

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

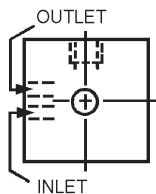
Model DM-112 is available with adjustable cushions that decelerate the piston rod over the last 1 1/16" of stroke. They allow the user to set the degree of cushioning needed for each specific application.

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. 60.

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

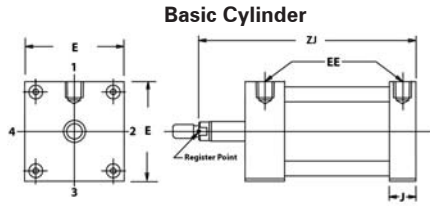
Self Aligning Rod Couplers

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. See page 17 for dimensions.

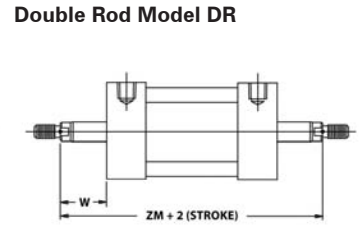


Part #	Rod Thread	Cylinder Type
DMA-312	5/16-24	C-112, DM-075, DM-112
DMA-375	3/8-24	No Standard
DMA-437	7/16-20	DM-150, DM2-150, HD1-150, DM-200, DM2-200, HD1-200, DM-250, DM2-250, HD1-250
DMA-500	1/2-20	C-150
DMA-625	5/8-18	C-250
DMA-750	3/4-16	DM-325, DM2-325, HD1-325, DM-400, DM2-400, HD1-400
DMA-875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

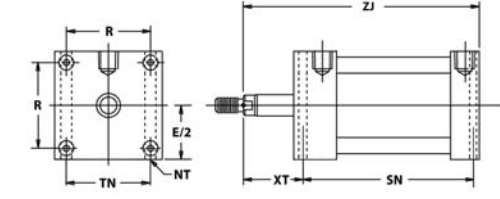
Bore	3/4	1 1/8
A	1/2	1/2
CB	-	5/8
CD	25/64	25/64
CR	2 1/4	2 1/4
CW	-	1/2
DD	13/64	13/64
E	1 1/4	1 5/8
EB	1 7/16	1 7/16
EE(NPTF)	1/8	1/8 </td
EF	11/32	11/32
EJ	13/64	13/64
F	-	1/8
FB	7/32	7/32
G	3/4	3/4
J	3/4	3/4
KK	5/16-24	5/16-24
FL	1 1/8	5/8 Clevis 1 1/4 Pivot
M	-	3/8
MM	5/16	5/16
NT	13/64-Thru	13/64-Thru
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 3/4 Clevis
ZJ*	2 5/8	2 5/8
ZM**	3 1/8	3 1/8



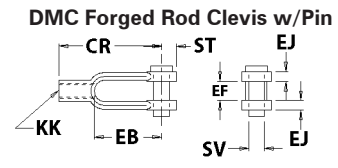
Basic Cylinder



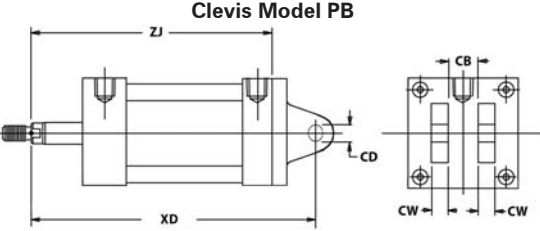
Double Rod Model DR



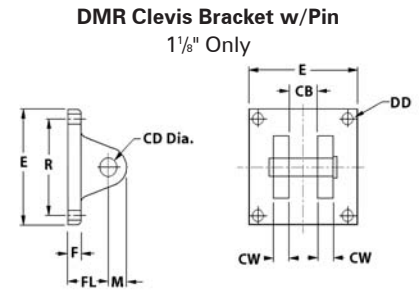
Bottom Flush Model FB



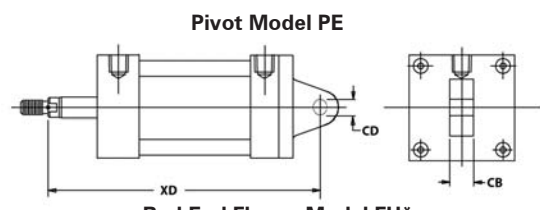
DMC Forged Rod Clevis w/Pin



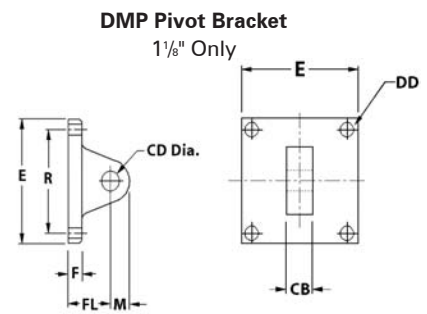
Clevis Model PB



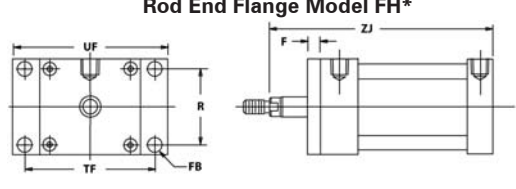
DMR Clevis Bracket w/Pin
1/8" Only



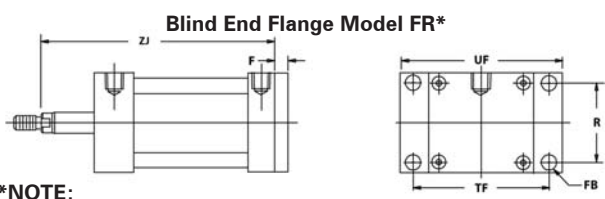
Pivot Model PE



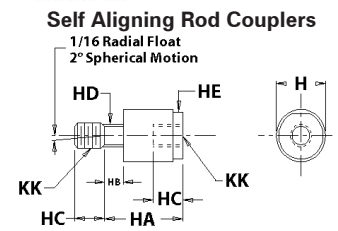
DMP Pivot Bracket
1/8" Only



Rod End Flange Model FH*



Blind End Flange Model FR*



Self Aligning Rod Couplers
1/16 Radial Float
2° Spherical Motion

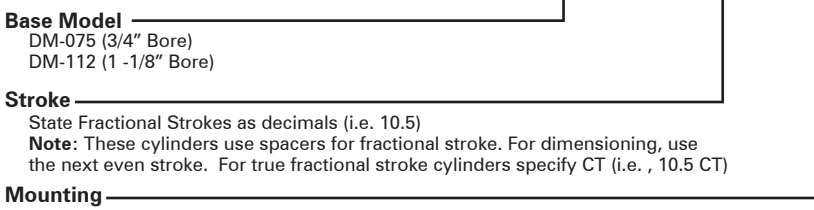
***NOTE:**

- 1 1/8" bore cylinders use two angle brackets for flange mounting. (no flange plate)
- 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.
- 3/4" 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).
- 3/4" and 1 1/8" bore models have (4) 10-32 threaded holes for rear flush mounting.

