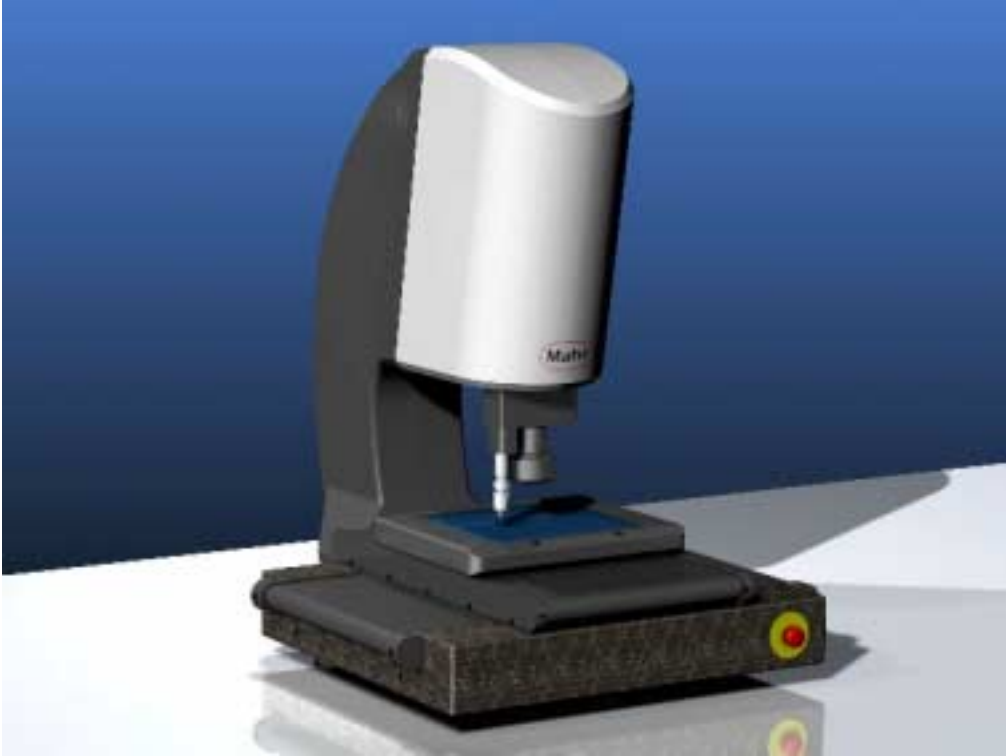


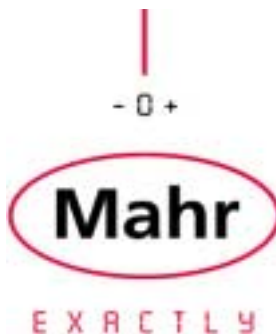
MarVision

Your Investment Today is the MarVision of the Future!



MarVision MS 222

Advance Measuring Multisensor fusion. Fully automated performance with rapid and precise inspection through synchronized CCD camera, Laser, and Mechanical sensors. All at reasonable savings.



- **Near Production Use.** Cost savings by production scrap reduction and through immediate results
- **High Precision.** Minimizes measurement uncertainty, while maximizing your manufacturing tolerance window
- **Rapid Measuring Speed.** Increases manufacturing confidence by rapid and repeatable measurements of significant sample lots
- **Automation Ready.** Further reduce overhead cost by virtually eliminating system operator dependency

Design Type

Compact 3D-CMM, machine base made of rigid granite. All axes are equipped with precise roller bearings. The table is made of a composite aluminium featuring low mass and high rigidity

Drive System

Precision DC servo drive with backlash free center mount ball screws

Control Unit

3 to 5 axes microprocessor CNC with vector path control.

Measuring System

Incremental linear scales with 0.5 µm resolution

Computer

PENTIUM class PC
Microsoft Windows 2000® multilingual platform

Software

MarVision 3D for Windows 2000®

Provides 2D & 3D geometric elements and functions, form and position tolerances, feature material conditioners (MMC,LMC,etc.), Integration of tolerance tables (DIN table or user defined), results export filters for qs-Stat, *.txt, *.xls (Excel required), DMIS Import, automatic teach mode, CAD-Interface for automatic program generation (Optional)

Online Statistic with real-time capability (Optional)

Illumination

Software controlled fiber optic light sources, coaxial and back light, 4 segment controllable LED ring light.

Optical Sensor

6.5:1 variable motor zoom, high resolution CCD camera with grey level evaluation, active window in window technology, automatic feature and edge detection, disturbance filters, and fast Video-Focus.

