

**AVENTICS** 

**SERIES M MINI PNEUMATIC CYLINDERS**  
STAINLESS STEEL BODY

**Rexroth**  
Pneumatics



## Series M and MM Mini Cylinders Index

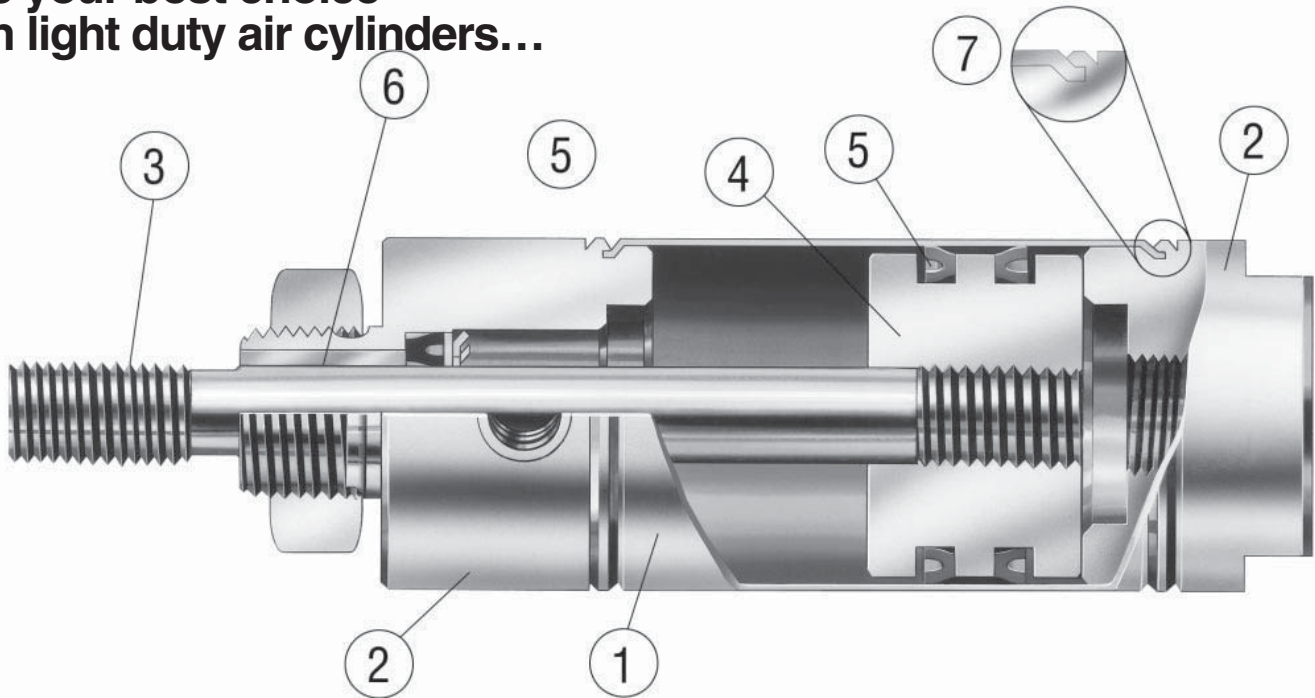
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# Series M Mini Cylinders

Stainless Steel Body Air Cylinders



## The inside story on why AVENTICS Series M is your best choice in light duty air cylinders...



### Quality cost saving features include:

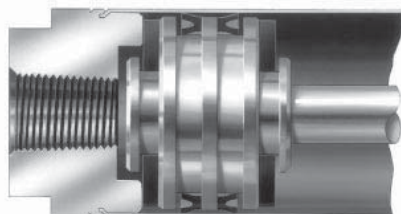
**1 Cylinder Tube** — Type 304 stainless steel, polished to a micro-inch finish on the I.D. To provide for low friction and long life. A matte finish on the O.D. to provide for smudge resistance.

**2 Heads and Caps** — Aluminum construction with precision machining to provide a smooth break away. The tube-to-head connection is a strong double rolled construction.

**3 Stainless Steel Piston Rods** — Corrosion resistant stainless steel is now the standard piston rod material for all bore sizes up to and including 1.50 inch bore at no additional cost. The only exception to the stainless steel standard is when a hollow rod or non-rotating hexagonal rod option is specified. Stainless steel is also the standard material on block, trunnion and KDX mounts.

**Pre-Lubrication** — All Series M cylinders are factory prelubricated for use with or without added lubrication.

**Bumpers** — are standard on select bore sizes. See bumper information for details.



**4 Piston Body** — Pistons are precision machined aluminum construction. Piston rod connections are threaded and loctited to provide for leakproof and durable service.

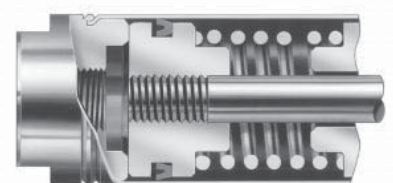
**5 Seals** — All piston and rod seals are of a lipseal construction. Buna-N is standard on all models (viton seals are available as an option).

**6 Rod Bushings** — Oil impregnated bronze reamed to a close tolerance provides for a smooth operation and long life.

**7 Unitized Construction** — Precision double-rolled unitized construction provides durable, leak-proof service and long life.

**Twelve Bore Sizes** — 5/16" thru 3". Series M cylinders are designed to be dimensionally interchangeable with other major stainless steel cylinders.

**Springs** — shot peened music wire for high cycle life. Spring spacers are provided for every one inch of stroke (1/2" for 5/16" and 7/16" bore) to insure uniform spring rate and prevent spring failure.



# Series M Mini Cylinders

Standard Specifications / Available Mounting Styles



## Standard Specifications

- 304 stainless steel cylinder body.
- Aluminum heads and caps.
- Stainless steel piston rods are standard up to 1.50" bore.
- Nominal pressure rating 250 psi.
- Standard temperature -10°F to +165°F.
- Twelve bore sizes — 5/16" through 3".
- 28 standard mounting styles.
- Single and double acting.
- Bumpers.
- Adjustable cushions.
- Rod wipers

For additional mounting styles please consult factory.

*In line with our policy of continuing product improvement, the specifications in this catalog are subject to change without notice.*

## Series M Available Mounting Styles

Model	Description	Bore Size												Recommended Max. Stroke (in.)
		5/16"††	7/16"	9/16"	3/4"	7/8"	1-1/16"	1-1/4"	1-1/2"	1-3/4"	2"▲	2-1/2"	3"	
N	Nose mount, spring return	●	●	●	●	●	●	●	●	●	●	—	—	6"
NR	Nose mount, spring return, hex rod (non-rotating)	—	●	●	●	●	●	●	●	●	—	—	—	6"
NRP	Pivot and nose mount, spring return, hex rod (non-rotating)	—	●	●	●	●	●	●	●	●	—	—	—	6"
P	Pivot mount, spring return	●	●	●	●	●	●	●	●	●	—	—	—	6"
R	Nose mount, spring extended	●	●	●	●	●	●	●	●	●	—	—	—	6"
RP	Pivot and nose mount, spring extend	●	●	●	●	●	●	●	—	●	—	—	—	6"
D	Nose mount, double acting	●	●	●	●	●	●	●	●	●	●	●	●	12"
DP	Pivot and nose mount, double acting, pivot pin	—	●	—	●	—	●	—	●	—	—	—	—	12" (under 3/4" bore) 32" (3/4" & up)
DXP	Pivot and nose mount, double acting, no pivot pin	●	●	●	●	●	●	●	●	●	●	●	●	12" (under 3/4" bore) 32" (3/4" & up)
DX	Threaded both ends, double acting	—	See DXP	See DXP	See DXP	See DXP	See DXP	See DXP	●	—	See DXP	—	—	32"
KDX	Threaded both ends, double acting, double rod	—	●	●	●	●	●	●	●	●	●	●	●	6" (under 3/4" bore) 12" (3/4" & up)
KDH	Threaded both ends, double rod, hollow rod	—	—	—	—	—	●	●	●	●	●	—	—	12"
A	Nose mount, spring return, head adjustable stroke	—	—	—	●	—	●	—	●	—	—	—	—	6"
RA	Nose mount, spring extend, cap adjustable stroke	—	—	—	●	—	●	—	●	—	—	—	—	6"
AP	Pivot mount, spring return, head adjustable stroke	—	—	—	●	—	●	—	●	—	—	—	—	6"
AR	Air reservoirs	—	—	—	●	—	●	—	●	—	●	—	—	12"
BRN	Rear block mount, single acting, spring return	—	●	—	●	—	●	—	●	—	—	—	—	6"
BRR	Rear block mount, single acting spring extend	—	—	—	●	—	●	—	●	—	—	—	—	6"
BFD	Front block mount, double acting	●	●	—	●	—	●	—	●	—	—	—	—	12"
BRD	Rear block mount, double acting	—	●	—	●	—	●	—	●	—	—	—	—	12"
BFN	Front block mount, single acting spring return	—	●	—	●	—	●	—	●	—	—	—	—	6"
BFR	Front block mount, single acting spring extend	—	—	—	●	—	●	—	●	—	—	—	—	6"
TRN	Rear trunnion mount, single acting, spring return	—	●	—	●	—	●	—	●	—	—	—	—	6"
TRR	Rear trunnion mount, single acting spring extend	—	—	—	●	—	●	—	●	—	—	—	—	6"
TFD	Front trunnion mount, double acting	—	●	—	●	—	●	—	●	—	—	—	—	12"
TRD	Rear trunnion mount, double acting	—	●	—	●	—	●	—	●	—	—	—	—	12"
TFN	Front trunnion mount, single acting spring return	—	●	—	●	—	●	—	●	—	—	—	—	6"
TFR	Front trunnion mount, single acting spring extend	—	—	—	●	—	●	—	●	—	—	—	—	6"

▲ Recommended maximum stroke is 4" in models N, P, R & RP.

†† Recommended maximum stroke is 4".

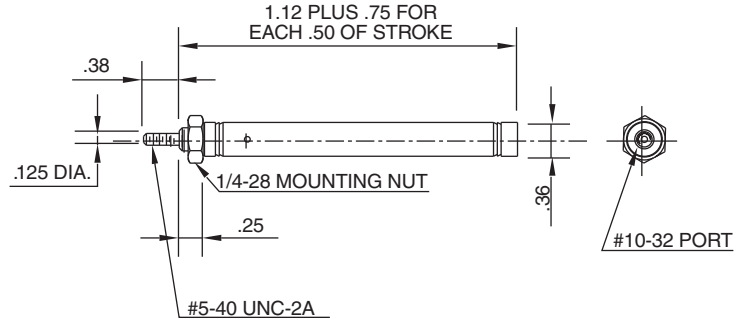
# Series M Mini Cylinders

5/16" Bore Size / Single Acting



## Mounting Style N

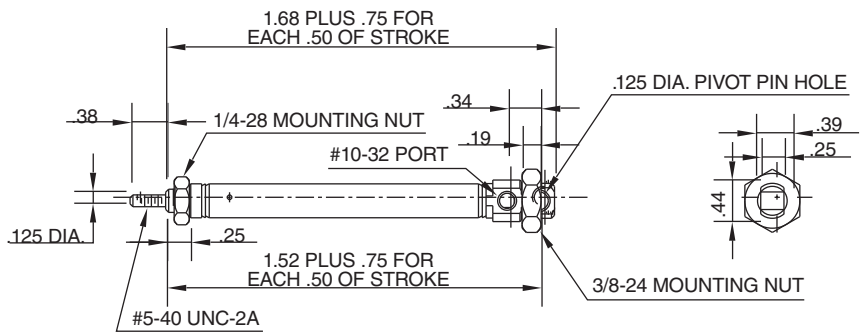
**Single Acting**  
 Spring Return  
 Front Nose Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2",  
 2 1/2", 3", 4"  
 Maximum Stroke 4"



**Optional Accessory:**  
 R432007828 Foot Bracket

## Mounting Style P

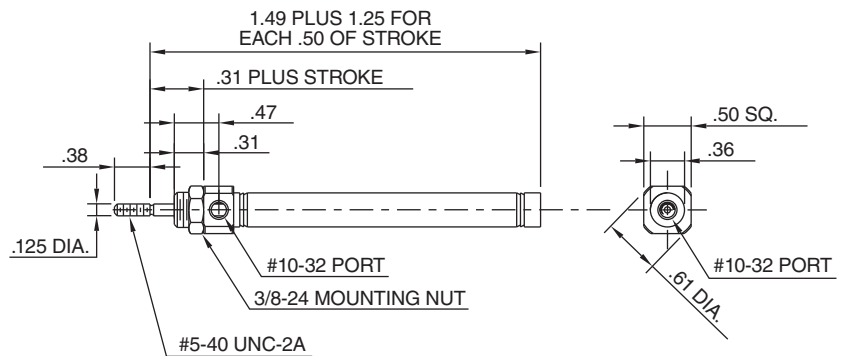
**Single Acting**  
 Spring Return  
 Double End or Rear Pivot Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2",  
 2 1/2", 3", 4"  
 Maximum Stroke 4"



**Optional Accessories:**  
 R432007828 Foot Bracket  
 R432007815 Pivot Bracket  
 R432007805 Rod Clevis

## Mounting Style R

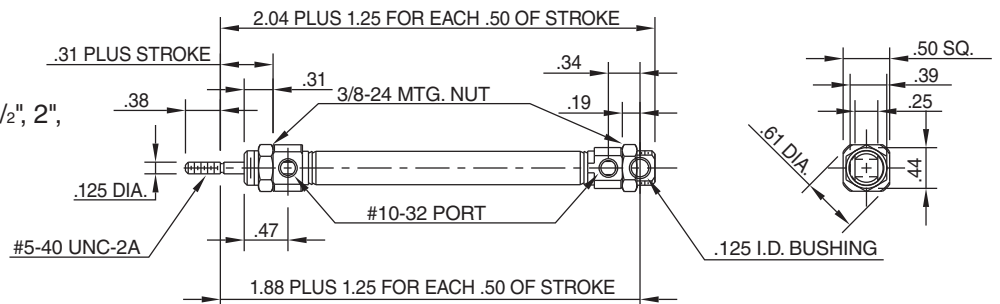
**Single Acting**  
 Spring Extend  
 Front Nose Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2",  
 2 1/2", 3"  
 Maximum Stroke 4"



**Optional Accessory:**  
 R432007829 Foot Bracket

## Mounting Style RP

**Single Acting**  
 Spring Extend  
 Rear Pivot Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2",  
 2 1/2", 3"  
 Maximum Stroke 4"



**Optional Accessories:**  
 R432007829 Foot Bracket  
 R432007815 Pivot Bracket  
 R432007805 Rod Clevis

# Series M Mini Cylinders

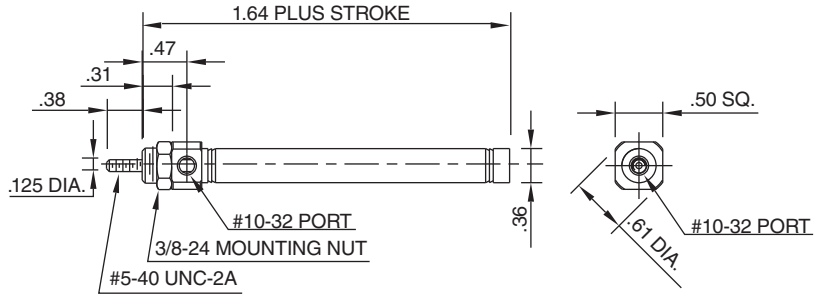
5/16" Bore Size / Double Acting



## Mounting Style D

### Double Acting

Front Nose Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2",  
 2 1/2", 3", 4"  
 Maximum Stroke 4"



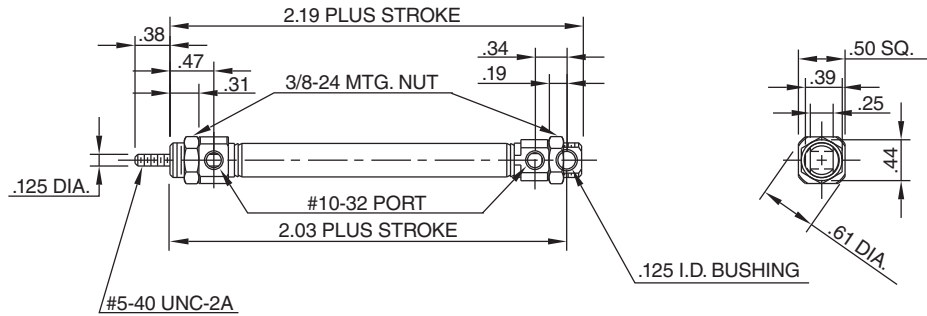
### Optional Accessory:

R432007829 Foot Bracket

## Mounting Style DXP

### Double Acting

Double End or Rear Pivot Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2",  
 2 1/2", 3", 4"  
 Maximum Stroke 4"



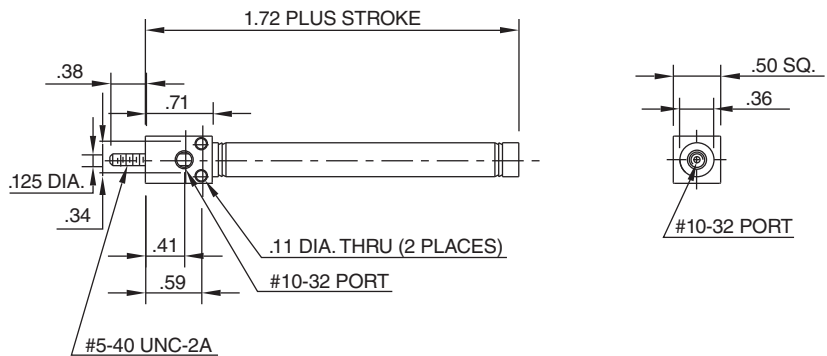
### Optional Accessories:

R432007829 Foot Bracket  
 R432007815 Pivot Bracket  
 R432007805 Rod Clevis

## Mounting Style BFD

### Double Acting

Front Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2",  
 2 1/2", 3", 4"  
 Maximum Stroke 4"



# Series M Mini Cylinders

7/16" Bore Size / Single Acting



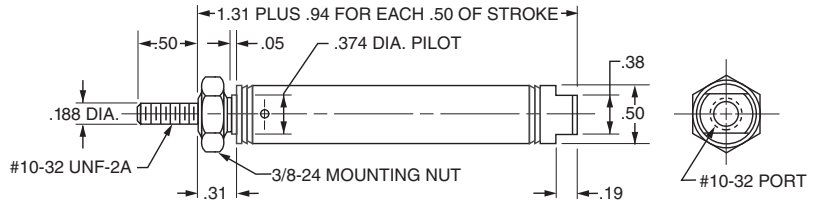
## Mounting Style N

### Single Acting

- Spring Return
- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"
- Maximum Stroke 6"

#### Optional Accessory:

R432007830 Foot Bracket



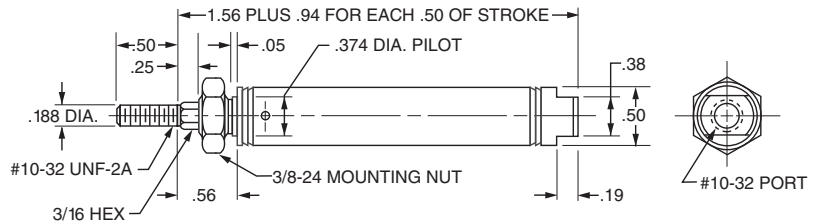
## Mounting Style NR

### Single Acting

- Spring Return
- Non-Rotating Hex Rod
- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"

#### Optional Accessory:

R432007830 Foot Bracket



## Mounting Style NRP

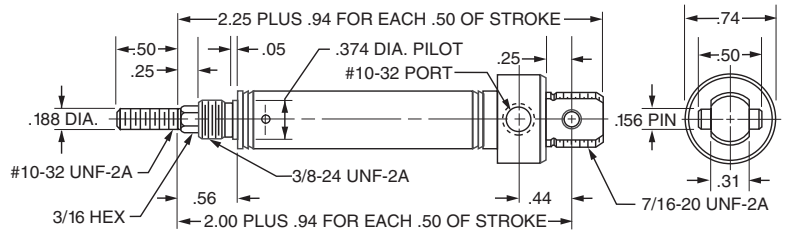
### Single Acting

- Spring Return
- Non-Rotating Hex Rod
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"

#### Optional Accessories:

R432007812 Pivot Bracket

R432007806 Rod Clevis



## Mounting Style P

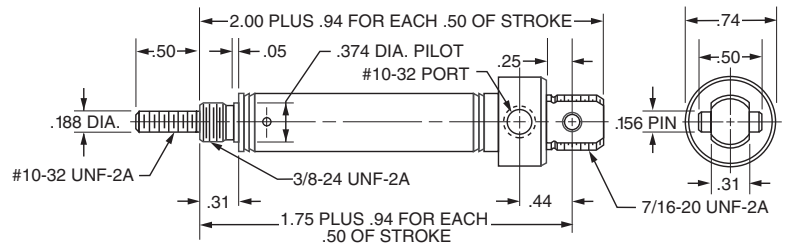
### Single Acting

- Spring Return
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"

#### Optional Accessories:

R432007812 Pivot Bracket

R432007806 Rod Clevis



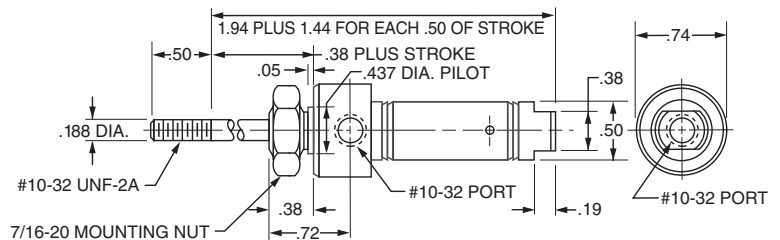
## Mounting Style R

### Single Acting

- Spring Extend
- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3"
- Maximum Stroke 6"

#### Optional Accessory:

R432007831 Foot Bracket





# Series M Mini Cylinders

7/16" Bore Size / Single and Double Acting

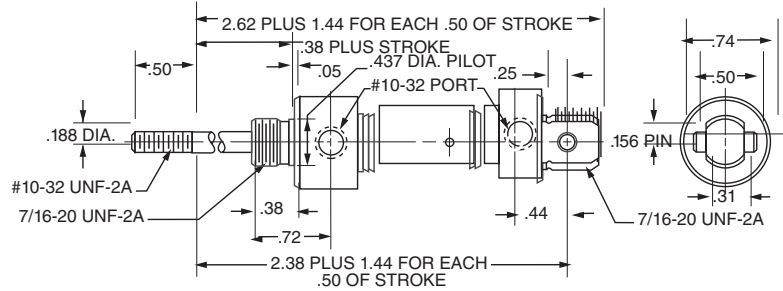


## Mounting Style RP

### Single Acting

Spring Extend  
Rear Pivot Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3"  
Maximum Stroke 6"

**Optional Accessories:**  
R432007812 Pivot Bracket  
R432007806 Rod Clevis

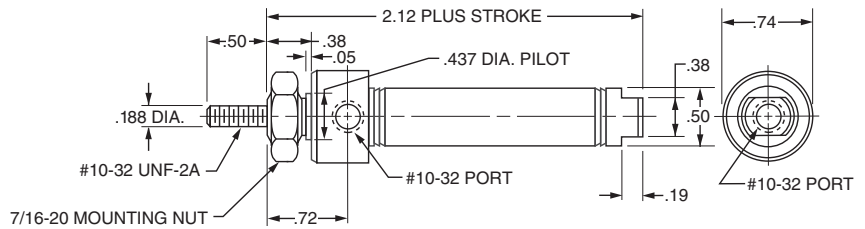


## Mounting Style D

### Double Acting

Front Nose Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
Maximum Stroke 12"

**Optional Accessory:**  
R432007831 Foot Bracket

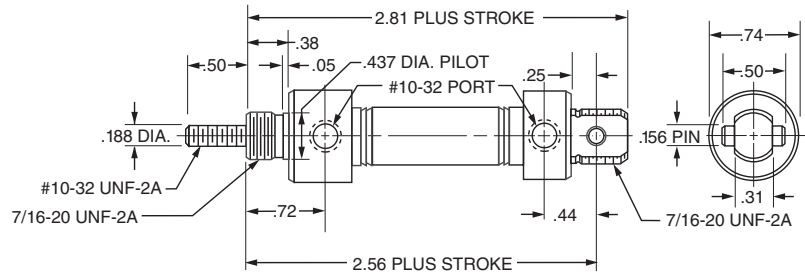


## Mounting Style DP

### Double Acting

Rear Pivot Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
Maximum Stroke 12"

**Optional Accessories:**  
R432007812 Pivot Bracket  
R432007806 Rod Clevis

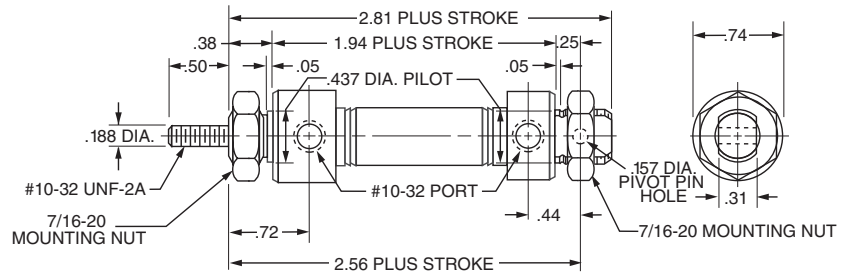


## Mounting Style DXP

### Double Acting

Double End or Rear Pivot Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
Maximum Stroke 12"

**Optional Accessories:**  
R432007831 Foot Bracket  
R432007806 Rod Clevis  
R432007816 Pivot Bracket with pin

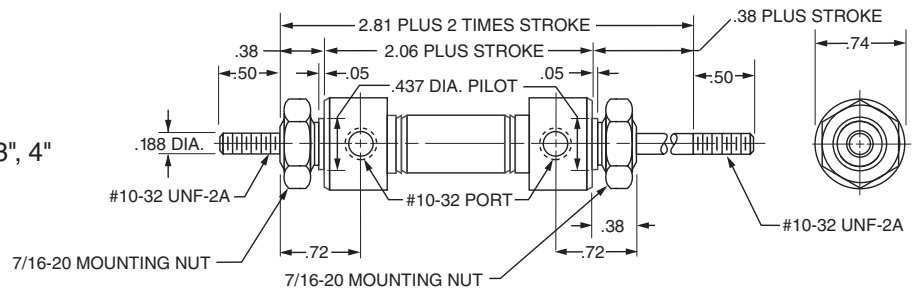


## Mounting Style KDX

### Double Acting

Double Rod  
Double End Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
Maximum Stroke 6"

**Optional Accessory:**  
R432007831 Foot Bracket





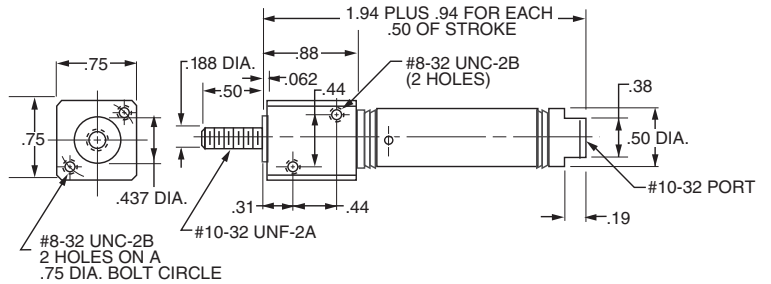
# Series M Mini Cylinders - Block Mounted

7/16" Bore Size / Single and Double Acting



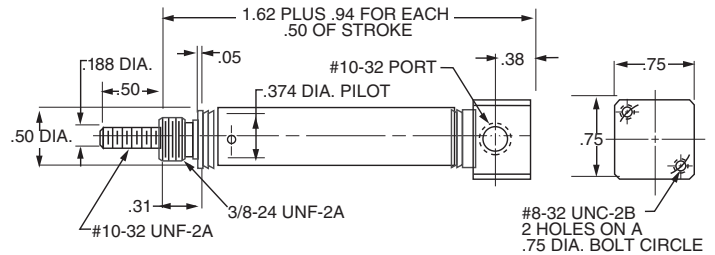
## Mounting Style BFN

**Single Acting**  
 Spring Return  
 Front Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3"  
 Maximum Stroke 6"



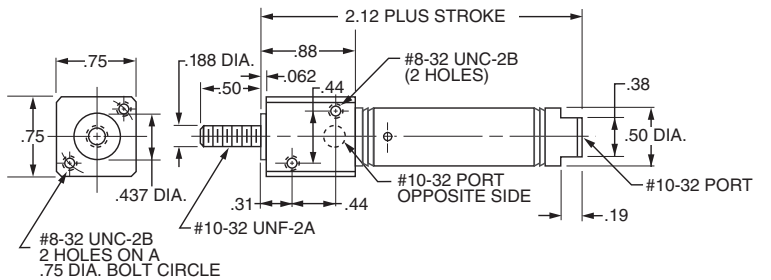
## Mounting Style BRN

**Single Acting**  
 Spring Return  
 Rear Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 2", 3", 4"  
 Maximum Stroke 6"



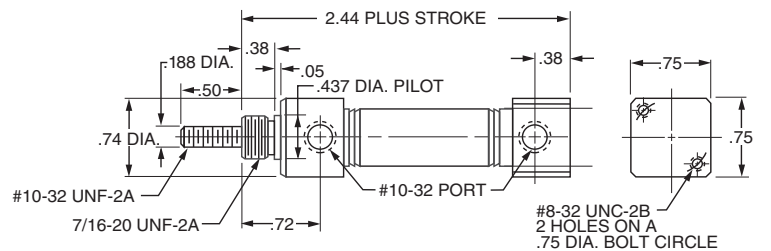
## Mounting Style BFD

**Double Acting**  
 Front Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 12"



## Mounting Style BRD

**Double Acting**  
 Rear Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 2", 3", 4"  
 Maximum Stroke 12"



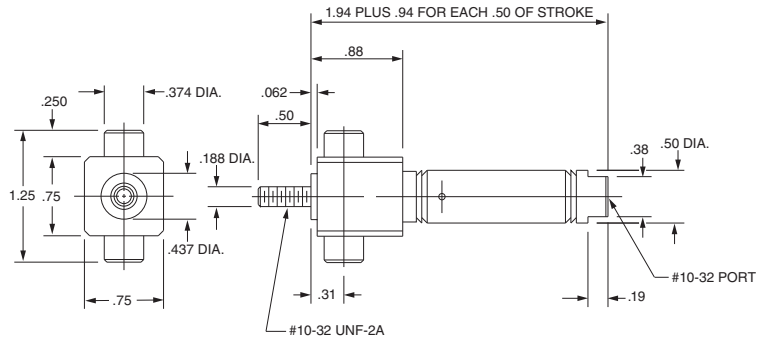
# Series M Mini Cylinders - Trunnion Mounted

7/16" Bore Size / Single and Double Acting



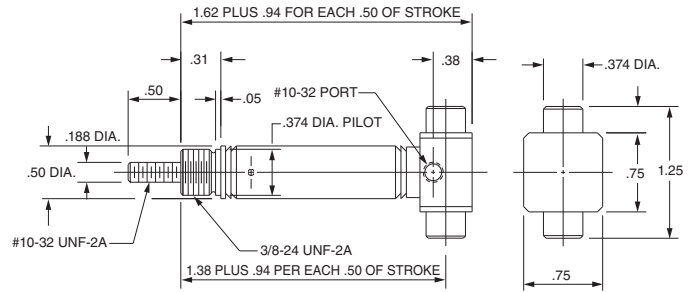
## Mounting Style TFN

**Single Acting**  
 Spring Return  
 Front Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3"  
 Maximum Stroke 6"



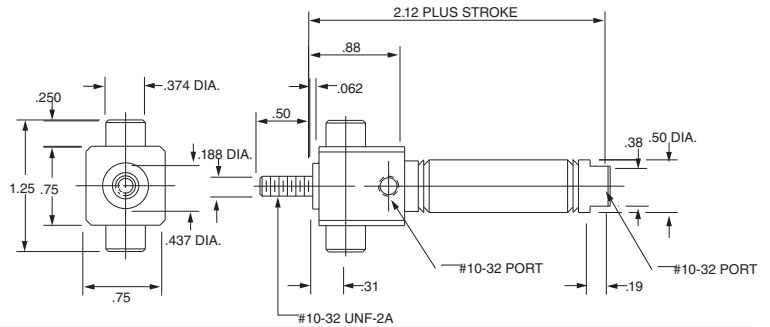
## Mounting Style TRN

**Single Acting**  
 Spring Return  
 Rear Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 2", 3", 4"  
 Maximum Stroke 6"



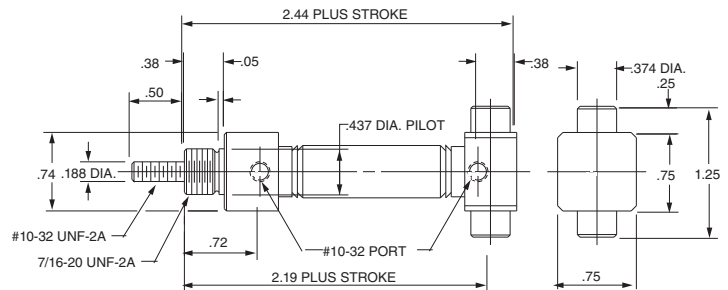
## Mounting Style TFD

**Double Acting**  
 Front Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 12"



## Mounting Style TRD

**Double Acting**  
 Rear Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 12"



# Series M Mini Cylinders

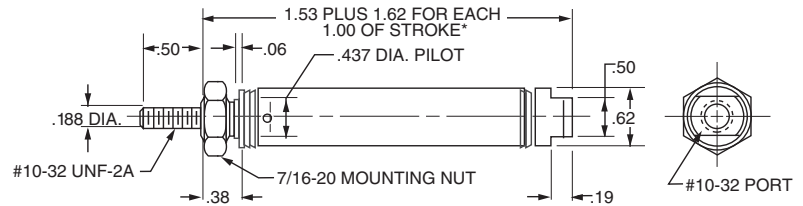
9/16" Bore Size / Single Acting



## Mounting Style N

### Single Acting

- Spring Return
- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"



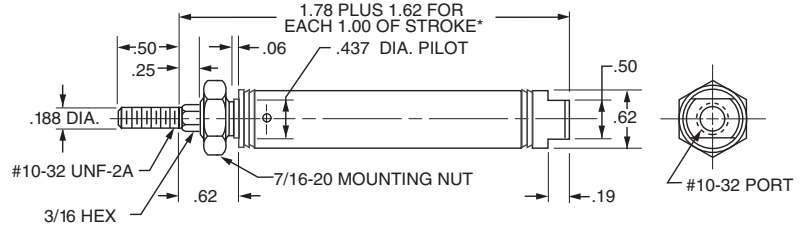
**Optional Accessory:**  
R432007831 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one half inch.

## Mounting Style NR

### Single Acting

- Spring Return
- Non-Rotating Hex Rod
- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"



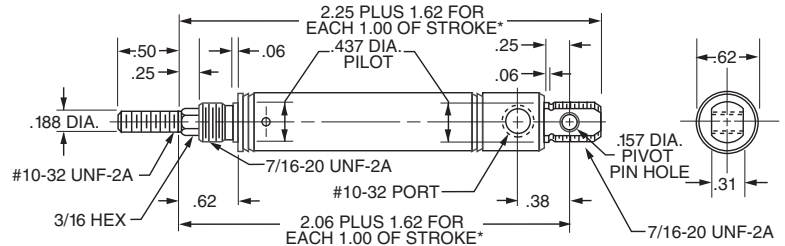
**Optional Accessory:**  
R432007831 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one half inch.

## Mounting Style NRP

### Single Acting

- Spring Return
- Non-Rotating Hex Rod
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"



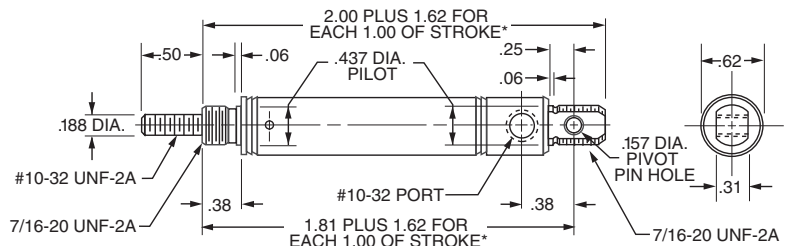
**Optional Accessories:**  
R432007816 Pivot Bracket with Pin  
R432007806 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one half inch.

## Mounting Style P

### Single Acting

- Spring Return
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"



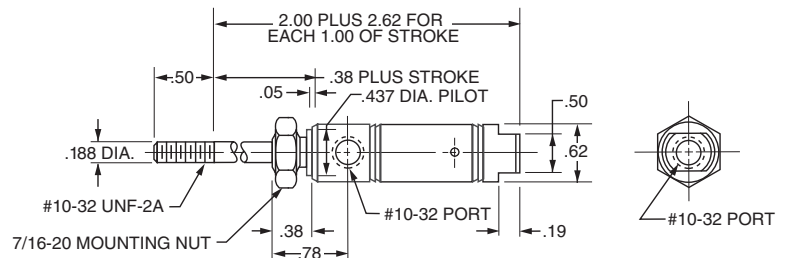
**Optional Accessories:**  
R432007816 Pivot Bracket with Pin  
R432007806 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one half inch.