* Add Stroke Length to Dimension
** Add 2 x Stroke Length to Dimension

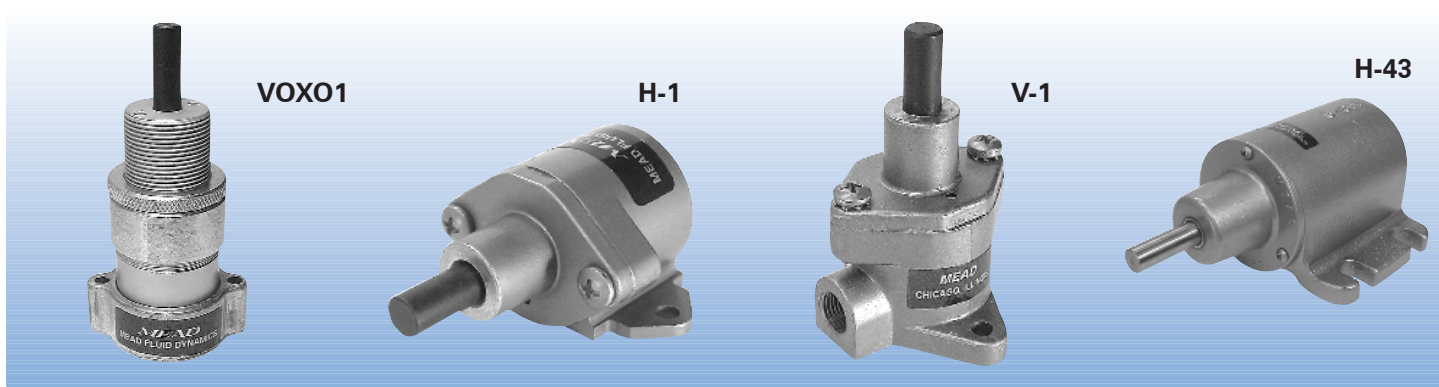
How To Order

DM-112 x 10 - FB - DR



- Options**
- DR Double Rod
 - VI Viton Seals
 - HY Hydraulic Use
- Options below are only available on DM-112
- CF Front Cushions
 - CR Rear Cushions
 - CB Cushions Both Ends
 - IPF Interpilots - Front Head
 - IPR Interpilots - Rear Head
 - IPB Interpilots - Both Heads

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.



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.

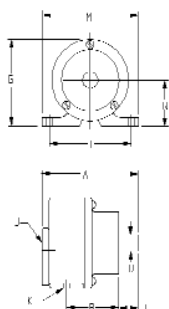
Models	Return♦	Bore(“)	Stroke(“)	Output*
H-1 & V-1	4	1	1 ¹ / ₁₆	68
HOX01 & VOX01	5	1	0 to 1	62
HIX12 & VIX12	5	1	1 to 2	61
H-41 & V-41	9	2 ¹ / ₄	1	361
H-42	10	2 ¹ / ₄	2	353
H-43	11	2 ¹ / ₄	3	351
H-71	18	3	1	682
H-72	13	3	2	675
H-73	14	3	3	679
H-12	39	4	2	1206
H-122	27	4	2 ⁵ / ₈	1204
H-283	40	6	3	2763

♦ Maximum weight in pounds that spring will return.

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

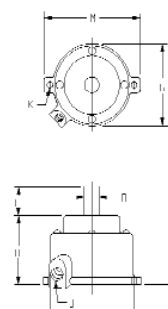
	H-1	HOX-01	HIX-12	H-41	H-71
A	2 ²⁵ / ₃₂	4	5	4 ⁷ / ₈	5 ⁵ / ₁₆
B	1 ¹¹ / ₃₂	Var.	Var.	2 ¹ / ₄	2 ³ / ₄
C	⁵ / ₈	Var.	Var.	1 ¹ / ₂	1 ⁷ / ₁₆
D	⁵ / ₁₆	⁵ / ₁₆	⁵ / ₁₆	¹ / ₂	³ / ₄
G	1 ¹ / ₄	1 ⁹ / ₁₆	1 ⁹ / ₁₆	3 ¹ / ₁₆	3 ²³ / ₃₂
H	-	-	-	-	-
J	¹ / ₈ NPT	¹ / ₈ NPT	¹ / ₈ NPT	¹ / ₈ NPT	¹ / ₄ NPT
K	³ / ₁₆	.200	.200	¹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

Single Side Lug



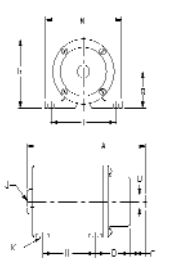
	V-1	VOX-01	VIX-12	V-41
A	2 ⁵ / ₈	3 ¹³ / ₁₆	4 ¹³ / ₁₆	4 ⁵ / ₈
B	1 ¹⁵ / ₁₆	Var.	Var.	3 ³ / ₁₆
C	¹¹ / ₁₆	Var.	Var.	1 ⁷ / ₁₆
D	⁵ / ₁₆	⁵ / ₁₆	⁵ / ₁₆	¹ / ₂
G	1 ⁹ / ₁₆	1 ³ / ₄	1 ³ / ₄	3
H	-	-	-	-
J	¹ / ₈ NPT	¹ / ₈ NPT	¹ / ₈ NPT	¹ / ₈ NPT
K	³ / ₁₆	.200	.200	.257
L	1 ¹¹ / ₁₆	1 ⁵ / ₈	1 ⁵ / ₈	3 ³ / ₄
M	2 ¹ / ₈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

