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Profiled Clamping Systems

The datum of tooth flanks

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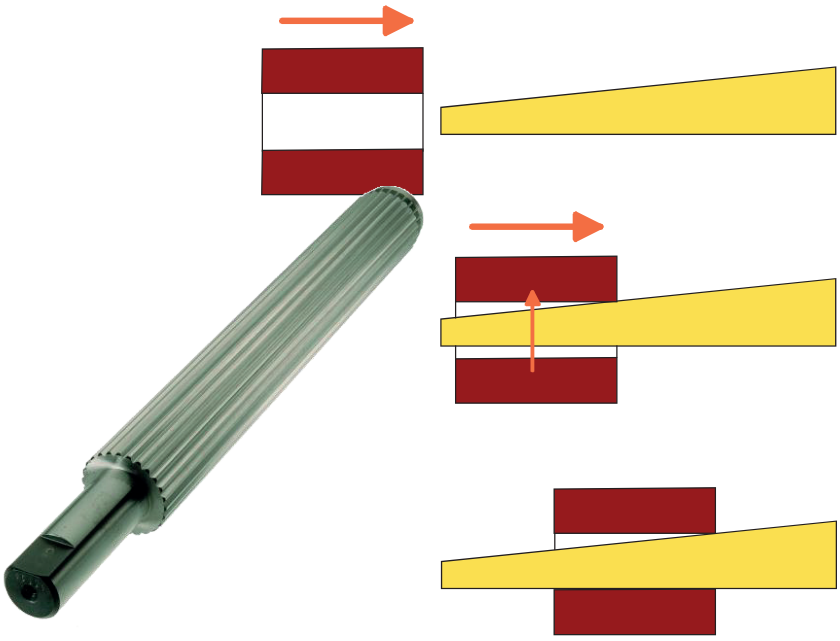
Overview

Clamping systems secure workpieces in the gear profile where they are centered and clamped in the tooth flanks. Both testing operations as well as machining processes are possible relative to the tooth flank datum. Arbors are used for internal gears and chucks for external gears. The constructive design of these clamping devices is diverse in its implementation. Various clamping methods may be suitable depending on the task at hand. Selection of the most appropriate methods requires expertise and knowledge. Both are offered by the FRENCO specialists as a consequence of their many years of research and experience. The basic definition of the clamping methods should only be undertaken by specialists.

Inspection Clamping Technology for Internal Gears

One flank taper mandrels

One flank taper mandrels are manufactured from a single piece of material. Each tooth of the high precision ground profile has one straight, non-conical tooth flank and one conically ground flank. The tooth thickness thus increases from the front to the rear. The conical tooth flank serves to clamp the workpiece while the straight tooth flanks are responsible for centering.



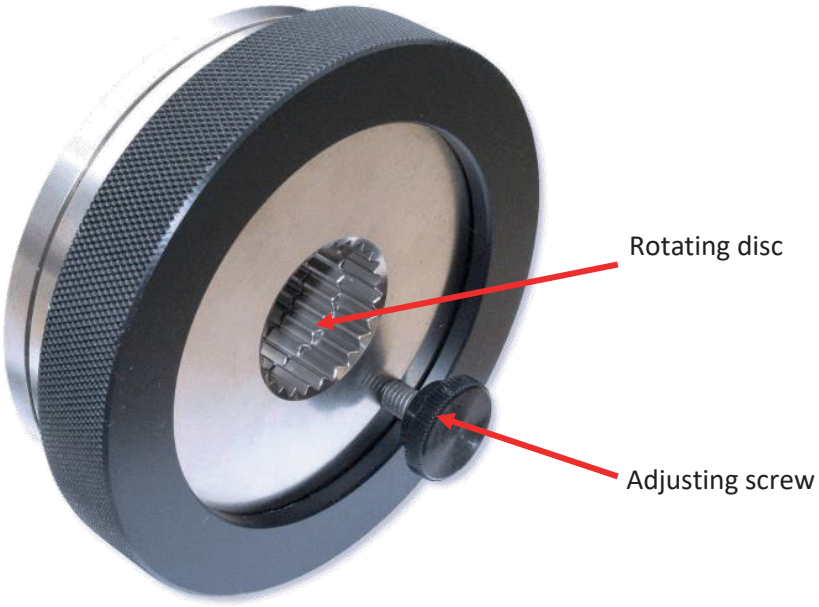
Inspection Clamping Technology for External Gears

Concentricity rings

Concentricity rings consist of 3 profiled discs. The 2 outer discs are fixed. The middle disc rotates. Rotation is activated by the inner springs. The rotation of the middle disc rotates the specimen via contact with the tooth flank until it is aligned with the fixed tooth flanks of the outer disc. The outer diameter of the concentricity ring is ground concentric with the gear profile. This serves to measure runout deviations of the specimen, e.g. with a dial indicator.

Tension is released by means of a knurled screw, which is screwed in until the specimen is free to be removed again.

An inspection arbor belongs to every concentricity ring, with which the accuracy of the concentricity ring itself is determined and monitoring of the inspection equipment is carried out.



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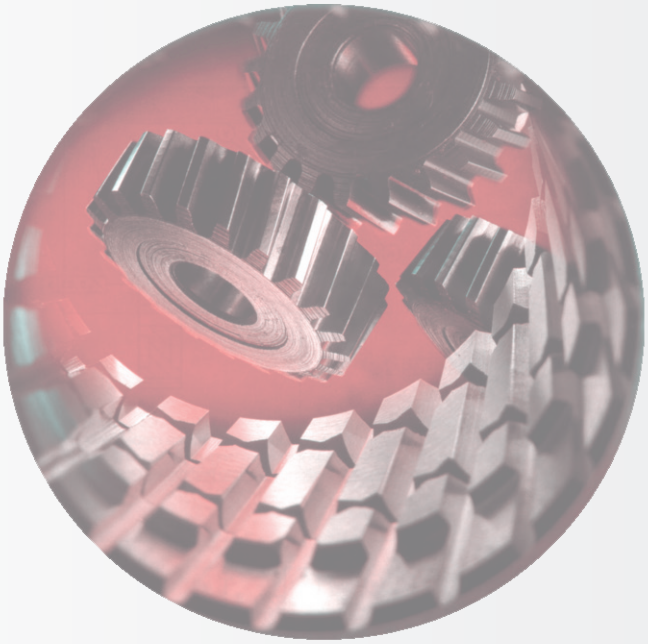

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