## Mounting Style R

### Single Acting

- Spring Extend
- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3"
- Maximum Stroke 6"



**Optional Accessory:**  
R432007831 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

# Series M Mini Cylinders

9/16" Bore Size / Single and Double Acting



## Mounting Style RP

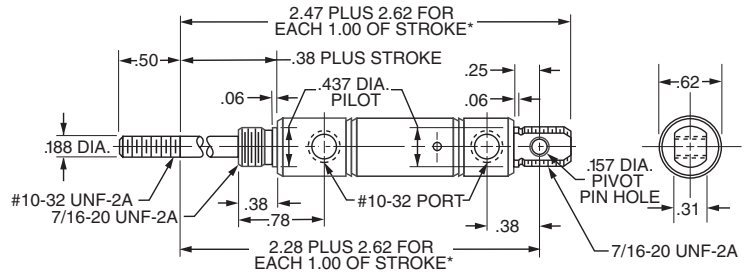
### Single Acting

- Spring Extend
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3"
- Maximum Stroke 6"

#### Optional Accessories:

- R432007816 Pivot Bracket with Pin
- R432007806 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



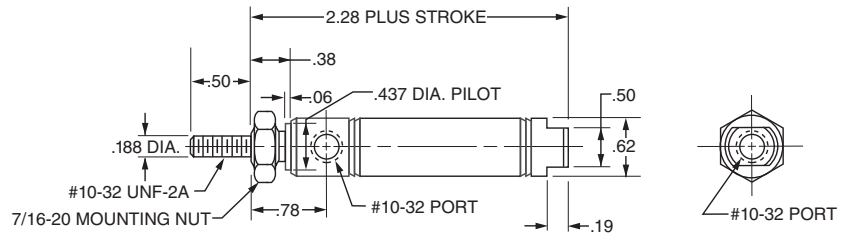
## Mounting Style D

### Double Acting

- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 12"

#### Optional Accessory:

- R432007831 Foot Bracket



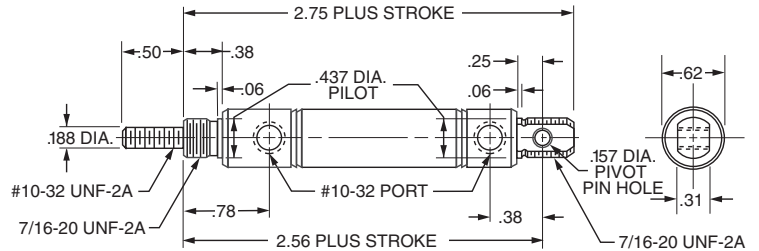
## Mounting Style DXP

### Double Acting

- Double End or Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 12"

#### Optional Accessories:

- R432007806 Rod Clevis
- R432007831 Foot Bracket
- R432007841 Hex Mounting Nut



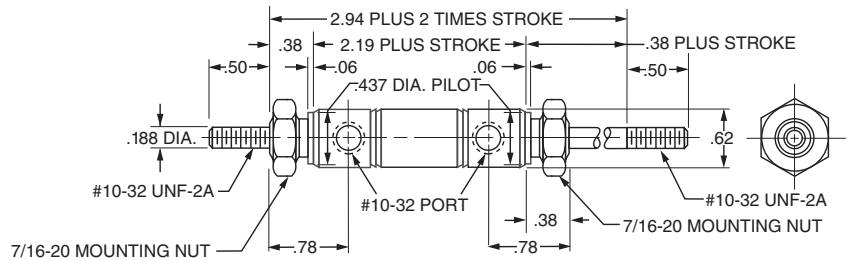
## Mounting Style KDX

### Double Acting

- Double Rod
- Double End Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"

#### Optional Accessory:

- R432007831 Foot Bracket



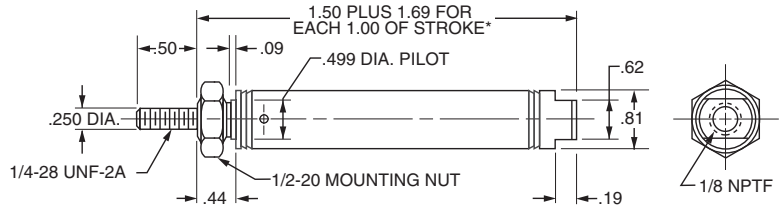
# Series M Mini Cylinders

3/4" Bore Size / Single Acting



## Mounting Style N

**Single Acting**  
 Spring Return  
 Front Nose Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 6"

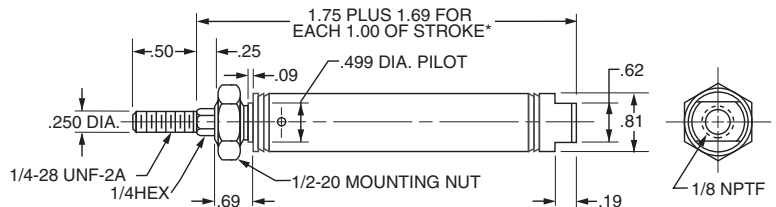


**Optional Accessory:**  
 R432007832 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one half inch.

## Mounting Style NR

**Single Acting**  
 Spring Return  
 Non-Rotating Hex Rod  
 Front Nose Mounting  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 6"

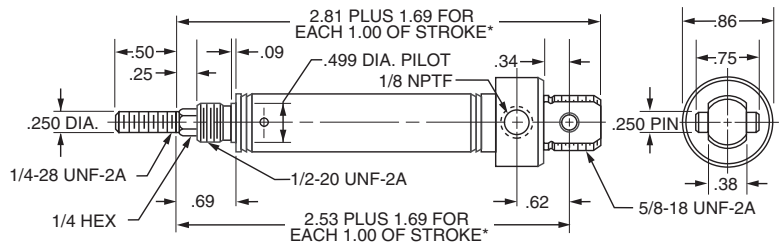


**Optional Accessory:**  
 R432007832 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one half inch.

## Mounting Style NRP

**Single Acting**  
 Spring Return  
 Non-Rotating Hex Rod — Rear Pivot Mounting  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

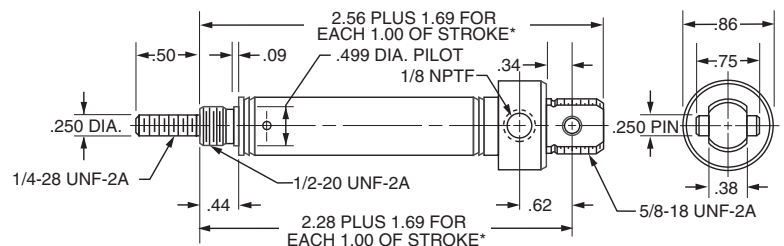


**Optional Accessories:**  
 R432007813 Pivot Bracket  
 R432007807 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one half inch.

## Mounting Style P

**Single Acting**  
 Spring Return  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 6"

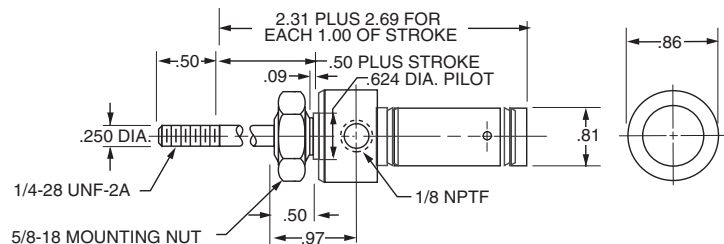


**Optional Accessories:**  
 R432007813 Pivot Bracket  
 R432007807 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one half inch.

## Mounting Style R

**Single Acting**  
 Spring Extend  
 Front Nose Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 2", 3", 4"  
 Maximum Stroke 6"



**Optional Accessory:**  
 R432007833 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

# Series M Mini Cylinders

3/4" Bore Size / Single and Double Acting



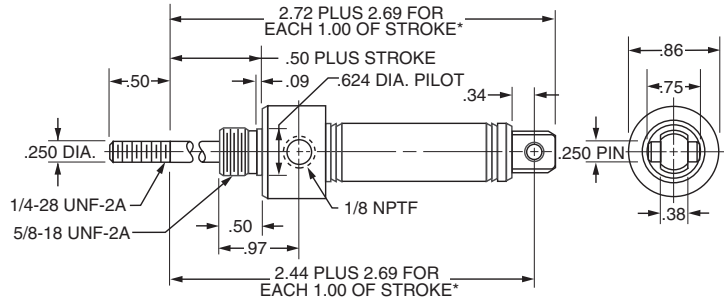
## Mounting Style RP

### Single Acting

- Spring Extend
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 2", 3", 4"
- Maximum Stroke 6"

#### Optional Accessories:

- R432007813 Pivot Bracket
- R432007807 Rod Clevis



\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

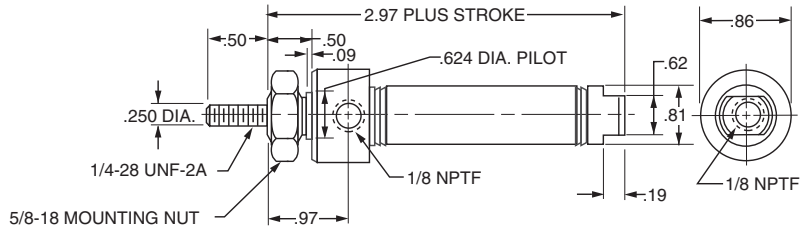
## Mounting Style D

### Double Acting

- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 2", 2 1/2", 3", 4", 5", 6", 8", 10"
- Maximum Stroke 12"

#### Optional Accessory:

- R432007833 Foot Bracket



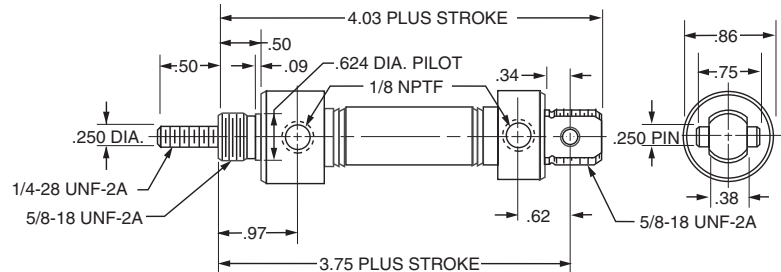
## Mounting Style DP

### Double Acting

- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 2", 2 1/2", 3", 4", 5", 6", 8", 10"
- Maximum Stroke 12"

#### Optional Accessories:

- R432007813 Pivot Bracket
- R432007807 Rod Clevis



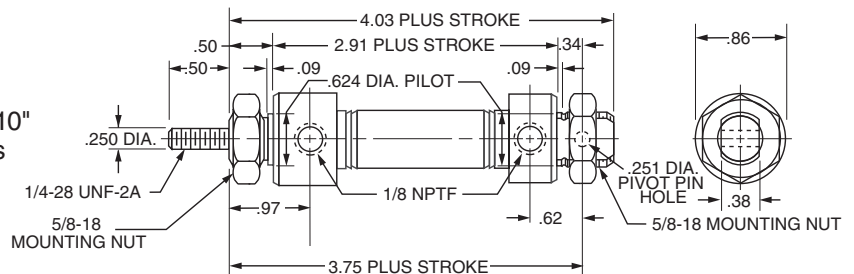
## Mounting Style DXP

### Double Acting

- Double End or Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4", 5", 6", 8", 10"
- Strokes over 12" must be supported at both ends
- Maximum Stroke 32"

#### Optional Accessories:

- R432007833 Foot Bracket
- R432007807 Rod Clevis
- R432007817 Pivot Bracket with Pin





# Series M Mini Cylinders

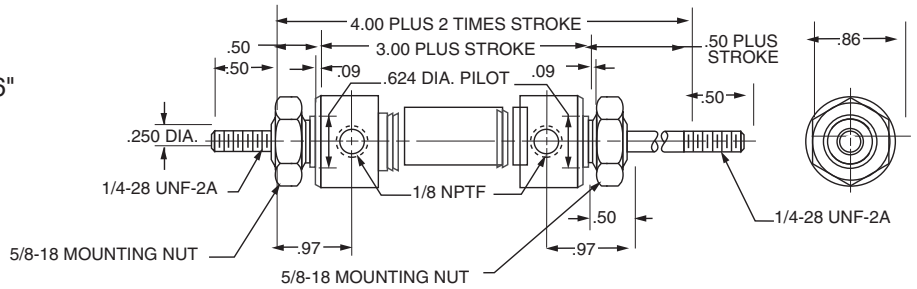
3/4" Bore Size / Double Acting and Adjustable  
Stroke Single Acting



## Mounting Style KDX

### Double Acting

Double Rod — Double End Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
Maximum Stroke 12"

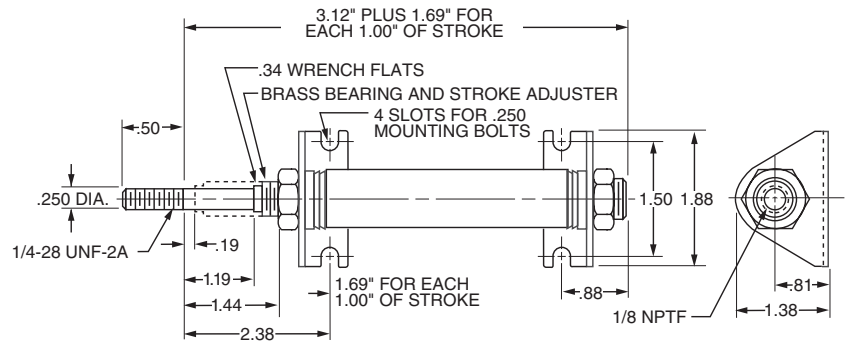


**Optional Accessory:**  
R432007833 Foot Bracket

## Mounting Style A

### Adjustable Stroke — Single Acting

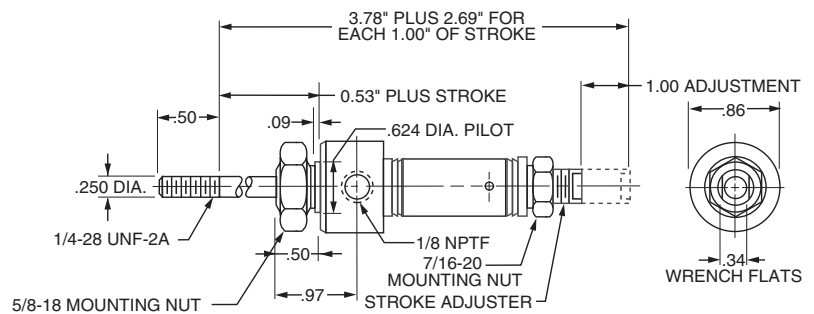
Spring Return — Double End Mounting  
Stainless Steel Rod Standard  
Stroke adjustment in 1" increments to 3"  
1" Stroke adjusts 0"-1", 2" Stroke 1"-2",  
and 3" Stroke 2"-3"  
Mounting Brackets are included  
Maximum Stroke 6"



## Mounting Style RA

### Adjustable Stroke — Single Acting

Spring Extend — Nose Mounting  
Stainless Steel Rod Standard  
Stroke adjustment in 1" increments to 3"  
1" Stroke adjusts 0"-1", 2" Stroke 1"-2",  
and 3" Stroke 2"-3"  
Maximum Stroke 6"

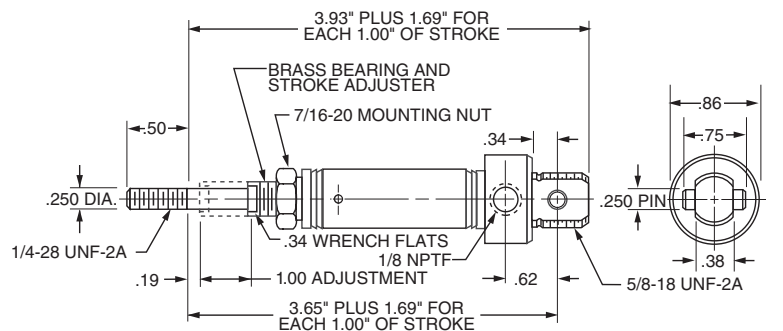


**Optional Accessory:**  
R432007833 Foot Bracket

## Mounting Style AP

### Adjustable Stroke — Single Acting

Spring Return — Rear Pivot Mounting  
Stainless Steel Rod Standard  
Stroke adjustment in 1" increments to 3"  
1" Stroke adjusts 0"-1", 2" Stroke 1"-2",  
and 3" Stroke 2"-3"  
Maximum Stroke 6"



**Optional Accessories:**  
R432007813 Pivot Bracket  
R432007807 Rod Clevis

# Series M Mini Cylinders - Block Mounted

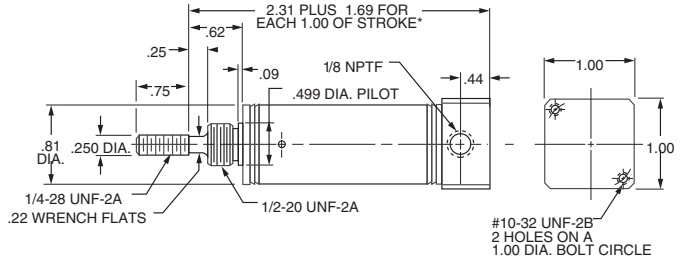
3/4" Bore Size / Single and Double Acting



## Mounting Style BRN

**Single Acting**  
Spring Return  
Rear Block Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4"  
Maximum Stroke 6"

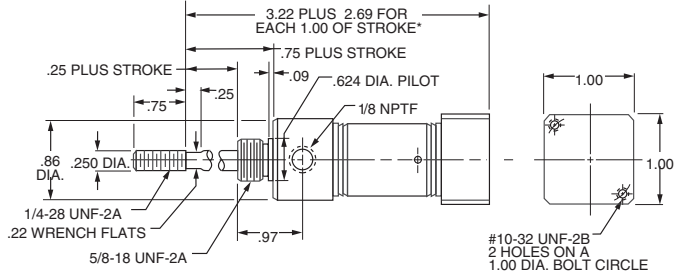
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BRR

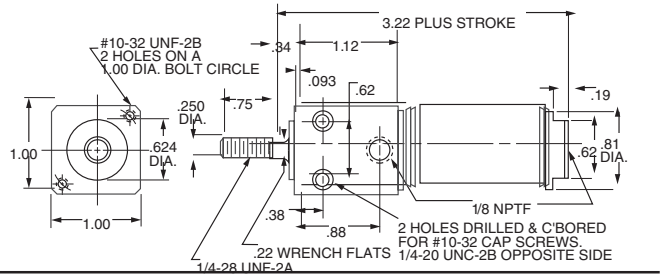
**Single Acting**  
Spring Extend  
Rear Block Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4"  
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



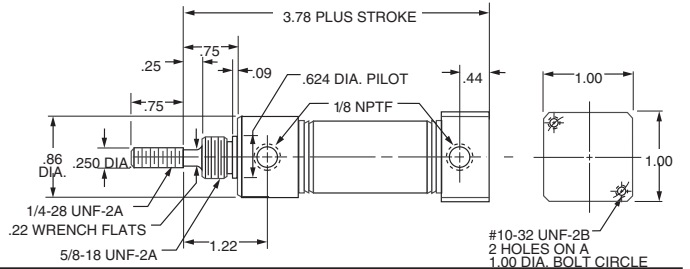
## Mounting Style BFD

**Double Acting**  
Front Block Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1/2", 1", 2", 3", 4", 5", 6"  
Maximum Stroke 12"



## Mounting Style BRD

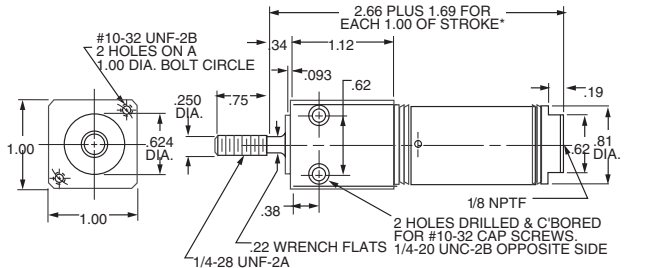
**Double Acting**  
Rear Block Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
Maximum Stroke 12"



## Mounting Style BFN

**Single Acting**  
Spring Return  
Front Block Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1/2", 1", 2", 3", 4"  
Maximum Stroke 6"

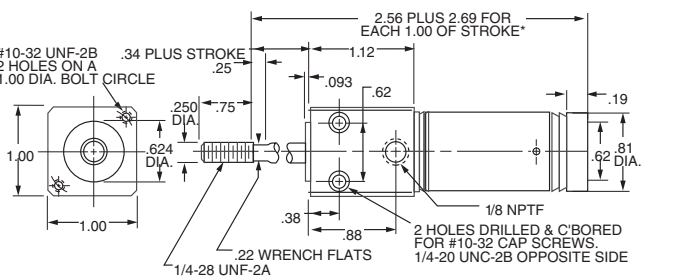
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BFR

**Single Acting**  
Spring Extend  
Front Block Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4"  
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series M Mini Cylinders - Trunnion Mounted

3/4" Bore Size / Single and Double Acting

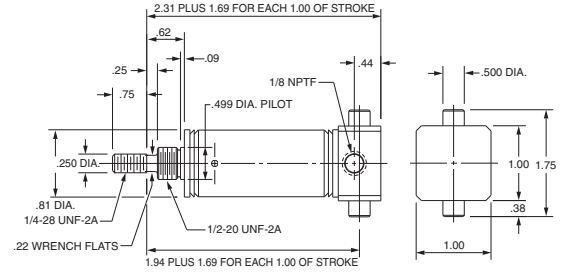


## Mounting Style TRN

### Single Acting

- Spring Return
- Rear Trunnion Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4"
- Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

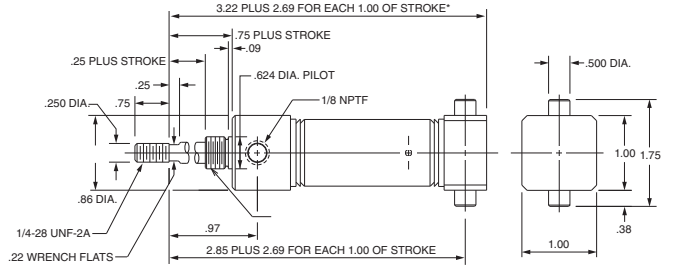


## Mounting Style TRR

### Single Acting

- Spring Extend
- Rear Trunnion Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4"
- Maximum Stroke 6"

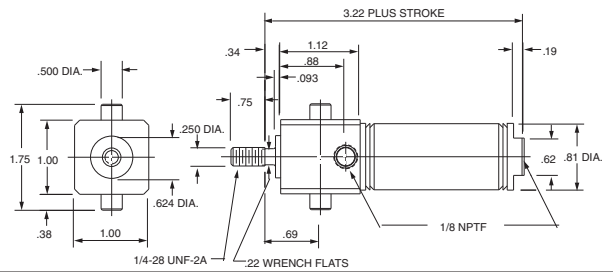
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style TFD

### Double Acting

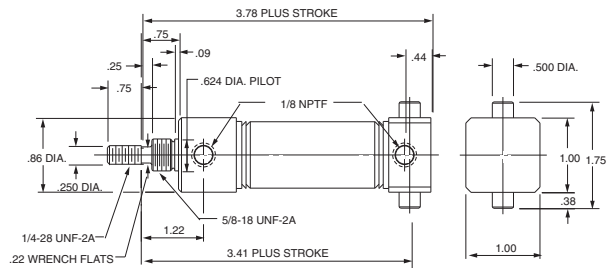
- Front Trunnion Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"
- Maximum Stroke 12"



## Mounting Style TRD

### Double Acting

- Rear Trunnion Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"
- Maximum Stroke 12"

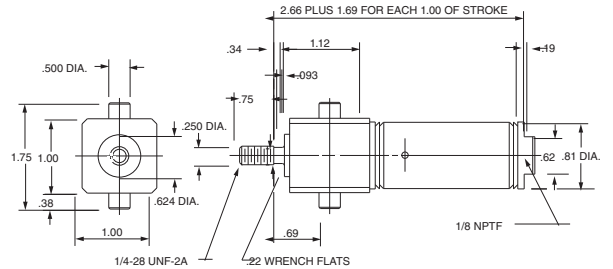


## Mounting Style TFN

### Single Acting

- Spring Return
- Front Trunnion Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 2", 3", 4"
- Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

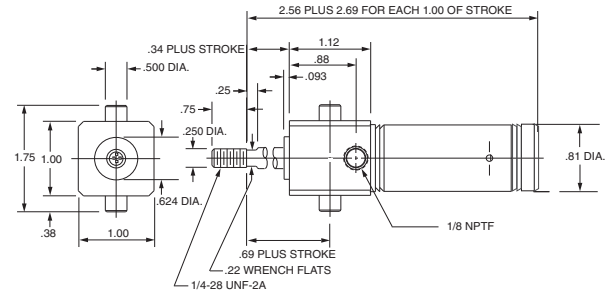


## Mounting Style TFR

### Single Acting

- Spring Extend
- Front Trunnion Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4"
- Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series M Mini Cylinders

7/8" Bore Size / Single Acting



## Mounting Style N

### Single Acting

Spring Return

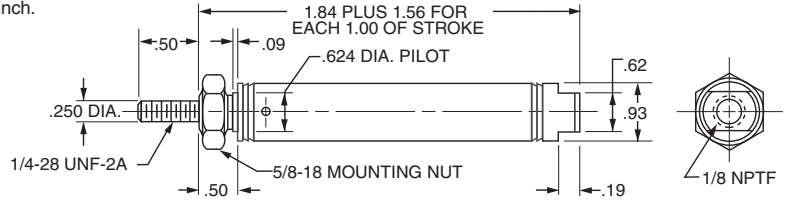
Front Nose Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



#### Optional Accessory:

R432007833 Foot Bracket

## Mounting Style NR

### Single Acting

Spring Return

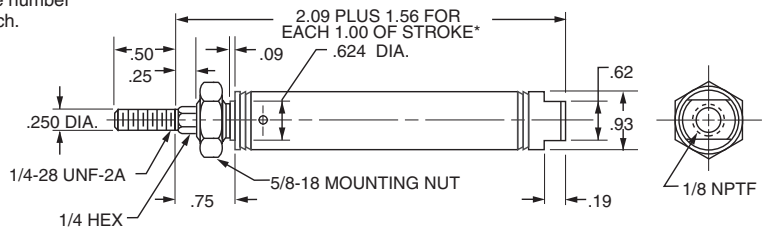
Non-Rotating Hex Rod

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



#### Optional Accessory:

R432007833 Foot Bracket

## Mounting Style NRP

### Single Acting

Spring Return

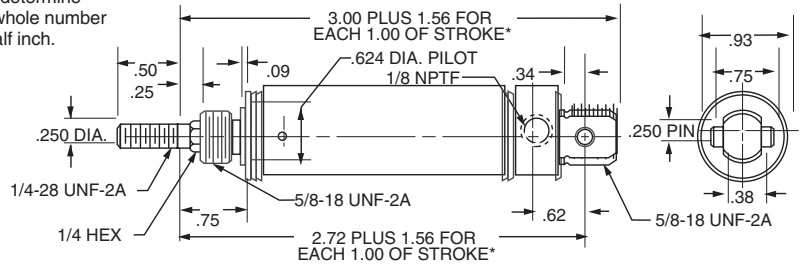
Non-Rotating Hex Rod

Rear Pivot Mounting

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



#### Optional Accessories:

R432007813 Pivot Bracket

R432007807 Rod Clevis

## Mounting Style P

### Single Acting

Spring Return

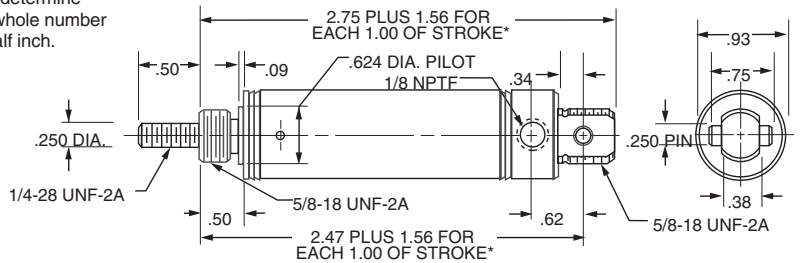
Rear Pivot Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



#### Optional Accessories:

R432007813 Pivot Bracket

R432007807 Rod Clevis

## Mounting Style R

### Single Acting

Spring Extend

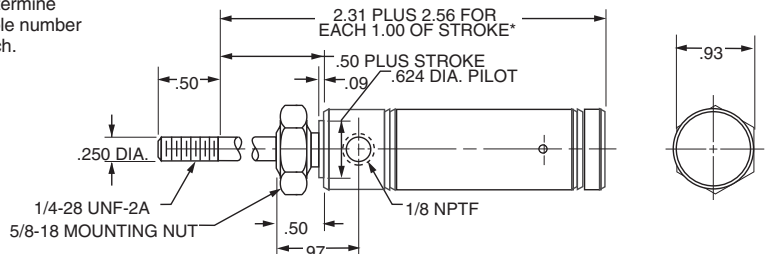
Front Nose Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



#### Optional Accessory:

R432007833 Foot Bracket

# Series M Mini Cylinders

7/8" Bore Size / Single and Double Acting



## Mounting Style RP

### Single Acting

Spring Extend

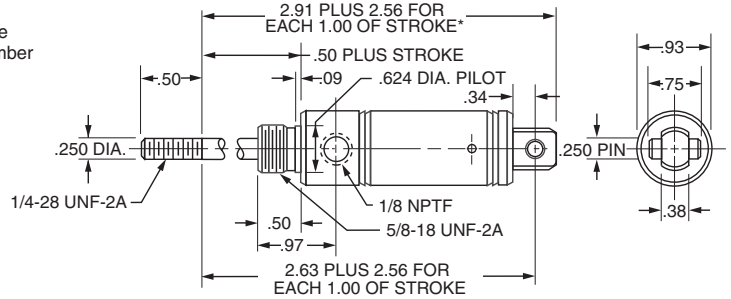
Rear Pivot Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



### Optional Accessories:

R432007813 Pivot Bracket

R432007807 Rod Clevis

## Mounting Style D

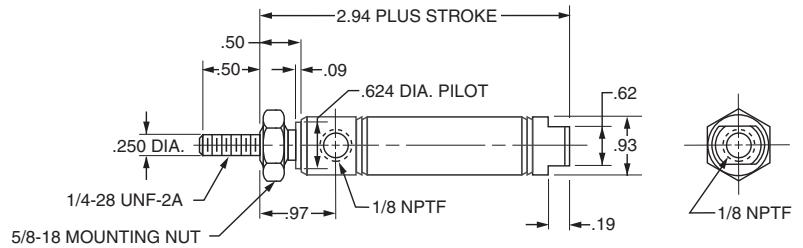
### Double Acting

Front Nose Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



### Optional Accessory:

R432007834 Foot Bracket

## Mounting Style DXP

### Double Acting

Double End or Rear Pivot Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6", 8", 10"  
(Strokes over 12" must be supported at both ends)

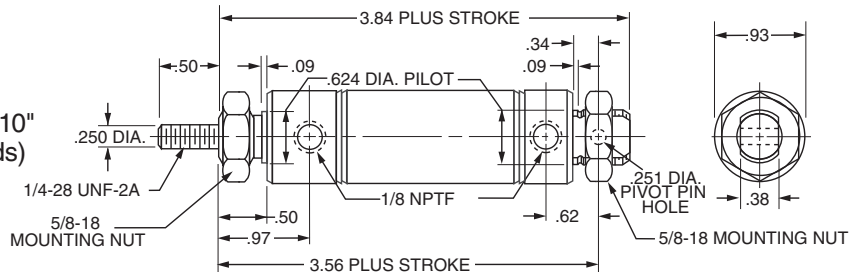
Maximum Stroke 32"

### Optional Accessories:

R432007807 Rod Clevis

R432007817 Pivot Bracket with Pin

R432007833 Foot Bracket



## Mounting Style KDX

### Double Acting

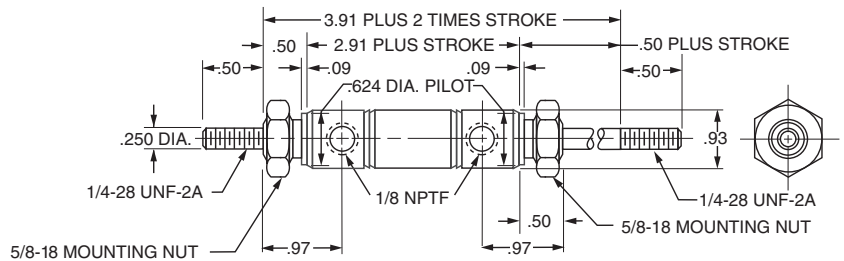
Double End Mounting

Double Rod

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 6"

Maximum Stroke 12"



### Optional Accessory:

R432007833 Foot Bracket

# Series M Mini Cylinders

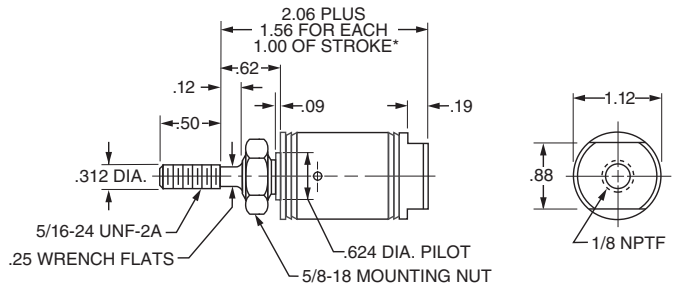
1-1/16" Bore Size / Single Acting



## Mounting Style N

**Single Acting**  
 Spring Return  
 Front Nose Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



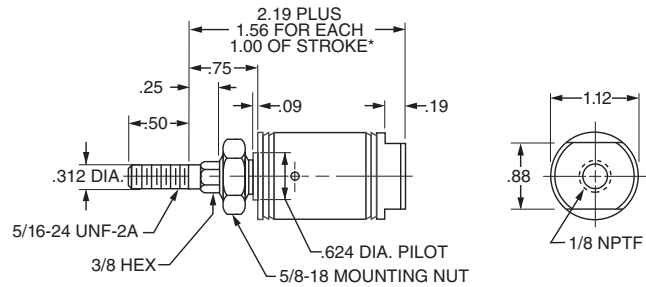
**Optional Accessory:**  
 R432007833 Foot Bracket

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.

## Mounting Style NR

**Single Acting**  
 Spring Return  
 Front Nose Mounting  
 Non-Rotating Hex Rod  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

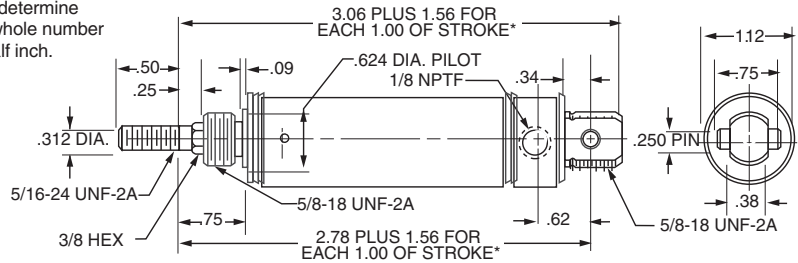


**Optional Accessory:**  
 R432007833 Foot Bracket

## Mounting Style NRP

**Single Acting**  
 Spring Return  
 Rear Pivot Mounting  
 Non-Rotating Hex Rod  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

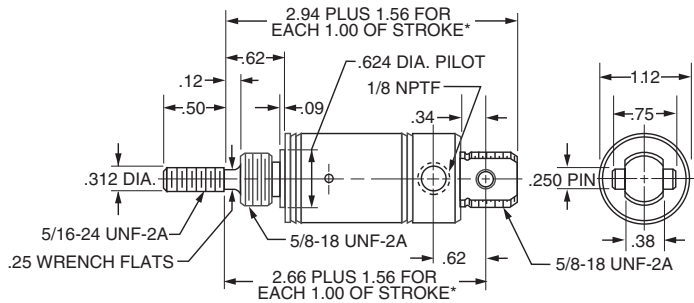


**Optional Accessories:**  
 R432007813 Pivot Bracket  
 R432007808 Rod Clevis

## Mounting Style P

**Single Acting**  
 Spring Return  
 Rear Pivot Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

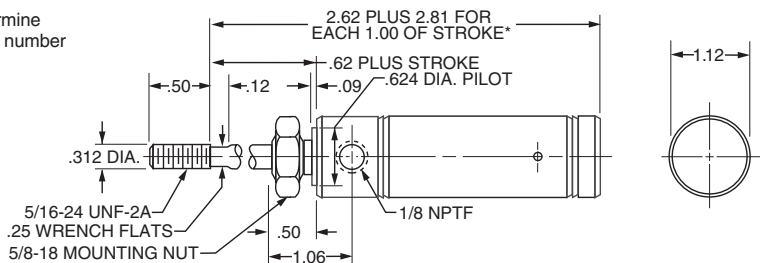


**Optional Accessories:**  
 R432007813 Pivot Bracket  
 R432007808 Rod Clevis

## Mounting Style R

**Single Acting**  
 Spring Extend  
 Front Nose Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



**Optional Accessory:**  
 R432007833 Foot Bracket

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.



# Series M Mini Cylinders

1-1/16" Bore Size / Single and Double Acting



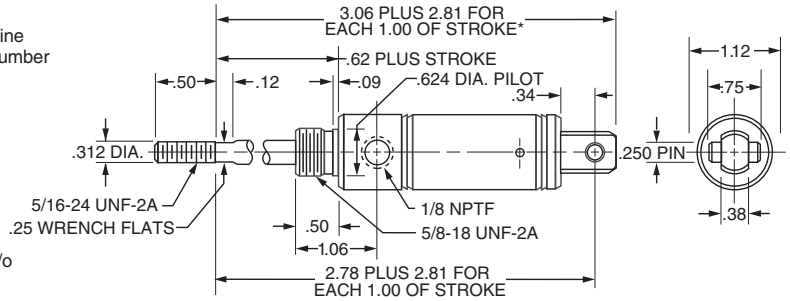
## Mounting Style RP

**Single Acting**  
 Spring Extend  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths:  
 1/2", 1", 1 1/2", 2", 3", 4"  
 Maximum Stroke 6"

**Optional Accessories:**  
 R432007813 Pivot Bracket  
 R432007808 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.

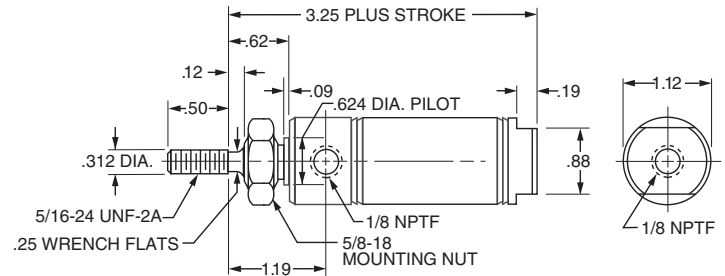


## Mounting Style D

**Double Acting**  
 Front Nose Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths:  
 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4",  
 5", 6", 8", 10", 12"  
 Maximum Stroke 12"

**Optional Accessory:**  
 R432007833 Foot Bracket

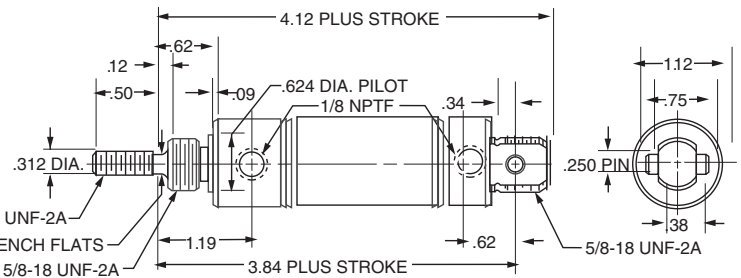
**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.