Base Mount



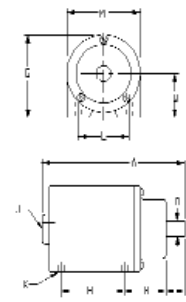
	H-43	H-72	H-73	H-12	H-283
A	7 ¹ / ₄	6 ⁵ / ₁₆	7 ⁵ / ₁₆	7	9
B	2 ³ / ₄	2 ³ / ₁₆	2 ³ / ₁₆	2 ⁹ / ₁₆	3 ¹ / ₂
C	⁵ / ₈	1 ⁷ / ₁₆	1 ⁷ / ₁₆	1 ⁷ / ₁₆	1 ⁷ / ₁₆
D	¹ / ₂	³ / ₄	³ / ₄	³ / ₄	1 ¹ / ₄
G	3 ¹ / ₁₆	3 ¹¹ / ₁₆	3 ¹¹ / ₁₆	5 ¹ / ₁₆	7 ¹ / ₁₆
H	2	2 ¹ / ₁₆	3 ¹ / ₁₆	2 ⁵ / ₁₆	7 ¹ / ₁₆
J	¹ / ₈ NPT	¹ / ₄ NPT	¹ / ₄ NPT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

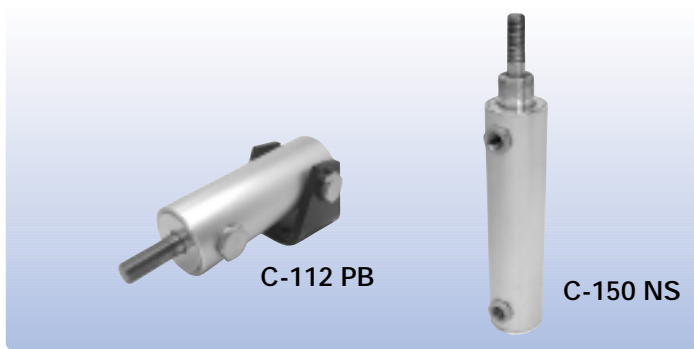
Double Side Lug



	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



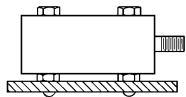


Low Cost Mounting

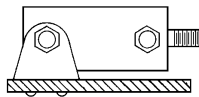
Flush bottom cylinder mounts directly onto a base plate with only two bolts...needs no mounting brackets or other hardware. The pivot bracket is built-in for easy pivoting at the inlet axis. The bracket pivots within the cylinder length to save space and to eliminate one entire bracket that would be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

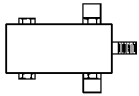
Flush Bottom (FB)



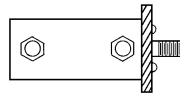
Pivot Bracket (PB)



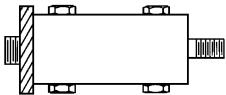
Trunnion Rear (TR) Trunnion Front (TF)



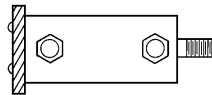
Flush Front (FF) 1 1/2", 2", 2 1/2" & 3" bores only



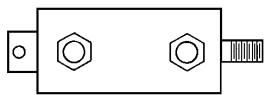
Flush Rear (FR) 1 1/8" bore only



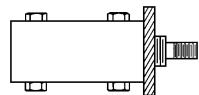
Flush Rear (FR) 1 1/2", 2", 2 1/2" & 3" bores only



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



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



Technical Specifications

Pressure : 150 PSI Air, 250 PSI Hydraulic

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

Body: Hard Coated Aluminum

Rod Bearing: Oil Impregnated Porous Bronze

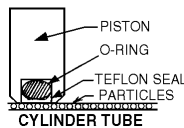
Temperature Range: -40°F to +250°F (to +400°F on request)

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

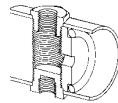
Centaur's unique Teflon® piston seal eliminates the forward lurch that occurs when rubber seals breakaway from the cylinder tube surface. Rod motion remains smooth throughout the stroke.



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

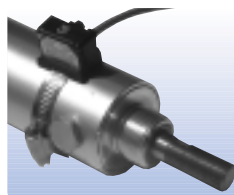


Rod couplers simplify cylinder alignment problems by compensating for 2° angular error and 1/16" lateral misalignment on both extension and retraction strokes.

* see page 10 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. 13.

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



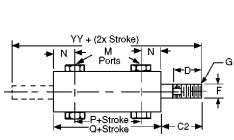
Control the speed of your cylinders with Mead Flow Control Valves. Right-angle flow controls can be found on page 63. For precise metering of air, see Mead Dyla-Trol valves on page 62.

Double Rod Cylinders

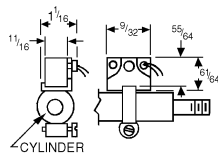


Centaur cylinders may be ordered with a one piece piston rod protruding from both ends of the cylinder for convenient stroke adjustment and for increased rigidity.

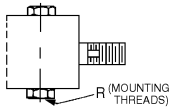
Basic Dimensions



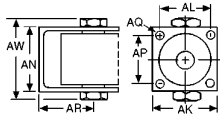
Hall Effect



Flush Bottom (FB)

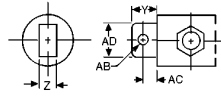


Pivot Bracket (PB)



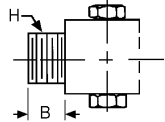
Pivot Extended (PE)

1 1/8", 1 1/2" & 2" bores only



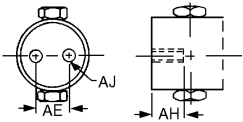
Flush Rear (FR)

1 1/8" bore only



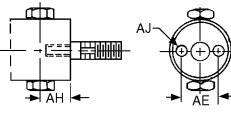
Flush Rear (FR)

1 1/2", 2", 2 1/2" & 3" bores only



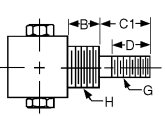
Flush Front

1 1/2", 2", 2 1/2" & 3" bores only

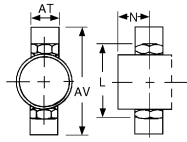


Threaded Nose (NS)

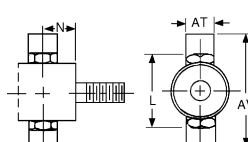
Std. on all 1 1/8" bore mounts
1 1/8", 1 1/2" & 2" bores only



Trunnion Rear (TR)



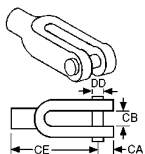
Trunnion Front (TF)



Accessories

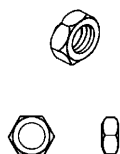
Rod Clevis w/Pin (CEC)

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



Nose Nuts (CN)

1 1/8", 1 1/2" & 3" bores only



Note: For DMC-4, refer to pages 16-17.

