Flange Model FR*



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

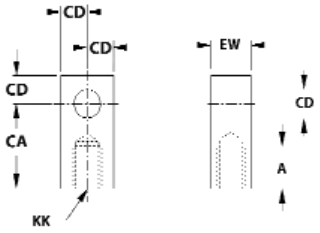
DM1 & DM2 Dimensions

Bore	1½	2	2½	3¼	4	6
A	¾	¾	¾	1 ⅛	1 ⅛	1 ⅝
CA	1 ½	1 ½	1 ½	2 1⁄16	2 1⁄16	1
CB	¾	¾	¾	1 ¼	1 ¼	1 ½
CD	½	½	½	¾	¾	1
CE	1 ½	1 ½	1 ½	2 ⅜	2 ⅜	3 ⅛
CW	½	½	½	⅝	⅝	¾
D	½	½	½	⅞	⅞	1 ⅛
DD	17⁄64	23⁄64	23⁄64	7⁄16	7⁄16	½-20
E	2	2 ½	3	3 ¾	4 ½	6 ½
EE(NPTF)***	¼	¼	¼	½	½	¾
F	⅜	⅜	⅜	⅝	⅝	¾
FB	5⁄16	⅜	⅜	7⁄16	7⁄16	9⁄16
FL	1 ⅛	1 ⅛	1 ⅛	1 ⅞	1 ⅞	2 ¼ Clevis
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 ½
K	⅛	5⁄32	5⁄32	3⁄16	3⁄16	3⁄16
KK	7⁄16-20	7⁄16-20	7⁄16-20	¾-16	¾-16	1-14
M	½	½	½	¾	¾	2 ¼ Clevis
MM	⅝	⅝	⅝	1	1	1 ⅜
NA	19⁄32	19⁄32	19⁄32	31⁄32	31⁄32	1 5⁄16
NT	¼-20	5⁄16-18	⅜-16	½-13	½-13	¾-10
R	1 7⁄16	1 27⁄32	2 3⁄16	2 ¾	3 21⁄64	4 ⅞
RT	¼-28	5⁄16-24	5⁄16-24	⅜-24	⅜-24	½-20
SB	17⁄64	21⁄64	25⁄64	33⁄64	33⁄64	33⁄64
SJ	⅜	⅜	⅜	½	½	11⁄16
SM	⅜	⅜	⅜	½	½	11⁄64
SU	¾	¾	¾	1	1	11⁄64
SW	3⁄16	3⁄16	¼	¼	¼	7⁄64
TD	1	1	1	1	1	1 ⅜
TF	2 ¾	3 ⅜	3 ⅞	4 11⁄16	5 7⁄16	7 5⁄8
TK	⅜	½	9⁄16	¾	¾	1 ⅛
TL	1	1	1	1	1	1 ⅝
TN	⅝	⅞	1 ¼	1 ½	2 1⁄16	3 ¼
TS	2 ¾	3 ¼	3 ¾	4 ¾	5 ½	7 ⅞
UF	3 ⅜	4 ⅛	4 ⅝	5 ½	6 ¼	8 ⅝
UT	4	4 ½	5	5 ¾	6 ½	9 ¼
W	1	1	1	1 ⅜	1 ⅜	1 ⅝
XT	1 15⁄16	1 15⁄16	1 15⁄16	2 7⁄16	2 7⁄16	2 13⁄16
XG	1 ¾	1 ¾	1 ¾	2 ¼	2 ¼	2 13⁄16
H	1 ¼	1 ¼	1 ¼	1 ¾	1 ¾	2 ½
HA	2	2	2	2 5⁄16	2 5⁄16	2 15⁄16
HB	½	½	½	½	½	½
HC	¾	¾	¾	1 ⅛	1 ⅛	1 ⅝
HD	⅝	⅝	⅝	31⁄32	31⁄32	1 ⅜
HE	1	1	1	1 ½	1 ½	2 ¼
HF	10,000	10,000	10,000	34,000	34,000	64,000
Note: * Add Stoke Length to Dimensions Below ** Add Twice Stroke to ZM Dimension						
SN*	2 ¼	2 ¼	2 ⅜	2 ⅝	2 ⅝	3 ⅛
XC*	5 ⅜	5 ⅜	5 ½	6 ⅞	6 ⅞	7 ⅞
XD*	5 ¾	5 ¾	5 ⅞	7 ½	7 ½	7 ½
XJ*	4⅛	4⅛	4¼	5	5	5 ⅞
ZJ*	4 ⅝	4 ⅝	4 ¾	5 ⅝	5 ⅝	6 ⅝
ZM**	6 ⅛	6 ⅛	6 ¼	7 ½	7 ½	8 ¾

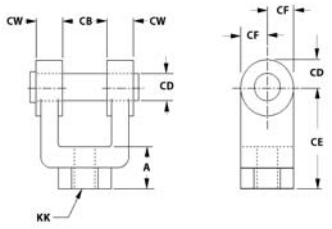
Note: For Inter-Pilot® port locations, see page 33.

*** For the 1-1/2", 2" and 2-1/2" Bores: 3/8" Ports Available Consult Factory.

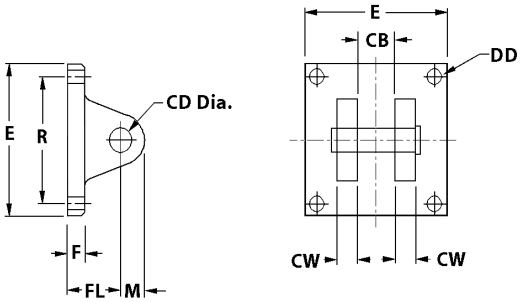
DME Interchangeable Rod Eye



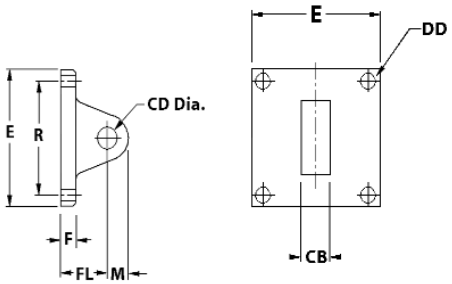
DMC Interchangeable Rod Clevis with Pin



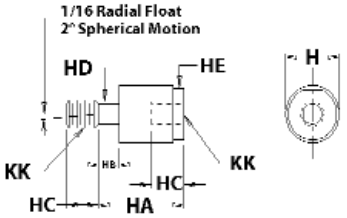
DMR Clevis Bracket w/Pin



DMP Pivot Bracket

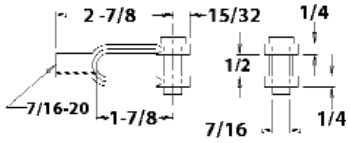


Self Aligning Rod Couplers



DMC-1 Forged Rod Clevis w/Pin

1½" through 2½" bores



HD1 Cylinders

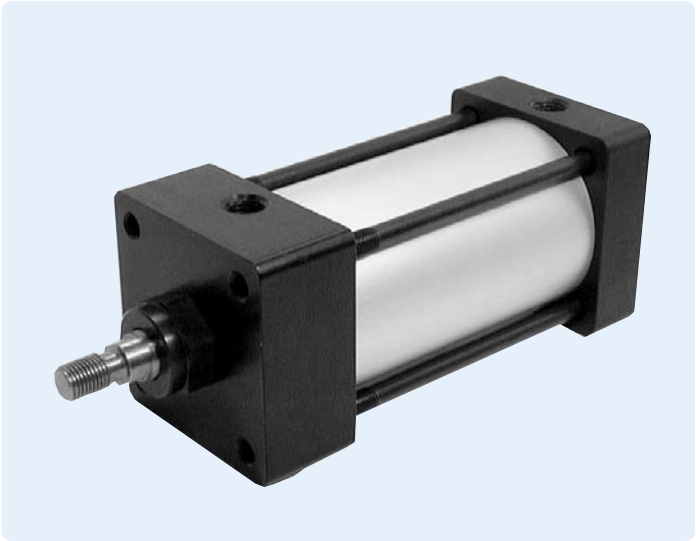
Cylinders For Abusive Conditions

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

External Bearing Ensures Smooth Motion

HD 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 (to +400°F on request)
Lubrication:	For maximum cylinder life, non-detergent petroleum based oil is recommended. Non-lube seals avail.
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 ½"	177	1.77	⅝" or 1"	250	1000
2"	314	3.14	⅝" or 1"	250	1000
2 ½"	491	4.91	⅝" or 1"	250	1000
3 ¼"	830	8.30	1" or 1 ⅜"	250	700
4"	1257	12.57	1" or 1 ⅜"	250	650
6"	2827	28.27	1 ⅜" or 1 ¾"	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 you 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 rate or approved for use in a hydraulic circuit 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.

Customize Your Cylinder

The HD 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.

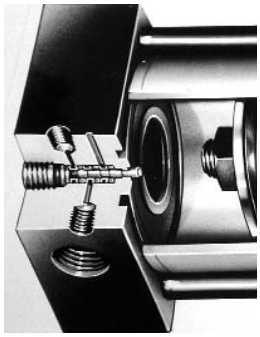
A built-in check valve assures a fast getaway in the opposite direction. A pre-lubricated nitrile cushion seal provides years of reliable service.

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)

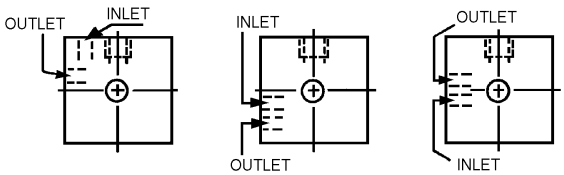


Mead's Inter-Pilot® is a miniature 3-way valve built in the cylinder head. Actuated by the cylinder's piston as it reaches the end of its stroke, the valve emits an air signal. Thus, sequencing is achieved without external limit switches and electric wiring.

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



STYLE 1 STYLE 2 STYLE 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 HD cylinders are normally rated to 250°F, cylinders with Viton seals are rated to 400°F.

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 Hall Effect or Reed switches for sensing rod position, you will need to order your cylinder with a magnetic piston.

Mead's Hall Effect 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. Tie rod mounting facilitates fast and accurate position setting.

Oversized Rod (OR)

Available on all models; the HD-150, 200 and 250, you can order a 1" rod diameter rather than the standard 5⁄8" diameter; the HD-325 and HD-400 with a 1-3⁄8" rather than the standard 1"; the HD-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 pg. 57.

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 30 for complete listing of Mead's self aligning rod couplers.

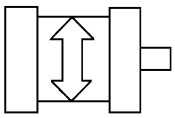
Flow Control Valves

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. Pg. 59.

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 66.

Order HD1 Cylinder

STEP 1:

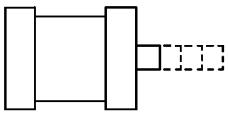


Select A Bore Size

Bore	1½″	2″	2½″	3¼″	4″	6″
Force*	177	314	491	830	1257	2827
Model	**HD1-150**	**HD1-200**	**HD1-250**	**HD1-325**	**HD1-400**	**HD1-600**

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

STEP 2:



Choose Stroke Length

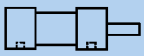
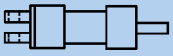
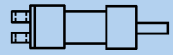
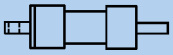
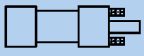
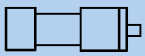
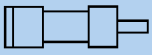
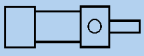
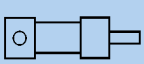
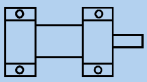
PISTON ROD DIAMETERS:

Bore Diam.	1½″	2″	2½″	3¼″	4″	6″
Rod Diam.	⅝″ or 1″	⅝″ or 1″	⅝″ or 1″	1″ or 1 ⅜″	1″ or 1 ⅜″	1 ⅜″ or 1 ¾″

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

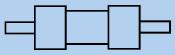
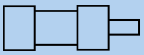
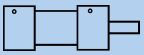
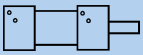
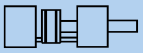
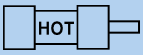
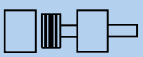
STEP 3:

Select A Mounting Style

		Mead Code	Bore Diameter 1½″	2″	2½″	3¼″	4″	6″	NFPA Code	Description
Flush Bottom/Front Rear		**FB**	●	●	●	●	●	●	MS-4	Four tapped holes in bottom and in both cylinder faces (front and rear). Rear sleeve nuts standard.
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 thicker 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 sides 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.

STEP 4:

Select Cylinder Options

		Mead Code	Bore Diameter 1½″	2″	2½″	3¼″	4″	6″	Description
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) Rear (CR) 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) Rear (IPR) 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**	●	●	●	●	●	NA	Self-Lubricating seals are used in place of standard Buna N seals; Note: Not available on hydraulic cylinders.
High Temp. Seals		**VI**	●	●	●	●	●	NA	Viton™ seals are suitable for high temperature environments (400°F Max.)
Magnetic Pistons		**MP**	●	●	●	●	●	●	Enables Reed & Hall Effect switches to sense piston. Note: Reed switch/Hall Effect not available on all hydraulic cylinders. (Contact Mead)

* Cushions or Inter-Pilots® are not available on the rod end head of 1½″ bore cylinders with oversized rod.

STEP 5:

When ordering Dyna-mation cylinders, list the:

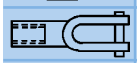
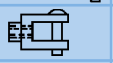
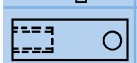
1. *Base Model*
2. *Stroke*
3. *Mounting Style*
4. *Options (If Needed)*

Build A Model Number

Base Model		Stroke		Mounting Style		Options
HD1-200	-	**10**	-	**PB**	-	**CF**

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

Accessories

	Bore Diameter:	Rod Size	1½″	2″	2½″	3¼″	4″	6″
	Flex Rod	STD	DMA-437	DMA-437	DMA-437	DMA-750	DMA-750	DMA-1000
	Couplers	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			
	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-?
	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-?
	Pivot Bracket Kit	ALL	HD40-150	HD40-200	HD40-250	HD40-325	HD40-400	DMP-8 Bracket Only
 Clevis Bracket Mounting Kits	Short Clevis (with Pin)	ALL	HD35S-150	HD35S-200	HD35S-250	HD35S-325	HD35S-400	NA
	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 37; all others see page 45.

Hall Effect Switches

Model CS-6200P
Sourcing
Model CS-6200N
Sinking

Cylinders must have a magnetic piston (MP). For technical information, see page 33.

Reed Switches

Model CS-6200R
Wire Leads

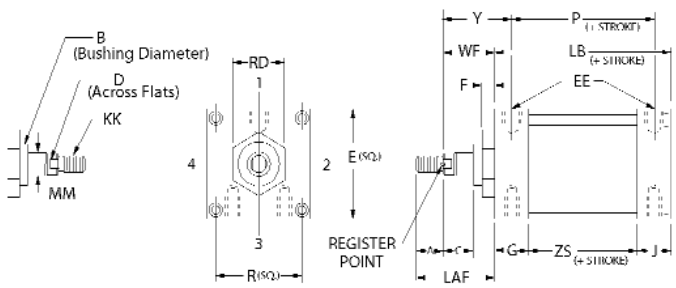
Cylinders must have a magnetic piston (MP). For technical information, see page 33.

