

# How to Order - NFPA Interchangeable Cylinders (1-1/2" to 4" Bore)

NFPA SERIES	BORE	ROD SIZE	MOUNT TYPE	STROKE (INCHES)	CUSHION TYPE	PORT TYPE	ROD END STYLE	OPTIONS (if needed)	OPTIONS (if needed)
TAC	20	SS	MF1	1.25	CB26	PS15	1	MP	STS
1	2	3	4	5	6	7	8	9	9

1	<b>TAC</b>	NFPA Interchangeable
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2	<b>15</b>	1 1/2 Bore Cylinder
	<b>20</b>	2 Bore Cylinder
	<b>25</b>	2 1/2 Bore Cylinder
	<b>32</b>	3 1/4 Bore Cylinder
	<b>40</b>	4 Bore Cylinder

3	<b>SS</b>	Single End, Std Rod Size
	<b>SO</b>	Single End, Ovs Rod Size
	<b>DS</b>	Double End, Std Rod Size
	<b>DO</b>	Double End, Ovs Rod Size

See Rod Size and Thread Style Chart for description.

4	<b>MF1</b>	Front Flange Mount
	<b>MF2</b>	Rear Flange Mount
	<b>MP1</b>	Fixed Clevis Mount
	<b>MP2</b>	Detachable Clevis Mount
	<b>MP4</b>	Detachable Eye Mount
	<b>MS1</b>	Angle Mount
	<b>MS2</b>	Side Lug Mount
	<b>MS4</b>	Bottom Tap Mount
	<b>MT1</b>	Head Trunnion Mount
	<b>MT2</b>	Cap Trunnion Mount
	<b>MX0</b>	Basic No Mount
	<b>MX1</b>	Both Extended Tie Rod Mount
	<b>MX2</b>	Cap Extended Tie Rod Mount
	<b>MX3</b>	Head Extended Tie Rod Mount

5	Specify Stroke to Two Decimal Places*	
	Example 1 1/4" = 1.25	
	Standard Stroke Tolerance ±.031	

\*For Strokes Exceeding 20 inches Consult Factory.

6	<b>NC</b>	No Cushion
	<b>CB15</b>	Cushion Both Ends 1 & 5
	<b>CB26</b>	Cushion Both Ends 2 & 6 (STD)
	<b>CB37</b>	Cushion Both Ends 3 & 7
	<b>CB48</b>	Cushion Both Ends 4 & 8
	<b>CC5</b>	Cushion Cap End 5
	<b>CC6</b>	Cushion Cap End 6
	<b>CC7</b>	Cushion Cap End 7
	<b>CC8</b>	Cushion Cap End 8
	<b>CH1</b>	Cushion Head End 1
	<b>CH2</b>	Cushion Head End 2
	<b>CH3</b>	Cushion Head End 3
	<b>CH4</b>	Cushion Head End 4

See Port and Cushion Position Location Diagram.

7	<b>PS15</b>	Standard Port Size 1 & 5 (STD)
	<b>PS26</b>	Standard Port Size 2 & 6
	<b>PS37</b>	Standard Port Size 3 & 7
	<b>PS48</b>	Standard Port Size 4 & 8

See Port and Cushion Position Location Diagram.

8	<b>1</b>	Style #1 Male Thread (STD)
	<b>2</b>	Style #2 Male Thread
	<b>3</b>	Style #3 Female Thread

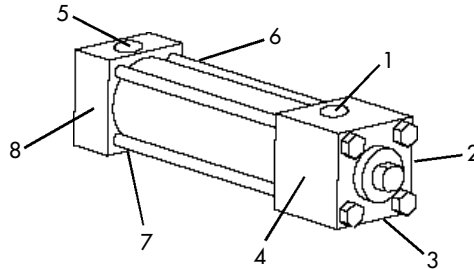
See Rod Size and Thread Style Chart for description.

9	<b>AL</b>	Aluminum Piston
	<b>MP</b>	Magnetic Piston
	<b>STS</b>	Stainless Steel Rod
	<b>VS</b>	High Temperature Viton Seals*
	<b>DO2.00</b>	Dual Piston (specify length)
	<b>RO2.00</b>	Rod Extension (specify length)
	<b>TO2.00</b>	Thread Extension (specify length)

\* Includes Aluminum Piston

## Port and Cushion Position Location

Standard Port Positions 1 & 5  
Standard Cushion Positions 2 & 6



## Rod Size and Thread Style Chart

Bore	Rod Size	*Style #1 Male Thread	*Style #2 Male Thread	Style #3 Female Thread
<b>1 1/2</b>	Standard (5/8")	7/16-20	1/2-20	7/16-20
	Oversize (1")	3/4-16	7/8-14	3/4-16
<b>2</b>	Standard (5/8")	7/16-20	1/2-20	7/16-20
	Oversize (1")	3/4-16	7/8-14	3/4-16
<b>2 1/2</b>	Standard (5/8")	7/16-20	1/2-20	7/16-20
	Oversize (1")	3/4-16	7/8-14	3/4-16
<b>3 1/4</b>	Standard (1")	3/4-16	7/8-14	3/4-16
	Oversize (1 3/8")	1-14	1 1/4-12	1-14
<b>4</b>	Standard (1")	3/4-16	7/8-14	3/4-16
	Oversize (1 3/8")	1-14	1 1/4-12	1-14

\*Note: Male Rod Ends are threaded Rod Studs.

## Force Charts

The charts below show maximum usable forces. Standard design practices should take factors such as stroke, speed and friction into account when sizing a cylinder.

Max Usable Cylinder Extend Force, (lbf)			
Bore	60 psi	80 psi	100 psi
<b>1 1/2"</b>	85	113	141
<b>2"</b>	150	201	251
<b>2 1/2"</b>	235	314	392
<b>3 1/4"</b>	398	530	663
<b>4"</b>	603	804	1005

Max Usable is 80% of Theoretical.

Max Usable Cylinder Retract Force, (lbf)				
Bore	Rod Dia.	60 psi	80 psi	100 psi
<b>1 1/2"</b>	5/8"	70	94	117
	1"	47	62	78
<b>2"</b>	5/8"	136	181	226
	1"	113	150	188
<b>2 1/2"</b>	5/8"	221	294	368
	1"	198	264	330
<b>3 1/4"</b>	1"	360	481	601
	1 3/8"	326	436	545
<b>4"</b>	1"	566	754	942
	1 3/8"	532	709	886