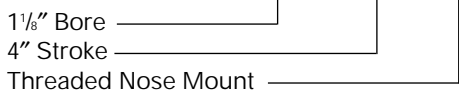
Air Reservoirs

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



	Bore Sizes				
	1 1/8"	1 1/2"	2"	2 1/2"	3"
A	1 3/8	1 3/4	2 1/4	2 3/4	3 1/4
B	5/8	1 1/16	1 1/16	-	-
C1	5/8	1 5/8	1 7/8	-	-
C2	-	1 1/16	1 1/16	1 1/4	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 1/32	2 1/8	2 1/8	3 1/8	3 5/8
M	1/8 NPT*	1/4 NPSF	1/4 NPSF	1/4 NPSF	1/4 NPSF
N	7/16	51/64	51/64	51/64	51/64
P+Stroke	1 21/64	1 27/32	1 59/64	2 3/64	2 11/64
Q+Stroke	2 13/64	3 3/16	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	1 1/16	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 3/8
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	1 3/64	9/32	9/32	9/32	9/32
AR	3 1/32	1 1/16	1 13/16	1 15/16	2 5/16
AT	.418	.731	.731	.731	.731
AV	2 5/32	3 5/8	4 1/8	4 5/8	5 1/8
AW	2 17/64	2 13/16	3 5/16	3 13/16	4 5/16
YY+ (2 X STK)	4 23/32	6 5/16	6 7/8	7 1/8	7 1/8

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

Rod Clevis Accessory Dimensions

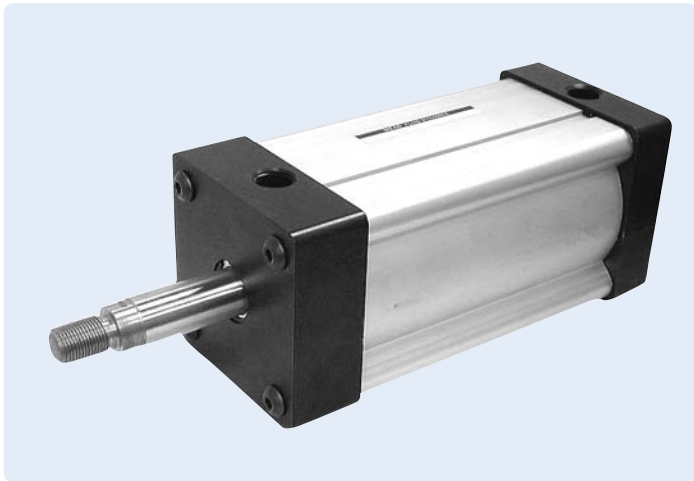
Bore	E	CA	CB	CE	DD
1 1/8"	-	19/64	11/32	1 3/16	5/16
1 1/2"	-	15/32	9/16	1 13/16	1/2
2"	1 1/4	7/16	5/8	2 1/16	1/2
2 1/2"	1 1/2	3/4	1 1/4	2 3/8	3/4
3"	1 1/4	7/16	5/8	2 1/16	1/2

Model Numbers

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

Bore Model	1 1/8" C-112	1 1/2" C-150	2" C-200	2 1/2" 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 1 1/8" bore model with double rod.



Built to Last (Materials)

- Cylinder heads are machined from solid aluminum bar stock and black anodized
- 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

Dyna-Mation II -vs- HD Models

Dyna-Mation II cylinders are designed to generate high performance in most applications. However, when operating conditions are severe, heavy duty models (HD Series, see pages 18-25) 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 both types of cylinders:



Dyna-Mation
Internal Porous Bronze
Rod Bearing



HD1
Hard-Coated Outboard
Rod Bearing

New Clean-Profile Design

Mead's new DM2 cylinders are constructed with an extruded body design rather than a tie-rod design, making these cylinders better suited for clean environments.

Specify Cushions for Shock Absorption

Adjustable cushions that decelerate the piston rod over the last $\frac{1}{16}$ " 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 probe to provide years of reliable service.

Operating Parameters

Bore Diam.	Thrust*	Thrust Mult.**	Rod Diam.(In.)	Max. Oper. Pressure	
				Air	Oil†
1½"	177	1.77	5/8	250	1000
2"	314	3.14	5/8	250	1000
2½"	491	4.91	5/8	250	1000
3¼"	830	8.30	1	250	700
4"	1257	12.57	1	250	650

*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.

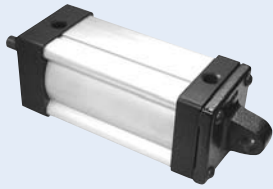
Double-Rod Cylinders

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 15 for ordering instructions.

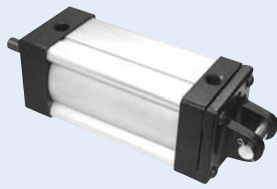
Right Angle Flow Controls



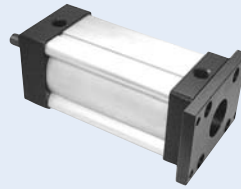
Control the speed of your cylinders with Mead Flow Control Valves. Right-angle flow controls can be found on page 63. For precise metering of air, see Mead Dyla-Trol Valves on page 62.