Special Cylinders

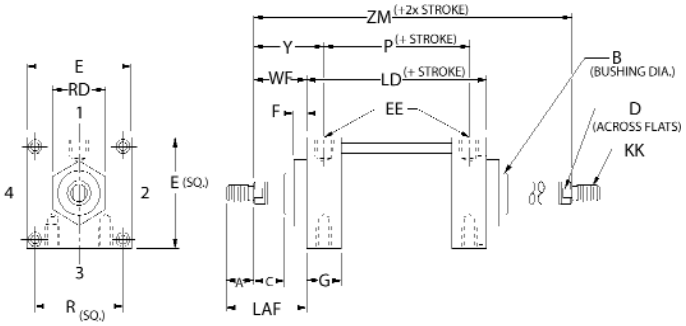
We invite inquiries regarding non-standard cylinders. Please call 773-685-6800 or your local Mead representative.

HD1 Dimensions

Basic Cylinder NFPA: MXO



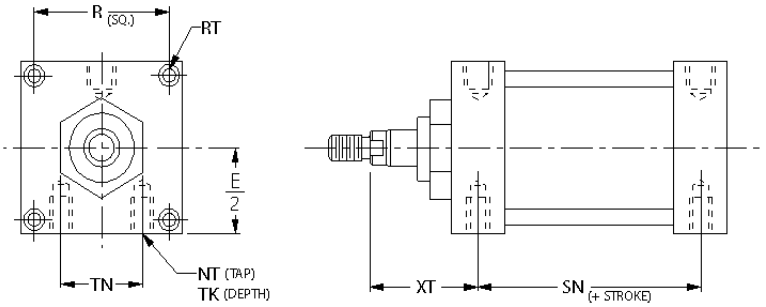
Double Rod NFPA: MDXO



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

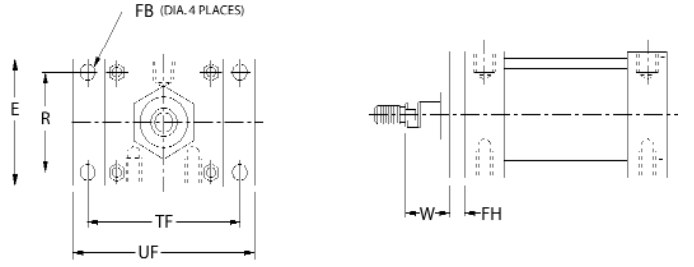
BORE	MM ROD	A	B	C	D	E	EE	F	G	J	K	KK	LAF	LB	LD	P	R	WF	Y	ZS	ZM	RD
1 1/2	5/8	3/4	1 1/8	3/8	1/2	2	1/4	3/8	1 7/16	15/16	-	7/16-20	1 3/4	3 5/8	4 1/8	2 1/4	1 7/16	1	1 15/16	1 1/4	6 1/8	1 1/8
	1	1 1/8	1 1/2	5/8	7/8							3/4-16	2 1/2					1 3/8	2 5/16		6 1/2	
2	5/8	3/4	1 1/8	3/8	1/2	2 1/2	1/4	3/8	1 7/16	15/16	-	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					1 3/8	2 5/16		6 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 1/2
	1	1 1/8	1 1/2	5/8	7/8							3/4-16	2 1/2					1 3/8	2 5/16		6 5/8	
3 1/4	1	1 1/8	1 1/2	3/8	7/8	3 3/4	1/2	5/8	1 11/16	1 3/16	-	3/4-16	2 1/2	4 1/2	4 3/4	2 5/8	2 3/4	1 3/8	2 7/16	1 3/8	7 1/2	1 3/4
	1 3/8	1 5/8	2	1/2	1 1/8							1-14	3 1/4					1 5/8	2 11/16		7 3/4	
4	1	1 1/8	1 1/2	1/2	7/8	4 1/2	1/2	5/8	1 11/16	1 3/16	-	3/4-16	2 1/2	4 1/2	4 3/4	2 5/8	3 21/64	1 3/8	2 7/16	1 3/8	7 1/2	1 3/4
	1 3/8	1 5/8	2	5/8	1 1/8							1-14	3 1/4					1 5/8	2 11/16		7 3/4	
6	1 3/8	1 5/8	2	5/8	1 1/8	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 3/4	2 1/4	2 3/8	3/4	1 1/2							1 1/4-12	3 7/8					1 7/8	3 1/16		9	

Rear, Front & Bottom Tapped (FB) NFPA Code: MS4

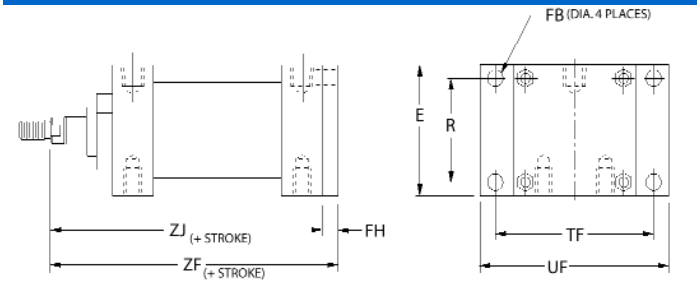


BORE	MM ROD DIA.	NT	RT	TK	TN	SN	XT
1 1/2	5/8	1/4-20	1/4-28	3/8	5/8	2 1/4	1 15/16
	1						2 5/16
2	5/8	5/16-18	5/16-24	1/2	7/8	2 1/4	1 15/16
	1						2 5/16
2 1/2	5/8	3/8-16	5/16-24	9/16	1 1/4	2 3/8	1 15/16
	1						2 5/16
3 1/4	1	1/2-13	3/8-24	3/4	1 1/2	2 5/8	2 7/16
	1 3/8						2 11/16
4	1	1/2-13	3/8-24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

Front Flange (FH) NFPA: MF1

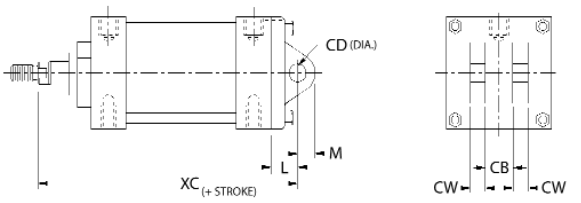


Rear Flange (FR) NFPA: MF2

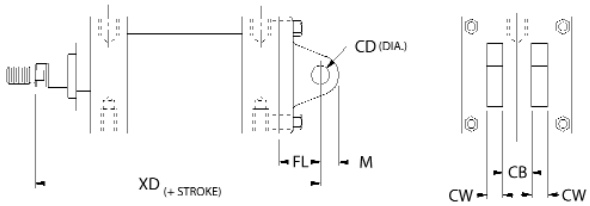


BORE	MM ROD DIA.	E	FB (BOLT)	FH	R	TF	UF	W	ZJ	ZF
1½	⅝	2	⅝16	⅜	1 7/16	2¾	3⅜	⅝	4⅝	5
	1							1	5	5⅜
2	⅝	2½	⅜	⅜	1 27/32	3⅜	4⅛	⅝	4⅝	5
	1							1	5	5⅜
2½	⅝	3	⅜	⅜	2 3/16	3⅞	4⅝	⅝	4¾	5⅛
	1							1	5⅛	5½
3¼	1	3¾	7/16	⅝	2¾	4 11/16	5½	¾	5⅝	6¼
	1⅜							1	5⅞	6½
4	1	4½	7/16	⅝	3 21/64	5 7/16	6¼	¾	5⅝	6¼
	1⅜							1	5⅞	6½
6	1⅜	6½	9/16	¾	4⅞	7⅝	8⅝	⅞	6⅝	7⅜
	1¾							1⅛	6⅞	7⅝

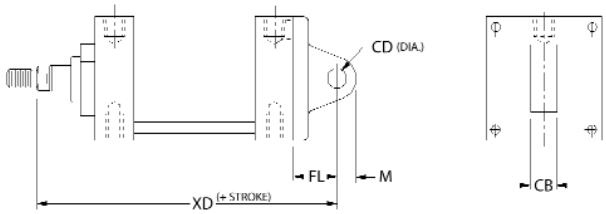
Short Clevis (PF) NFPA: MP1



Long Clevis (PB) NFPA: MP2



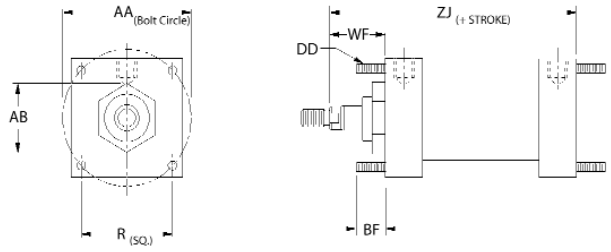
Pivot (PE) NFPA: MP4



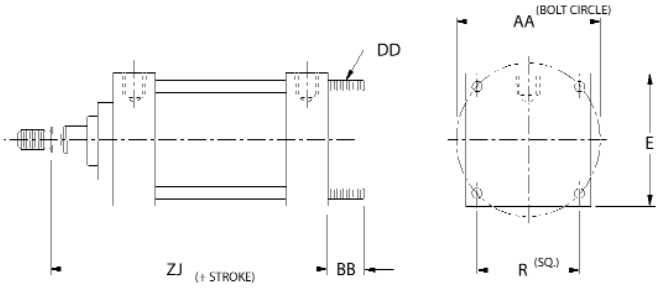
BORE	MM ROD DIA.	CB	CD	CW	FL	L	M	XC	XD
1½	⅝	¾	½	½	1⅛	¾	½	5⅜	5¾
	1							5¾	6⅛
2	⅝	¾	½	½	1⅛	¾	½	5⅜	5¾
	1							5¾	6⅛
2½	⅝	¾	½	½	1⅛	¾	½	5½	5⅞
	1							5⅞	6¼
3¼	1	1¼	¾	⅝	1⅞	1¼	¾	6⅞	7½
	1⅜							7⅛	5¾
4	1	1¼	¾	⅝	1⅞	1¼	¾	6⅞	7½
	1⅜							7⅛	7¾
6	1⅜	1½	1	¾	2¼ Clevis	-	1⅛ Clevis	NA	8⅞
	1¾								9⅛

HD1 Dimensions

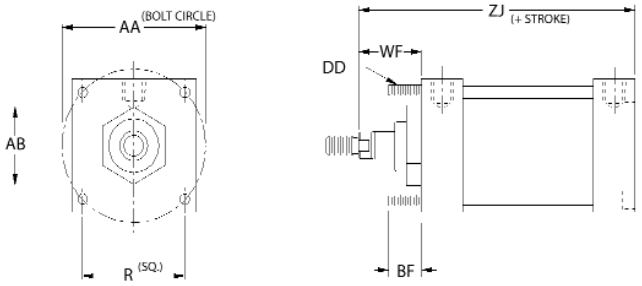
Extended Tie Rods, Both Ends (TIB) — NFPA Code: MX1



Back End (TIR) — NFPA: MX2

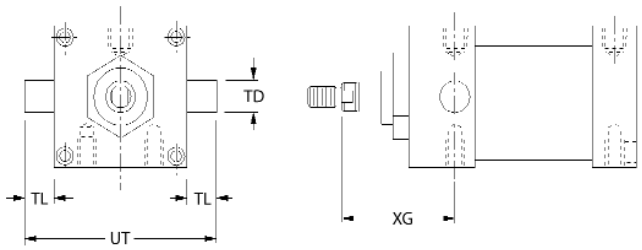


Rod End (TIF) — NFPA: MX3

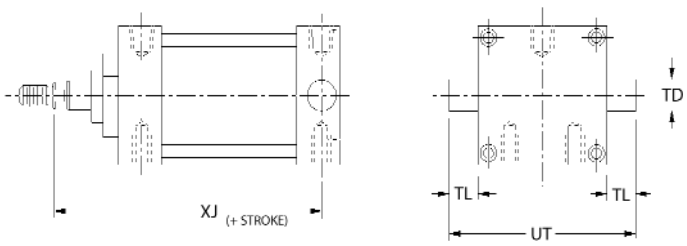


BORE	MM ROD DIA.	AA	BB	AB	BF	DD	R	ZJ
1½	⅝	2.02	1	1 5/16	1⅜	¼-28	1 7/16	4⅝
	1							5
2	⅝	2.6	1⅛	1 5/16	1½	5/16-24	1 27/32	4⅝
	1							5
2½	⅝	3.1	1⅛	1¾	1½	5/16-24	2 3/16	4¾
	1							5⅛
3¼	1	3.9	1⅜	2 1/32	2	⅜-24	2¾	5⅝
	1⅜							5⅞
4	1	4.7	1⅜	2 1/32	2	⅜-24	3 21/64	5⅝
	1⅜							5⅞
6	1⅜	6.9	1 13/16	2 5/16	2 9/16	½-20	4⅞	6⅝
	1¾							6⅞

Front Trunnion (TF) — NFPA: MT1



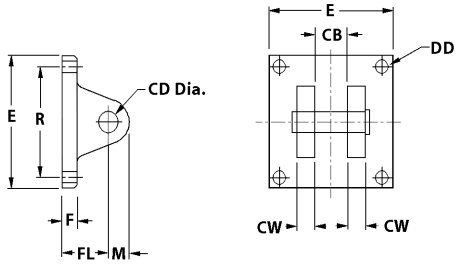
Rear Trunnion — NFPA: MT2



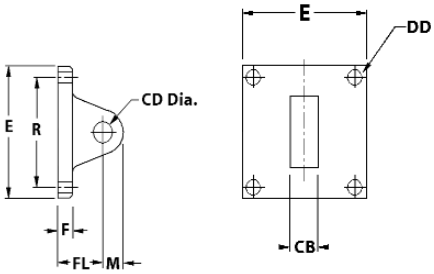
BORE	MM ROD DIA.	TD±.001	TL	UT	XG	XJ
1½	⅝	1	1	4	1¾	4⅛
	1				2⅛	4½
2	⅝	1	1	4½	1¾	4⅛
	1				2⅛	4½
2½	⅝	1	1	5	1¾	4¼
	1				2⅛	4⅝
3¼	1	1	1	5¾	2¼	5
	1⅜				2½	5¼
4	1	1	1	6½	2¼	5
	1⅜				2½	5¼
6	1⅜	1⅜	1⅜	9¼	2⅝	5⅞
	1¾				2⅞	6⅛

HD1 Cylinder Dimensions

Clevis Bracket

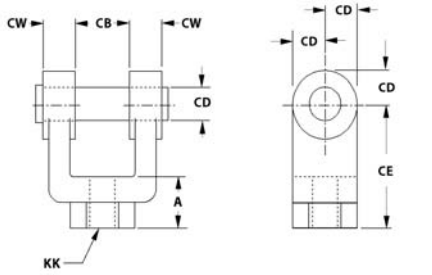


Pivot Bracket

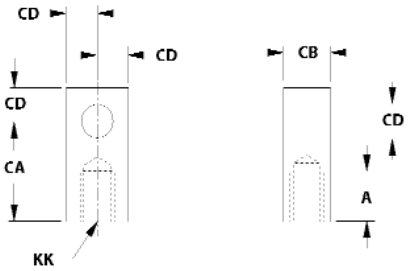


BORE	CB	CD	CW	DD	E	FL	M	R
1½	¾	½	½	17/64	2	1⅛	½	1 7/16
2	¾	½	½	23/64	2½	1⅛	½	1 27/32
2½, 2½*	¾	½	½	23/64	3	1⅛	½	2 3/16
3¼	1¼	¾	⅝	7/16	3¾	1⅞	¾	2¾
4	1¼	¾	⅝	7/16	4½	1⅞	¾	3 21/64
6	1½	1	¾	17/32 Clevis 21/32 Pivot	6½ Clevis 4½ Pivot	2¼	1⅛ Clevis 1¼ Pivot	4⅞

