ATMOSPHERIC / VACUUM PRESSURE CONVERSION TABLE

Atmosphere atm	bar	MILLIBAR mbar	Torr (mm of Hg) (Millimeters of Mercury)	Vacuum Class.	MICRON mTorr (millitorr) (Microns of Mercury) (µmHg)	"Hg gauge ("HgV) (Inches of Mercury)	"Hg absolute ("HgA) (Inches of Mercury)	PSI Pounds Per Square Inch (psia)	PASCAL Pa	kilopascal kPa	dyne/square centimetre	Inches of Water Column	External Pressure Difference PSI @ 1 Atmosphere
1.00	1.013	1,013	760 (1 Atmosphere)	Rough Low	760,000	0	29.92	14.70	101,325	101.33	1,013,250	406.78	0.00
0.99	1.000	1,000	750	Rough Low	750,000	0.42	29.53	14.50	99,992	99.99	999,918	401.43	0.20
0.79	0.800	800	600	Rough Low	600,000	6.32	23.62	11.60	79,993	79.99	799,934	321.14	3.10
0.53	0.533	533	400	Rough Low	400,000	14.22	15.75	7.73	53,329	53.33	533,289	214.10	6.97
0.26	0.267	267	200	Rough Low	200,000	22.07	7.87	3.87	26,664	26.66	266,645	107.05	10.83
0.13	0.133	133	100	Rough Low	100,000	25.98	3.94	1.93	13,332	13.33	133,322	53.52	12.77
0.06	0.060	60	45	Rough Low	45,000	28.15	1.77	0.87	6,000	6.00	59,995	24.09	13.83
0.03	0.033	33	25	Rough Low/Med.	25,000	28.94	0.98	0.48	3,333	3.33	33,331	13.38	14.22
0.03	0.027	27	20	Rough Medium	20,000	29.14	0.79	0.39	2,666	2.67	26,664	10.70	14.31
0.0013	0.0013	1.333	1	Rough/Fine Medium	1,000	29.88	0.04	0.019	133	0.13	1,333	0.54	14.681
0.0009	0.0009	0.933	0.7 (7.0×10^{-1})	Fine Medium	700	29.89	0.028	0.014	93	0.09	933	0.37	14.686
0.0008	0.0008	0.800	0.6 (6.0×10^{-1})	Fine Medium	600	29.90	0.024	0.012	80	0.08	800	0.32	14.688
0.0007	0.0007	0.667	0.5 (5.0×10^{-1})	Fine Medium	500	29.90	0.020	0.010	67	0.07	667	0.27	14.690
0.0005	0.0005	0.533	0.4 (4.0×10^{-1})	Fine Medium	400	29.90	0.016	0.008	53	0.05	533	0.21	14.692
0.0004	0.0004	0.400	0.3 (3.0×10^{-1})	Fine Medium	300	29.91	0.012	0.006	40	0.04	400	0.16	14.694
0.0003	0.0003	0.267	0.2 (2.0×10^{-1})	Fine Medium	200	29.91	0.008	0.004	27	0.03	267	0.11	14.696
0.00013	0.00013	0.133	0.10 (1.0×10^{-1})	Fine Medium	100	29.92	0.004	0.002	13	0.013	133	0.05	14.698
0.00009	0.00009	0.093	0.07 (7.0×10^{-2})	Fine Medium	70	29.92	0.003	0.0014	9	0.009	93	0.04	14.6986
0.00008	0.00008	0.080	0.06 (6.0×10^{-2})	Fine Medium	60	29.92	0.0024	0.0012	8	0.008	80	0.03	14.6988
0.00007	0.00007	0.067	0.05 (5.0×10^{-2})	Fine Medium	50	29.92	0.0020	0.0010	7	0.007	67	0.03	14.6990
0.00005	0.00005	0.053	0.04 (4.0×10^{-2})	Fine Medium	40	29.92	0.0016	0.0008	5	0.005	53	0.02	14.6992
0.00004	0.00004	0.040	0.03 (3.0×10^{-2})	Fine Medium	30	29.92	0.0012	0.0006	4	0.004	40	0.02	14.6994
0.00003	0.00003	0.027	0.02 (2.0×10^{-2})	Fine Medium	20	29.92	0.0008	0.0004	3	0.003	27	0.011	14.6996
0.000013	0.000013	0.013	0.01 (1.0×1^{-2})	Fine Medium	10	29.92	0.0004	0.0002	1.33	0.0013	13	0.005	14.69981
↓↓↓ Unless otherwise specified, for cryogenic vessel pump down: Maintain sensor reading of 10 Micron or less while on the vacuum pump for 12 hours or longer ↓↓↓													
0.000007	0.000007	0.007	0.005 (5.0×10^{-3})	Fine/High Med./High	5	29.92	0.00020	0.00010	0.67	0.0007	7	0.003	14.69990
0.0000013	0.0000013	0.0013	0.001 (1.0×10^{-3})	High	1	29.92	0.00004	0.00002	0.13	0.00013	1.3	0.0005	14.69998
0.0000007	0.0000007	0.0007	0.0005 (5.0×10^{-4})	High	0.5	29.92	0.00002	0.000010	0.07	0.00007	0.7	0.0003	14.699990
0.0000001	0.0000001	0.0001	0.0001 (1.0×10^{-4})	High	0.1	29.92	0.000004	0.000002	0.01	0.00001	0.1	0.0001	14.699998
↓	(1.0×10^{-6}) to (1.0×10^{-9}) mm Hg			Very High	↓	29.92	↓	↓	↓	↓	↓	↓	↓
↓	(1.0×10^{-9}) mm Hg and less			Ultra High	↓	29.92	↓	↓	↓	↓	↓	↓	↓

