

Engineered Solutions

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Product Line MarSolution

Based on Millimar Programm



Typical Measurement Tasks



Measurement of Gear Tooth Alignment

Measurement Task

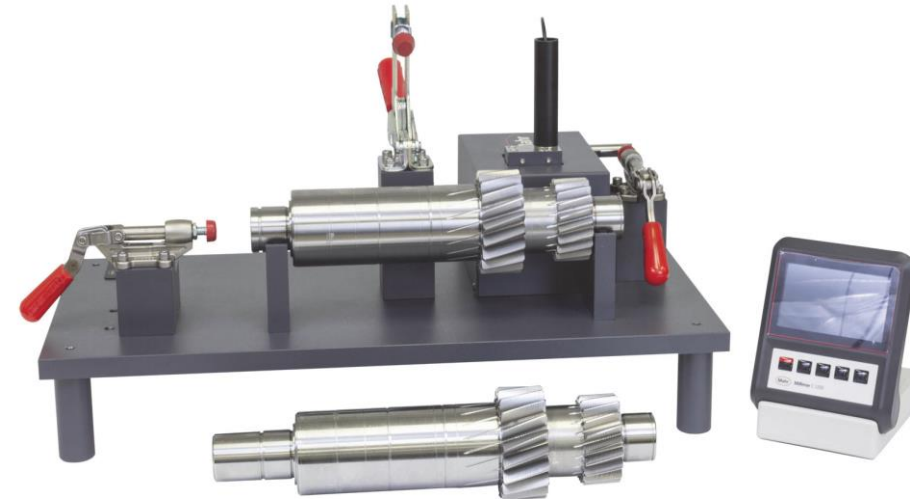
- Measurement of gear tooth alignment / true position of shaft, in relation to specific Datum
- Contact points are set for specific location on the part
- 0.076 mm true position WRT Datum A-B-C and reference face C, along the AB axis

The Solution

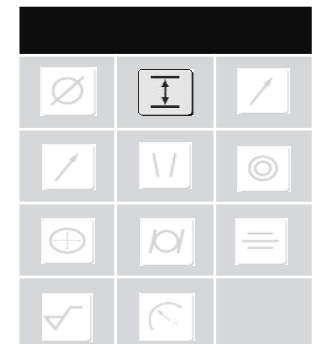
Bench fixture, with a small footprint, designed with V-mounts, two part clamps, measuring gage head lock, and amplifier readout. The workpiece will be loaded on V-blocks and is afterwards fixed by a holder utilized by a lever. Applying a second lever the workpiece will be fixed precisely into the V-blocks. The clamp is used to hold the part securely for the measurement but without affecting the measurement adversely or distort the part. The pantograph assembly insures that the measurements are accurate and repeatable with even applied gaging force.

The gage includes a precision fixture using one inductive probe and a C 1200 amplifier readout.

Optionally, there is a layout available with adjustable clamping system for the different part length.



Automation:	manual
Main application:	gear
Reference No:	14



Diamar nk - Universal Measuring Unit for Shop Floor

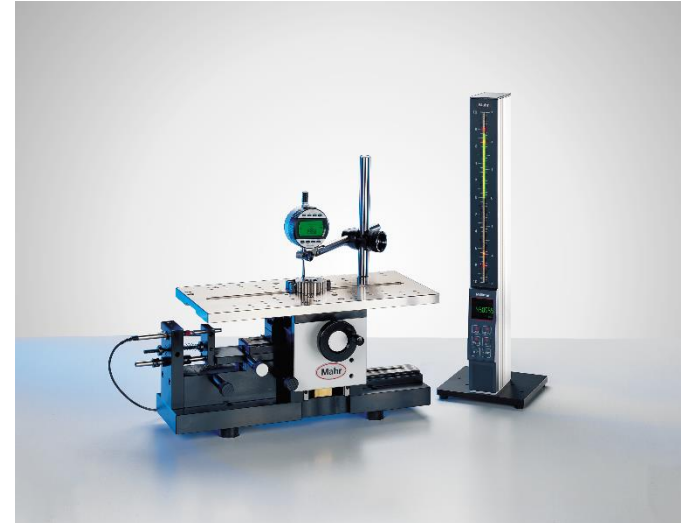
Measurement Task

- Outside and inner diameters
- Testing the dimension over balls on internal and external gears
- Heights

