

NEW PRODUCT

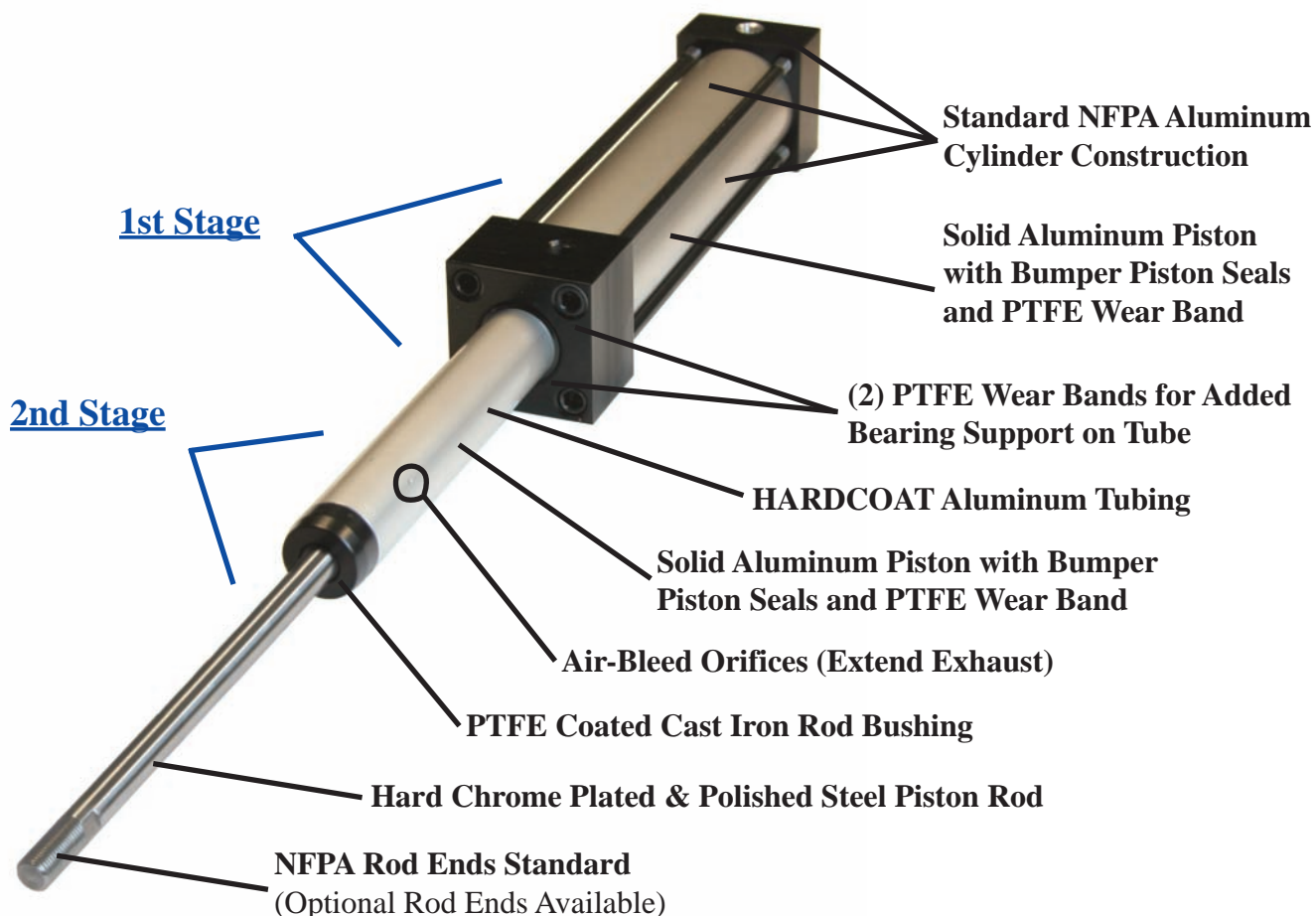
TRD Manufacturing, Inc.

PRODUCT BULLETIN

A **BIMBA** Company

New 2-Stage Telescoping Cylinder

CONSTRUCTION:



Features:

- * 3 Bore Sizes: 3/4", 1 1/2", and 2 1/2" effective bores.
- * Strokes up to 60"
- * 2-Stage Telescoping
- * Space Savings Design
- * 100% Double Action
- * Heavy-Duty Construction
- * Rated for Non-Lube Service
- * Standard NFPA Mounting
- * Internal Bumpers at Each Stage

