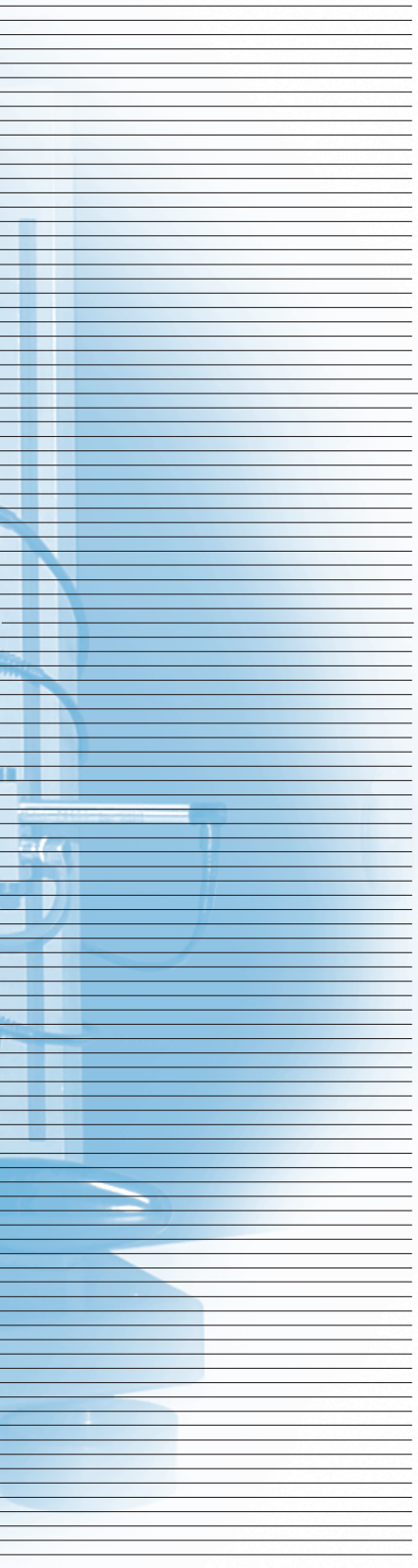
آزما صنعت گراد

نماینده انحصاری کمپانی Mahr آلمان

Mahr

EXACTLY

MarSolution. Customer Specific Metrology

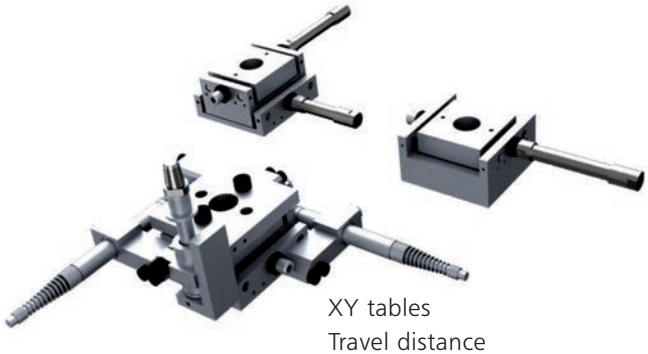


Request a brochure or see WebCode 7747.

MarSolution. Measuring Units Based on Millimar Standard Components

►I The use of Millimar Standard Elements allows multi-gage measuring devices to be designed and implemented for the widest possible range of workpieces, e.g. rotationally symmetrical and non-rotationally symmetrical parts. Rotationally symmetrical workpieces can be mounted between centers or on prismatic supports, whereas non-rotationally symmetrical workpieces often require a special holder. I◄

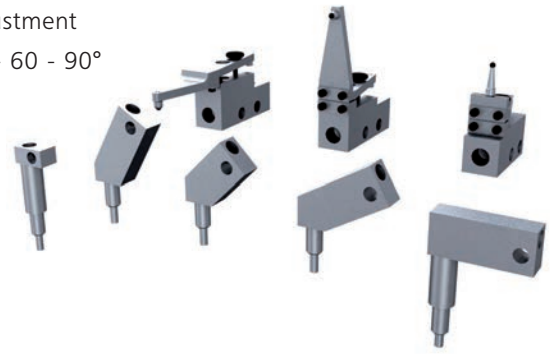
Gage modules
Travel distance: 5 -10 -20 mm



XY tables
Travel distance
2.5 - 5 - 7 mm

Measuring inserts

Angular adjustment
0 - 30 - 45 - 60 - 90°



MarSolution. Measuring Devices Bases on Millimar Standard Components

Description

Versatile

The versatility of the Millimar Standard Elements means that the right solution can be provided, whatever the measurement task at hand.

Whether it's a question of external, internal or length measurements, the Millimar Standard Elements will be able to meet your requirements, even with complex workpiece geometries.

Thanks to the space-saving design of the styli, a high number of measuring points can be inspected within a small area of the testpiece.

