MARSURF | MARSURF XC 2 / XC 20 – MARWIN

PC-BASED STATIONARY CONTOUR MEASURING STATIONS

- 0 +

Mahr

EXACTLY

MarSurf XC 2

Measuring contours made easy

Description

The **MarSurf XC 2** provides you with everything you need to move into Mahr's top-flight contour metrology. This PC-based unit supplies all the required contour measurement and evaluation features both in the inspection room and on the shop floor.
Clear, well-arranged icons and straightforward aids to operation make this practical product easy to use. The **MarSurf XC 2** is the fruit of decades of contour metrology experience combined with up-to-the-minute, forward-looking technology.
MarSurf XC 2 is **Mahr's** future-focused contour evaluation software.

Features

Features of the contour measuring software are as follows:

- Creates regression straight lines and circles
- Creates points, intersection points, free points, center points, maximum points and minimum points
- Creates coordinate systems
- Determines radii, distances, angles, coordinates, and line form deviations
- Performs nominal/actual comparisons
- Tolerance monitoring
- Automatic program runs
- Imports profile data, e.g. DXF files (option)

These are just a few examples of the large range of functions of the **MarSurf XC 2**.
Different user levels protect against operator error and ensure that no unauthorized operators are able to use the device.

MarSurf XC 2

The easy introduction to contour measurement

During the first few operating steps, users learn about the benefits of logical and straightforward handling of the unit. A wide selection of various probe arms and stylus tips are available for external and internal measurements.

Fast probe arm exchange without the need for tools is ensured by the magnetically supported probe arms. The stored calibration data is available for each probe arm that has been calibrated.

Setting up the measuring station and an initial measurement are fast and straightforward. Mapping the measuring station by representing axis positions accelerates the setup process considerably. All measuring conditions are selected in the "Measuring assistant" menu, enabling targeted measurement.

A "start point to end point measurement" function facilitates the start of the first measurement. The path of the profile is displayed on the screen during measurement.

Evaluation can be performed immediately after measurement. Storing the profile data, evaluation, results, and the entire program as a QE (Quick & Easy) offer the possibility of permanent documentation. A complete record with the key text and evaluation contents is entered in the "Measuring record" menu by the operator.

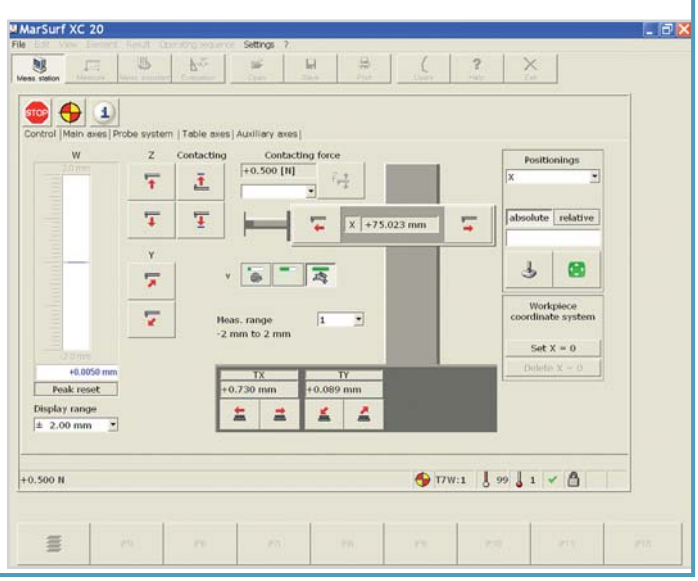
MarSurf XC 2 means you measure:
Simply
Quickly
Reliably

Description

The **MarSurf XC 2** gives you everything you need to perform all standard measurement tasks in contour metrology. Straightforward and fast operation combined with peak performance.

