



TECHNICAL REFERENCE GUIDE

Vacuum/Pressure

To Convert From	pascal	torr	atm	mbar	micron	psia	in. Hg Abs
pascal	1	7.5×10^{-3}	9.87×10^{-6}	0.01	7.5	1.45×10^{-4}	2.95×10^{-4}
torr (mm Hg)	133	1	1.315×10^{-3}	1.333	1000	0.01934	0.0394
atmosphere	1.013×10^5	760	1	1013	7.6×10^5	14.7	29.92
millibar (mbar)	100	0.75	9.87×10^{-4}	1	750.1	0.0145	0.0295
micron	0.1333	0.001	1.316×10^{-6}	1.333×10^{-3}	1	1.934×10^{-5}	3.94×10^{-5}
psia	6.89×10^3	51.71	0.068	68.9	5.17×10^4	1	2.036
in. Hg Abs	3.39×10^3	25.4	0.03342	33.9	2.54×10^4	0.4912	1

Standard Atmospheric

Pumping Speed/Leak Rate

From	Multiply By	To
	Pump Speed	
ft ³ /min	1.697	m ³ /hr
m ³ /hr	0.589	ft ³ /min
liters/sec	3.6	m ³ /hr
liters/sec	2.12	ft ³ /min
	Leak Rate	
atm-cc/sec	1.013	mbar-liter/sec
atm-cc/sec	0.76	torr-liter/sec
torr-liter/sec	1.33	mbar-liter/sec

CFM - SCFM - ACFM

CFM - cubic feet per minute, displacement of pump chamber at 100% efficiency
 SCFM - standard cubic feet per minute, mass flow of air at standard conditions
 ACFM - actual cubic feet per minute, volumetric flow of gas that has been expanded

$$ACFM = SCFM \times \frac{760}{P} \quad P = \text{pressure in Torr}$$

Elevation vs Vacuum

Elevation (ft)	Max Relative Vacuum (inHg)	Percent Loss
0 (sea level)	29.92	0
1,000	28.85	3.6%
2,000	27.82	7.0%
3,000	26.82	10.4%
4,000	25.84	13.6%
5,000	24.89	16.8%
6,000	23.98	19.9%
7,000	23.06	22.9%
8,000	22.20	25.7%
9,000	21.38	28.5%
10,000	20.58	31.2%

Absolute vs Relative Pressure