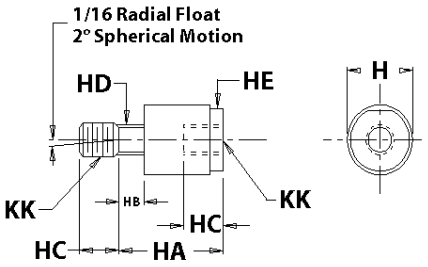
Rod Clevis



Rod Eye



Rod Coupler



Part # Rod Clevis Rod Eye Rod Coupler	Cylinder	A	CA	CB	CD	CE	CW	KK	H	HA	HB	HC	HD	HE
DMC-2 DME-1 DMA-437	HD1-150 HD1-200 HD1-250	¾	1½	¾	½	1½	½	7/16-20	1¼	2	½	¾	⅝	1⅛
DMC-4 DME-2 DMA-750	HD1-150 OR HD1-200 OR HD1-250 OR HD1-325 HD1-400	1⅛	2 1/16	1¼	¾	2⅜	⅝	¾-16	1¾	2 5/16	5/16	1⅛	31/32	1½
DMC-6 DME-3 DMA-1000	HD1-325 OR HD1-400 OR HD-600	1⅝	2 13/16	1	1	3⅛	¾	1-14	2½	2 15/16	½	1⅝	1⅜	2¼
DMC-7 DME-4 DMA-1250	HD-600 OR	1⅝	3 7/16	2	1⅜	4⅛	1	1¼-12	2½	2 15/16	½	1⅝	1⅜	2¼

HD1 Large Bore Tie Rod

Large Bore Cylinders For Abusive Conditions

Combining NFPA dimensional interchangeability and high quality components, the HD1 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. Oper. Pressure Air	Oil ‡
5"	1964	19.64	1" or 1 3/8"	250	900
8"	5027	50.27	1 3/8" or 1 3/4"	200	500
10"	7854	78.54	1 3/4" or 2"	200	400
12"	11310	113.1	2" or 2 1/2"	200	400

*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 you 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 rate or approved for use in a hydraulic circuit where an impulse or pressure spike may occur.

Large Bore Cylinder Construction

Rod Bearing:
Easily removable, held in place by socket head screws to assure easy replaceability without taking entire cylinder apart

Heads:
Precision broached steel blocks

Tubes:
Aluminum hard anodized to 60 Rc (16 RMS finish)

Piston:
Solid high alloy aluminum

Piston Rod:
100,000 PSI minimum yield steel, ground and polished hard chrome plated steel

Piston and Rod Seals:
Wear compensating Buna N vee rings.

Tube Seals:
Buna N o-rings

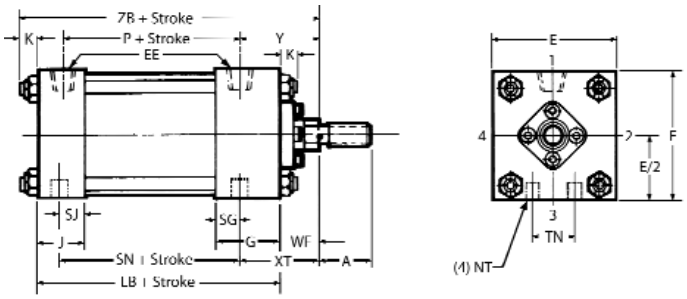
Rod Wiper
Dupont Teflon®

Tie Rods:
Alloy steel for maximum strength.

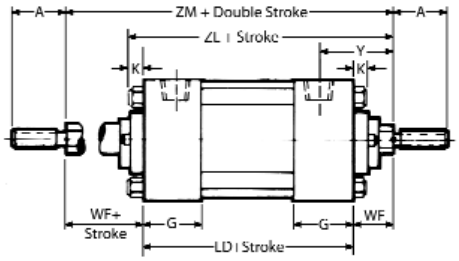
Finish:
Black Paint

Dimensions

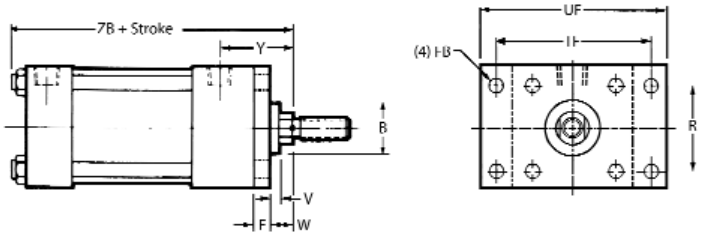
Bottom Flush Model FB



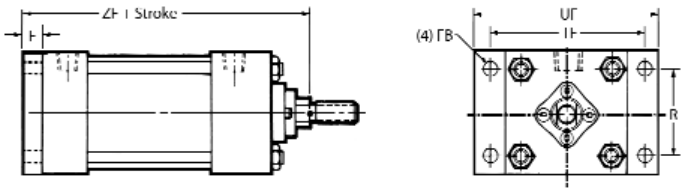
Double Rod Model DR



Rod End Flange Model FH (5"Bore Only)



Blind End Flange Model FR (5"Bore Only)



BORE	MM ROD	A	B	E	EE	F	FB+	G	J	K	KK	L	LB*	LD*	NT	P*	R	SG	SJ	SN*	TF	TN	UF	W	WF	XT	Y	ZF*	ZL	ZM**
5	1	1 1/8	1 1/2	5 1/2	1/2	5/8	1/2	1 3/4	1 3/4	1/2	3/4-16	1 1/4	4 1/2	5	5/8-11	2 3/4	4.10	11/16	11/16	2 7/8	6 5/8	2 11/16	7 5/8	3/4	1 3/8	2 7/16	2 1/2	6 1/2	6 7/8	7 3/4
	1 3/8	1 5/8	2								1-14													1	1 5/8	2 11/16	2 3/4	6 3/4	7 1/8	8 1/4
8	1 3/8	1 5/8	-	8 1/2	3/4	7/8	-	2	1 1/2	5/8	1-14	1 1/2	5 1/8	5 1/8	3/4-10	3 1/4	6.44	13/16	13/16	3 1/4	-	4 1/2	-	-	1 5/8	2 13/16	2 13/16	-	7 7/8	8 7/8
	1 3/4	2									1 1/4-12														1 7/8	3 1/16	3 1/16		8 1/8	9 3/8
10	1 3/4	2	-	10 5/8	1	7/8	-	2 1/4	2	3/4	1 1/4-12	2 1/8	6 3/8	6 5/8	1-8	4	7.92	1	1	4 1/8	-	5 1/2	-	-	1 7/8	3 1/8	3 3/16	-	9 1/4	10 3/8
	2	2 1/4									1 1/2-12														2	3 1/4	3 5/16		9 3/8	10 5/8
12	2	2 1/4	-	12 3/4	1	-	-	2 1/4	2	3/4	1 1/4-12	2 1/4	6 7/8	7 1/8	1-8	4 1/2	9.40	1	1	4 5/8	-	7 1/4	-	-	2	3 1/4	3 5/16	-	9 7/8	11 1/8
	2 1/2	3									1 7/8-12														2 1/4	3 1/2	3 9/16		10 1/8	13 5/8

NOTES: + Indicates maximum bolt diameter; * Indicates add stroke length to dimension; ** Indicates add 2x stroke length to dimension.

How To Order

HD1-800 x 10 - FB - DR

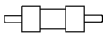
Base Model
HD1-500 (5″ Bore)
HD1-800 (8″ Bore)
HD1-1000 (10″ Bore)
HD1-1200 (12″ Bore)

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

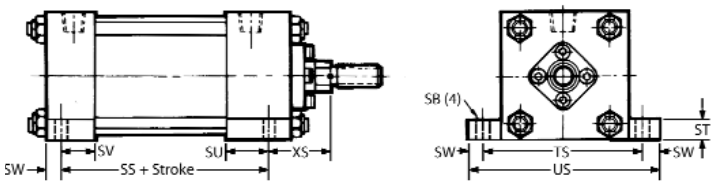
Mounting

	Description	NFPA Code	Restrictions
FB	Four tapped holes in bottom	MS-4	None
FH	Flange Plate extends beyond front head	MF-1	5″ Bore Only
FR	Flange Plate extends beyond rear head	MF-2	5″ Bore Only
FT	Lugs extend from bottom of head	MS-2	None
PB	Two Ears extend from rear head (detachable)	MP-1	12″ Not Available
PF	Two Ears extend from rear head	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

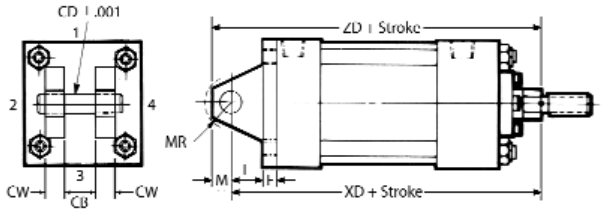
Options

DR		Double Rod
VI		Viton Seals
CF CR CB		Front Cushions Rear Cushions Cushions Both Ends
OR		Oversized Rod

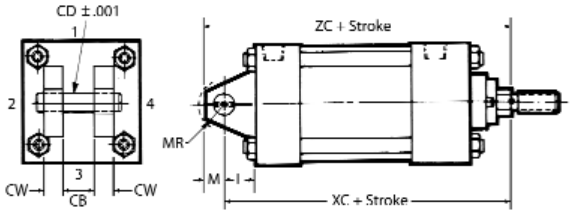
Foot Mount Model FT



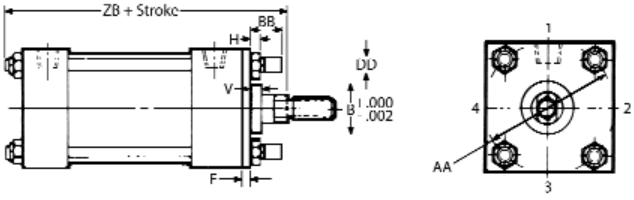
Clevis Mount Model PB



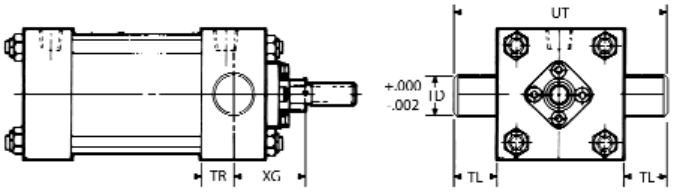
Clevis Mount Model PF



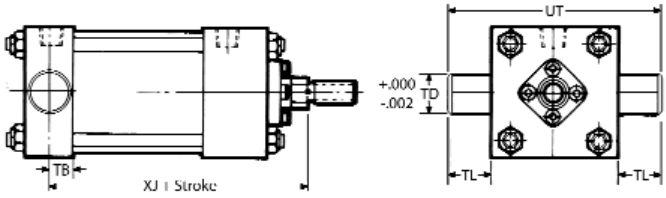
Tie Rods Extended Front Model TIF



Trunnion Front Mount Model TF



Trunnion Rear Mount Model TR



NOTE: **Rod gland maybe square or round pattern depending upon mount chosen. Contact factory if further dimensional data is needed.**

BORE	MM ROD	AA	BB	CB	CD	CW	DD	M	MR	SB	SS*	ST	SU	SV	SW	TB	TD	TL	TR	TS	US	UT	V	XC*	XD*	XG	XJ*	XS	ZB*	ZC*	ZD*
5	1 1 3/8	5.80	1 3/4	1 1/4	3/4	5/8	1/2-20	3/4	7/8	3/4	3 1/8	1	1 1/16	9/16	11/16	5/8	1	1	7/8	6 7/8	8 1/4	7 1/2	1/4 3/8	7 1/8 7 3/8	7 3/4 8	2 1/4 2 1/2	5 1/4 5 1/2	2 1/16 2 5/16	6 3/8 6 5/8	7 7/8 8 1/8	8 1/2 8 3/4
8	1 3/8 1 3/4	9.10	2 1/4	1 1/2	1	3/4	5/8-18	1	1 1/4	3/4	3 3/4	1	1 5/16	1 3/16	11/16	3/4	1 3/8	1 3/8	1	9 7/8	11 1/4	11 1/4	-	8 1/4 8 1/2	9 1/8 9 3/8	2 5/8 2 7/8	6 6 1/4	2 5/16 2 9/16	7 3/8 7 5/8	9 1/4 9 1/2	10 1/8 10 3/8
10	1 3/4 2	11.31	2 5/8	2	1 3/8	1	3/4-16	1 3/8	1 5/8	1	4 5/8	1 1/4	1 3/8	1 1/8	7/8	1	1 3/4	1 3/4	1 1/8	12 3/8	14 1/8	14 1/8	-	10 3/8 10 1/2	11 1/4 11 3/8	3 3 1/8	7 1/4 7 3/8	2 3/4 2 7/8	9 9 1/8	11 3/4 11 7/8	12 5/8 12 3/4
12	2 2 1/2	13.30	2 11/16	2 1/8	1 3/4	1 1/4	3/4-16	1 3/4	2	1	5 1/8	1 1/4	1 3/8	1 1/8	7/8	1	1 3/4	1 3/4	1 1/8	14 1/2	16 1/4	16 1/4	-	11 1/8 11 3/8	-	3 1/8 3 3/8	7 1/8 8 1/8	2 7/8 3 1/8	9 5/8 9 7/8	12 7/8 13 1/8	-

NOTE: * Indicates add stroke length to dimension.

Centaur

C-112 PB

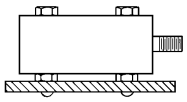
C-150 NS

Low Cost Mounting

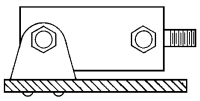
Flush bottom cylinder mounts directly onto a base plate with only two bolts...needs no mounting brackets or other hardware. The pivot bracket is built-in for easy pivoting at the inlet axis. The bracket pivots within the cylinder length to save space and to eliminate one entire bracket that would be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

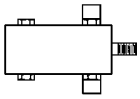
Flush Bottom (FB)



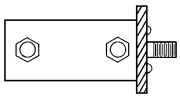
Pivot Bracket (PB)



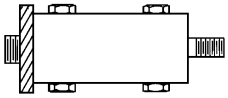
Trunnion Rear (TR)
Trunnion Front (TF)



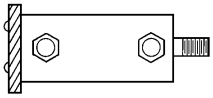
Flush Front (FF)
1½", 2", 2½" & 3" bores only



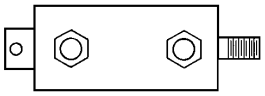
Flush Rear (FR)
1⅛" bore only



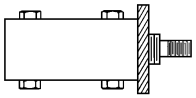
Flush Rear (FR)
1½", 2", 2½" & 3" bores only



Pivot Extended (PE)
1⅛", 1½" & 2" bores only



Threaded Nose (NS)
Std. on all 1⅛" bore mounts
1⅛", 1½" & 2" bores only



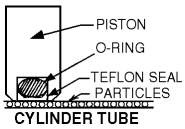
Technical Specifications	
Pressure :	150 PSI Air, 250 PSI Hydraulic
Bore Sizes:	1⅛", 1½", 2", 2½" and 3"
Body:	Hard Coated Aluminum
Rod Bearing:	Oil Impregnated Porous Bronze
Temperature Range:	-40°F to +250°F (to +400°F on request)

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

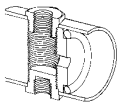
Centaur's unique Teflon® piston seal eliminates the forward lurch that occurs when rubber seals breakaway from the cylinder tube surface. Rod motion remains smooth throughout the stroke.



