Units of vacuum

Pascal (Pa), kilopascals (kPa), bar (bar) and millibars (mbar) are used as pressure units in vacuum technology.
The conversion of these units is as follows:

0.001 bar = 0.1 kPa = 1 mbar = 100 Pa

or as indicated in the conversion table:

Vacuum/pressure conversion table

Residual pressure absolute [mbar]	Relative vacuum	bar relative	N/cm²	kPa	atm.kp/cm²	mm H_2O	Torr; mm Hg	in Hg
900	10 %	-0.101	-1.01	-10.1	-0.103	-1030	-76	-3
800	20 %	-0.203	-2.03	-20.3	-0.207	-2070	-152	-6
700	30 %	-0.304	-3.04	-30.4	-0.31	-3100	-228	-9
600	40 %	-0.405	-4.05	-40.5	-0.413	-4130	-304	-12
500	50 %	-0.507	-5.07	-50.7	-0.517	-5170	-380	-15
400	60 %	-0.608	-6.08	-60.8	-0.62	-6200	-456	-18
300	70 %	-0.709	-7.09	-70.9	-0.723	-7230	-532	-21
200	80 %	-0.811	-8.11	-81.1	-0.827	-8270	-608	-24
100	90 %	-0.912	-9.12	-91.2	-0.93	-9300	-684	-27

Relationship between air pressure and vacuum

The ambient pressure or atmospheric pressure at 0 mbar is the reference quantity for the manufacture of a vacuum.
The air pressure in turn depends on the height at which it is measured.

In general: Air pressure decreases with increasing altitude. Thus, the ambient pressure on the Zugspitze (2,963 metres height; 695 mbar) is much lower than at sea level (1,013 mbar) which at 0 metres marks the ideal state for vacuum generation. For vacuum technology that means: As air pressure is reduced, the difference in pressure between ambient pressure and the vacuum cup pressure narrows. The maximum holding force of the vacuum is thus reduced. The benchmark: For every 100 metre increase in altitude, the ambient pressure falls by about 12.5 mbar. That must correspondingly be considered when using components in producing a vacuum.