



**3D Metrology –
Measuring and Layout Machines**

Metrology by STIEFELMAYER – Flexible and tailor-made

The Success Story

STIEFELMAYER is one of the pioneers in 3D coordinate metrology. Back in the early 70s we have installed the first 3D horizontal-arm machine with digital display at our customers'.

In the meantime there are more than 8000 STIEFELMAYER measuring and layout machines throughout the world.



STIEFELMAYER Today

Continuous research and development as well as untiring search for future-oriented technologies turned the company today into a successful, medium-sized group of companies, which offers not only 3D metrology but also customized solutions in the area of laser technology and special clamping tools.

In metrology we focus on horizontal-arm machines in variable sizes and equipment versions.

The brochure on hand only provides a small insight into the manifold possibilities with STIEFELMAYER measuring and layout machines.

Find out more about our complete
range of measuring machines...



3D Metrology – To meet your needs

Horizontal-Arm Machines

Suitable for your manifold measuring and marking-out tasks

Tailor-made solutions

Today, STIEFELMAYER measuring and layout machines are available in a great number of versions in order to meet our customers' requirements at the best with regard to size, precision and user-friendly working. This includes high-quality and long-lasting machines, suitable evaluation and software systems as well as a multitude of field-proven options and accessories.

Versatile in use

Our machines stand their test particularly when measuring large work pieces. Another important application is the marking-out of cast parts in preparation for the downstream milling.

Furthermore, STIEFELMAYER measuring and layout machines are an important companion in the development process: This comprises reverse engineering in design and reaches to measuring tasks in prototyping and pre-series production.

STIEFELMAYER measuring machines are also frequently used in incoming goods departments and the quality assurance at shop floor level.



STIEFELMAYER metrology at a glance



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STIEFELMAYER CMMs – Highly robust and durable

The Characteristics

Our own production facilities, high-quality components and accurate assembly

Reliable quality

STIEFELMAYER measuring machines traditionally feature a high mechanical precision. They consist exclusively of high-quality components which make the machines robust, reliable and apt for long-term use.

Characteristics you can trust in:

Versatility:

We offer our measuring machines in a great number of versions: as manual or motorised machines, in CNC version, as single-column or duplex installation.

Easy to move:

Due to special drive components and exact finish, STIEFELMAYER measuring and layout machines can be moved easily in all axes. They are therefore perfectly suitable also for manual use.

Longevity:

The use of innovative technologies is an important prerequisite for the longevity of our machines. One example is the laser hardening of our horizontal arms.

Precision:

Thanks to a large number of adjusting elements our machines feature an excellent mechanical precision. We can thus minimize the torsion at the Z column and the traversing arm and ensure an optimum straightness.

Robustness:

STIEFELMAYER measuring and layout machines stand the test also in challenging environment, e.g. casting dust.

Among other things, we use an extremely dirt-resistant inductive magnetic measuring system. Hardened and chrome-plated running surfaces protect the system permanently against corrosion.

In the area of drives, we have made many provisions to protect them against contamination in order to guarantee the proper functioning of the machines on the long term.

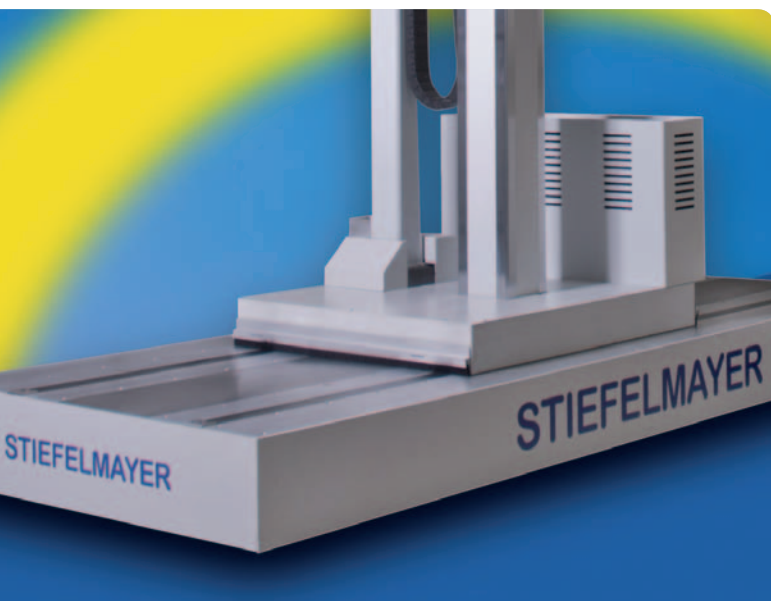
Ease of maintenance:

We have paid particular attention to a service-friendly machine design. All wear parts, e.g. bearings are easy to access. This helps to reduce service time and costs.

