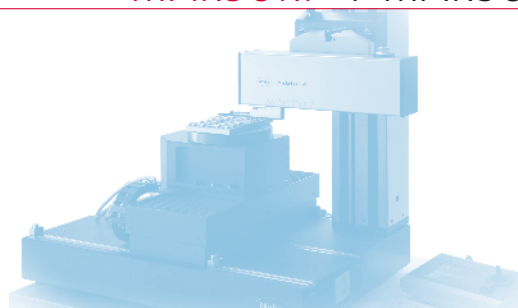MARSURF I MARSURF CNC *modular*

CNC MEASURING STATIONS WITH STANDARD COMPONENTS
FOR SURFACE AND CONTOUR MEASUREMENTS

- 0 +

Mahr

EXACTLY

THE EASY, FAST, COST-EFFICIENT WAY

MARSURF CNC *modular*

CNC MEASURING STATIONS FROM STANDARD COMPONENTS

► I The demands placed on contour and roughness measuring stations have significantly increased in recent years. The need for more automated systems has escalated due to more frequent use in production areas. The following product information will show you a configuration that can be expanded from a standard surface measuring station to a CNC measuring station by adding just a few components. This is possible thanks to the axes and hardware components shown, and the easy programming in the MarWin-based standard software with the measuring assistant.

Many applications can be fulfilled with these standard CNC measuring stations including measurements on several workpieces in pallet mounts or measurements on the workpiece without reclamping. Additional requirements such as higher level of automation, easy probe arm change and the expansion of individual axes are solved uniquely with the MarSurf XP software.   I ◄

►I MarSurf CNC *modular* Measuring Stations

MarSurf CNC *modular*

MarSurf XR 20. Standard Measuring Station for the Measurement of Roughness Depths, Profile and Waviness Parameters
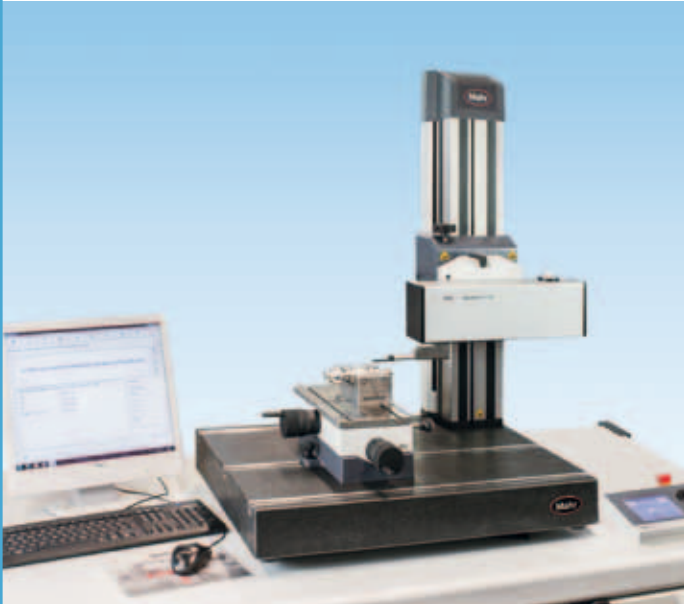
MarSurf XR 20 consisting of:

- Measuring and evaluation system XR 20
- PC
- MarWin software XR 20 license key
- CNC midrange control
- Drive unit GD 120 with probe system with MFW B 250 including mount VG GD 120
- Measuring stand column ST 500 CNC

MarSurf XC 20. Standard Measuring Station for Contour Measurements

MarSurf XC 20 consisting of:

- Measuring and evaluation system XR 20
- PC
- MarWin software XR 20 license key
- CNC midrange control
- Drive unit PCV including mount VG PCV
- Measuring stand column ST 500 CNC

MarSurf CNC *modular*

MarSurf LD 130 / LD 260. Standard Measuring Station for Contour and Roughness Depth Measurements
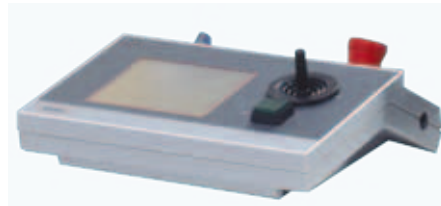
MarSurf UD 130 / LD 130 / LD 260 consisting of:

• Measuring and evaluation system XCR 20
• PC
• MarWin software XCR 20 license key
• CNC midrange control
• Drive unit LD 130 / 260
• Measuring stand column ST 500 CNC


