



آزما صنعت گراد



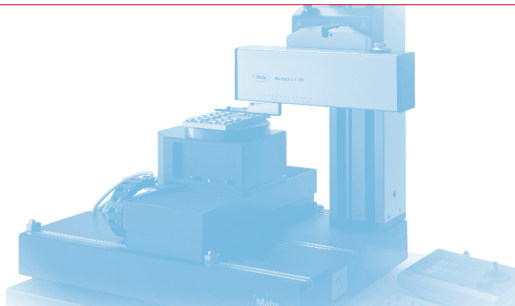
نماینده انحصاری کمپانی **Mahr** آلمان

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EXACTLY

MARSURF | MARSURF CNC *modular*



CNC MEASURING STATIONS WITH STANDARD COMPONENTS
FOR SURFACE AND CONTOUR MEASUREMENTS

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Mahr

EXACTLY

THE EASY, FAST, COST-EFFICIENT WAY MARSURF CNC *modular* CNC MEASURING STATIONS FROM STANDARD COMPONENTS



▶ | 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. | ◀

▶ | MarSurf CNC *modular* Measuring Stations

MarSurf CNC <i>modular</i> . Standard surface measuring stations	4
MarSurf CNC. Standard table axes and accessories	6
Standardized CNC surface measuring stations	8
Configuration examples	9
Mounting systems	11
Overview of configurations	14
MarSurf CNC measuring stations. Advantages	15

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:

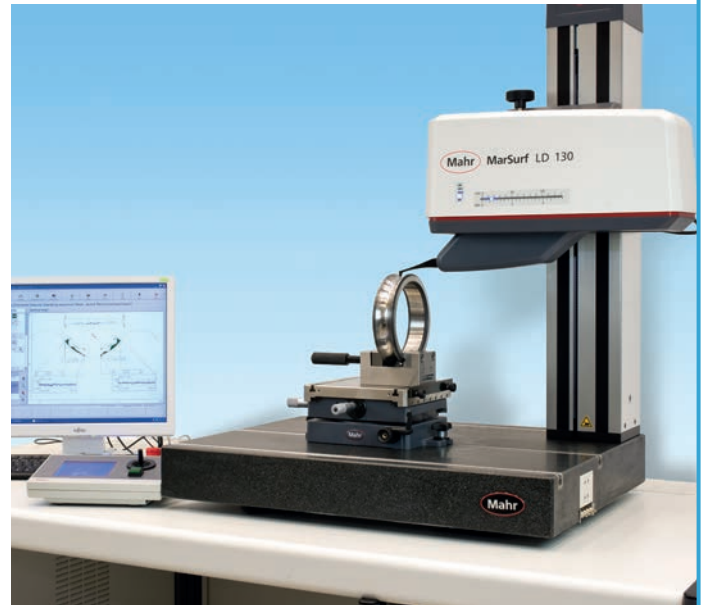
- Measuring and evaluation system XR 20
- PC
- MarWin software XR 20 license key
- CNC midrange control
- Drive unit PCV including mount VG PCV
- Measuring stand column ST 500 CNC

MarSurf CNC modular

MarSurf LD 130 / LD 260. Standard Measuring Station for Contour and Roughness Depth Measurements

MarSurf 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

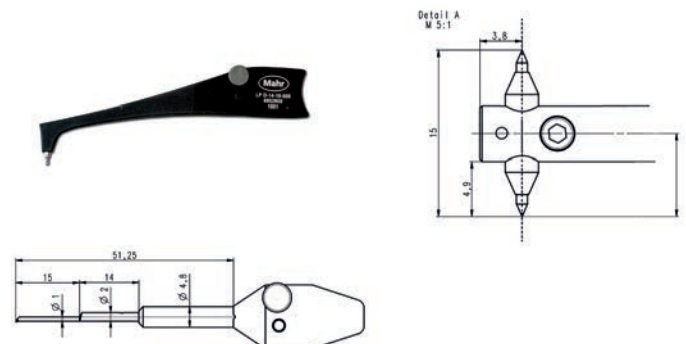
Manual control panel MCP 21 Order no. 7033935