Tailor-made sizes:

We work to our customers' requirements. This includes the manufactured size which we can adjust as required.

Thanks to our high vertical range of manufacture we can carry our large measuring volumes of up to Z (column) = 4000 mm and Y (traversing arm) = 2500 mm (depending on the machine type).



STIEFELMAYER Service – For a long machine life

Our Commitment

Reliable support from
one single source

Service Ranging from A to Z – What we can do for you



Qualified support services in advance

We provide customer support already in the design phase – our experts discuss your specific requirements intensively and develop the optimal solution.

Top-quality execution:

We attach great importance to a high mechanic quality of all components in order to achieve longevity and robustness for our equipment. For that, we rely on our own, highly specialized manufacture and thoroughly selected suppliers.



Quality in service:

Our experienced and continuously trained service team provides its support services at any time, also after the installation of your machines.

The regular service offering maintenance and calibration guarantees the economic and stable use of your measuring machine.

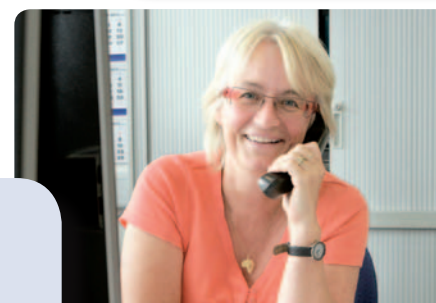
All our services are subject to strict quality assurance regulations secured by our quality management system and certification according to ISO 9001.

Our services in detail:

- Calibration, service and maintenance of coordinate measuring machines
- Maintenance, repair
- Relocation of coordinate measuring machines
- Modernization, retrofitting
- Acceptance with hold croft bar according to VDI/VDE 2617
- Repair
- Training at STIEFELMAYER's and on site

Spare parts and accessories:

We offer an extensive range of accessories for your coordinate measuring machines. Be it probe or marking-out tools or sensor systems – we offer you a wide range, from one source and with short delivery times.



Contact us – we would be glad to present our services to you.

Email: messtechnik@stiefelmayer.de · Phone: +49 (0)711 93 440 – 602

ACTURA – The manual starter machine

The guide rails

Optionally detachable
for mobile use

ACTURA – for measuring and marking-out tasks

ACTURA is a solid and easy-to-use measuring and marking-out machine with manually guided axes. It is particularly suitable for measuring large individual components, marking-out and measuring in clay design, marking-out of workpieces as well as dimensional control during the construction of devices and workpieces.

Guide rails made to measure

ACTURA machines feature guide rulers which are screwed to the measuring or marking-out plate. Alternatively, it is also available with detachable guide rulers. This offers the advantage that the machine can be moved around the workpiece. The ACTURA measuring machine is available in many different sizes for flexible use.

ACTURA is equipped with the measuring counter MZ 2000, which is also offered as wireless solution to avoid annoying cables at the machine.



ACTURA: pulled-up operating elements at the X-axis

ACTURA Design – the slim version

For the work in design studios, ACTURA is available with particularly slim column and traversing arm. It therefore provides the user with an extremely easy-going and optically unobtrusive machine.



