

Use and maintenance of plug gauges

To use the plug gauges or measuring pins correctly and to ensure that the test results are appropriate, certain rules must be followed.

1. Preparing for Measurement

The hole whose diameter needs to be checked must be as clean as possible and should not have any "burrs" on the edge to prevent insertion of the plug gauge.

2. Aligning the Gauge

The test gauge and the bore to be measured must be aligned so that the mandrel can be inserted well into the hole. The edge of the plug gauge can be slightly rounded to make it easier to push the test gauge into the hole. In order to measure so-called blind holes (holes that do not fully penetrate the component), air grooves are integrated on the GO-side to vent the hole. This ensures that the air pressure generated by the insertion of the plug gauge does not hinder the insertion of the measuring device to the end of the hole.

3. Gauge Insertion Technique

Slowly and carefully insert the limit plug gauge into the hole to be checked; it should never be introduced by force.

4. Utilising the NO-GO Side

When using the NO-GO-side of the plug gauge, it should be clear that the gauge can only be inserted into the hole to be checked if it does not meet the requirements. Therefore, this side should only be used to rule out incorrect use of the GO-side test.

5. Temperature Consistency

If a hole is to be checked with a steel gauge, which is also made of steel, the gauge and the specimen must have the same temperature. However, if the plug gauge is made of a different material than the test piece to be measured, different coefficients of thermal expansion for different materials must be considered. The standard temperature at which the check should take place is 20 ° C (68 F). The measurement accuracy is guaranteed at this temperature of the test specimen and the test gauge.

6. Storage and Handling

Limit gauges should not be exposed to high humidity or heat for long periods. To ensure additional protection against rust and physical deformations, the mandrels should also be coated with an anti-rust agent after cleaning and stored in a suitable protective packaging.

7. Regular Inspection

All gauges should be checked regularly as the plug gauges can be worn or damaged. If the GO-side of the mandrel wears, which occurs more frequently, the lower tolerance limit can be worn, which can lead to test pieces being declared suitable, but which are unsuitable. The NO-GO-side is less likely to be worn out, with the result that unsuitable parts are declared as good and, on the other hand, suitable parts are rejected. This further increases the production costs.