SPACE SAVING DESIGN			
STROKE EXAMPLES FOR 1 1/2" BORE			
NOTE: CYLINDERS ARE MADE TO ANY STROKE.			
Cylinder Stroke	Standard NFPA Cylinder	Telescoping Cylinder	Space Savings
12"	16 5/8"	10 3/4"	35.34%
18"	22 5/8"	13 3/4"	39.23%
24"	28 5/8"	16 3/4"	41.48%
30"	34 5/8"	19 3/4"	42.96%
36"	40 5/8"	22 3/4"	44.00%
42"	46 5/8"	25 3/4"	44.77%
48"	52 5/8"	28 3/4"	45.37%
54"	58 5/8"	31 3/4"	45.84%
60"	64 5/8"	34 3/4"	46.23%

SERIES "TC" DIMENSIONS: 3/4" BORE

Design Tips:

* Cylinders are designed to support the unit's weight only, and not intended for "side-load" applications. All loads should be guided and supported

* For proper speed control, use "meter-in" type flow control devices

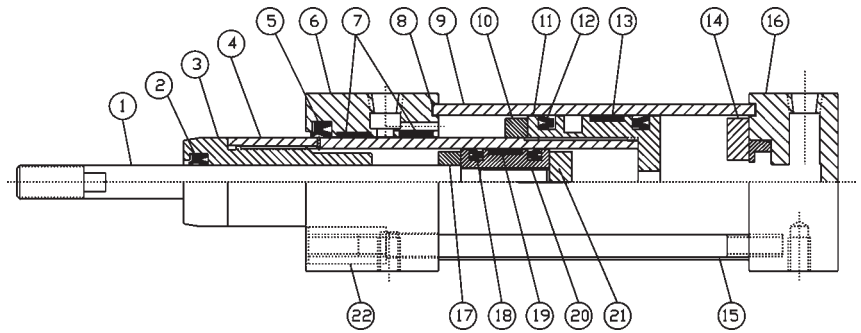
* In high cycle speed applications, external shock absorbers should be used at end of strokes

Push-Pull Force:

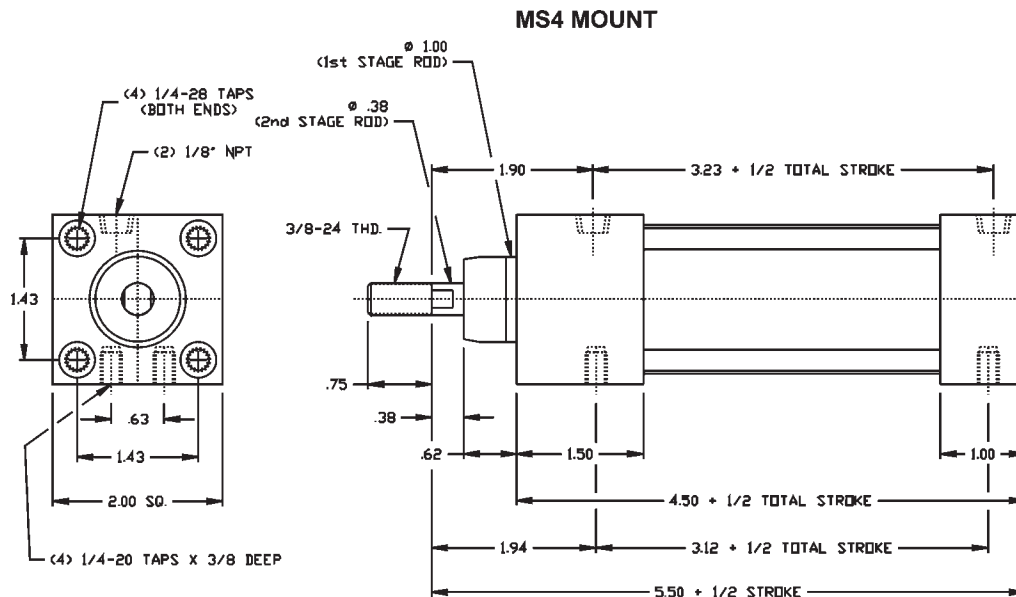
Cylinder Force Comparison Chart (at 100 PSI)			
Type	Stroke	1st Stage	2nd Stage
2-Stage Telescoping	Push	176 lbs	44 lbs
	Pull	98 lbs	33 lbs
Standard 3/4" bore	Push	44 lbs	N/A
	Pull	33 lbs	N/A

SERIES "TC" CONSTRUCTION

- | | |
|------------------------|----------------------------|
| 1. 3/8" Piston Rod | 12. 1 1/2" Piston Seal (2) |
| 2. Rod Seal | 13. PTFE Wear Band |
| 3. Rod Bushing | 14. 1 1/2" Cap Bumper |
| 4. 3/4" I.D. Tube | 15. Tie Rod (4) |
| 5. Rod Seal | 16. Aluminum Cap |
| 6. Aluminum Head | 17. 3/4" Head Bumper |
| 7. PTFE Wear Band (2) | 18. 3/4" Piston Seal (2) |
| 8. 3/4" Tube Seals (2) | 19. PTFE Wear Band |
| 9. 1 1/2" Tube | 20. 3/4" Piston |
| 10. 1 1/2" Head Bumper | 21. 3/4" Cap Bumper |
| 11. 1 1/2" Piston | 22. Sleeve Nut (4) |