Measuring counter MZ 2000, adjustable tilt angle,
swiveling holding device

ACTURA – Easy to move and user-friendly

The Equipment

Measuring counter MZ 2000 and
extensive accessories

The ACTURA CMMs at a glance

Technical Data	ACTURA	ACTURA Design
Machine Type	Floor level CMM	Floor level CMM
Maximum measuring range X (possibly multi-piece)	Unlimited	Unlimited
Maximum measuring range Z	3000 mm	2100 mm
Maximum measuring range Y	2000 mm	1400 mm
Diameter column	160 * 160 mm	100 * 100 mm
Diameter traversing arm	80 * 80 mm	60 * 60 mm
Measuring system	Magnetic measuring system (incident light measuring system available upon request)	Magnetic measuring system (incident light measuring system available upon request)
Standard equipment	Measuring counter MZ 2000	Measuring counter MZ 2000
Connection guiding system to measuring plate	Screwed or pinned rails	Screwed or pinned rails
Measuring plate – surface quality	Finish machined, flatness according to DIN 876 / II	Finish machined, flatness according to DIN 876 / II
Measuring plate / Guide beam	Thickness 250 mm. Optionally equipped with a slot (width 140 mm) for the ACTURA guide rail	Thickness 250 mm. Optionally equipped with a slot (width 140 mm) for the ACTURA guide rail
Max. load carrying capacity	30 kN/m ²	30 kN/m ²
Extras / Options	Rechargeable battery system for MZ 2000 Control-Lift	Rechargeable battery system for MZ 2000 Control-Lift
Accessories	STIEFELMAYER probe and marking-out tools Tactile sensor equipment for manual CMMs	STIEFELMAYER probe and marking-out tools Tactile sensor equipment for manual CMMs



Please have a look at our
numerous probe and marking-out
tools for ACTURA machines.



FUTURA – Side-mounted guiding system

The Variations

Manual, motorised or CNC-controlled

The FUTURA Family – manual and CNC-controlled

The FUTURA measuring machines have a guiding system which is screwed to the side of the measuring plate which makes the whole surface of the measuring plate available as measuring surface.

FUTURA machines are available as manual or CNC-controlled version. Optionally, CNC-controlled machines can be equipped with disengageable drives which enables the operator to change easily between manual and CNC-operation. The robust construction of the FUTURA coordinate measuring machines makes them highly suitable in all its versions for shopfloor use.

We also offer the FUTURA machines as duplex solution. By that, the measuring columns can each work in an individual as well as in a shared coordinate measuring system.

FUTURA Manual

The machine is comfortably moved by operating elements at the bi-axial carriage and the base plate of the machine. The FUTURA manual is equipped with the measuring counter MZ 2000.



FUTURA manual with probe system MIH

FUTURA CNC

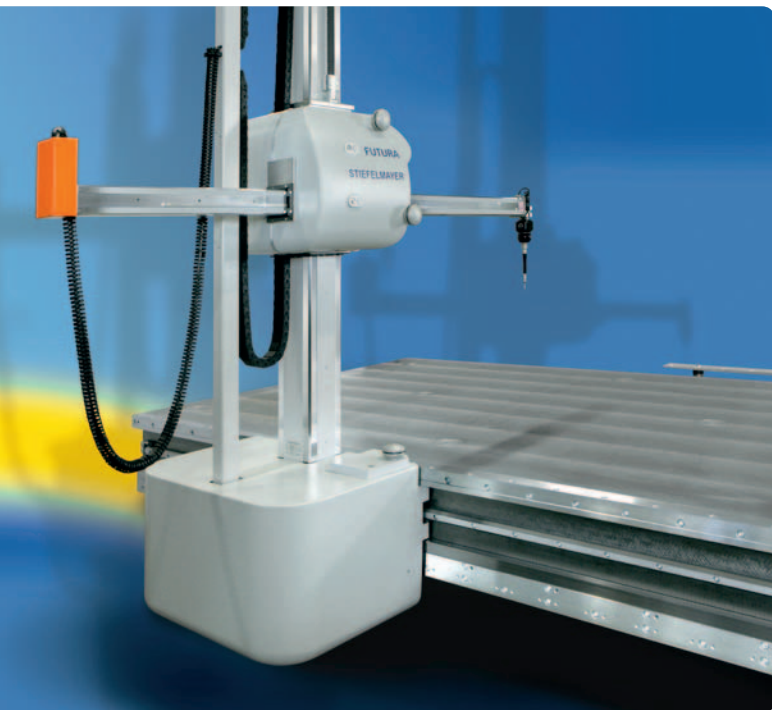
For FUTURA CNC measuring machines we focus solely on proven quality components and technologically advanced processing – as we do for all our other machines as well.

