

Pressure Gauge Technical Brief

Allowable Error within Zero-band

REOTEMP mechanical pressure gauges are designed and built to indicate accurate pressure measurement through the full dial scale based on the stated ASME accuracy grade of that model pressure gauge. However, when there is no pressure applied to the elastic element and the pointer is resting near zero most gauges are not designed or manufactured to be perfectly accurate. The ASME specification (B40.100) for mechanical pressure gauges is fairly specific on this point in section **3.3.2.5 Dial Information – Graduation Near Zero**

“ On dials of Grade 4A (+/- 0.1%) and 3A (+/- 0.25%) gauges, there shall be no takeup. The number and the spacing of the minor graduations near zero, shall be the same, commencing at the true zero, as in the rest of the scale. On dials for all other grades, takeup may be incorporated. However, if it is incorporated, it shall be readily apparent at what pressure the graduations start. A zero graduation or numeral, or both, shall not be permitted at the stopped pointer position on gauges using a stop pin or internal stops that prevent free pointer motion to the actual zero pressure point.”

“*Definition:* Takeup – the portion of the scale between the position where the pointer is stopped and its true zero pressure position”

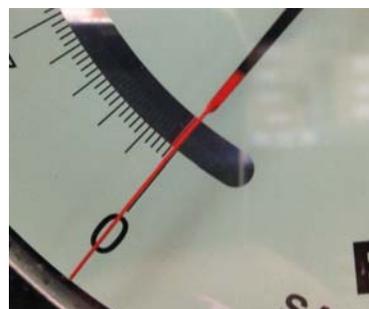
REOTEMP complies with the ASME requirement as is shown below in the examples:



Accuracy Grade A (2-1-2%)
Stop Pin, No zero numeral



Accuracy Grade 2A (+/- 0.5%)
Takeup = perpendicular hash mark



Accuracy Grade 3A (+/- .25%)
No takeup, minor graduations at Zero

When REOTEMP calibrates pressure gauges with a takeup, the pointer is allowed to be resting against the stop pin or anywhere within the perpendicular hash mark. A pressure gauge should not be considered out of tolerance if the pointer rests within the area defined by the perpendicular hash mark on the zero graduation.