Accessories. Standard Measuring Station

Manual control panel MCP 21   Order no. 7033935

Manual control panel with LCD display
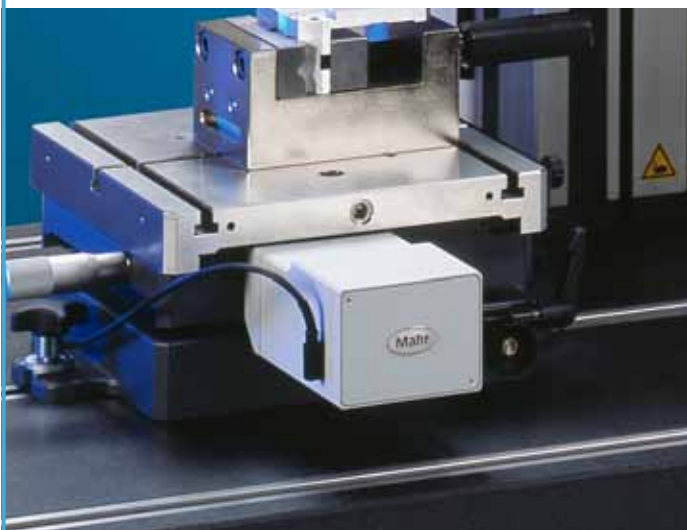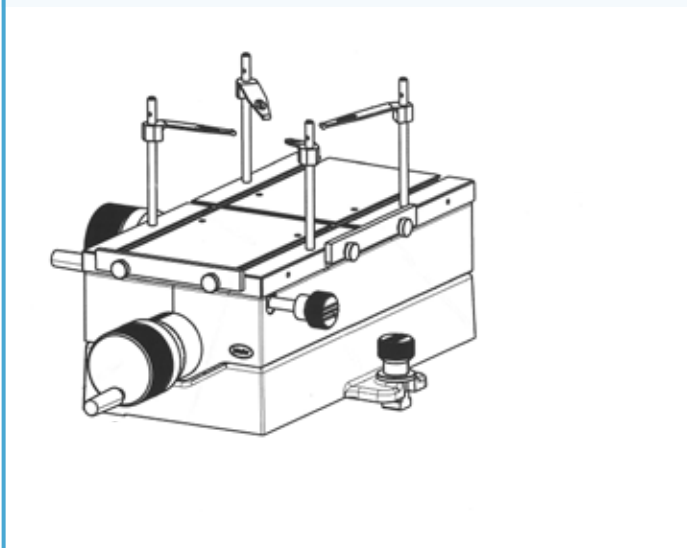as well as joystick to move the axes.

Probe Systems

Depending on the selected measuring stations and their respective drive units and probe systems, there is an extensive array of probe arms and probe tips to enable the optimal measurement at the measuring point of your workpiece.
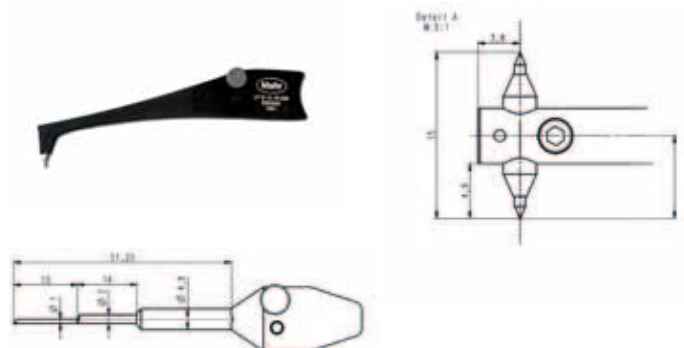
MarSurf CNC Standard Table Axes

XY Table MarSurf CT 300 / CT 200 MOT

XY Table CT 300	**Order no.: 6710549**
Dimensions including (LxWxH) incl. micrometer screws	410 mm x 300 mm x 120 mm
Weight	approx. 15 kg
Max. workpiece weight	90 kg
Table plate	300 mm x 150 mm
Adjustment range of micrometers TX and TY	≤ 25 mm each
Swivel in XY plane (TC screw)	± 4°
Max. guide deviation (straightness error	2.5 µm
T grooves	1 in TX direction, 2 in TY direction
Thread bores	M5 x 10, 8 pcs.
Clamps (7039341, 7024529)	Length 60 mm, 4 pcs.
Stop ledges (7045393)	120 mm x 15 mm, 2 pcs.
T-slot nuts (7039338) for T-grooves in table plate	T-piece 15/M5/3.5

| **XY Table CT 200-MOT**	**Order no.: 6710548**
Clamping surface	200 mm x 200 mm
Adjustment range X	25 mm
Adjustment rangeY	17.5 mm
Swivel axis C	± 2.5°
Clamping grooves	6 mm, 3 pcs.
Thread bores	M5, 4 pcs.
Max. workpiece weight	90 kg

