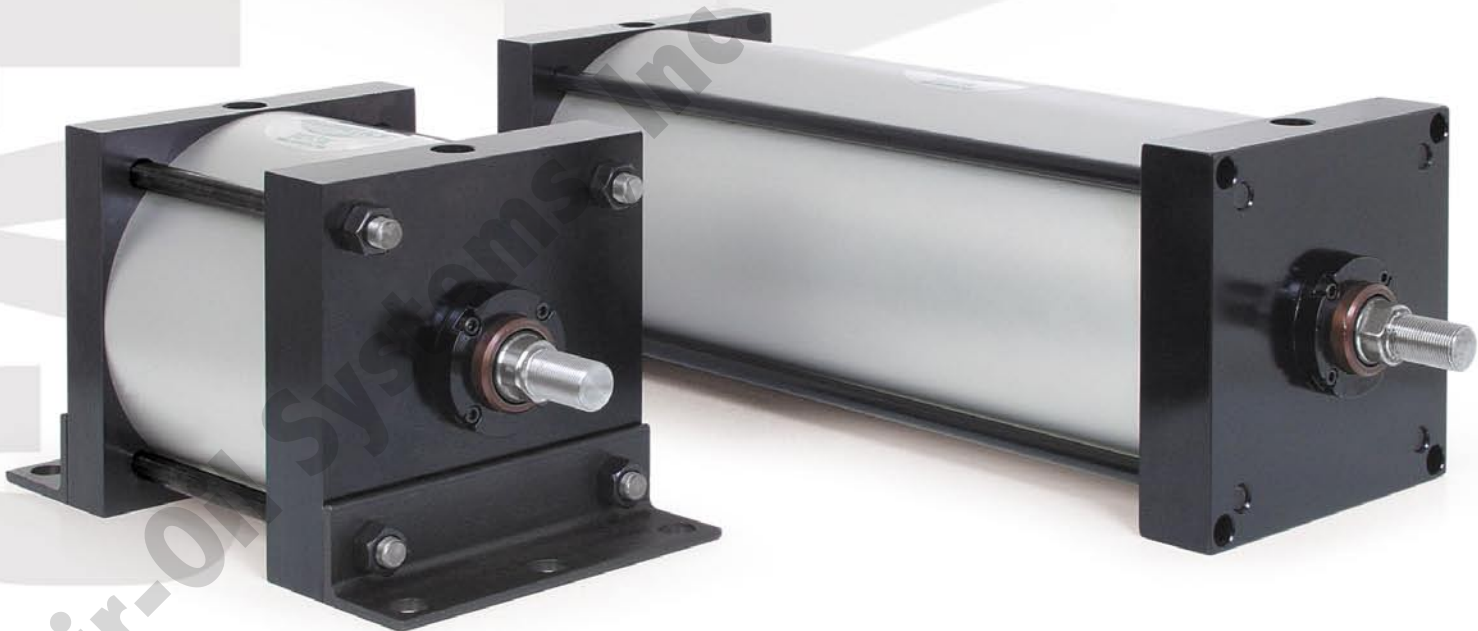


cylinders

# Large Bore A Series

NFPA Interchangeable Cylinder Line



# NUMATICS®

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The **Large Bore A Series** is an NFPA Interchangeable cylinder line that is designed and built to excel in the most demanding applications. The Large Bore A Series encompasses many of the proven design features of the A Series.

### Tube

The 8" bore **tube** is hard coat anodized aluminum. The hard coating is an electro-chemical process, which produces a very dense surface of aluminum oxide. This surface has extreme hardness (60 RC.), excellent wear and corrosion resistance, and a low coefficient of friction. The 10", 12", and 14" bores use a honed, chrome plated steel tube.

### End Caps

The **end caps** are accurately machined from (6061-T6) solid aluminum bar stock. They are anodized for corrosion resistance. Additionally, a recess on the piston-mating surface (at both ends) enables the air to work on a larger piston area for effortless breakaway.

### Rod Bushing

The 8" bore includes a graphite filled, cast iron **rod bushing**. The 10", 12", and 14" bores are equipped with a bronze bushing. Both bushing types are extra long in length. The added length adds superior alignment and support of the piston rod as well as provides maximum load bearing support. Both bushing materials offer an excellent bearing surface for a hard chrome plated piston rod.

### Rod Seal

The carboxylated nitrile with Teflon® compound **rod seal** is self-lubricating and durable. The rounded lip design ensures proper sealing and long life.

### Rod Wiper

The standard **rod wiper** construction is a highly durable polyurethane.

### Piston Rod

High strength steel (100,000 psi minimum yield) **piston rod** has a ground, polished, and chrome plated surface. This surface provides maximum life for both the rod bushing and the seals.

