

CentroGrip® High Precision Collet Chucks



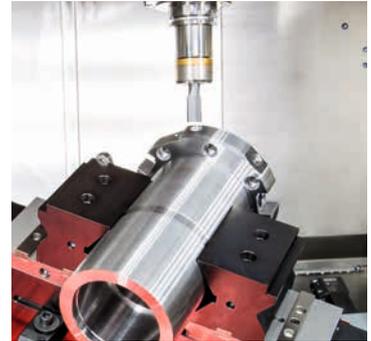
CentroGrip®

Excellent runout of < 0,001 mm paired with flexibility

By using high-precision clamping devices, the service life of your high-quality cutting tools can be doubled. An investment in these high-precision systems - which are only slightly more expensive than classic collet chucks - often pays for itself after 4-5 tool changes.

Collet chucks have excellent damping capabilities. If this damping is paired with excellent concentricity and low imbalance and thus suitability for high-speed machining, then you have the greatest possible benefit and you will achieve better machining results.

The chuck body of the high-precision **CentroGrip®** collet chucks has a concentricity of < 1 µm from the outer to the inner taper, the collets < 2 µm. The system concentricity at the cutter shank is < 3 µm in 3xD. The **CentroGrip®** clamping nuts have a high-precision thread so that they do not impair the concentricity of the entire system when the nut is tightened. The clamping nuts are cylindrical and have no nuts or slots. This prevents air turbulence or vibrations. This is why **CentroGrip®** is a must for your machining operations in the HSC area!



CentroGrip® Collet Chucks are available with different taper types and collet sizes:



CentroGrip® Tool Holders:
HSK-E 20, 25, 32, 40, 50, HSK-A 32, 40, 50, 63, SK/BT 30, 40
MR Collets: MR 11, 16, 25, 32 (MR=MicroRun)



Collets
MR 11 bis MR 32

Producing collet chucks with a runout of less than 1 μm is not a trivial matter. This required some technical changes at Diebold, in the machine and building technology and last but not least in the measurement technology. With the **CentroGrip®** collet chucks it has been possible to literally “split the micron”. If you imagine that an HSK-E 25 **CentroGrip®** chuck has a wall thickness of only 0.5 mm on the collet side, it is very difficult to achieve a concentricity of $<1 \mu\text{m}$. The market for such applications is growing rapidly because the machines are becoming more and more precise and can work with micron precision. In medical industry, dental industry, optics industry and even in the cell phone area, high-precision tool holders are also required for this.

First of all, the HSK tapers have to be manufactured very precisely. The tolerances permitted by DIN / ISO must be well below the limit, otherwise it will not be possible to achieve a runout of less than 1 micron.

How did we achieve this accuracy on a collet chuck?

To reach this, it is necessary to work in a perfectly air-conditioned environment. This has been the case at Diebold since 2006. Investments were made in energy-saving, fully air-conditioned production and the coolant of all machines was also tempered since.



Architektur mit Klimahalle

The trick, however, lies in developing the grinding process and the holding devices in such a way that this high level of concentricity is also achieved in series production. This did not work at Diebold on the first day either, but through intensive research and process improvements based on decades of experience in the manufacture of high-precision clamping tools, we were able to reach this goal.

The necessary measuring devices and fixture devices were manufactured in-house. They simply aren't available in the market.



HSK Multifunction Gauge



CMM for calibration of the Master Tapers



Runout Test <1 micron

One graduation on the scale is now 0.1 micron, which was previously 1 micron. This means increased tension for the employees when measuring the parts in production and quality control. The high-precision collet chucks are not only checked with one measuring method, but three different checking methods are used to ensure that the desired concentricity is reached and can be documented.

Reaching this level of accuracy only works with well-trained employees. 70 % of our employees did their apprenticeship here, they have been with us for many years and therefore have the required experience. They know the accuracy requirements and the associated processes very well.

With **CentroGrip®** you have the perfect clamping device if you want to improve your machining results.

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