PRODUCT INFORMATION

HORIZONTAL CALIBRATION

Unlike Heise® electronic instruments, position sensitivity is an important factor in maintaining the accuracy of a Heise® precision dial mechanical pressure gauge. These gauges must be built and calibrated for the position in which they will be used.

On most Model CC and CM gauges, the linearity can be adjusted by the proper positioning of a counterweight located on the tail end of the pointer. (There is no movable counterweight on 6 inch gauge pointers; the counterbalance effect is achieved by trimming the length of the pointer tail.) The counterweight serves to offset the position of the pointer by harnessing the effects of gravity; having the greatest offset effect at 25% of full scale and 75% of full scale. This form of linearity adjustment is simple, field adjustable and allows the gauge to be manufactured with a "linear" dial. (A “linear” dial is a dial upon which the graduations are evenly spaced.) However, this form of linearity adjustment is only effective when the gauge is used in the vertical or near-vertical position. In the horizontal position, there will be no linearity offset because gravity will not act upon the counterweight to cause the appropriate offset. Therefore, a different method of linearity offset adjustment must be employed.

The other method of compensating for inherent non-linearity is by the use of a “non-linear” dial; a dial on which the graduations are placed to match the position of the pointer at that particular pressure point. Thus, the dial is plotted as part of the calibration of the gauge. With this method, the counterweight is eliminated and a balanced pointer is used. (Balanced pointers can be identified by the ½ moon at the end of the tail.) Since no counterweight is required, the gravitational effect on the pointer is not a factor in the calibration. This method is employed on all gauges which are used in the horizontal position, all CMM gauges and some CM and CC gauges.

In addition to the use of a non-linear dial, gauges intended for use in the non-vertical position will also be fitted with extra bearings which will replace sector bushings and will actually be calibrated in the position of intended use. A sticker bearing the message, “Notice – This gauge has been calibrated for use with the dial in a horizontal position,” will be attached to the rear cover of all gauges which have been calibrated for use in the horizontal position.

The question which we are most often asked is, “At what degree of angle deviation from the vertical position will the counterweight no longer be effective and thus a non-linear dial be required?” In our experience, we have found that 20 degrees or more deviation from vertical serves as the general guideline.

Please be sure to evaluate the mounting position of the gauge and include this information in the gauge specification.