### Bushing Retainer

The **bushing retainer** allows cartridge removal (cylinder repair) without complete disassembly.

### Tie Rods

The **tie rods** are 100,000 psi minimum yield steel for maximum holding power. The threads are roll formed for superior strength and engagement.

### Piston Seal

The **piston seal** is a carboxylated nitrile with Teflon® compound making it self-lubricating. The "T" seal with back-up ring configuration is standard on the 8" bore design. A lip seal configuration is used on 10", 12", and 14" bores. Both seal types prevent rolling and are designed to seal at all pressures.

### Wear Band

The **wear band** is a stable, lubricating strip located on the piston. We separated the load bearing points by locating the wear band at the rear of the piston. This maximizes column strength at full extension.

### Piston

The solid aluminum alloy **piston** is strong and durable. On the 10", 12", and 14" bores we use a nylon locking insert nut to attach the piston to the piston rod. This enables piston rod disassembly if necessary.



### Cushion Seal

The floating **cushion seal** design enables rapid stroke reversal by providing instantaneous full flow to the piston. Each cushion has a flush, retained adjustment needle.

### Tube End Seal

The **tube end seals** are compression type and reusable.

### Ports

Our enhanced **port** design enables the cylinder to work more efficiently. Through the use of precise machining depths and tool shape, we are able to smooth the flow path into and out of the cylinder.

Teflon® is a registered trademark of DuPont™.

### Standard Specifications:

- Meets NFPA specifications
- Bore sizes from 8" through 14"
- Piston rod diameters from 1-3/8" through 2-1/2"
- Nominal pressure rating is 250 psi air
- Standard temperature -10°F to 165°F (-23°C to 74°C)
- NPTF ports
- Flexible port and cushion location
- Multitude of mounting options