MarSurf CNC. Standard Table Axes with Workpiece Positioning

Table Axis T1S-L / T1S-R / T3S-LLR

Table Axis T1S-L   **Order no.: 6710582**
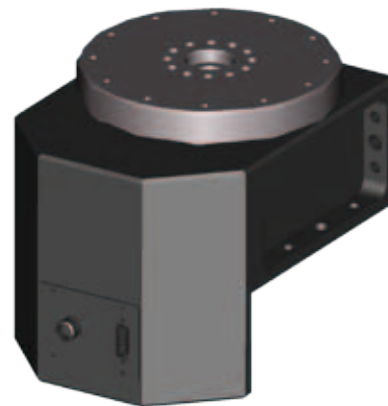including control unit

|	
Dimensions (L x W x H)	510 mm x 200 mm x 200 mm
Adjustment range	200 mm
Measuring system	Encoder
Resolution	0.5 µm
Travel path	200 mm
Speed	V_{max}=33 mm/s; V_{min}0.2 mm/s
Guide deviation	< 0.002 mm / 100 mm
Position scatter	< 0.008 mm with reference to a radius of 150 mm
Resolution of measuring unit	0.001 mm
Max. workpiece weight	50 kg
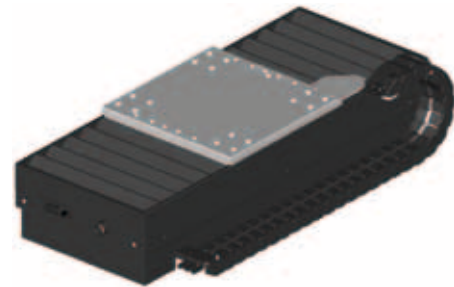
T1S-L
for use as TX or TY axis

Table Axis T1S-R   **Order no.: 6710583**
including standard mounting plate Order no.: 7051310
including control unit or midrange CNC
Usable as TA, TB or TC axis

Dimensions (L x W x H)	270 mm x 200 mm x 210 mm
Dimensions of upper plate	Diameter 200 mm
Measuring system	Encoder
Resolution	0.5 µm
Swivel axis	Endless (mind. 360°),
Speed	$v_{max} = 10$ °/s; v_{min} 0.1 °/s
Concentricity error	< 0.005 mm
Wobble	< 0.01 mm
Position scatter	< 0.008 mm with reference to a radius of 150 mm
Resolution of measuring unit	0.001°
Max. workpiece weight	30 kg

T1S-R
for use as TC, TA or TB axis

Table Axis T3S-LLR   **Order no.: 6710584**
including standard mounting plate   Order no.: 7051310
including control unit
Monolithic setup from the axes TX, TY and TC.
The axes are stacked TX - TY - TC.

TX	like T1S-L
TY	like T1S-L
TC	like T1S-R
Max. workpiece weight:	30 kg
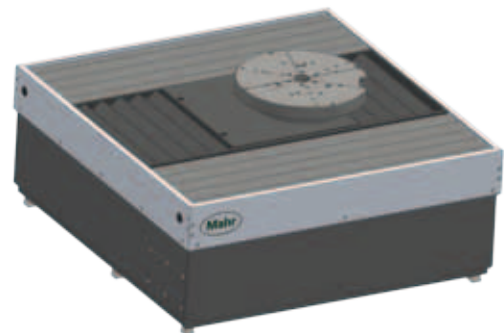
T3S-LLR

MarSurf CNC *modular*

Standard Measuring Enclosure

Standard measuring enclosure   Order no. 6830231
consisting of:

• Measuring enclosure in "Mahr Design"
  with integrated lighting
• Housing with clear glass elements
• Sliding door: Clear glass
• Integrated touchscreen monitor
• Integrated granite plate 700 mm x 350 mm x 90 mm with integrated vibration system
• Optional: Cover for measuring enclosure for use with 750-mm column (Order no. 6830232)

Customer benefit
• Protection from ambient influences
• Minimal set-up space required (W x H x D):
  1400 mm x 2120 mm x 1008 mm

Optional:
Object table   Order no. 6830139
with PC cabinet on the left
Drawers on the right
Ledge for control panel
Dimensions (L x W x H)   1720 mm x 820 mm x 750 mm
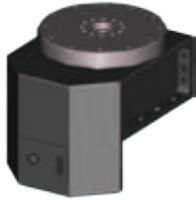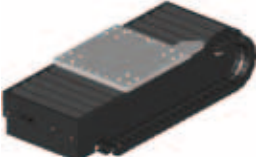
Intended Use

The respective test site configurations are provided for workpieces up to a certain volume, specific geometries and weight. Detailed information can be found in the respective data sheet.

