

## AIR CYLINDER FORCE

The force that an air cylinder can develop when extending (pushing) is the product of the cylinder bore area multiplied by the air pressure that is applied to it. If the air cylinder is retracting or is a double rod cylinder, the rod area must be deducted from the cylinder bore area before multiplying this net area by the air pressure.

The formula for calculating area is:  $A$  (area) =  $1/4 \times \pi$  (Pi)  $\times D^2$  (Diameter)  
 $= .7854 \times D^2$

The formula for force is:  $F$  (force) lbs. =  $p$  (air pressure) psig.  $\times A$  (area) sq. in.  
 $F = p \times A$

The forces obtained from some common cylinders are tabulated below.

### AIR CYLINDER FORCE IN POUNDS

Bore Dia. (in.)	Area (sq. in.)	Line pressure in pounds per sq. inch (gauge)									
		30	40	50	60	70	80	90	100	110	120
1.00	.785	24	31	39	47	55	63	71	79	86	94
1.125	.994	30	40	50	60	70	80	89	99	109	119
1.50	1.767	53	71	88	106	124	141	159	177	194	212
1.75	2.405	72	96	120	144	168	192	216	241	265	289
2.00	3.142	94	126	157	189	220	251	283	314	346	377
2.50	4.909	147	196	245	295	344	393	442	491	540	589

**NOTE:** The above chart assumes an extending cylinder with full bore diameter area.