Pixel resolution: 1.5 µm – 8.7 µm per Pixel

Field of view: 0.4 x 0.3 to 1.9 x 1.5 (mm)

Working distance: 80 mm

Other magnifications available on request

(Test conditions: Glass calibration standard)

Touch probe (Optional)

Touch probe system TPS with Renishaw® touch probes and integrated automatic probe changer*

*Note: Measuring range in x will be reduced to 200 mm by simultaneous use of CCD-camera and probe

Laser sensor¹ (Optional)

Coaxial focus laser sensor integrated in the Multisensor head, with automatic computer controlled intensity parameters

Laser Focus for rapid surface focus of work piece

Average focus time: 0.2 s/point

Dynamic laser scanning of 3D-topographical profiles

Scanning rate : 500 points/s

Resolution: 0.5 µm

¹Note: With use of laser sensor a special 10x lens will be required, which will reduced the field of view as well as the working distance to:

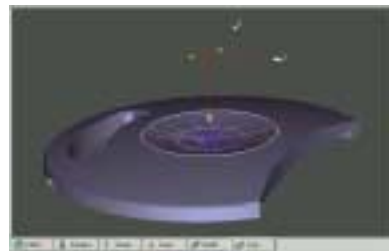
Field of view:	0.3 x 0.2 to 0.7 x 0.5 (mm)
Pixel Resolution	0.33 µm – 0.94 µm per pixel
Working distance:	20 mm
Zoom Factor:	2.8:1

Options:

Rotary table, double monitor operation, temperature compensation, vibration damper, software modules, and other options on request



Picture: MarSoft Vision 3D



Picture: MarCAD 3D



Technical Data

MarVision MS 222

Measuring Range

Single Sensor	Both Sensor
X 250 mm (10")	200 mm (8")
Y 200 mm (8")	200 mm (8")
Z 200 mm (8")	200 mm (8")

Weight 250 kg (552 lbs)
incl. electronic cabinet

Max. Load on Glass Plate 10 kg (22 lbs)

Length Measuring Uncertainty

According to VDI/VDE 2617	E1 = (2,2 + L / 150) µm
alternatively ISO 10360-2	E2 = (3,2 + L / 125) µm
	E3 = (3,9 + L / 100) µm*

(L = Measuring length in mm)
* with Option 3D package

(Test conditions: maximum zoom magnification, ambient temperature 20°C)

Max. Travel Speed 150 mm/s

Power Supply

Voltage 115/230 V ± 10%

Frequency 50/60 Hz ± 5%

Consumption 1000 VA

Environment conditions

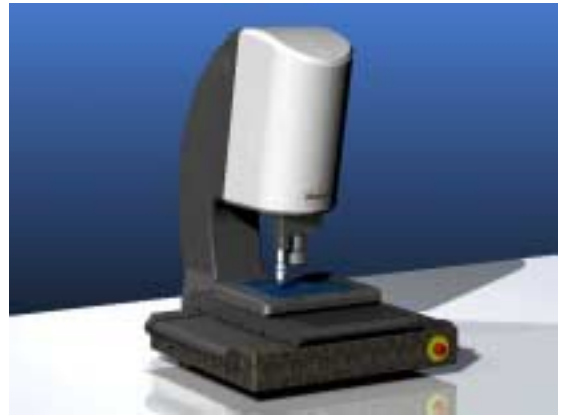
Limits of permissible vibrations < 5 x 10⁻³ m/s²
according to an amplitude of < 5 mm at 5 Hz

Humidity (Relative) 40%–70 %

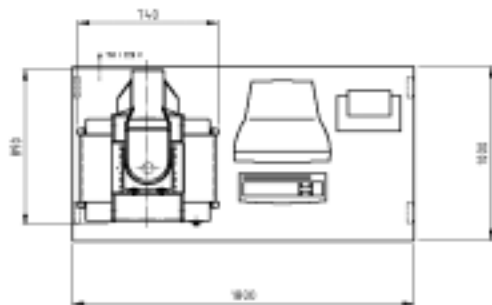
Working Temperature 20° +/- 2K

K/h	K/d	K/m
0.8	1.0	0.6

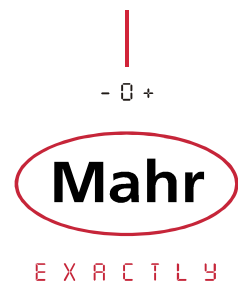
Order N° 5510105



MarVision MS 222



Floor plan MarVision MS 222



Training and Service Support

Mahr offers professional training and support services for your measuring machine investment

- Provides *Efficiency* by techniques taught, thus maximizing your production throughput

Agenda Topics

► Basic Entry-Level Vision 3D Training

- Duration: 2 Days
- Target: Fundamental knowledge of Optical Sensor operation within Vision 3D
- Requirements: Fundamental knowledge of optics, Basic CMM operation understanding, and Basic MS Windows® software operation

► Advanced Vision 3D Training

- Duration: 2 Days
- Target: Increase knowledge of basic fundamental levels, learn about advanced functions, further understanding of measurement methodologies
- Requirements: Basic Training Vision3D and 6 – 8 weeks “hands on” experience with a Mahr Multisensor system

► Special Training Vision 3D Modules

- Duration: See specific training session
- Target: Learn how to use Vision3D software options, handling of additional Sensors and other Hardware components
- Requirements: Basic Training Vision3D
- Modules: Contour scanning and Best-fit (incl. Laserscanning) / Laser Sensor (Focusing, Parameter) / Touch probes (Styli, calibration etc.) / Automatic probe changing / Import and Export of data / Online Statistics / Rotary tables / CAD interface / Palletising / Remote support service / Application specific User Interface / R&R studies

- **Our service commitment to you, so you can always rely on your investment**

- Online service
- Maintenance & calibration services



Mahr Multisensor GmbH

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