For workpieces and devices that exceed this volume or have a different geometry, the machine safety must be assessed case by case and any measures necessary should be taken.
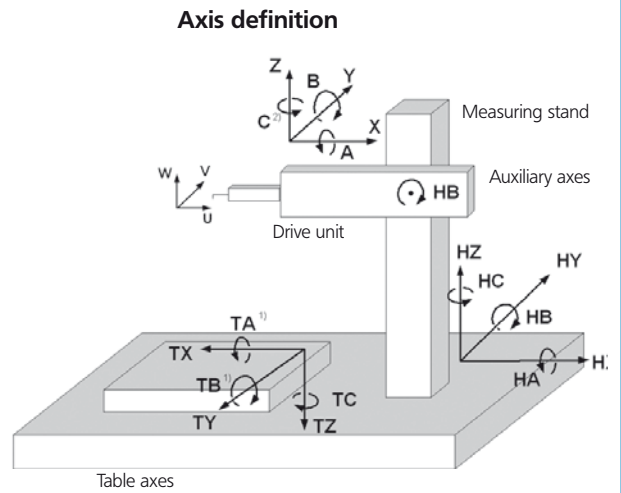
MarSurf CNC *modular*
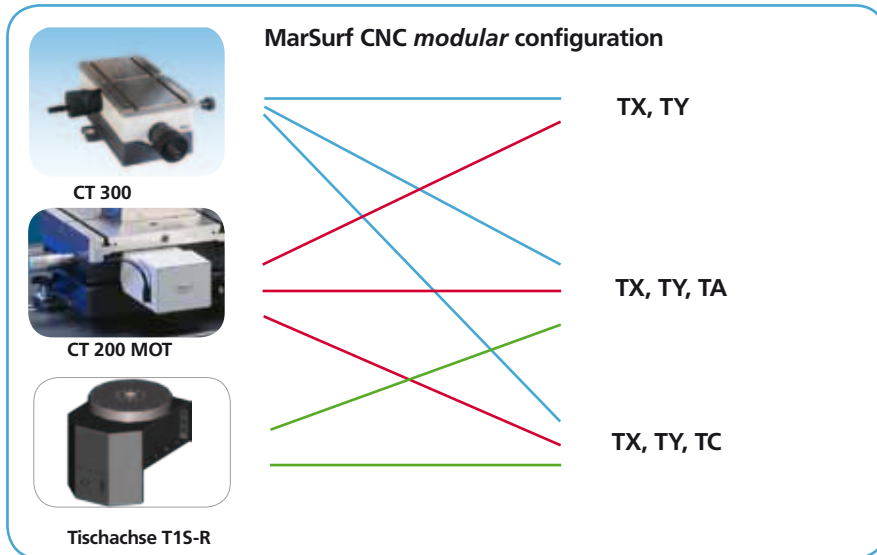
Table and axis definitions

MarSurf CNC *modular* components

T	**Table**
1, 2, 3	**Number of axes**
S	**Small (fits the granite plate of the standard measuring stand item no. 6851366)**
L	**Linear**
R	**Rotary**

T1S-R

T1S-L

T3S-LLR

Axis definition

Measuring stand

Auxiliary axes

Drive unit

Table axes

Configuring the manual table axes with motorized rotary axis

MarSurf CNC *modular* configuration

CT 300

CT 200 MOT

Tischachse T1S-R

TX, TY

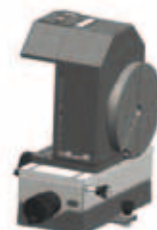TX, TY, TA

TX, TY, TC

Configuration example

CT 300 + T1S-R (TC)

CT 300 + T1S-R (TA)   **Order no. 6710595**

MarSurf CNC *modular*

Configuring the motorized table axes

MarSurf CNC *modular*   Configuration

Table axis T1S-L

Table axis T1S-R   **TX**

Table axis T3S-LLR   **TY**

TY, TA

TY, TB *

TX, TY, TC

* TY, TB cannot be used with ST 500 / 750 CNC (HZ / HB)
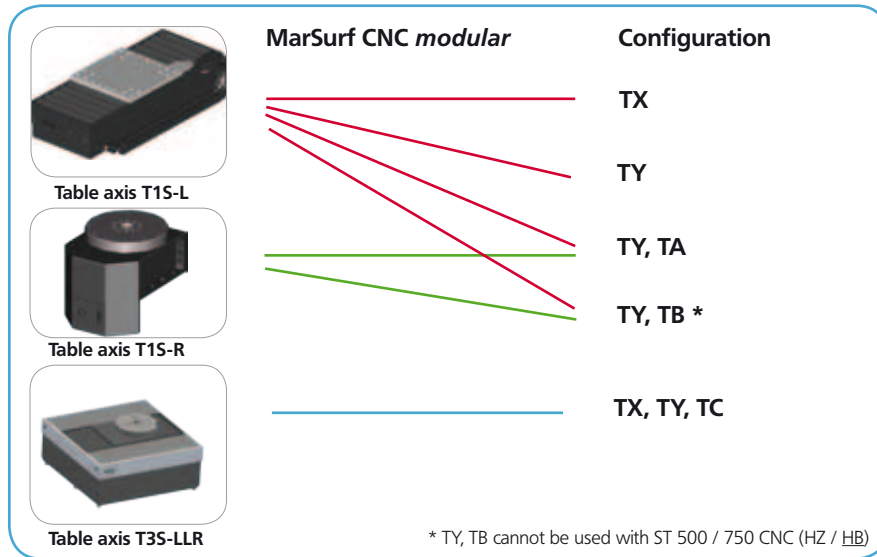
Configuration example