As a real “all-rounder” the FUTURA CNC is suitable for use with tactile as well as optical sensors.

The machine is equipped with the control panel HT 400. This wireless operating panel fits comfortably in the hand and has a very good battery performance.

The compact construction and ergonomic comfort of the FUTURA CNC is realized by the on-board controller.

Our swiveling holding system control-lift is available in several versions for keyboard and monitor.



FUTURA CNC: By separating the machine guiding system from the axes drive system, we avoid negative impacts of the drives on the machine geometry.

Our FUTURA machines are also optimally suitable for retrofitting:

The machines fit into the widespread Stiefelmayer C guiding systems (from year of manufacture 1983).

FUTURA – The all-rounder

Modular Concept

Many retrofit and upgrade options
for a long-term and safe investment

The FUTURA CMMs at a glance

Technical Data	FUTURA manual	FUTURA CNC
Maximum measuring range X (possibly multi-piece)	Unlimited	Unlimited
Maximum measuring range Z	3500 mm	3500 mm
Maximum measuring range Y	2000 mm	2000 mm
Diameter column	160 * 160 mm	160 * 160 mm
Diameter traversing arm	80 * 80 mm	80 * 80 mm
Moving speed	–	150 mm/s
Measuring system	Magnetic measuring system, resolution 0.001 mm (incident light measuring system available upon request)	Magnetic measuring system, resolution 0.001 mm (incident light measuring system available upon request)
Standard equipment	Measuring counter MZ 2000	On-board controller, radio control panel HT 400
Working height	Approx. 550 mm	Approx. 550 mm
Measuring plate – surface quality	Finish machined, flatness according to DIN 876 / II	Finish machined, flatness according to DIN 876 / II
Measuring plate – thickness	350 mm	350mm
Max. load carrying capacity	50 kN/m ²	50 kN/m ²
Extras / Options	Control-lift, tablet PC, measuring software, enhancement duplex solution	Disengageable drives (one or all axes) control-lift, tablet PC, measuring software, enhancement duplex solution
Accessories	STIEFELMAYER probe and marking-out tools Tactile probe equipment for manual CMMs	Tactile probe systems (PH10...), laser scanner, module changing racks
Possible retrofits	Extension of Y and Z measuring range (change of traversing arm and column) Upgrade to CNC version	Extension of Y and Z measuring range (change of traversing arm and column)



Find out more about measuring counter, radio control panel and control-lift:

Pages 14 and 15 in this brochure or www.stiefelmayer-messtechnik.de

VENTURA – Always optimal in use

The Measuring Plate

Completely walkable and drivable

VENTURA – the CMM-solution at floor level

VENTURA measuring machines are installed at floor level, the measuring plate is therefore walkable and drivable, also in the area of the cover tapes. The guide rails are integrated in the measuring plate or the guiding beam.

Designed for the future: retrofitting possibility and expandability

These measuring machines stand out for their highly precise axes mechanics and utterly high-quality processing.

They can be easily upgraded and retrofitted.

The modular expandability of the measuring range makes VENTURA measuring machines the ideal basic equipment for measuring, design and modelbuilding rooms.

Their guide rails are protected by cover tapes and positioned in a way that dirt particles cannot directly deposit on the guideways.

VENTURA machines are available as manual, motor-driven and CNC-controlled version. Of course, there is also a version with disengageable drives for this CMM-type available.



VENTURA CMM: The guideways in X are protected by nonmetallic straps. Alternatively, we also offer protective tapes made of spring steel.

VENTURA Manual – joystick in X, hand wheels in Y and Z

Movement of the CMM is carried out in Y and Z by means of hand wheels. The measuring machine is smooth-running in both axes and comfortably to operate.

In the X-axis the machine travels manually via joystick. The drive is executed with powerful direct-current motors. They are mechanically disengaged and can therefore have no negative impact on the machine's geometry.

We use a very robust inductive measuring system (resolution 0.001 mm), which has already stood the test in numerous installations.

VENTURA manual or motor-driven comes with wireless, manual control panel HT 1000 with joystick, potentiometer and many other functions.