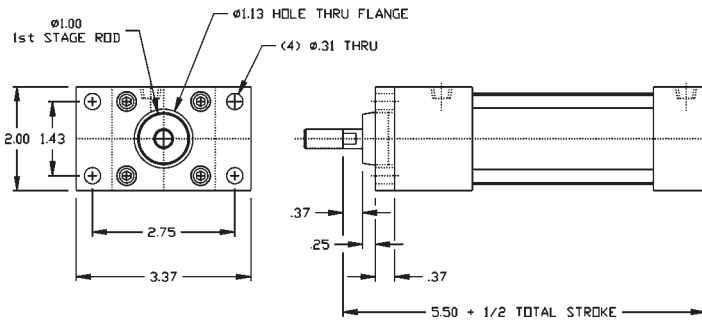
SERIES "TC" DIMENSIONS - BASE MOUNTS (STROKES: 0" TO 36")



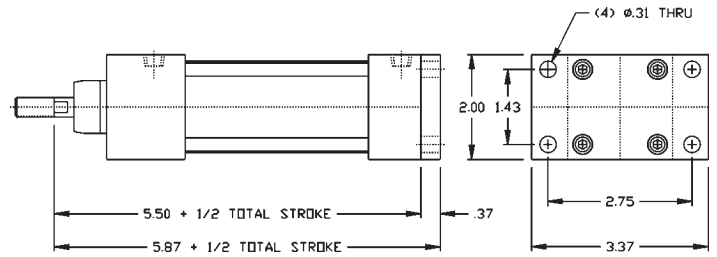
SERIES "TC" DIMENSIONS 3/4" BORE

Base Mounts (Strokes: 0" to 36")

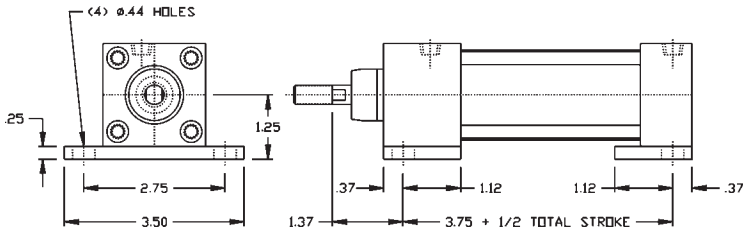
MF1 MOUNT



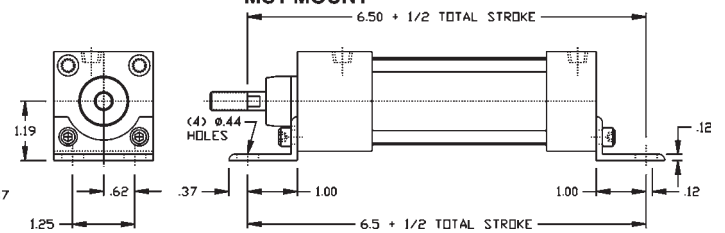
MF2 MOUNT



BASEBAR MOUNT

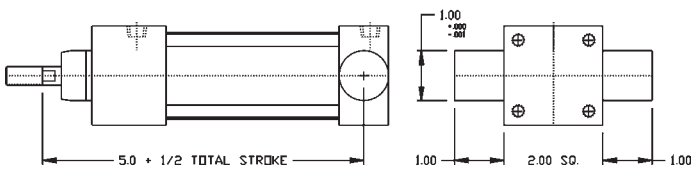


MS1 MOUNT

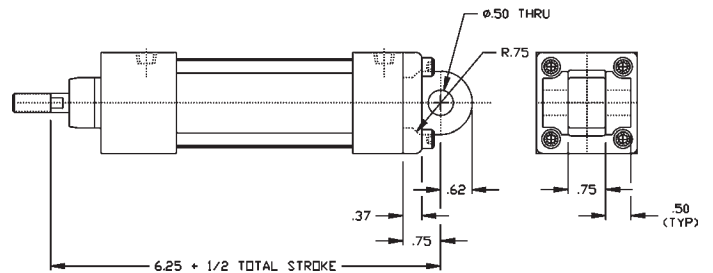


Pivot Mounts (Strokes: 0" to 24")