T2S-LR (TB)   **Order no. 6710598**

CT 300 + T1S-R (TA)   **Order no. 6710597**

T3S-LLR   **Order no. 6710584**

MarSurf CNC *modular*

Standard mounting plate (included in T3S-LLR and T1S-R)
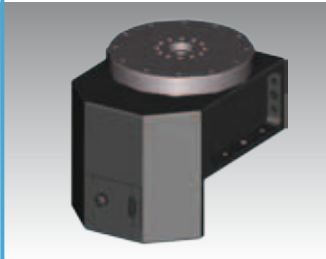
Table axis T1S-R

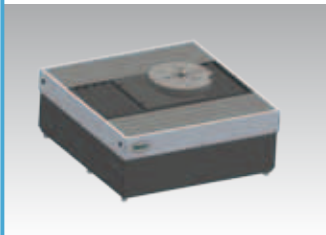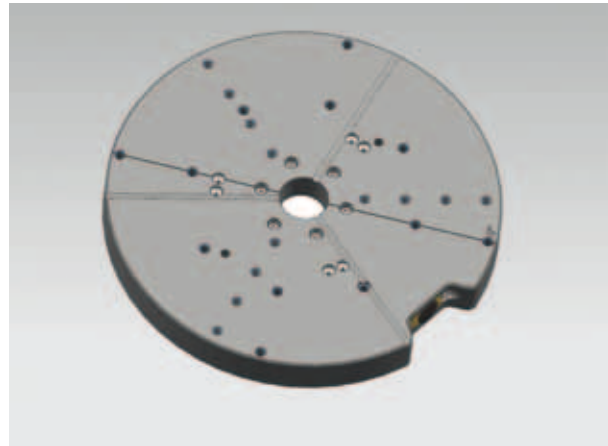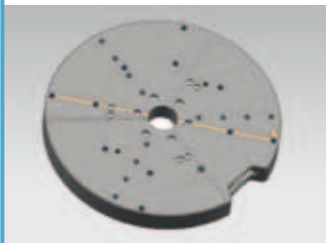Option: Table plate with precision clamping adapter item no. 6710587
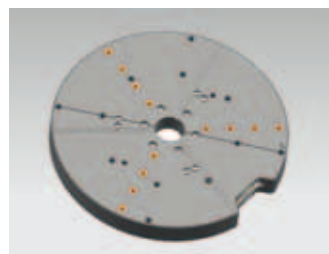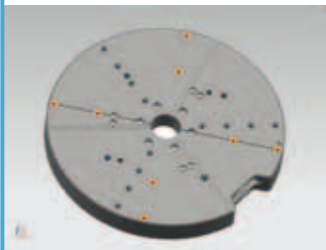
Table axis T3S-LLR

0° engraving line as alignment and orientation help

M5 hole pattern on the hole circles 60 mm / 100 mm / 140 mm / 180 mm, offset 120°. Interface for accessories (chuck) for formtesters and gear measuring machines MMQ, MFU, GMX

M5 hole pattern 80 mm x 80 mm - identical with CT 200 / CT 300, and 132 mm x 132 mm - identical with CT 300 (interface for Precimar accessories)

Central bore D = 24H7 can be used as centering help. Example: fast centering of the standard rim chuck D=100 (item no. 6710620) with the help of a ball bush guide 24h3x170 (item no. 5010089)
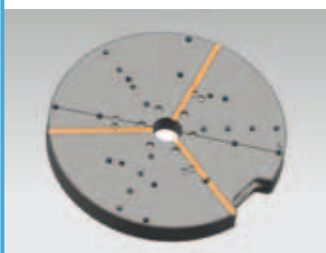
Taper groove, offset 120°, inserted cylinder pins serve as stable 3-point support for any workpieces

MarSurf CNC. Configurations

Table plate with clamping ball adpater (item no. 6710586) and universal clamping plate (item no. 6710588)