## Mounting Style DP

**Double Acting**  
 Rear Pivot Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths:  
 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4",  
 5", 6", 8", 10", 12"  
 Maximum Stroke 32"

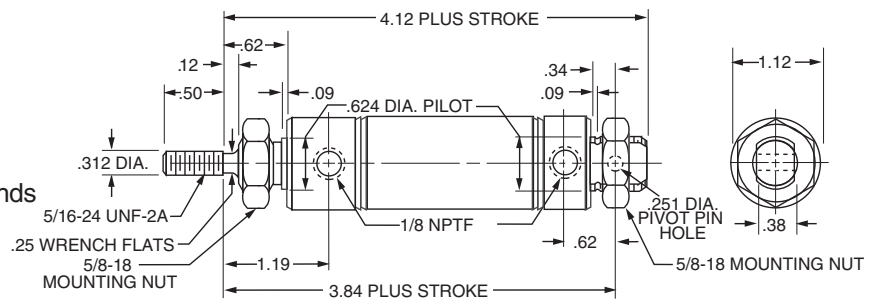
**Optional Accessories:**  
 R432007813 Pivot Bracket  
 R432007808 Rod Clevis



## Mounting Style DXP

**Double Acting**  
 Double End or Rear Pivot Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2",  
 3", 4", 5", 6", 8", 10", 12"  
 Strokes over 12" must be supported at both ends  
 Maximum Stroke 32"

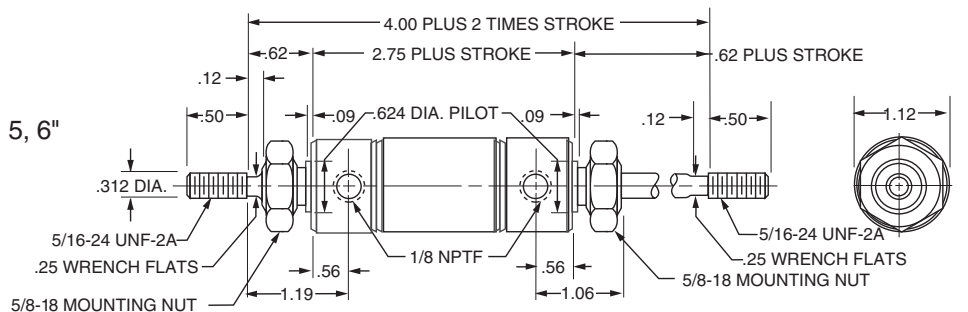
**Optional Accessories:**  
 R432007833 Foot Bracket  
 R432007808 Rod Clevis  
 R432007817 Pivot Bracket with Pin



## Mounting Style KDX

**Double Acting**  
 Double End Mounting — Double Rod  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
 Maximum Stroke 12"

**Optional Accessory:**  
 R432007833 Foot Bracket



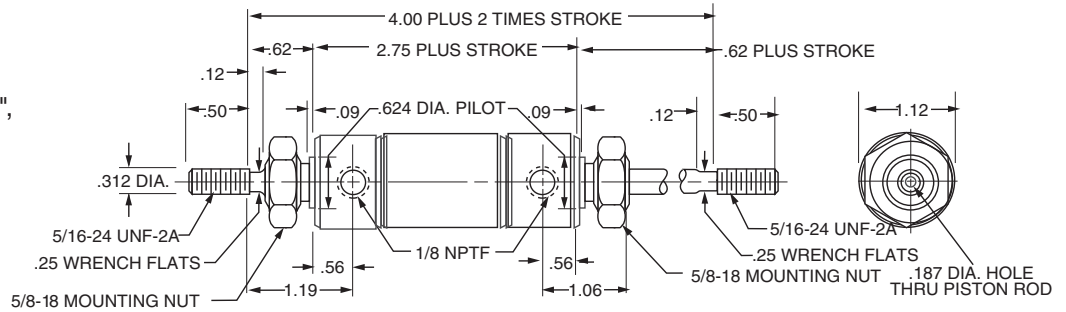
# Series M Mini Cylinders

1-1/16" Bore Size / Double Acting and Adjustable Stroke Single Acting



## Mounting Style KDH

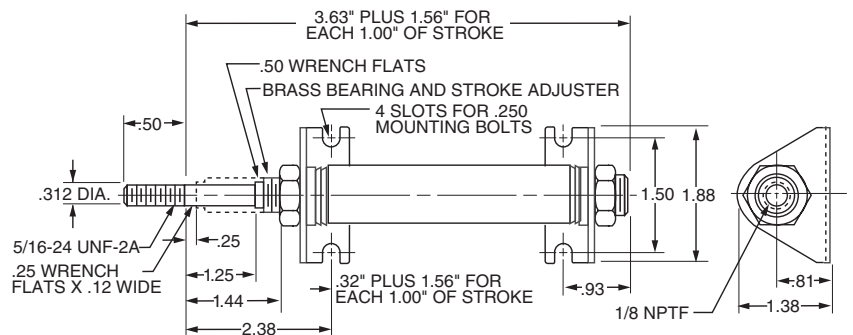
**Double Acting**  
 Double End Mounting  
 Double Hollow Rod  
 Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
 Maximum Stroke 12"



**Optional Accessory:**  
 R432007833 Foot Bracket

## Mounting Style A

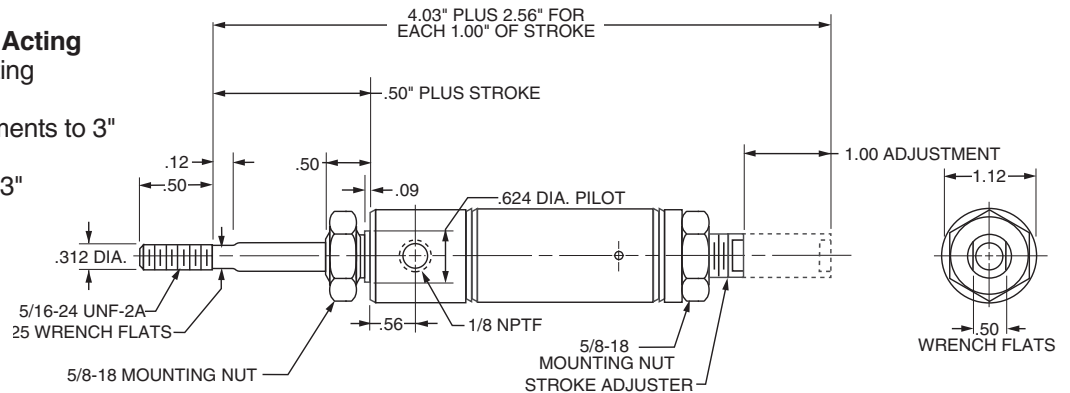
**Adjustable Stroke — Single Acting**  
 Spring Return — Double End Mounting  
 Stainless Steel Rod Standard  
 Stroke Adjustment in 1" Increments to 3"  
 1" Stroke Adjusts 0"-1", 2"  
 Stroke 1"-2", and 3" Stroke 2"-3"  
 Maximum Stroke 6"  
 Includes Mtg. Brackets



**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.

## Mounting Style RA

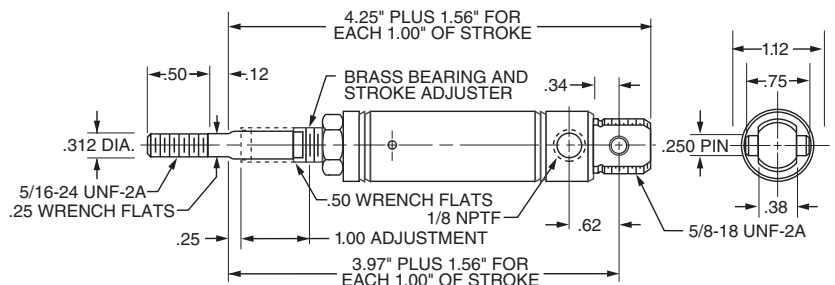
**Adjustable Stroke — Single Acting**  
 Spring Extend — Nose Mounting  
 Stainless Steel Rod Standard  
 Stroke Adjustment in 1" Increments to 3"  
 1" Stroke Adjusts 0"-1", 2"  
 Stroke 1"-2", and 3" Stroke 2"-3"  
 Maximum Stroke 6"  
 Spring Load Normal 3 lbs.  
 Spring Load Retracted 6 lbs.



**Optional Accessory:**  
 R432007833 Foot Bracket  
**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.

## Mounting Style AP

**Adjustable Stroke — Single Acting**  
 Spring Return — Rear Pivot Mounting  
 Stainless Steel Rod Standard  
 Stroke Adjustment in 1" Increments to 3"  
 1" Stroke Adjusts 0"-1", 2"  
 Stroke 1"-2", and 3" Stroke 2"-3"  
 Maximum Stroke 6"



**Optional Accessories:**  
 R432007813 Pivot Bracket  
 R432007808 Rod Clevis

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.

# Series M Mini Cylinders - Block Mounted

1-1/16" Bore Size / Single and Double Acting



## Mounting Style BRN

### Single Acting

Spring Return

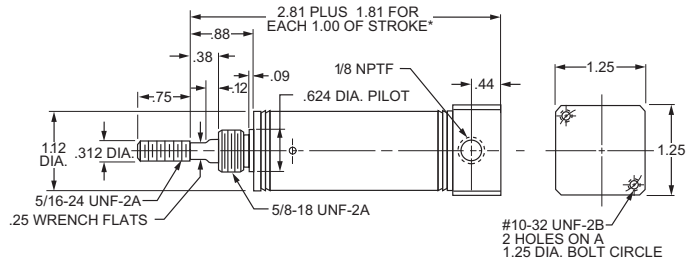
Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BRR

### Single Acting

Spring Extend

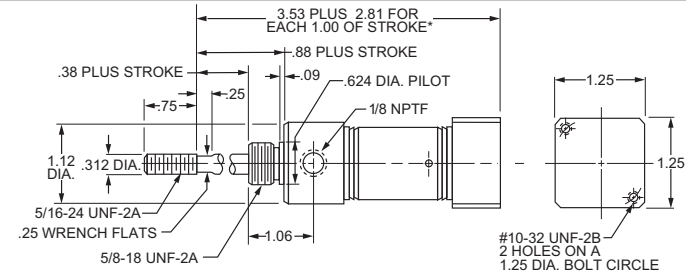
Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style BFD

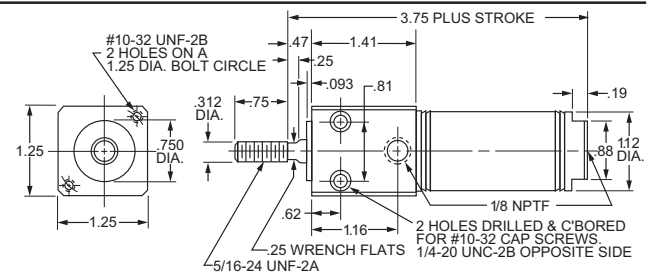
### Double Acting

Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style BRD

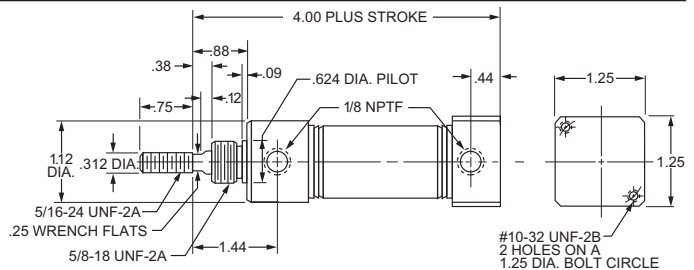
### Double Acting

Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 12"



## Mounting Style BFN

### Single Acting

Spring Return

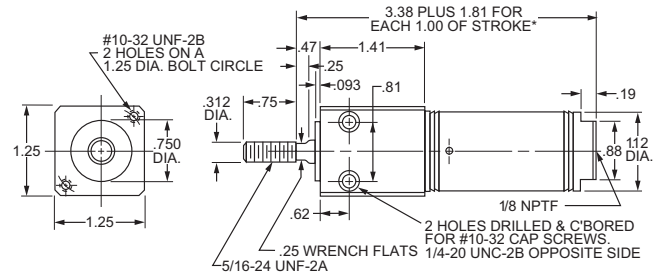
Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BFR

### Single Acting

Spring Extend

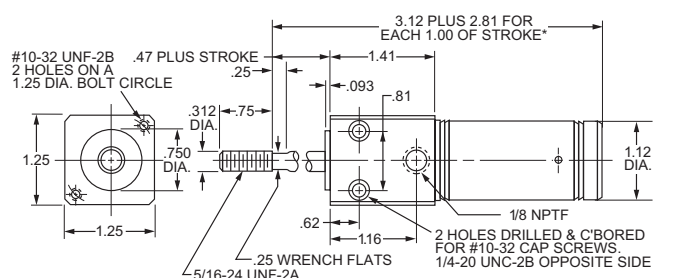
Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series M Mini Cylinders - Trunnion Mounted

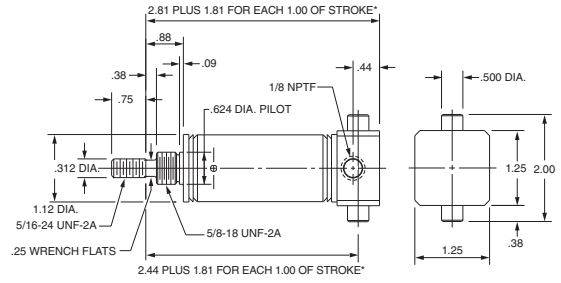
1-1/16" Bore Size / Single and Double Acting



## Mounting Style TRN

**Single Acting**  
 Spring Return  
 Rear Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

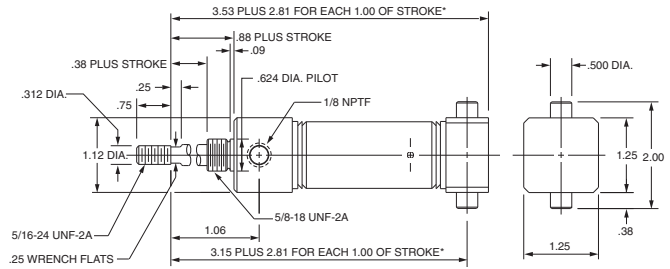
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TRR

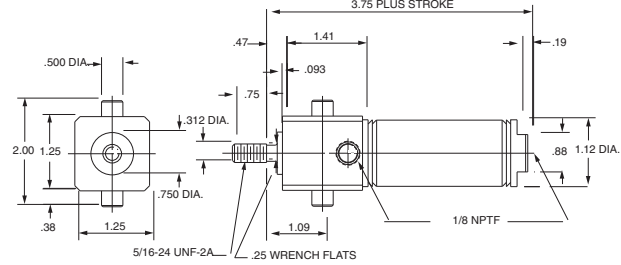
**Single Acting**  
 Spring Extend  
 Rear Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



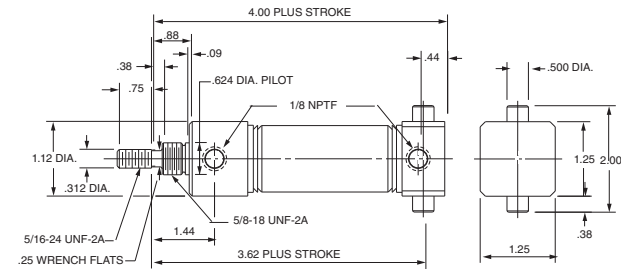
## Mounting Style TFD

**Double Acting**  
 Front Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
 Maximum Stroke 12"



## Mounting Style TRD

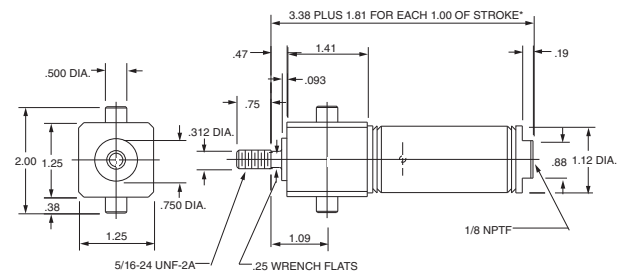
**Double Acting**  
 Rear Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 12"



## Mounting Style TFN

**Single Acting**  
 Spring Return  
 Front Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

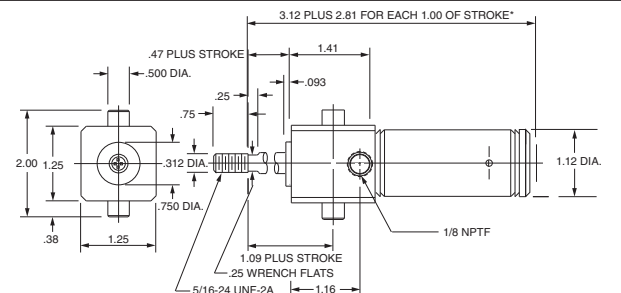
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TFR

**Single Acting**  
 Spring Extend  
 Front Trunnion Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series M Mini Cylinders

1-1/4" Bore Size / Single Acting



## Mounting Style N

### Single Acting

Spring Return

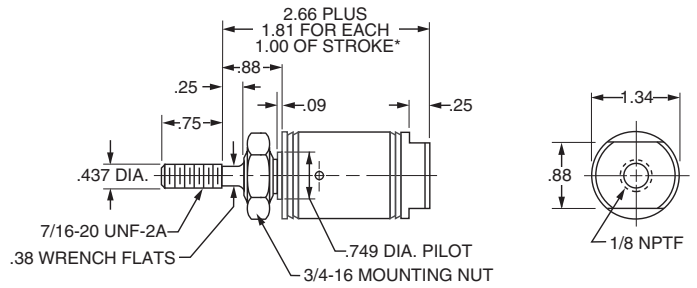
Front Nose Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



### Optional Accessory:

R432007834 Foot Bracket

## Mounting Style NR

### Single Acting

Spring Return

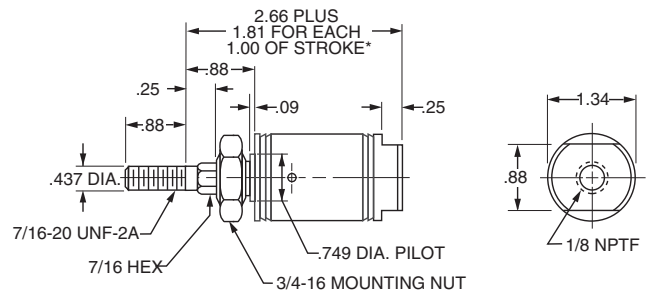
Front Nose Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



### Optional Accessory:

R432007834 Foot Bracket

## Mounting Style NRP

### Single Acting

Spring Return

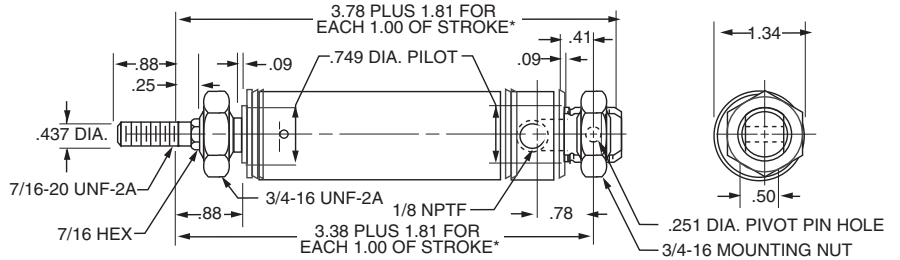
Double End or Rear Pivot Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



### Optional Accessories:

R432007834 Foot Bracket

R432007809 Rod Clevis

R432007818 Pivot Bracket with Pin

## Mounting Style P

### Single Acting

Spring Return

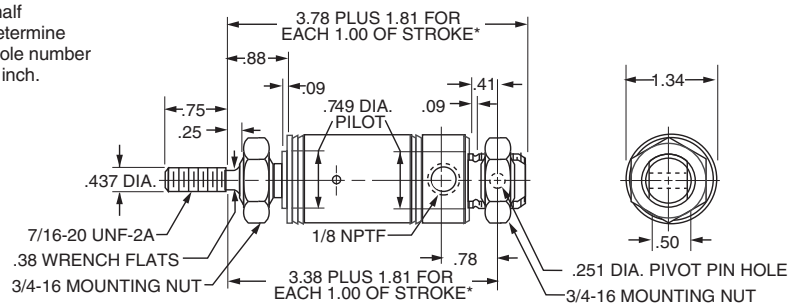
Double End or Rear Pivot Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



### Optional Accessories:

R432007834 Foot Bracket

R432007809 Rod Clevis

R432007818 Pivot Bracket with Pin

## Mounting Style R

### Single Acting

Spring Extend

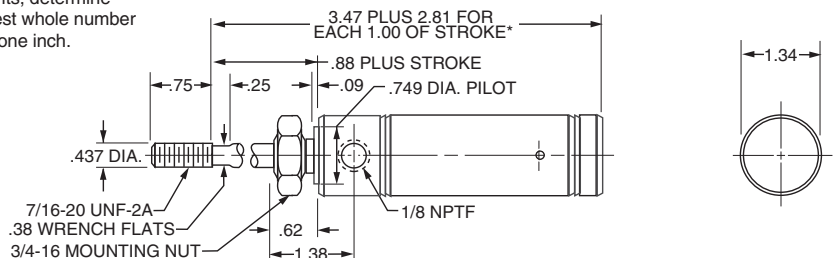
Front Nose Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



### Optional Accessory:

R432007834 Foot Bracket



# Series M Mini Cylinders

1-1/4" Bore Size / Single and Double Acting



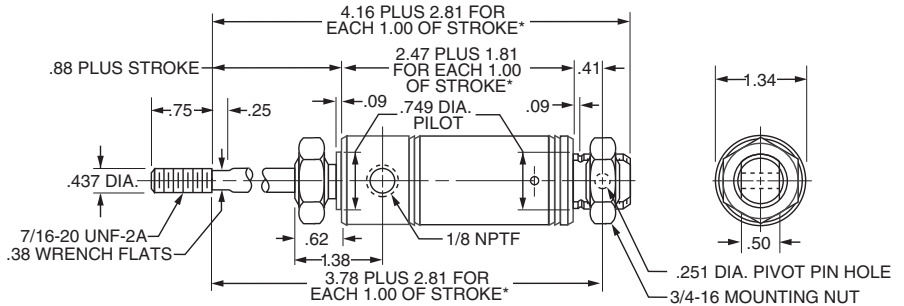
## Mounting Style RP

### Single Acting

- Spring Extend
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4"
- Maximum Stroke 6"

#### Optional Accessories:

- R432007834 Foot Bracket
- R432007809 Rod Clevis
- R432007818 Pivot Bracket with Pin



\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

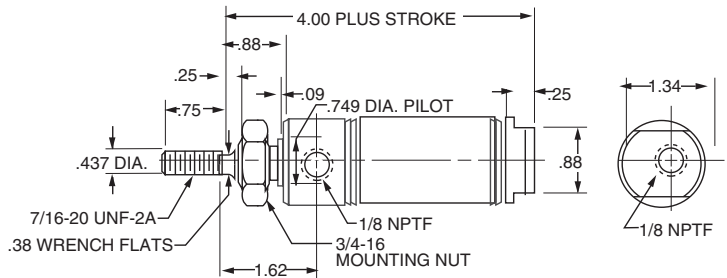
## Mounting Style D

### Double Acting

- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"
- Maximum Stroke 12"

#### Optional Accessory:

- R432007834 Foot Bracket



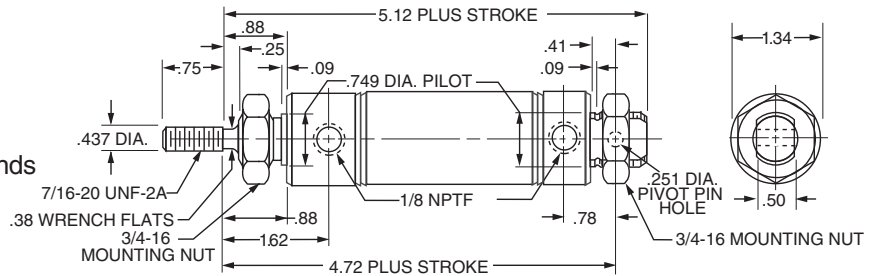
## Mounting Style DXP

### Double Acting

- Double End or Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4", 5", 6", 7", 8", 10", 12"
- Strokes over 12" must be supported at both ends
- Maximum Stroke 32"

#### Optional Accessories:

- R432007834 Foot Bracket
- R432007809 Rod Clevis
- R432007818 Pivot Bracket with Pin



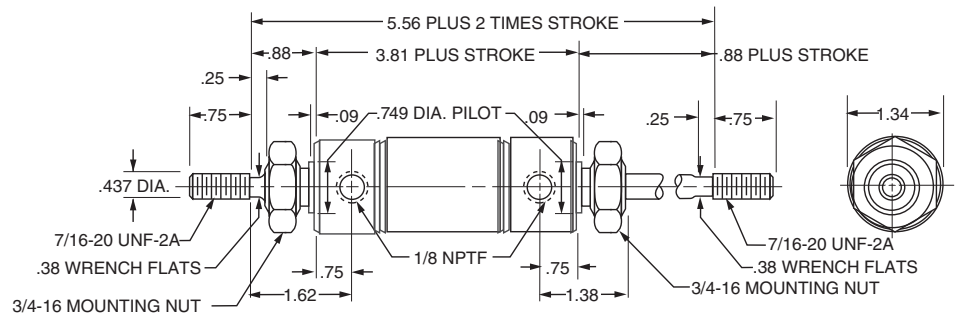
## Mounting Style KDX

### Double Acting

- Double End Mounting
- Double Rod
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"
- Maximum Stroke 12"

#### Optional Accessory:

- R432007834 Foot Bracket



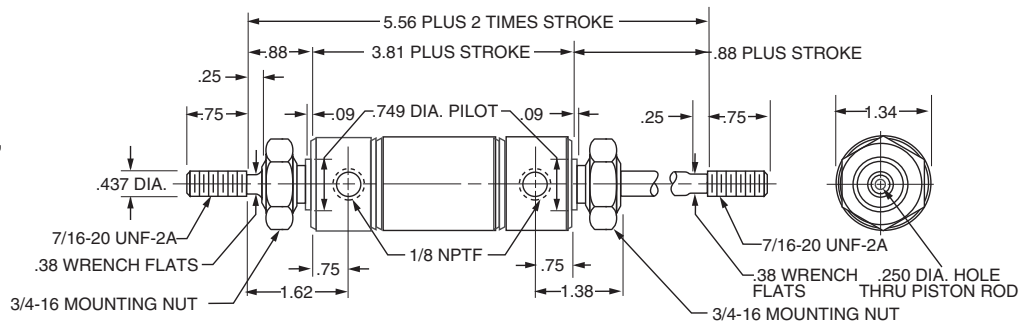
## Mounting Style KDH

### Double Acting

- Double End Mounting
- Double Hollow Rod
- Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"
- Maximum Stroke 12"

#### Optional Accessory:

- R432007834 Foot Bracket





# Series M Mini Cylinders

1-1/2" Bore Size / Single Acting



## Mounting Style N

### Single Acting

Spring Return

Front Nose Mounting

Stainless Steel Rod Standard

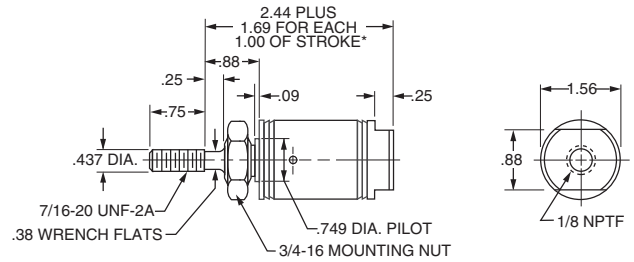
Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

#### Optional Accessory:

R432007834 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style NR

### Single Acting

Spring Return

Front Nose Mounting

Non-Rotating Hex Rod

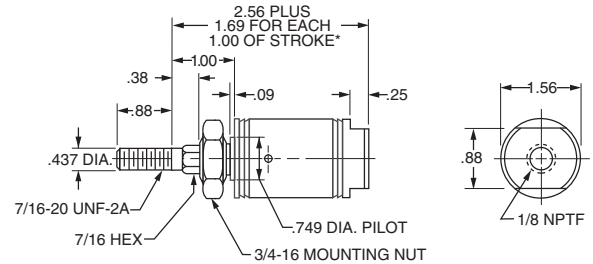
Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

#### Optional Accessory:

R432007834 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style NRP

### Single Acting

Spring Return

Rear Pivot Mounting

Non-Rotating Hex Rod

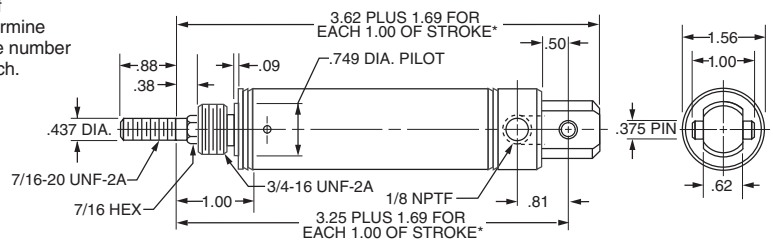
Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

#### Optional Accessories:

R432007814 Pivot Bracket  
R432007809 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style P

### Single Acting

Spring Return

Rear Pivot Mounting

Stainless Steel Rod Standard

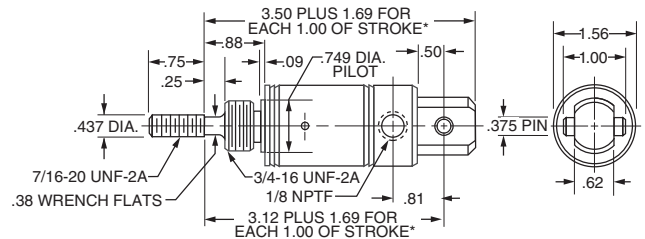
Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

#### Optional Accessories:

R432007814 Pivot Bracket  
R432007809 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style R

### Single Acting

Spring Extend

Front Nose Mounting

Stainless Steel Rod Standard

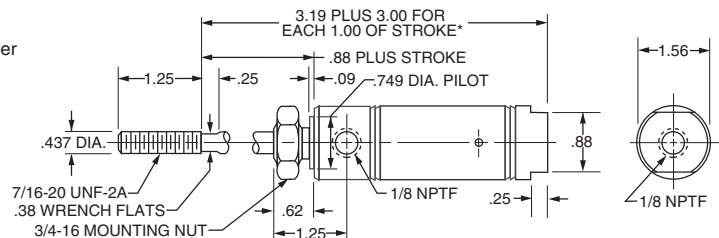
Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

#### Optional Accessory:

R432007834 Foot Bracket

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style RP

### Single Acting

Spring Extend

Rear Pivot Mounting

Stainless Steel Rod Standard

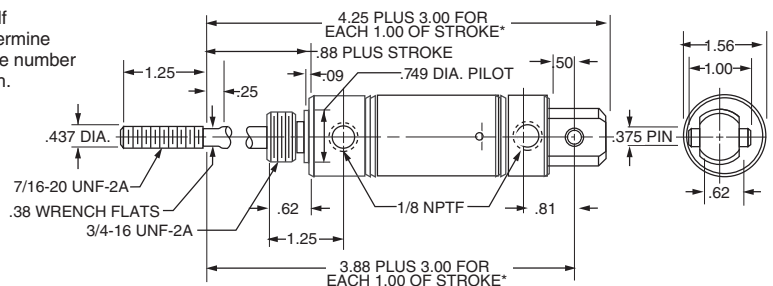
Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

#### Optional Accessories:

R432007814 Pivot Bracket  
R432007809 Rod Clevis

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series M Mini Cylinders

1-1/2" Bore Size/ Double Acting

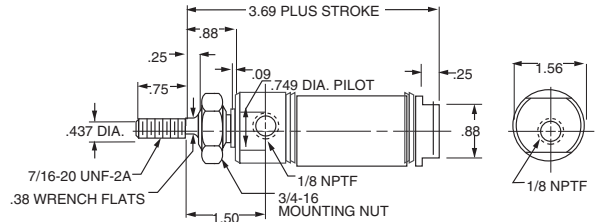


## Mounting Style D

### Double Acting

Front Nose Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1/2", 1", 2", 3",  
4", 5", 6", 8", 10", 12"  
Maximum Stroke 12"

**Optional Accessory:**  
R432007834 Foot Bracket

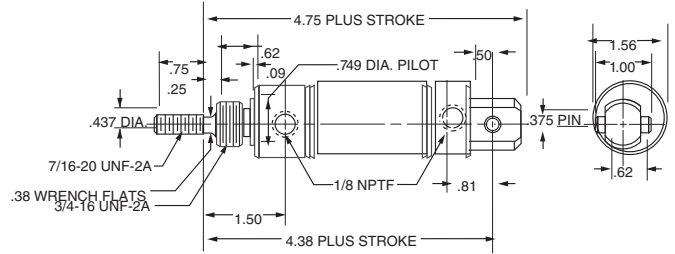


## Mounting Style DP

### Double Acting

Rear Pivot Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4",  
5", 6", 8", 10", 12"  
Maximum Stroke 12"

**Optional Accessories:** R432007814 Pivot Bracket  
R432007809 Rod Clevis

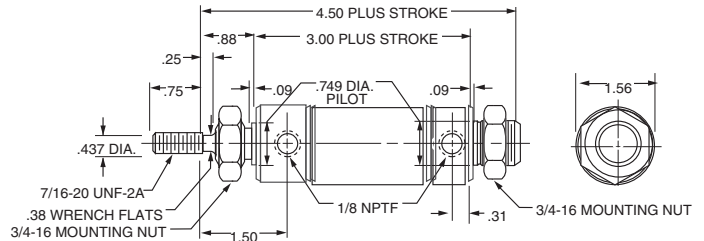


## Mounting Style DX

### Double Acting

Double End Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4",  
5", 6", 8", 10", 12"  
Strokes over 12" must be supported at both ends  
Maximum Stroke 32"

**Optional Accessory:**  
R432007834 Foot Bracket

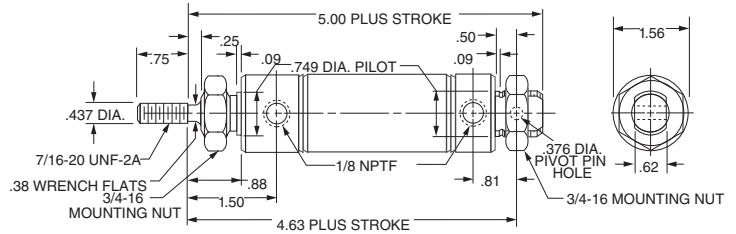


## Mounting Style DXP

### Double Acting

Double End Mounting  
Stainless Steel Rod Standard  
Strokes over 12" must be supported at both ends  
Maximum Stroke 32"

**Optional Accessories:** R432007834 Foot Bracket  
R432007819 Pivot Bracket with Pin  
R432007809 Rod Clevis

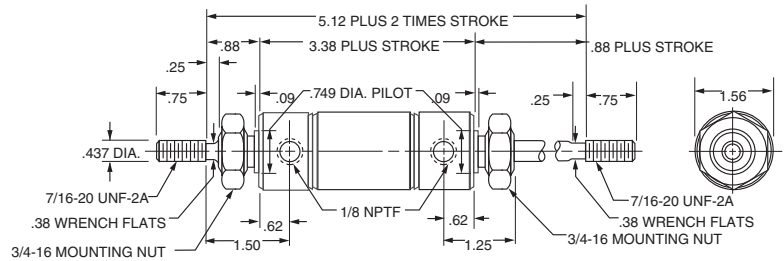


## Mounting Style KDX

### Double Acting

Double End Mounting  
Double Rod  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
Maximum Stroke 12"

**Optional Accessory:**  
R432007834 Foot Bracket

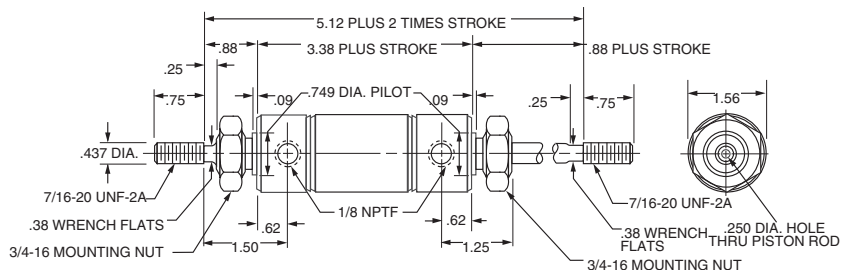


## Mounting Style KDH

### Double Acting

Double End Mounting  
Double Hollow Rod  
Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
Maximum Stroke 12"

**Optional Accessory:**  
R432007834 Foot Bracket



# Series M Mini Cylinders

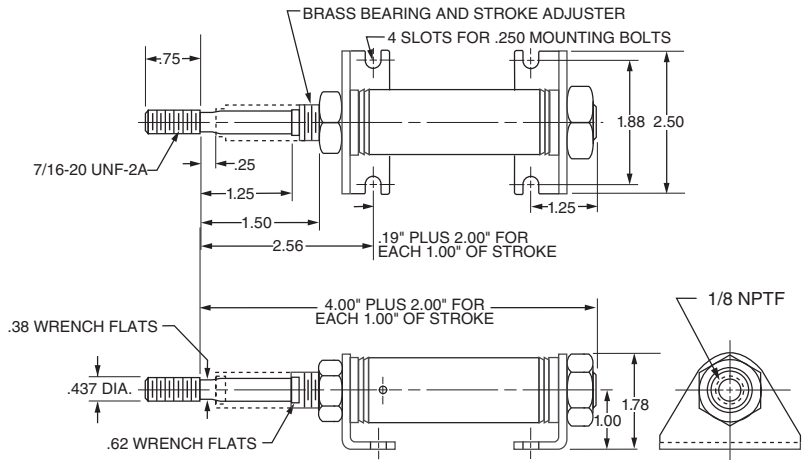
1-1/2" Bore Size / Single Acting Adjustable Stroke



## Mounting Style A

### Adjustable Stroke — Single Acting

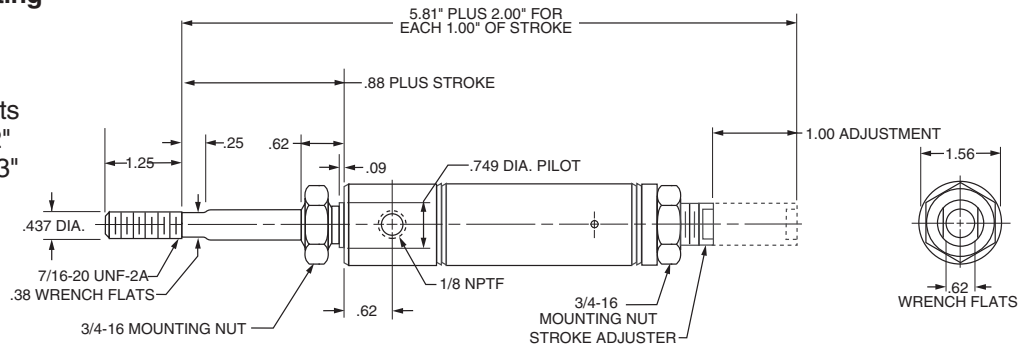
- Spring Return
- Double End Mounting
- Stainless Steel Rod Standard
- Stroke Adjustment in 1" Increments to 3"; 1" Stroke Adjusts 0"-1", 2" Stroke 1"-2", and 3" Stroke 2"-3"
- Maximum Stroke 6"
- Includes Mtg. Brackets
- Spring Load Normal 9 lbs.
- Spring Load Extended 18 lbs.



## Mounting Style RA

### Adjustable Stroke — Single Acting

- Spring Extend
- Nose Mounting
- Stainless Steel Rod Standard
- Stroke Adjustment in 1" Increments to 3"; 1" Stroke Adjusts 0"-1", 2" Stroke 1"-2", and 3" Stroke 2"-3"
- Maximum Stroke 6"

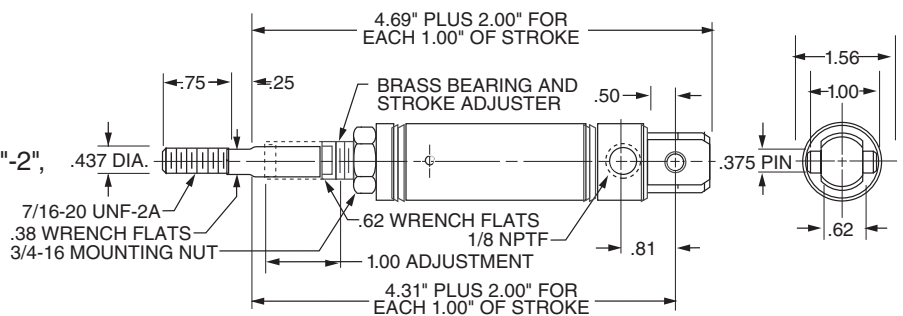


**Optional Accessory:**  
R432007834 Foot Bracket

## Mounting Style AP

### Adjustable Stroke — Single Acting

- Spring Return
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Stroke Adjustment in 1" Increments to 3"; 1" Stroke Adjusts 0"-1", 2" Stroke 1"-2", and 3" Stroke 2"-3"
- Maximum Stroke 6"
- Spring Load Normal 9 lbs.
- Spring Load Extended 18 lbs.