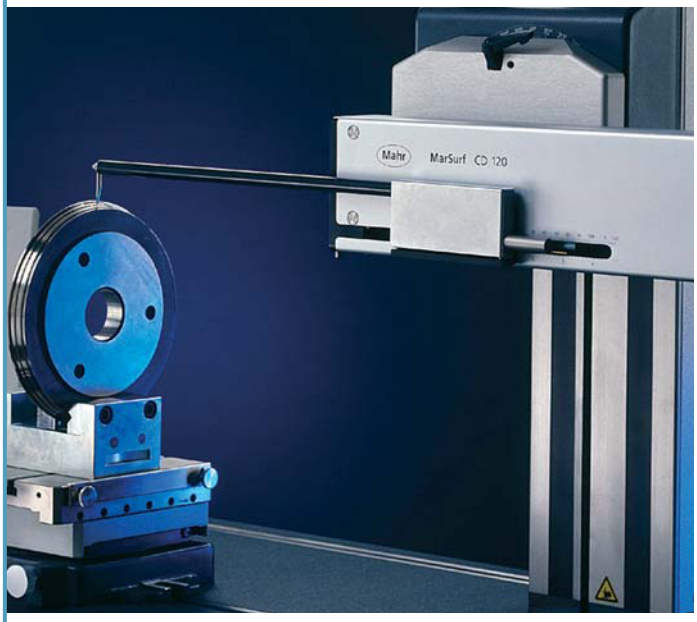
MarSurf XC 2 Measuring Station

MarSurf XC 2	**6268355**
Consisting of:	
MidRange Standard control unit	
MarSurf XC 2 software (MarWin-based)	
PC	
Windows XP country package	62682xx
17" TFT monitor	5460041
Printer	5460030
USB cable	3018232
MCP 23 manual control panel (standard)	7035195
CD 120 drive unit	6720812
MarSurf ST 500 measuring stand	
with 700 mm x 550 mm (27.56 in x 21.65 in) granite plate	6710250
PCV 200/CD 120 mount	6851362
CT 120 XY table	6710529
Rotary attachment for CT 120	6710547
Contour 2 calibration set (standard)	6820124



MarSurf X C 2

XC 2 with CD 120 drive unit and ST 500 or ST 750 measuring stand



The CD 120 contour drive unit is a key component of the measuring station. Precise calculation of radii, distances, angles, and straightness largely depends on the quality and technical properties of the drive unit. The quiet drive, combined with the software-supported error correction, ensures reproducible measurements with a high vertical and horizontal resolution.

ST 500 Measuring St and (optionally S T 750)

Granite plate measuring 700 mm × 550 mm (27.56 in x 21.65 in) (L × W) with three 10 mm (0.39 in) T-grooves
Measuring column with motorized vertical adjustment over range of 500 mm (19.69 in) for the drive unit

Technical Dat a

Traversing length (in X)	0.2 mm to 120 mm (0.0079 in x 4.72 in)
Measuring range (in Z)	50 mm (1.97 in) for 350 mm (13.78 in) probe arm 25 mm (0.98 in) for 175 mm (6.89 in) probe arm
Measuring system (in X)	Highly accurate incremental measuring system (factory calibration with laser interferometer)
Measuring system (in Z)	Inductive transducer* featuring high accuracy and linearity
Resolution (in Z) relative to stylus tip	0.38 µm (15 µin) for 350 mm (13.78 in) probe arm 0.19 µm (7.5 µin) for 175 mm (6.89 in) probe arm
Resolution (in Z) relative to measuring system	0.04 µm (1.6 µin)
Guide deviation	< 1 µm (40 µin) (over 120 mm (4.72 in))
Measuring direction (in X)	Forwards (+X), backwards (-X)
Contacting direction (in Z)	Downwards (-Z), upwards (+Z)
Measuring force (in Z)	1 mN to 120 mN, downwards and upwards (adjustable in MarSurf XC 2)
Tracing angle	On smooth surfaces, depending on the deflection: trailing edges to 88°, rising edges to 77°
Measuring speed (in X)	0.2 mm/s to 4 mm/s (0.0079 in/s to 0.16 in/s)
Contacting speed (in Z)	0.1 mm/s to 1 mm/s (0.0039 in/s to 0.039 in/s)
Positioning speed (in X) and return travel speed	0.2 mm/s to 8 mm/s (0.0079 in/s to 0.31 in/s)
Positioning speed (in Z)	0.2 mm/s to 10 mm/s (0.0079 in/s to 0.39 in/s)
Probe arm length	175 mm (6.89 in), 350 mm (13.78 in)
Stylus tip radius	25 µm (0.00098 in)
Measuring Accuracy (in X,Z)	U95=(0.6+L/140)um, L = mm

* patented

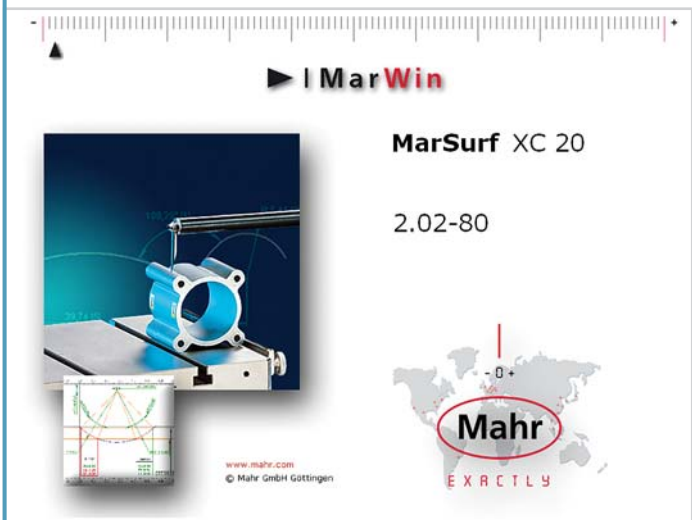
MarSurf XC 2/ XC 20. Configuration of a Standard Measuring Station