Table plate

Universal clamping plate

Lock button
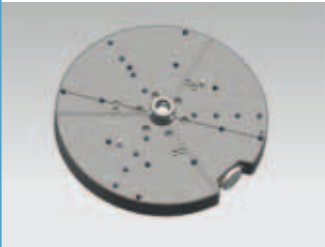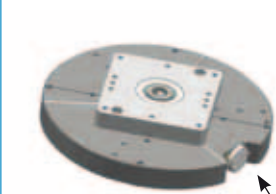
- Rigid quick clamping system
- Exact positioning of the universal clamping plates with workpiece mounts over 2 dowel pins
- Easy, fast clamping using the clamping ball adapter (using knurled screw)
- Secure clamping with asymmetrical arrangement, thus 180° reversed clamping is not possible

Your advantage:

- Your measuring program continues to run, even after a device change
- You save time and additional work

Table plate with precision adapter (item no. 6710587) and mounting plate (iterm no. 9041351)
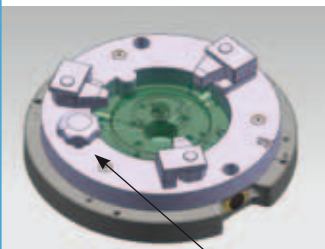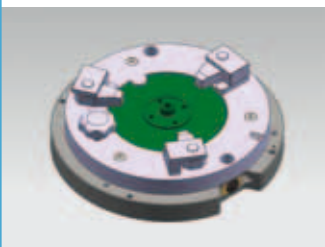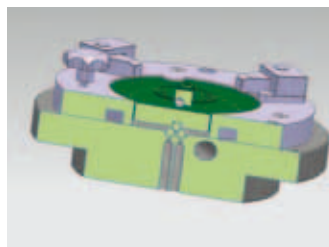

Table plate with precision adapter

Lock button

- Extremely high reporducability
- Statically clearly specified, backlash-free bearing
- 3 dowel pins in the universal clamping plate are each pressed into a pair of balls in the table plate
- Easy, fast and secure clamping (user-independent clamping force is ensured)
- Clamping offset by 120° is prevented by a groove/spring system in the universal clamping plate

Mounting plate

Your advantage

- Additional alignments steps are no longer needed when changing the device
- You save time and additional work

MarSurf CNC. Configurations

MarSurf XR 20

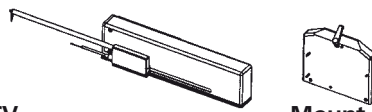- Computer
- Midrange CNC
- License key XR 20
- MCP 21

GD 120   **Mount**

MarSurf XC 20

- Computer
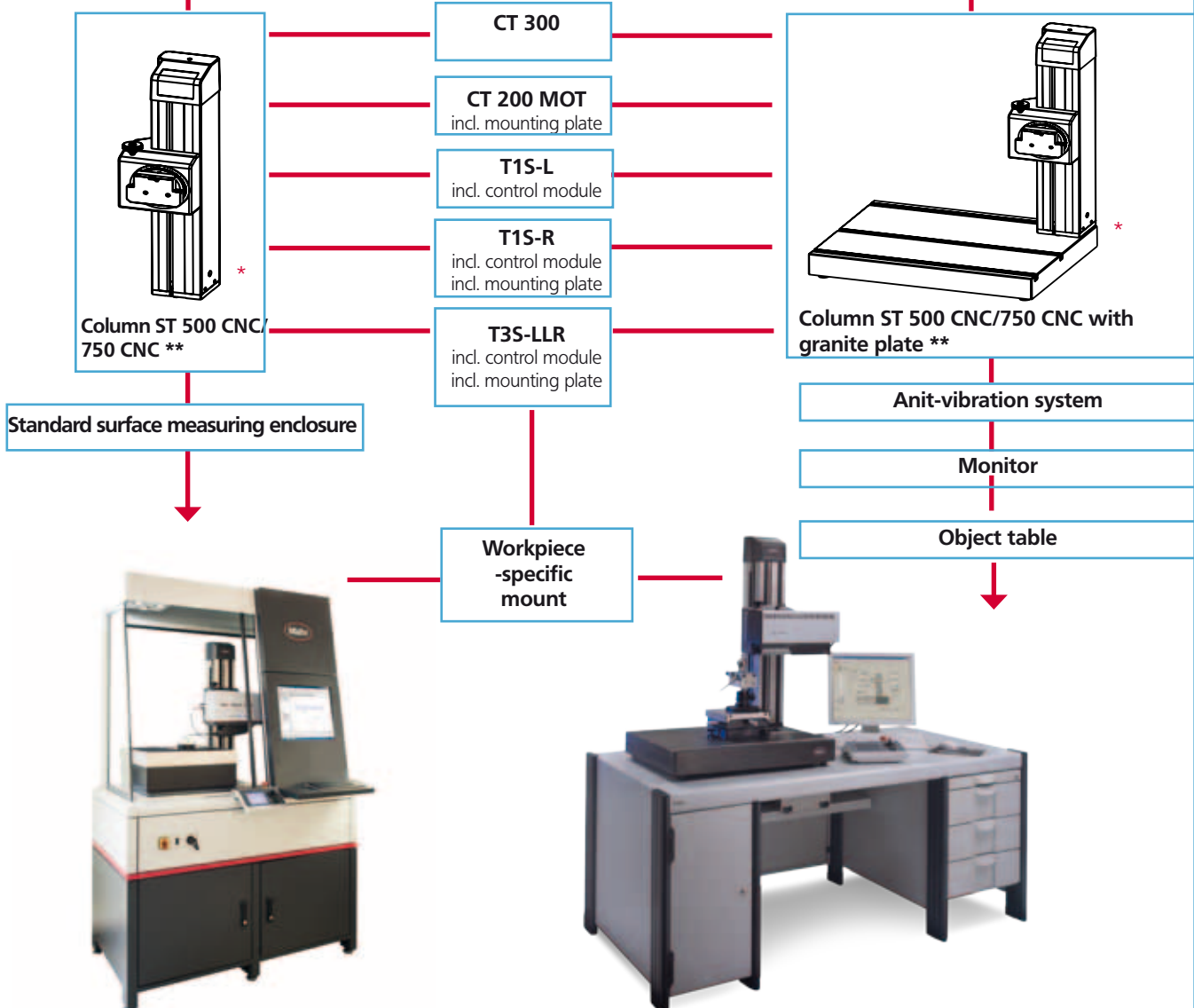- Midrange CNC
- License key XC 20
- MCP 21

