

Test Arbors and Pull Force Gauges for service personnel. Calibration service and documentation in the life-time database

Test Arbors for measuring the machine spindles, the rotation center point (RCP) of 5-axis machines and the alignment of machine axes must be reliably accurate. A complete range of test bars, balancing masters and mechanical clamping force testers are the tools for every service technician. Measuring equipment and its monitoring for reliability are essential for mechanical engineering and the tool industry.

Diebold is well known for his multi-functional Taper Gauges that are used all over the world by tool makers.



HSK Taper Gauge and Master Taper

Gauge Sets for Service Engineers

For service teams, we offer fully equipped gauge cases. The cases contain the clamping force tester, test arbor and the measuring accessories. The required calibration records for the gauges are included. We offer the annual re-calibration for these measuring technology sets so that the service technicians are always equipped with a set of reliable and well documented measuring equipment.



Gauge Set HSK 63

Diebold test bars have become increasingly popular in recent years. Often we could not explain the growth because test bars have actually been in our product range for a long time. This success is certainly due to the very high manufacturing accuracy of the test bars. Decisive in the end is, for both the machine manufacturer and his service staff, to have a precise measuring device that delivers reliable measurement results.

We offer test arbors with all taper types, HSK / SK / BT / PSC and for all measuring tasks, whether aligning the machine axes, the spindle or the rotation center point (RCP) for 5-axis machines.



Test Arbors HSK, SK, BT, PSC

The Test Arbor story:

Diebold runs more than 50 state-of-the-art CNC machines in production. These machines sometimes require service calls by technicians of the machine manufacturer. Whenever service technicians come to our house, we “steal” their test arbors and they get a free calibration. In the beginning we were just curios, now it has become a routine and this service is gladly used by the service technicians.



We had extremely bad experiences when we checked the first arbors of these service technicians. Tolerances that were exceeded ten times were not uncommon. Test arbors with the logo of well-known manufacturers were completely unsuitable for the measuring task. We learnt that the seller who had his logo on the product was not the manufacturer, they bought the test bars from a supplier (with a test certificate !!) and sold this product in good faith with their brand name on it. In the event of a service case during the warranty period on one of our new machines, the service man wanted to remove the machine spindle. After the counter measurement with a Diebold test bar, he could confidently leave the spindle in the machine. Cost savings for his boss was around 20,000 Euros.

For all gauge products from Diebold we offer regular calibration according to ISO 9001. Several investments were necessary to set up this calibration service. The traceability to reference standards of the DAKKS (German Accreditation Institute) had to be installed for the measurements. For the certification of test bars, investments were made in the latest form measurement technology. A CMM room of quality class 2 with two PMMC measuring machines from Leitz is available. The temperature accuracy in this measuring room is exemplary with +/- 0.2 degrees Celsius per meter.



Leitz CMM`s

Customers often lose the test certificates of the measuring equipment or records for gauge settings. An email or a call to us is sufficient. Then it takes only 3 seconds and the customer receives a copy of his missing document. For this we always get "hero status". We have invested a lot of money in this serial number management, but very much for the benefit of our customers and for a lean and inexpensive documentation.

Pull-Force Gauges for HSK-Tapers, Steep Tapers or Polygonal Shank Taper



Pull Force gauges HSK, SK, BT or PST

In order for the clamping system of a machine spindle to function reliably, it is absolutely necessary to check the clamping force periodically. Diebold manufactures mechanical Pull Force Gauges for checking the pull-in force of machine spindles with a technology that they measure reliably in all temperature environments. Ten years ago, customers bought very few pull force gauges, but this has changed significantly in recent years. Machines have become more advanced, the speeds have increased and the accuracy has been continuously improved. The users are clearly sensitized to the topic of the pull-in force of the spindle and the machine builders also recommend that users own pull force gauges and that they periodically check the clamping force. A growth of 25% a year was the result for us, of which we are of course very pleased after the product line had a slow start in the market at the beginning.

The patented mechanical Pull Force Gauges measure the length change of a specially designed tube profile and pass the measurement result on to a 1/1000 mm dial gauge. This specially configured dial gauge shows the tensile force of the clamping system directly in kN.

The clamping force testers measure repeatedly accurate, even at large temperature differences. Even when a service technician takes the Pull Force Gauge out of his car and immediately measures the pull force of the spindle where the temperature is completely different than before, he gets a correct measurement result.

Electronic Pull Force Gauges, on the other hand, work with a power supply and, in terms of measurement technology, with piezo elements. In any case, they must be tempered before use. And last but not least, there is an interesting price advantage for our mechanical pull force gauges, they cost only about a third of what an electronic device costs.

Diebold Gauges: “Simply the Finest”[®]