MarSurf XC 2 measuring station

MarSurf XC 20 measuring station

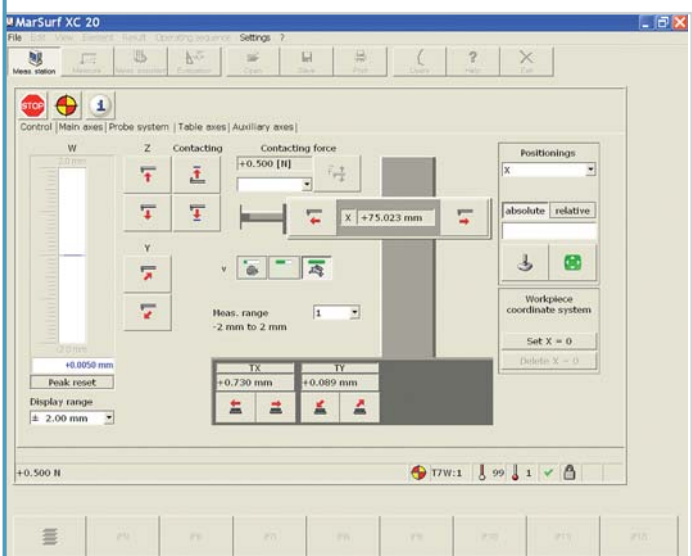
MarWin Software for MarSurf XC 2 / XC 20

MarWin-based software – user benefits

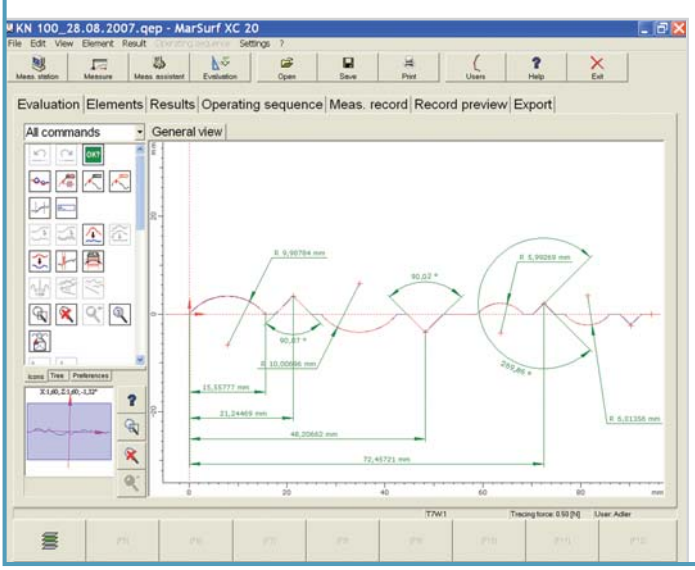


Description

The user-friendly **MarWin** software platform features many different measuring and evaluation criteria. Standardized symbols, operating sequences that are clearly structured even if applied differently, and clear-cut assignment of user rights are just a few of the many features making life easier for users.



It is possible to add further **MarWin**-based software applications such as **XR 20** or **XT 20** at any time. Simple measuring station displays showing the measuring setup's axes make work quick and easy.
The travel speed of the **ST 500 / ST 750** measuring stand and of the additional axes can be selected directly in 3 steps. To facilitate zenith searches, the display area can be set to the optimal zoom.

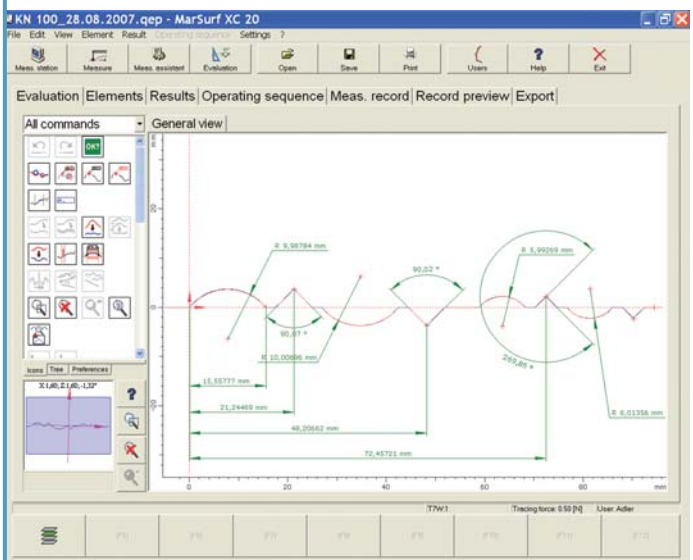


Operation is made much easier thanks to easily recognizable icons. As many users configure measuring runs in line with their own priorities, icons can be selected as **Preferences**. The Help function for the selected icon can be activated at any time.