PCV   **Mount**

MarSurf XCR 20 with LD 130 / LD 260 / UD 130

- Computer
- Midrange CNC
- License key XCR 20
- MCP 21

LD 130 / LD 260 / UD 130

CT 300

CT 200 MOT
incl. mounting plate

T1S-L
incl. control module

T1S-R
incl. control module
incl. mounting plate

T3S-LLR
incl. control module
incl. mounting plate

Column ST 500 CNC/ 750 CNC *

Standard surface measuring enclosure

Column ST 500 CNC/750 CNC with granite plate *

Anit-vibration system

Monitor

Object table

Workpiece -specific mount

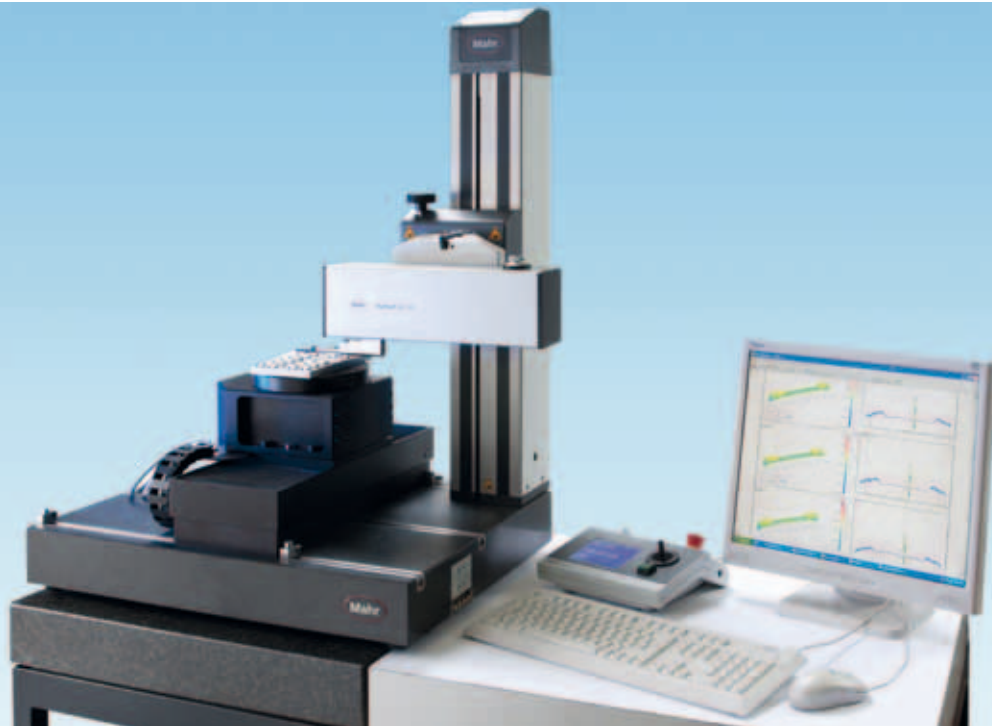** ST 500 / 750 CNC (HZ / HB) not suitable with TY / TB*   *** with additional cover 6830232 when using the 750-mm column*