**Optional Accessories:**  
R432007834 Pivot Bracket  
R432007809 Rod Clevis

## Notes:

# Series M Mini Cylinders - Block Mounted

1-1/2" Bore Size / Single and Double Acting



## Mounting Style BRN

### Single Acting

Spring Return

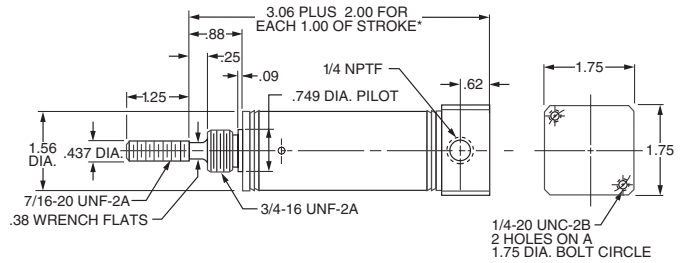
Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BRR

### Single Acting

Spring Extend

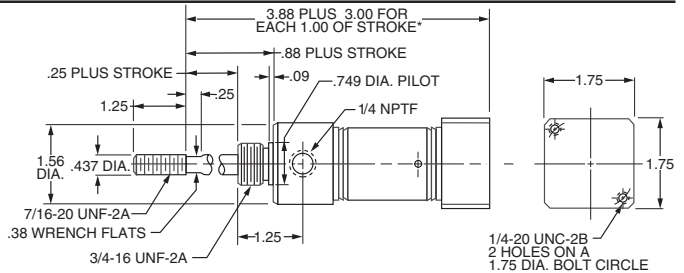
Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style BFD

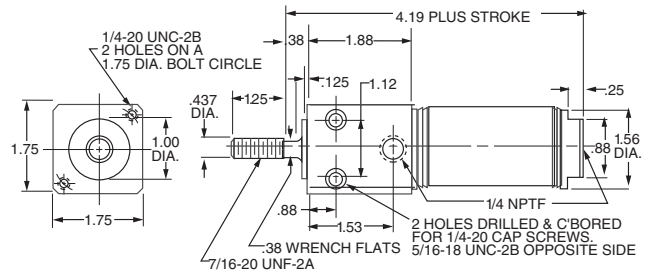
### Double Acting

Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style BRD

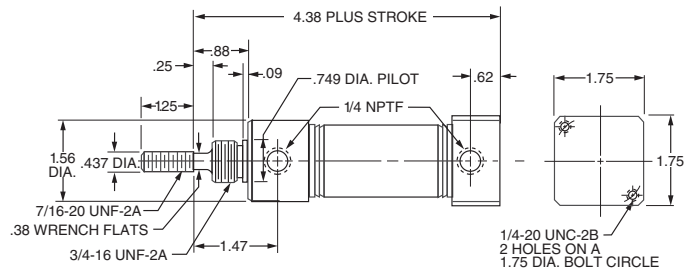
### Double Acting

Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style BFN

### Single Acting

Spring Return

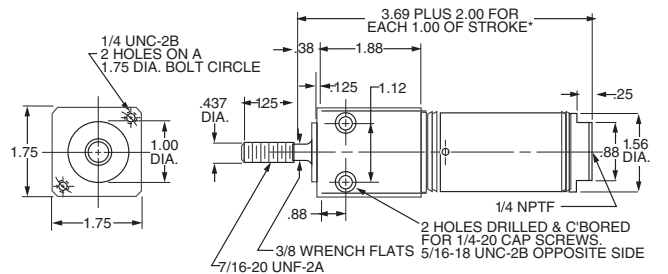
Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BFR

### Single Acting

Spring Extend

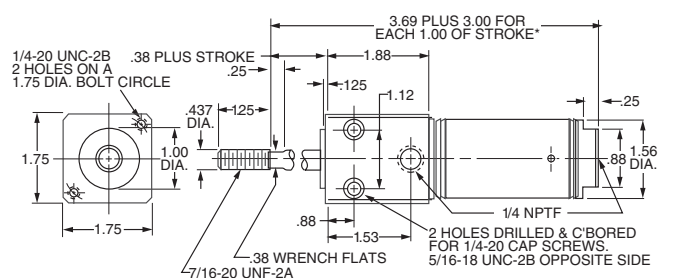
Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series M Mini Cylinders - Trunnion Mounted

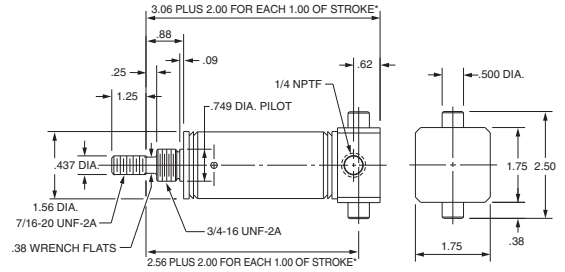
1-1/2" Bore Size / Single and Double Acting



## Mounting Style TRN

**Single Acting**  
Spring Return  
Rear Trunnion Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4"  
Maximum Stroke 6"

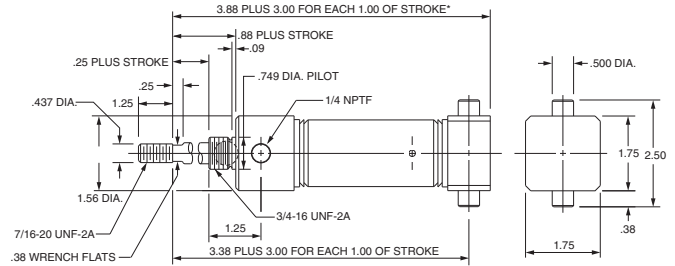
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TRR

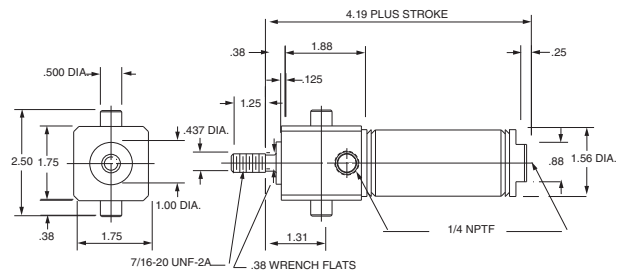
**Single Acting**  
Spring Extend  
Rear Trunnion Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4"  
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



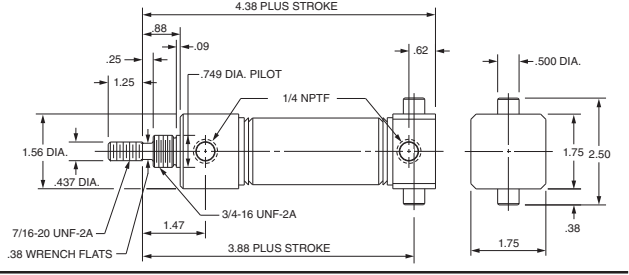
## Mounting Style TFD

**Double Acting**  
Front Trunnion Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
Maximum Stroke 12"



## Mounting Style TRD

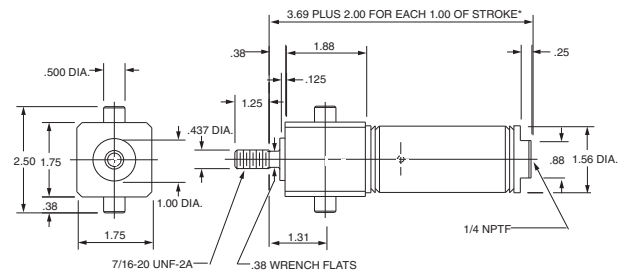
**Double Acting**  
Rear Trunnion Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
Maximum Stroke 12"



## Mounting Style TFN

**Single Acting**  
Spring Return  
Front Trunnion Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4"  
Maximum Stroke 6"

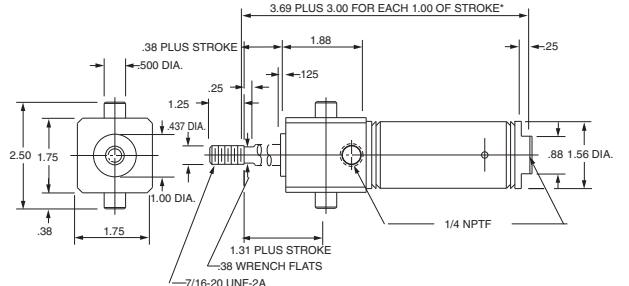
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TFR

**Single Acting**  
Spring Extend  
Front Trunnion Mounting  
Stainless Steel Rod Standard  
Standard Stroke Lengths: 1", 2", 3", 4"  
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.





# Series M Mini Cylinders

1-3/4" Bore Size / Single Acting



## Mounting Style N

**Single Acting**

Spring Return

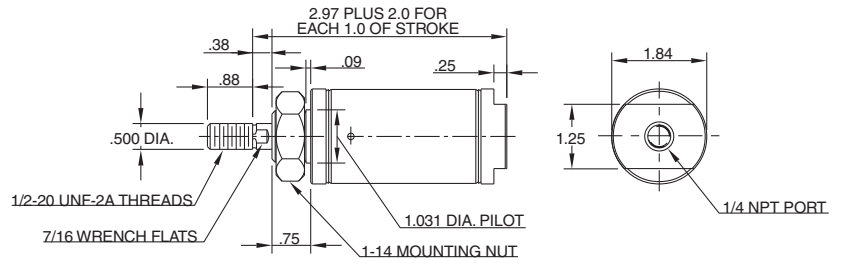
Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

Maximum Stroke 6"

**Optional Accessory:**

R432007835 Foot Bracket



## Mounting Style NR

**Single Acting**

Spring Return

Front Nose Mounting

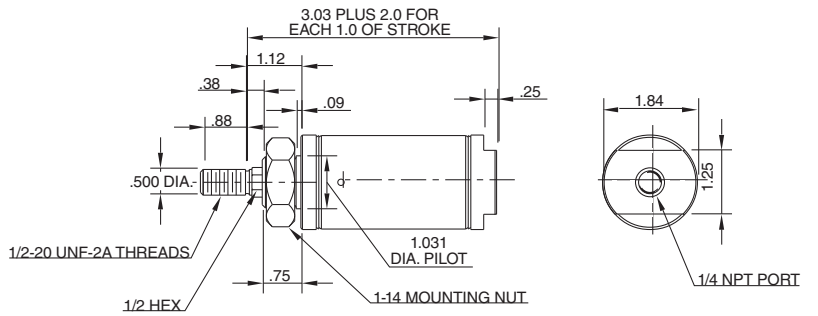
Non-Rotating Hex Rod

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

Maximum Stroke 6"

**Optional Accessory:**

R432007835 Foot Bracket



## Mounting Style NRP

**Single Acting**

Spring Return

Rear Pivot or Double End Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

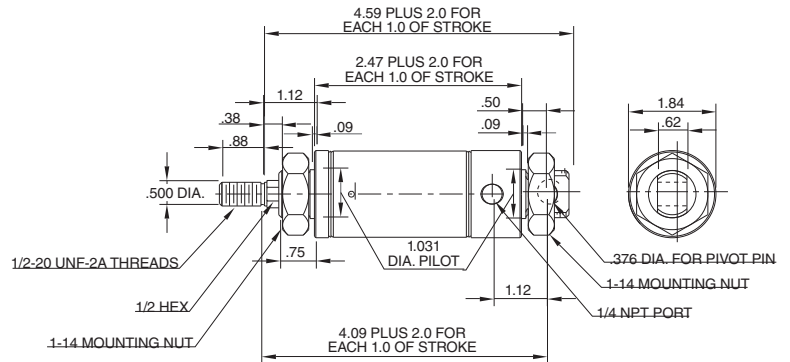
Maximum Stroke 6"

**Optional Accessories:**

R432007835 Foot Bracket

R432007810 Rod Clevis

R432007819 Pivot Bracket with Pin



## Mounting Style P

**Single Acting**

Spring Return

Double End or Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

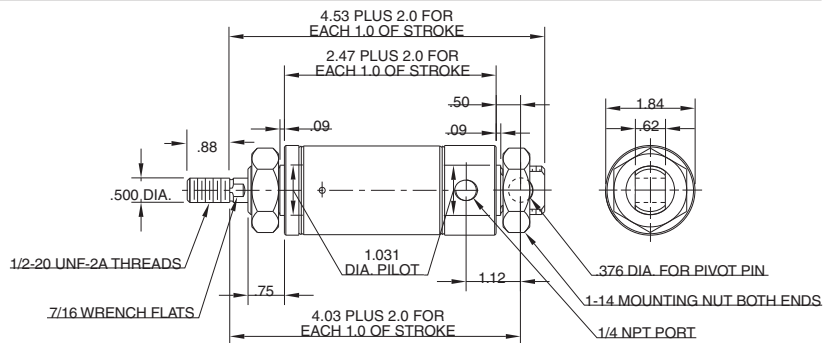
Maximum Stroke 6"

**Optional Accessories:**

R432007835 Foot Bracket

R432007810 Rod Clevis

R432007819 Pivot Bracket with Pin



## Mounting Style R

**Single Acting**

Spring Extend

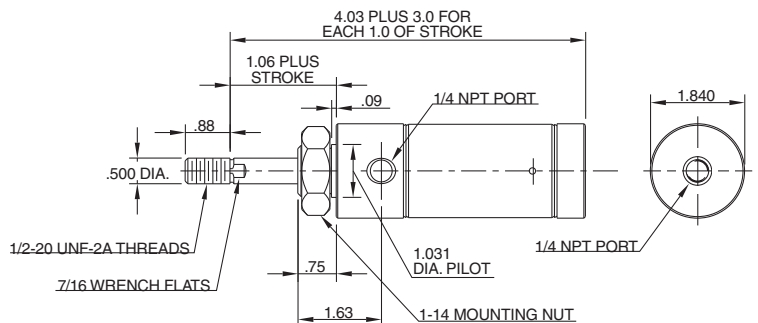
Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

Maximum Stroke 6"

**Optional Accessory:**

R432007835 Foot Bracket





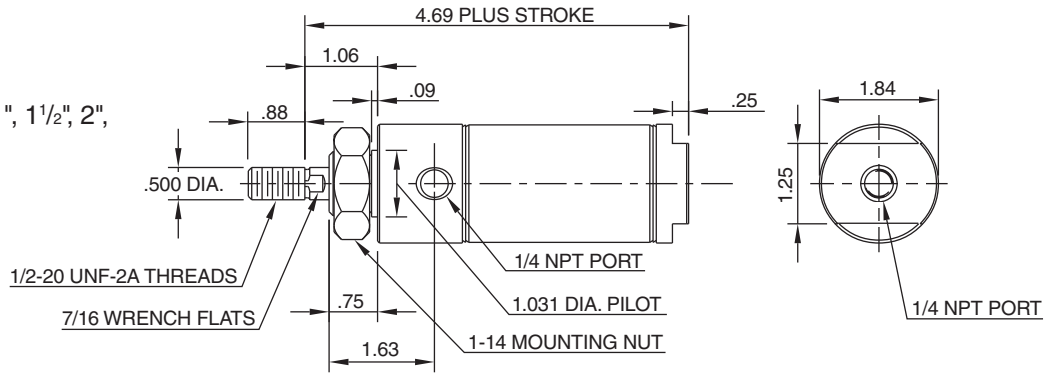
# Series M Mini Cylinders

1-3/4" Bore Size / Double Acting



## Mounting Style D

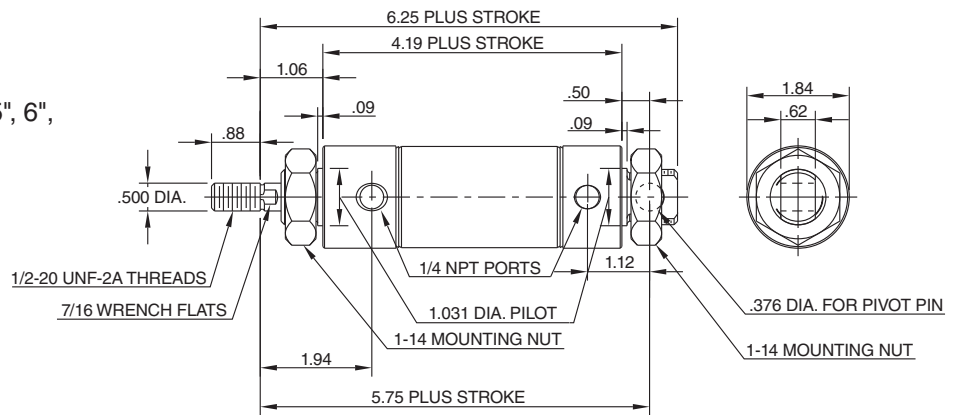
**Double Acting**  
 Front Nose Mounting  
 Standard Stroke Lengths: 1/2", 1", 1 1/2", 2",  
 2 1/2", 3", 4", 5", 6"  
 Maximum Stroke 12"



**Optional Accessory:**  
 R432007835 Foot Bracket

## Mounting Style DXP

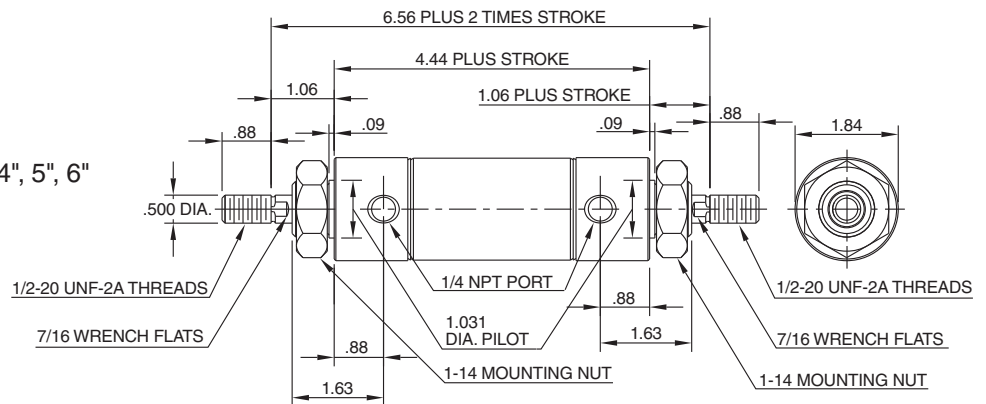
**Double Acting**  
 Double End Mounting  
 Standard Stroke Lengths: 1", 2", 3", 4", 5", 6",  
 8", 10", 12"  
 Maximum Stroke 32"  
 Strokes over 12" must be supported at  
 both ends



**Optional Accessories:**  
 R432007835 Foot Bracket  
 R432007810 Rod Clevis  
 R432007819 Pivot Bracket with Pin

## Mounting Style KDX

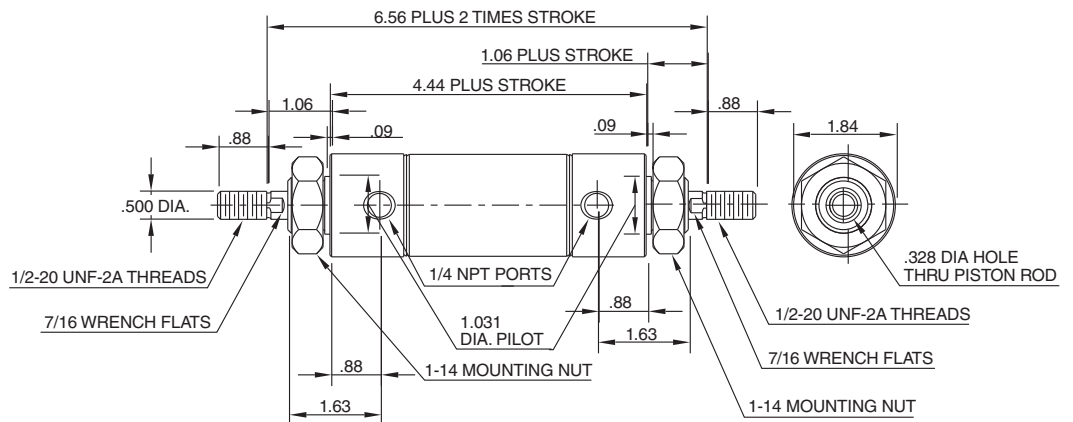
**Double Acting**  
 Double End Mounting  
 Double Rod  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
 Maximum Stroke 12"



**Optional Accessory:**  
 R432007835 Foot Bracket

## Mounting Style KDH

**Double Acting**  
 Double End Mounting  
 Double Hollow Rod  
 Standard Stroke Lengths:  
 1", 2", 3", 4", 5", 6"  
 Maximum Stroke 12"



**Optional Accessory:**  
 R432007835 Foot Bracket

# Series M Mini Cylinders

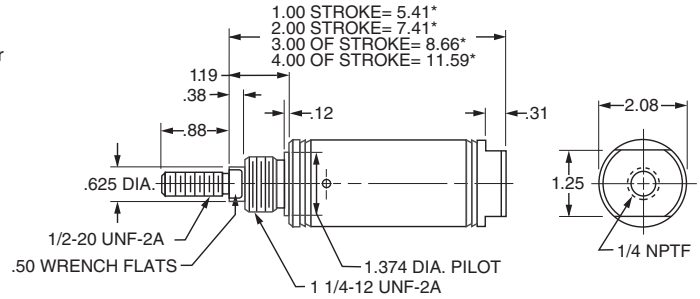
2" Bore Size / Single Acting



## Mounting Style N

**Single Acting**  
Spring Return  
Front Nose Mounting  
Maximum Stroke 4"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

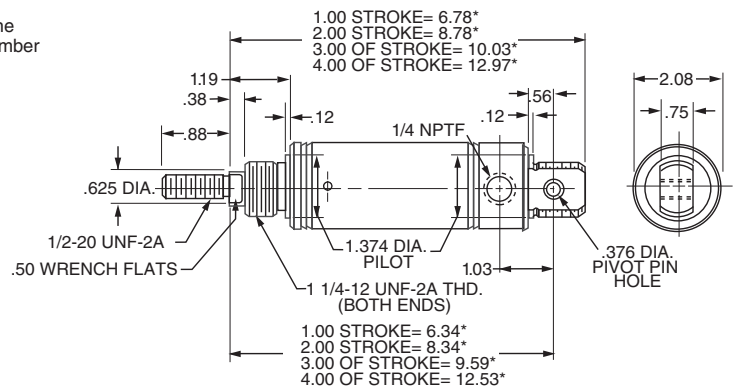


**Optional Accessories:**  
R432007836 Foot Bracket  
R432007846 Mounting Nut

## Mounting Style P

**Single Acting**  
Spring Return  
Double End or Rear Pivot Mounting  
Maximum Stroke 4"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

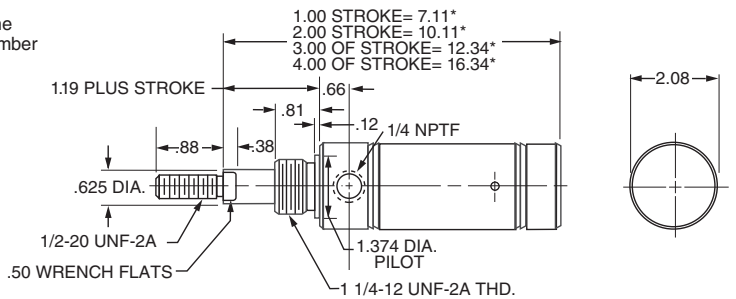


**Optional Accessories:**  
R432007836 Foot Bracket  
R432007810 Rod Clevis  
R432007820 Pivot Bracket with Pin  
R432007846 Mounting Nut

## Mounting Style R

**Single Acting**  
Spring Extend  
Front Nose Mounting  
Maximum Stroke 4"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

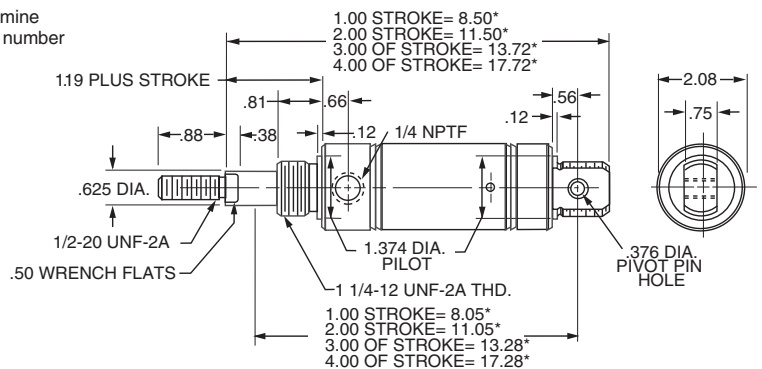


**Optional Accessories:**  
R432007836 Foot Bracket  
R432007846 Mounting Nut

## Mounting Style RP

**Single Acting**  
Spring Extend  
Rear Pivot Mounting  
Maximum Stroke 4"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



**Optional Accessories:**  
R432007836 Foot Bracket  
R432007810 Rod Clevis  
R432007820 Pivot Bracket with Pin  
R432007846 Mounting Nut

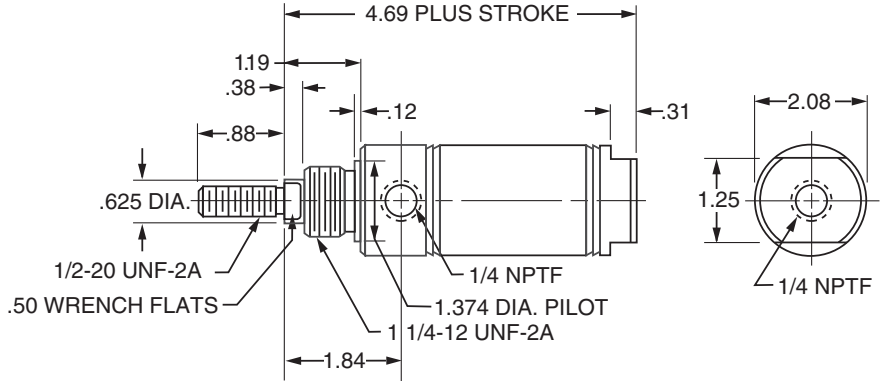
# Series M Mini Cylinders

2" Bore Size / Double Acting



## Mounting Style D

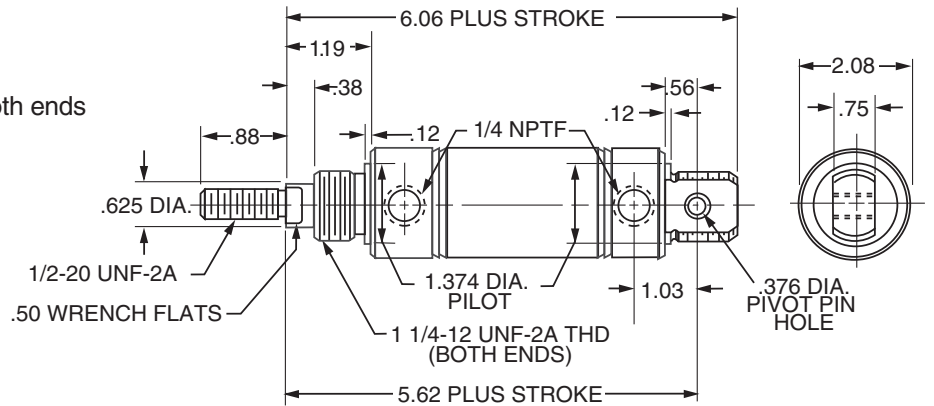
**Double Acting**  
Front Nose Mounting  
Maximum Stroke 12"



**Optional Accessories:**  
R432007836 Foot Bracket  
R432007846 Mounting Nut

## Mounting Style DXP

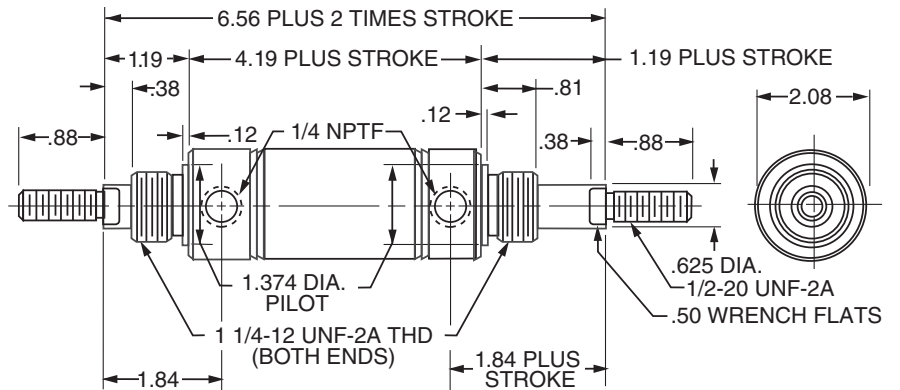
**Double Acting**  
Double End or Rear Pivot Mounting  
Strokes over 12" must be supported at both ends  
Maximum Stroke 32"



**Optional Accessories:**  
R432007836 Foot Bracket  
R432007810 Rod Clevis  
R432007820 Pivot Bracket with Pin  
R432007846 Mounting Nut

## Mounting Style KDX

**Double Acting**  
Double End Mounting  
Double Rod  
Stainless Steel Rod Standard  
Maximum Stroke 12"



**Optional Accessories:**  
R432007836 Foot Bracket  
R432007846 Mounting Nut

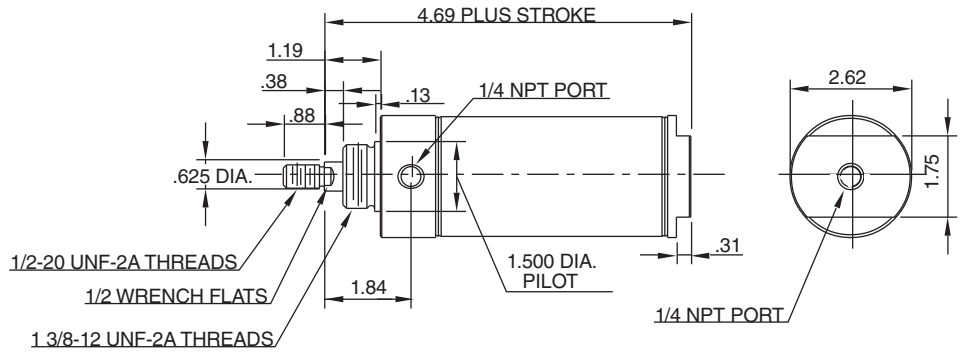
# Series M Mini Cylinders

2-1/2" Bore Size / Double Acting



## Mounting Style D

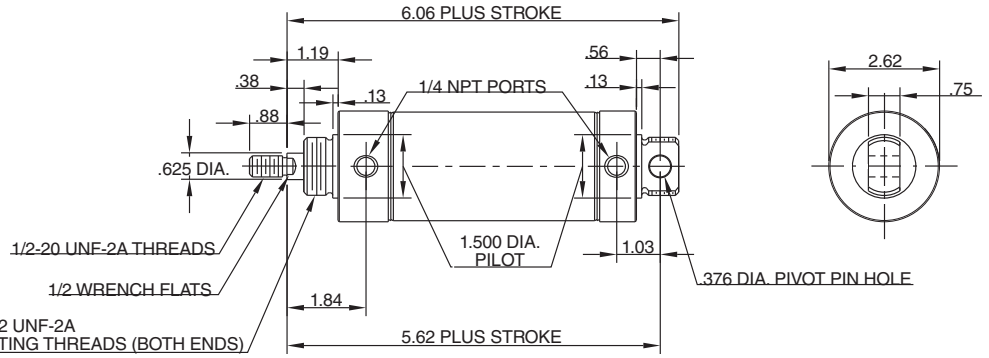
**Double Acting**  
Front Nose Mounting  
Maximum Stroke 12"



**Optional Accessories:**  
R432007837 Foot Bracket  
R432007847 Mounting Nut

## Mounting Style DXP

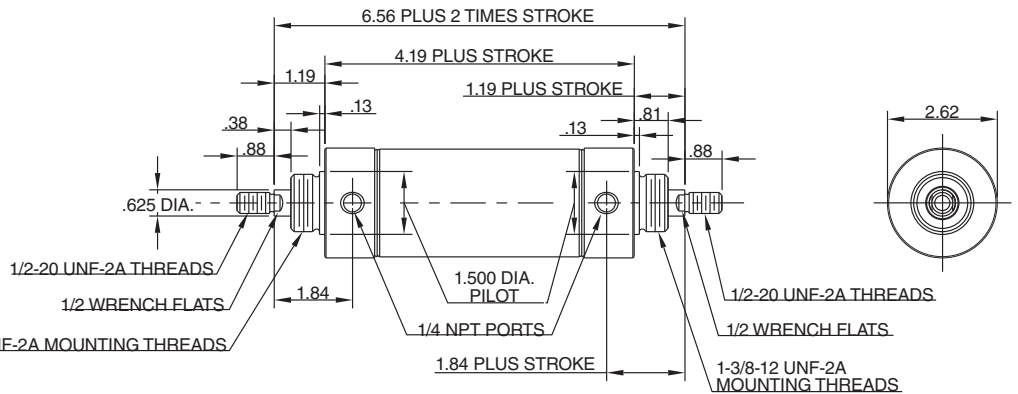
**Double Acting**  
Double End or Rear Pivot Mounting  
Strokes over 12" must be supported  
at both ends  
Maximum Stroke 32"



**Optional Accessories:**  
R432007837 Foot Bracket  
R432007810 Rod Clevis  
R432007820 Pivot Bracket with Pin  
R432007847 Mounting Nut

## Mounting Style KDX

**Double Acting**  
Double End Mounting  
Double Rod  
Stainless Steel Rod Standard  
Maximum Stroke 12"



**Optional Accessories:**  
R432007837 Foot Bracket  
R432007847 Mounting Nut

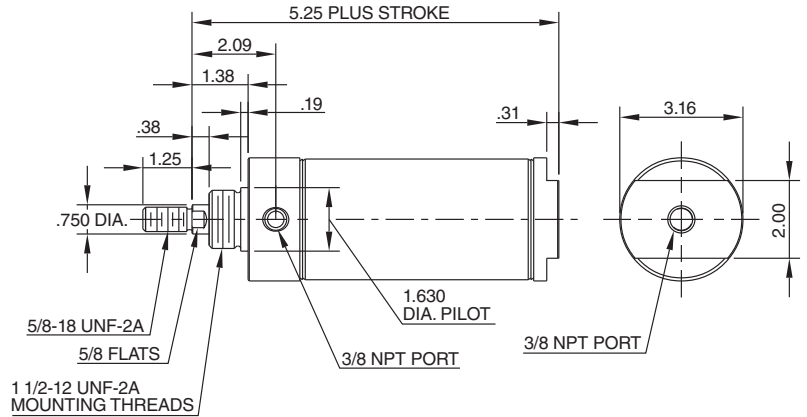
# Series M Mini Cylinders

3" Bore Size / Double Acting



## Mounting Style D

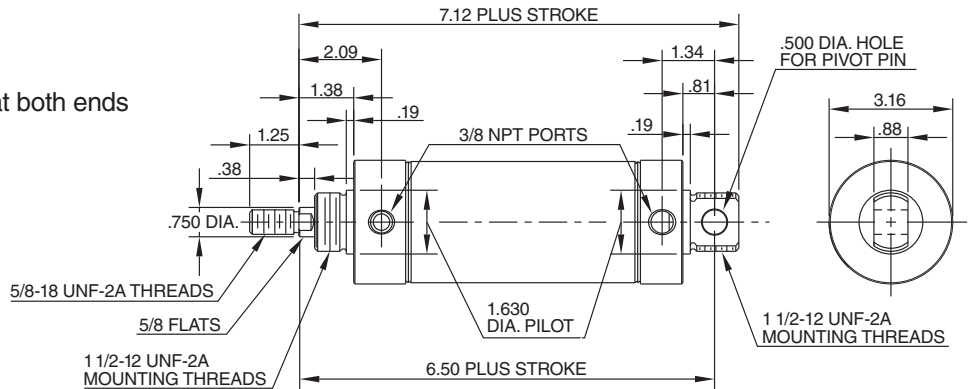
**Double Acting**  
Front Nose Mounting  
Maximum Stroke 12"



**Optional Accessories:**  
R432007838 Foot Bracket  
R432007848 Mounting Nut

## Mounting Style DXP

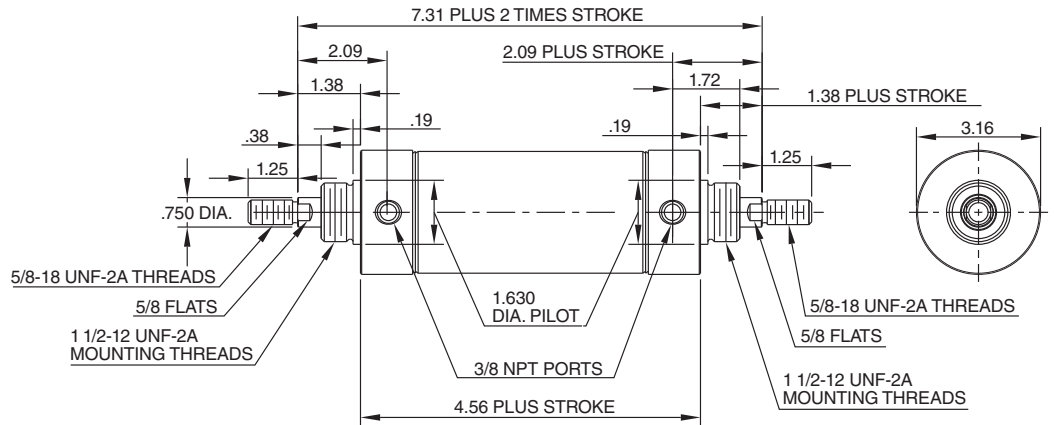
**Double Acting**  
Double End or Rear Pivot Mounting  
Strokes over 12" must be supported at both ends  
Maximum Stroke 32"



**Optional Accessories:**  
R432007838 Foot Bracket  
R432007811 Rod Clevis  
R432007821 Pivot Bracket with Pin  
R432007848 Mounting Nut

## Mounting Style KDX

**Double Acting**  
Double End Mounting  
Double Rod  
Stainless Steel Rod Standard  
Maximum Stroke 12"



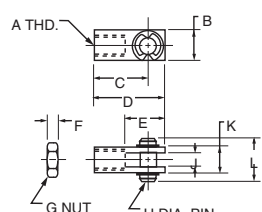
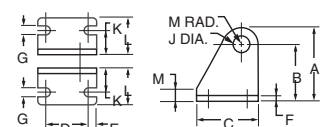
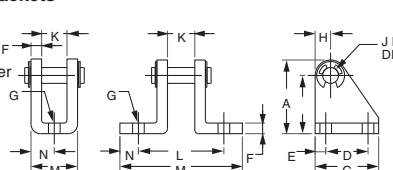
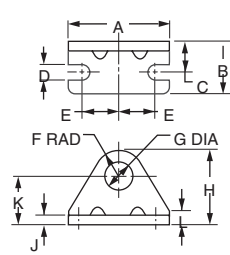
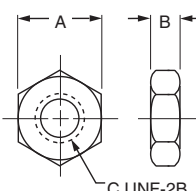
**Optional Accessories:**  
R432007838 Foot Bracket  
R432007848 Mounting Nut

# Series M Mini Cylinders

Standard Accessories with Dimensions

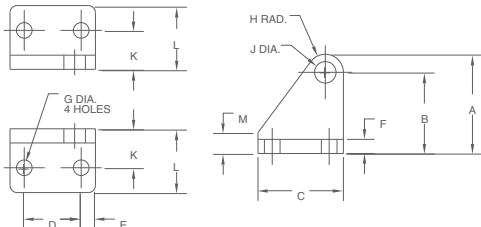


## Standard Accessories with Dimensions

Standard Accessories	Part Number	Bore Used On	Dimensional Data													
			A	B	C	D	E	F	G	H	J	K	L	M	N	
<b>Piston Rod Clevis</b> Assembly includes pin and (2) Retainer Rings and (1) Jam Nut. 	R432007805	5/16	#5-40	.31	.44	.56	.38	.11	#5-40	.12	.13	.31	.50	---	---	
	R432007806	7/16, 9/16	#10-32	.38	.75	.94	.56	.12	#10-32	.19	.19	.38	.56	---	---	
	R432007807	3/4, 7/8	1/4-28	.50	.94	1.19	.68	.16	1/4-28	.25	.25	.50	.69	---	---	
	R432007808	1 1/16	5/16-24	.50	.94	1.19	.68	.19	5/16-24	.25	.25	.50	.69	---	---	
	R432007809	1 1/4, 1 1/2	7/16-20	.75	1.31	1.69	.94	.25	7/16-20	.38	.38	.75	1.03	---	---	
	R432007810	1 3/4, 2, 2 1/2	1/2-20	.75	1.31	1.69	.94	.31	1/2-20	.38	.38	.75	1.03	---	---	
	R432007811	3	5/8-18	1.00	2.25	2.75	1.50	.38	5/8-18	.50	.50	1.00	1.38	---	---	
<b>Pivot Brackets</b> 	R432007812	7/16	.76	.56	.75	.50	.12	.06	.19	.20	.160	.28	.50	.12	---	
	R432007817	3/4, 7/8, 1 1/16	1.19	.88	1.12	.75	.19	.12	.27	.31	.255	.44	.81	.25	---	
	R432007814	1 1/2	1.75	1.38	1.50	1.00	.25	.12	.27	.38	.380	.62	1.00	.25	---	
<b>Pivot Brackets</b> Assembly includes pin and (2) Retainer Rings. 	R432007815	5/16	.53	.40	.62	.38	.12	.04	.16	.12	.12	.26	---	.36	.18	
	R432007816	7/16, 9/16	.76	.56	.75	.50	.12	.06	.19	.19	.156	.34	.91	1.34	.22	
	R432007817	3/4, 7/8, 1 1/16	1.18	.88	1.12	.75	.19	.12	.27	.30	.250	.38	1.25	2.00	.38	
	R432007818	1 1/4	1.18	.88	1.12	.75	.19	.12	.27	.30	.250	.50	1.38	2.14	.38	
	R432007819	1 1/2, 1 3/4	1.75	1.38	1.50	1.00	.25	.25	.27	.37	.375	.62	2.00	2.88	.44	
	R432007820	2, 2 1/2	1.75	1.38	1.50	1.00	.25	.25	.27	.37	.375	.75	2.12	3.00	.44	
	R432007821	3	2.25	1.75	1.75	1.25	.25	.25	.27	.50	.50	.88	2.62	3.88	.62	
<b>Foot Brackets</b> 	R432007828	5/16	1.00	.37	.25	.13	.37	.31	.25	.75	.06	.44	.12	---	---	
	R432007829	5/16	1.00	.37	.25	.13	.37	.31	.38	.75	.06	.44	.12	---	---	
	R432007829	7/16	1.38	.62	.31	.19	.50	.31	.38	.88	.07	.56	.12	---	---	
	R432007831	7/16, 9/16	1.38	.62	.31	.19	.50	.38	.44	.94	.09	.56	.12	---	---	
	R432007832	3/4	1.62	.75	.44	.19	.62	.41	.50	1.09	.10	.69	.19	---	---	
	R432007833	3/4, 7/8, 1 1/16	1.88	1.00	.56	.27	.75	.56	.63	1.38	.12	.81	.25	---	---	
	R432007834	1 1/4, 1 1/2	2.50	1.50	.75	.27	.94	.75	.75	1.75	.12	1.00	.38	---	---	
	R432007835	1 3/4	3.00	1.50	.87	.35	1.12	.91	1.03	2.16	.19	1.25	.50	---	---	
	R432007836	2	3.12	1.62	1.00	.34	1.12	1.00	1.38	2.50	.25	1.50	.62	---	---	
	R432007837	2 1/2	3.75	1.62	1.00	.35	1.44	1.25	1.51	3.00	.25	1.75	.75	---	---	
R432007838	3	4.37	1.62	1.00	.35	1.75	1.25	1.64	3.14	.25	1.89	.89	---	---		
<b>Mounting Nut</b> 	R432007839	5/16	.44	.16	1/4-28	---	---	---	---	---	---	---	---	---	---	
	R432007840	5/16, 7/16	.56	.22	3/8-24	---	---	---	---	---	---	---	---	---	---	
	R432007841	7/16, 9/16	.69	.25	7/16-20	---	---	---	---	---	---	---	---	---	---	
	R432007842	3/4	.75	.31	1/2-20	---	---	---	---	---	---	---	---	---	---	
	R432007843	3/4, 7/8, 1 1/16	.94	.38	5/8-18	---	---	---	---	---	---	---	---	---	---	
	R432007844	1 1/4, 1 1/2	1.12	.42	3/4-16	---	---	---	---	---	---	---	---	---	---	
	R432007845	1 3/4	1.50	.55	1-14	---	---	---	---	---	---	---	---	---	---	
	R432007846	2	1.88	.50	1 1/4-12	---	---	---	---	---	---	---	---	---	---	
	R432007847	2 1/2	2.06	.78	1 3/8-12	---	---	---	---	---	---	---	---	---	---	
R432007848	3	2.25	.84	1 1/2-12	---	---	---	---	---	---	---	---	---	---		

## Series M Trunnion Brackets

Select brackets for Series M Trunnion Mount Cylinders from the table below. (Note: Trunnion Brackets are ordered as a separate item from the cylinder.)