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



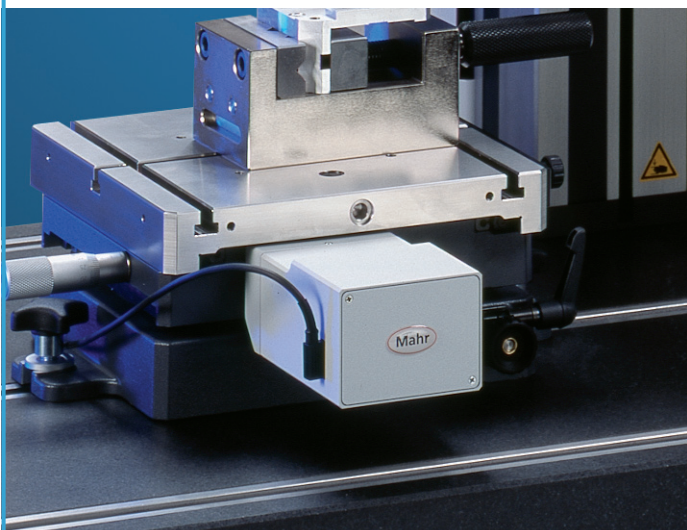
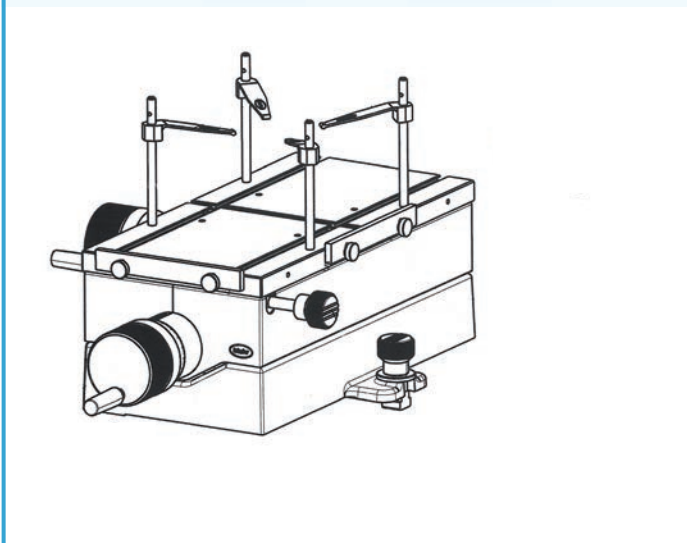
Probe Systems

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

Dimensions including (LxWxH)
incl. micrometer screws

Weight

Max. workpiece weight

Table plate

Adjustment range
of micrometers TX and TY

Swivel in XY plane
(TC screw)

Max. guide deviation
(straightness error
T-grooves

Thread bores

Clamps (7039341, 7024529)

Stop ledges (7045393)

T-slot nuts (7039338)

for T-grooves in table plate

Order no.: 6710549

410 mm x 300 mm x 120 mm

approx. 15 kg

90 kg

300 mm x 150 mm

≤ 25 mm each

± 4°

2.5 μm

1 in TX direction,

2 in TY direction

M5 x 10, 8 pcs.

Length 60 mm, 4 pcs.

120 mm x 15 mm, 2 pcs.

T-piece 15/M5/3.5

XY Table CT 200-MOT

Clamping surface

Adjustment range X

Adjustment range Y

Swivel axis C

Clamping grooves

Thread bores

Max. workpiece weight

Order no.: 6710548

200 mm x 200 mm

25 mm

175 mm

± 2.5°

6 mm, 3 pcs.

M5, 4 pcs.