MarSurf CNC *modular,* CNC Measuring Station with Standard Components
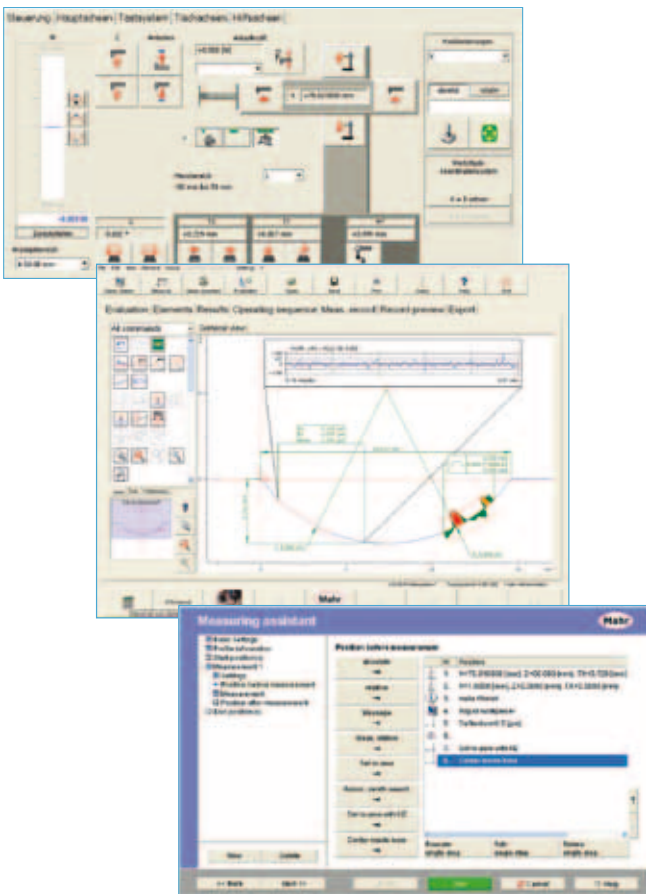

The MarWin-based standard software concept

• Easy operation of the measuring station like with the standard unit

• Use of all advantages of the MarWin user interface

• Logically structured operating concept

• Graphically supported with proven "Tool Box"

• Easily programmable measurements and evaluations with the MarWin software platform

• No additional special software is required for CNC operation even with configurations with the max. 3 auxiliary axes

• With the measurement wizard, table axes can be programmed so that automatic measurements are possible

MarSurf CNC Measuring Stations

These measuring tasks can be solved with the standardized CNC surface measuring stations from Mahr:

• Pallet measurements (several parts in one mounting device)
• Topography measurements
• Several measuring places on one workpiece without reclamping (saves time)
• Automatic zenith search
• Automatic adjustment of the X-axis
• Universal measuring station for diverse measuring tasks, measuring station can be easily converted

Your Advantages
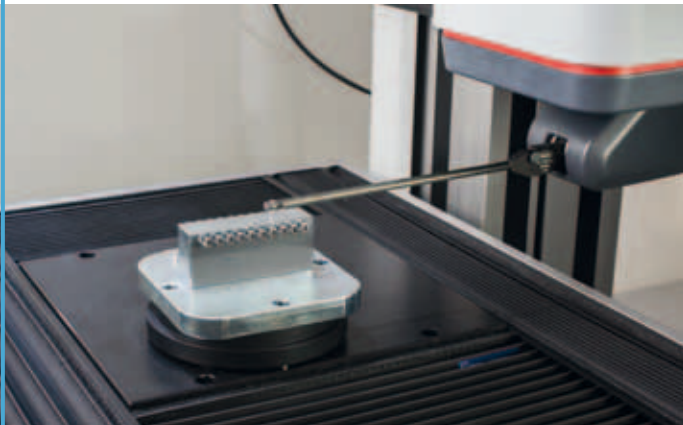
Good reasons to choose MarSurf CNC *modular*

• Proven surface technology from Mahr
• Minimal training required
• Easy configuration and expansion possibilites from standard measuring station to CNC measuring station
• "Plug and play" configuration between control and axes
• Workpiece mount and clamping system are perfectly matched
• Great time-savings due to avoidance of operator influences
• Reliable results due to avoidance of user influences
• Upgrade possible for available measuring station
• Cost-efficient solution
• MarWin measuring and evaluation system
• Can be used worldwide
• Service and application technology worldwide
• Short delivery times

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| –0 +

Mahr

EXACTLY

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