## Large Bore A Series NFPA Interchangeable

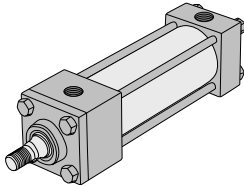
# NUMATICS®

### Standard Large Bore A Series Mounts

#### Centerline Mounts

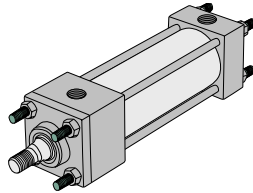
##### X0 Mount

Basic No Mount



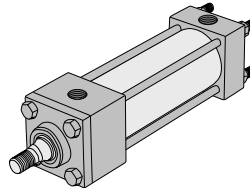
##### X1 Mount

Extended Tie Rods – Both Ends



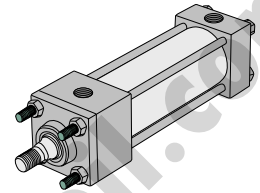
##### X2 Mount

Extended Tie Rods – Cap End



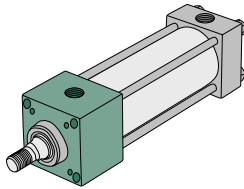
##### X3 Mount

Extended Tie Rods – Head End



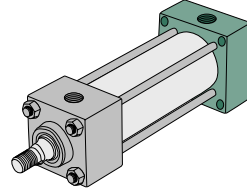
##### E3 Mount

Head Square Mount



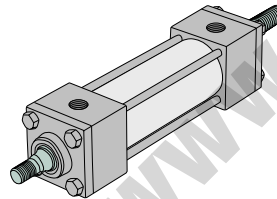
##### E4 Mount

Cap Square Mount



##### DA Mount

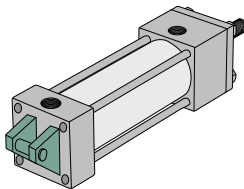
Double Rod End



#### Pivot Mounts

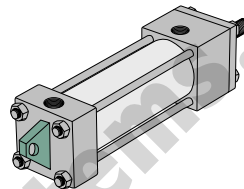
##### P1 Mount

Fixed Clevis



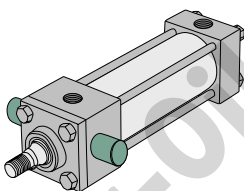
##### P3 Mount

Fixed Eye



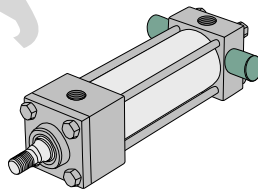
##### T1 Mount

Head Trunnion



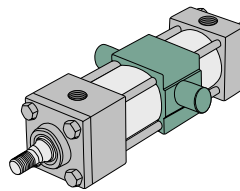
##### T2 Mount

Cap Trunnion



##### T4 Mount

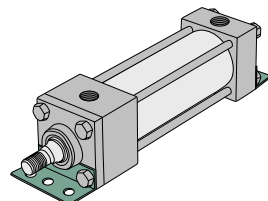
Intermediate Trunnion



#### Foot Mounts

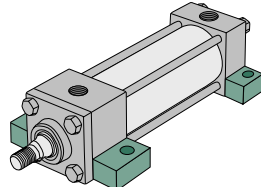
##### S1 Mount

Angle Mount



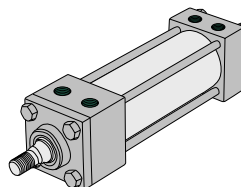
##### S2 Mount

Side Lugs



##### S4 Mount

Bottom Tapped





### How to Order

**E3 A W - 06 A 1 F - C AA 0**

#### Mount

- E3 = Head Square Mount
  - E4 = Cap Square Mount
  - P1 = Fixed Clevis
  - P2 = Removeable Clevis (8" bore only)
  - P3 = Fixed Eye
  - S1 = Angle Mount
  - S2 = Side Lug Mount
  - S4 = Bottom Tap
  - X0 = Basic No Mount
  - X1 = Extended Tie Rods Both Ends
  - X2 = Extended Tie Rod Cap
  - X3 = Extended Tie Rod Head
  - T1 = Head Trunnion
  - T2 = Cap Trunnion
  - T4 = Mid Trunnion\*
  - U3 = Spherical Mount
- \* Specify "X1" length.

#### Type

- A = Large Bore A Series  
NFFPA Interchangeable

#### Bore

- W = 8"
- X = 10"
- Y = 12"
- B = 14"

#### Full Inches of Stroke

- 00 = 0" Stroke
- 01 = 1" Stroke
- 02 = 2" Stroke
- 03 = 3" Stroke
- 99 = 99" Stroke

NOTE: Consult factory for strokes greater than 99".

#### Fractional Inches of Stroke

- A = 0"      I = 1/2"
- B = 1/16"    J = 9/16"
- C = 1/8"      K = 5/8"
- D = 3/16"    L = 11/16"
- E = 1/4"      M = 3/4"
- F = 5/16"    N = 13/16"
- G = 3/8"      O = 7/8"
- H = 7/16"    P = 15/16"

#### Magnet

- 0 = No Magnet
- 2 = Magnet

#### Options

- AA = No Option
  - DA = Double Rod
  - MA = Metallic Rod Scraper
  - 1A\* = Rod Extension
  - 2A\* = Thread Extension
  - 3A = Studded Rod End
  - 4A\* = Stop Tube
  - CT = Composite Tube
  - AT = Aluminum Tube (Standard on 8")
  - SA = Stainless Steel Rod
  - SS = Stainless Steel Rod and Tie Rods
  - ST = Stainless Steel Tie Rods
- \*Must specify length.

#### Cushions

Position	1	2	3	4
No Cushion	A	A	A	A
Head and Cap	B	C	D	E
Head Only	F	G	H	J
Cap Only	K	L	M	N

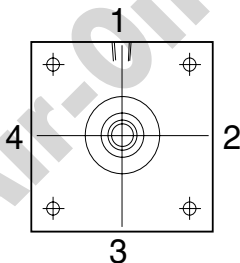
#### Ports

Position	3/4"	1"	1 1/4"
1	F	G	1
2	L	M	2
3	R	S	3
4	X	Y	4

#### Rod End Codes

- 1 = #1 Standard Rod Diameter
  - 2 = #2 Standard Rod Diameter
  - 3 = #3 Standard Rod Diameter
  - 4\* = Special Standard Rod Diameter
  - 5\* = Special Oversize Rod Diameter
  - 6 = #1 Oversize Rod Diameter
  - 7 = #2 Oversize Rod Diameter
  - 8 = #3 Oversize Rod Diameter
  - A = #1 Second Oversize Rod Diameter
  - B = #2 Second Oversize Rod Diameter
  - C = #3 Second Oversize Rod Diameter
- \* Must specify threads.

### Cylinder Orientation



Ports Normally in Position 1

Ports are normally located in position 1.

Cushions are normally located in position 2.

NOTE: Ports -

8" Bore-standard port size is 3/4" NPTF.

10" & 12" Bore-standard port size is 1" NPTF, smaller port sizes available.

14" Bore-standard port size is 1 1/4" NPTF, smaller port sizes available.