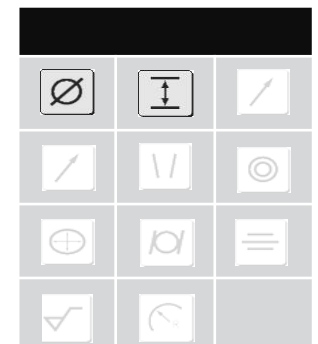
The Solution

- Base with table top 350 mm x 180 mm (13.78 in x 7.09 in) and location holes for mounting accessories
- 1 mounting device for holding the fixed probe arm
- 1 spring-loaded retraction unit for holding the moveable probe arm
- Retraction range 25 mm (.9843 in), can be limited
- 1 probe holder/dial indicator holder
- 1 height adjustment facility for the table top, adjustment range 50 mm (1.969 in)

Part-specific accessories, such as stop rail, support plate, locating pin, measuring systems, etc., are available on request. Suitable evaluation units are all Millimar instruments with probes, also indicators and test indicators.



Automation:	manual
Main application:	gear, ring
Reference No:	54



Diamar 280 - Universal Measuring Unit for Shop Floor

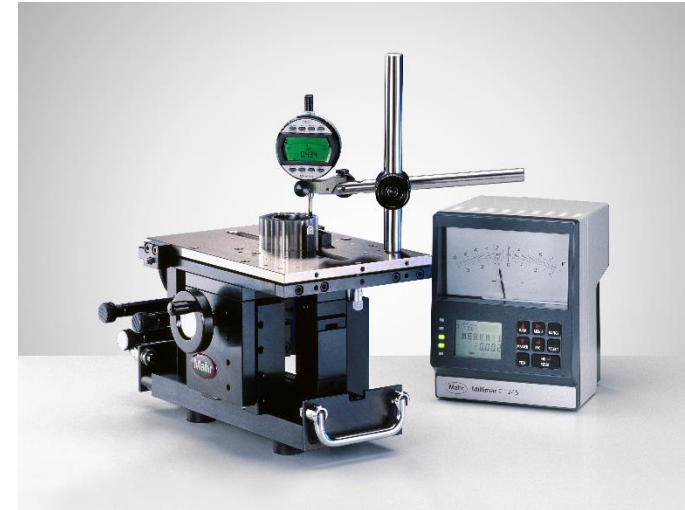
Measurement Task

- Outside and inner diameters
- Testing the dimension over balls on internal and external gears
- Heights

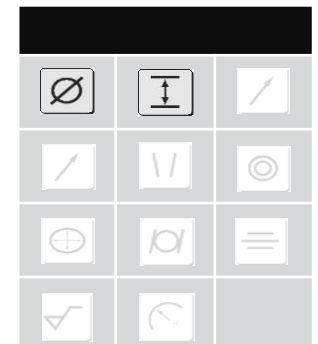
The Solution

- Base with table top 255 mm x 180 mm (10 in x 7.1 in) and location holes for mounting accessories
- 1 mounting device for holding the fixed probe arm
- 1 spring-loaded retraction unit for holding the moveable probe arm
- Retraction range 20 mm (.8 in), can be limited at will
- 1 probe holder/dial indicator holder
- 1 height adjustment facility for the table top, adjustment range 45 mm (1.77 in)
- Adjustable inclination of the table

Part-specific accessories, such as stop rail, support plate, locating pin, measuring systems, etc., are available on request. Suitable evaluation units are all Millimar instruments with probes, also indicators and test indicators.



Automation:	manual
Main application:	gear, bearing, rings
Reference No:	55



KMR - Gear Measuring Device Using Dimension Over Balls

Measurement Task

For the measurement of diameters and concentricity in the manufacturing environment

- Dimensional testing of gears
- Dimension over balls, measurement of diameter and run-outs - repeatability: +/- 0.001 mm
- Allows for immediate reaction to and identification of faulty parts

The Solution

Workpiece is located in the center of the device. When workpiece is setup on the right hand side a probe will be moved manually operated by a lever to measurement position.