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.

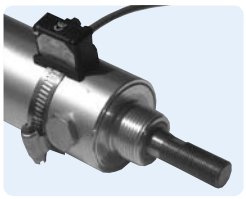
Self Aligning Rod Couplers

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 30 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



Hall Effect & 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 pg. 33.

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

Flow Controls

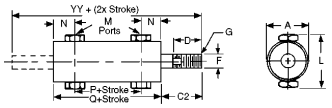
Control the speed of your cylinders with Mead Flow Control Valves. Right-angle flow controls can be found on page 66. For precise metering of air, see Mead Dyla-Trol valves on page 59.

Double Rod Cylinders

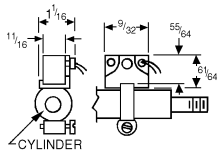
Centaur cylinders may be ordered with a one piece piston rod protruding from both ends of the cylinder for convenient stroke adjustment and for increased rigidity.

Centaur Dimensions and Ordering Information

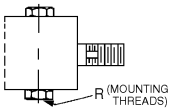
Basic Dimensions



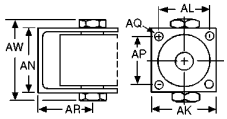
Hall Effect



Flush Bottom (FB)

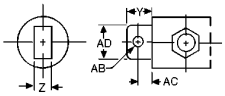


Pivot Bracket (PB)



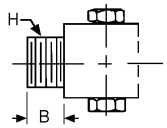
Pivot Extended (PE)

1⅛″, 1½″ & 2″ bores only



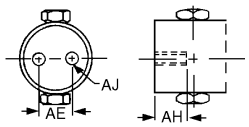
Flush Rear (FR)

1⅛″ bore only



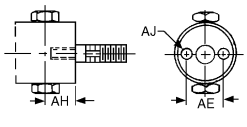
Flush Rear (FR)

1½″, 2″, 2½″ & 3″ bores only



Flush Front (FF)

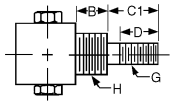
1½″, 2″, 2½″ & 3″ bores only



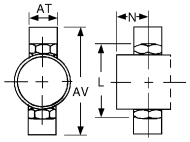
Threaded Nose (NS)

Std. on all 1⅛″ bore mounts

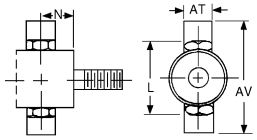
1⅛″, 1½″ & 2″ bores only



Trunnion Rear (TR)



Trunnion Front (TF)



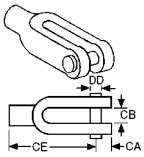
	Bore Sizes				
	1⅛″	1½″	2″	2½″	3″
A	1 3/8	1 3/4	2 1/4	2 3/4	3 1/4
B	5/8	13/16	13/16	-	-
C1	5/8	1 5/8	1 7/8	-	-
C2	-	1 7/16	1 11/16	1 3/4	2 1/16
D	1/2	1 1/4	1 1/2	1 1/2	1 3/4
F	5/16	1/2	5/8	3/4	1
G	5/16-24	1/2-20	5/8-18	3/4-16	1-14
H	3/4-16	1-14	1 1/4-12	-	-
L	2 3/32	2 1/8	2 5/8	3 1/8	3 5/8
M	1/8NPT*	1/4NPSF	1/4NPSF	1/4NPSF	1/4NPSF
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

* 1⅛ bore model with trunnion mounts has ¼-28 ports.

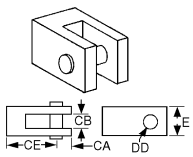
Accessories

Rod Clevis w/Pin (CEC)

1⅛″ & 1½″ bores

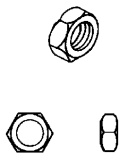


2″ & 3″ bores



Nose Nuts (CN)

1⅛″, 1½″ & 3″ bores only



Note: For DMC-4, refer to pages 45.

Rod Clevis Accessory Dimensions

Bore	E	CA	CB	CE	DD
1⅛″	-	19/64	11/32	1 3/16	5/16
1½″	-	15/32	9/16	1 13/16	1/2
2″	1 1/4	7/16	5/8	2 1/16	1/2
2½″	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	1⅛″	1½″	2″	2½″	3″
Rod Clevis, Pin	CEC-112	CEC-150	CEC-200	DMC-4	CEC-300
Nose Nut	CN-112	CN-150	CN-200	-	-

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.

C-112 - 4 - NS

1⅛″ Bore
4″ Stroke
Threaded Nose Mount

Bore Model	1⅛″ C-112	1½″ C-150	2″ C-200	2½″ C-250	3″ 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 1⅛″ bore model with double rod.

Space Saver™

SS-300

SS-250

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.

Offers A Wide Range Of Power

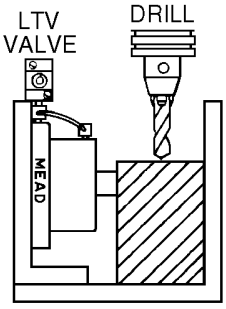
Bore	¾″	1⅛″	1½″	2″	2½″	3″	4″
Force @ 100 PSI (lbs.)	44	100	177	314	491	707	1257

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

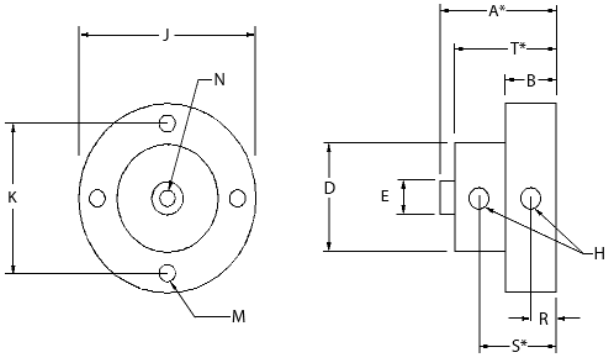
Efficient 4-way LTV valves, shown on pages 24-25, are perfect as actuators of Space Saver cylinders. Valve hookup is made easy because the top cylinder port swivels 360°.

Stroke Availability

Model	Bore	Stroke Lengths											
		⅛	3/16	¼	⅜	½	⅝	¾	1	1½	2	2½	3
SS-075	¾″	X*	-	X*	X	X	X	X	X	X	X	-	-
SS-112	1⅛″	X*	X*	X*	-	X	-	X	X	X	X	X	X
SS-150	1½″	X*	-	X	-	X	-	X	X	X	X	X	X
SS-200	2″	X	-	X	-	X	-	X	X	X	X	X	X
SS-250	2½″	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 ⅛″ or 3/16″ stroke on ¾″ or 1⅛″ bore models, a ¼″ stroke cylinder is used and spacers are added.
Non-standard strokes subject to special machining charge.

Dimensions



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

Bore	¾″	1⅛″	1½″	2″	2½″	3″	4″
A*	49/64	25/32	59/64	1 1/16	1 5/64	1 25/64	1 17/32
B	½	½	½	9/16	9/16	¾	¾
D	1	1 3/8	1 ¾	2 ¼	2 ¾	3 ¼	4 ¼
E	5/16	½	½	⅝	⅝	¾	¾
H	10-32	10-32	10-32	⅛ NPT	⅛ NPT	⅛ NPT	⅛ NPT
J	1 ¾	2 ⅛	2 ½	3 ⅛	3 ¾	4 ¼	5 ¼
K	1 13/32	1 25/32	2 5/32	2 23/32	3 ¼	3 25/32	4 25/32
M	13/64 (2)	13/64 (2)	13/64 (2)	13/64 (2)	17/64 (4)	17/64 (4)	17/64 (4)
N	10-32 x¼	5/16-24 x⅜	5/16-24 x⅜	⅜-24 x⅜	⅜-24 x⅜	½-20 x½	½-20 x½
R	5/32	5/32	5/32	5/16	5/16	21/64	21/64
S*	25/64	25/64	½	11/16	11/16	59/64	1 3/64
T*	¾	49/64	57/64	1 3/64	1 1/16	1 23/64	1 ½

* Plus Stroke
Note: To obtain a ⅛″ or 3/16″ stroke on ¾″ or 1⅛″ bore models, a ¼″ stroke cylinder is used and spacers are added.

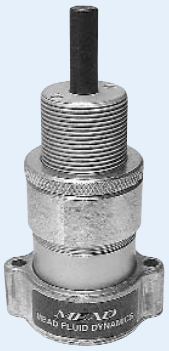
Specifications	
Pressure :	0-150 PSI Air Only
Temperature:	-40°F to 250°F (to 400°F with Viton™)
Lubrication:	Petroleum base oil

Options & Ordering Information

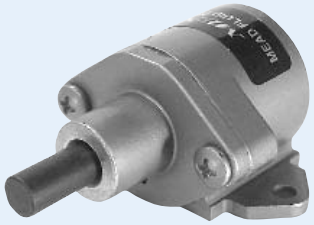
When ordering, specify model number, stroke length, and Viton seal option if required.

Example: SS-150 x ¼ - VI

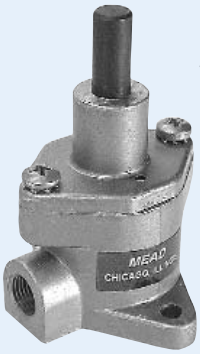
Single Acting Air Clamps



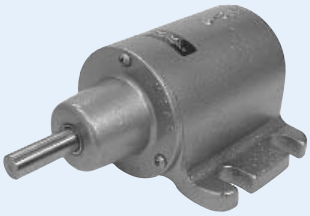
VOXO1



H-1



V-1



H-43

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, & pressing operations. Because 3-way valves may be used, hook-ups are quick and easy.

Adjustable Stroke Models

H0X01, HIX12, V0X01, and VIX12 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
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.

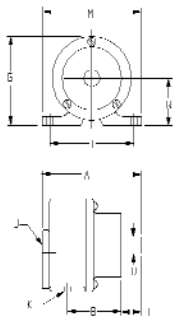
Models	Return♦	Bore(″)	Stroke(″)	Output*
H-1 & V-1	4	1	11/16	68
HOX01 & VOX01	5	1	0 to 1	62
HIX12 & VIX12	5	1	1 to 2	61
H-41 & V-41	9	2 1/4	1	361
H-42	10	2 1/4	2	353
H-43	11	2 1/4	3	351
H-71	18	3	1	682
H-72	13	3	2	675
H-73	14	3	3	679
H-12	39	4	2	1206
H-122	27	4	2 5/8	1204
H-283	40	6	3	2763

♦Maximum weight in pounds that spring will return.

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

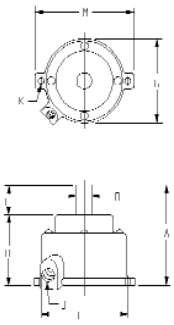
	H-1	HOX-01	HIX-12	H-41	H-71
A	2 25/32	4	5	4 7/8	5 5/16
B	1 11/32	Var.		2 1/4	2 3/4
C	5/8	Var.		1 1/2	1 7/16
D	5/16	5/16		1/2	3/4
G	1 1/4	1 9/16		3 1/16	3 23/32
H	-	-		-	-
J	1/8 NPT	1/8 NPT		1/8 NPT	1/4 NPT
K	3/16	.200		1/2 Slot	21/64
L	1 5/8	1 5/8		3 1/2	4 5/8
M	2	2 1/8		4 7/16	5 3/8
Q	5/8	13/16		1 9/16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

Single Side Lug



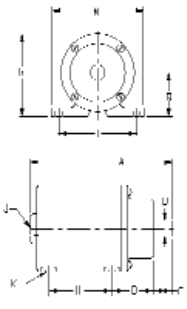
	V-1	VOX-01	VIX-12	V-41
A	2 5/8	3 13/16	4 13/16	4 5/8
B	1 15/16	Var.		3 3/16
C	11/16	Var.		1 7/16
D	5/16	5/16		1/2
G	1 9/16	1 3/4		3
H	-	-		-
J	1/8 NPT	1/8 NPT		1/8 NPT
K	3/16	.200		.257
L	1 11/16	1 5/8		3 3/4
M	2 1/8	2		4 1/4
Q	-	-		-

Base Mount



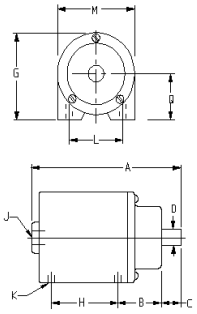
	H-43	H-72	H-73	H-12	H-283
A	7 1/4	6 5/16	7 5/16	7	9
B	2 3/4	2 3/16	2 3/16	2 9/16	3 1/2
C	5/8	1 7/16	1 7/16	1 7/16	1 7/16
D	1/2	3/4	3/4	3/4	1 1/4
G	3 1/16	3 11/16	3 11/16	5 1/16	7 1/16
H	2	2 1/16	3 1/16	2 5/16	7 1/16
J	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT	1/2 NPT
K	1/2 Slot	21/64	21/64	1/2 Slot	1/2 -13
L	4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

Double Side Lug



	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 Holes	2 1/2
J	1/8 NPT	3/8 NPT
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

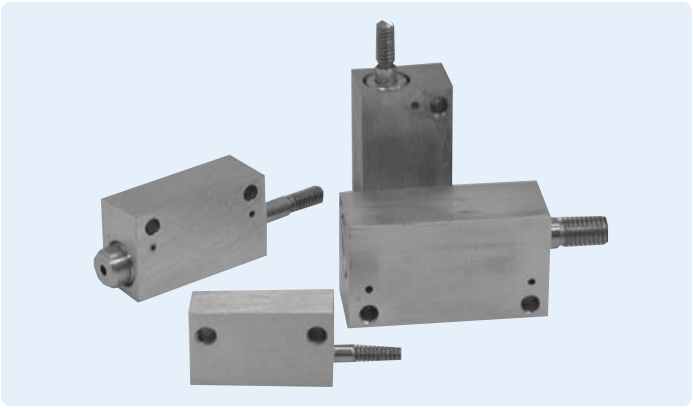
Bottom Flush



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
	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

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 ¼" bore models, which have a 6-32 barb fitting. The standard location for the rear extend port is denotated 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

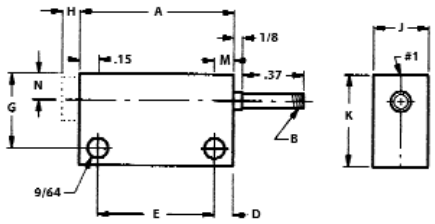


Figure 1: For strokes up to ½"
 # 1 Indicates port locations
The H dimension is for spring extend cylinders only.