The "Travel to Position in X"-function is a specialty of HT 1000 for the marking-out operation:

By means of this function the operator has the possibility to have the measuring machine travel motor-driven in X to defined positions. With the step-mode it is also possible to travel several equal distances one after the other, e.g. in order to apply marker points or reference lines on the workpiece. This means a significant saving of time for the operator.

VENTURA CNC – Effective and productive

The on-board control

Compact, reliable and secure

VENTURA CNC – a coordinated package solution

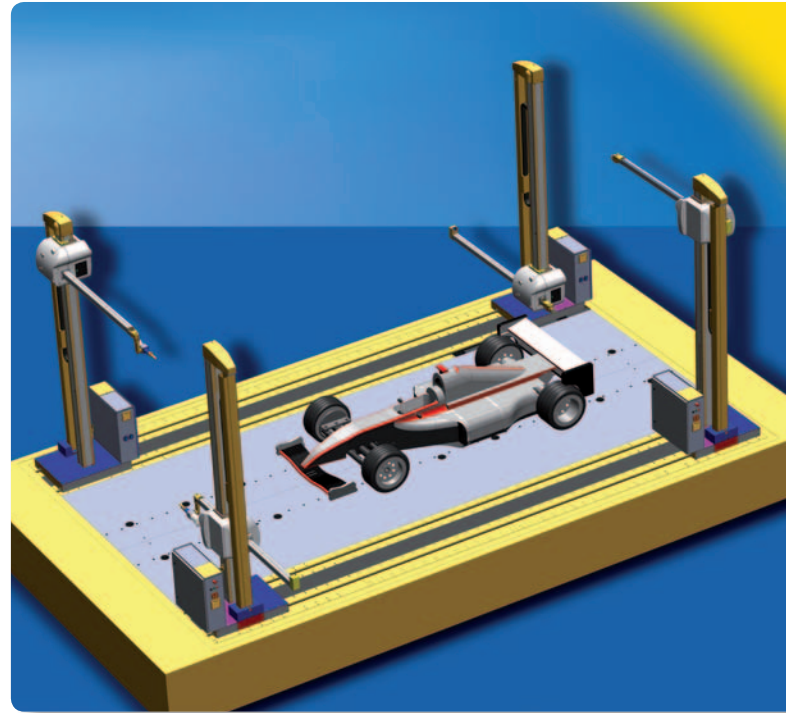
VENTURA CNC column measuring machines are real “work-aholics” and downright created for long-term use under heavy-duty conditions. With good cause: because only continuous use guarantees efficiency and productivity and makes investments economic and cost-efficient in the shortest possible time.

Powerful with on-board control

The mechanical construction corresponds to that of VENTURA manual/motor-driven. The movement of the machine is carried out by means of the manual operating panel HT 400 (see page 15 for more details).

The VENTURA CNC is equipped with a modern continuous path control, which is accommodated in the carriage of the machine. Due to the on-board control a separate control cabinet is no longer needed.

At the same time, the system offers higher flexibility and security, e.g. against cable breaks.



VENTURA installation with four columns



Footplate VENTURA with on-board controller

The VENTURA is available in two versions for CNC-operation:

VENTURA CNC:

X-, Y- and Z-axis purely CNC

VENTURA CNC ALL-ROUND:

Y- and Z-axis can be disengaged and operated also manually without restriction due to the smooth-running mechanics.

You are interested in a VENTURA measuring machine with milling option?

Learn more about our VENTURA Design here:



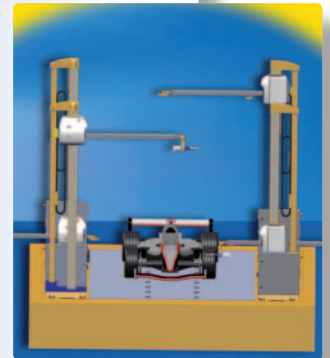
VENTURA – Precise and long-term stable

Measuring Range in X

Simply unlimited!