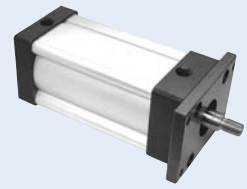
Pivot Mount



Clevis Mount



Rear Flange

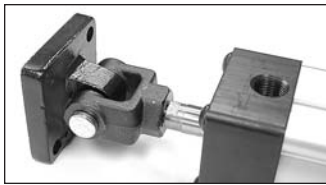


Front Flange

Accessories

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

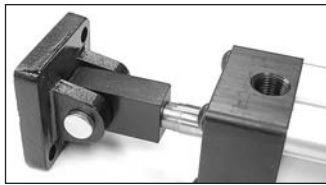
Rod Clevis and Pivot Bracket



Clevis Bracket and PE Cylinder



Rod Eye and Clevis Bracket



Pivot Bracket and PB Cylinder



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

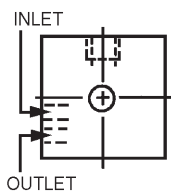


A miniature 3-way valve built into the cylinder head is actuated by the cylinder piston as it reaches the end of its stroke. Once contacted, the 3-way Inter-Pilot® valve emits an air signal. In this manner, sequencing is achieved without external limit switches and electric wiring.

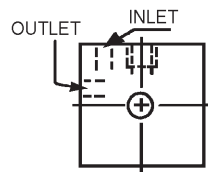
Inter-Pilots® may be built into either or both cylinder heads. They are not for hydraulic use. Cylinder operating pressure must not exceed pressure used to feed the Inter-Pilot®.

Inter-Pilot® Port Locations

For 1 1/2" Bore Cylinders



For 2"-4" Bore Cylinders



Note: Inter-Pilot® ports are 10-32.

Rod Position Sensors



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 cylinder piston reaches a point opposite their location. 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.

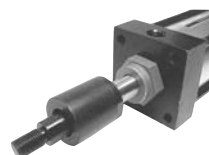
Technical Information			
Operating Voltage:	240 AC Max.	Working Temp:	67 to 200°F
Switch Current:	.5 Amps Max.	Operating Time:	On .5 ms
	10 Watts Max.		Off .5 ms

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 1/8", 1/4", 1/2" pipe sizes. See pg. 60.

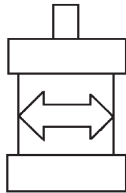
Self Aligning Rod Couplers



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

STEP 1:

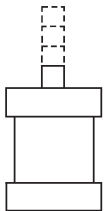


SELECT A BORE SIZE

Bore	1½"	2"	2½"	3¼"	4"
Force*	177	314	491	830	1257
Model	DM2-150	DM2-200	DM2-250	DM2-325	DM2-400

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

STEP 2:



CHOOSE STROKE LENGTH

PISTON ROD DIAMETERS:

Bore	1½"	2"	2½"	3¼"	4"
Rod Diam.	5⁄8"	5⁄8"	5⁄8"	1"	1"

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:

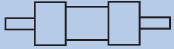
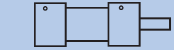





SELECT A MOUNTING STYLE

	Mead Code	Bore Diameter					NFA Code	Description	
		1½"	2"	2½"	3¼"	4"			
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	•	•	•	•	•	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 NFA 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.

Note: Also available are Side Lug Mounts (NFA Code MS-2), Consult factory.

STEP 4:

SELECT CYLINDER OPTIONS

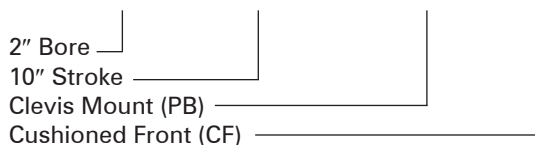
	Mead Code	Bore Diameter					Description	
		1½"	2"	2½"	3¼"	4"		
Double Rod		DR	•	•	•	•	•	Rod extends through both heads: (adds to cylinder rigidity)
Cushions (Not available with Trunnion Mount)		Front CF Rear CR Both CB	•	•	•	•	•	Dampen the impact and sound that occur at stroke completion; cushions are 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:

BUILD A MODEL NUMBER

Model Number Stroke Mounting Style Options

DM2-200 - 10 - PB - CF



When ordering Dyna-mation cylinders, list the:

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

Hall Effect Switches

Model CS-7003P
Sourcing

Model CS-7003N
Sinking

Cylinders must have a magnetic piston (MP). For technical information, see page 13.

Reed Switches


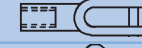

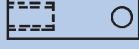


Model CS-7003R
Plain Wire Leads

Cylinders must have a magnetic piston (MP). For technical information, see page 13.

Special Cylinders

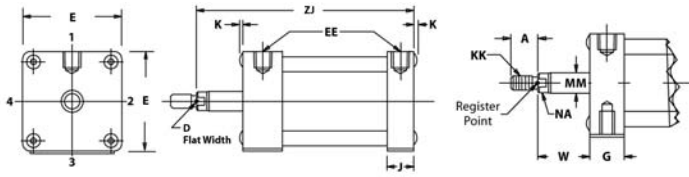
We invite inquiries regarding non-standard cylinders. Please call 773-685-6800 or your local Mead representative.

Accessories

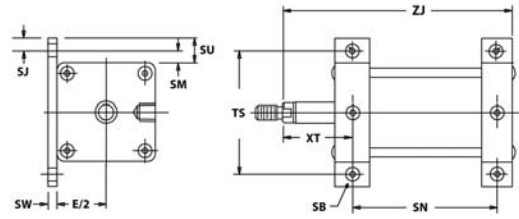
	Bore Diameter	1½"	2"	2½"	3¼"	4"
	Flex Rod Couplers	DMA-437	DMA-437	DMA-437	DMA-750	DMA-750
	Forged Rod Clevis	DMC-1	DMC-1	DMC-1	NA	NA
	Rod Clevis (NFPA Std.)	DMC-2	DMC-2	DMC-2	DMC-4	DMC-4
	Machined Rod Eye (NFPA Std.)	DME-1	DME-1	DME-1	DME-2	DME-2
	Pivot Bracket	DMP-1	DMP-2	DMP-3	DMP-4	DMP-5
	Clevis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

NOTE: DMP and DMR Pivot and Clevis brackets do not include any mounting hardware. See page 21 for mount kits.