Bore	Stroke	A	B	D	E	G	H	I	J	K	M	N	O	Front Port	Rear Port
¼"	¼"	1.06	6-32	.12	0.81	7/16"	.10	.31	3/8"	5/8"	.20	.18	5/16"	6-32	10-32
	½"	1.31	6-32	.12	1.06	7/16"	-	.31	3/8"	5/8"	.20	.18	5/16"	Barb	Tap
3/8"	¼"	1.25	8-32	.15	0.93	5/8"	.18	.37	½"	¾"	.37	.25	7/16"	10-32	10-32
	½"	1.50	8-32	.15	1.18	5/8"	.18	.37	½"	¾"	.37	.25	7/16"	Tap	Tap
½"	¼"	1.31	¼-28	.15	1.00	¾"	-	.37	5/8"	7/8"	.37	.31	9/16"	10-32	10.32
	½"	1.56	¼-28	.15	1.25	¾"	-	.37	5/8"	7/8"	.37	.31	9/16"	Tap	Tap

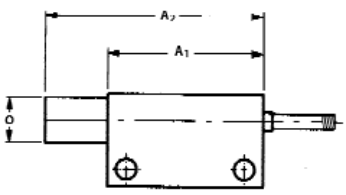
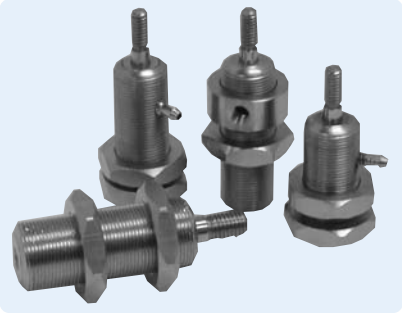


Figure 2: For Strokes Over ½"

Dimensions For Cylinders With Strokes Over ½"

Bore	A_1	A_2
¼"	1.06	0.81 + Stroke
3/8"	1.25	1.00 + Stroke
½"	1.31	1.06 + Stroke



MA Series - Mini Adjustable Location Cylinders

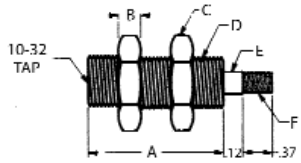
These threaded body cylinders install quickly and easily without special mounting devices. Either drill a hole, insert your cylinder, and position with the pair of jam nuts or tap a hole and lock into position with a single jam nut. The MA-Series cylinders are electroless nickel plated for excellent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

Non-rotating: This option is available on ⅜" and ½" bore, single-acting, spring return cylinders.

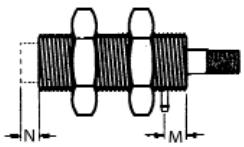
Stroke Length Availability - MA Series

The MA-250 (1/4" Bore) single acting is only available in a 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.

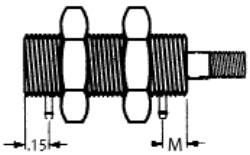
MA Cylinder Dimensions



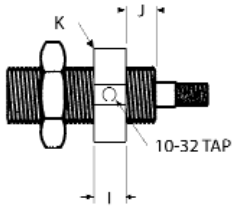
Basic Cylinder



6-32 Barbs
(For use with 1/16" I.D. Hose)



Spring Extend Only



Side and Rear Tapped

Bore	A=Stroke+	B	C	D	E	F	I	J	K	M	N
¼"	0.81	.15	.62	3/8-32	.14	6-32	.31	.06	.62	.20	.10
⅜"	1.00	.18	.75	1/2-32	.17	8-32	.31	.21	.75	.37	.18
½"	1.06	.18	.87	5/8-32	.25	1/4-28	.31	.21	.87	.37	-

Ordering Miniature Cylinders:

MA - 500 x 1.00 DA - RB (***)

Family

MA = Mini Adjustable
MF = Mini Flat

Bore

250 = ¼" Bore
375 = ⅜" Bore
500 = ½" 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

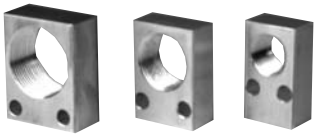
O = None (Spring Extend)
R = Rear Tapped (10-32)
S = Side Tapped (10-32)*
B = 6-32 Barb (For 1/16" ID Hose)

* 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 ¼" Bore Cylinder PMH-250
Hex Nut for ⅜" Bore Cylinder PMH-375
Hex Nut for ½" Bore Cylinder PMH-500
1/16" ID Tube Clear Polyurethane (50 ft.)..11NAT

Mounting Blocks


PMB-500 PMB-375 PMB-250

Bore	PMB 250 ¼"	PMB 375 ⅜"	PMB 500 ½"
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

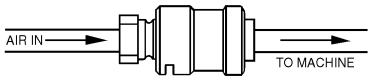
Lockout and Easy-Glide Ball Handle Valves

Slide/Lockout Valve

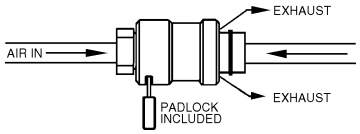
Mead's Slide/Lockout Valves (SLV) are designed to comply with OSHA Standard Rule 29 CFR1910.147. SLVs exhaust downstream air to atmosphere when the valve is in the closed position. This prohibits the unexpected cycling of equipment due to stored energy in the air line. These valves can only be locked 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* (Effective January 1990)

To protect employees from the unexpected energization or release of stored energy during repair, maintenance and associated activities, this new 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.

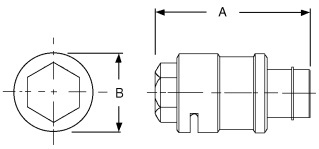
*Copies of the actual OSHA standard may be obtained from the U.S.Department of Labor, Occupational Safety and Health Administration, Office of Publications, Room N3101, Washington, D.C. 20210.

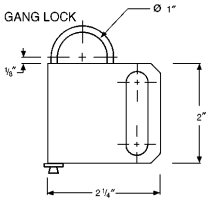
SLV-37

Specifications	
Temperature Range:	-50°F to 180°F
Pressure Range:	0 to 150 PSI
Construction:	
Body:	Black Anodized Aluminum
Sleeve:	Gold Anodized Aluminum
Retaining Ring:	Steel
O Rings:	Buna N
Lock:	Solid Brass (Steel Shackle)

Warning: SLV's are not to be used for lockout of hydraulic fluid.

Dimensions





Ordering Information

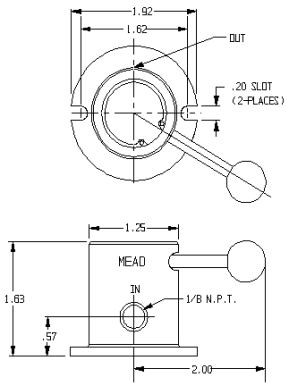
Model	Model (With Gang Lock)	Port Size	Cv	A (In.)	B (In.)
SLV-25	**SLVG-25**	1/4" NPT	0.94	2 9/16"	1 1/4"
SLV-37	**SLVG-37**	3/8" NPT	2.00	2 15/16"	1 7/16"
SLV-50	**SLVG-50**	1/2" NPT	3.18	3 11/32"	1 5/8"

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

Easy Glide Ball Handles Valves (MHL SERIES)

MHL-3/MHL-4

General Specifications	
Flow:	0.14 Cv
Ports:	1/8" NPT
Temperature Range:	-40°F to 250°F
Lubrication:	SAE 10
Pressure Range:	0 to 150 PSI (Air Only)
Seals:	Buna



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.

Easy To Mount and Repair

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 & 3-Way Mini Solenoid Valves

MB25-3USC

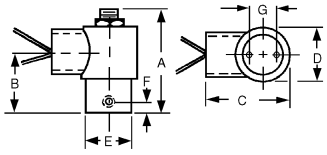
Dyna-Coil valves are used when you need to convert an electrical signal into a flow of air. 2-way models allow air to flow through the valve when energized. 3-way models allow air to flow through the valve when energized and exhaust when de-energized.

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.

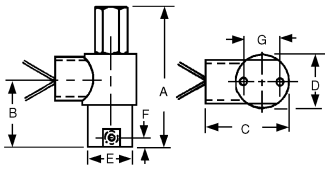
General Specifications	
Media:	Air
Pressure:	Vacuum to 120 PSI
Orifice:	0.038″
Conduit:	½″ NPS
Response:	20-30 ms
Base:	Aluminum
Mounting Holes(2):	8-32 UNC-2B threads
Lubrication:	None Required

Basic Dimensions

⅛″ and ¼″ CSC Models



⅛″ and ¼″ USC Models



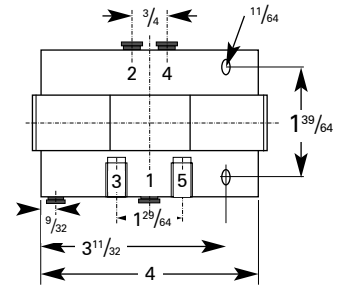
Model	Ports	Style	Exhaust	Voltage	Cv (In)	Cv (Exh)	A	B	C	D	E	F	G
MB12-2CSC	⅛″ NPT	2-Way NC	None	24 VAC,120 VAC, 240 VAC, 12 VDC, 24 VDC	.035	-	2 5/16	1 3/8	1 27/32	1 3/16	1	9/32	.738
MB25-2CSC	¼″ NPT	2-Way NC	None	24 VAC,120 VAC, 240 VAC, 12 VDC, 24 VDC	.035	-	2 3/8	1 1/2	1 27/32	1 3/16	1 3/16	5/16	29/32
MB12-3CSC	⅛″ 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*	⅛″ 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	¼″ 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*	¼″ 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)

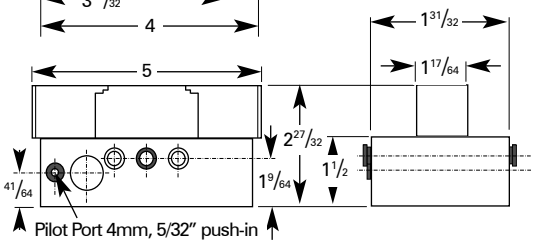
Note: All models consume 7 watts of power

USV-100

USV-250



USV-250 Dimensions
(1/4″ Push-in fittings)

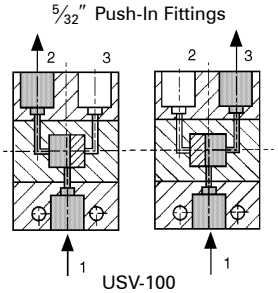


Technical Specification	100 Model	250 Model
Operating Pressure	35-100PSI	35-100PSI
Flow to atmosphere	4 SCFM @ 100 PSI	36.9 SCFM @ 100 PSI
Permissible Mediums	Air and Inert Gas	Air and Inert Gas
Ambient Temp. Range	10°F to 120°F	10°F to 120°F
Lubrication	Recommended	Not necessary

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.

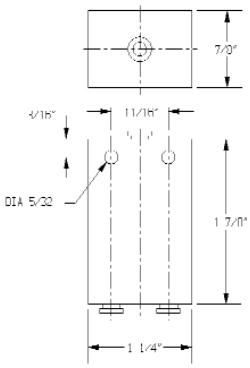
5/32″ Push-In Fittings



USV-100

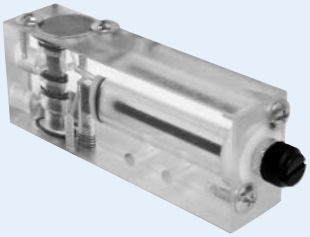
When pressure is applied to port 1, it flows through the valve to provide an output at port 2. When the pressure is released from port 1, the valve changes over so that when pressure is next applied at port 1, air flows out through port 3. Release of the pressure again changes the valve back to its original 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

Air Timers and Impulse Relay Valves



KLC-110

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 30 seconds. Input port is indicated by a yellow dot.

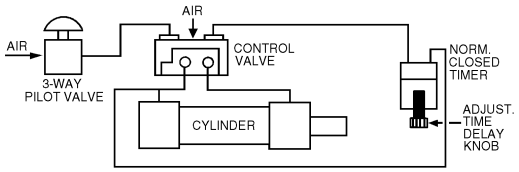
Timers are available in either normally closed (NC) or normally open (NO) models. Normally closed models are used to time in and normally open models are used to time out. Once set, timers are accurate for repeatability to 10% with regulated air pressure.

General Specifications	
Filtration:	40 micron filtration recommended
Lubrication:	30 wt. non-detergent oil
Pressure Range:	50-150 PSI (NC); 40-150 PSI (N0)
Mounting:	(2) 11/64 clearance holes
Life Expectancy:	1,000,000 cycles

Model Number NC	Model Number NO	Range	Ports	Length	Width	Height
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-230	KLH-230	2-30 sec.	1/8″	4 7/8″	1 1/2″	1 7/8″

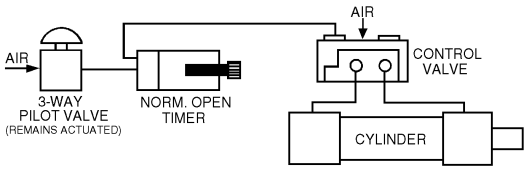
Note: NC timers have a green spool; NO timers have a red spool.

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 valves 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.

414B
Pressure Type

415B
Bleed Type

Pneumatic Impulse Relay Valves

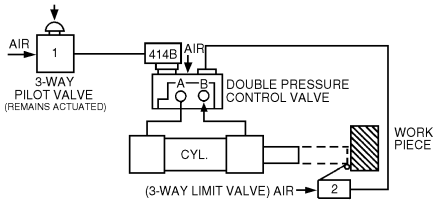
Impulse relay valves allow you to shift a double-pressure piloted or double bleed piloted valve, even though there are overlapping pilot signals. Relay valves convert a sustained air flow from a three-way pilot valve into a momentary pulse or bleed, which shifts a control valve and then closes.

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.

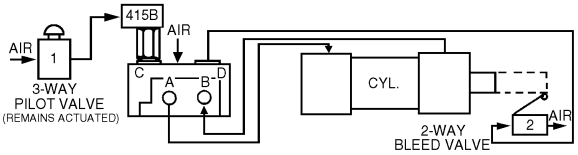
Model Number	Ports	Type	Length	Width	Height
414B	1/8″ NPTF	Pressure	1 59/64″	3/4″	1 1/4″
415B	1/8″ NPTF	Bleed	1 59/64″	3/4″	3 11/16″

Sample Circuit Using 414B (Pressure Type)

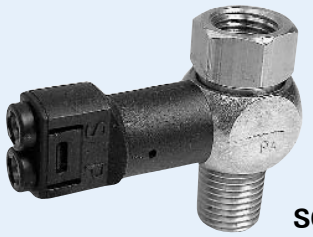


When actuated, the 3-way valve sends a signal to 414B, which emits a signal to the control valve. The 3-way valve remains actuated. The valve shifts, allowing air to flow through port A, extending the cylinder. 414B senses the back pressure caused by the shifted valve, closes, and exhausts. Since the 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.

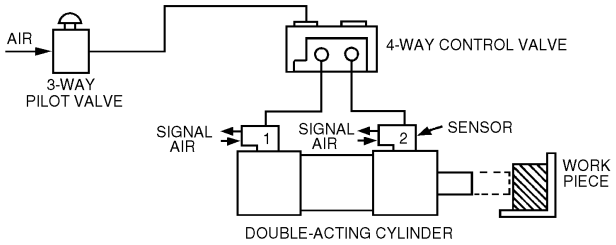
Sample Circuit Using 415B (Bleed Type)



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.



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"

MPE-B MPE-BZ MPE-BZE

Air to Electric Switches

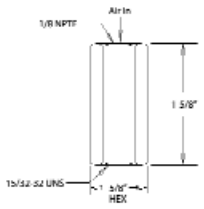
Air to electric switches convert air signals into electrical signals...ideal for actuating solenoid power valves or other electric components. Switches may be wired normally closed or normally open.