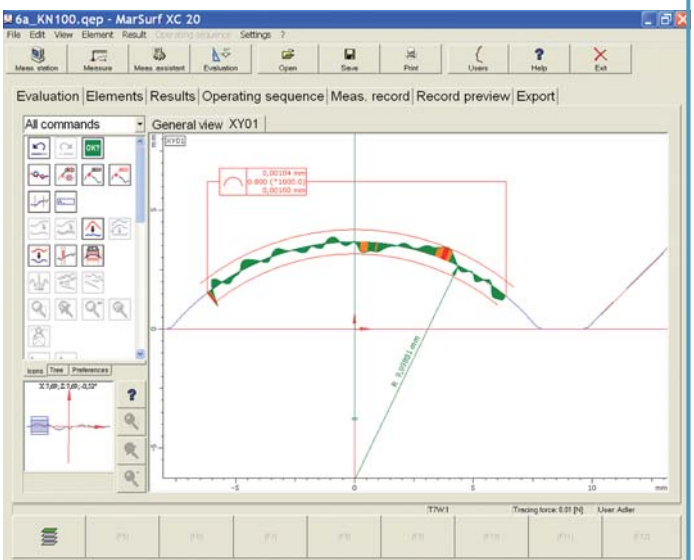
Setting measurement conditions, positioning the probe in the "loading station" and in the measuring position, and positioning after measurement with all boundary conditions are all possible in "Measuring assistant" view.

Multiple measurements, text information during a measurement procedure, and many other features are supported in clear and easy operating steps.

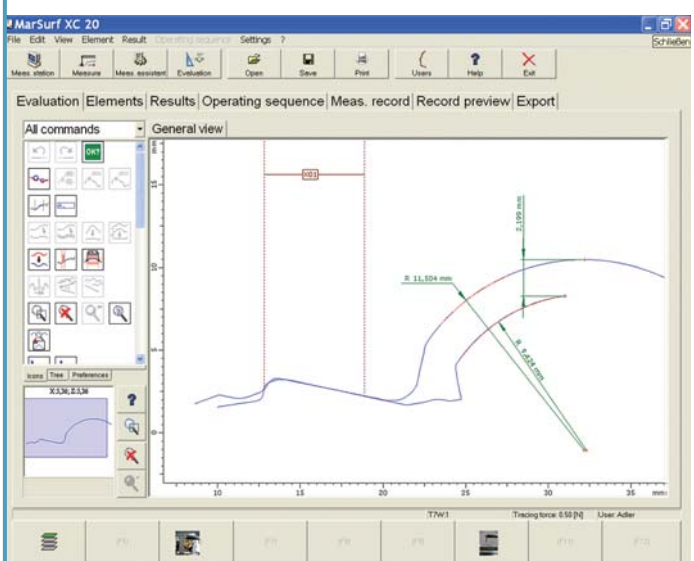
MarWin Software for MarSurf XC 2 / XC 20



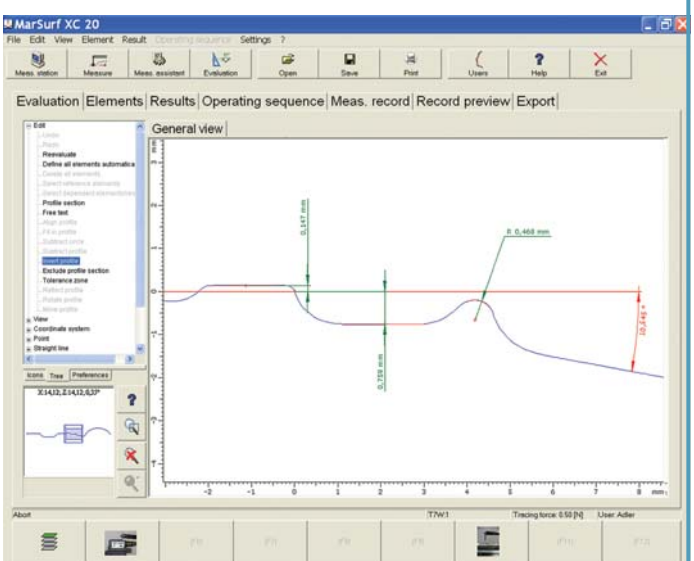
Standard evaluation
Fast and straightforward evaluation of geometrical basic elements such as radii, angles, and distances to coordinate axes is made possible without the slightest effort by means of tools from the action box.



Line form evaluation
Deviations of the actual geometry from the nominal geometry are shown graphically with indication of the maximum deviation. The preselected tolerance band shows at a glance whether the workpiece is inside or outside the tolerance.