### Rod End Styles, Diameters and Threads

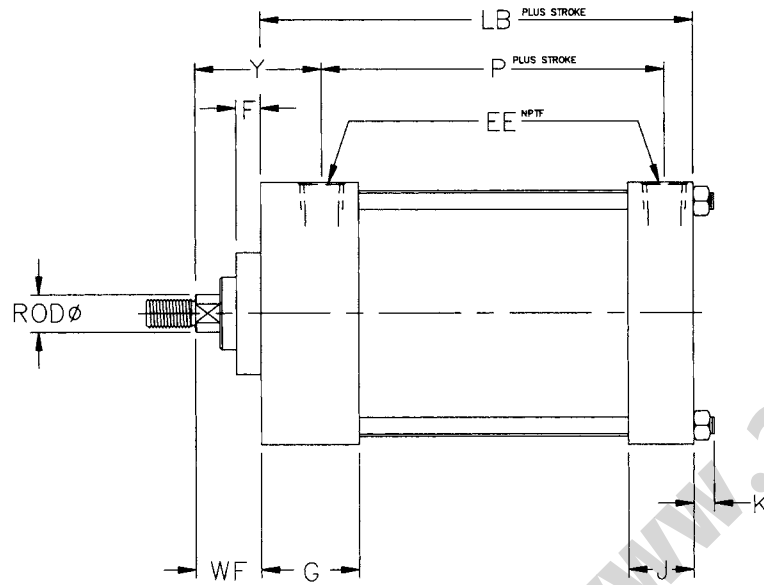
DIAMETER	STYLE #1 STANDARD MALE	STYLE #2 OPTIONAL MALE	STYLE #3 OPTIONAL FEMALE
1.38	1-14	1 1/4-12	1-14
1.75	1 1/4-12	1 1/2-12	1 1/4-12
2.00	1 1/2-12	1 3/4-12	1 1/2-12
2.50	1 7/8-12	2 1/4-12	1 7/8-12



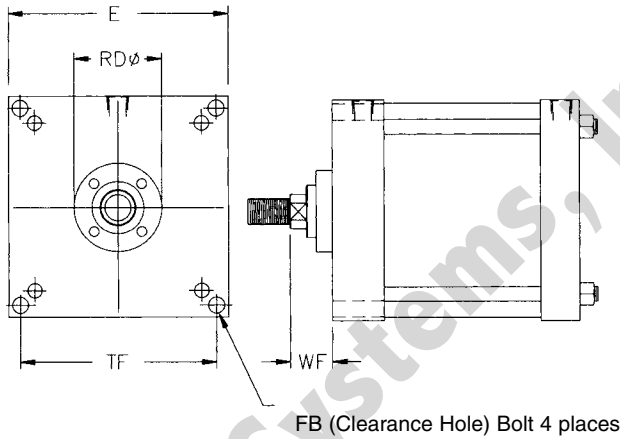
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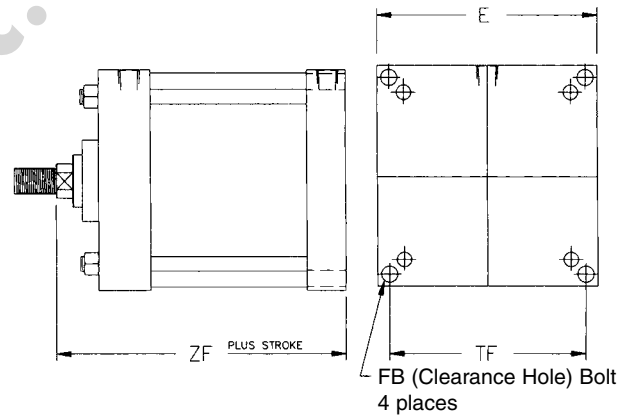
Basic Mount Cylinder



Mount Code X0 NFPA MX0



Mount Code E3 NFPA ME3



Mount Code E4 NFPA ME4

Dimensions

BORE	ROD	E	EE	F	FB	G	J	K	LB	P	RD	TF	WF	Y	ZF
8"	1.375	8.500	0.750	0.630	0.630	2.000	1.500	0.630	5.125	3.250	3.130	7.580	1.630	2.810	6.750
	1.750	8.500	0.750	0.750	0.630	2.000	1.500	0.630	5.125	3.250	3.790	7.580	1.880	3.060	7.000
10"	1.750	10.630	1.000	0.750	0.750	2.250	2.000	0.750	6.375	4.130	5.500	9.400	1.880	3.130	8.250
	2.000	10.630	1.000	0.750	0.750	2.250	2.000	0.750	6.375	4.130	5.500	9.400	2.000	3.250	8.380
12"	2.500	10.630	1.000	0.750	0.750	2.250	2.000	0.750	6.375	4.130	5.500	9.400	2.250	3.500	8.630
	2.000	12.750	1.000	0.750	0.750	2.250	2.000	0.750	6.875	4.630	5.500	11.100	2.000	3.250	8.880
14"	2.500	12.750	1.000	0.750	0.750	2.250	2.000	0.750	6.875	4.630	5.500	11.100	2.250	3.500	9.130
	2.500	14.750	1.250	0.750	0.880	2.750	2.250	0.880	8.125	5.500	5.500	12.870	2.250	3.810	10.380



