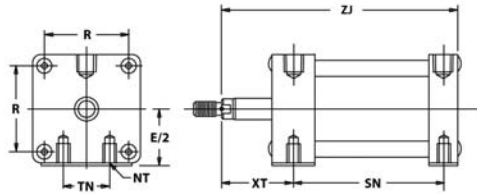
Basic Cylinder



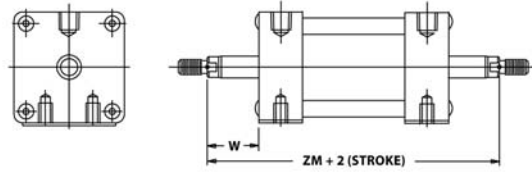
Foot Mount Plate Model FT



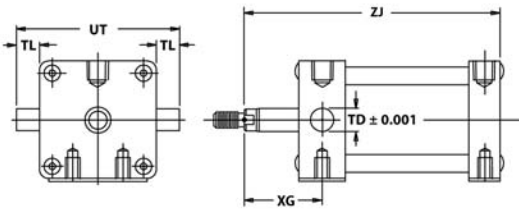
Bottom Flush Model FB



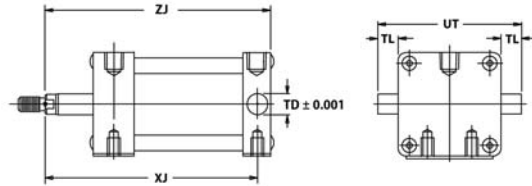
Double Rod Model DR



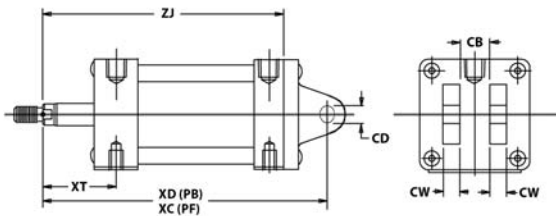
Rod End Trunnion Model TF



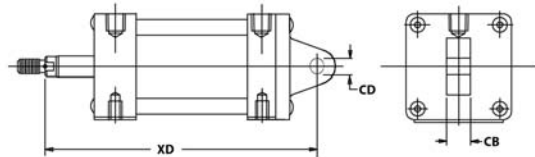
Blind End Trunnion Model TR



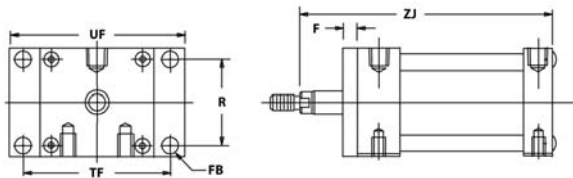
Clevis Model PB and PF



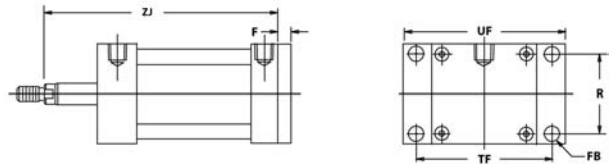
Pivot Model PE



Rod End Flange Model FH*



Blind End Flange Model FR*



* Dyna-mation exception - port size

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

Bore	1½	2	2½	3¼	4
A	¾	¾	¾	1 ⅛	1 ⅛
CA	1 ½	1 ½	1 ½	2 ⅛	2 ⅛
CB	¾	¾	¾	1 ¼	1 ¼
CD	½	½	½	¾	¾
CE	1 ½	1 ½	1 ½	2 ⅜	2 ⅜
CW	½	½	½	⅝	⅝
D	½	½	½	⅞	⅞
DD	17/64	23/64	23/64	7/16	7/16
E	2	2 ½	3	3 ¾	4 ½
EE(NPTF)***	¼	¼	¼	½	½
F	⅜	⅜	⅜	⅝	⅝
FB	5/16	⅜	⅜	7/16	7/16
FL	1 ⅛	1 ⅛	1 ⅛	1 ⅞	1 ⅞
G	1 7/16	1 7/16	1 7/16	1 11/16	1 11/16
J	15/16	15/16	15/16	1 3/16	1 3/16
K	⅛	5/32	5/32	3/16	3/16
KK	7/16-20	7/16-20	7/16-20	¾-16	¾-16
M	½	½	½	¾	¾
MM	⅝	⅝	⅝	1	1
NA	19/32	19/32	19/32	31/32	31/32
NT	¼-20	5/16-18	3/8-16	½-13	½-13
R	1 7/16	1 27/32	2 3/16	2 ¾	3 21/64
SB	17/64	21/64	25/64	33/64	33/64
SJ	⅜	⅜	⅜	½	½
SM	⅜	⅜	⅜	½	½
SU	¾	¾	¾	1	1
SW	3/16	3/16	¼	¼	¼
TD	1	1	1	1	1
TF	2 ¾	3 3/8	3 7/8	4 11/16	5 7/16
TK	⅜	½	9/16	¾	¾
TL	1	1	1	1	1
TN	⅝	7/8	1 ¼	1 ½	2 1/16
TS	2 ¾	3 ¼	3 ¾	4 ¾	5 ½
UF	3 ¾	4 ⅛	4 ⅝	5 ½	6 ¼
UT	4	4 ½	5	5 ¾	6 ½
W	1	1	1	1 ⅜	1 ⅜
XT	1 15/16	1 15/16	1 15/16	2 7/16	2 7/16
XG	1 ¾	1 ¾	1 ¾	2 ¼	2 ¼
H	1 ¼	1 ¼	1 ¼	1 ¾	1 ¾
HA	2	2	2	2 5/16	2 5/16
HB	½	½	½	½	½
HC	¾	¾	¾	1 ⅛	1 ⅛
HD	⅝	⅝	⅝	31/32	31/32
HE	1	1	1	1 ½	1 ½
HF	10,000	10,000	10,000	34,000	34,000

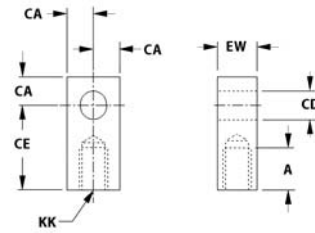
Note: * Add Stroke Length to Dimensions Below ** Add Twice Stroke to ZM Dimension

SN*	2 ¼	2 ¼	2 ⅜	2 ⅝	2 5/8
XC*	5 ⅜	5 ⅜	5 ½	6 7/8	6 7/8
XD*	5 ¾	5 ¾	5 7/8	7 ½	7 ½
XJ*	4 ⅛	4 ⅛	4 ¼	5	5
ZJ*	4 ⅝	4 ⅝	4 ¾	5 ⅝	5 ⅝
ZM**	6 ⅛	6 ⅛	6 ¼	7 ½	7 ½

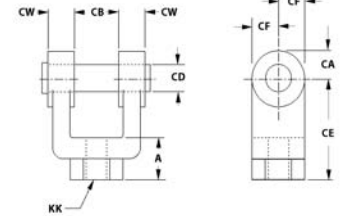
Note: For Inter-Pilot® port locations, see page 13.