90 kg

MarSurf CNC. Standard Table Axes with Workpiece Positioning

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

Table Axis T1S-L

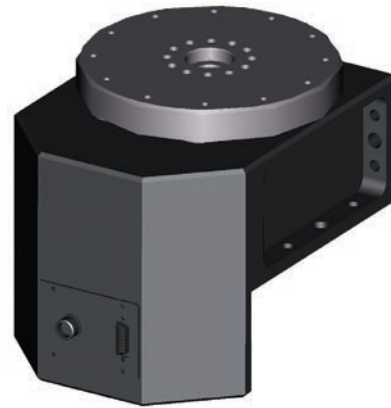
including control unit	Order no.: 6710582
Dimensions (L x W x H)	510 mm x 200 mm x 200 mm
Adjustment range	200 mm
Measuring system	Encoder
Resolution	0.5 μm
Travel path	200 mm
Speed	$V_{\text{max}}=33 \text{ mm/s}; V_{\text{min}}0.2 \text{ mm/s}$
Guide deviation	$< 0.002 \text{ mm} / 100 \text{ mm}$
Position scatter	$< 0.008 \text{ mm}$ 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

including standard mounting plate	Order no.: 6710583
including control unit or midrange CNC	Order no.: 7051310
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	$v_{\text{max}} = 10 \text{ }^\circ/\text{s}; v_{\text{min}} 0.1 \text{ }^\circ/\text{s}$
Concentricity error	$< 0.005 \text{ mm}$
Wobble	$< 0.01 \text{ mm}$
Position scatter	$< 0.008 \text{ mm}$ 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

including standard mounting plate	Order no.: 6710584
including control unit	Order no.: 7051310
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.

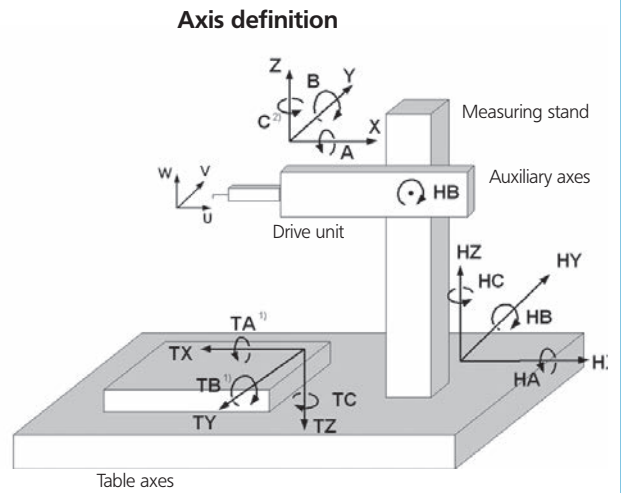
For workpieces and devices that exceed this volume or have a different geometry, the machine safety must be assessed case by case and any measures necessary should be taken.

MarSurf CNC modular

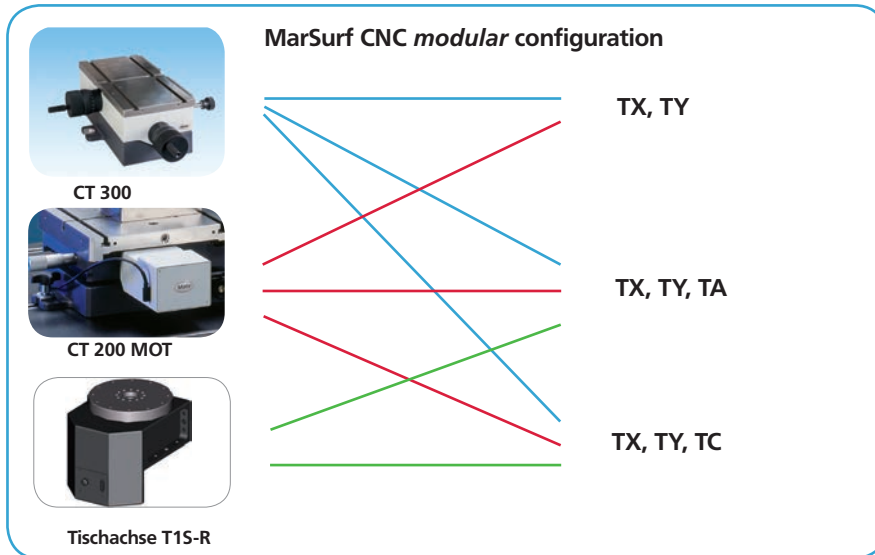
Table and axis definitions

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
		
		T3S-LLR

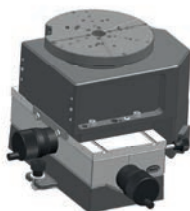


Configuring the manual table axes with motorized rotary axis



Configuration example

CT 300 + T1S-R (TC)

