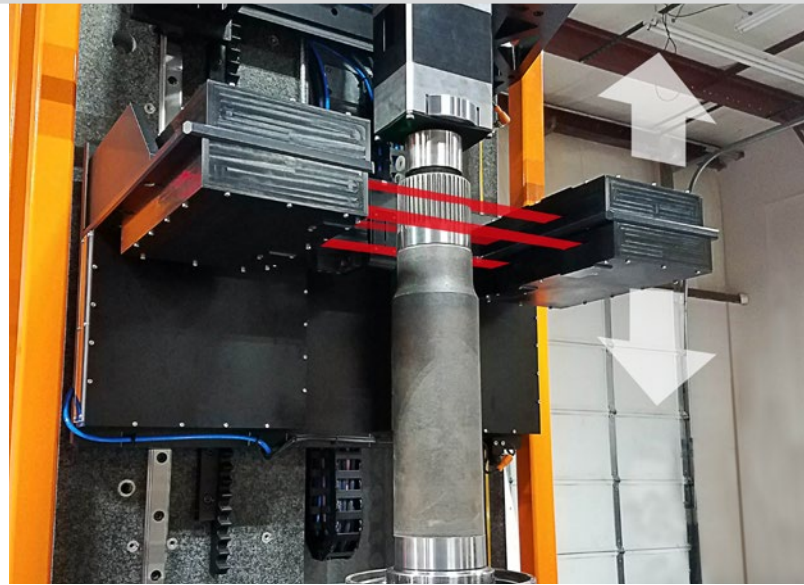
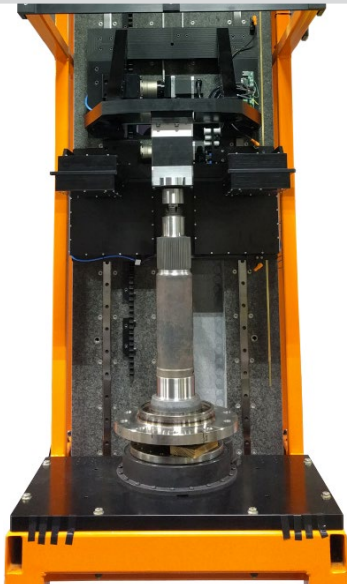




Automatic diameter testing of shafts

Autonetics specializes in customized measurement solutions that are used in a wide range of industries. With the Vertical Gauging Unit (VGU), the company offers a measuring tool for the precise and non-contact measurement of shafts and axes. The system is equipped with a tailstock with servo drive, linear drives with rack, a precision turntable, four optical micrometers and a laser distance sensor. All components together measure axial lengths, diameters, concentricity and splines - achieving cycle times and accuracies that could never be achieved with manual measurement techniques. Comprehensive software enables measurement data evaluation, logging and data output to the PLC. The measurement data is automatically sent to the CNC controller so that tool adjustments can be made automatically.

VGU is used, for example, in an automated machining center for tractor axle shafts. The shafts are guided into the VGU by a robot and clamped there. The measuring station moves along the shaft and uses the integrated laser micrometers to determine the diameters. The four micrometers are offset in order to detect both large and smaller diameters. Additionally, the laser triangulation sensor in combination with the rotary stage is used to measure the splines of the shaft.

Requirements for the measurement system

- Diameter measuring range (VGU) 58 to 178 mm
- Axial length range 570 to 1100 mm
- Measuring range optical micrometer: 40 mm
- Measuring objects: machined metals
- Reliable 24/7 operation

Ambient conditions

- Use in production hall
- Slight temperature fluctuations

System design

- 4x ODC2600 laser micrometers for determining diameter
- 1x ILD2300 laser sensor for distance measurement

Advantages

- Stable measurements with micrometer accuracy even on metal surfaces
- Fast, non-contact measurement
- Software and CNC interface enables Real-time tool wear compensation