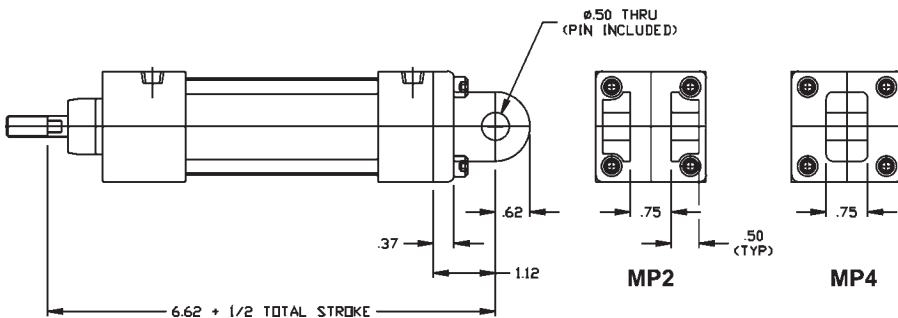
MT2 MOUNT



MP1 MOUNT



MP2 & MP4 (CAST BOLT ON) MOUNT



SERIES "TC" DIMENSIONS: 1 1/2" BORE

Design Tips:

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* For proper speed control, use "meter-in" type flow control devices

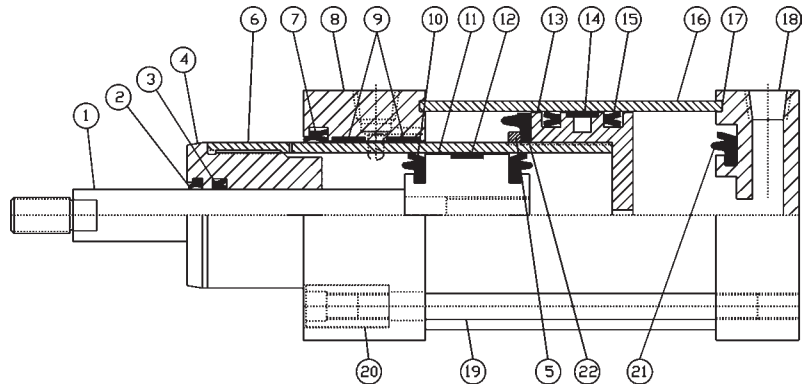
* In high cycle speed applications, external shock absorbers should be used at end of strokes

Push-Pull Force:

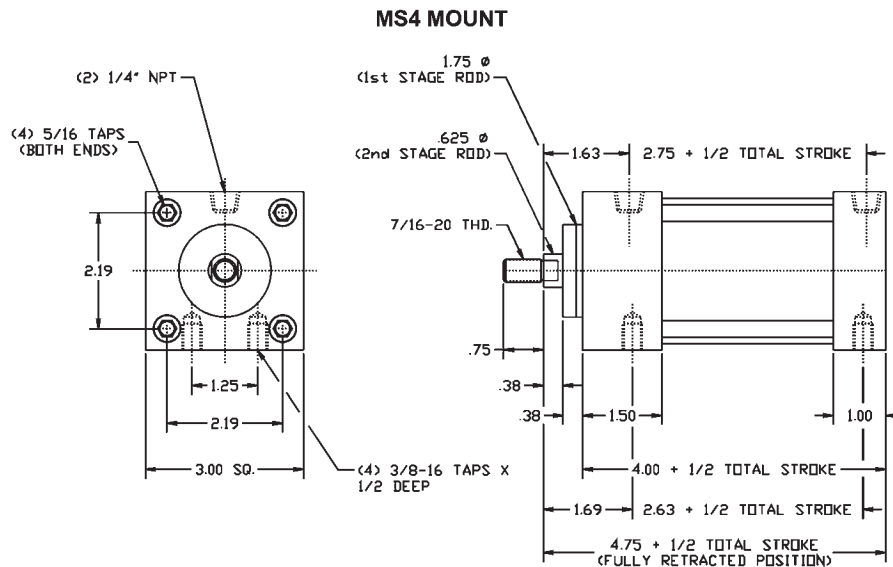
Cylinder Force Comparison Chart (at 100 PSI)			
Type	Stroke	1st Stage	2nd Stage
2-Stage Telescoping	Push	490 lbs	176 lbs
	Pull	250 lbs	146 lbs
Standard 1 1/2" bore	Push	176 lbs	N/A
	Pull	146 lbs	N/A

SERIES "TC" CONSTRUCTION

- | | |
|---------------------------------------|----------------------------|
| 1. 5/8" Piston Rod | 12. PTFE Wear Band |
| 2. Rod Wiper | 13. 2 1/2" Piston |
| 3. Rod Seal | 14. PTFE Wear Band |
| 4. Rod Bushing | 15. 2 1/2" Piston Seal (2) |
| 5. Bumper Retainer | 16. 2 1/2" Tube |
| 6. 1 3/4" O.D. Tube | 17. Tube Seals (2) |
| 7. Rod Wiper/Seal | 18. Aluminum Cap |
| 8. Aluminum Head | 19. Tie Rod (4) |
| 9. PTFE Wear Band (2) | 20. Sleeve Nut (4) |
| 10. 1 1/2" Bumper
Piston Seals (2) | 21. Cap Bumper |
| 11. 1 1/2" O.D. Piston | 22. Head Bumper |