The pneumatic lifting mechanisms integrated into the measuring elements simplify the job of moving the testpiece into the measuring position and reduce the amount of wear on the styli.

Flexible

The modular concept using Millimar Standard Elements is continued throughout the construction of the whole system. A generous amount of travel in the styli (up to 20 mm / 0.79") allows a high degree of flexibility in terms of the variety of testpieces that can be accommodated.

Precise

The Millimar Standard Elements are specially designed for use in the workshop and are manufactured using a rigorous process. This guarantees that the measuring devices give stable and reliable measurements.

For example, using styli fitted with two ball-bearing guides to support the moving part, it is possible to achieve measurement accuracy on the µm scale, if this is required due to the tolerances of the feature being measured.

Reliable

All components are long-lasting and low-maintenance thanks to the use of rust-proof materials, the selection of appropriate heat treatments, and the use of a lifting mechanism to minimize the effects of friction acting on the styli when the workpiece is inserted.

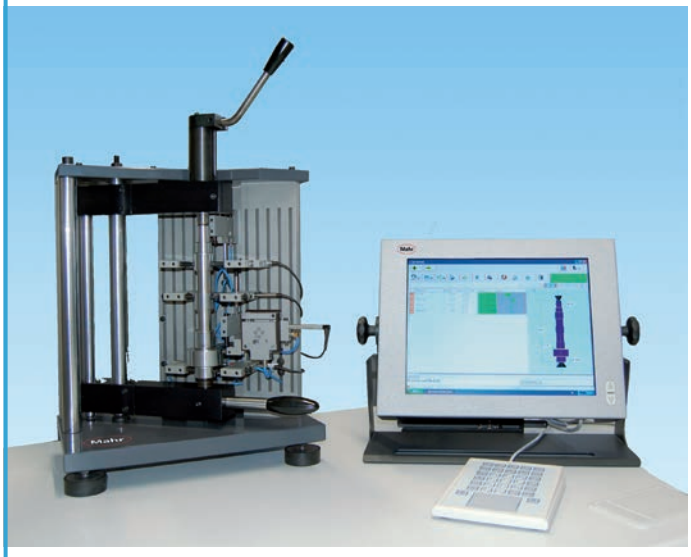
Economical

Our systems can either be constructed by the customer from standard elements obtained from the catalog, or alternatively we can provide ready-built devices as turn-key solutions. Whichever option you choose, you can be sure that you are purchasing a system that is tailored to your specific requirements on the most favorable of terms.

Below are just a few examples of the many factors that contribute to the cost effectiveness of the Millimar Standard Elements:

- Reusability of standard elements: Once manufacture of a particular type of workpiece has ceased, all standard elements used in the test equipment can be reused for a different type of workpiece.
- A choice of different mechanisms for guiding the moving part of the stylus, according to the accuracy requirements of the measuring task (optimal price-performance ratio).
- Reduction in development and implementation time.
- Availability of the equipment: Our standard elements are manufactured under standard production conditions and are always available off the shelf and ready to use.

MarSolution. Standardized Measuring Devices



Description

With the product group „MarSolution", Mahr offers special customer-specific solutions for dimensional metrology - semi- and fully automatic measuring systems that operate directly on the shop floor. Mahr uses its proven standard components (Millimar measuring interface, probes and other standard measuring components) thus offering reliable and precise metrology. Always the right solution for your task. Mahr offers solutions for various industries and branches.

Vertical measuring device with pivoting clamping of workpiece between centers

These measuring devices allow inspection of diameter, length, and radial and axial run-out for rotationally symmetrical parts. With manual or automatic swivelling of the workpiece mount between centers.

Dynamic measurement of the workpiece is also possible thanks to motorized rotation.

Measuring device with rotary table

Measuring devices with rotary table allow combined external and internal measurements as well as automatic radial and axial run-out testing.

These measuring devices can also be motorized to enable dynamic measurements.

Horizontal measuring device

Workpiece mounting on prisms or between centers, including work-piece loading table

The horizontal measuring devices allows workpieces to be held on prismatic supports or between centers. These systems are particularly suitable for heavy workpieces.

The workpiece can be loaded into the workpiece holder outside of the actual measuring station.