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.

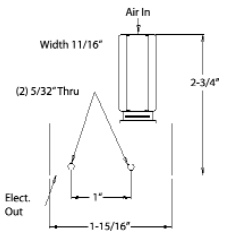
Switch models MPE-BZ and MPE-BZE are single pull double throw (SPDT), have a 15 amp capacity for normal, low resistance electrical circuits and are UL and CSA listed. Solder terminals accept up to #14 wire.

Dimensions

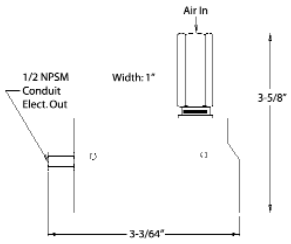
MPE-B (Actuator Head)



MPE-BZ



MPE-BZE

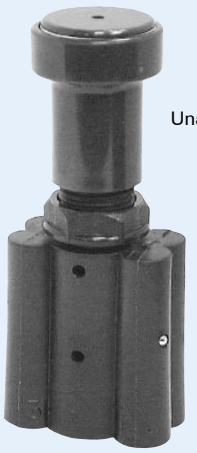


Specifications

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

ACV-R25



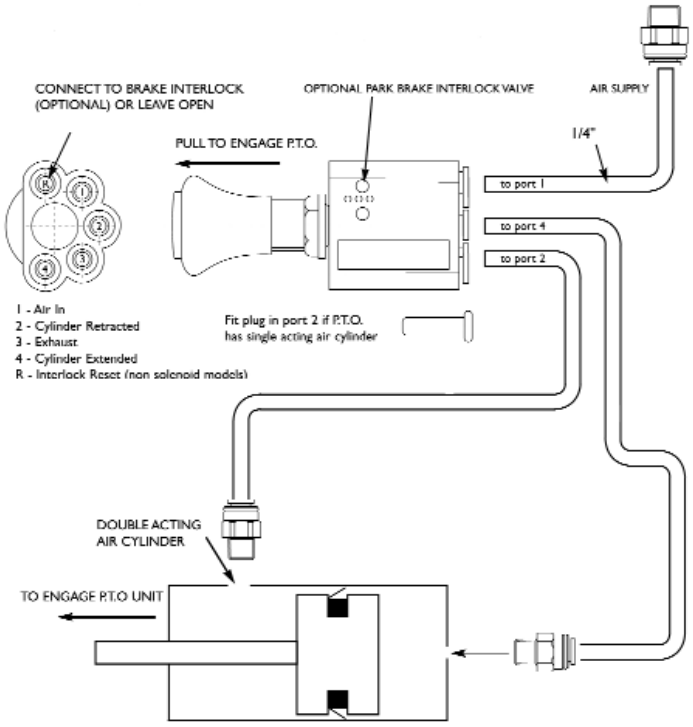
ACV-B16

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 5⁄32" or 1⁄4" tube). Simply push the tube directly into the valve.

Sample Hook-Up To Mobile PTO System



Ideal For Mobile Equipment Applications

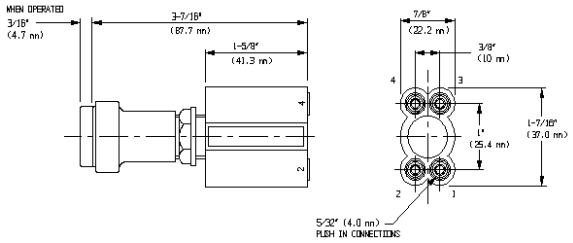
2-position ACV valves can be used for four-way directional control or as a three-way pilot valve. Its function indicator has been designed directly into the control knob and is visible only when the valve is in the energized or open position. In the unoperated (closed) position the indicator ring is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

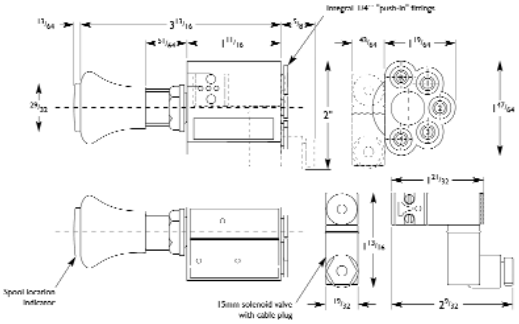
Model	Ports	Knob Color	Solenoid
ACV-R16	5⁄32" Push-In Fittings (4)	Red	-
ACV-B16	5⁄32" Push-In Fittings (4)	Black	-
ACV-R25	1⁄4" Push-In Fittings (5)	Red	-
ACV-B25	1⁄4" Push-In Fittings (5)	Black	-
ACV-R25A	1⁄4" Push-In Fittings (5)	Red	1.5W, 12VDC
ACV-B25A	1⁄4" Push-In Fittings (5)	Black	1.5W, 12VDC
ACV-R25B	1⁄4" Push-In Fittings (5)	Red	1.5W, 24VDC
ACV-B25B	1⁄4" Push-In Fittings (5)	Black	1.5W, 24VDC

Dimensions

5⁄32" Models



1⁄4" Models

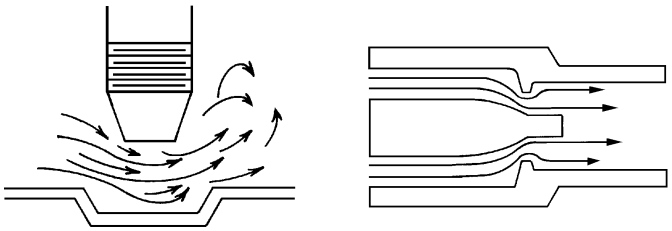


General Specifications	
Media:	Air to 145 PSI (10 Bar)
Min. Pressure to Reset Port :	35 PSI
Flow (5⁄32" models):	0.053 C_v
Flow (1⁄4" models):	0.12 C_v
Neck Diameter For Panel Mounting :	11⁄16"
Body:	Plastic
Spool:	Brass
Fittings:	Brass and Plastic
Seals:	PTFE filled Nitrile
Temperature:	-4° to 122°F
Cycle Life:	>15 Million

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.

Needle Valve **Dyla-Trol Valve**



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.

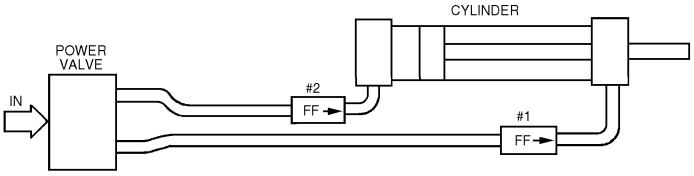
Precise-Metering Flow Control

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

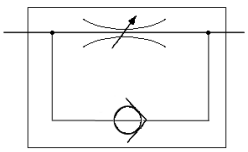
-40°F to +250°F

NOTE: For Right Angle Flow Controls see page 86.

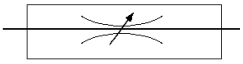
Equal Control

Models MF1-12, MF1-25, MF1-37 and MF1-50 are available with equally controlled flow in both directions (no free flow). When ordering specify MF2-12, MF2-25, MF2-37 or MF2-50. Prices remain the same.

Symbols



MF1 Style

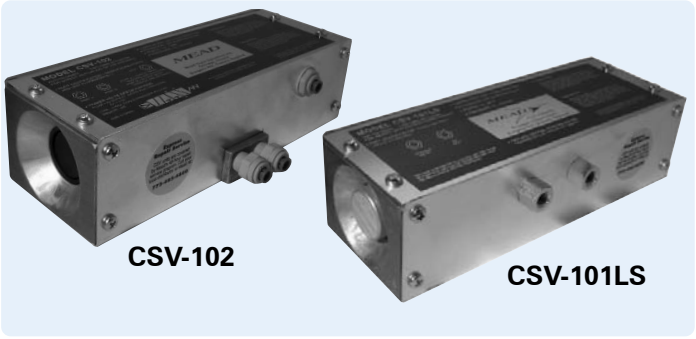


MF2 Style

Models and Specifications

Flow Direction	MF1-02	MF1-04	MF1-06	MF1-08	MF1-12	MF1-25	MF1-37	MF1-50
	CONTROLLED FLOW / FREE FLOW	1/4-28 Male; 1/4-28 Female	Barb for 1/4" O.D. Tube	1/6" NPT Male; Barb for 1/4" O.D. tube	10-32 Male; Barb for 1/4" O.D. tube	1/8 NPTF; 1/8 NPTF	1/4 NPTF; FREE FLOW; 1/4 NPTF	3/8 NPTF; FREE FLOW; 3/8 NPTF	1/2 NPTF BOTH ENDS; FREE FLOW
Max. Pressure in PSI	250 Air 250 Oil	250Air 250 Oil	250 Air 250 Oil	250 Air 250 Oil	250 Air 1000 Oil	250 Air 1000 Oil	250 Air 1000 Oil	250 Air 1000 Oil
Max. Flow @ 100 PSI	8 CFM C_v =0.1	7 CFM C_v =0.1	7 CFM C_v =0.1	7 CFM C_v =0.1	47 CFM C_v =0.8	66 CFM C_v =1.2	149 CFM C_v =2.6	173 CFM C_v =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"

Two-Hand Control Valves

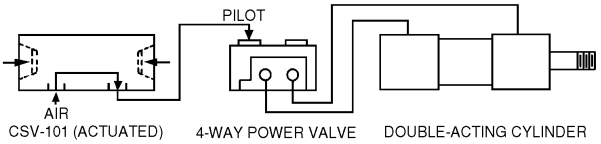


Function of CSV's

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.

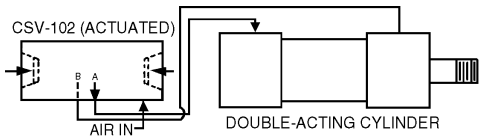
Low Stress (LS) models are for high production applications where operator fatigue is a concern. Needing only 6 ounces of force to actuate, LS units ease the stress on worker's hands and wrists and greatly reduce the risk of repetitive motion disorders. Standard models require 18 ounces of force to actuate.

CSV-101 & CSV-101LS



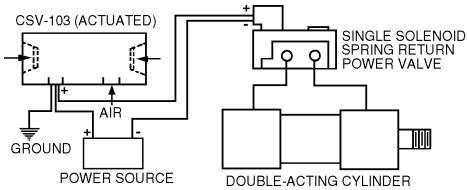
Will actuate any 3 or 4-way air piloted, spring return power valve or small single-acting cylinders. (C_V = 0.11)

CSV-102 & CSV-102LS



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. Quick-connect fittings included.

CSV-103



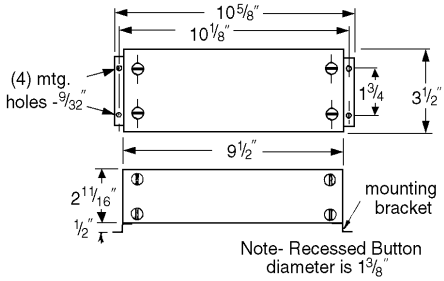
Converts an air signal into an electrical signal for actuating solenoid valves or other electrical devices. Concurrent actuation of the recessed buttons produces an electrical output. Releasing one or both buttons stops the output. The CSV-103 will not recycle until both triggers are released and again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

For Safer Operation of Your Machinery

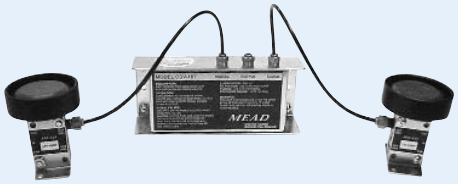
CSVs are two-hand anti-tiedown controls. When used, they provide safer operation of air presses, drill fixtures, clamping fixtures, cylinders, valves, or light assembly equipment. Models 101, 101LS, 102, 102LS and 103 have compact and completely self-contained controls, recessed actuation buttons built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

Note: Operating pressure range is 70 - 120 PSI.

Dimensions (Except Model CSV-107)

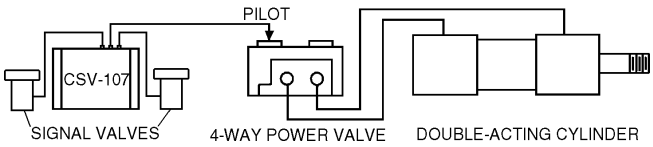


CSV-107 Logic Unit Responds To Remote Signals



Basic dimensions of CSV-107 logic unit are 6 5/8 x 2 5/8 x 1 13/16

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 23.

Specifications

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

Warning: CSV's 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.

CSV-111

Installs In Minutes

Connect and Go! These units are completely self-contained and pre-packaged controls. Simply connect the output to an appropriate valve or cylinder and plug the power cord to a 120VAC outlet and your control is fully operational. Mounts on any flat surface.

Years of Reliable Service

Every No-Touch unit is fully tested to 5000 cycles! Units are solid state with no mechanical switches or relays to wear out, ensuring years of reliable service in any application.

End cap switches are reliable even in harsh environments. Dust impenetrable and resistant to chemicals and moisture, end caps require no additional gaskets or sealing.

Pneumatic or Electrical Output

While all "No Touch" models utilize a 120VAC power supply, each model provides a different output. CSV-109 (24VDC) and CSV-110 (120VAC) each provide electrical outputs while CSV-111 releases an air signal upon actuation.

Model	Input	Output	Switch Location
CSV-109	120VAC	24VDC (Max. Draw 400 mA)	End Caps
CSV-109R	120VAC	24VDC (Max. Draw 400 mA)	Remote*
CSV-110	120VAC	120VAC (Max. Draw 5A)	End Caps
CSV-110R	120VAC	120VAC (Max. Draw 5A)	Remote*
CSV-111	120VAC	Pneumatic Signal	End Caps
CSV-111R	120VAC	Pneumatic Signal	Remote*

* Remote End Caps include 6′ of wire to connect to main unit.

WARNING!

"No Touch" CSV units are two-hand starting switches. They are not a complete press control. CSV's are intended to operate pneumatic valves and cylinders. They are not meant to be used on full or partial revolution flywheel presses, power brakes or other similar devices;therefore such applications are absolutely prohibited.

"No Touch" Units Provide Operator Relief

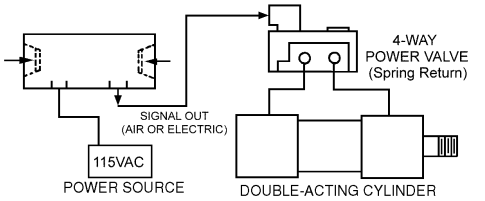
Protect your machine operators from the physical stress due to repetitive operations. These unique devices allow for "no touch" control of electric or pneumatic signals while providing user safety with two-hand no-tiedown actuation.

Zero Force Required

To activate these units, simply interrupt the photo optic beams in the recessed end caps. Units may be ordered with either attached or remote end caps. Remote end caps can be mounted virtually anywhere, including panel mounts.

Two-Hand Safety Control

To generate a signal from a "No-Touch" CSV device, simultaneous interruption of two infrared photo beams must occur. Located on opposite ends (standard models), interruption must occur within ⅓ of a second of each other. This interruption must be maintained for the entire cycle or the circuit will reset. At reset, both beams must again be interrupted simultaneously to generate another signal.