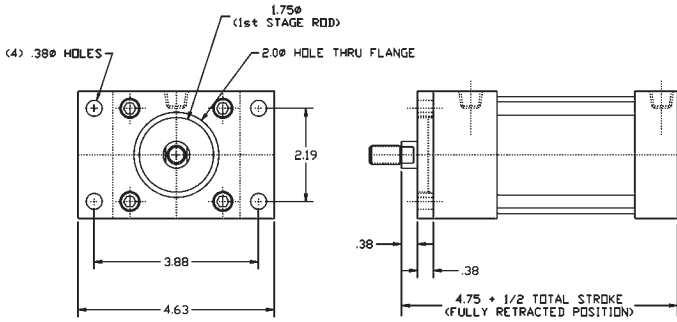
SERIES "TC" DIMENSIONS - BASE MOUNTS (STROKES: 0" TO 60")



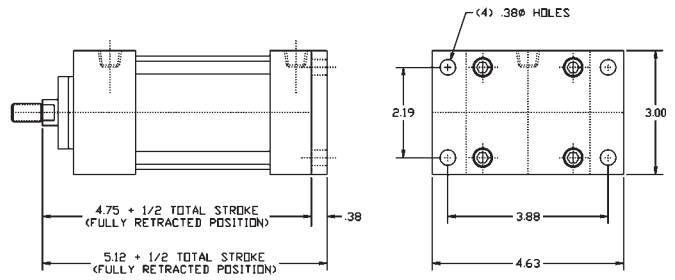
SERIES "TC" DIMENSIONS 1 1/2" BORE

Base Mounts (Strokes: 0" to 60")

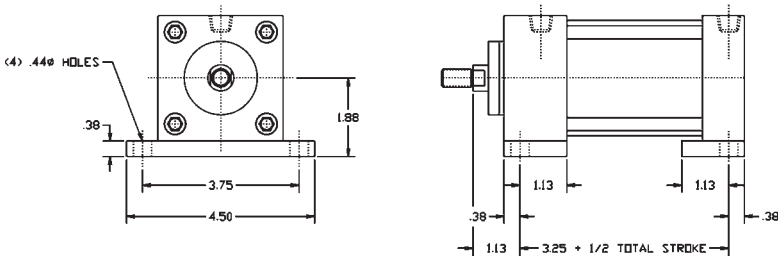
MF1 MOUNT



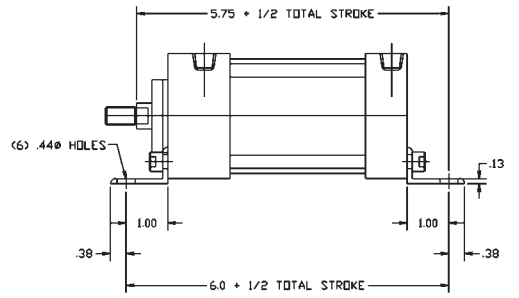
MF2 MOUNT



BASEBAR MOUNT

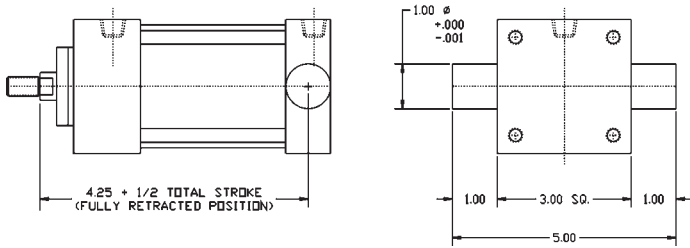


MS1 MOUNT

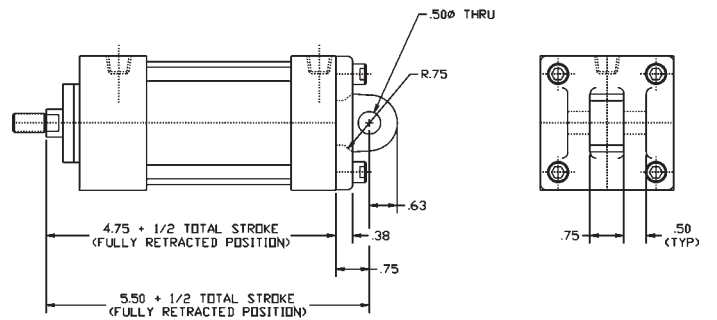


Pivot Mounts (Strokes: 0" to 36")