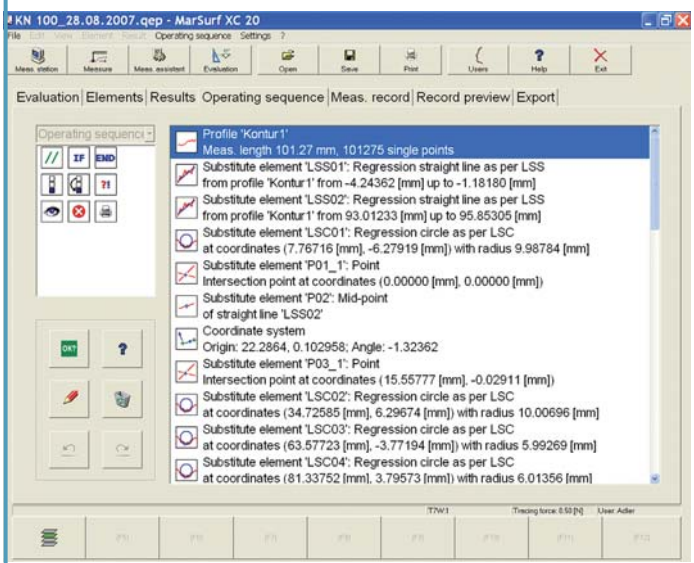


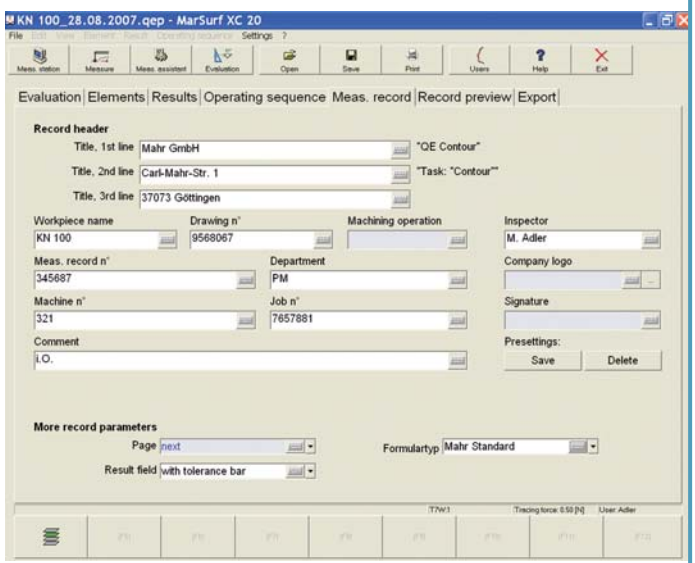
Nominal/actual comparison
Comparing an actual profile to a nominal profile is one of the most demanding tasks in contour evaluation. In the example shown above, adaptation is performed in the profile section displayed. Differences in dimensions can now be calculated that in this case reflect the wear and tear of a tool.



Creation of auxiliary references
Many technical drawings of workpieces contain dimensions that are not referenced solely to the visible edges but also to auxiliary references. Creation of a parallel to a workpiece edge is shown in this example.

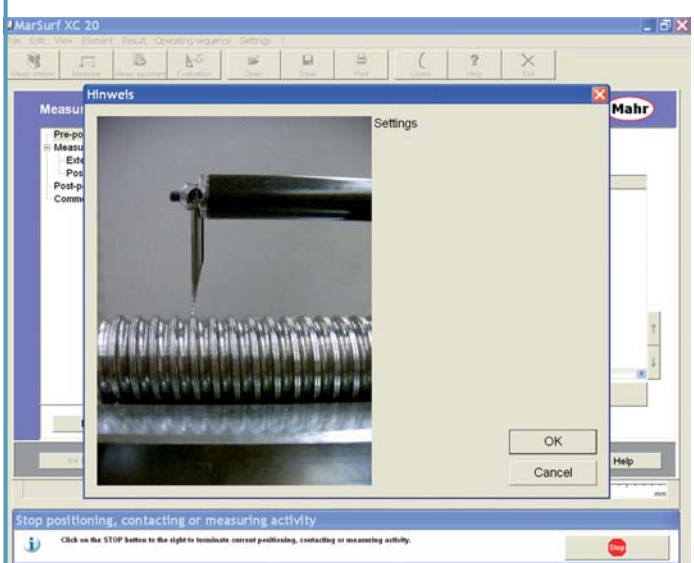
MarWin Software for MarSurf XC 2 / XC 20

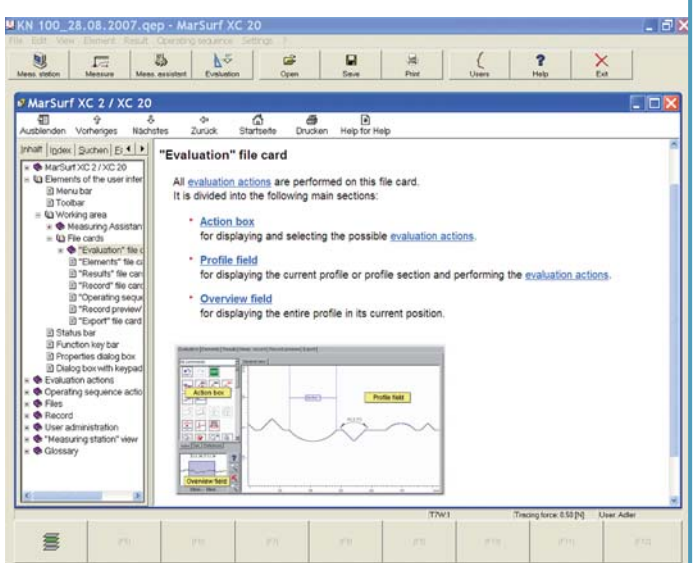




Key information and control fields
Operators need an overview of all processes, particularly when performing complex measuring tasks with numerous evaluation steps. In the "Operating sequence" file card, they can see all individual actions and change or delete these if required (XC 20 only).

