

## Vague results – load cells of accuracy class C6 under test

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Retail trade customers rely on them and trust them: the measurement results of modern counter scales. Which is hardly surprising, as scales that are used in the trade are subject to legal-for-trade liability and are therefore monitored and checked every two years by officials from the Standards Office. The requirements for these scales are correspondingly high, particularly for the load cells used in them. Their properties with regard to measurement error and repeatability are precisely regulated in the international recommendation OIML R60.

So manufacturers of calibration class III scales only install in their products C3 and C6 quality load cells that meet the recommendations of the International Organization of Legal Metrology in Paris. A fact that is usually proved by the OIML certificate accompanying the load cell. But the inspection carried out at regular intervals by the standards officials also confirms that medium accuracy weighing machines produce reliable and precise measurement results, as well as complying with valid verification regulations. At the actual time of verification, the prevailing ambient conditions are relatively constant, particularly the consistent ambient temperature. So the stamping of a medium accuracy weighing machine by the competent Standards Office does not automatically confirm compliance with the recommendations of OIML R60, whose testing is based on far stricter test conditions.

This is why, in the course of quality control and quality assurance measures, the latest generation of high-precision HBM, C6-quality load cells were tested under laboratory conditions. The equivalent products of other manufacturers were examined in parallel, under identical conditions. The test setup and ambient conditions matched those of the PTB (German Metrology Institute) in Brunswick.

In the test, HBM's precix series – the new platform load cells range for legal-for-trade scales of accuracy class C6 – returned a series of precise measurement results. Linearity and hysteresis showed ideal values. A fact that became immediately obvious from looking at the stepped curves and test reports for the HBM load cells that were tested. On the other hand, the performance of the C6-quality load cells from competitors that were tested under identical conditions, was more than surprising. Although the accuracy data for the measurements at different temperatures prescribed under OIML fell within the tolerances, there was already a wide spread. For so-called creep, however, the products tested did not meet the prescribed requirements, unlike the HBM precix series.

This result has consequences, as, in fluctuating temperatures, medium accuracy weighing machines with inaccurate load cells show considerable measurement errors, which are paid for by the customer, and/or the user. But the new HBM load cell series precix, for high-precision weighing, has the remedy, even under inconsistent ambient conditions.

### Something you can rely on: HBM C6-quality load cells

With *precix*, HBM provides load cells that, as standard, have an acceptable number of **6000 verification intervals in the legal-for-trade range**. The accuracy of these load cells, which is also called **C6-quality** (as per international recommendation **OIML R60**), has direct **advantages for you**, compared with standard load cells with 3000 verification intervals:

- **Cost saving thanks to greater load cell flexibility:** Instead of using several scales for the different weighing ranges and accuracies, you now only need one scale with *precix*! Where previously, for example, you needed one scale with a 15 kg (approx. 0,18 oz) intervals, as well as a scale with 30 kg/10 g (66 lbs/0,35 oz) now you only need one, with a 30 kg/5 g (approx. 66 lbs/ 0,18 oz) weighing range, which even manages without switching intervals.
- Applications, where the use of **legal-for-trade scales** is not prescribed, can also achieve **far greater weighing accuracy**. This applies **in particular to weighing when there are changes in temperature**.