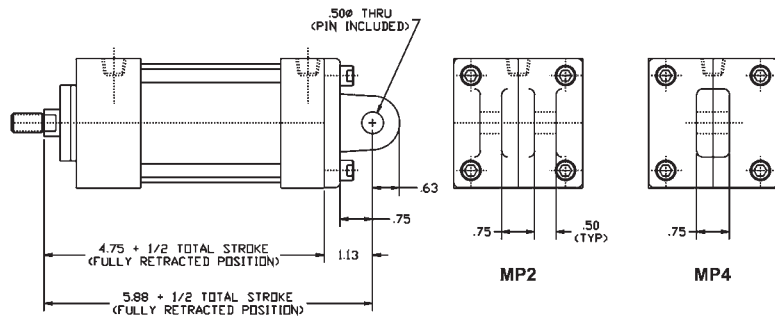
MT2 MOUNT



MP1 (CAST BOLT ON) MOUNT



MP2 & MP4 (CAST BOLT ON) MOUNT



SERIES "TC" DIMENSIONS: 2 1/2" BORE

Design Tips:

* Cylinders are designed to support the unit's weight only, and not intended for "side-load" applications. All loads should be guided and supported

* For proper speed control, use "meter-in" type flow control devices

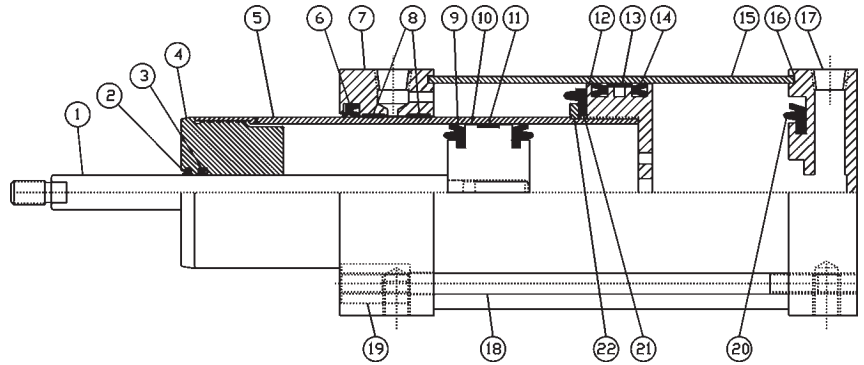
* In high cycle speed applications, external shock absorbers should be used at end of strokes

Push-Pull Force:

Cylinder Force Comparison Chart (at 100 PSI)			
Type	Stroke	1st Stage	2nd Stage
2-Stage Telescoping	Push	1256 lbs	490 lbs
	Pull (5/8" rod)	662 lbs	460 lbs
	Pull (1" rod)	662 lbs	412 lbs
Standard 2 1/2" bore	Push	490 lbs	N/A
	Pull	460 lbs	N/A

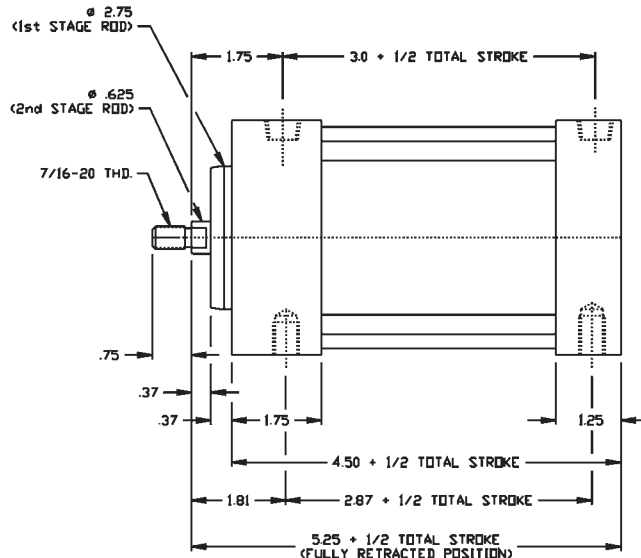
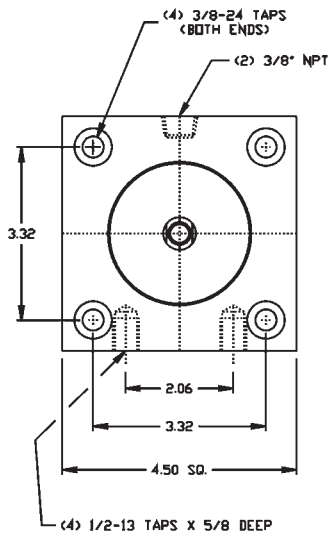
SERIES "TC" CONSTRUCTION