Assembly No.	Bore Sizes	A	B	C	D	E	F	G	H	J	K	L	M
R432029604	7/16"	1.75	1.38	1.50	1	.25	.25	.27	.38	.375	.69	1.12	.37
R432007849	3/4", 1 1/16", 1 1/2"	1.75	1.38	1.50	1	.25	.25	.27	.38	.500	.69	1.12	.37



# Series M Mini Cylinders

Port, Spring Force Data



## Port Size — Rod Diameter — Spring Force Data

Bore Size	Port Size	Rod Diameter (Or Hex)	Force Factor		Spring Return (lbs.)		Spring Extend (lbs.)	
			Push	Pull	Normal	Extended	Normal	Retracted
.31 ( <sup>5</sup> / <sub>16</sub> "	#10-32	<sup>1</sup> / <sub>8</sub> "	.08	.06	.5	1	.5	1
.44 ( <sup>7</sup> / <sub>16</sub> "	#10-32	<sup>3</sup> / <sub>16</sub> "	.15	.12	1	2	1	2
.56 ( <sup>9</sup> / <sub>16</sub> "	#10-32	<sup>3</sup> / <sub>16</sub> "	.25	.22	2	4	2	4
.75 ( <sup>3</sup> / <sub>4</sub> "	<sup>1</sup> / <sub>8</sub> NPTF	<sup>1</sup> / <sub>4</sub> "	.44	.39	3	6	3	6
.88 ( <sup>7</sup> / <sub>8</sub> "	<sup>1</sup> / <sub>8</sub> NPTF	<sup>1</sup> / <sub>4</sub> "	.60	.55	3	6	3	6
1.06 (1 <sup>1</sup> / <sub>16</sub> "	<sup>1</sup> / <sub>8</sub> NPTF	<sup>5</sup> / <sub>16</sub> **	.89	.81	3†	6†	7.5	15
1.25 (1 <sup>1</sup> / <sub>4</sub> "	<sup>1</sup> / <sub>8</sub> NPTF	<sup>7</sup> / <sub>16</sub> "	1.23	1.08	7.5	15	7.5	15
1.50 (1 <sup>1</sup> / <sub>2</sub> "	<sup>1</sup> / <sub>8</sub> NPTF	<sup>7</sup> / <sub>16</sub> "	1.77	1.62	6†	12†	9	18
1.75 (1 <sup>3</sup> / <sub>4</sub> "	<sup>1</sup> / <sub>4</sub> NPTF	<sup>1</sup> / <sub>2</sub> "	2.40	2.21	11	24	11	24
2.00 (2")	<sup>1</sup> / <sub>4</sub> NPTF	<sup>5</sup> / <sub>8</sub> "	3.14	2.84	15	30	15	30
2.50 (2 <sup>1</sup> / <sub>2</sub> "	<sup>1</sup> / <sub>4</sub> NPTF	<sup>5</sup> / <sub>8</sub> "	4.91	4.60	N/A	N/A	N/A	N/A
3.00 (3")	<sup>3</sup> / <sub>8</sub> NPTF	<sup>3</sup> / <sub>4</sub> "	7.07	6.63	N/A	N/A	N/A	N/A

\*Non-rotating version uses <sup>3</sup>/<sub>8</sub>" hex.

†Block mount and trunnion mount spring return lbs. equals spring extend lbs.

Mounting Style	Standard Head Port Location	Standard Cap Port Location	Standard Vent Location	End View of Mountings For Port Locations	
AR	Face	Face	None	<b>Mounting Styles N, NR, D, R, AR</b>  Standard location for cushion adjustment needle when cushions are specified on D mounts.	<b>Mounting Styles P, RP, DXP, NRP, DP, AP</b>  Standard location for cushion adjustment needle when cushions are specified on DXP mounts.
BFR	2	None	2		
BFN	None	Face	2		
BRD	2	2	None		
BFD	2	Face	None		
BRR	2	None	2	<b>Mounting Style A</b>  <b>Mounting Style RA</b> 	
BRN	None	2	2		
TFR	1	None	1	<b>Mounting Styles BFD, BFN, BFR</b>  <b>Mounting Styles BRN, BRR, BRD</b> 	
TFN	None	Face	1		
TRD	1	1	None	<b>Mounting Styles KDH, KDX</b>  <b>Mounting Style DX</b> 	
TFD	1	Face	None		
TRR	1	None	1	<b>Mounting Styles TFD, TFN, TFR</b>  <b>Mounting Styles TRN, TRR, TRD</b> 	
TRN	None	1	1		
AP	None	2	2		
RA	2	None	2		
A	None	Face	2		
KDH	2	2	None		
KDX	2	2	None		
DX	2	2	None		
DXP	2	2	None		
DP	2	2	None		
D	2	Face	None		
RP	2	None	2		
R	2	None	2		
P	None	2	2		
NRP	None	2	2		
NR	None	Face	2		

Cylinders will be with ports at these locations unless otherwise specified.

# Series M Mini Cylinders

Standard Options



## Bumpers

Bumpers are available at extra cost, add the following dimensions to the overall cylinder length by bore

Bore Size	5/16"	7/16"	9/16"	3/4"	7/8"	1 1/16"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/2"	3"
Type												
Spring Return	*	.062"	.062"	.125"	*	.125"	*	**	*	.125"	N/A	N/A
Spring Extend	*	.125"	.062"	.125"	*	.125"	*	**	*	.125"	N/A	N/A
Double Acting	*	.188"	.125"	**	*	.125"	*	.125"	*	.250"	.250"	N/A
K-type	N/A	.250"	.125"	**	*	.500"	*	.125"	*	.250"	.250"	N/A

\*Bumpers are furnished as standard and do not affect overall length.

\*\*Bumpers do not affect overall length.

### Fluorocarbon Seals

Available on all bore sizes at extra cost.

## Stainless Steel Piston Rods

Corrosion resistant stainless steel is the standard piston rod material for all bore sizes up to and including 1.50 inch bore at no additional cost. The only exception to the stainless steel standard is when a hollow rod or non-rotating hexagonal rod option is specified. Stainless steel is also the standard material on block, trunnion and KDX mounts. Stainless steel is available on other sizes for an additional charge.

## Rod Wiper

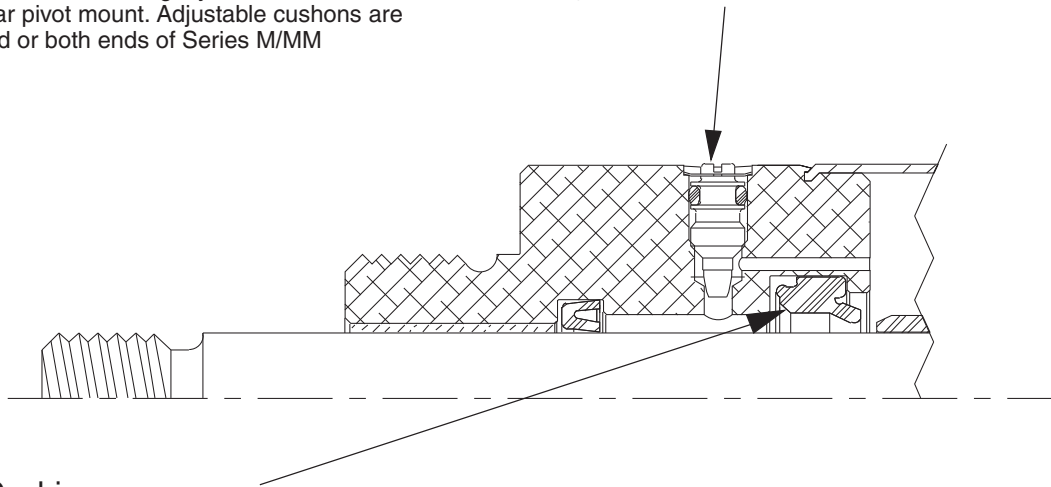
Series M/MM cylinders can be fitted with a rod wiper that is specially designed to prevent contaminants from clinging to the piston rod and damaging the piston rod seal. Available in 3/4", 1-1/16", and 1-1/2" bores.

## Adjustable Cushion Option

Cushions can be selected on nine bore sizes, ranging from .75" bore to 3.0" bore with mounting styles D, front nose mount, and DXP, rear pivot mount. Adjustable cushions are optional at either end or both ends of Series M/MM cylinders.

## Cushion Adjusting Needle Valves

The fine-thread cushion needle valves make precise adjustment quick and easy. The needle valve is fully captured to allow for safe cushion adjustment while cylinder is pressurized. The brass needle valves are corrosion resistant. The standard position for needle valve adjustments is position 1, 90° from the port. See port location table for Series M Cylinders.



## Check Seal Cushion

The "Check Seal" system offers excellent cushioning efficiency and long cushion seal life. This seal is specifically designed for cushion applications and has a long proven history in our products. Extensive side by side testing of the check seal in Series M cylinders significantly outlasted and outperformed competitors' o-ring shaped seals.

The Check Seal's unique geometry exhibits the dynamic sealing capabilities of a lipseal. As the cushion sleeve enters the Check Seal at the end of stroke, the Check Seal blocks the air from exhausting directly through the port and forces the air through the adjustable needle valve orifice. The exhaust airflow

is precisely metered to control the desired rate of deceleration of the cylinder piston.

During stroke reversal, the check valve action of the Check Seal induces a fast out-of-cushion response. The Check Seal floats forward in the retainer groove as the cushion sleeve exits the Cushion Seal, thereby creating a path for maximum air flow around the Check Seal to access the piston face. The quick response of the Check Seal design yields faster cycle times and increased productivity.

# Series M Mini Cylinders

Adjustable Cushion Option

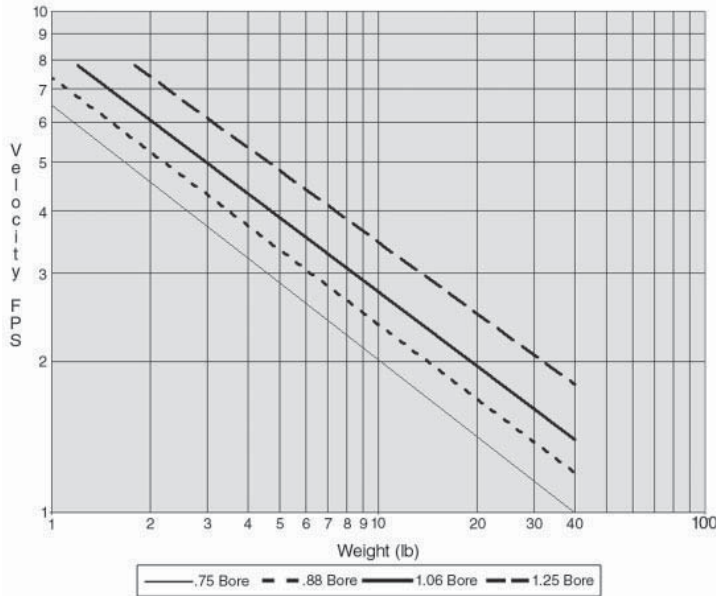


## Cushioning Capacity

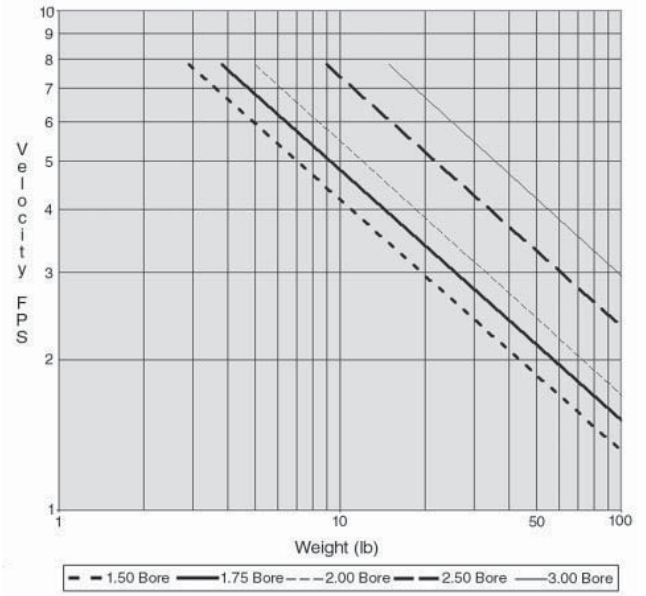
Use the graphs below to determine whether a cylinder will adequately decelerate a load without damage to the cylinder. Find the point on the graph where the piston rod

speed intersects the weight of the load. Any cylinder bore size above the intersect point will adequately decelerate the load at that speed.

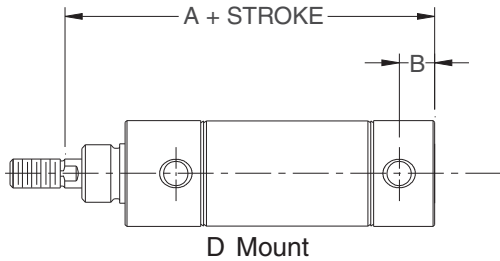
**.75" through 1.25" Bores**



**1.50" through 3.00" Bores**



## Critical Mounting Dimensions for Series M and MM Cylinders with Adjustable Cushions



In most cases, cylinder mounting dimensions are not affected when cushions are specified. Standard catalog dimensions apply when cushions are specified at either end of a DXP mount and when specified at the head end only of a D mount. **The only exception to standard catalog dimensions is when a cushion is specified on the cap end or both ends of a D mount.** Please consult Table A for the critical mounting dimensions on D mount M and MM cylinders with cushions both ends or cushions cap end only.

Table B shows the cushion lengths for M and MM cylinders.

**Table A: Critical Mounting Dimensions for D Mount M and MM Cylinders with Cushions Both Ends or Cushions Cap End Only.**

Bore Size	M Dimensions		MM Dimensions	
	A + Stroke	B	A + Stroke	B
.75	3.40	0.28	3.40	.28
.88	3.25	0.28	N/A	N/A
1.06	3.49	0.28	3.65	.28
1.25	4.31	0.38	4.34	.38
1.50	4.12	0.31	4.37	.31
1.75	5.25	0.42	5.25	.42
2.00	5.06	0.47	5.34	.47
2.50	5.06	0.47	5.06	.47
3.00	5.69	0.53	N/A	N/A

**Table B: Cushion Lengths for M and MM Cylinders.**

Bore Size	head	cap
.75	0.750	0.625
.88	0.750	0.625
1.06	0.750	0.625
1.25	0.750	0.625
1.50	0.750	0.625
1.75	0.875	0.625
2.00	0.875	0.750
2.50	0.875	0.750
3.00	0.875	1.000

# Series M Mini Cylinders

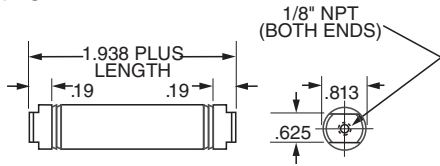
Air Reservoirs Option Availability Chart



## How To Order Series M Air Reservoirs

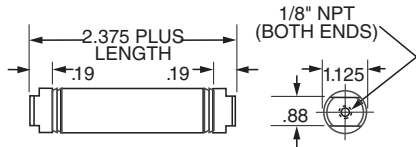
**3/4" Bore**  
**Standard Length**  
 1" increments to 4"  
 Maximum Length 32"

**Part # M-7AR-\_\_\_\_\_ (length)**  
**Vol. - Cu. In.**  
 .39 in<sup>3</sup> plus  
 .44 in<sup>3</sup> per  
 inch of length  
 Length in inches



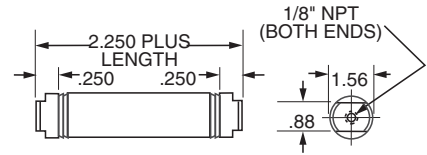
**1 1/16" Bore**  
**Standard Length**  
 1" increments to 8"  
 Maximum Length 32"

**Part # M-10AR-\_\_\_\_\_ (length)**  
**Vol. - Cu. In.**  
 .99 in<sup>3</sup> plus  
 .89 in<sup>3</sup> per  
 inch of length  
 Length in inches



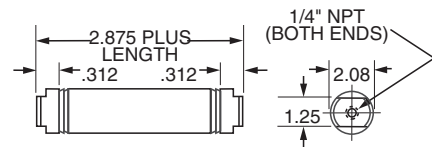
**1 1/2" Bore**  
**Standard Length**  
 1" increments to 16"  
 Maximum Length 32"

**Part # M-15AR-\_\_\_\_\_ (length)**  
**Vol. - Cu. In.**  
 1.91 in<sup>3</sup> plus  
 1.77 in<sup>3</sup> per  
 inch of stroke  
 Length in inches



**2" Bore**  
**Standard Length**  
 1" increments to 16"  
 Maximum Length 32"

**Part # M-20AR-\_\_\_\_\_ (length)**  
**Vol. - Cu. In.**  
 4.22 in<sup>3</sup> plus  
 3.14 in<sup>3</sup> per  
 inch of stroke  
 Length in inches



## Option Availability Chart

	Magnetic Piston	Bumpers	Fluorocarbon Seals	Rod Wipers	Cushions	Delrin® End Caps
Magnetic Piston	--	◆	X	◆	◆	◆
Bumpers	--	--	◆	◆	X	◆
Fluorocarbon Seals	--	--	--	X	S	◆
Rod Wiper	--	--	--	--	◆	◆
Cushions	--	--	--	--	--	S

◆ = Available Options  
 S = Available as Special  
 X = Not Available

Delrin® is a registered trademark of Dupont.

# Series M Mini Cylinders

How To Order Non-Standard Rods Port Adapters



## How To Order Series M Air Cylinders

How to Order Code

Series	Bore		Mount Style	Options	Special	Non-std. Rod	Non-std. Rod Dim.	Stroke	
M	-7		N-	V	S	Y	3-	15	
Series	Bore		Mount Style	Options	Special	Non-std. Rod**	Non-std. Rod Dim.	Stroke	
M	5/16"	3	N, NR, NRP, P, R, RP, D, DP, DX, DX, KDX, KD, A, RA, AP, AR, BRN, BRR, BFD, BRD, BFN, BFR, TFN, TRN, TFR, TRR, TFD, TRD	V = Viton Seals	S = Special	Y = Stainless Steel Rod	3- indicates special Rod End	(in tenths of an inch)	
	7/16"	4		B = Piston Bumpers*	Use only if special modifications are required (inc. adjustable cushions)	(blank if standard)	Specify dimensions per chart below, "Non-Standard Rods."	Examples: 0.5" = 05 1" = 10 1.5" = 15 2" = 20 2.5" = 25	
	9/16"	5		W = Rod Wiper					
	3/4"	7		(blank if standard)					(blank if standard)
	7/8"	8							
	1-1/16"	10							
	1-1/4"	12							
	1-1/2"	15							
	1-3/4"	17							
	2"	20							
2-1/2"	25								
3"	30								

Examples:

M-7N-15 is 3/4" bore, nose mount, spring return, 1-1/2" stroke.

\*Bumpers are standard on some models, see Bumpers section for details.

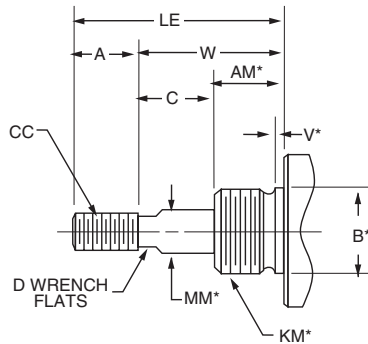
\*\*Stainless rod standard on 5/16" thru 1 1/2" bores except for hollow or non-rotating rod options, stainless rod is also standard on all block, trunnion and KDX mounts.

## Non-Standard Rods

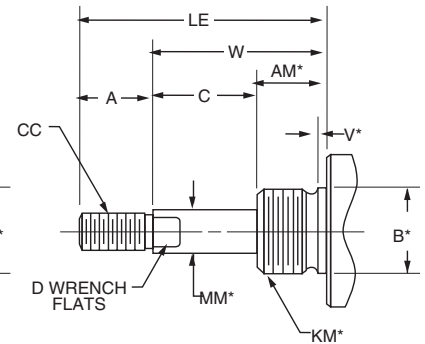
For non-standard rod dimensions, or undersized rod end threads, put a "3" in model number and describe the rod using the letters shown in the drawing. It is necessary to specify only those dimensions that are non-standard

\*Requires an S designation in model number.

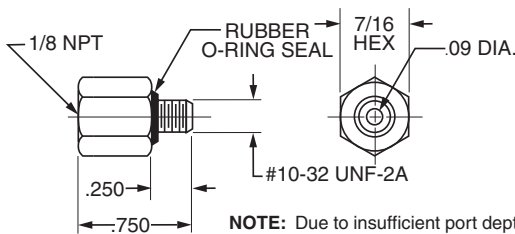
### Full Diameter Rod End Threads



### Undersized Rod End Threads

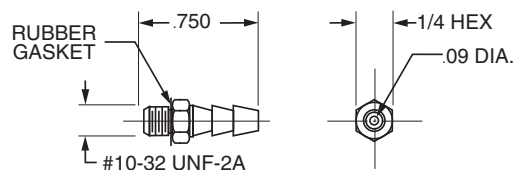


#10-32 to 1/8"-27 NPT Port Adapter  
Part no. R432032573



**NOTE:** Due to insufficient port depth, port adapter fitting cannot be used for head end ports of 9/16" bore cylinders. Use barbed fitting.

1/4" O.D. Hose Barbed Fittings (Package of 10)  
Part no. R432007804



# Series M Mini Cylinders

## Competitor Interchange Chart



This interchange chart is to be used as a reference guide only. Verify customer requirements before ordering. For further information, consult factory.

Mounting Description	AVENTICS	Bimba	Humphrey	Clippard	American	Norgren	Numatics
Nose Mount, Spring Return	N	(No Letter)	S	SSR	SNS	SAN	S01
Nose Mount, Spring Return Hex Rod (Non-Rotating)	NR	NR	SH	SSN	SNHS	NFN	N01
Pivot & Nose Mount Spring Return Hex Rod (Non-Rotating)	NRP	NRP	SHP	USN	SVHS	NRP	N02
Pivot Mount, Spring Return	P	P	SP	USR	SVS	SAP	S02
Nose Mount, Spring Extend	R	R	SR	SRR	RNS	RAN	R01
Pivot & Nose Mount Spring Extend	RP	RP	SRP	URR	RVS	RAP	R02
Nose Mount, Spring Return, Head Adjustable Stroke	A	A	-	-	-	-	-
Nose Mount, Spring Extend Head Adjustable Stroke	RA	RA	-	-	-	-	-
Pivot Mount Spring Return, Head Adjustable Stroke	AP	AP	-	-	-	-	-
Air Reservoirs (See Reverse Side)	AR	See Next Page	See Next Page	See Next Page	See Next Page	AR	-
Nose Mount Double Acting	D	D	D	SDR	DNS	DAN	D01
Pivot & Nose Mount Double Acting Pivot Pin	DP	DP (No Pivot Pin on 1-1/4")	DP	UDR	DVS	DAP	D02
Pivot & Nose Mount Double Acting No Pivot Pin	DXP	DXP DP on 1-1/4 DX on 1-1/16	DP	UDR	DVS	DAD	D02, D04
Threaded Both Ends Double Acting	DX	DX	DP	EDR	DVS	-	-
Threaded Both Ends Double Acting, Double Rod	KDX	DXDE	D2EY	SDD	DES	DRD	D03

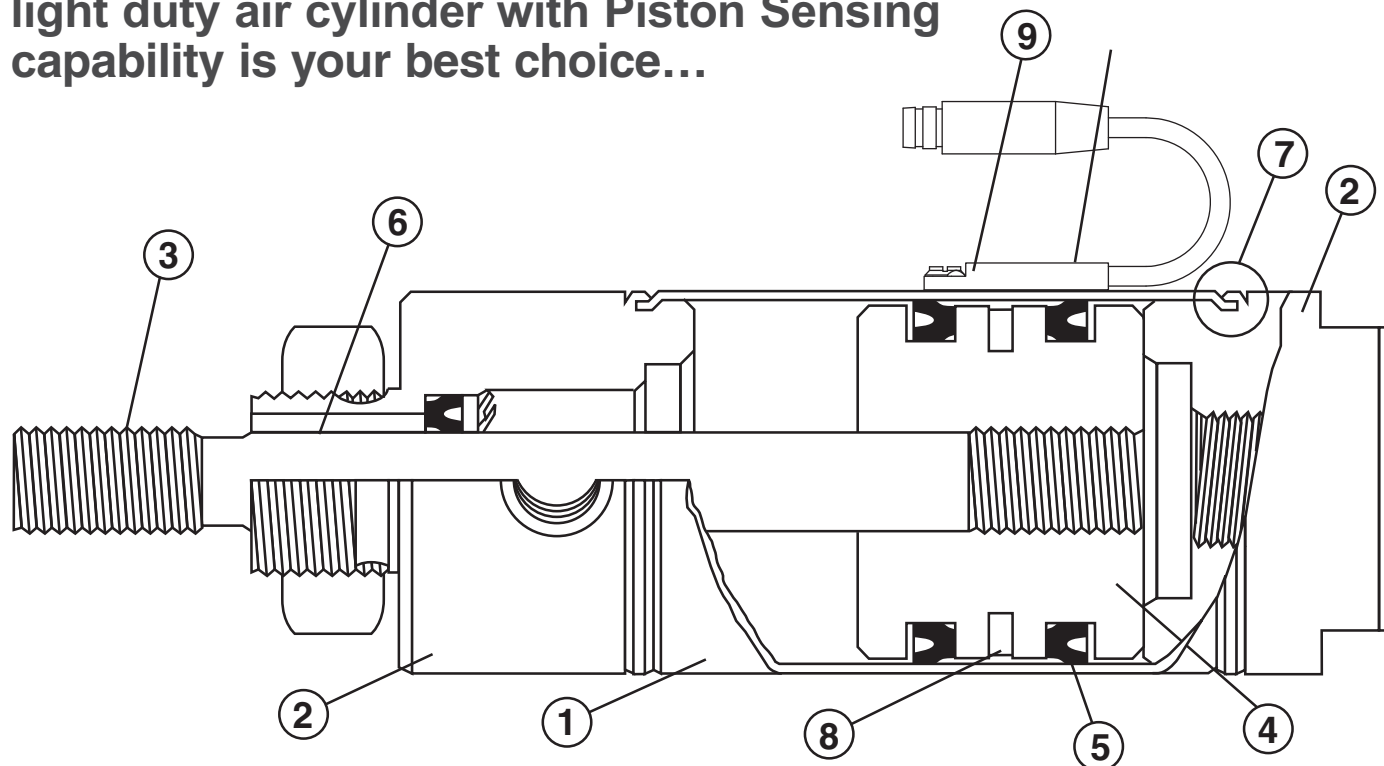
  

Mounting Description	AVENTICS	Bimba	Humphrey	Clippard	American	Norgren	Numatics
Threaded Both Ends Double Rod, Hollow Rod	KDH	DXDEH	(N.A.)	(N.A.)	(N.A.)	-	-
Rear Block Mount Single Acting/Spring Return	BRN	BR-	-	-	-	-	-
Rear Block Mount Single Acting/Spring Extend	BRR	BR-...-R	-	-	-	-	-
Front Block Mount Single Acting/Spring Return	BFN	BF-...-	BFS	FSR	SBFS	SAB	-
Front Block Mount Single Acting/Spring Extend	BFR	BF-...-R	-	-	-	-	-
Front Block Mount Double Acting	BFD	BF-...-D	BFD	FDR	DBFS	DAB	D05
Rear Block Mount Double Acting	BRD	BR-...-D	-	-	-	-	-
Rear Trunnion Mount, Single Acting, Spring Return	TRN	BRT	-	-	-	-	-
Rear Trunnion Mount, Single Acting, Spring Extend	TRR	-	-	-	-	-	-
Front Trunnion Mount Double Acting	TFD	BFT-...-D	-	-	-	-	-
Rear Trunnion Mount, Double Acting	TRD	BRT-...-D	-	-	-	-	-
Front Trunnion Mount, Single Acting, Spring Return	TFN	BFT	-	-	-	-	-
Front Trunnion Mount, Spring Extend, Single Acting	TFR	-	-	-	-	-	-





Here's why the low cost MM Series light duty air cylinder with Piston Sensing capability is your best choice...



### Quality cost saving features include:

- ① **Cylinder Tube** — Type 304 stainless steel, polished to a micro-inch finish on the I.D. provides low friction and long life. A matte finish on the O.D. provides smudge resistance.
- ② **Heads and Caps** — Aluminum construction with precision machining provides a smooth breakaway. The tube-to-head connection is a strong double rolled construction.
- ③ **Piston Rods** — Stainless steel rod material is standard on all sizes up to 1.50" bore. Stainless steel is also standard on block, trunnion, non-rotating hexagonal rods and KDX mounts. Stainless steel piston rods are available on other bores and mounting styles at an additional cost.
- ④ **Piston Body** — Pistons are precision machined aluminum construction. Piston rod connections are threaded and anaerobic adhesive applied to provide for durable leakproof service.
- ⑤ **Seals** — All piston and rod seals are of a lipseal construction. Buna-N is standard on all models.
- ⑥ **Rod Bushings** — Oil impregnated bronze reamed to a close tolerance provides for smooth operation and long life.
- ⑦ **Unitized Construction** — Precision double-rolled unitized construction provides durable, leak-proof service and long life.
- ⑧ **Piston Magnet** — Nitrile-Barium particle composite surrounds entire diameter for dependable service and long life.
- ⑨ **Adjustable Reed Switch** — Capable of either AC or DC operation. Available standard with LED indicator for easy on/off indication.
- ⑩ **Adjustable Solid State Switch** — NPN Sinking or PNP Sourcing available standard with LED indicator for easy on/off indication.

### Standard Specifications - Series MM

- 304 stainless steel cylinder body.
- Aluminum heads and caps.
- Stainless steel piston rods are standard up to 1.50" Bore.
- Stainless steel is also standard on block, trunnion, non-rotating hexagonal rods and KDX mounts. Stainless steel piston rods are available on other bores and mounting styles at an additional cost.
- Nominal pressure rating 250 psi.
- Standard temperature +14°F to +140°F.
- Bore sizes — 8 sizes available including 9/16", 3/4", 1-1/16", 1-1/4", 1-1/2", 1-3/4", 2 and 2-1/2" bore.
- Mounting styles — 24 standard.
- Adjustable cushions are available.
- Rod Wiper available for 3/4", 1 1/16" and 1 1/2" bores.

For additional mounting styles please consult factory.

# Series MM Mini Cylinders

Mounting Styles



## Series MM Available Mounting Styles

Model	Description	Bore Size								Recommended Max. Stroke (in.)
		9/16"	3/4"	1-1/16"	1-1/4"	1-1/2"	1-3/4"	2"▲	2-1/2"	
N	Nose mount, spring return	●	●	●	●	●	●	●	—	6"
NR	Nose mount, spring return, hex rod (non-rotating)	●	●	●	●	●	●	—	—	6"
NRP	Pivot and nose mount, spring return, hex rod (non-rotating)	●	●	●	●	●	●	—	—	6"
P	Pivot mount, spring return	●	●	●	●	●	●	●	—	6"
R	Nose mount, spring extended	●	●	●	●	●	●	●	—	6"
RP	Pivot and nose mount, spring extend	●	●	●	●	●	—	●	—	6"
D	Nose mount, double acting	●	●	●	●	●	●	●	●	12"
DP	Pivot and nose mount, double acting, pivot pin	—	●	●	—	●	—	—	—	12" (under 3/4" bore) 32" (3/4" & up)
DXP	Pivot and nose mount, double acting, no pivot pin	●	●	●	●	●	●	●	●	12" (under 3/4" bore) 32" (3/4" & up)
DX	Threaded both ends, double acting	See DXP	See DXP	See DXP	See DXP	●	—	See DXP	—	32"
KDX	Threaded both ends, double acting, double rod	●	●	●	●	●	●	●	●	6" (under 3/4" bore) 12" (3/4" & up)
KDH	Threaded both ends, double rod, hollow rod	—	—	●	●	●	●	●	—	12"
BRN	Rear block mount, single acting, spring return	—	●	●	—	●	—	—	—	6"
BRR	Rear block mount, single acting spring extend	—	●	●	—	●	—	—	—	6"
BFD	Front block mount, double acting	—	●	●	—	●	—	—	—	12"
BRD	Rear block mount, double acting	—	●	●	—	●	—	—	—	12"
BFN	Front block mount, single acting spring return	—	●	●	—	●	—	—	—	6"
BFR	Front block mount, single acting spring extend	—	●	●	—	●	—	—	—	6"
TRN	Rear trunnion mount, single acting, spring return	—	●	●	—	●	—	—	—	6"
TRR	Rear trunnion mount, single acting, spring extend	—	●	●	—	●	—	—	—	6"
TFD	Front trunnion mount, double acting	—	●	●	—	●	—	—	—	12"
TRD	Rear trunnion mount, double acting	—	●	●	—	●	—	—	—	12"
TFN	Front trunnion mount, single acting, spring return	—	●	●	—	●	—	—	—	6"
TFR	Front trunnion mount, single acting, spring extend	—	●	●	—	●	—	—	—	6"

▲ Recommended maximum stroke is 4" in models N, P, R & RP.  
For longer stroke lengths - consult factory

# Series MM Mini Cylinders

Switch and Clamp Assemblies



## Switch Specifications

	Reed Switch Assembly R432008144*	Solid State Switch Assembly R432008145* NPN Sinking R432008146* PNP Sourcing	Reed Switch Assembly R432008144*	Solid State Switch Assembly R432008145* NPN Sinking R432008146* PNP Sourcing
Switching Logic	Normally open, SPST (Form A)	NPN or PNP		
Supply Voltage Range	85 to 125 VAC or 5-30 VDC <sup>1</sup>	10-30 VDC	14° to 140°F (-10° to 60°C)	14° to 140°F (-10° to 60°C)
On-State Voltage Drop	1.7 V Maximum	See Circuits Below	-4° to 140°F (-20° to 60°C)	-4° to 158°F (-20° to 70°C)
Current Output Range	—	Up to 100 mA at 12 VDC Up to 200 mA at 24 VDC	Nema 6, IEC IP67	Nema 6, IEC IP67
Burden Current	—	7 mA at 12 VDC 16 mA at 24 VDC	2 conductor, 24 Gauge	3 conductor, 24 Gauge
Power Rating	10 Watts (Resistive) 5 Watts (Capacitive)	—	39 Inches, 1 Meter	39 Inches, 1 Meter
Switching Current Range	30 mA to 200 mA (Resistive) 30 mA to 100 mA (Capacitive)	—	Black	See Below
Leakage Current	0	10µA	300 Hz Maximum	1000 Hz Maximum
LED Function	Red, Target Present	Red, Target Present	Shock Resistance	30g not applicable
Minimum Current to Light LED	18 mA	1 mA	Vibration Resistance	10-55 Hz, 1.5 mm Double Amplitude not applicable

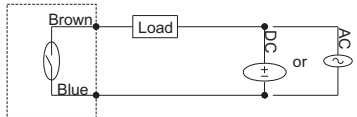
<sup>1</sup> Polarity is restricted to DC operation: (+) to Brown (White\*) (-) to Blue (Black\*)  
If these connections are reversed the contacts will close, but the LED will not light.  
Note: For switches with connectors and cordsets, See Complementary Product Section.

## Circuits

### Reed Switch

Part No. .... R432008144\*

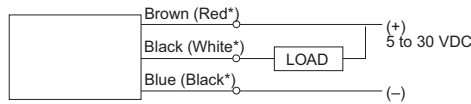
NOTE: Polarity must be observed for DC operation only.



### NPN Sinking Output

Part No. .... R432008145\*

Color of Cable ..... Black  
"On" State Voltage Drop ..... 0.7V Maximum



### PNP Sourcing Output

Part No. .... R432008146\*

Color of Cable ..... Gray  
"On" State Voltage Drop ..... 0.2V Maximum

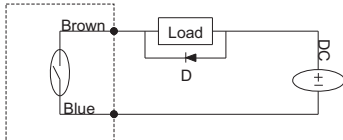


\*Wire colors in parentheses pertain to switches manufactured before 10/15/93.

## Circuit for Switching Contact Protection (Inductive Loads)

(Required for proper operation 24V DC)

Put Diode parallel to loads following polarity as shown below.



D: Diode: select a Diode with the breakdown voltage and current rating according to the load.

Typical Example—100 Volt, 1 Amp Diode

CR: Relay coil (under 0.5W coil rating)

(Recommended for longer life 125 VAC)

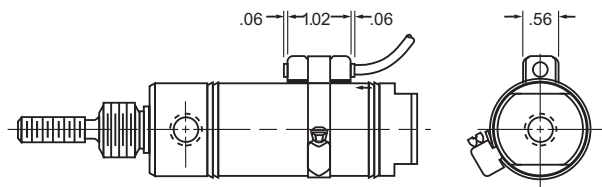
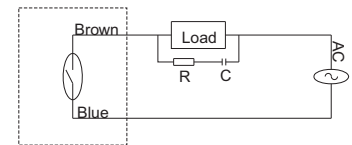
Put a resistor and capacitor in parallel with the load. Select the resistor and capacitor according to the load.