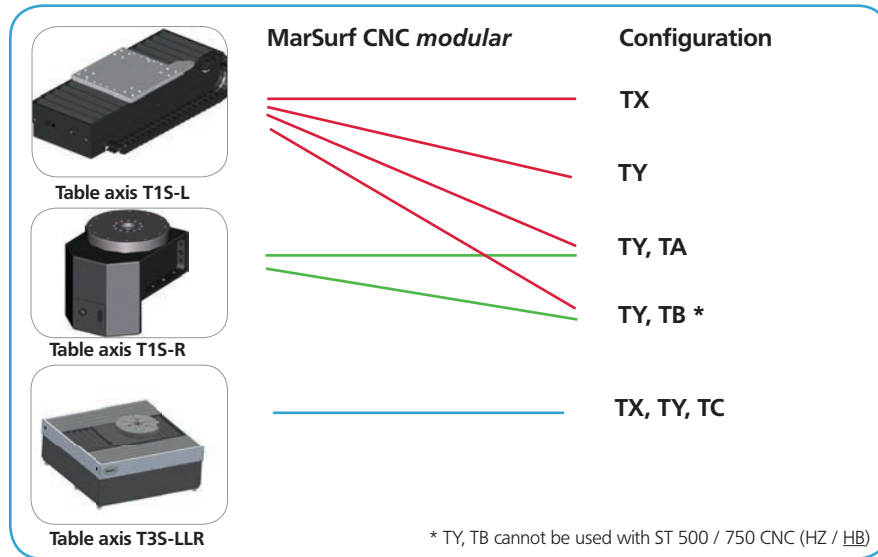


CT 300 + T1S-R (TA)

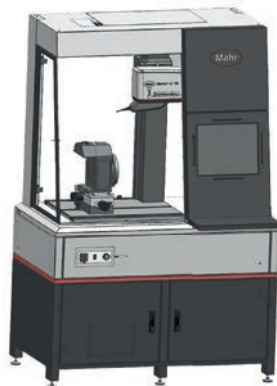


MarSurf CNC modular

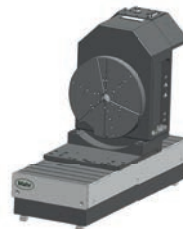
Configuring the motorized table axes



Configuration example



T2S-LR



CT 300 + T1S-R (TA)



T3S-LLR



MarSurf CNC modular

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

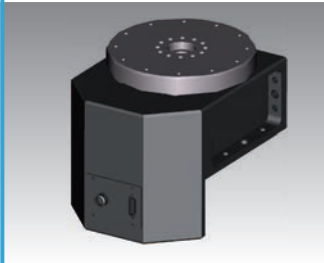


Table axis T1S-R

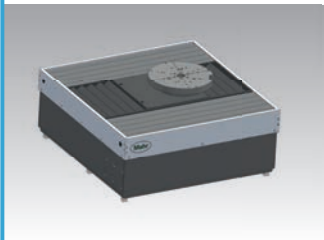
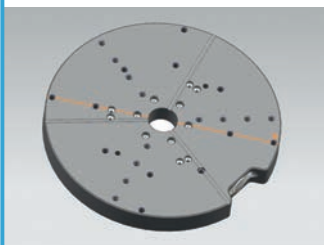
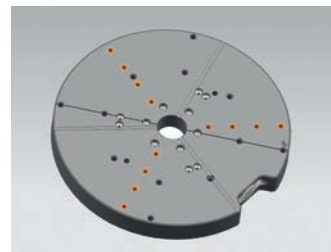


Table axis T3S-LLR

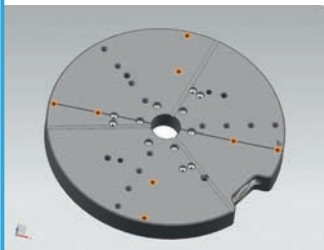
Option: Table plate with precision clamping adapter ID 6710587



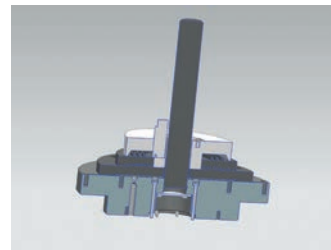
0° engraving line as alignment and orientation help