WebCode 14522

MarSolution. Customer Specific Measuring Devices

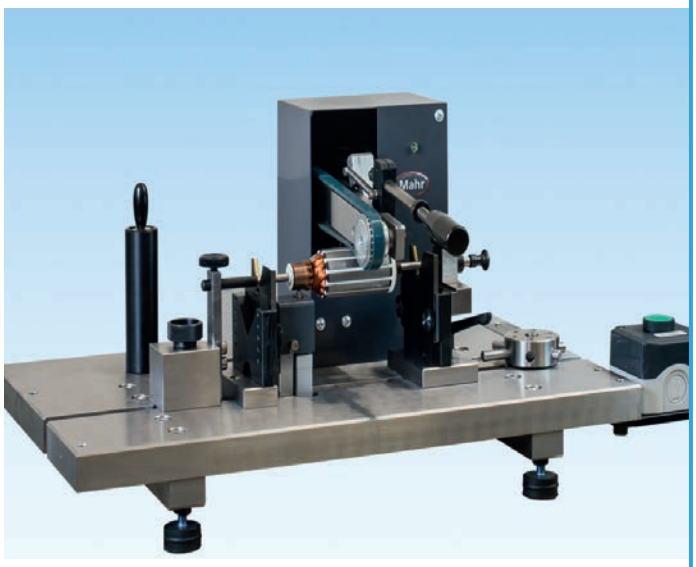
Description

RPM series - commutator shaft measuring device

The RPM measuring device for the measurement of diameter, roundness, runout or segment gap of e.g. commutator shaft, turbocharger shaft or precision shaft in electric motors.

The RPM has the following advantages:

- Easy operation for an efficient measurement
- Fast measurement
- High-performance function analysis with help of the software D1200X



TC series - housing measuring device

Wtih this measuring device, different housing types can be measured. For example, turbochargers, pumps, electric motors or housing. The measuring device can be used as a stand-alone version for use close to production or as an in-line integrated measuring gage for 100% control of production.

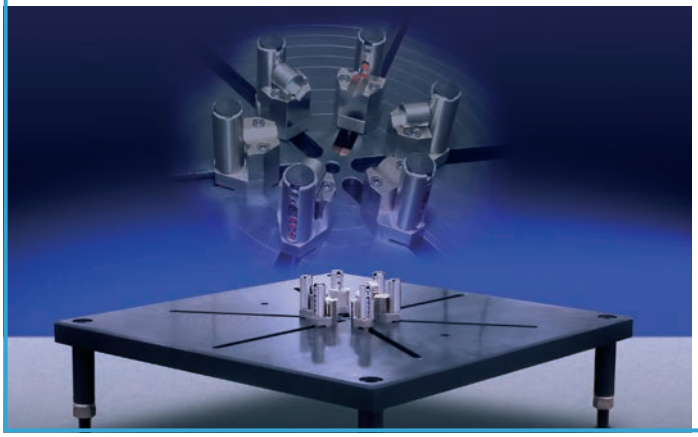
CR 240A: Automated conrod measuring device

To monitor different work steps, simple measuring devices can be used. Automatic solutions can realize the complete measuring task of the final inspection.

For example, the measuring station CR 240A enables the measurement of common dimensional features on a conrod and offers the following additional functions:

- Exchangeable measuring heads with pneumatic measuring plug and inductive measuring probe Millimar P2004
- Conrod laser engraving. The complete housing protects from laser beams
- Camera for control reading
- Precise weighing system
- Measuring software D1200X with clear and easy operator guidance
- Measuring results can be evaluated online for workpiece correction, statsitcial processing etc.

MarSolution. Customer Specific Measuring Devices



Description

Dynamic measurements of the inside diameter of cylinder bores and wall thickness

The Cylinder Liner Gage is a stand-alone automatic gage to measure the bore ID and flange thickness of a diesel cylinder liner. It is situated to be fed by conveyors that bring and take away cylinder liners from the gage. The gage is designed as a pass through gage with about a 2 second cycle time.

The gage comprises a three stage stations:

- The first station is the load station where one part stops and a temperature measurement is made.
- In station two, the air plug's home position is in the zero master assembly. This allows for zero mastering at a specified frequency. It also allows the air plug to stay on scale, minimizing stabilization time as the air plug enters the liner's bore.
- In station three, the flange thickness assembly is introduced to the flange. The measuring contacts are retracted while the assembly is in motion and engage the part only after the assembly reaches the gaging position.

Dynamic measurement of cylinder bore ID and cylinder flange

Model 2152447 is an automatic, free standing gage to measure the crush" dimension of half bearings and consists of two operating modes - fully automatic and manual.

The half bearing is fully automatically lead to the measuring machines and placed in the corresponding nest (semi-circular mount), fixed on one side and pressed against on the other side with a defined pressing pressure (e.g. depending upon the operation type of the later motor component group). At the same time, a tactile measuring system measuring the dimensional changes in the circumference of the half bearing. After the halb bearing has been measured, an extraction mechanism pushes the part up from the nest for removal.

To ensure the measuring accuracy during the process, the measuring unit is fully automatically calibrated at regular intervals with a setting master.

The entire process is computer driven with selectable parameters, capable of data collection, generating printable reports and database building.

Measuring device for diameter testing on large rings

Large rings (e.g. bearing rings) are subject to the stricted tolerances. To test these, a flexible measuring gage is needed that can cover numerous inside and outside diameters.