Typical Example:

CR: Relay coil (under 2W coil rating)

R: Resistor 1 KΩ – 5 KΩ, 1/4 W

C: Capacitor 0.1 µF, 600 V



## Caution

- Use an ammeter to test reed switch current. Testing devices such as incandescent light bulbs may subject the reed switch to high in-rush loads.
- **NOTE:** When checking an unpowered reed switch for continuity with a digital ohmmeter the resistance reading will change from infinity to a very large resistance (2 M ohm) when the switch is activated. This is due to the presence of a diode in the reed switch.
- Anti-magnetic shielding is recommended for reed switches exposed to high external RF or magnetic fields.
- The magnetic field strength of the piston magnet is designed to operate with our switches. Other manufacturers' switches or sensors may not operate correctly in conjunction with these magnets.
- Current capabilities are relative to operational temperatures.
- Use relay coils for reed switch contact protection.
- The operation of some 120 VAC PLC's (especially some older Allen-Bradley PLC's) can overload the reed switch. The switch may fail to release after the piston magnet has passed. This problem may be corrected by the placement of a 700 to 1K OHM resistor between the switch and the PLC input terminal. Consult the manufacturer of the PLC for appropriate circuit.
- Switches with long wire leads (greater than 15 feet) can cause capacitance build-up and sticking will result. Attach a resistor in series with the reed switch (the resistor should be installed as close as possible to the switch). The resistor should be selected such that R (ohms) > E/0.3.

\* Stainless steel worm gear type clamps must be ordered separately.

Bore Size	Clamp Assembly	Bore Size	Clamp Assembly
9/16"	R432007822	1 1/2"	R432007825
3/4"	R432007823	1 3/4", 2"	R432007826
1 1/16"	R432007824	2 1/2"	R432007827
1 1/4"	R432007824	----	----

# Series MM Mini Cylinders

9/16" Bore Single Acting



## Mounting Style N

**Single Acting**

Spring Return

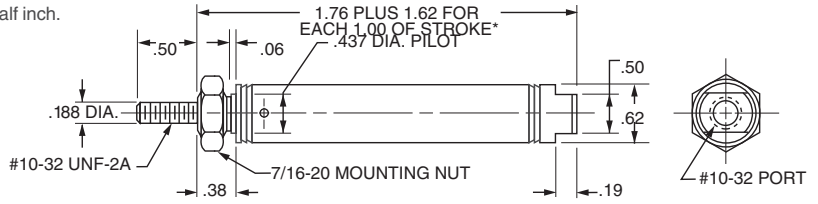
Front Nose Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



**Optional Accessory:**

R432007831 Foot Bracket

## Mounting Style NR

**Single Acting**

Spring Return

Front Nose Mounting

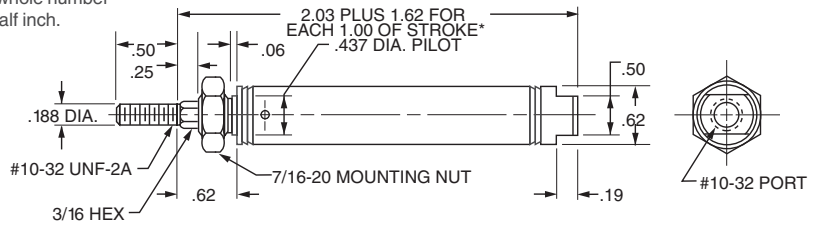
Non-Rotating Hex Rod

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



**Optional Accessory:**

R432007831 Foot Bracket

## Mounting Style NRP

**Single Acting**

Spring Return

Rear Pivot Mounting

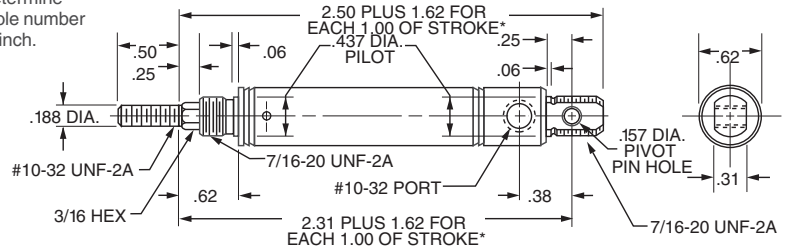
Non-Rotating Hex Rod

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



**Optional Accessories:**

R432007816 Pivot Bracket with Pin

R432007806 Rod Clevis

## Mounting Style P

**Single Acting**

Spring Return

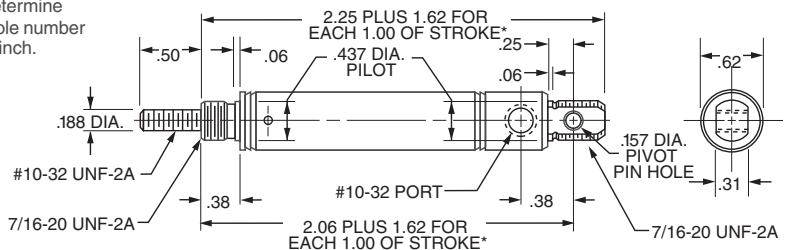
Rear Pivot Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



**Optional Accessories:**

R432007816 Pivot Bracket with Pin

R432007806 Rod Clevis

## Mounting Style R

**Single Acting**

Spring Extend

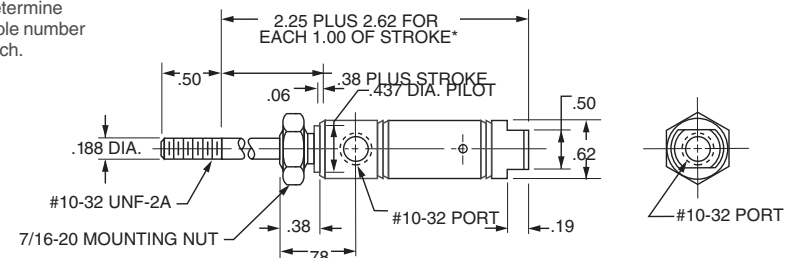
Front Nose Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



**Optional Accessory:**

R432007831 Foot Bracket

# Series MM Mini Cylinders

9/16" Bore Single and Double Acting

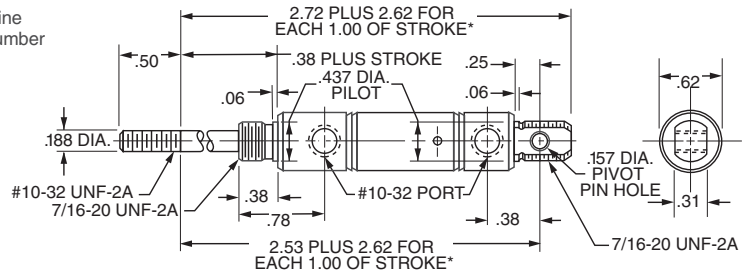


## Mounting Style RP

### Single Acting

- Spring Extend
- Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3"
- Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



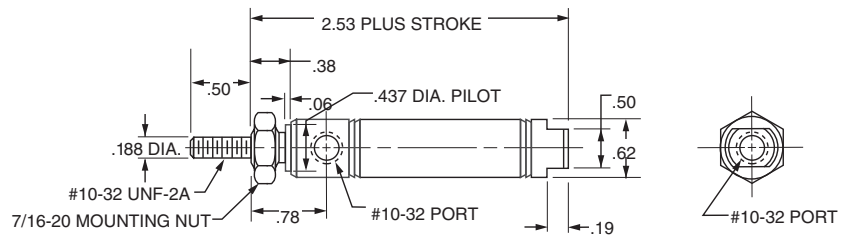
#### Optional Accessories:

- R432007816 Pivot Bracket with Pin
- R432007806 Rod Clevis

## Mounting Style D

### Double Acting

- Front Nose Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 12"



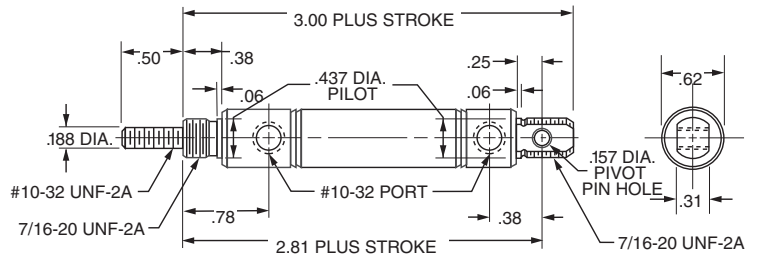
#### Optional Accessory:

- R432007831 Foot Bracket

## Mounting Style DXP

### Double Acting

- Double End or Rear Pivot Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 12"



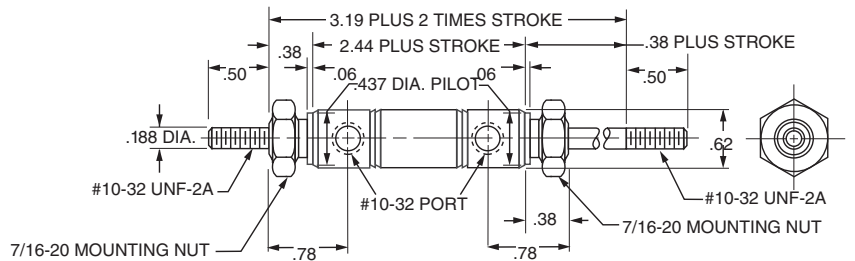
#### Optional Accessories:

- R432007806 Rod Clevis
- R432007831 Foot Bracket
- R432007841 Hex Mounting Nut

## Mounting Style KDX

### Double Acting

- Double Rod
- Double End Mounting
- Stainless Steel Rod Standard
- Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"
- Maximum Stroke 6"



#### Optional Accessory:

- R432007831 Foot Bracket



# Series MM Mini Cylinders

3/4" Bore Single Acting



## Mounting Style N

Single Acting

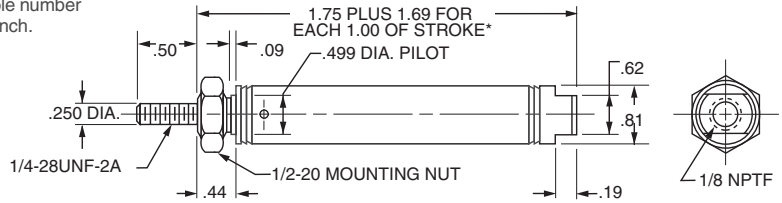
Spring Return

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



**Optional Accessory:**  
R432007832 Foot Bracket

## Mounting Style NR

Single Acting

Spring Return

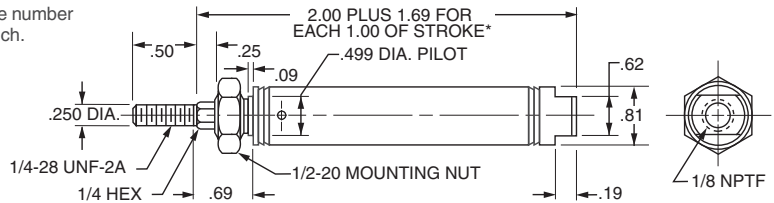
Front Nose Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



**Optional Accessory:**  
R432007832 Foot Bracket

## Mounting Style NRP

Single Acting

Spring Return

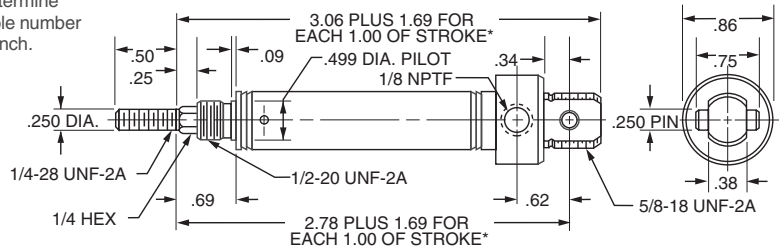
Rear Pivot Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



**Optional Accessories:**  
R432007813 Pivot Bracket  
R432007807 Rod Clevis

## Mounting Style P

Single Acting

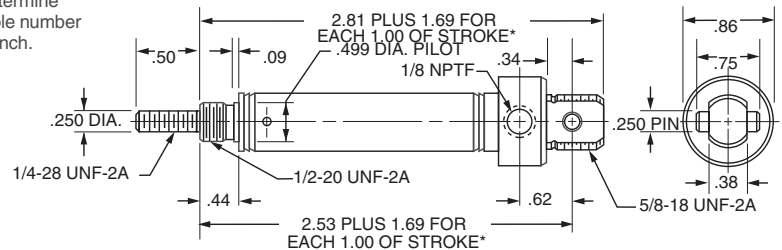
Spring Return

Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



**Optional Accessories:**  
R432007813 Pivot Bracket  
R432007807 Rod Clevis

## Mounting Style R

Single Acting

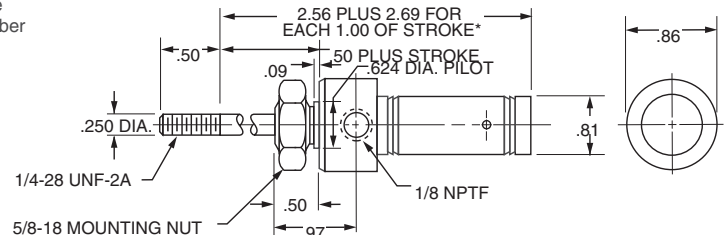
Spring Extend

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



**Optional Accessory:**  
R432007833 Foot Bracket

# Series MM Mini Cylinders

3/4" Bore Single and Double Acting



## Mounting Style RP

### Single Acting

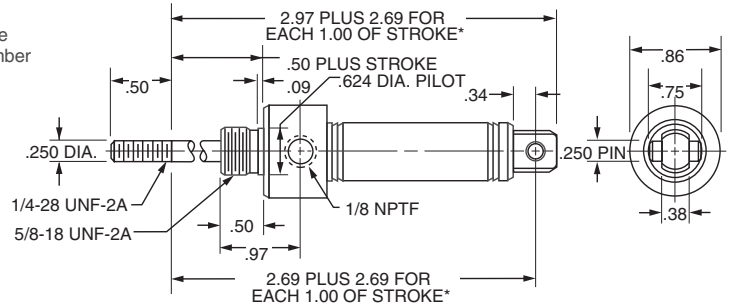
Spring Extend

Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



#### Optional Accessories:

R432007813 Pivot Bracket

R432007807 Rod Clevis

## Mounting Style D

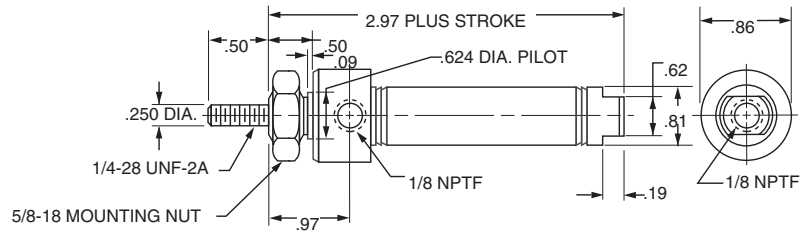
### Double Acting

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 2", 2 1/2",

3", 4", 5", 6", 8", 10"

Maximum Stroke 12"



#### Optional Accessory:

R432007833 Foot Bracket

## Mounting Style DP

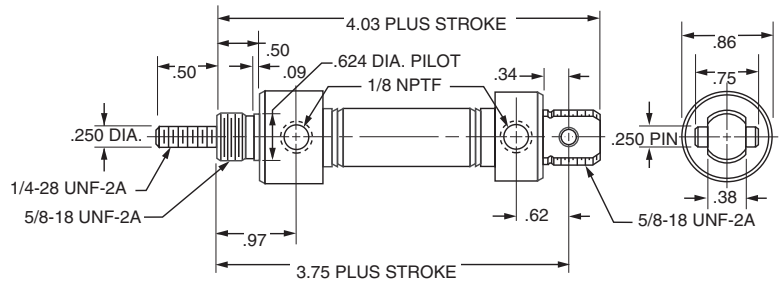
### Double Acting

Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 2", 2 1/2",

3", 4", 5", 6", 8", 10"

Maximum Stroke 12"



#### Optional Accessories:

R432007813 Pivot Bracket

R432007807 Rod Clevis

## Mounting Style DXP

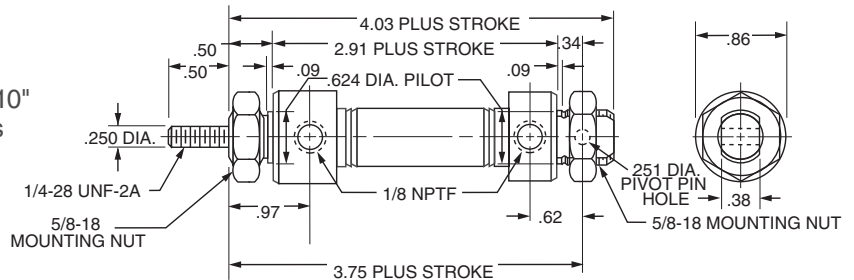
### Double Acting

Double End or Rear Pivot Mounting

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6", 8", 10"

Strokes over 12" must be supported at both ends

Maximum Stroke 32"



#### Optional Accessories:

R432007833 Foot Bracket

R432007807 Rod Clevis

R432007817 Pivot Bracket with Pin

## Mounting Style KDX

### Double Acting

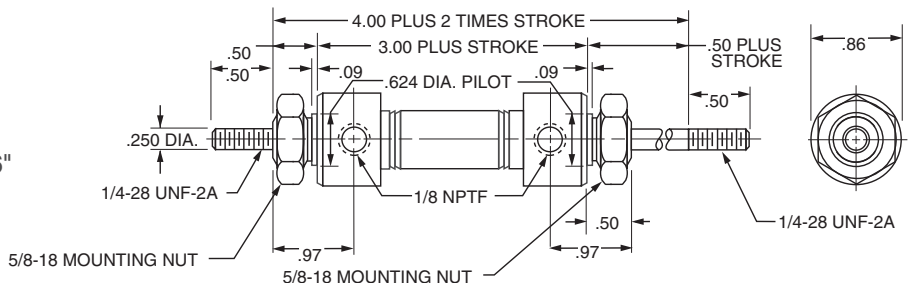
Double Rod

Double End Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



#### Optional Accessory:

R432007833 Foot Bracket

# Series MM Mini Cylinders - Block Mounted

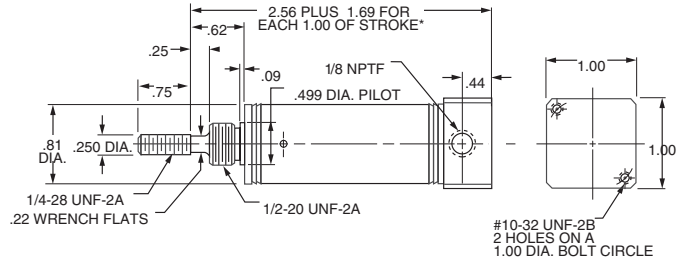
3/4" Bore Single and Double Acting



## Mounting Style BRN

**Single Acting**  
 Spring Return  
 Rear Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

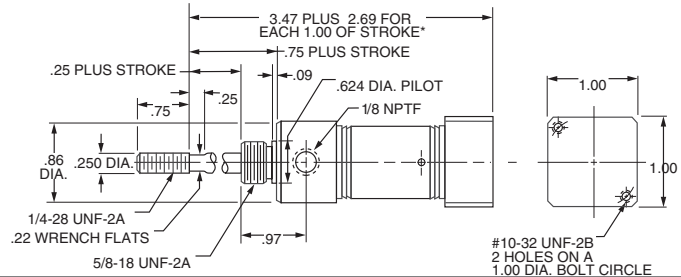
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BRR

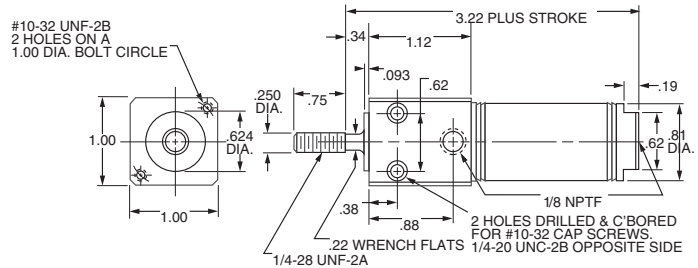
**Single Acting**  
 Spring Extend  
 Rear Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



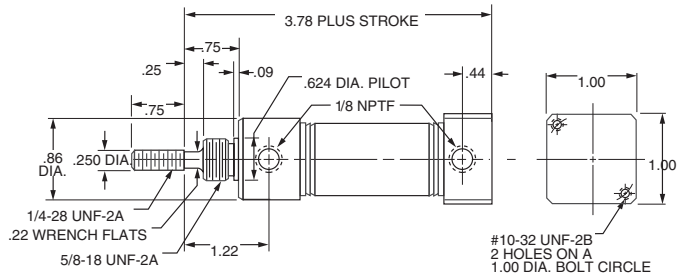
## Mounting Style BFD

**Double Acting**  
 Front Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 2", 3", 4", 5", 6"  
 Maximum Stroke 12"



## Mounting Style BRD

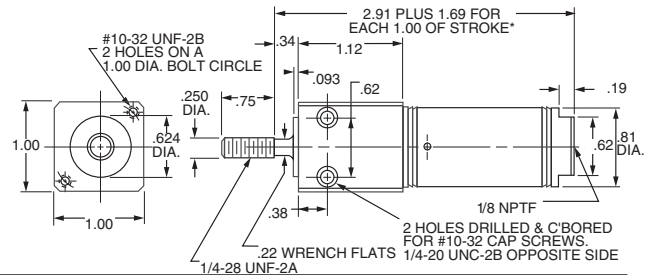
**Double Acting**  
 Rear Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"  
 Maximum Stroke 12"



## Mounting Style BFN

**Single Acting**  
 Spring Return  
 Front Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1/2", 1", 2", 3", 4"  
 Maximum Stroke 6"

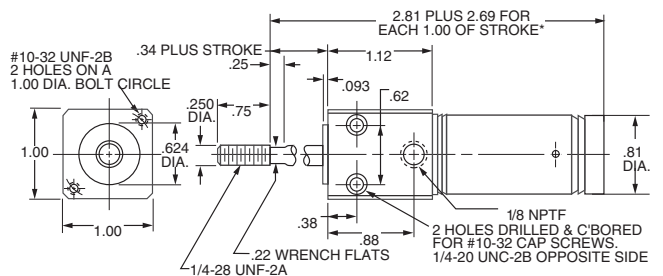
\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BFR

**Single Acting**  
 Spring Extend  
 Front Block Mounting  
 Stainless Steel Rod Standard  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series MM Mini Cylinders - Trunnion Mounted

3/4" Bore Single and Double Acting



## Mounting Style TRN

### Single Acting

Spring Return

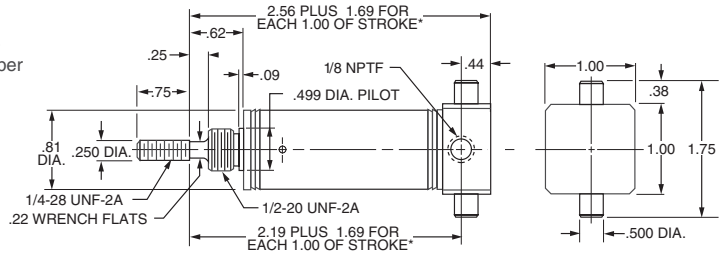
Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TRR

### Single Acting

Spring Extend

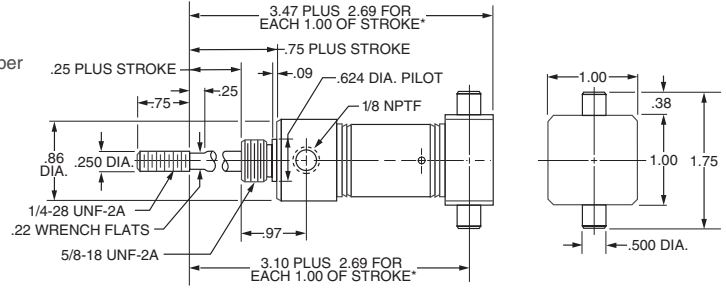
Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style TFD

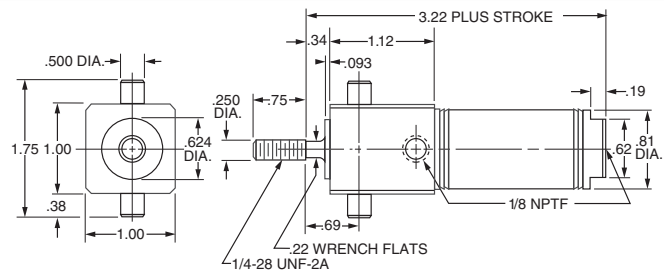
### Double Acting

Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style TRD

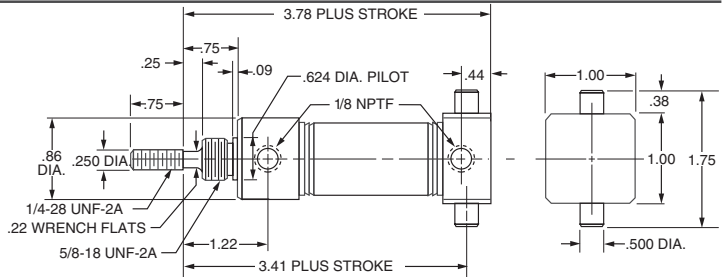
### Double Acting

Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style TFN

### Single Acting

Spring Return

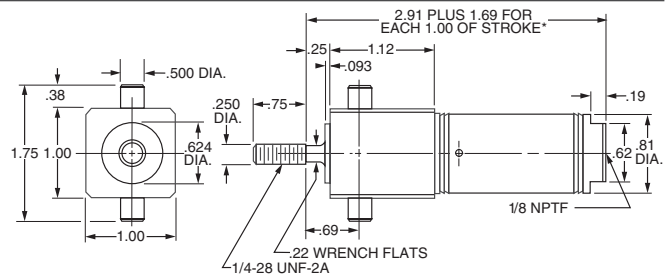
Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TFR

### Single Acting

Spring Extend

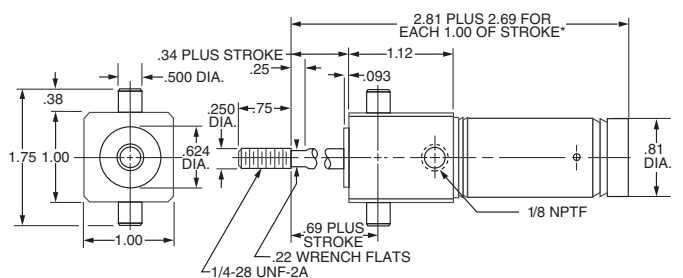
Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series MM Mini Cylinders

1-1/16" Bore Single Acting



## Mounting Style N

### Single Acting

Spring Return

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

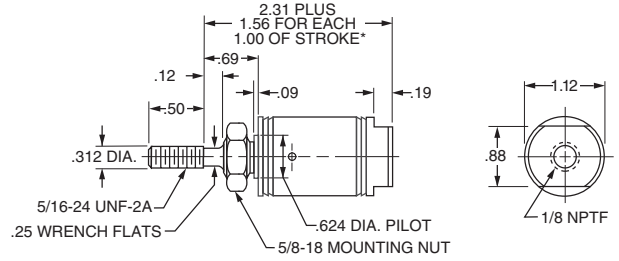
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

#### Optional Accessory:

R432007833 Foot Bracket

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.



## Mounting Style NR

### Single Acting

Spring Return

Front Nose Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

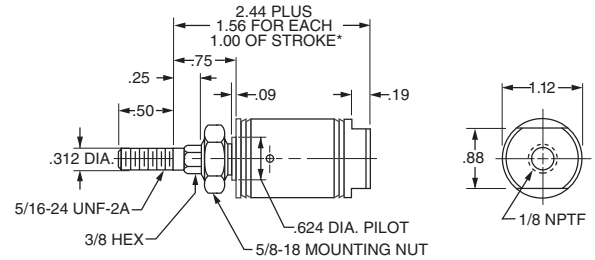
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

#### Optional Accessory:

R432007833 Foot Bracket

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.



## Mounting Style NRP

### Single Acting

Spring Return

Rear Pivot Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1", 2", 3", 4"

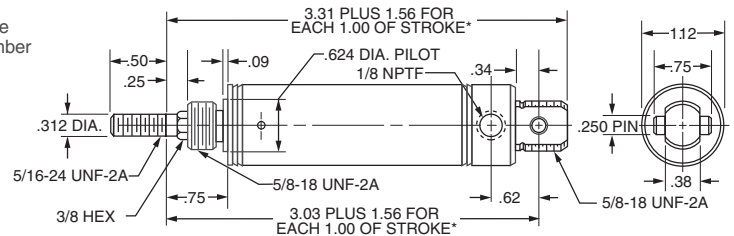
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

#### Optional Accessories:

R432007813 Pivot Bracket  
R432007808 Rod Clevis

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.



## Mounting Style P

### Single Acting

Spring Return

Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

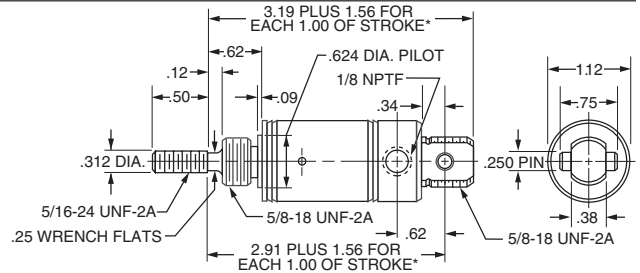
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

#### Optional Accessories:

R432007813 Pivot Bracket  
R432007808 Rod Clevis

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.



## Mounting Style R

### Single Acting

Spring Extend

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 3", 4"

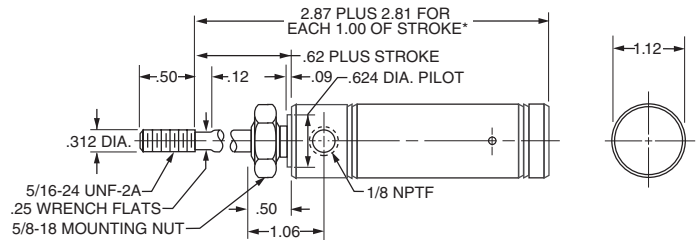
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

#### Optional Accessory:

R432007833 Foot Bracket

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.



## Mounting Style RP

### Single Acting

Spring Extend

Standard Stroke Lengths:

1/2", 1", 1 1/2", 2", 3", 4"

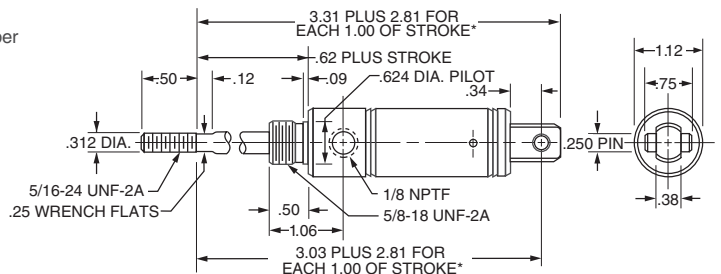
Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

#### Optional Accessories:

R432007813 Pivot Bracket  
R432007808 Rod Clevis

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.





# Series MM Mini Cylinders

1-1/16" Bore Double Acting



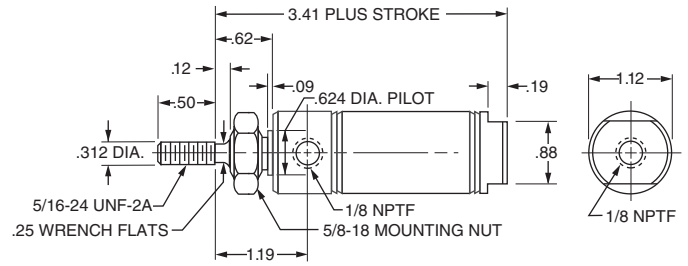
## Mounting Style D

### Double Acting

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 8", 10", 12"

Maximum Stroke 12"



### Optional Accessory:

R432007833 Foot Bracket

**NOTE:** Piston rod is available w/o wrench flat (at no extra charge). Specify when ordering.

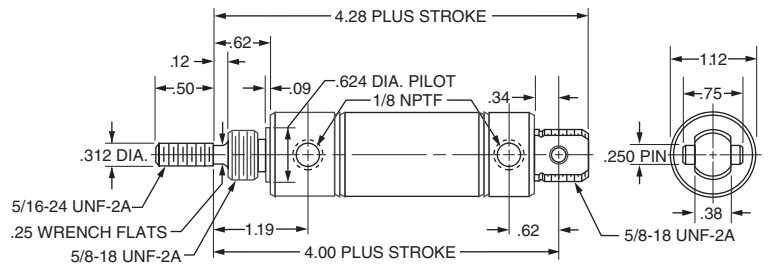
## Mounting Style DP

### Double Acting

Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 7", 8", 10", 12"

Maximum Stroke 32"



### Optional Accessories:

R432007813 Pivot Bracket

R432007808 Rod Clevis

## Mounting Style DXP

### Double Acting

Double End or Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 7", 8", 10", 12"

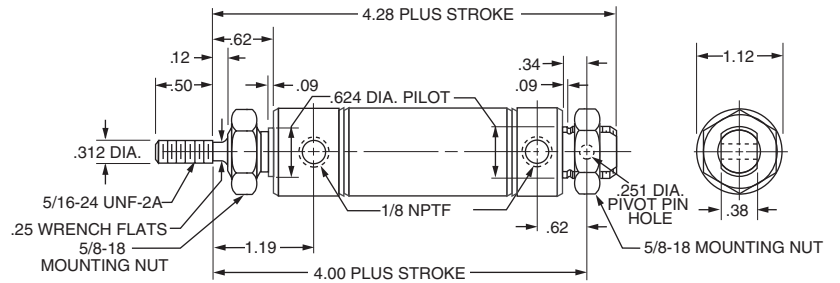
Strokes over 12" must be supported at both ends  
Maximum Stroke 32"

### Optional Accessories:

R432007833 Foot Bracket

R432007808 Rod Clevis

R432007817 Pivot Bracket with Pin



## Mounting Style KDX

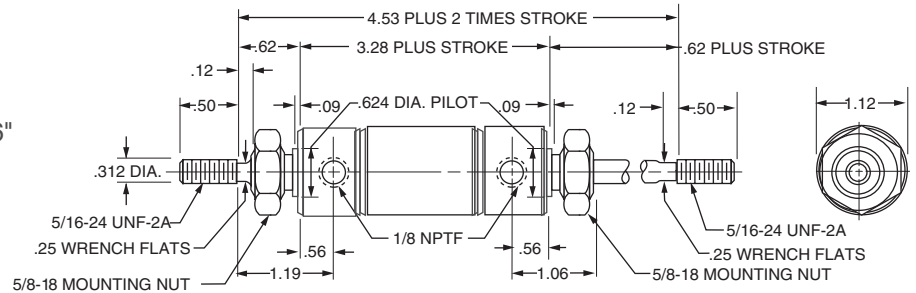
### Double Acting

Double End Mounting — Double Rod

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



### Optional Accessory:

R432007833 Foot Bracket

## Mounting Style KDH

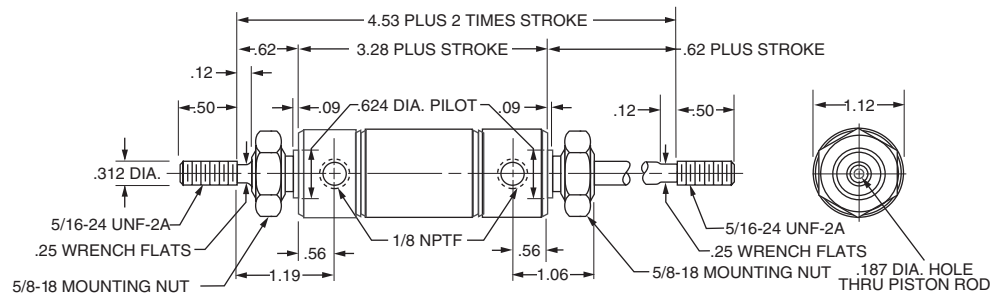
### Double Acting

Double End Mounting

Double Hollow Rod

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



### Optional Accessory:

R432007833 Foot Bracket



# Series MM Mini Cylinders - Block Mounted

1-1/16" Bore Single and Double Acting



## Mounting Style BRN

### Single Acting

Spring Return

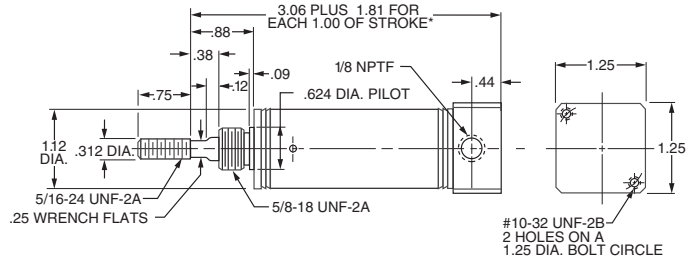
Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BRR

### Single Acting

Spring Extend

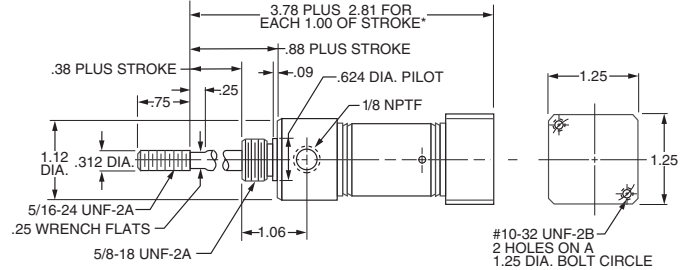
Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style BFD

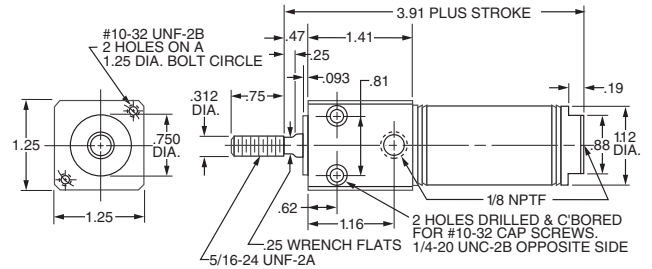
### Double Acting

Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style BRD

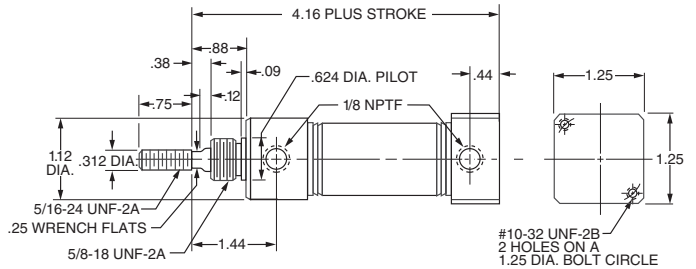
### Double Acting

Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 12"



## Mounting Style BFN

### Single Acting

Spring Return

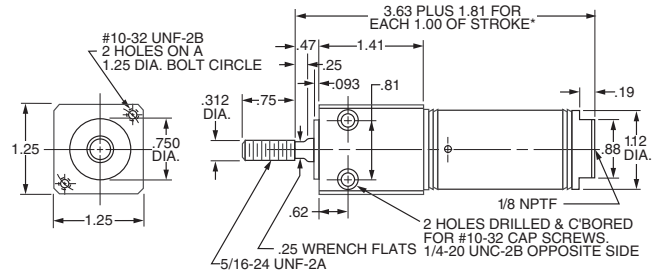
Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BFR

### Single Acting

Spring Extend

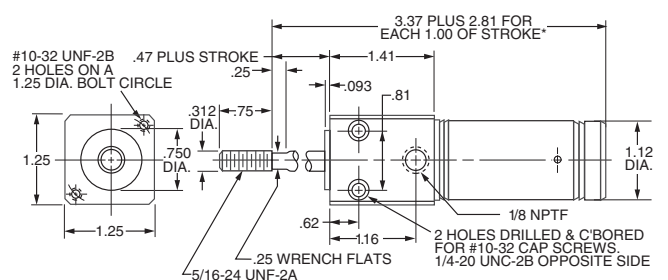
Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series MM Mini Cylinders - Trunnion Mounted