Documentation
All necessary text entries can be made in the "Measuring record" overview.





Operating help
To also provide help to inexperienced operating staff at key stages of the measuring run, message texts supported by images can be shown at the necessary points.

Help
Comprehensive help is available "online" to operators in each operation. All key functions are described through texts and appropriate graphics.

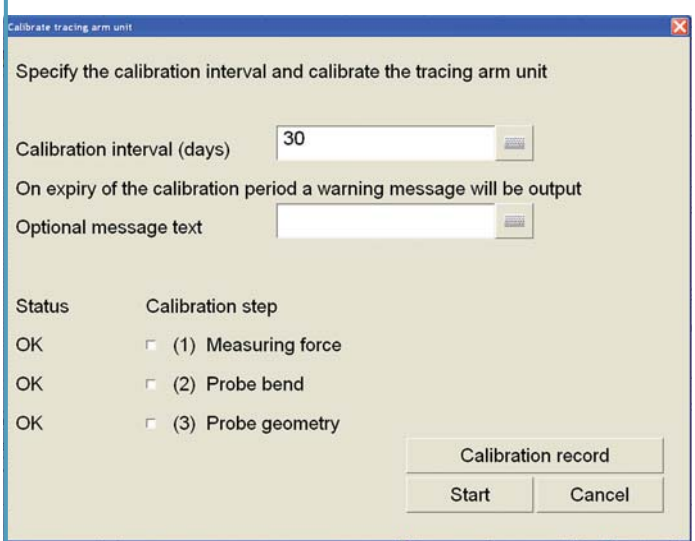
MarSurf XC 2 / XC 20. Calibration

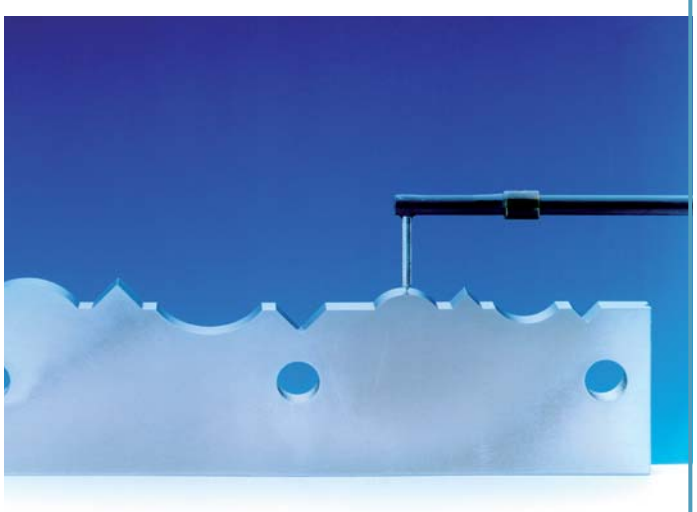
Calibration – the basis for accurate results.

An intelligent calibration system enables measurements that are accurate on a µm scale. Geometry calibration, deflection, and measuring force calibration are key elements. An easy-to-use measuring program guides users easily and quickly through the calibration steps. As soon as a probe arm is calibrated, the data is saved, which means that, when changing probe arms, calibration only needs to be performed once for each arm.

This standard is also suitable for calibrating the twin stylus.

Contour 1 calibration standard for MarSurf LD 120
Order no. 6820121





KN 100 contour standard
Order no. 6820125

A key benefit of CD 120 / PCV 200 / LD 120 probe arms is that they can be changed without the need for tools, thanks to the use of the magnetic mount. The appropriate probe arms are therefore changed quickly and easily for different measuring tasks.