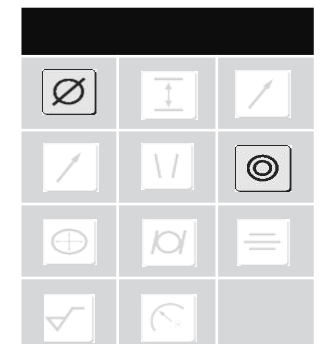
The actual measurement can be triggered by the computer applied or by foot-switch.

Measurement evaluation can be done by products out of the Millimar programm suitable for operation with two probes.

- The flexible design of the measuring device enables a quick changeover to other types of workpieces
- 6 versions of the KMR gage enable the choice of the best possible configuration for the measurement
- Design is suitable for measurement directly at the processing machine



Automation:	manual
Main application:	gear
Reference No:	56



RLV - Runout Measuring Device

Measurement Task

This measuring device is especially suited for run-out measurement on the tooth flank of gears in the production environment.

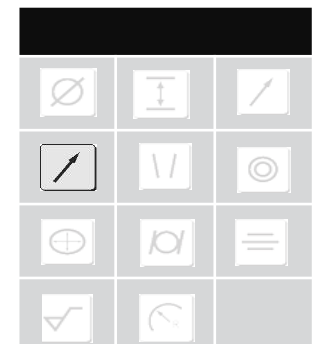
- Dimensional testing of workpieces, gears, run-outs on the tooth flank
- Repeatability +/- 0.001 mm

The Solution

- Workpiece size: max. Ø 200 mm
- Measuring visualization: measuring computer, Millimar display column, Millimar dial gage
- The ergonomic handling allows operators who are not versed in metrology to provide reliable measuring results
- A individual solution for production in order to measure workpieces directly at the processing machine
- Allows for immediate reaction and identification of faulty parts
- The flexible construction of the measuring device enables quick conversion for other workpiece types (different diameters).



Automation:	manual
Main application:	gear
Reference No:	58



UKTP - Universal Control Device Transmission Run-Out

Measurement Task

Dimensional testing of gears. For the measuring of axial and radial run-out as well as lengths in the production environment.

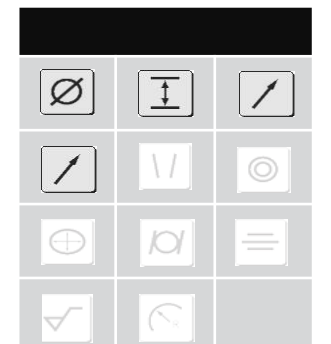
- Axial and radial run-out
- Lengths and heels on gears +/- 0.001 mm

The Solution

- Workpiece measurement directly at the processing machine
- Allows immediate identification and reaction to faulty parts
- The flexible design of the measuring device enables quick conversion for other workpiece types (different diameters)
- Workpiece size: max. Ø 100 mm
- Measuring visualization: measuring computer, Millimar display column or Millimar dial gage



Automation:	manual
Main application:	gear
Reference No:	59



Engineered Solutions

Product Line MarSurf Engineered

Based on MarSurf Sensors



Typical Measurement Tasks



Manual Universal Measuring Station - Series 001

Measurement Task

Measurement of roughness and contour features depending on the drive unit applied