The measuring device for large rings offers the possibility to measuring inside and outside diameters with one unit.

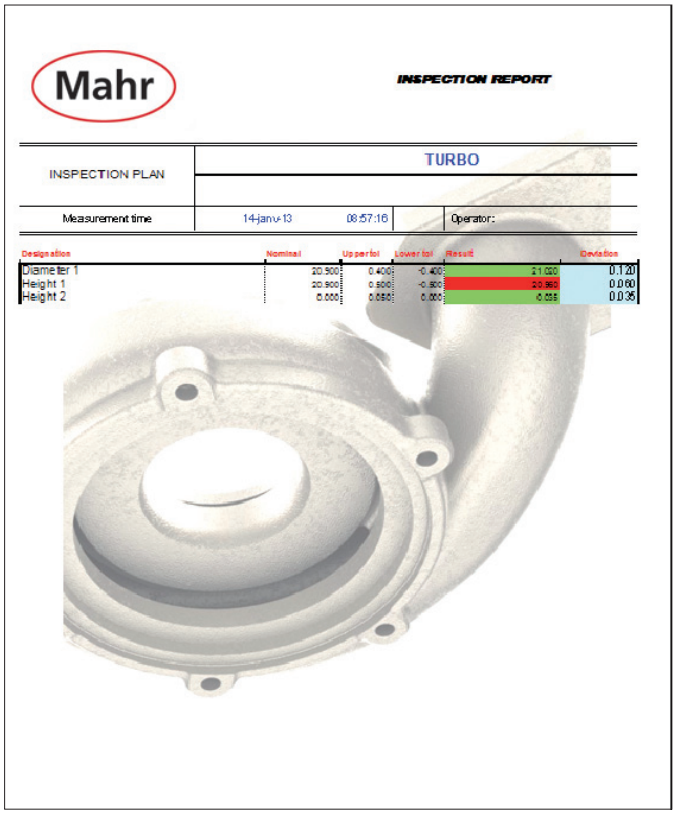
Inside measurements from 63.5 mm up to a maxiumu of 825 mm and outside diameters from 76.2 mm up to a maxiumum of 831 mm can be measured.

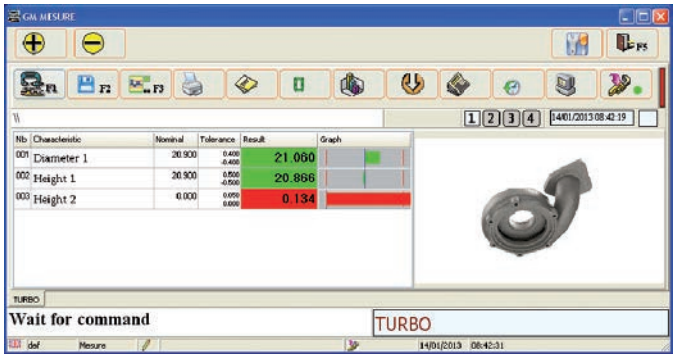
WebCode 13149

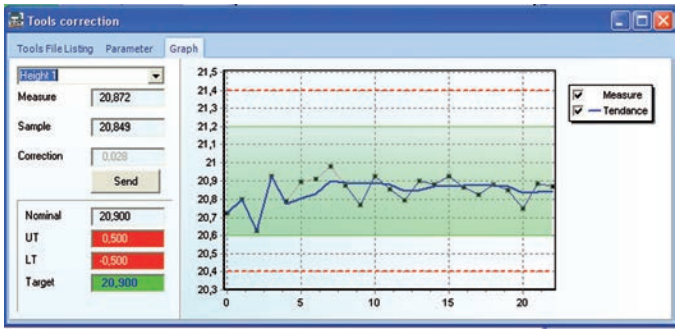
MarSolution. Software D1200X

Description

- Windows®-based software
- Microsoft ACCESS® database
- Password-protected menus and access privileges
- Non-restrictive form editor
- Easy-to-program test plans - simply fill in the on-screen forms
- Freely programmable calculation formula
- Quick-select options for display of performed measurements
- Simple sensor adjustment using an on-screen assistant
- Storage of calibration history
- Measurement value display (numeric and bar graph views)
- Storage of measurements (manual or automatic)
- Monitoring of workspace of the sensors with alarm output
- Statistical analysis of measurement results with visualization using
- Histograms and SPC control charts
- Automatic calibration requests defined by hours and number of measurements
- Faulty measurement values can be commented to indicate the cause
- Statistical analyses
- Testing of normal distribution
- Integrated measuring system analysis (R&R) and gage capability
- Data export module supporting numerous data formats
- QDAS, SUMEQ, SESAME, QUASAR and other interfaces supported
- Option to use I/O port for automatic control (option)
- Can be used in automatic production lines with dialog control







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