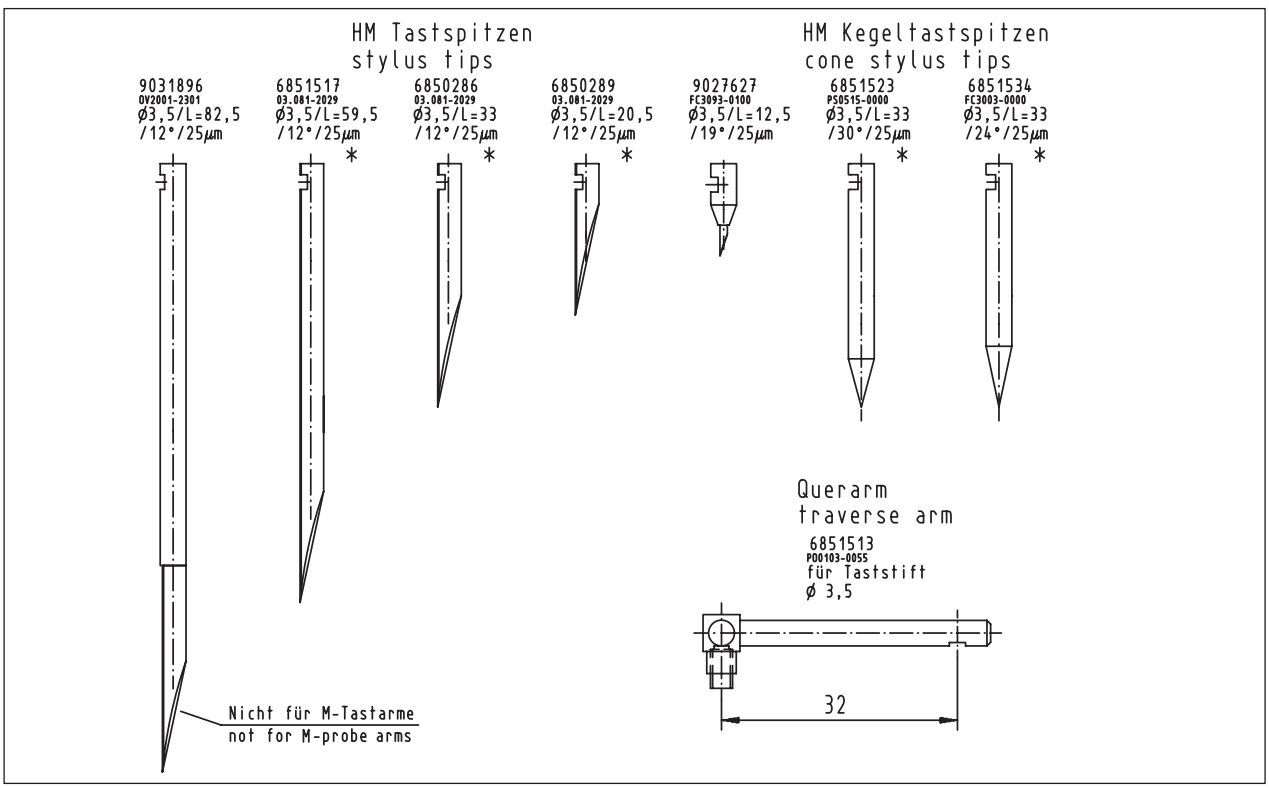
The calibration menu enables each probe arm to be calibrated and calibration data to be saved. Calibration is only necessary once for each probe arm. No further calibration is required when changing probe arms.

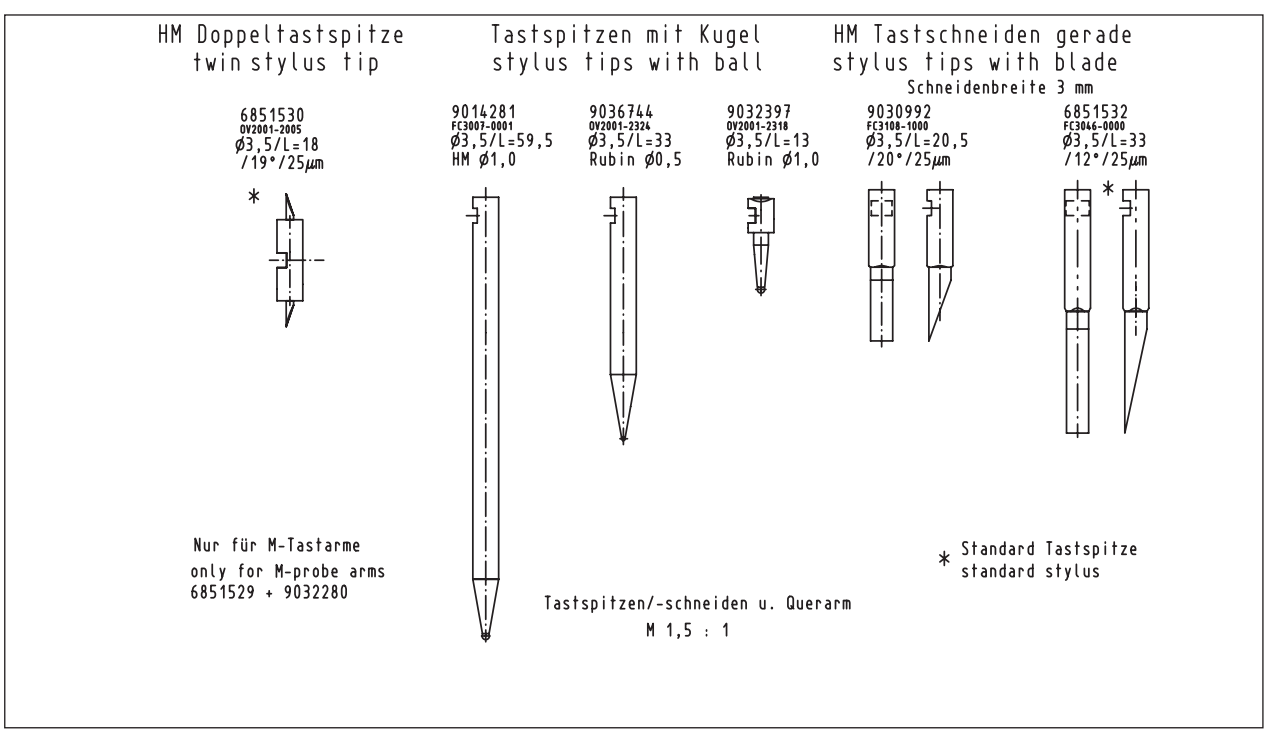
The KN 100 contour standard is used for practical monitoring of the measuring station. The standard contains the key geometrical elements. The KN 100 is supplied with a DKD or Mahr certificate if required.