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

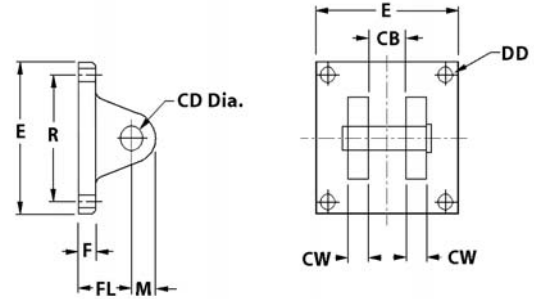
DME Interchangeable Rod Eye



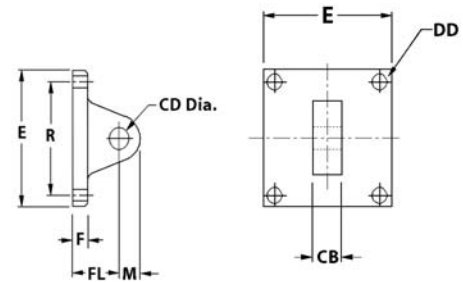
DMC Interchangeable Rod Clevis with Pin



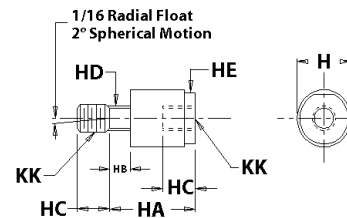
DMR Clevis Bracket w/Pin



DMP Pivot Bracket

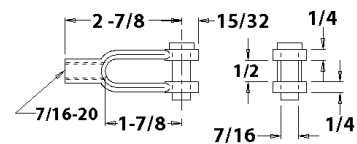


Self Aligning Rod Couplers



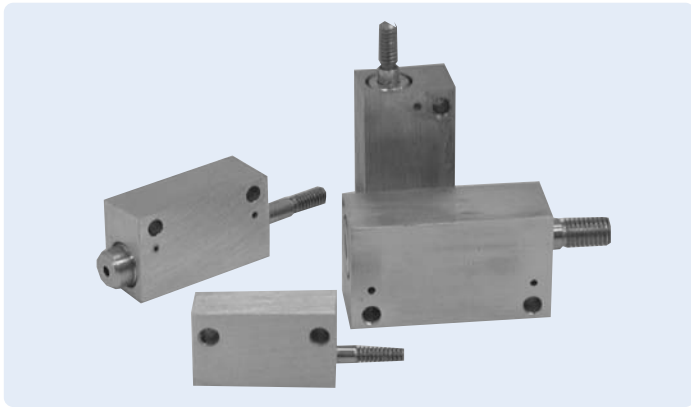
DMC-1 Forged Rod Clevis w/Pin

1½" through 2½" bores



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.



MF Series - Mini Flat Mount Cylinders

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

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

General Specifications	
Standard Strokes	
Single Acting:	1/4" bore - 1/4" stroke only 3/8" and 1/2" bores - 1/4" and 1/2" strokes
Double Acting:	Available in 1/4", 1/2", 1", 1 1/2", and 2" strokes
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 Cylinder Dimensions

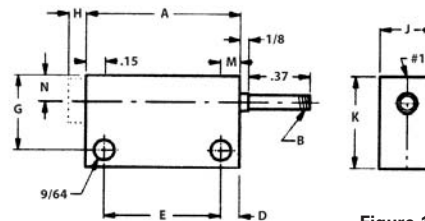


Figure 1: For strokes up to 1/2"
1 Indicates port locations
The H dimension is for spring extend cylinders only.

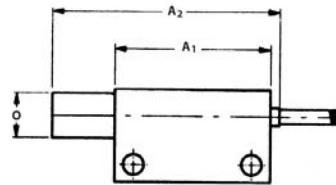


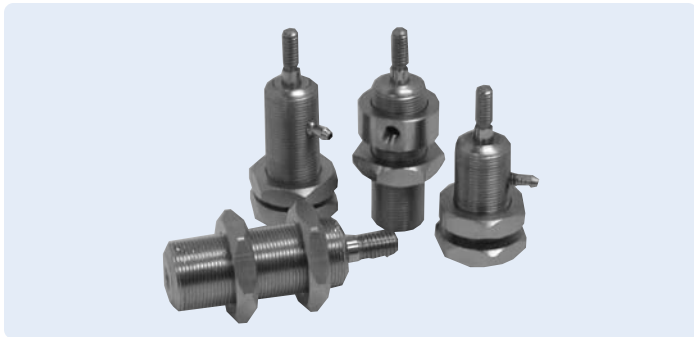
Figure 2: For Strokes Over 1/2"

MF Cylinder Dimensions

Bore	Stroke	A	B	D	E	G	H	I	J	K	M	N	O	Front Port	Rear Port
1/4"	1/4"	1.06	6-32	.12	0.81	7/16"	.10	.31	3/8"	5/8"	.20	.18	5/16"	6-32	10-32
	1/2"	1.31	6-32	.12	1.06	7/16"	-	.31	3/8"	5/8"	.20	.18	5/16"	Barb	Tap
3/8"	1/4"	1.25	8-32	.15	0.93	5/8"	.18	.37	1/2"	3/4"	.37	.25	7/16"	10-32	10-32
	1/2"	1.50	8-32	.15	1.18	5/8"	.18	.37	1/2"	3/4"	.37	.25	7/16"	Tap	Tap
1/2"	1/4"	1.31	1/4-28	.15	1.00	3/4"	-	.37	5/8"	7/8"	.37	.31	9/16"	10-32	10.32
	1/2"	1.56	1/4-28	.15	1.25	3/4"	-	.37	5/8"	7/8"	.37	.31	9/16"	Tap	Tap

Dimensions For Cylinders With Strokes Over 1/2"

Bore	A ₁	A ₂
1/4"	1.06	0.81 + Stroke
3/8"	1.25	1.00 + Stroke
1/2"	1.31	1.06 + Stroke