- | | |
|--------------------------------------|----------------------------------|
| 1. 5/8" Piston Rod | 12. 4" Piston |
| 2. Rod Wiper | 13. PTFE Wear Band |
| 3. Rod Seal | 14. 4" Piston Seal (2) |
| 4. Rod Bushing | 15. 4" Tube |
| 5. 2 1/2" I.D. Tube | 16. 4" Tube Seals (2) |
| 6. Rod Wiper/Seal | 17. Aluminum Cap |
| 7. Aluminum Head | 18. Tie Rod (4) |
| 8. PTFE Wear Band (2) | 19. Sleeve Nut (4) |
| 9. 2 1/2" Bumper
Piston Seals (2) | 20. 3 1/4" Bumper
Piston Seal |
| 10. 2 1/2" Piston | 21. Bumper Piston Seal |
| 11. PTFE Wear Band | 22. Bumper Retainer |



SERIES "TC" DIMENSIONS - BASE MOUNTS (STROKES: 0" TO 60")

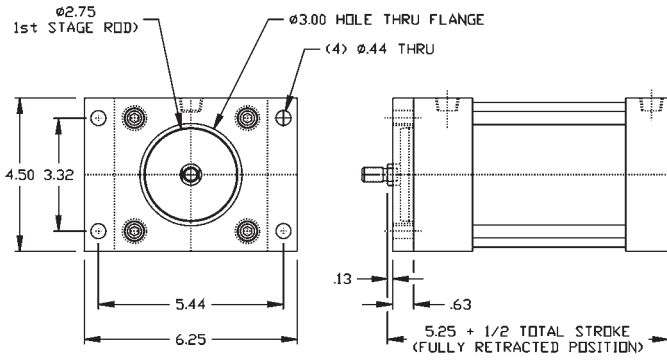
MS4 MOUNT



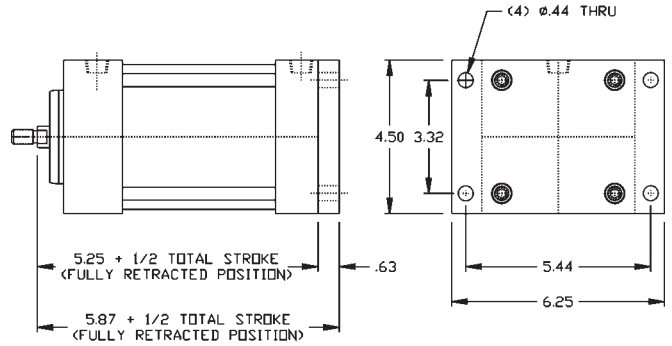
SERIES "TC" DIMENSIONS 2 1/2" BORE

Base Mounts (Strokes: 0" to 60")

