

Mahr | Contour and Surface Metrology – Automatic Measuring Stations

Engineered Solutions

Roughness Measurement of Gap Between Tooth and Tooth Flank

Measurement Task

This measurement station is to measure roughness and contour partly-automated on tooth flanks and inbetween gap of tooth.

Applicable are external teeth - including helical gearing - and internal teeth.

Applying additional optional rotation axis with tail stock bearing e.g. surfaces on shafts can be also measured in axial direction.

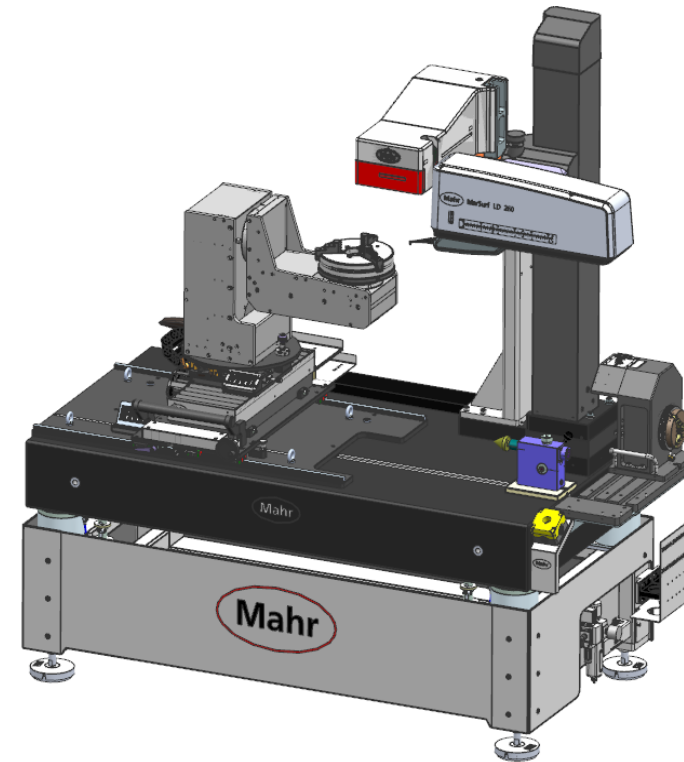
The Solution

The station is designed to serve to measurement tasks:

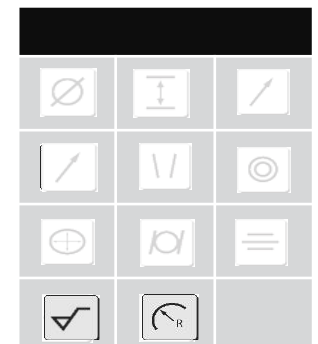
1) Tooth measurement - the measurement procedure starts with manual alignment in respect to the tooth gap. Afterwards the corresponding measurement program is started which includes the full-automatic operation of all axis and proceeding of all measurement tasks programmed in one step incl. automatic onward proceeding to all teeth selected to be measured.

The design allows long shafts as well which can be plunged thru the rim-chuck clamping device.

2) Standard measurement tasks - Set-up of full automatic axis can be moved to a storing position. Due to the space available in consequence the station can be used as a standard LD measurement station by applying e.g. CT300 or CNC-Modular rotation axis



Automation:	semi-automatic
Main application:	gear
Reference No:	70



Drive Shaft Measuring Station

Measurement Task

- Roughness
- Micro-contour like radii, distances, angles, etc.
- Serves a number of different operation steps during production process

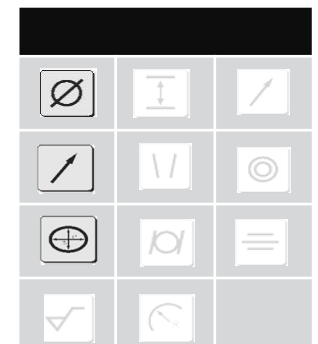
The Solution

This measuring station consists of a LD130 drive unit in combination with a Mahr Modular axis system. The CNC axis system allows automatic positioning of the workpiece, so that a number of measuring tasks can be processed without operator intervention.

The measuring station is also equipped with a larger granite and a customer-specific cabin. A height-adjustable monitor, keyboard and mouse are also available. When not in use, the measuring station can be closed by means of a rolling door. All in all, the measuring station is designed for use directly in production.



Automation:	semi-automatic
Main application:	shaft
Reference No:	91



Output Shaft Measuring Station

Measurement Task

- Roughness
- Micro-contour like radii, distances, angles, etc.
- Bevels / edge break
- Serves a number of different operation steps during production process

The Solution

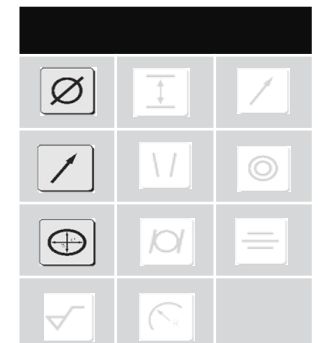
This measuring station consists of a UD130 drive unit in combination with a Mahr Modular axis system. The CNC axis system allows automatic positioning of the workpiece, so that a number of measuring tasks can be processed without operator intervention.

The Y-axis is used to search the zenith of the output shaft. Bores that are eccentrically positioned can also be approached and measured using this axis. The workpiece is tilted into various positions by means of the TB axis of rotation. Rotations of up to 180° are possible. This saves reclamping operations and ensures an uninterrupted, fully automatic process.

When not in use, the measuring station can be closed by means of a roller door. All in all, the measuring station is designed for use directly in production.



Automation:	semi-automatic
Main application:	shaft, gearbox
Reference No:	92



Roughness and Contour on Medium Sized Bearing Rings

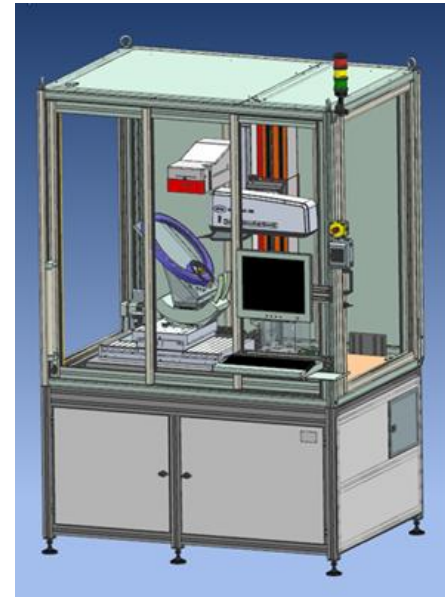
Measurement Task

- Roughness and contour on bearing rings
- Outer and inner rings
- Roughness, chamfers and straightness of the contact and bearing surfaces

The Solution

This roughness and contour measuring station with LD260 is specialized to measure bearing rings. Two linear axis and a special rotary axis with external pivot point allows flexible positioning, tilting and measuring of all kinds of bearing rings. The rotary axis is to swivel the bearing ring centrically. This reduces efforts in axes movement in order to save time. The X-Y linear axis positioning the workpiece in the zenith or moves it to the measuring or loading position. The probearm exchange unit ensures a full autonomic operation.

A universal fixture clamps the bearing rings by means of a magnet or clamping element onto a V fixture and a prism. To ensure an reproducibly clamping of the workpiece the loading position is at 45°. The station is designed to fit work piece dimensions up to Ø 450mm and up to 225 mm in thickness as well as a maximum weight of the work piece of 15 kg.



Automation:	full-automatic
Main application:	bearing
Reference No:	88