The VENTURA CMMs at a glance

Technical Data	VENTURA manual – motorised	VENTURA CNC
Maximum measuring range X (possibly multi-piece)	Unlimited	Unlimited
Maximum measuring range Z	3500 mm (4000 mm as pure layout machine)	3500 mm
Maximum measuring range Y	2000 mm (2500 mm as pure layout machine)	2000 mm
Diameter column	160 * 160 mm	160 * 160 mm
Diameter traversing arm	80 * 80 mm	80 * 80 mm
Moving speed	150 mm/s	150 mm/s
Measuring system	Magnetic measuring system, resolution 0.001 mm (incident light measuring system available upon request)	Magnetic measuring system, resolution 0.001 mm (incident light measuring system available upon request)
Standard equipment	Radio control panel HT 1000	Radio control panel HT 400, on-board controller
Working height	Floor level, Working area accessible by foot and vehicle	Floor level, Working area accessible by foot and vehicle
Measuring plate – surface quality	Finish machined, flatness according to DIN 876 / II	Finish machined, flatness according to DIN 876 / II
Measuring plate – thickness	250 mm option thin-bed: 170mm	250 mm option thin-bed: 170mm
Max. load carrying capacity	30 kN/m ² (option thin-bed: 25 kN/m ²)	30 kN/m ² (option thin-bed: 25 kN/m ²)
Extras / Options	Motorised axes in Y and Z Holder system for laptop Measuring software Enhancement duplex solution	Disengageable drives (Y and Z axis) Holder system for laptop Measuring software Enhancement duplex solution
Accessories	STIEFELMAYER probe and marking-out tools Tactile probe equipment for manual CMMs	Tactile probe systems (PH10...), laser scanner, module changing racks
Possible retrofits	Extension of Y and Z measuring range (change of traversing arm and column), Upgrade to CNC version	Extension of Y and Z measuring range (change of traversing arm and column)



The measuring accuracy of our machines depends from their size and equipment – we would be happy to provide you with an individual quotation.

Special Solutions – Our specialty

Underfloor Machines

For the measuring of floor assemblies



VENTURA DESIGN: Manual measuring, marking-out and CNC-milling in one machine – a coordinated package solution with software package and many other attractive extras

Special solutions

Our customers have individual requirements – and receive custom-made solutions from us; such as our combi-machine VENTURA DESIGN, which was specially developed for the work in design studios supplementing proven measuring technology by a CNC-milling option for clay and rigid foam.

Additionally, we try to make the work for our customers easier with numerous extras: integrated webcams for particularly high marking-out tools and the dynamic hand wheel for motor-driven X-axes operation are only a few examples.



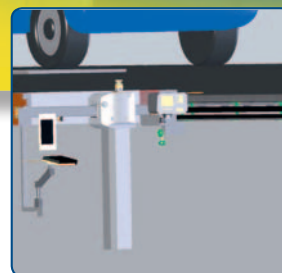
Clay-model 1:4 after the milling process with VENTURA Design

Underfloor CMMs – for the measuring of vehicle underbodies.

All over the world floor assemblies of vehicles are measured with STIEFELMAYER underfloor machines, often together with duplex machines at floor level.

This manual machine type is equipped in proven STIEFELMAYER-technology with smooth-running ball bearing guides (Y-, Z-axis) or linear ball bearing units (X-axis).

As with the other STIEFELMAYER machines, this machine type features a robust magnet measuring machine. The operation of drives and clamping is carried out by means of hand wheels; axes positions can be comfortably read by the on-board measuring counter MZ 2000.



As with all manual STIEFELMAYER measuring machines also here the CMM-arm is equipped with a highly precise receptacle cube for probing tools.

Measuring Counter MZ 2000 – Clearly readable 3-axes-display with LCD-display mit LCD Display

Special Feature

Simultaneous project processing
by means of saved work piece
zero points



MZ 2000: clearly readable, display visible over a long distance, insusceptible membrane keyboard

Measuring counter MZ 2000 – 3-axes-display for manual 3D coordinate measuring machines

Our horizontal arm measuring machines are equipped with the reliable measuring counter MZ 2000 for manual operation. The counter is easy to use and has a clearly readable 3-axes-display.