1-1/16" Bore Single and Double Acting



## Mounting Style TRN

### Single Acting

Spring Return

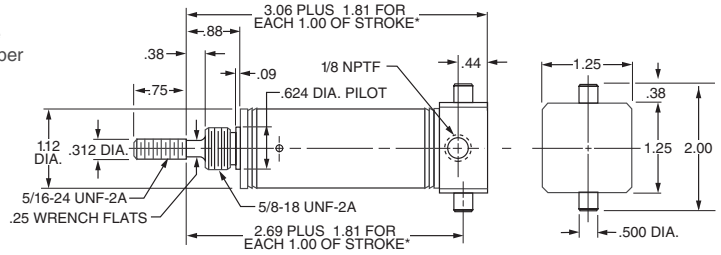
Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TRR

### Single Acting

Spring Extend

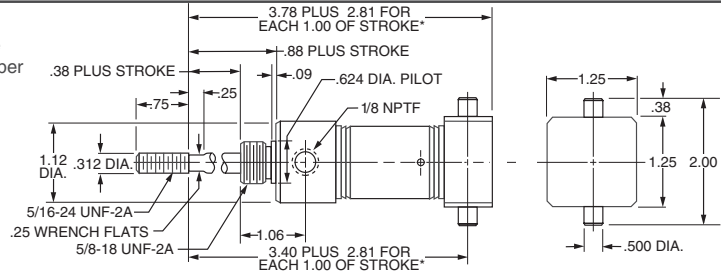
Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style TFD

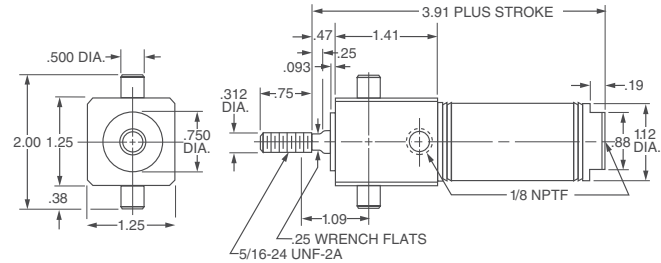
### Double Acting

Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style TRD

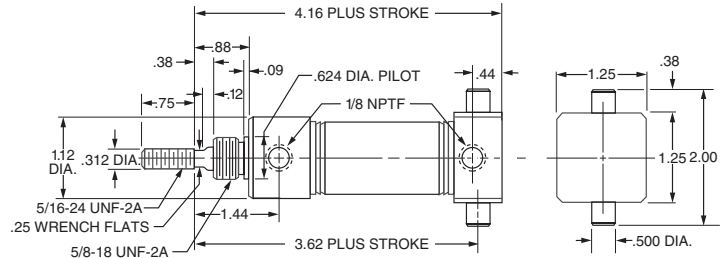
### Double Acting

Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 12"



## Mounting Style TFN

### Single Acting

Spring Return

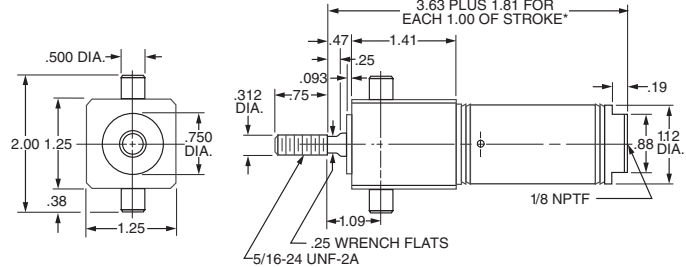
Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TFR

### Single Acting

Spring Extend

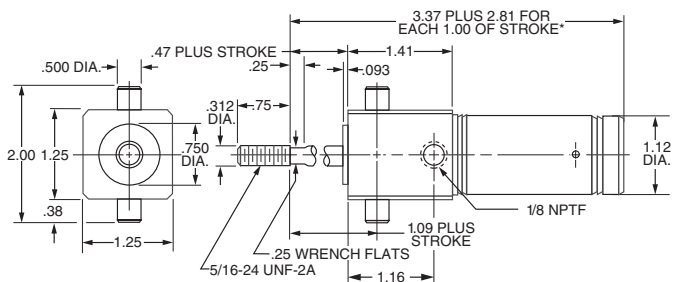
Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series MM Mini Cylinders

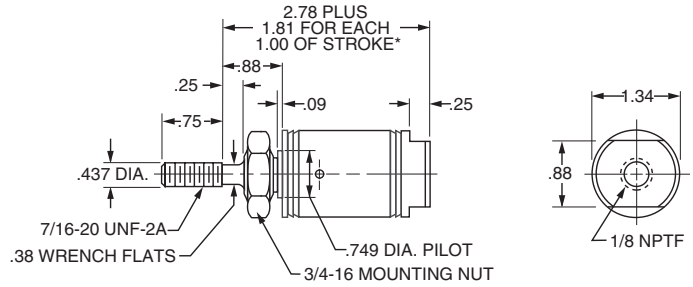
1-1/4" Bore Single Acting



## Mounting Style N

**Single Acting**  
 Spring Return  
 Front Nose Mounting  
 Standard Stroke Lengths: 1/2", 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

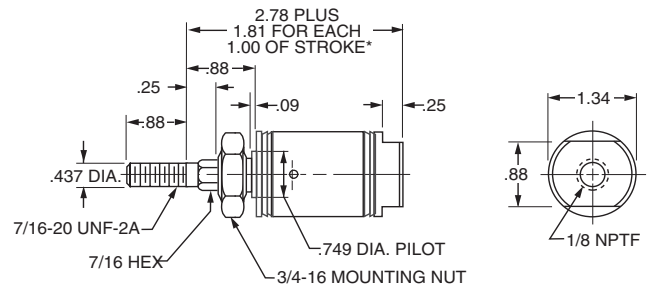


**Optional Accessory:**  
 R432007834 Foot Bracket

## Mounting Style NR

**Single Acting**  
 Spring Return  
 Front Nose Mounting  
 Non-Rotating Hex Rod  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

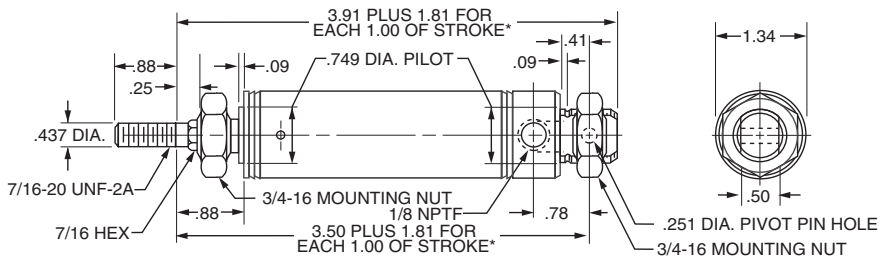


**Optional Accessory:**  
 R432007834 Foot Bracket

## Mounting Style NRP

**Single Acting**  
 Spring Return  
 Double End or Rear Pivot Mounting  
 Non-Rotating Hex Rod  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

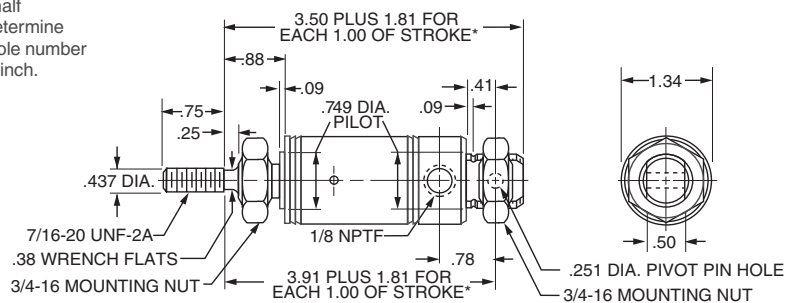


**Optional Accessories:**  
 R432007834 Foot Bracket  
 R432007809 Rod Clevis  
 R432007818 Pivot Bracket with Pin

## Mounting Style P

**Single Acting**  
 Spring Return  
 Double End or Rear Pivot Mounting  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

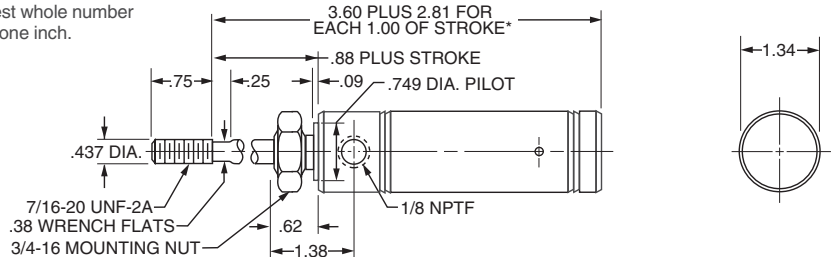


**Optional Accessories:**  
 R432007834 Foot Bracket  
 R432007809 Rod Clevis  
 R432007818 Pivot Bracket with Pin

## Mounting Style R

**Single Acting**  
 Spring Extend  
 Front Nose Mounting  
 Standard Stroke Lengths: 1", 2", 3", 4"  
 Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



**Optional Accessory:**  
 R432007834 Foot Bracket

# Series MM Mini Cylinders

1-1/4" Bore Single and Double Acting



## Mounting Style RP

### Single Acting

Spring Extend

Rear Pivot Mounting

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

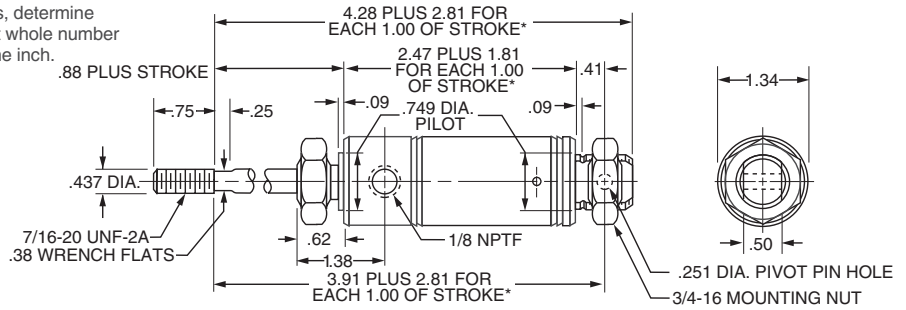
#### Optional Accessories:

R432007834 Foot Bracket

R432007809 Rod Clevis

R432007818 Pivot Bracket with Pin

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style D

### Double Acting

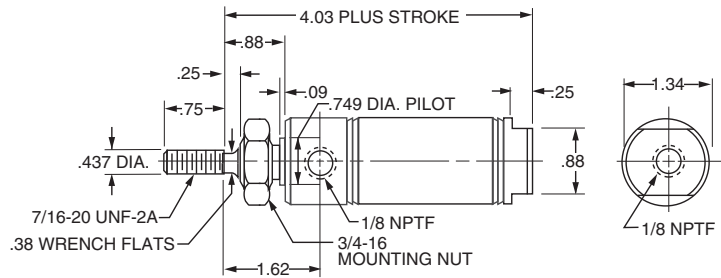
Front Nose Mounting

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"

#### Optional Accessory:

R432007834 Foot Bracket



## Mounting Style DXP

### Double Acting

Double End or Rear Pivot Mounting

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6", 7", 8", 10", 12"

Strokes over 12" must be supported at both ends

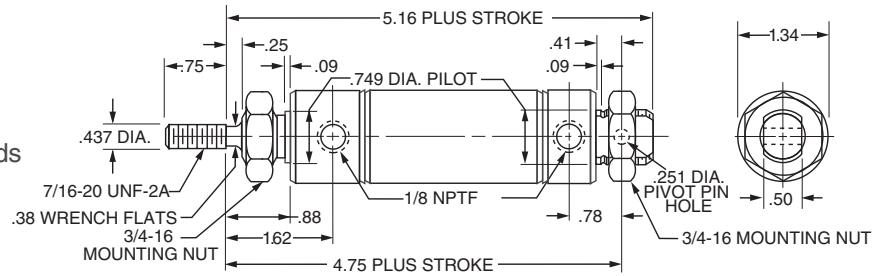
Maximum Stroke 32"

#### Optional Accessories:

R432007834 Foot Bracket

R432007809 Rod Clevis

R432007818 Pivot Bracket with Pin



## Mounting Style KDX

### Double Acting

Double End Mounting

Double Rod

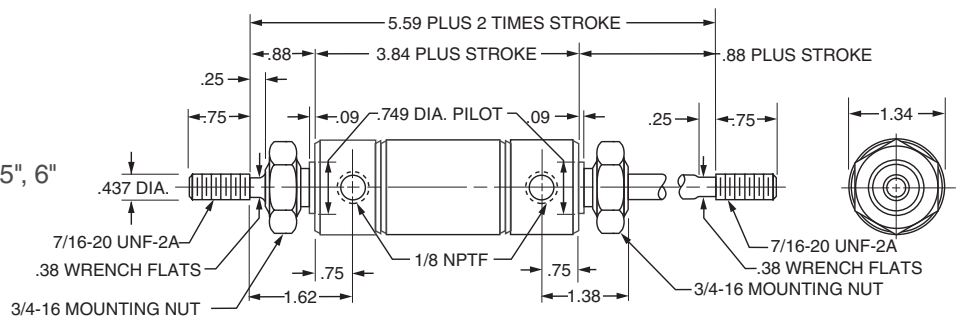
Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"

#### Optional Accessory:

R432007834 Foot Bracket



## Mounting Style KDH

### Double Acting

Double End Mounting

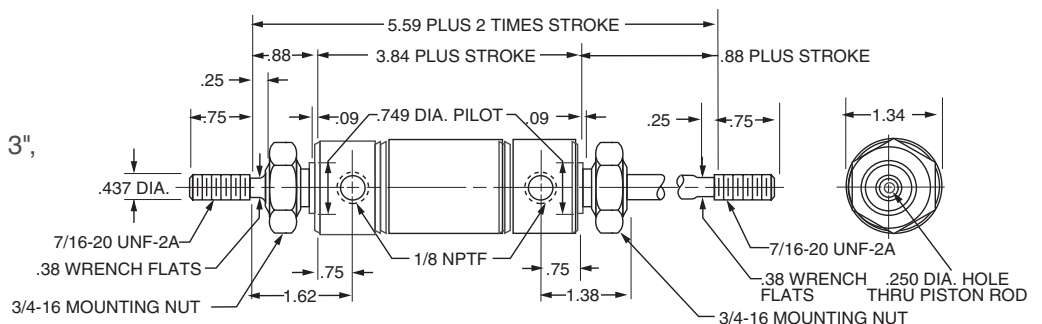
Double Hollow Rod

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"

#### Optional Accessory:

R432007834 Foot Bracket



# Series MM Mini Cylinders

1-1/2" Bore Single Acting



## Mounting Style N

Single Acting

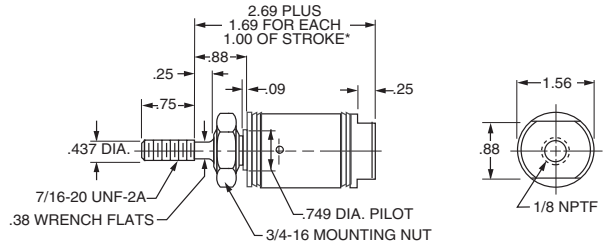
Spring Return

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



### Optional Accessory:

R432007834 Foot Bracket

## Mounting Style NR

Single Acting

Spring Return

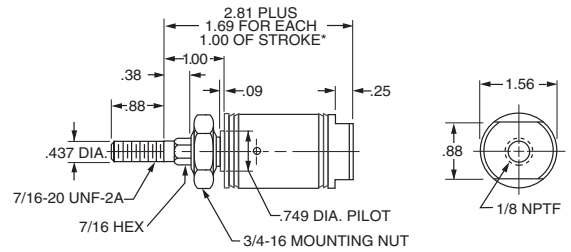
Front Nose Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



### Optional Accessory:

R432007834 Foot Bracket

## Mounting Style NRP

Single Acting

Spring Return

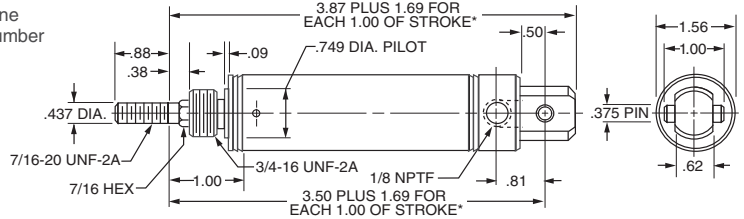
Rear Pivot Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



### Optional Accessories:

R432007814 Pivot Bracket

R432007809 Rod Clevis

## Mounting Style P

Single Acting

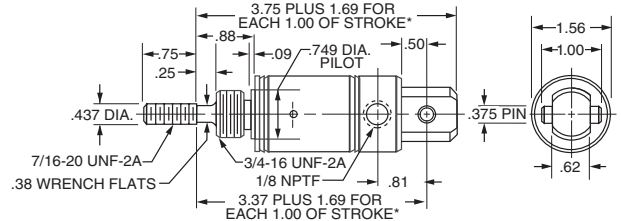
Spring Return

Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



### Optional Accessories:

R432007814 Pivot Bracket

R432007809 Rod Clevis

## Mounting Style R

Single Acting

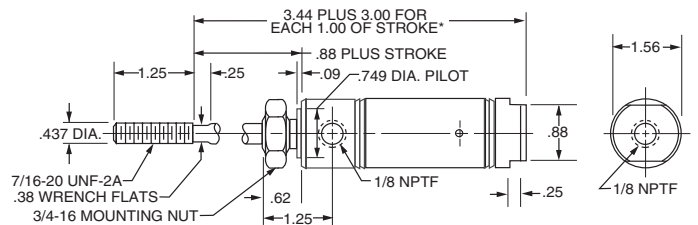
Spring Extend

Front Nose Mounting

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



### Optional Accessory:

R432007834 Foot Bracket

## Mounting Style RP

Single Acting

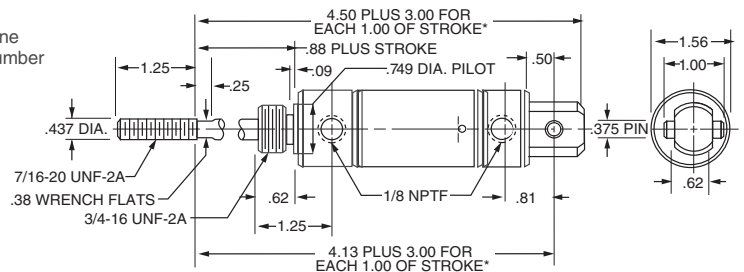
Spring Extend

Rear Pivot Mounting

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



### Optional Accessories:

R432007814 Pivot Bracket

R432007809 Rod Clevis



# Series MM Mini Cylinders

1-1/2" Bore Double Acting



## Mounting Style D

### Double Acting

Front Nose Mounting

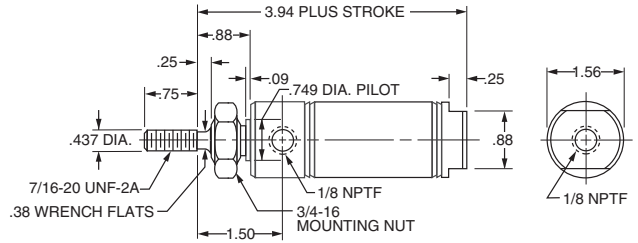
Standard Stroke Lengths: 1/2", 1", 2",

3", 4", 5", 6", 8", 10", 12"

Maximum Stroke 12"

#### Optional Accessory:

R432007834 Foot Bracket



## Mounting Style DP

### Double Acting

Rear Pivot Mounting

Standard Stroke Lengths: 1", 2", 3",

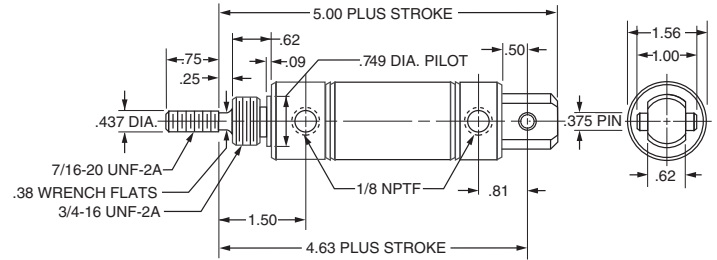
4", 5", 6", 8", 10", 12"

Maximum Stroke 12"

#### Optional Accessories:

R432007814 Pivot Bracket

R432007809 Rod Clevis



## Mounting Style DX

### Double Acting

Double End Mounting

Standard Stroke Lengths: 1", 2", 3",

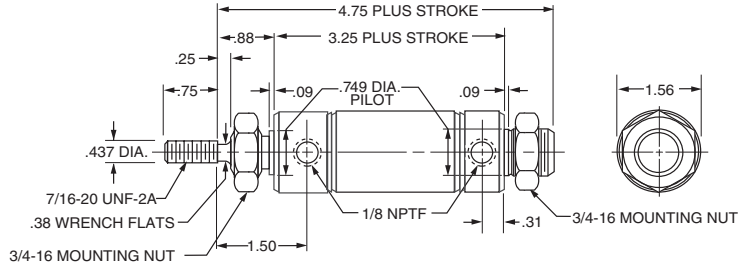
4", 5", 6", 8", 10", 12"

Strokes over 12" must be supported at both ends

Maximum Stroke 12"

#### Optional Accessory:

R432007834 Foot Bracket



## Mounting Style DXP

### Double Acting

Double End Mounting

Strokes over 12" must be supported at both ends

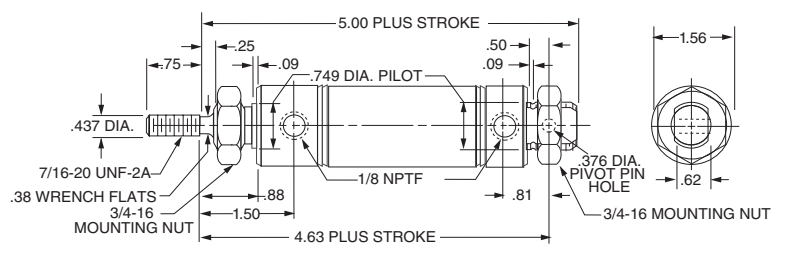
Maximum Stroke 32"

#### Optional Accessories:

R432007834 Foot Bracket

R432007819 Pivot Bracket with Pin

R432007809 Rod Clevis



## Mounting Style KDX

### Double Acting

Double End Mounting — Double Rod

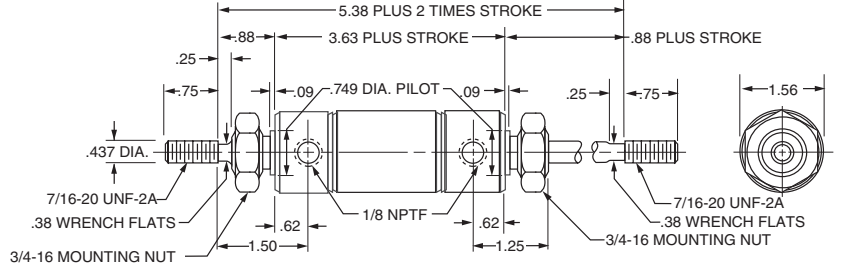
Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"

#### Optional Accessory:

R432007834 Foot Bracket



## Mounting Style KDH

### Double Acting

Double End Mounting

Double Hollow Rod

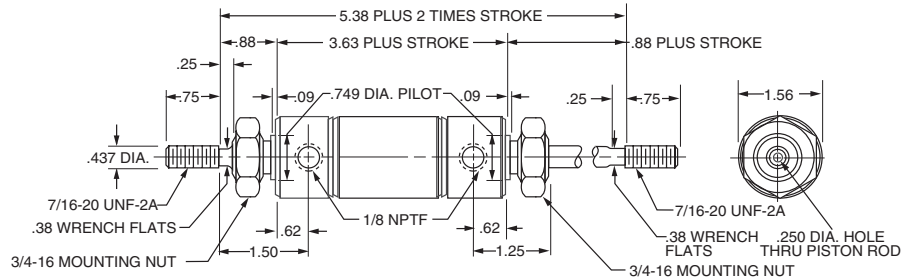
Standard Stroke Lengths: 1", 2", 3",

4", 5", 6"

Maximum Stroke 12"

#### Optional Accessory:

R432007834 Foot Bracket





# Series MM Mini Cylinders - Block Mounted

1-1/2" Bore Single and Double Acting



## Mounting Style BRN

### Single Acting

Spring Return

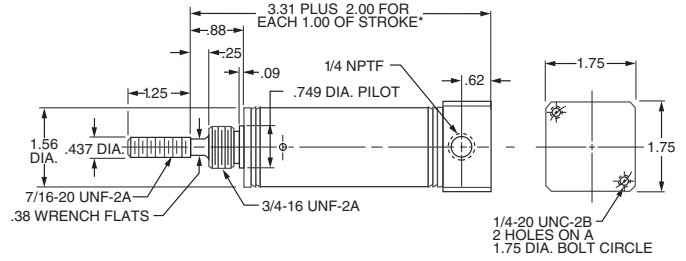
Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BRR

### Single Acting

Spring Extend

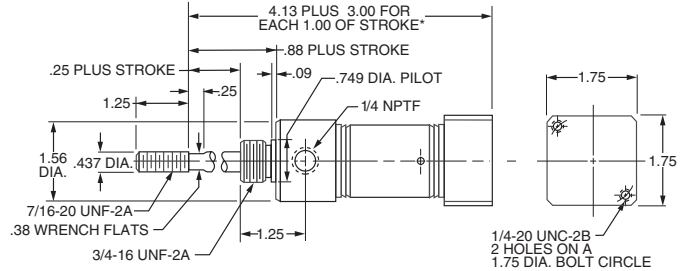
Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style BFD

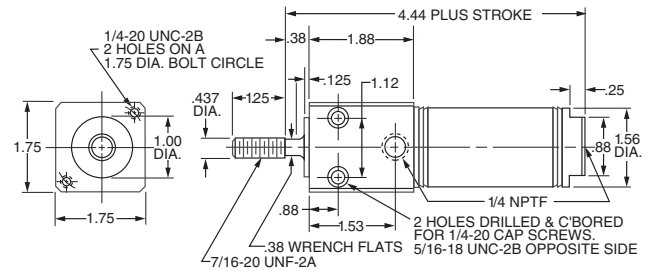
### Double Acting

Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style BRD

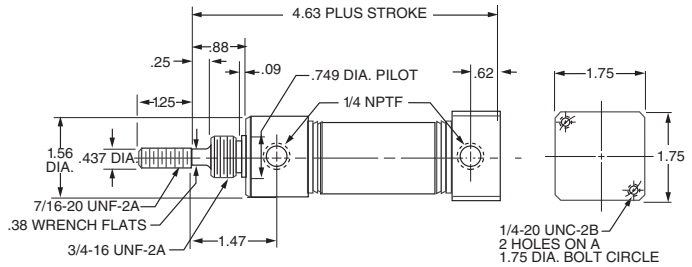
### Double Acting

Rear Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style BFN

### Single Acting

Spring Return

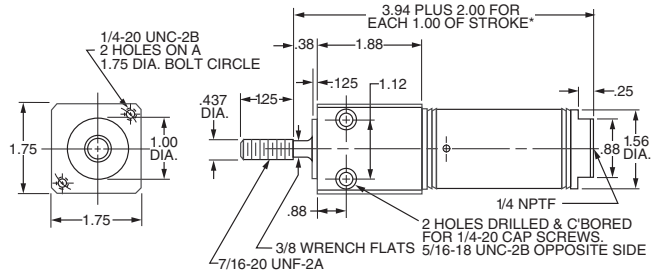
Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style BFR

### Single Acting

Spring Extend

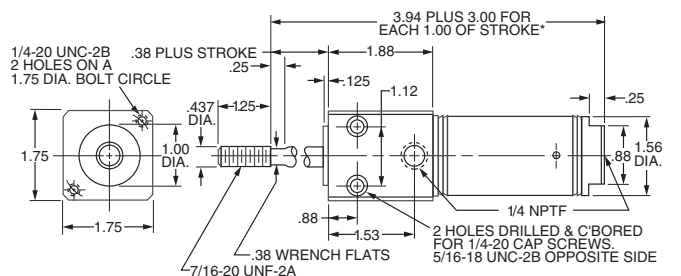
Front Block Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series MM Mini Cylinders - Trunnion Mounted

1-1/2" Bore Single and Double Acting



## Mounting Style TRN

### Single Acting

Spring Return

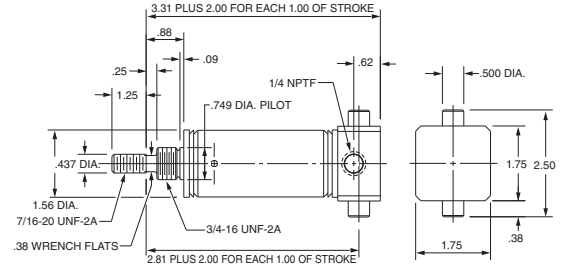
Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TRR

### Single Acting

Spring Extend

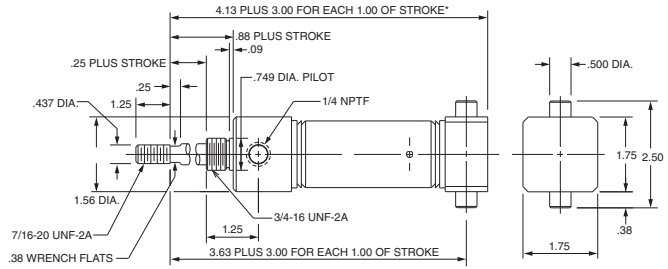
Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



## Mounting Style TFD

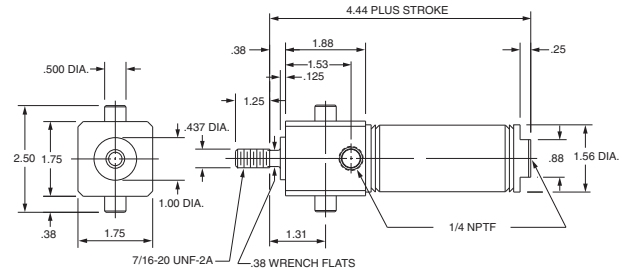
### Double Acting

Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style TRD

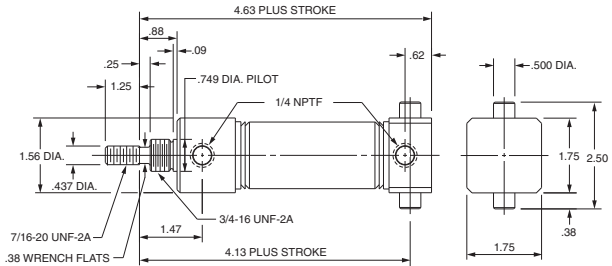
### Double Acting

Rear Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



## Mounting Style TFN

### Single Acting

Spring Return

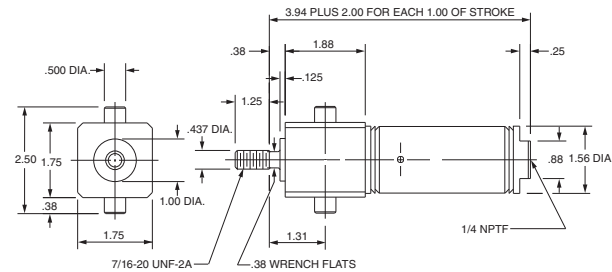
Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.



## Mounting Style TFR

### Single Acting

Spring Extend

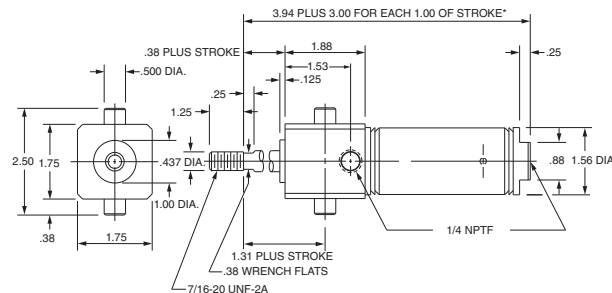
Front Trunnion Mounting

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4"

Maximum Stroke 6"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



# Series MM Mini Cylinders

1-3/4" Bore Single Acting



## Mounting Style N

**Single Acting**

Spring Return

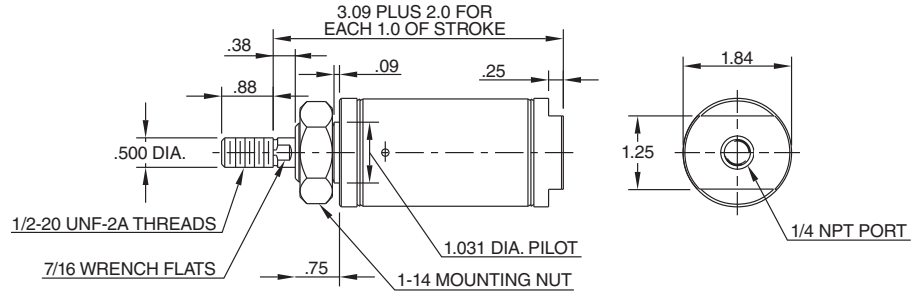
Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

Maximum Stroke 6"

**Optional Accessory:**

R432007835 Foot Bracket



## Mounting Style NR

**Single Acting**

Spring Return

Front Nose Mounting

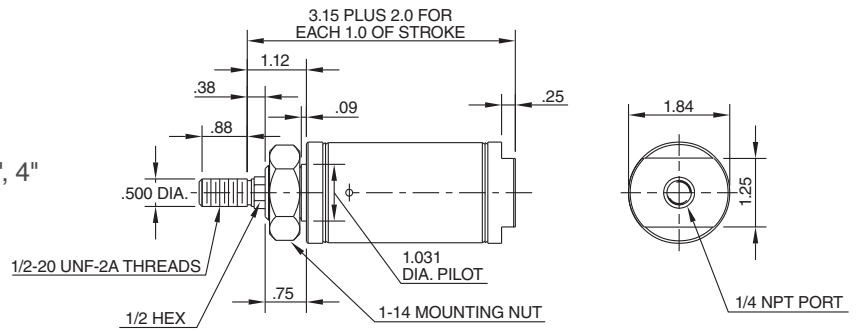
Non-Rotating Hex Rod

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

Maximum Stroke 6"

**Optional Accessory:**

R432007835 Foot Bracket



## Mounting Style NRP

**Single Acting**

Spring Return

Rear Pivot or Double End Mounting

Non-Rotating Hex Rod

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

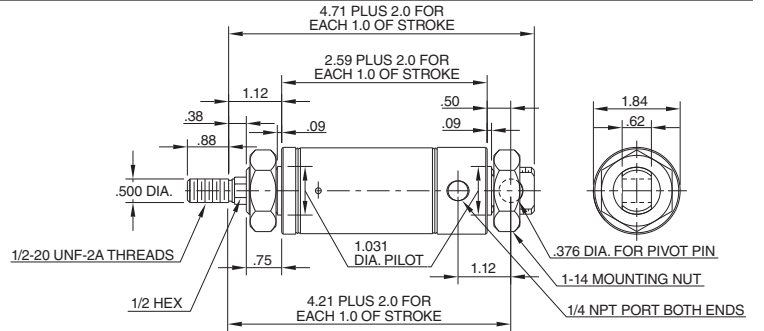
Maximum Stroke 6"

**Optional Accessories:**

R432007835 Foot Bracket

R432007810 Rod Clevis

R432007819 Pivot Bracket with Pin



## Mounting Style P

**Single Acting**

Spring Return

Double End or Rear Pivot Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

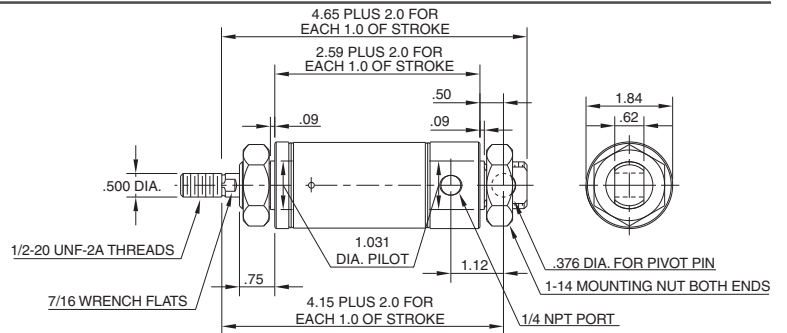
Maximum Stroke 6"

**Optional Accessories:**

R432007835 Foot Bracket

R432007810 Rod Clevis

R432007819 Pivot Bracket with Pin



## Mounting Style R

**Single Acting**

Spring Extend

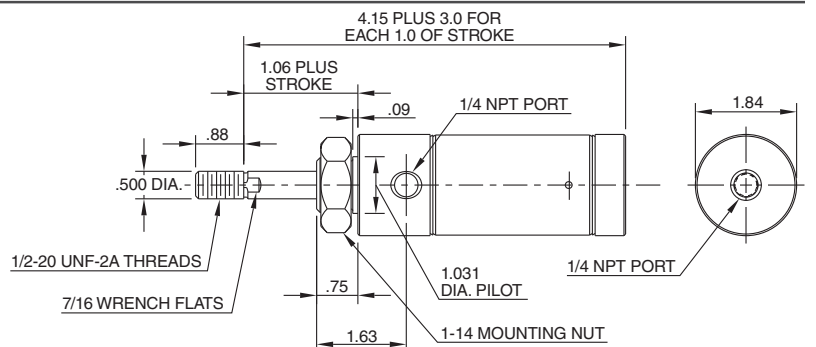
Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4"

Maximum Stroke 6"

**Optional Accessory:**

R432007835 Foot Bracket



# Series MM Mini Cylinders

1-3/4" Bore Double Acting



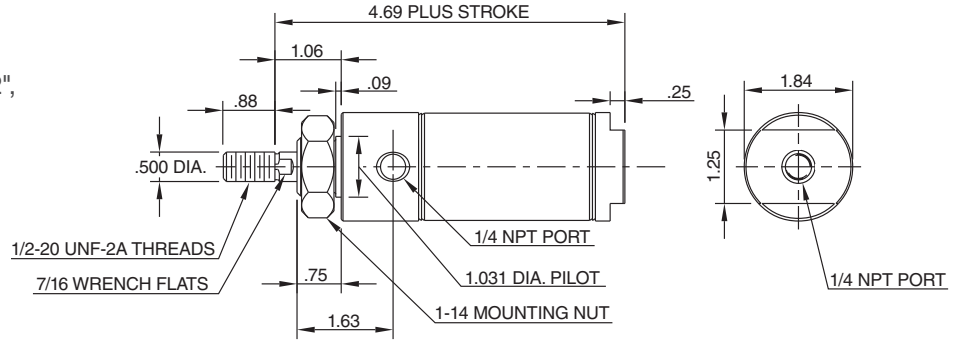
## Mounting Style D

### Double Acting

Front Nose Mounting

Standard Stroke Lengths: 1/2", 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6"

Maximum Stroke 12"



**Optional Accessory:**  
R432007835 Foot Bracket

## Mounting Style DXP

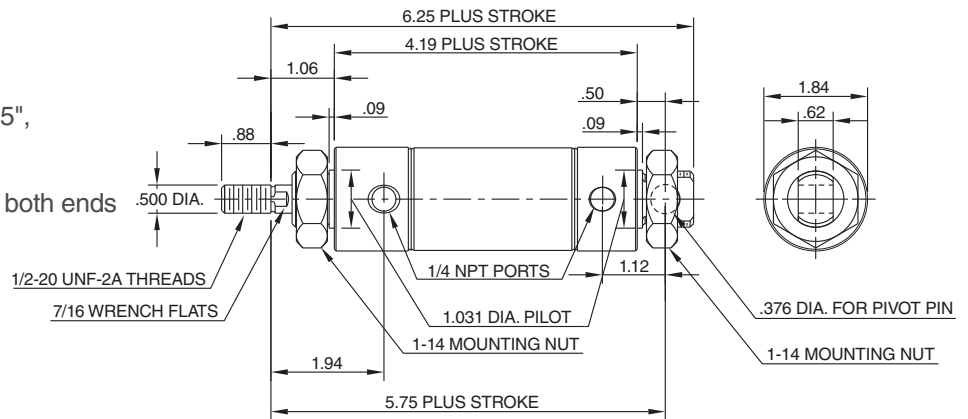
### Double Acting

Double End Mounting

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6", 8", 10", 12"

Maximum Stroke 32"

Strokes over 12" must be supported at both ends



**Optional Accessories:**  
R432007835 Foot Bracket  
R432007810 Rod Clevis  
R432007819 Pivot Bracket with Pin

## Mounting Style KDX

### Double Acting

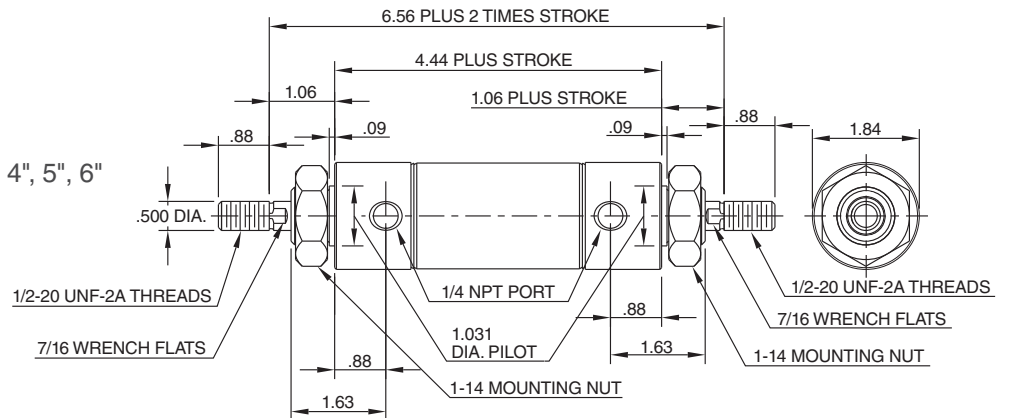
Double End Mounting

Double Rod

Stainless Steel Rod Standard

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



**Optional Accessory:**  
R432007835 Foot Bracket

## Mounting Style KDH

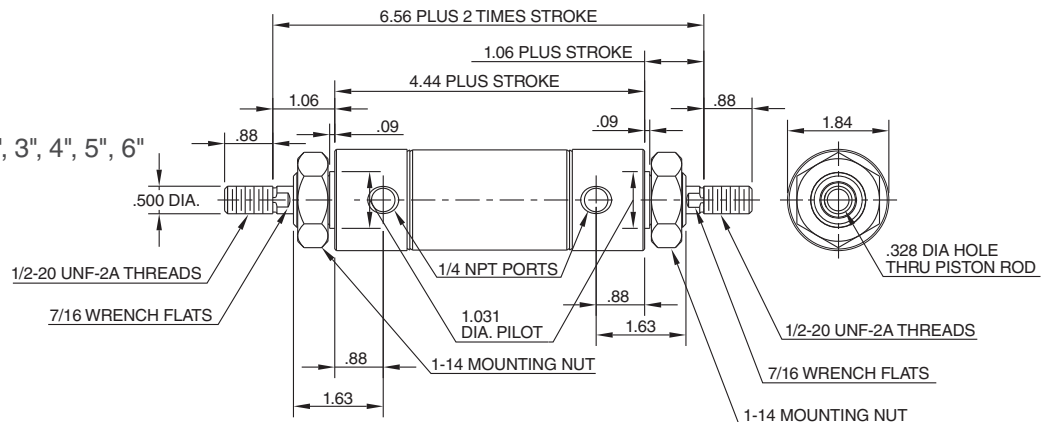
### Double Acting

Double End Mounting

Double Hollow Rod

Standard Stroke Lengths: 1", 2", 3", 4", 5", 6"

Maximum Stroke 12"



**Optional Accessory:**  
R432007835 Foot Bracket

# Series MM Mini Cylinders

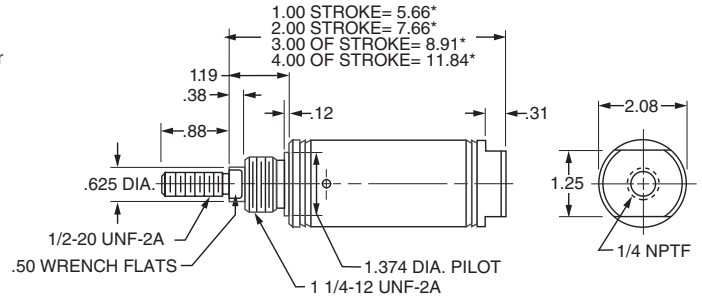
2" Bore Single Acting



## Mounting Style N

**Single Acting**  
Spring Return  
Front Nose Mounting  
Maximum Stroke 4"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

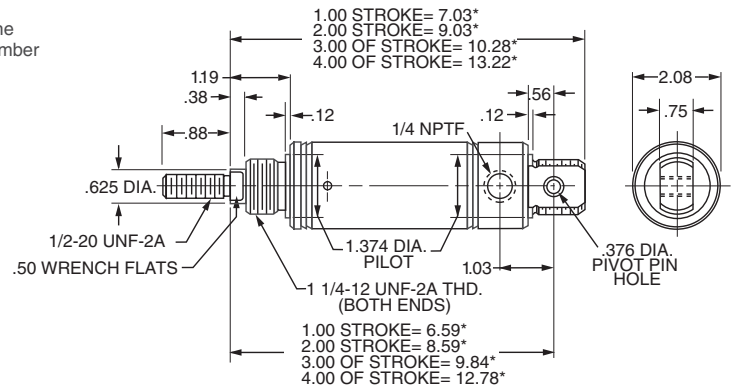


**Optional Accessories:**  
R432007836 Foot Bracket  
R432007846 Mounting Nut

## Mounting Style P

**Single Acting**  
Spring Return  
Double End or Rear Pivot Mounting  
Maximum Stroke 4"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract a half inch.

