

VACUUM REFERENCE DATA

PRESSURE UNIT CONVERSIONS (P)

TO CONVERT TO →	atmosphere	torr	pascal	millibar	psi	micron	Inch Hg	Inch H ₂ O	kg/m ²	
	MULTIPLY BY									
FROM	atmosphere	1	760	101,323	1013	14.696	760,000	29.921	406.8	10,332
torr (mm Hg)	1.316X10 ⁻³	1	133.3	1.333	1.934x10 ⁻²	1000	3.937x10 ⁻²	0.535	13.59	
pascal	9.87X10 ⁻⁶	7.5x10 ⁻³	1	0.01	1.45x10 ⁻⁴	7.5	2.95x10 ⁻⁴	4.016x10 ⁻³	0.102	
millibar	9.87X10 ⁻⁴	0.75	100	1	1.45x10 ⁻²	750.2	2.95x10 ⁻²	0.402	10.197	
psi	6.8X10 ⁻²	51.71	6895	68.95	1	5.17x10 ⁴	2.036	27.68	703	
micron	1.316x10 ⁻⁶	0.001	0.1333	1.333x10 ⁻³	1.934x10 ⁻⁶	1	3.93x10 ⁻⁸	5.35x10 ⁻⁴	1.359x10 ⁻²	
Inch Hg	3.34x10 ⁻²	25.40	3386	33.86	0.491	2.54x10 ⁴	1	13.595	345.3	
Inch H ₂ O	2.46x10 ⁻³	1.868	249	2.49	3.61x10 ⁻²	1868	7.35x10 ⁻²	1	25.39	
kg/m ²	9.68x10 ⁻⁶	7.35x10 ⁻²	9.81	0.098	1.42x10 ⁻³	73.56	2.89x10 ⁻³	3.94x10 ⁻²	1	

STANDARD FLANGE DIMENSIONS, ANSI (ASA)

Nominal Size, In*	Flange OD, In	Bolt Circle, In	No. of Bolts	Bolt Size
2	6	4-3/4	4	5/8 -11
3	7 1/2	6	4	5/8 -11
4	9	7 1/2	8	5/8 -11
6	11	9 1/2	8	3/4 -10
8	13 1/2	11 3/4	8	3/4 -10
10	16	14 1/4	12	3/4 -10
12	19	17	12	7/8 -9
16	23 1/2	21 1/4	16	1 -8
20	27 1/2	25	20	1 1/8 -7

MAXIMUM TUBE SIZES FOR ISO FLANGES

Size, NW	Max Tube OD, In	Size, NW	Max Tube OD, In.
10	1/2	100	4
16	3/4	160	6
25	1	200	8
40	1 1/2	250	10
50	2	320	12 3/4
63	2 1/2	400	16
80	3	500	20

MAXIMUM TUBE SIZES FOR METAL SEAL FLANGES

Size, OD, In	Max Tube OD, In	Size, OD, In	Max Tube OD, In
1 1/3	3/4	6 3/4	5
2 1/8	1	8	6
2 3/4	1 1/2	10	8
3 3/8	2	13 1/4	10 3/4
4 1/2	2 1/2	14	12
4 5/8	3	16 1/2	14
6	4		

FOR VACUUM PROCESS EQUIPMENT NEEDS

CALL - Toll Free: 800-331-2808

e-mail: info@schoonoverinc.com

www.schoonoverinc.com

VOLUME UNIT CONVERSIONS (V)

TO CONVERT TO →	liter	cc	cu ft	cu in	gallon	
	MULTIPLY BY					
FROM	liter	1	1000*	0.03532	61.025	0.26418
cc	0.001*	1	3.53x10 ⁻⁵	0.06102	2.64x10 ⁻⁴	
cu ft	28.316	2.83x10 ⁴	1	1728	7.461	
cu in	0.01639	16.387	5.79x10 ⁻⁴	1	4.33x10 ⁻³	
gallon	3.7853	3785.4	0.13368	231	1	

*Approximate value, 1 liter = 1000.027cc

PUMP SPEED UNIT CONVERSIONS (V/I)

TO CONVERT TO →	cfm	liter/sec	liter/min	cc/sec	m ³ /hr	
	MULTIPLY BY					
FROM	cfm	1	0.472	28.316	471.96	1.699
liter/sec	2.11864	1	60	1000.027	3.599	
liter/min	0.0353	0.0167	1	16.667	0.05998	
cc/sec	2.1x10 ⁻³	9.99x10 ⁻⁴	0.05999	1	3.59x10 ⁻³	
m ³ /hr	0.589	0.2778	16.67	277.8	1	

THROUGHPUT UNIT CONVERSIONS (PV/I)

TO CONVERT TO →	torr-l/s	mbar-l/s	scm/min	micron-l/s	Pa-l/s	
	MULTIPLY BY					
FROM	torr-liter/s	1	1.333	78.95	1000	133.32
millibar-liter/s	0.75	1	59.23	750	100	
scm/min	0.01267	0.01689	1	12.67	1.689	
micron-liter/s	10 ⁻³	1.33x10 ⁻³	0.0789	1	0.1333	
pascal-liter/s	7.5x10 ⁻³	0.01	0.5923	7.50	1	

* Some manufacturers identify flanges by outside diameter rather than nominal size.

SCHOONOVER, INC.