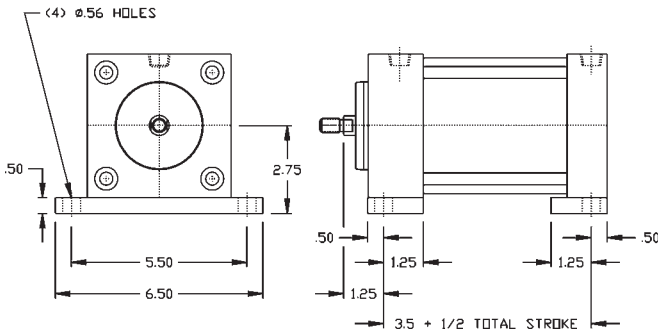
MF1 MOUNT



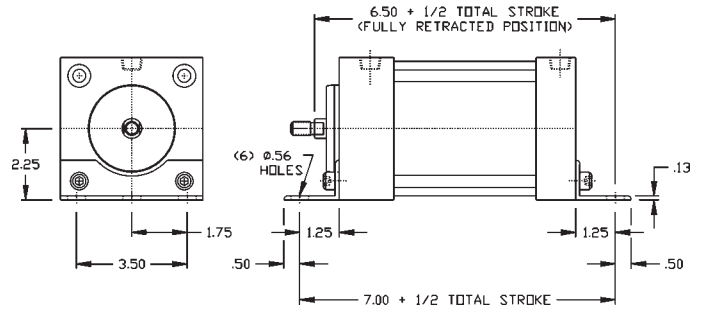
MF2 MOUNT



BASEBAR MOUNT

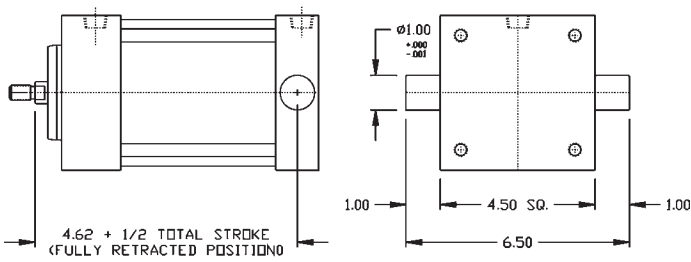


MS1 MOUNT

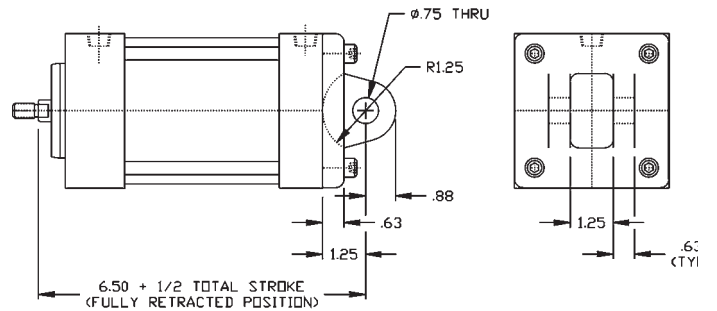


Pivot Mounts (Strokes: 0" to 36")

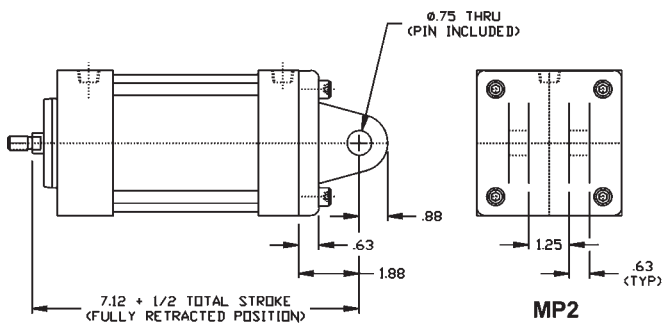
MT2 MOUNT



MP1 MOUNT



MP2 & MP4 (CAST BOLT ON) MOUNT



Other Models In Development:

Stainless Steel for Food Applications (Note: Rod Orifices are replaced with NPT Port for "Sealed" System - Contact TRD with your application.)

How to Order

TC - MS4 - 1 1/2 x 10 x 2S - KK2 - SSA

SERIES	
TC	125 PSI Air

BORE
3/4"
1 1/2"
2 1/2"

STROKE
0" to 60" Made to Order

STAGES	
2S	Two Stage

NFPA MOUNTS	
MF1	Front Flange
MF2	Rear Flange
MP1	Rear Pivot Clevis
MP2	Rear Pivot Clevis
MP4	Rear Pivot Eye
MS1	Front & Rear Angles
MS4	Bottom Tapped Holes
MT2	Rear Trunnion
Basebar	Side Lug Mount (Non-NFPA)
MX0	No Mount

OPTIONS	
A=	Extended Piston Rod Thread (Example: A=2)
C=	Extended Piston Rod (Example: C=3)
KK2	Large Male Rod Thread
KK3	Female Rod Thread
KK3S	Studded Piston Rod (KK3 with Stud, Loctite in place)
KK4	Full Diameter Male Rod Thread
MPR	Magnetic Piston for Reed or Solid State Switches TRD Models R10, RAC, and MSS (Refer to TRD Switch Catalog for selection). NOTE: Magnet is only on 1st Stage and will only detect the position of one stage.
OS	OS=1" Piston Rod (Available on 2 1/2" bore only)
OP	Optional Port Location (Example: OP=3 and 7)
SSA	Stainless Steel Piston Rod, Tie Rods & Nuts, and Fasteners
SSF	Stainless Steel Fasteners
SSR	Stainless Steel Piston Rod
SST	Stainless Steel Tie Rods & Nuts
XX	Special Variation (Specify: XX=)

Standard Delivery: 7 - 10 Working Days

Operating Pressure:	125 PSI Air
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Operating Temperature:	-20°F to 200°F
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3 YEAR WARRANTY

TRD Manufacturing Incorporated, A Bimba Company, is an employee owned company. We take great pride in our products.

TRD Manufacturing, Inc. warrants its cylinders for a full 3 years to be free from defects in material and workmanship. TRD Manufacturing, Inc. must be notified prior to returning product for warranty evaluation. Contact your local TRD distributor to obtain an RGA (Returned Goods Authorization Number) for proper tracking and expedite service on all warranty evaluations. TRD will repair or replace free of charge any products returned to the factory within 3 years of shipment that is proven to be defective in material and/or workmanship.

A complete explanation of defects is required with the returned product. The TRD warranty applies only to products used properly and under normal operating conditions. All products are to be used in a safe manner, in properly designed systems. Safeguards to prevent personal injury or equipment damage must be used and are the sole responsibility of the user.

In no event shall TRD Manufacturing, Inc. be liable for any consequential damages or installation costs resulting from delay or failure of delivery, defective material or workmanship or out of a breach by TRD Manufacturing, Inc. of any contract.

TRD Manufacturing, Inc.

A **BIMBA** Company

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