



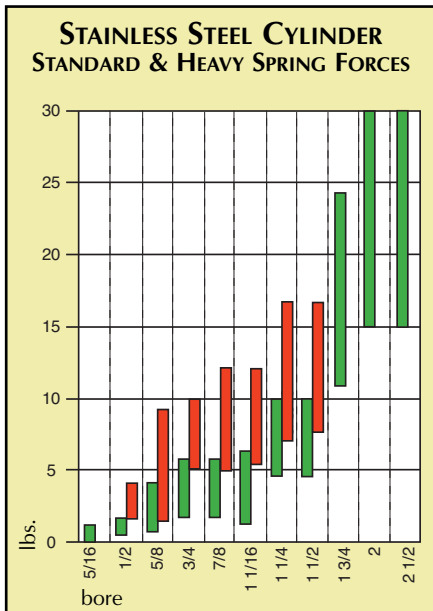
## NUMBERING SYSTEM

Stroke  
In inches & fractions of an inch

|  |   |  |   |   |   |  |   |   |
|--|---|--|---|---|---|--|---|---|
| □  | □   | □  | - | □   | - | □  | - | □   |
|  |   |  |   |   |   |  |   |   |
| <b>Mounting Type</b>   |   | <b>Rod Type</b>  |   | <b>Bore</b>   |   |  |   | <b>Options</b>  |
| S - Stud<br>U - Universal<br>C - Clevis<br>F - Front Block<br>E - End Stud<br>T - Trunnion |   | D - Double Ended Rod<br>R - Rotating Rod<br>N - Non-Rotating Rod<br>H - Hollow Rod |   | 5/32" - <a href="#">page 7</a><br>1/4" - <a href="#">page 7</a><br>05 - 5/16"<br>08 - 1/2"<br><b>NEW!</b> 09 - 9/16"<br>10 - 5/8"<br>12 - 3/4"<br>14 - 7/8" |   | 17 - 1 1/16"<br>20 - 1 1/4"<br>24 - 1 1/2"<br>28 - 1 3/4"<br>32 - 2"<br>40 - 2 1/2"<br>48 - 3" |   | B - Bumpers<br>V - Fluorocarbon Seals<br>C - Cushions<br>M - Magnetic Piston for Position Sensors<br>F - Cushion Front End<br>R - Cushion Rear End<br>W - Rod Wiper<br>S - Side Ported<br>H - Heavy Spring<br>P - Rotated Ports<br>N - No Threads |
|  | <b>Cylinder Type</b>  |  |   |   |   |  |   |   |
|  | D - Double Acting<br>S - Single Acting<br>R - Reverse Acting<br>F - Front Spring Bias<br>B - Back Spring Bias |  |   |   |   |  |   |   |

Not all combinations are available - consult factory

## SPECIFICATIONS

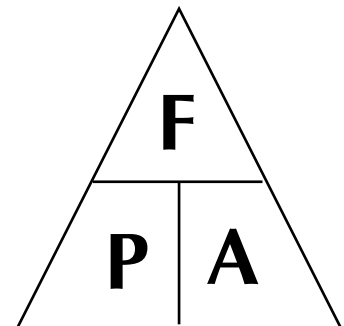


|                                      |       |       |       |       |      |      |         |        |        |        |      |        |      |
|--------------------------------------|-------|-------|-------|-------|------|------|---------|--------|--------|--------|------|--------|------|
| <b>Bore Size</b>                     | 5/16" | 1/2"  | 9/16" | 5/8"  | 3/4" | 7/8" | 1-1/16" | 1-1/4" | 1-1/2" | 1-3/4" | 2"   | 2-1/2" | 3"   |
| <b>Force Factor - Extend (Area)</b>  | 0.07  | 0.19  | 0.25  | 0.31  | 0.44 | 0.60 | 0.88    | 1.2    | 1.7    | 2.4    | 3.1  | 4.9    | 7.0  |
| <b>Rod Size</b>                      | 1/8"  | 3/16" | 3/16" | 3/16" | 1/4" | 1/4" | 5/16"   | 3/8"   | 7/16"  | 1/2"   | 5/8" | 5/8"   | 3/4" |
| <b>Rod Area</b>                      | 0.01  | 0.03  | 0.03  | 0.03  | 0.05 | 0.05 | 0.08    | 0.11   | 0.15   | 0.20   | 0.31 | 0.31   | 0.44 |
| <b>Force Factor - Retract (Area)</b> | 0.06  | 0.16  | 0.22  | 0.28  | 0.39 | 0.55 | 0.80    | 1.09   | 1.55   | 2.20   | 2.90 | 4.59   | 6.56 |

The force required, operating air pressure and cylinder bore are all factors that must be determined or known when sizing an air cylinder. If two are known the other is easily calculated per the formulas and triangle shown below.

|   |                  |
|---|------------------|
| <b>F - Force or load in pounds</b>          | $F = P \times A$ |
| <b>P - Pressure</b>                         | $P = F / A$      |
| <b>A - Area of cylinder (square inches)</b> | $A = F / P$      |

Area is derived using either of the following formulas: **Diameter**<sup>2</sup> x 0.7854 or **Radius**<sup>2</sup> x  $\pi$



### Standard Spring Forces (lbs)

| Bore       | 5/16" | 1/2" | 9/16" | 5/8" | 3/4" | 7/8" | 1-1/16" | 1-1/4" | 1-1/2" | 1-3/4" | 2"   | 2-1/2" |
|------------|-------|------|-------|------|------|------|---------|--------|--------|--------|------|--------|
| At Rest    | 0.5   | 0.9  | 1.7   | 1.3  | 3.0  | 3.0  | 2.0     | 4.5    | 4.5    | 11.0   | 15.0 | 15.0   |
| Compressed | 1.0   | 2.0  | 4.0   | 4.0  | 6.0  | 6.0  | 7.0     | 10.0   | 10.0   | 24.0   | 30.0 | 30.0   |

### Heavy Spring Forces (lbs)

| Bore       | 5/16" | 1/2" | 9/16" | 5/8" | 3/4" | 7/8" | 1-1/16" | 1-1/4" | 1-1/2" | 1-3/4" | 2"  | 2-1/2" |
|------------|-------|------|-------|------|------|------|---------|--------|--------|--------|-----|--------|
| At Rest    | N/A   | 2.0  | N/A   | 3.3  | 5.0  | 5.0  | 5.5     | 8.5    | 8.5    | N/A    | N/A | N/A    |
| Compressed | N/A   | 4.0  | N/A   | 9.0  | 10.0 | 10.0 | 13.0    | 17.0   | 17.0   | N/A    | N/A | N/A    |