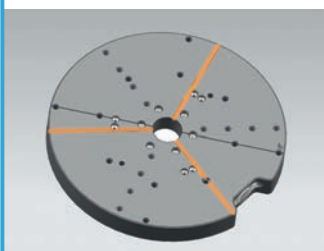
M5 hole pattern on the hole circles 60 mm / 100 mm / 140 mm / 180 mm, offset 120°. Interface for accessories (chuck) for formtesters and gear measuring machines MMQ, MFU, GMX



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 $D=100$ (Ident-Nr. 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 adapter (item no. 6710586) and universal clamping plate (item no. 6710588)

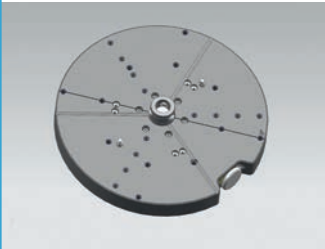
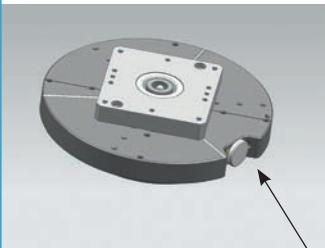
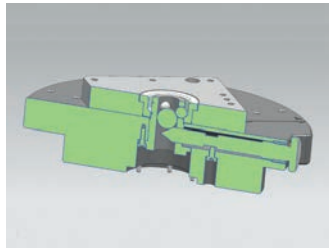


Table plate

- 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



Universal clamping plate



Lock button

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 (item no. 9041351)

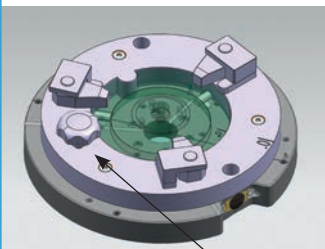
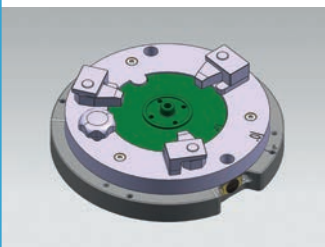


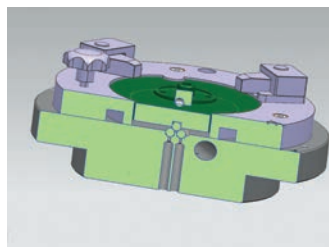
Table plate with precision adapter

- Extremely high reproducibility
- 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