- Complex small parts
- Heavier workpieces
- Periodic measurement tasks

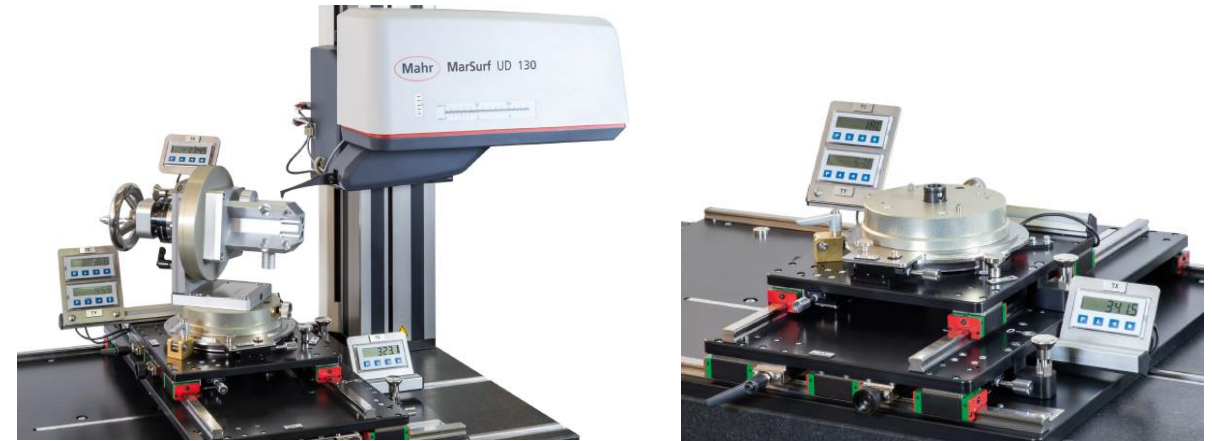
The Solution

This measuring station simplifies daily measuring tasks by using manual positioning axes placed on a standard measuring station (with a large granite plate).

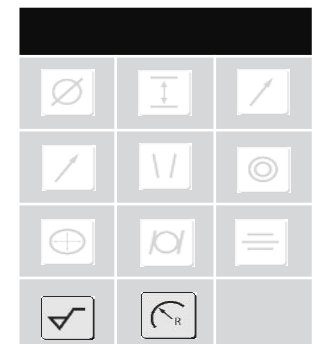
It is suitable for workpieces up to 30 kg and an edge length of up to 300 mm.

The basic axis comprises two linear axes TX and TY and a rotary axis TC which can be freely rotated through 360°. The axes are all equipped with digital position indicators. In addition, a fine positioning mechanism on each axis enables the sensitive alignment of the workpiece.

As an option, the measuring station can also be expanded with one or two additional swivel axes (TA or TA/TB) by means of a standard quick-change interface.



Automation:	manual
Main application:	gear; camshaft
Reference No:	22



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.

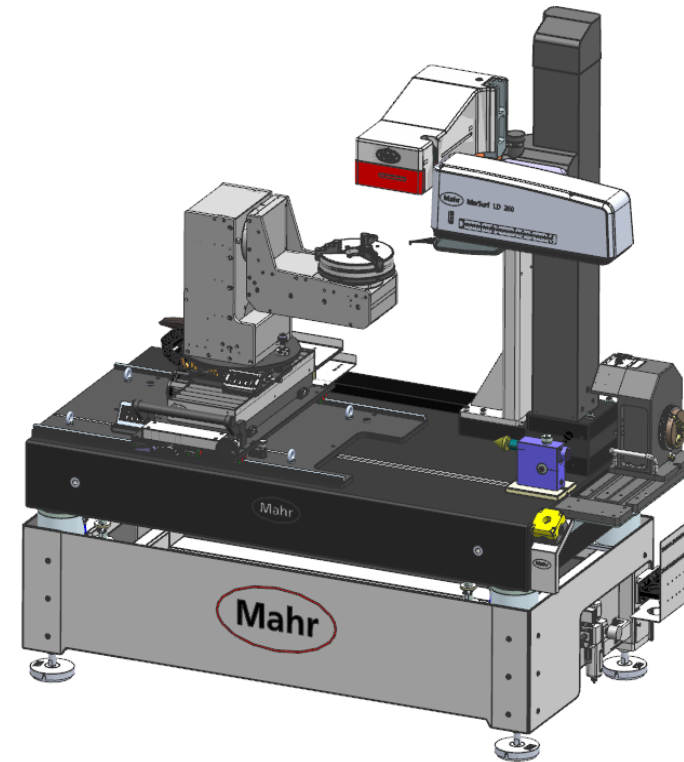
The Solution

The station is designed to serve to measurement tasks:

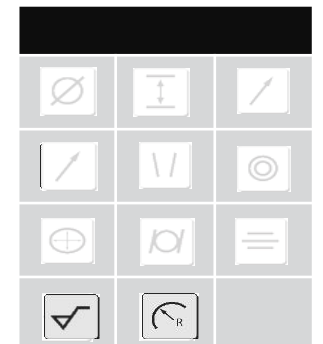
1) Tooth measurement - the measurement procedure starts with manual alignment in respect to the tooth gap. Afterwards the corresponding measurement program is started which includes the full-automatic operation of all axis and proceeding of all measurement tasks programmed in one step incl. automatic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