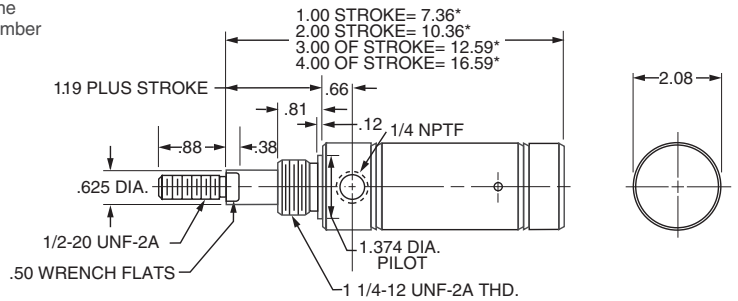


**Optional Accessories:**  
R432007836 Foot Bracket  
R432007810 Rod Clevis  
R432007820 Pivot Bracket with Pin  
R432007846 Mounting Nut

## Mounting Style R

**Single Acting**  
Spring Extend  
Front Nose Mounting  
Maximum Stroke 4"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.

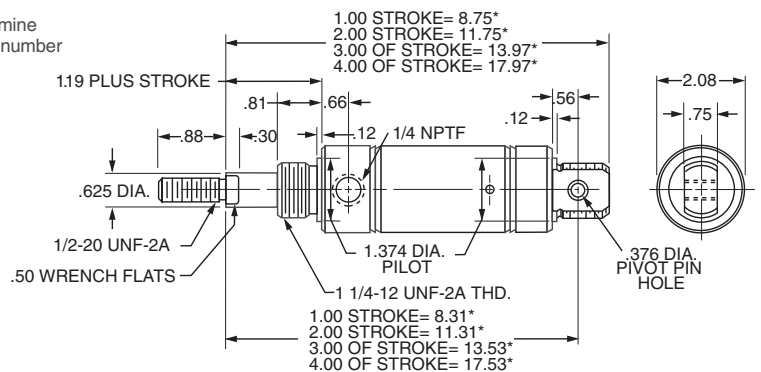


**Optional Accessories:**  
R432007836 Foot Bracket  
R432007846 Mounting Nut

## Mounting Style RP

**Single Acting**  
Spring Extend  
Rear Pivot Mounting  
Maximum Stroke 4"

\* To determine lengths for half inch stroke increments, determine length for next highest whole number stroke and subtract one inch.



**Optional Accessories:**  
R432007836 Foot Bracket  
R432007810 Rod Clevis  
R432007820 Pivot Bracket with Pin  
R432007846 Mounting Nut

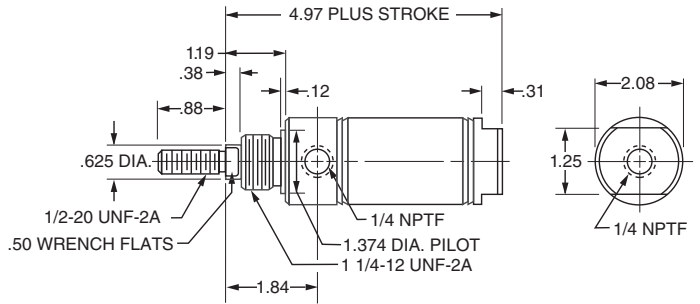
# Series MM Mini Cylinders

2" Bore Double Acting



## Mounting Style D

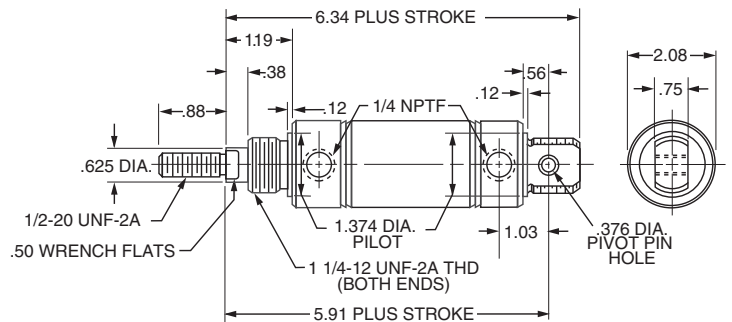
**Double Acting**  
Front Nose Mounting  
Maximum Stroke 12"



**Optional Accessories:**  
R432007836 Foot Bracket  
R432007846 Mounting Nut

## Mounting Style DXP

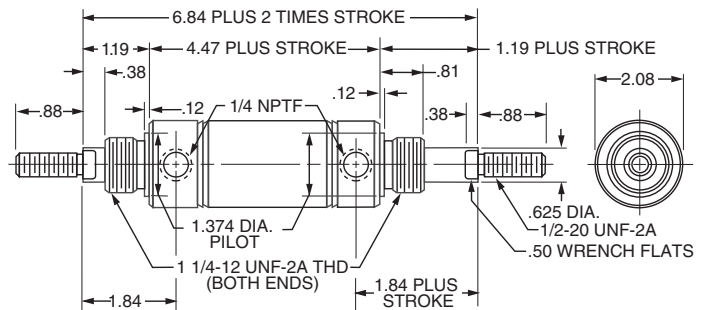
**Double Acting**  
Double End or Rear Pivot Mounting  
Strokes over 12" must be supported at both ends  
Maximum Stroke 32"



**Optional Accessories:**  
R432007836 Foot Bracket  
R432007810 Rod Clevis  
R432007820 Pivot Bracket with Pin  
R432007846 Mounting Nut

## Mounting Style KDX

**Double Acting**  
Double End Mounting  
Double Rod  
Stainless Steel Rod Standard  
Maximum Stroke 12"



**Optional Accessories:**  
R432007836 Foot Bracket  
R432007846 Mounting Nut

## Notes:



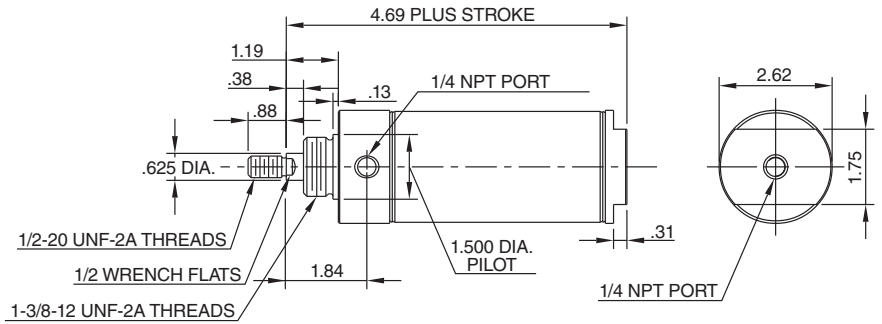
# Series MM Mini Cylinders

2-1/2" Bore Double Acting



## Mounting Style D

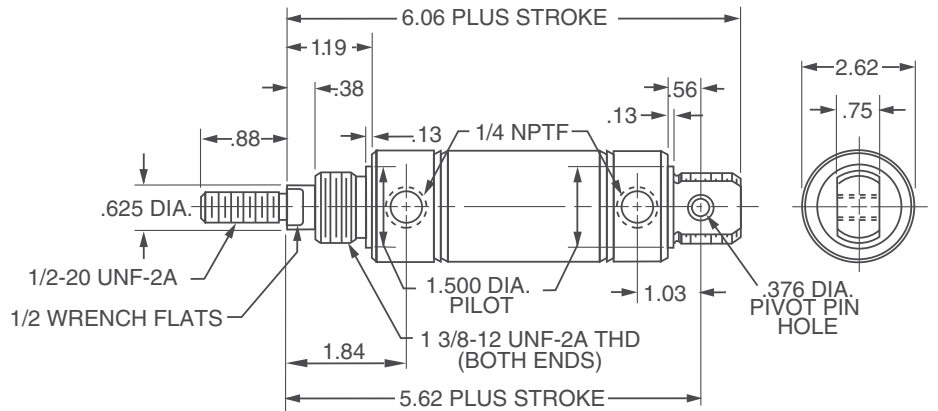
**Double Acting**  
Front Nose Mounting  
Maximum Stroke 12"



**Optional Accessories:**  
R432007837 Foot Bracket  
R432007847 Mounting Nut

## Mounting Style DXP

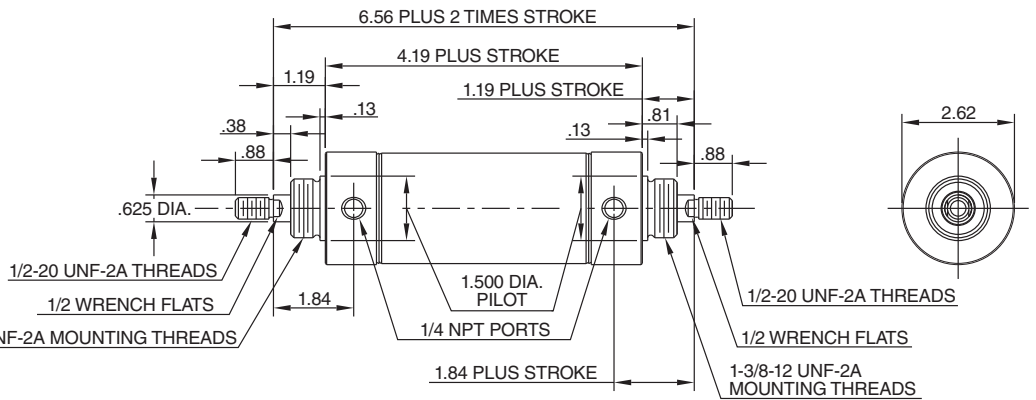
**Double Acting**  
Double End or Rear Pivot Mounting  
Strokes over 12" must be supported  
at both ends  
Maximum Stroke 32"



**Optional Accessories:**  
R432007837 Foot Bracket  
R432007810 Rod Clevis  
R432007820 Pivot Bracket with Pin  
R432007847 Mounting Nut

## Mounting Style KDX

**Double Acting**  
Double End Mounting  
Double Rod  
Stainless Steel Rod Standard  
Maximum Stroke 18"



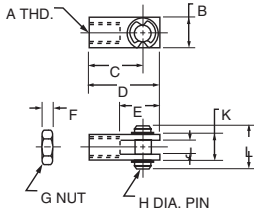
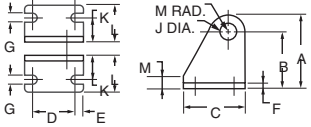
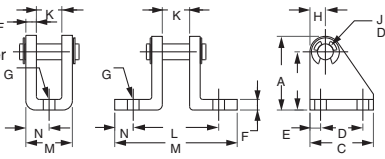
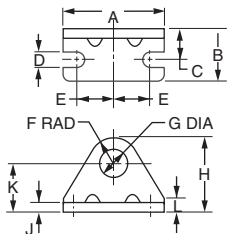
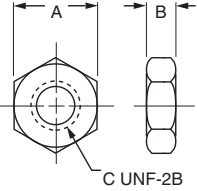
**Optional Accessories:**  
R432007837 Foot Bracket  
R432007847 Mounting Nut

# Series MM Mini Cylinders

Standard Accessories with Dimensions

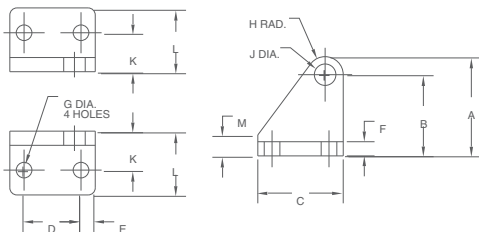


## Standard Accessories with Dimensions

Standard Accessories	Part Number	Bore Used On	Dimensional Data												
			A	B	C	D	E	F	G	H	J	K	L	M	N
<b>Piston Rod Clevis</b> Assembly includes pin and (2) Retainer Rings and (1) Jam Nut. 	R432007805	5/16	#5-40	.31	.44	.56	.38	.11	#5-40	.12	.13	.31	.50	---	---
	R432007806	7/16, 9/16	#10-32	.38	.75	.94	.56	.12	#10-32	.19	.19	.38	.56	---	---
	R432007807	3/4, 7/8	1/4-28	.50	.94	1.19	.68	.16	1/4-28	.25	.25	.50	.69	---	---
	R432007808	1 1/16	5/16-24	.50	.94	1.19	.68	.19	5/16-24	.25	.25	.50	.69	---	---
	R432007809	1 1/4, 1 1/2	7/16-20	.75	1.31	1.69	.94	.25	7/16-20	.38	.38	.75	1.03	---	---
	R432007810	1 3/4, 2, 2 1/2	1/2-20	.75	1.31	1.69	.94	.31	1/2-20	.38	.38	.75	1.03	---	---
R432007811	3	5/8-18	1.00	2.25	2.75	1.50	.38	5/8-18	.50	.50	1.00	1.38	---	---	
<b>Pivot Brackets</b> 	R432007812	7/16	.76	.56	.75	.50	.12	.06	.19	.20	.160	.28	.50	.12	---
	R432007813	3/4, 7/8, 1 1/16	1.19	.88	1.12	.75	.19	.12	.27	.31	.255	.44	.81	.25	---
	R432007814	1 1/2	1.75	1.38	1.50	1.00	.25	.12	.27	.38	.380	.62	1.00	.25	---
<b>Pivot Brackets</b> Assembly includes pin and (2) Retainer Rings. 	R432007815	5/16	.53	.40	.62	.38	.12	.04	.16	.12	.12	.26	---	.36	.18
	R432007816	7/16, 9/16	.76	.56	.75	.50	.12	.06	.19	.19	.156	.34	.91	1.34	.22
	R432007817	3/4, 7/8, 1 1/16	1.18	.88	1.12	.75	.19	.12	.27	.30	.250	.38	1.25	2.00	.38
	R432007818	1 1/4	1.18	.88	1.12	.75	.19	.12	.27	.30	.250	.50	1.38	2.14	.38
	R432007819	1 1/2, 1 3/4	1.75	1.38	1.50	1.00	.25	.25	.27	.37	.375	.62	2.00	2.88	.44
	R432007820	2, 2 1/2	1.75	1.38	1.50	1.00	.25	.25	.27	.37	.375	.75	2.12	3.00	.44
	R432007821	3	2.25	1.75	1.75	1.25	.25	.25	.27	.50	.50	.88	2.62	3.88	.62
<b>Foot Brackets</b> 	R432007828	5/16	1.00	.37	.25	.13	.37	.31	.25	.75	.06	.44	.12	---	---
	R432007829	5/16	1.00	.37	.25	.13	.37	.31	.38	.75	.06	.44	.12	---	---
	R432007830	7/16	1.38	.62	.31	.19	.50	.31	.38	.88	.07	.56	.12	---	---
	R432007831	7/16, 9/16	1.38	.62	.31	.19	.50	.38	.44	.94	.09	.56	.12	---	---
	R432007832	3/4	1.62	.75	.44	.19	.62	.41	.50	1.09	.10	.69	.19	---	---
	R432007833	3/4, 7/8, 1 1/16	1.88	1.00	.56	.27	.75	.56	.63	1.38	.12	.81	.25	---	---
	R432007834	1 1/4, 1 1/2	2.50	1.50	.75	.27	.94	.75	.75	1.75	.12	1.00	.38	---	---
	R432007835	1 3/4	3.00	1.50	.87	.35	1.12	.91	1.03	2.16	.19	1.25	.50	---	---
	R432007836	2	3.12	1.62	1.00	.34	1.12	1.00	1.38	2.50	.25	1.50	.62	---	---
	R432007837	2 1/2	3.75	1.62	1.00	.35	1.44	1.25	1.51	3.00	.25	1.75	.75	---	---
R432007838	3	4.37	1.62	1.00	.35	1.75	1.25	1.64	3.14	.25	1.89	.89	---	---	
<b>Mounting Nut</b> 	R432007839	5/16	.44	.16	1/4-28	---	---	---	---	---	---	---	---	---	---
	R432007840	5/16, 7/16	.56	.22	3/8-24	---	---	---	---	---	---	---	---	---	---
	R432007841	7/16, 9/16	.69	.25	7/16-20	---	---	---	---	---	---	---	---	---	---
	R432007842	3/4	.75	.31	1/2-20	---	---	---	---	---	---	---	---	---	---
	R432007843	3/4, 7/8, 1 1/16	.94	.38	5/8-18	---	---	---	---	---	---	---	---	---	---
	R432007844	1 1/4, 1 1/2	1.12	.42	3/4-16	---	---	---	---	---	---	---	---	---	---
	R432007845	1 3/4	1.50	.55	1-14	---	---	---	---	---	---	---	---	---	---
	R432007846	2	1.88	.50	1 1/4-12	---	---	---	---	---	---	---	---	---	---
	R432007847	2 1/2	2.06	.78	1 3/8-12	---	---	---	---	---	---	---	---	---	---
R432007848	3	2.25	.84	1 1/2-12	---	---	---	---	---	---	---	---	---	---	

## Series MM Trunnion Brackets

Select brackets for Series MM Trunnion Mount Cylinders from the table below.  
 (Note: Trunnion Brackets are ordered as a separate item from the cylinder.)



Assembly No.	Bore Sizes	A	B	C	D	E	F	G	H	J	K	L	M
R432029064	7/16"	1.75	1.38	1.50	1	.25	.25	.27	.38	.375	.69	1.12	.37
R432007849	3/4, 7/8, 1 1/16, 1 1/2"	1.75	1.38	1.50	1	.25	.25	.27	.38	.500	.69	1.12	.37

# Series MM Mini Cylinders

Standard Options



## Bumpers - Series MM

Bumpers are available at extra cost. Add the following dimensions to the overall cylinder length by bore size.

Bore Size	3/16"	3/4"	1 1/16"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/2"
Type								
Spring Return	.062"	.125"	.125"	.125"	.125"	*	.125"	N/A
Spring Extend	.062"	.125"	.125"	.125"	.125"	*	.125"	N/A
Double Acting	.125"	.25"	.25"	.25"	.25"	*	.250"	.250"
K-type	.125"	.312"	.25"	.25"	.25"	*	.250"	.250"

\*Bumpers are furnished as standard and do not affect overall length.

## Stainless Steel Piston Rods

Corrosion resistant stainless steel is the standard piston rod material for all bore sizes up to and including 1.50 inch bore at no additional cost. The only exception to the stainless steel standard is when a hollow rod, KDH, option is specified. Stainless steel is also the standard material on block, trunnion, hex/non-rotating and KDX mounts. Stainless steel is available on other sizes for an additional charge.

## Rod Wiper

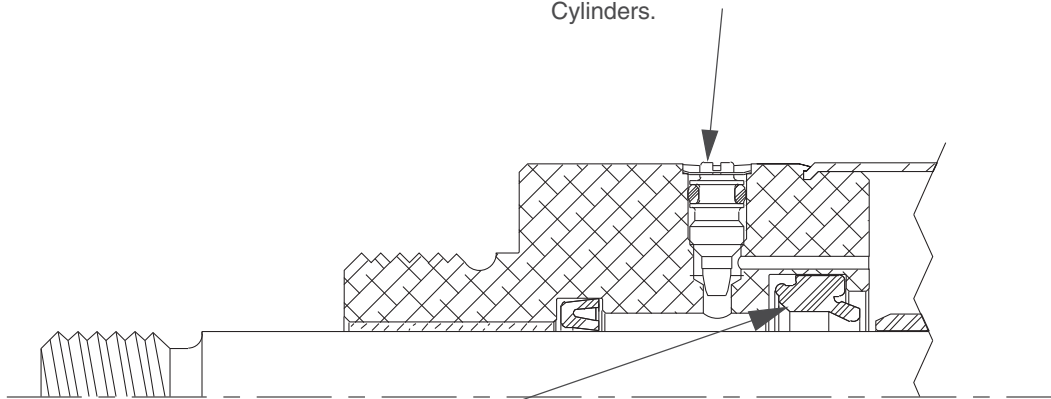
MM Series cylinders can be fitted with a rod wiper that is specially designed to prevent contaminants from clinging to the piston rod and damaging the piston rod seal. Available in 3/4", 1-1/16", and 1-1/2" bores, the piston rod wiper can be added to the MM and M series.

## Adjustable Cushion Option

Cushions can be selected on seven bore sizes, ranging from .75" bore to 2.5" bore with mounting styles D, front nose mount, and DXP, rear pivot mount. Adjustable cushions are optional at either end or both ends of MM Series cylinders.

## Cushion Adjusting Needle Valves

The fine-thread cushion needle valves make precise adjustment quick and easy. The needle valve is fully captured to allow for safe cushion adjustment while cylinder is pressurized. The brass needle valves are corrosion resistant. The standard position for needle valve adjustments is position 1, 90° from the port. See port location table for M Series Cylinders.



## Check Seal Cushion

The "Check Seal" system offers excellent cushioning efficiency and long cushion seal life. This seal is specifically designed for cushion applications and has a long proven history in our products. Extensive side by side testing of the check seal in M Series cylinders significantly outlasted and outperformed competitors' o-ring shaped seals.

The Check Seal's unique geometry exhibits the dynamic sealing capabilities of a lipseal. As the cushion sleeve enters the Check Seal at the end of stroke, the Check Seal blocks the air from exhausting directly through the port and forces

the air through the adjustable needle valve orifice. The exhaust airflow is precisely metered to control the desired rate of deceleration of the cylinder piston.

During stroke reversal, the check valve action of the Check Seal induces a fast out-of-cushion response. The Check Seal floats forward in the retainer groove as the cushion sleeve exits the Cushion Seal, thereby creating a path for maximum air flow around the Check Seal to access the piston face. The quick response of the Check Seal design yields faster cycle times and increased productivity.

# Series MM Mini Cylinders

How to Order / Non-Standard Rods



## How To Order Series MM Air Cylinders

How to Order Code

Series	Bore		Mount Style	Options	Special	Non-std. Rod	Non-std. Rod Dims.	Stroke	
MM	-7		N-	B	S	Y	3-	15	
Series	Bore		Mount Style	Options	Special	Non-std. Rod**	Non-std. Rod Dims.	Stroke	
MM	9/16"	5	N, NR, NRP, P, R, RP, D, DP, DXP, DX, KDX, KDH, BRN, BRR, BFD, BRD, BFN, BFR, TFN, TRN, TFR, TRR, TFD, TRD	B = Piston Bumpers*	S = Special	Y = Stainless Steel Rod	3- indicates special Rod End	(in tenths of an inch)	
	3/4"	7		W = Rod Wiper	Use only if special modifications are required (inc. adj. cushions)			Specify dimensions per chart below, "Non-Standard Rods."	Examples: 0.5" = 05 1" = 10 1.5" = 15 2" = 20 2.5" = 25 26"=260 32"=320
	1-1/16"	10							
	1-1/4"	12							
	1-1/2"	15							
	1-3/4"	17							
	2"	20							
2-1/2"	25		(blank if standard)	(blank if standard)	(blank if standard)	(blank if standard)			

Example:

MM-10D-05 is a magnetic piston 1-1/16" bore, nose mount, double acting, 1/2" stroke.

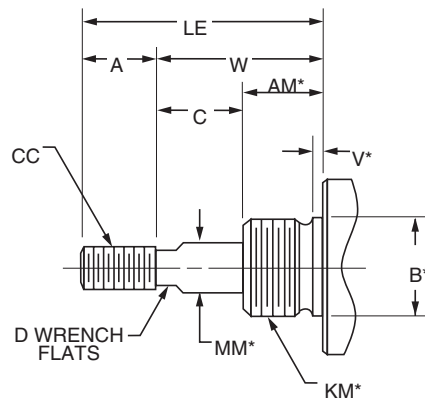
\*Bumpers are standard in 1 3/4" bore cylinders.

\*\*Stainless rod standard on all bore sizes up to and inc. 1.5" bore, and all bore sizes of block, trunnion or KDX mounts.

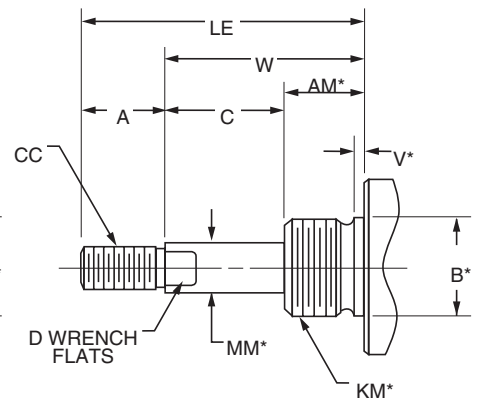
## Non-Standard Rods

For non-standard rod dimensions, or undersized rod end threads, put a "3" in model number and describe the rod using the letters shown in drawing. Specify CC, LE and A dimensions.

Full Diameter Rod End Threads



Undersized Rod End Threads



\*Requires an S designation in model number.

# Flow Control Valve

Inch Series, right angle



## Right angle flow control valve

Type	Right Angle - for Push-In Fittings or Threaded Inlet
Supply Pressure	150 PSIG (10 bar)
Cracking Pressure	Check Valve: 7.5 PSIG (0.5 Bar)
Temperatures	15° to 160°F (-9° to 71°C)
Media	Air or inert gas
Materials:	
Body	Nickel Plated Brass
Swivel Housing	Anodized Aluminum
Seals	Buna-N
Spring	Stainless Steel
Needle	10-32, 1/8", 1/4" Stainless Steel 3/8", 1/2" Nickel Plated Brass



## Right Angle - Inch Series

### Operating Characteristics

Valves Mount Directly on Cylinder  
 Nickel Plated Brass For Corrosion  
 Spring Loaded Check Valve  
 Thread Sealant on Male Threads  
 360° Swivel Body  
 Compact Design

## Threaded Style

Size	Part Number Slot Adjust	Part Number Knob Adjust
10-32 UNF	R432027180	--
1/8" NPTF	R432027181	R432027185
1/4" NPTF	R432027182	R432027186
3/8" NPTF	R432027183	R432027187
1/2" NPTF	R432027184	R432027188

## Push-in Fitting Style

Size	Part Number Slot Adjust	Part Number Knob Adjust
10-32 UNF x 5/32" tube	R432027189	--
1/8" NPTF x 1/4" tube	R432027190	R432027193
1/4" NPTF x 1/4" tube	R432027191	R432027194
3/8" NPTF x 3/8" tube	R432027192	R432027195

\*Push-in fitting not available in 1/2" NPTF size.

Tubing tolerances for push-in fittings are:

+/-0.2mm (0.008") except for 1/4" OD tubing, +0.15/-0.35mm (+0.0059"/0.0137")

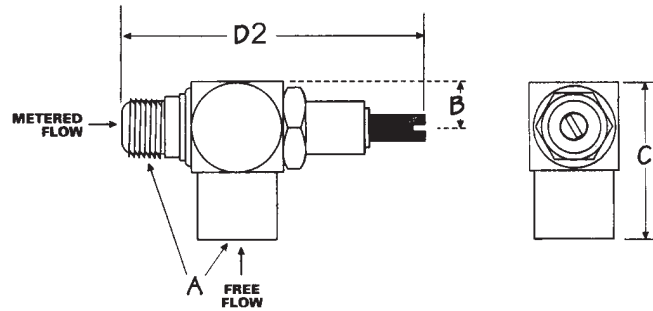
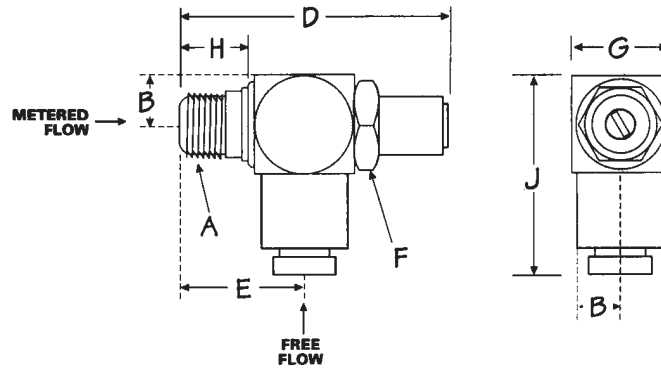
Push-in fittings suitable for use with nylon, polyethylene, and soft copper tubing;  
 not for use with polyurethane or PVC tubing.

## Flow Characteristics

Thread Size		10-32	1/8"	1/4"	3/8"	1/2"
Free Flow	SCFM [Cv]	3.4 [.06]	12.8 [.34]	19.1 [.67]	28.9 [1.87]	53.2 [2.84]
Throttle Closed	L/Min	98	364	542	819	1508
Orifice Diameter	INCH	0.06	0.118	0.177	0.276	0.394
Orifice Diameter	mm	1.5	1.5	4.5	7.0	10.0
Weight	lbs	0.022	0.055	0.121	0.209	0.407
Weight	kgs	0.01	0.025	0.055	0.095	0.185

# Flow Control Valve

Inch Series, right angle



## Dimensions (in./mm)

A	B	C	D	E	F	G	H	TUBE O.D.	J	D2
10-32UNF	0.16/4.5	0.57/14.5	0.79/20	0.33/8.5	8	0.35/9	0.12/3	----	----	1.22/31
10-32UNF*	0.22/5.5	----	0.79/20	0.37/9.5	8	0.43/11	0.12/3	5/32"	0.97/24.5	1.22/31
1/8" NPTF	0.30/7.5	0.97/24.5	1.41/35.8	0.81/20.5	13	0.59/15	0.41/10.5	1/4"	1.20/30.5	1.91/48.5
1/4" NPTF	0.37/9.5	1.28/32.5	1.62/41	0.97/24.8	17	0.75/19	0.50/12.7	1/4"	1.36/34.5	2.27/57.5
3/8" NPTF	0.43/11	1.46/37	2.21/56	1.10/28	22	0.87/22	0.55/14	3/8"	1.76/44.6	3.05/77.5
1/2" NPTF	0.55/14	1.81/46	----	1.42/36	27	1.10/28	0.71/18	N/A	N/A	3.66/93

\*Slotted Adjust shown with Push-In Fittings.  
Push-in fitting not available in 1/2" NPTF size.



# NOTICE TO PRODUCT USERS

## 1. WARNING: FLUID MEDIA

AVENTICS pneumatic devices are designed and tested for use with filtered, clean, dry, chemical free air at pressures and temperatures within the specified limits of the device. For use with media other than air or for human life support systems, AVENTICS must be consulted. Hydraulic cylinders are designed for operation with filtered, clean, petroleum based hydraulic fluid; operation using fire-resistant or other special types of fluids may require special packing and seals. Consult the factory.

## 2. WARNING: MATERIAL COMPATIBILITY

Damage to product seals or other parts caused by the use of non-compatible lubricants, oil additives or synthetic lubricants in the air system compressor or line lubrication devices voids the AVENTICS warranty and can result in product failure or other malfunction. See lubrication recommendations below.

**AIR LINE LUBRICANTS!** In service higher than 18 cycles per minute or with continuous flow of air through the device, an air line lubricator is recommended.\* (Do not use line lubrication with vacuum products.) However, the lubricator must be maintained since the oil will wash out the grease, and lack of lubrication will greatly shorten the life expectancy. The oils used in the lubricator must be compatible with the elastomers in the device. The elastomers are normally BUNA-N, NEOPRENE, VITON, SILICONE and HYTREL. AVENTICS recommends the use of only petroleum based oils without synthetic additives, and with an aniline point between 180° F and 210° F.

**COMPRESSOR LUBRICANTS!** All compressors (with the exception of special "oil free" units) pass oil mist or vapor from the internal crankcase lubricating system through to the compressed air. Since even small amounts of non-compatible lubricants can cause severe seal deterioration (which could result in component and system failure) special care should be taken in selecting compatible compressor lubricants.

## 3. WARNING: INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

**INSTALLATION !** Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision.

Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when a system is under pressure. Always exhaust or drain the pressure from a system before performing any service work. Failure to do so can result in serious personal injury.

**MOUNTING!** Devices should be mounted and positioned in such a manner that they cannot be accidentally operated.

## 4. WARNING: APPLICATION AND USE OF PRODUCTS

The possibility does exist for any device or accessory to fail to operate properly through misuse, wear or malfunction. The user must consider these possibilities and should provide appropriate safe guards in the application or system design to prevent personal injury or property damage in the event of a malfunction.

## 5. WARNING: CONVERSION, MAINTENANCE AND REPAIR

When a device is disassembled for conversion to a different configuration, maintenance or repair, the device must be tested for leakage and proper operation after being reassembled and prior to installation.

**MAINTENANCE AND REPAIR!** Maintenance periods should be scheduled in accordance with frequency of use and working conditions. All AVENTICS products should provide a minimum of 1,000,000 cycles of maintenance free service when used and lubricated as recommended. However, these products should be visually inspected for defects and given an "in system" operating performance and leakage test once a year. Where devices require a major repair as a result of the one million cycles, one year, or routine inspection, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. See individual catalogs for specific cycle life estimates.

## 6. PRODUCT CHANGES

Product changes including specifications, features, designs and availability are subject to change at any time without notice. For critical dimensions or specifications, contact factory.

\*Many AVENTICS pneumatic valves and cylinders can operate with or without air line lubrication; see individual sales catalogs for details.

-Refer to the appropriate service manual for parts and service information, most are available for download from [www.aventics.com/us](http://www.aventics.com/us)

## LIMITATIONS OF WARRANTIES & REMEDIES

AVENTICS warrants its products sold by it to be free from defects in material and workmanship to the following: For twelve months after shipment AVENTICS will repair or replace (F.O.B. our works), at its option, any equipment which under normal conditions of use and service proves to be defective in material or workmanship at no charge to the purchaser. No charge will be made for labor with respect to defects covered by this Warranty, provided that the work is done by AVENTICS or any of its authorized service facilities. However, this Warranty does not cover expenses incurred in the removal and reinstallation of any product, nor any downtime incurred, whether or not proved defective.

All repairs and replacement parts provided under this Warranty policy will assume the identity, for warranty purposes, of the part replaced, and the warranty on such replacement parts will expire when the warranty on the original part would have expired. Claims must be submitted within thirty days of the failure or be subject to rejection.

This Warranty is not transferable beyond the first using purchaser. Specifically, excluded from this Warranty are failures caused by misuse, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service or parts. This Warranty also excludes the use of lubricants, fluids or air line additives that are not compatible with seals or diaphragms used in the products. This Warranty sets out the purchaser's exclusive remedies with respect to products covered by it, whether for negligence or otherwise. Neither, AVENTICS nor any of its affiliates will be liable for consequential or incidental damages or other losses or expenses incurred by reason of the use or sale of such products. Our liability (except as to title) arising out of the sale, use or operation of any product or parts, whether on warranty, contract or negligence (including claims for consequential or incidental damage) shall not in any event exceed the cost of replacing the defective products and, upon expiration of the warranted period as herein provided, all such liability is terminated. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. No attempt to alter, amend or extend this Warranty shall be effective unless authorized in writing by an officer of AVENTICS Corporation.

AVENTICS reserves the right to discontinue manufacture of any product, or change product materials, design or specifications without notice.

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The data specified only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.