Further advantages:

- Graphics LCD-display, clearly readable
- 3-axes-display: axes designation, decimal places and signs are adjustable
- Axes change/change of counting direction possible
- Entering and saving of work piece zero points for simultaneous processing of several projects
- integrated probing horn (adjustable volume and tone)

Functions:

- Reset and preset input
- Reference function
- Shrink measure function
- Individually adjustable model scales

Correction functions:

- Correction of points of support
- Angle correction
- Tilt correction

Interfaces:

- Data outlet in MZ 1060 format
- Connection possibility of 3D-probes (e.g. Renishaw, STIEFELMAYER diode probe)
- RS-232 interface for data transfer to evaluation processor with software of PowerInspect/Delcam, Tebis, Faro, Zeiss, metromec and many others
- For the direct connection of measuring systems with square-wave signal (sinus-measuring systems can be used against surcharge)

Options:

- Battery pack: 24 volt battery-option for wireless operation. Operating time of the rechargeable battery approx. 8 hours, with removable, rechargeable battery and charging station.

Measuring counter MZ 2000 – also optimally suitable for retrofits.

For machines already in use, we offer the counter MZ 2000 as complete retrofit kit which contains beside the counter also adapter cable, power supply and data lines as well as mounting accessories.

**Please contact us, if you have
questions concerning the
measuring counter MZ 2000.**



Find out more:

HT 400 and HT 1000 – Our wireless control panels

Control-Lift

Infinitely rotating and swivelling
PC-mount

Manual control panel HT 400 – for our CNC-controlled machines

Equipment:

- Emergency-Stop switch (DECT-standard)
- Joystick for machine control in all 3 axes
- Speed regulation (potentiometer)
- Protection class IP 20

Functions:

- Engaging and disengaging of axes
- Shifting between machine coordinates and workpiece coordinate system
- Travel directions in joystick mode adjustable to operator position.
- Incorporation of probing point (in case of manual measuring) or deletion of last probing point
- Rapid motion on/off
- Free function keys for user-specific adjustments



Manual control panel HT 1000 – for motor-driven CMMs

Equipment:

- Emergency-Stop switch (DECT-standard)
- Joystick for machine control in all 3 axes
- Speed regulation (potentiometer)
- Protection class IP 20

Function keys:

- Engaging and disengaging of axes
- Travel directions in joystick mode adjustable to operator position.
- Incorporation of probing point (in case of manual measuring) or deletion of last probing point
- Free function keys for user-specific adjustments
- Specialty: Travelling to defined positions in X-axis, also in step-mode (see page 10)



Control-Lift

The Control-Lift is a rotating and swivelling holding fixture for PC-units. Being directly mounted to the machine column it offers the operator optimum freedom of action within the working range.

The Control-Lift is available in various versions:

- Equipped with keyboard, trackball (or mouse), and TFT Monitor. Signal transfer via KVM extender modules.
- Control-Lift for tablet-PC with docking station, keyboard and trackball. Undocking during measuring operation is possible at any time.
- Equipped with plate for notebooks, plus storage shelf for mains adaptor and oddments.



Control-Lift: rotating and swivelling,
with height adjustment

You have special requirements on the
equipment? Call us: +49 (0)711 93 440 – 602

STIEFELMAYER – The Company Group at a Glance



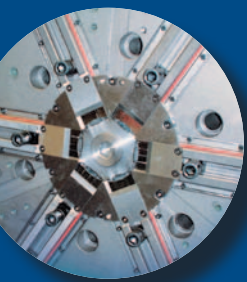
STIEFELMAYER- Metrology

- I 3D coordinate metrology
- I Measuring software
- I Accessories



STIEFELMAYER- Laser Technology

- I Laser cutting
- I Laser hardening
- I Laser welding



STIEFELMAYER- Clamping Tools

- I Special chucks
- I Special mandrels

Metrology – the product range:

Horizontal arm measuring machines

- I ACTURA manual · motorised
- I FUTURA manual · motorised · CNC version
- I VENTURA manual · motorised · CNC version
- I VENTURA DESIGN manual · motorised · CNC version

Modernisations · Upgrades

- I Measuring counter MZ 2000 for manual machines
- I Controller modernisations
- I Upgrades manual to motorised · CNC version

Accessories

- I Probe tools
- I Marking-out tools
- I Auxiliary equipment
- I Extensions
- I 3D probe accessories
- I Threaded styli
- I Scanning sensors

Measuring software

Service

- I Calibrations
- I Repairs
- I Installations
- I Machine moving

Second hand machines

STIEFELMAYER



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