Full-Automatic Roughness Measurement for Gear Flanks

Measurement Task

Skidless roughness measurement on gear wheel and gear shaft

- External tothing of straight or helical gears
- Different positions of teeth on the workpiece in one run
- Right and left tooth flanks
- Different number of teeth and modules (1 to 6)
- Freely configurable measuring tasks

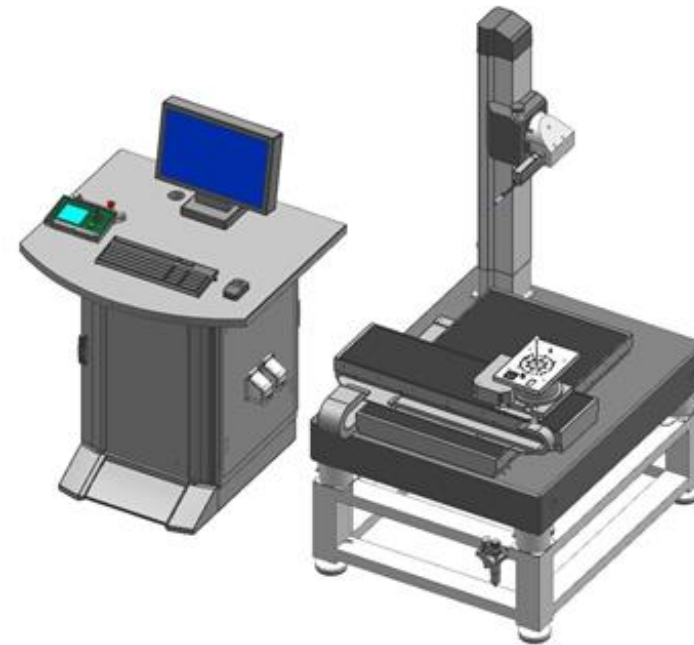
The Solution

This measuring station is build for roughness measurement on large gear wheels and gear shafts (Ø 15 mm - 400 mm). In contrast to all competitive systems this station comes with a skidless system, which allows very high precise and reliable measurements in respect to metrology standards.

The station comes with a family program "Gear Measurement". Therefore it requires no specific measuring knowledge as well as no programming skills for operation the stations. Only gear paramenter like modul, root diameter, etc. needs to be entered and measurement tasks needs to be selected by means of a user-guided mask.

The measuring sequence is without any further user intervention:

- Automatic tooth gap search
- No reclamping of workpiece
- No change of probe arms



Automation:	full-automatic
Main application:	gear
Reference No:	71



Flexible Roughness and Contour on Medium Sized Workpieces

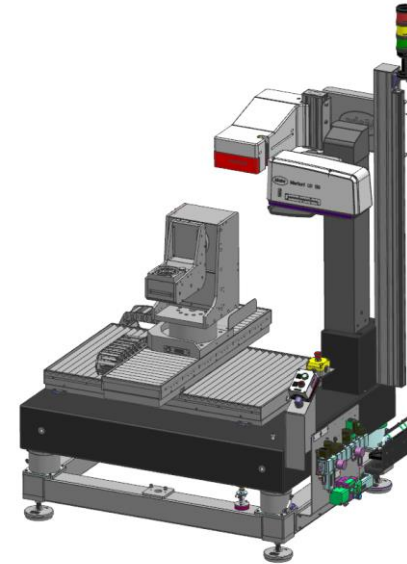
Measurement Task

Measurement of roughness and contour on shafts and for e drive shafts, complex workpiece geometries such as pump housings, etc. up to \varnothing 300mmx225mm and 15 kg.

Optionally family program "Gear" is available for high accuracy measurement of surface roughness. This allows measurement on the most complex gear geometries without special programming knowledge.

The Solution

This roughness and contour measuring station with LD130 is characterized by 6 axes of motion and an automatic probearm changer. This allows a very flexible and fully automatic measuring of workpieces. Due to the 3 linear and 3 rotary axes, the workpieces can even be measured from all 6 sides depending on the clamping. The system was designed for the measurement of drive shafts of electric drives, but can be used universally for workpieces of medium size. The machine is protected by a two-sided housing and is operated from the front side.



Automation:	full-automatic
Main application:	gear
Reference No:	87