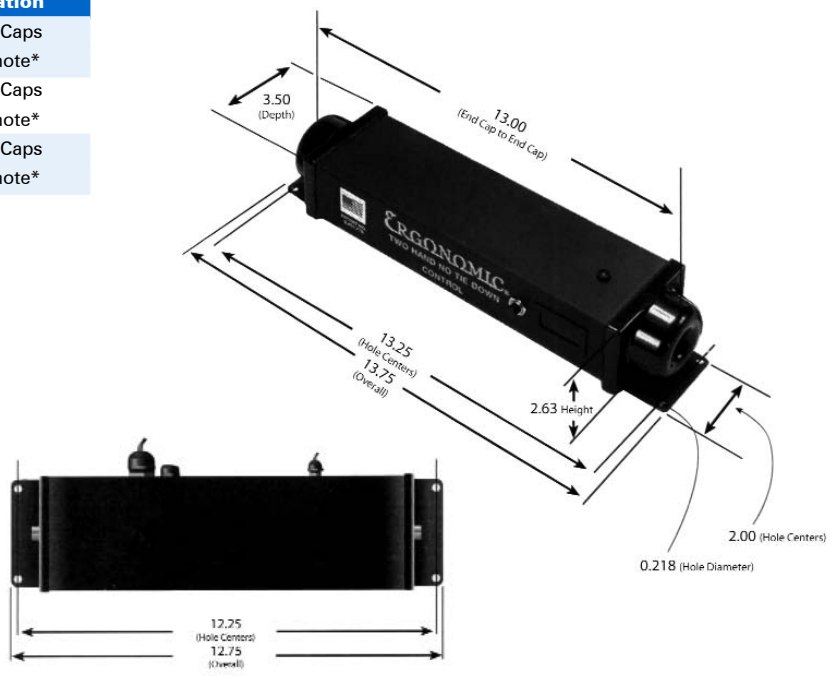


Certifications & Standards

No-Touch CSV units have been designed and tested to meet OSHA Standards 1910.212, 1910.217 and ANSI Z8, I-1990. They are further certified to the following:

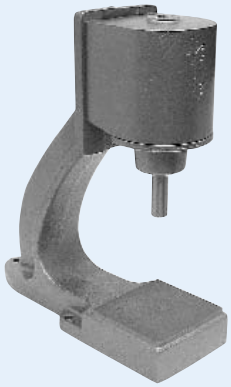
ANSI/UL 347
CSA-C22.2 NO. 14-95
UL STD. NO. 50

ANSI/UL 508
CSA-C22.2 NO. 94-M91



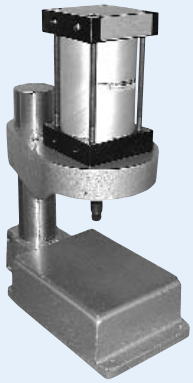
Air Presses

AP-42P
¼ Ton Arbor Press



Versatile, light-duty press. Single-acting, spring return.

CP-400P
¾ Ton Column Press



Column provides infinitely variable daylight settings and permits radial swing.

AP-400P
¾ Ton Arbor Press

Heavy-duty cast iron frame is extremely rigid.

AP-600P
1 ¾ 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 the following page.

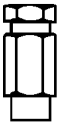
	Description	¼ Ton Arbor Press	¾ Ton Column Press	¾ Ton Arbor Press	1¾ Ton Arbor Press
	Press Stand Only	AP-42M	CP-400M	AP-400M	AP-600M
	Cylinder Mounted On Stand	AP-42P	CP-400P	AP-400P	AP-600P
	Complete Press with Two Hand Controls (Not Piped)	-	CP-400C	AP-400C	AP-600C
	Double Rod Option (DR)	NA	●	●	●
	Non-Rotating Option (NR)	NA	●	●	●
	Specifications				
	Cylinder Bore (In.)	2¼	4	4	6
	Thrust at 120 PSI (lbs.)	477	1508	1508	3393
	Standard Stroke Length (In.)	2 (Spr. Ret)	4	2½*	4*
SURFACE	**Table Width and Depth (In.)**	3 x 3	6⅞ x 8¾	5 x 5	8 x 8

Note: Standard column for Column Press is 14″ long. Longer column (18″ max.) is available on request.

***** Additional stroke available to 4″ on AP-400 and to 6″ on AP-600. Consult factory.

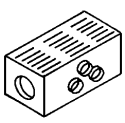
Press Options

Rod Speed Reduction



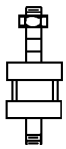
To control the downward speed of double-acting presses, place a Mead Dyla-Trol valve (see page 59) in the bottom cylinder port so that incoming air flows freely and exhausting air is metered. Model MF1-25 is suitable for the control of all presses under most conditions.

Two Hand Control Unit



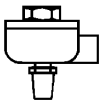
Models with a “C” suffix are supplied with a two hand anti-tiedown unit. Recessed trigger buttons, located in each end of the compact unit, require the press operator to use both hands concurrently to operate the press. Models CP-400C and AP-400C include the CSV-102, which has a built-in power valve. Model AP-600C includes the CSV-101 and a ½″ power valve (C5-3). All air logic. No electrical wiring. See pages 60-61 for the two hand controls. See pages (20-21) 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.

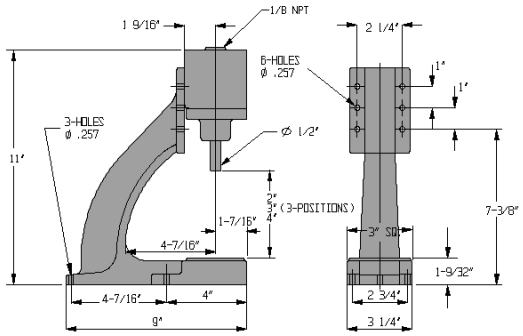
Press Speed Boost



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 ¼ ton presses and model QEV-2B on ¾ and 1 ¾ ton models. See page 67 for more information regarding QEVs.

AP-42

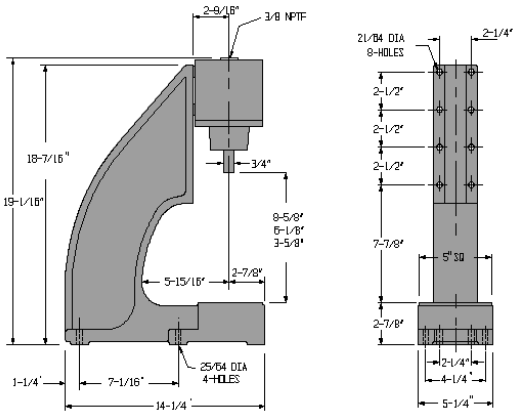
Shipping Weight: Stand Only = 9 lbs.
Stand/Cyl. = 10 lbs.



This press combines the AP-42M press stand with a Mead H-42 single-acting cylinder (2¼" bore, 2" stroke). Cylinder details are on page 51.

AP-122

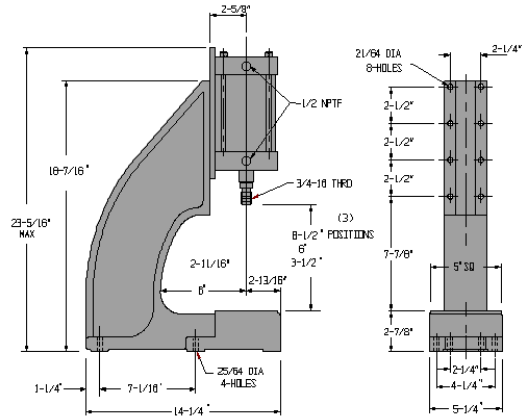
Shipping Weight: Stand Only = 45 lbs.
Stand/Cyl. = 52 lbs.



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 51.

AP-400

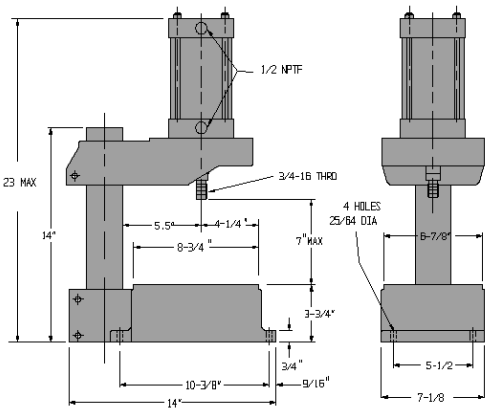
Shipping Weight: Stand Only = 45 lbs.
Stand/Cyl. = 52 lbs.



For non-standard double-acting service with strokes up to 4", use pages 34-35 to create a 4" bore cylinder for use with this stand. The PL-400 cylinder-to-stand adapter plate will be required.

CP-400

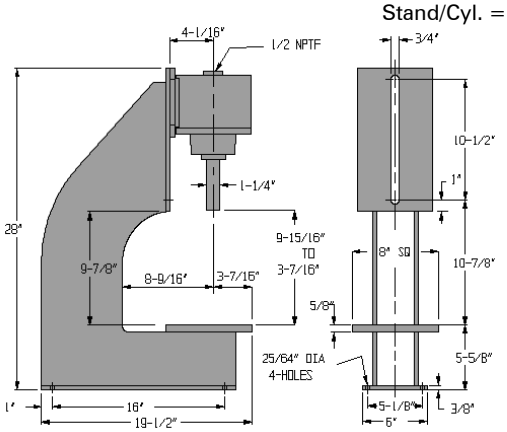
Shipping Weight: Stand Only = 90 lbs.
Stand/Cyl. = 105 lbs.



For other stroke lengths, heavy-duty or other options, use pgs. 34-35 to create any 4" bore cylinder for use with this press stand.

AP-283

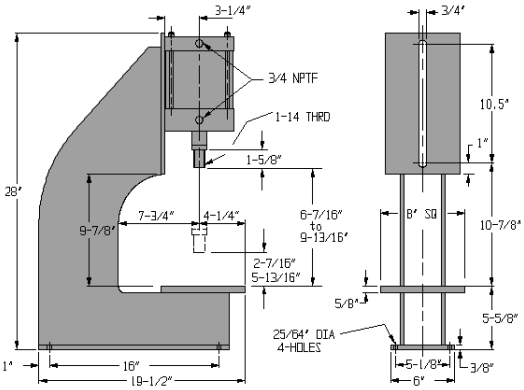
Shipping Weight: Stand Only = 85 lbs.
Stand/Cyl. = 125 lbs.



This press combines the AP-600M stand with Mead's #6040303 (H-283 with 3" longer ram, p. 51) single-acting cylinder (6" bore, 3" stroke). A PL-600 cylinder-to-stand adapter plate is required to mount this cylinder.

AP-600

Shipping Weight: Stand Only = 85 lbs.
Stand/Cyl. = 120 lbs.



For non-standard double-acting service with strokes up to 6", use pages 34-35 to design a 6" bore cylinder for use with this stand.

Heavy Multi-Stage Press

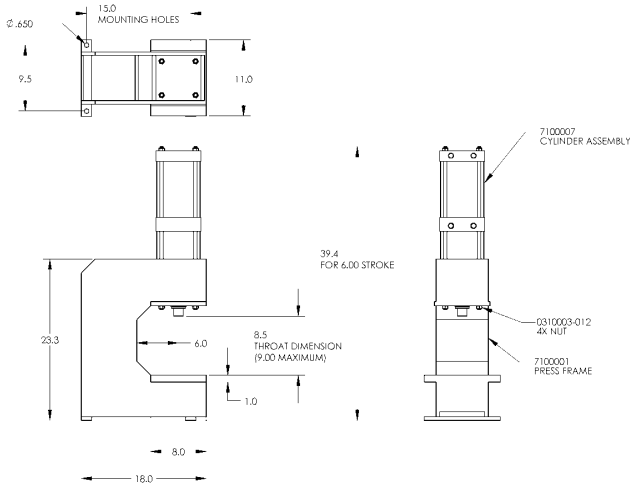
Mead's latest press utilizes multiple stages to achieve a dramatically increased output force. A standard shop air input (110 PSI) can achieve a push output force of up to 6057 lbs. The standard model has two stages, but upon request Mead can provide more stages which means higher output force at an 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 (to +400°F 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: 110psi
Maximum Output Force: 6057lbs
Thrust Multiplier: 55*

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

Dimensions

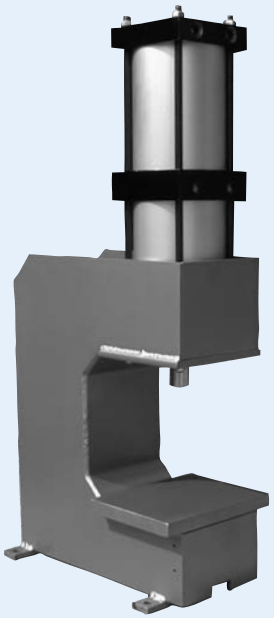


Note: For each inch of stroke overall height increases by 2"

Materials
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
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.

Press Options:

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. Model HP-600C includes the CSV-101 and a ½" power valve (C5-3). All air logic. No electrical wiring. See pages 60-61 for the two hand controls. See pages (20-21) for the power valve.



Ordering Information

Model #	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 #

HP-600P G2 - T8.00 - S4.00

Model

Stages

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

Stroke

Throat

NOTE: Stroke cannot exceed throat.

Available Cylinder Options:

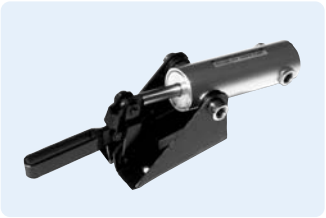
CR = Cushion Rear
IPR = Inter-Pilot Rear
MP = Magnetic Piston

Consult Factory For Other Options

Rod Speed Reduction: To control the downward speed of double-acting presses, place a Mead Dyla-Trol valve (see page 59) in the bottom cylinder port so that incoming air flows freely and exhausting air is metered. Model MF1-50 is recommended.

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. See page 67.

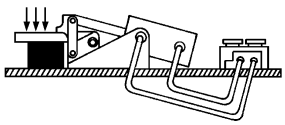
Air Toggle Clamps



Air toggle clamps provide quick, automated clamping of work pieces in operations such as drilling, punching and forming. Air toggle clamps may also be plumbed for multiple installation...ideal for simultaneous operations.

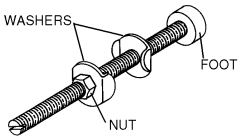
A channel type steel holddown bar delivers up to 600 lbs. of holding force at 100 PSI. Once closed and locked, the bar stays positively locked for safer operation...even with a total loss of incoming air.

Air toggle clamps are completely assembled...just mount and attach air lines from a four-way valve (N2-PB shown, pg. 18-19). Opening and closing speeds may be adjusted with flow control valves (pg. 59 and 66).



Model Number	Ports (NPSF)	Seals	Temp. Range
ATC-600	¼"	Buna-N	40°F to +250°F
ATC-600-VI	¼"	Viton	40°F to +400°F

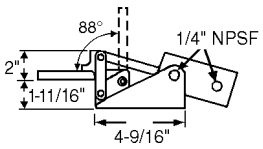
Accessories

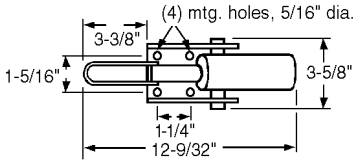


An optional adjustable spindle assembly is ideal for clamping work pieces that vary in height or may be damaged by the steel holddown bar.