KN 100 DKD calibration	Order no. 6980110
KN 100 Mahr calibration	Order no. 9964316

MarSurf XC 2 / XC 20. Contour Probes and Stylus Tips

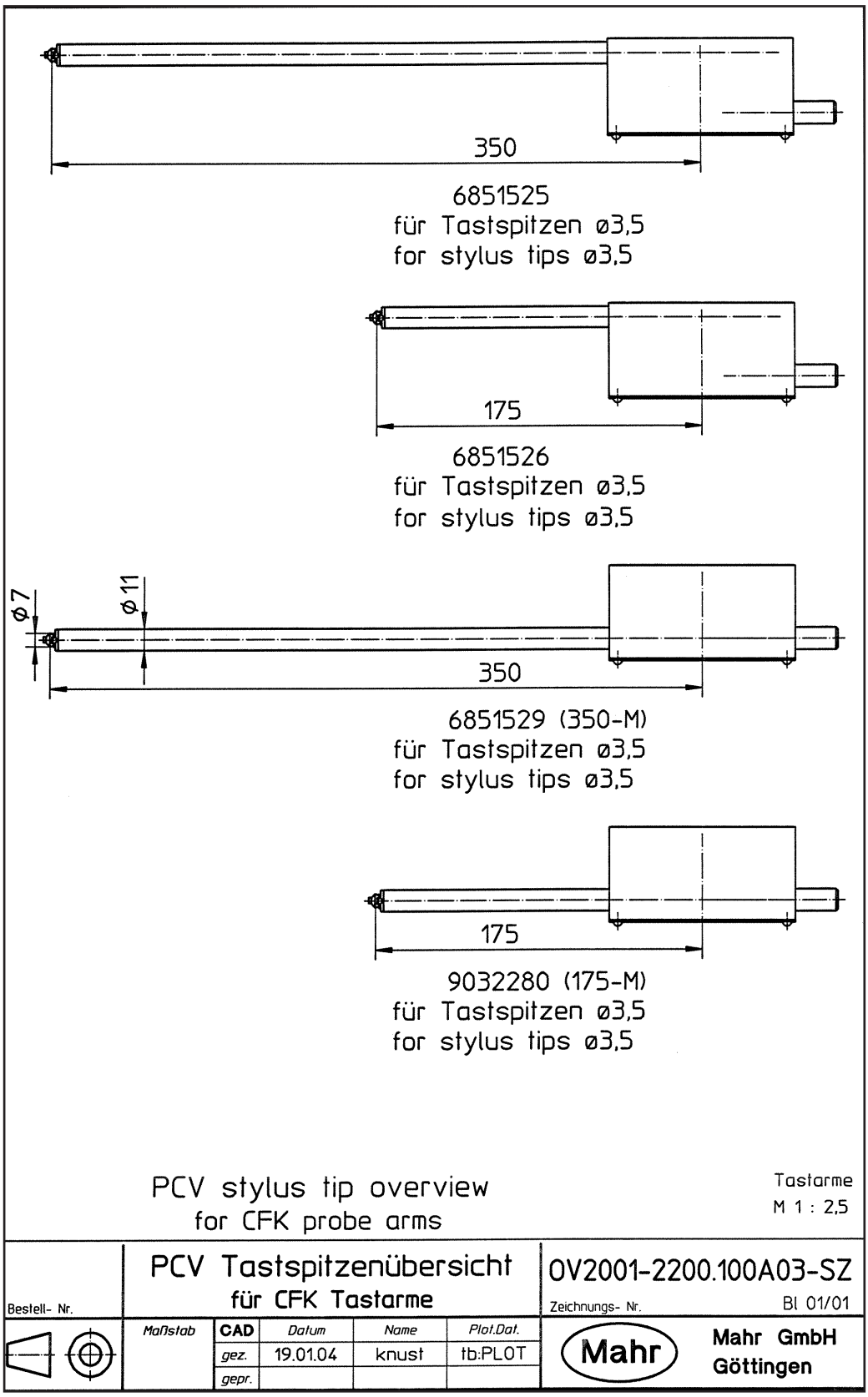
Wide selection of probe arms and stylus tips to solve various measuring tasks





Tracing arms / stylus tips

Tracing arms of carbon fiber reinforced plastic



Tracing arms / stylus tips

CP 175 M tracing arms