Lock button



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

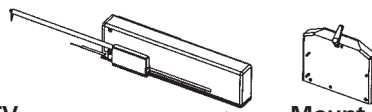


GD 120

Mount

MarSurf XC 20

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



PCV

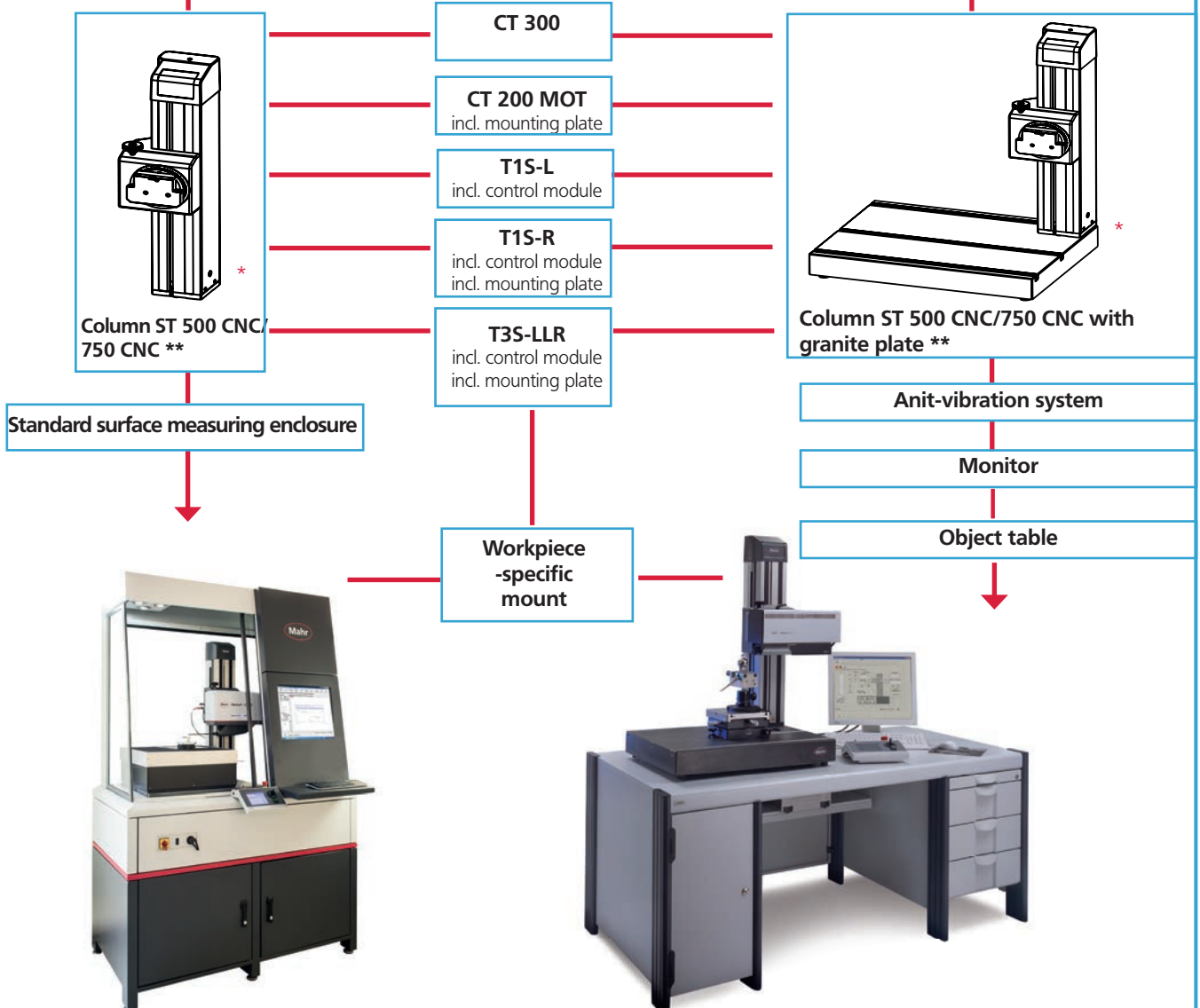
Mount

MarSurf XCR 20 with LD 130 / LD 260 / LD 120 / UD 120

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



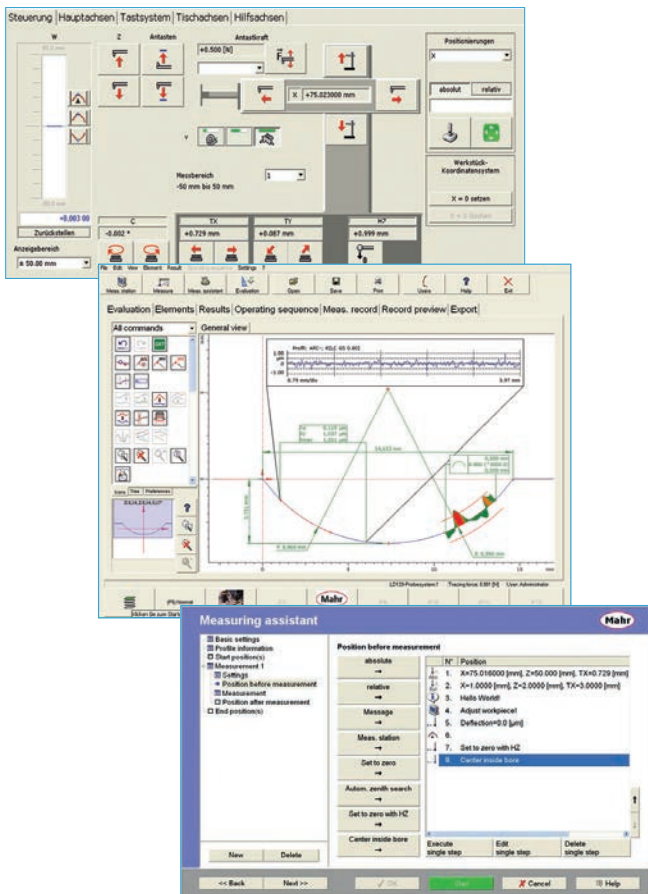
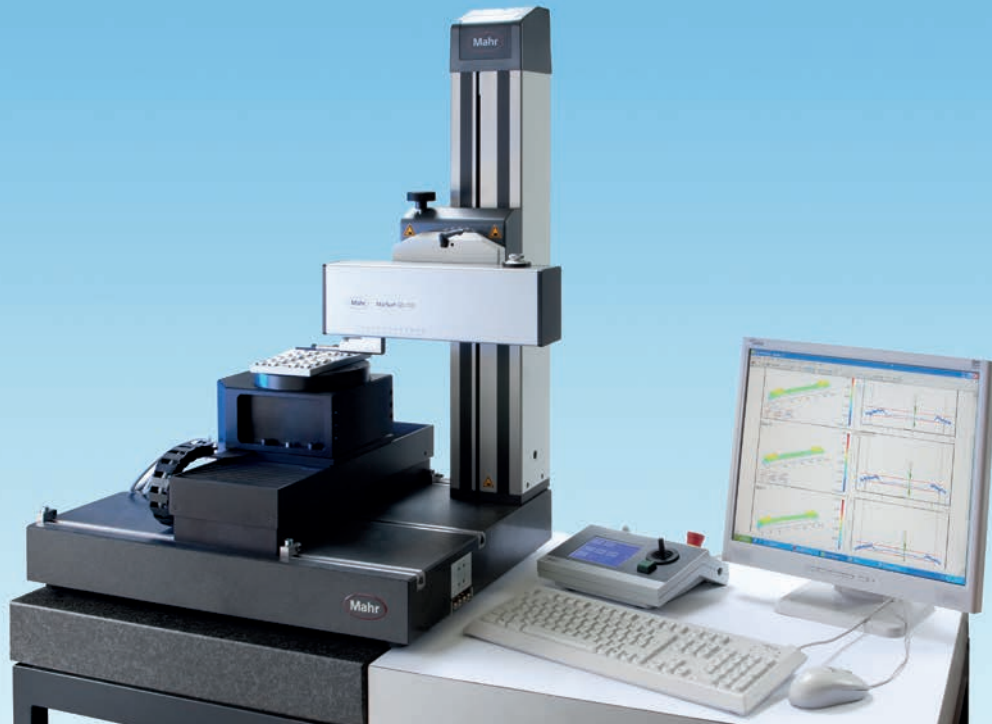
LD 130 / LD 260 / LD 120 / UD 120



* 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

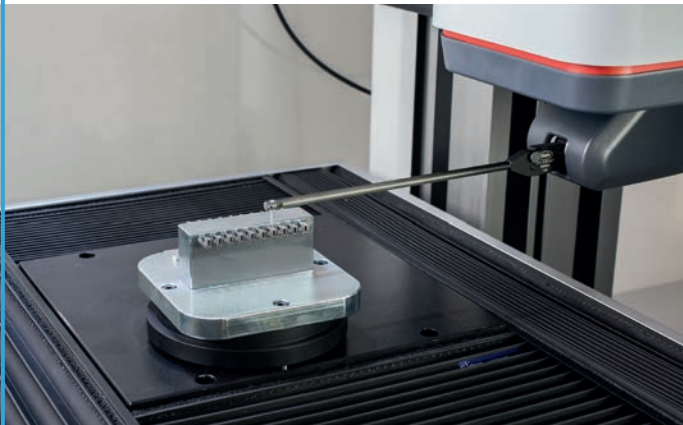
- Easy operation of the measuring station like with the standard unit
- Use of all advantages of the MarWin user interface
- Logically structured operating concept
- Graphically supported with proven "Tool Box"
- Easily programmable measurements and evaluations with the MarWin software platform
- No 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 possibilities 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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