Model Number	Description
9300023	Spindle Assembly, Neoprene Foot, Nuts & Washers
9300022	Spindle Assembly, Steel Swivel Foot, Nuts & Washers

Dimensions & Specifications



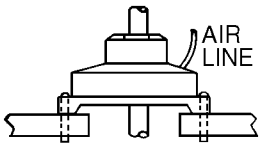


General Specifications			
Pressure Range:	0 to 100 PSI Air	Cylinder Bore:	1½"
Holddown Bar:	Cold Rolled Steel	Cylinder Stroke:	2¼"

Collet Fixtures

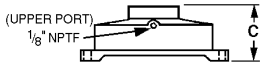
Use collet fixtures to evenly and firmly grip round bars during drilling, machining, positioning, or assembling tasks...without marring the surface of the bars.

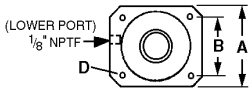
Workpieces may pass through the fixture. Model PCF accepts standard 3C collets. Model LS-1 accepts standard 5C collets. A collet wrench is supplied to simplify collet installation and removal. Mead does not offer collets.



Double-acting collet fixtures must be actuated by a four-way valve. Model PCF will prevent a round, smooth bar from turning at up to 10 ft. lbs. of applied torque; model LS-1 at up to 40 ft. lbs. at 100 PSI.

Dimensions & Specifications

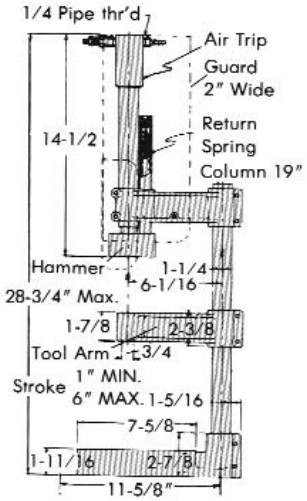




Model No.	Applied Holding Pressure @ 100 PSI; Max. 120 PSI	Collet Type	Round Stock Capacity	A (Sq.)	B (Sq.)	C	D (4)
PCF	3,400 lbs.	3C	½"	4⅞"	4"	3 7/16"	.257"
LS-1	7,100 lbs.	5C	1"	7"	5 7/16"	4 9/16"	.390"

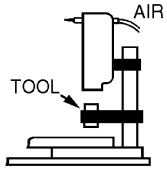
Air Impact Hammer

(Includes all controls)



Note: Width is 4 11/16"
Pressure Range: 25-175 PSI

AH-65 delivers a consistent, uniform blow. It is designed to accelerate, then strike a tool which may be guided by the supplied tool arm. A spring returns the hammer to the start position after the work is completed. The head must be free with no fixturing or tooling attached directly to it.



The air hammer's impact force may be adjusted from a few ounces to 4,500 lbs. by raising or lowering the air hammer, adjusting the air trip needle valve, or adjusting the air pressure. The air trip mechanism releases the hammer head when the air in the chamber reaches a pre-set level. The hammer head accelerates to the end of its stroke, with a longer stroke (6" maximum) creating greater velocity and greater impact.

All Controls Included

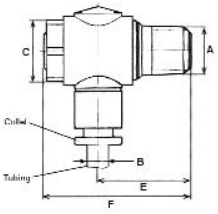
AH-65 is supplied with a CSV-102 two-hand control unit. The CSV-102 requires the operator to use two hands concurrently and also provides the power valve to run the hammer. See pg. 60.

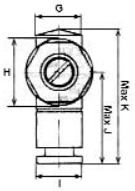
Right Angle Flow Controls (RAF and RAFK)

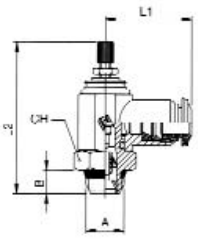
Mead's right-angle flow control valves provide fast, accurate control in a convenient, compact package. Designed specifically for controlling flow to pneumatic actuators, they come standard with push-in fittings, pre-applied Teflon based thread sealant, an adjustment depending on the type and convenient swivel feature for ease of tubing alignment. Both the RAF and RAF-K 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 59.

Specifications - RAF	
Materials :	Black Anodized Aluminum Body
	Zinc Plated Brass Fittings
	Stainless Steel Needle
	Buna N Seals.
Pressure:	15-145 PSI
Temperature:	-14°F to 160°F
Cracking Pressure:	5 PSI

Specifications - RAFK	
Materials:	Brass-Nickel Plated Body
	NBR 70 Seals
	C72 Dacromet Shaft Clip
Pressure:	15-145 PSI
Temperature:	0°F to 160°F







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

Part. No.	Tube O.D.	Pipe Thd. A	B	L1	min. L2	max. 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 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 wire.

Model PVD1

Model PVD2

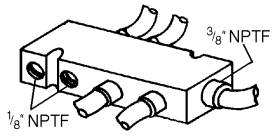
Model PVD3

Nylon & Polyethylene Tubing

Part Number Natural	Part Number Black	Tube Size	Material Material	Burst Pressure
11NAT*	-	1/16" I.D.	Polyurethane	400 PSI
22NAT	22BLK	1/8" O.D.	Nylon	500 PSI
532NAT	532BLK	5/32" O.D.	Nylon	500 PSI
44P NAT	44P BLK	1/4" O.D.	Polyethylene	400 PSI
66P NAT	66P BLK	3/8" O.D.	Polyethylene	600 PSI
88P NAT	88P BLK	1/2" O.D.	Polyethylene	250 PSI

*Tubing is packaged in 100 ft. lengths, except for 11NAT which is 50 ft. length.

Tube Manifold

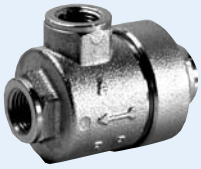


Use the #20 die cast aluminum manifold to simplify piping and cut down on plumbing time. A 3/8" NPTF inlet port provides a common air source for up to eight 1/8 NPTF outlets.

Dimensions			
Model No.	Length	Height	Width
#20	4"	1"	1 1/2"


#3 QEV


#1B QEV

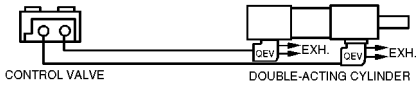

#4 QEV

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.

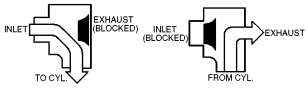
Using a quick exhaust valve to increase cycling speed allows a smaller, less expensive control valve to be used.

Circuit with Quick Exhaust Valves

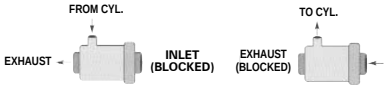


Flow Patterns

#1B and #2B



#4 and #5



Specifications and Dimensions

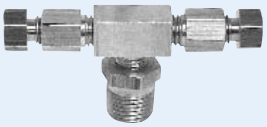
Model No.	Port	Cv		Length	Width	Height
#3 QEV	1/8"	.10*	.13‡	1/2"	1/2"	1 13/16"
#1B QEV	1/4"	2.71*	2.83‡	1 3/4"	1 7/8"	2 17/32"
#2B QEV	3/8"	3.13*	3.43‡	1 3/4"	1 7/8"	2 17/32"
#4 QEV	1/2"	3.25*	3.52‡	2.89"	1.02"	2.21"
#5 QEV	3/4"	3.78*	4.08‡	3.43"	1.26"	2.55"

* 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 and #5 QEV


SV-1

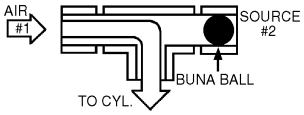

SV-2

Shuttle Valves

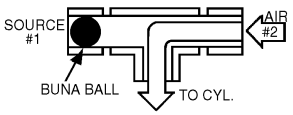
Use shuttle valves to actuate a cylinder or valve from either of two air sources. Available for 1/8" and 1/4" tubing.

Flow Patterns

Cylinder Actuated by Source #1



Cylinder Actuated by Source #2



Specifications & Dimensions

Model No.	Port	Cv	Tubing	Body	Length	Width	Height
SV-2	1/8-27*	.04	1/8" O.D.	Brass	2"	7/16" Hex	15/16"
SV-1	1/8"	.32	1/4" O.D.	Alum.	2 3/4"	1"	1"

* 1/8-27 NPT male

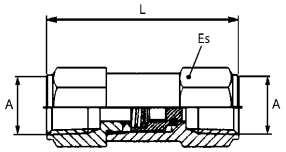
Check Valve

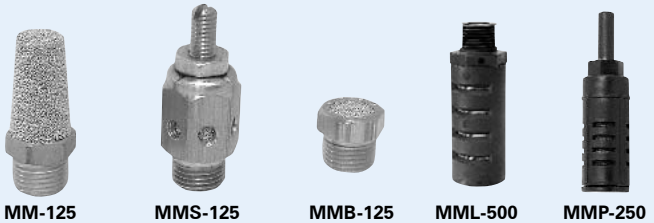
Mead check valves are designed to allow full flow in one direction, and check or stop flow in the other direction.

Specifications
Materials: Nickel Plated Brass Body and Piston NBR 70 Seals Steel Spring
Pressure: 30-120 PSI
Temperature: 0°F to 160°F
Cracking Pressure: 3 PSI

Check Valve Dimensions

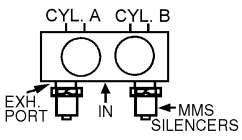
Part. No.	A NPTF	L	Es
CV-2	1/8	1.437	.512
CV-4	1/4	1.850	.669




MM-125 MMS-125 MMB-125 MML-500 MMP-250

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.

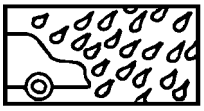
Specifications and Dimensions

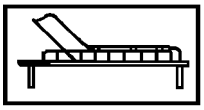
Model No.	Pipe Size	Length	Width	Height	Per Box
MM-019	#10-32*	45/64"	5/16" Hex	45/64"	20
MMB-125	1/8" NPT	7/16"	7/16" Hex	7/16"	20
MM-125	1/8" NPT	1 1/8"	7/16" Hex	7/16"	20
MMS-125	1/8" NPT	29/32"	1/2" Hex	1/2"	20
MML-125	1/8" NPT	2 1/8"	13/16"	13/16"	20
MMB-250	1/4" NPT	5/8"	9/16" Hex	9/16"	10
MM-250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

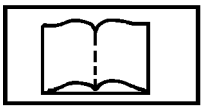
* Furnished with gasket

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.


CAR WASH EQUIPMENT


HOSPITAL EQUIPMENT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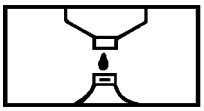
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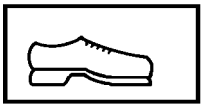
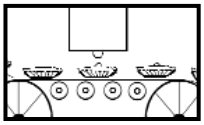
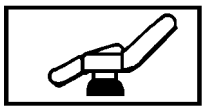
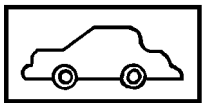
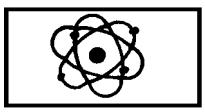

SHOE ASSEMBLY EQUIPMENT

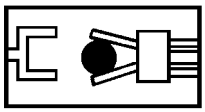

FOOD PROCESS EQUIPMENT


FUEL TREATMENT EQUIPMENT


DENTAL EQUIPMENT


AUTO ASSEMBLY


NUCLEAR FUEL REFINING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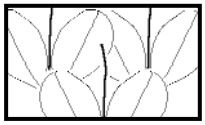
AGRICULTURAL EQUIPMENT

Contact Mead today for help solving your special application needs.

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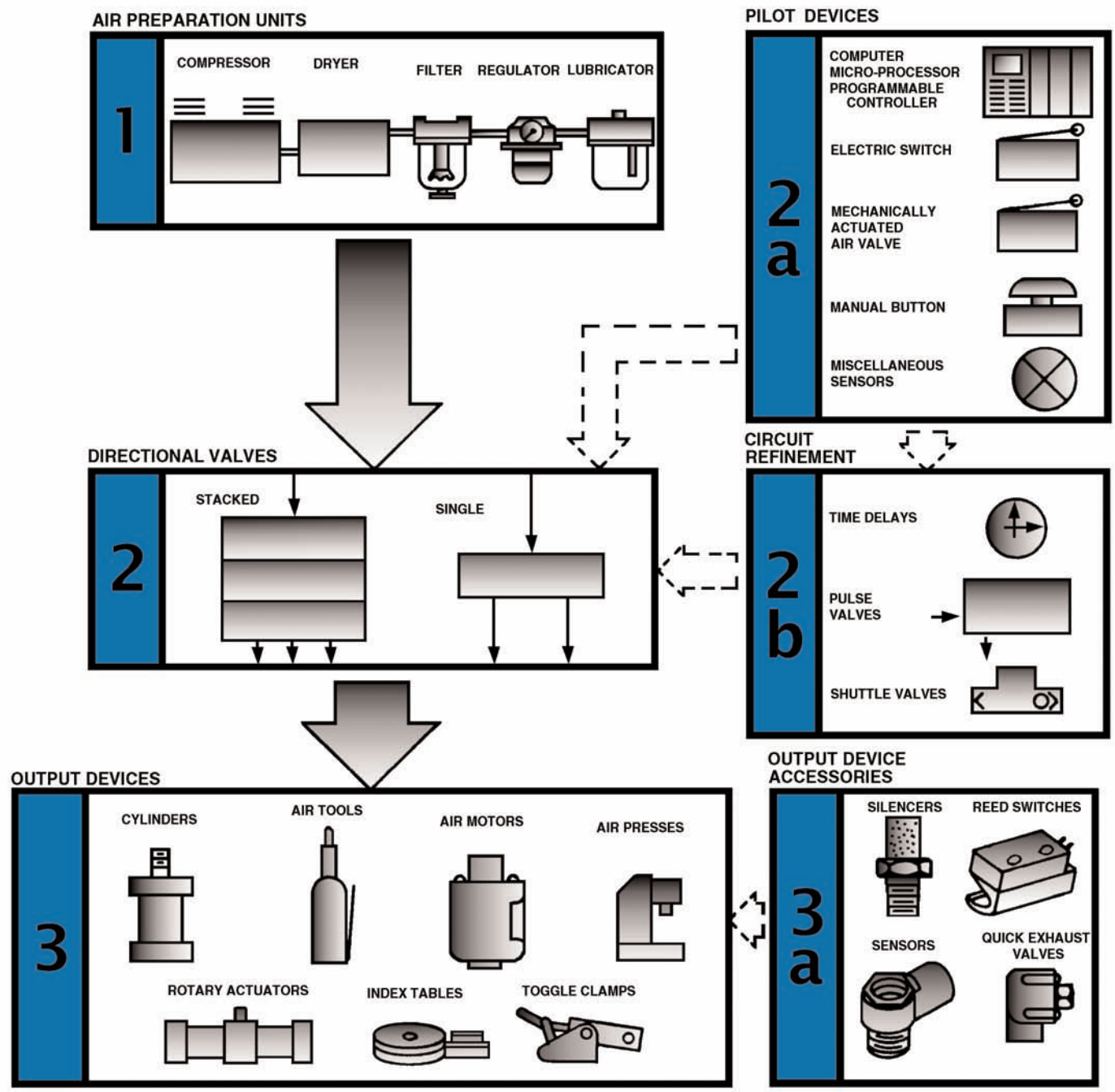

1. Air Preparation Units

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 by 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.

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