MA Series - Mini Adjustable Location Cylinders

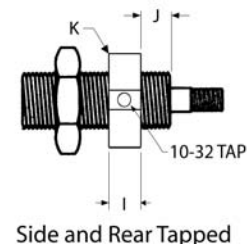
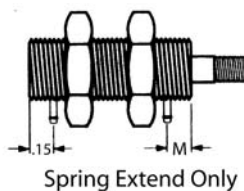
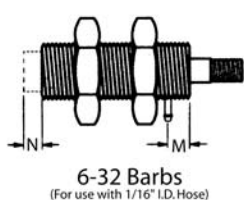
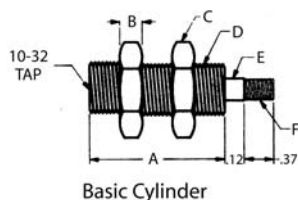
These threaded body cylinders install quickly and easily without special mounting devices. Either drill a hole, insert your cylinder, and position with the pair of jam nuts or tap a hole and lock into position with a single jam nut.

The MA-Series cylinders are electroless nickel plated for excellent corrosion resistance and a gleaming appearance.

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

MA Cylinder Dimensions

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



Ordering Miniature Cylinders:

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

Family

MA = Mini Adjustable
MF = Mini Flat

Bore

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

Stroke (in inches)

Single-Acting (1/4" bore) = 0.25 Only
Single-Acting (3/8" & 1/2" bores) = 0.25 and 0.50
Double-Acting (1/4" bore) = 0.25, 0.50 and 1.00
Double-Acting* = 0.25, 0.50, 1.00, 1.50 and 2.00
* (3/8" and 1/2" bores)

Type

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

Accessories

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

Options

V = Viton Seals
NR = Non-Rotating (Hex Rod) (MA Series Only)

Front Port

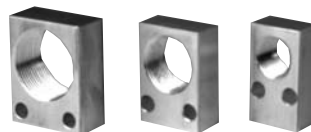
O = None (Spring Return)
S = Side Tapped (10-32)
B = 6-32 Barb (For 1/16" ID Hose)

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)

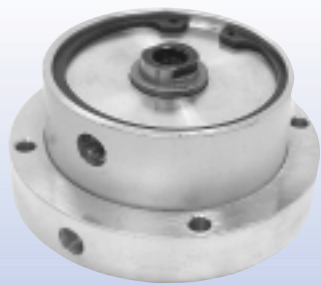
* Special Order (Non-Stock, contact factory)

Mounting Blocks



PMB-500 PMB-375 PMB-250

Bore	PMB 250	PMB 375	PMB 500
1/4"	0.503	0.626	0.75
3/8"	0.879	0.876	0.94
1/2"	0.314	0.314	0.38
Hole (2)	0.14	0.139	0.136



SS-300



SS-112

Offers A Wide Range Of Power

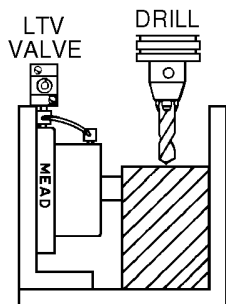
Bore	3/4"	1 1/8"	1 1/2"	2"	2 1/2"	3"	4"
Force @ 100 PSI (lbs.)	44	100	177	314	491	707	1257

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 52-53, 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											
		1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/2"	2"	2 1/2"	3"
SS-075	3/4"	X*	-	X*	X	X	X	X	X	X	X	-	-
SS-112	1 1/8"	X*	X*	X*	-	X	-	X	X	X	X	X	X
SS-150	1 1/2"	X*	-	X	-	X	-	X	X	X	X	X	X
SS-200	2"	X	-	X	-	X	-	X	X	X	X	X	X
SS-250	2 1/2"	X	-	X	-	X	-	X	X	X	X	X	X
SS-300	3"	X	-	X	-	X	-	X	X	X	X	X	X
SS-400	4"	X	-	X	-	X	-	X	X	X	X	X	X

* Includes special fitting
 Note: To obtain a 1/8" or 3/16" stroke on 3/4" or 1 1/8" bore models, a 1/4" stroke cylinder is used and spacers are added.
 Non-standard strokes subject to special machining charge.

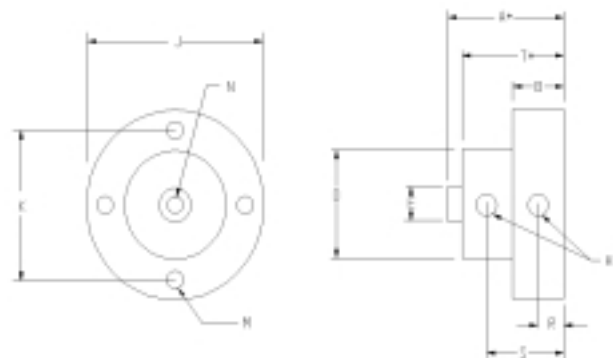
Full Power In Half The Space

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

Built To Last

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

Dimensions



Bore	3/4"	1 1/8"	1 1/2"	2"	2 1/2"	3"	4"
A*	49/64	25/32	59/64	1 1/16	1 5/64	1 25/64	1 17/32
B	1/2	1/2	1/2	9/16	9/16	3/4	3/4
D	1	1 3/8	1 3/4	2 1/4	2 3/4	3 1/4	4 1/4
E	5/16	1/2	1/2	5/8	5/8	3/4	3/4
H	10-32	10-32	10-32	1/8 NPT	1/8 NPT	1/8 NPT	1/8 NPT
J	1 3/4	2 1/8	2 1/2	3 1/8	3 3/4	4 1/4	5 1/4
K	1 13/32	1 25/32	2 5/32	2 23/32	3 1/4	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	5/16-24	5/16-24	3/8-24	3/8-24	1/2-20	1/2-20
R	5/32	5/32	5/32	5/16	5/16	21/64	21/64
S	25/64	25/64	1/2	11/16	11/16	59/64	1 3/64
T*	3/4	49/64	57/64	1 3/64	1 1/16	1 23/64	1 1/2

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

Specifications	
Pressure :	0-150 PSI Air Only
Temperature :	-40°F to 250°F (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 1/4 VI