● **What is standard sea-level pressure?** Standard sea-level pressure, by definition, equals 760 mm **(29.92 inches) of mercury**, 14.70 pounds per square inch, 1,013.25 × 103 dynes per square centimetre, 1,013.25 millibars, one standard atmosphere, or 101.325 kilopascals. (Ref. Britannica.com)

● **What is atmospheric pressure?** Atmospheric pressure, also called barometric pressure, force per unit area exerted by an atmospheric column (that is, the entire body of air above the specified area). Atmospheric pressure can be measured with a mercury barometer (hence the commonly used synonym barometric pressure), which indicates the height of a column of mercury that exactly balances the weight of the column of atmosphere over the barometer. (Ref. Britannica.com)

● **What is vacuum?** The word vacuum is derived from the Greek word meaning empty. In practice some type of vessel (vacuum enclosure, chamber, or container) which is open to the surrounding air is used. As air is removed by some pumping means, a vacuum is obtained. Clearly various degrees of vacuum can be obtained, depending on how much air is removed from the enclosure.
Practically, a vacuum vessel which is empty, i.e., free of all matter, is never obtained.
If this were possible the vacuum would be called *perfect* or *absolute* .
(Ref. "Vacuum Technology" by Andrew Guthrie 1963, ISBN 0 471 33722 6, Page 1)

● **In the U.S., the common standard to measure rough vacuum is inches of mercury ("Hg), which can be measured in two different ways.**
One method is as **"Hg gauge ("HgV)**, where the scale starts at 0" Hg (atmospheric pressure) and goes up to 29.92" Hg, which is perfect vacuum.
The other way is to measure in **"Hg absolute ("HgA)**, which is a gauge with a reversed scale. In this case, the scale on the gauge reads 29.92" Hg at atmospheric pressure and 0" Hg would be perfect vacuum. Please note that a perfect vacuum is not possible on earth. (Ref. dekkervacuum.com)

● **Symbols for Vacuum:**
(Ref. Leybold Vacuum)

● **Online Source / Reference Links:**

https://www.convertunits.com/
https://www.google.com/
https://www.avs.org/AVS/files/ae/ae66e4af-9b98-47fb-b166-77d28a4bb3d2.pdf
https://www.fe.infn.it/~barion/docs/vacuum/vacuum_symbols
https://www.dekkervacuum.com/resource-library/knowledge-database/technical-data/what-is-vacuum/
https://www.britannica.com/science/atmospheric-pressure
http://convert-to.com/conversion/pressure/convert-torr-to-dyn-cm.html