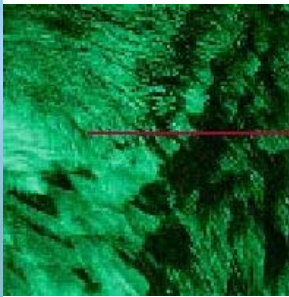


Measuring Microscope VMM150



Precise measuring microscope with binocular or video tube and brilliant optics, hand driven or motorized.





Measuring all and Seeing all

Highest accuracy in measuring

- Optical inspection, i.e. non-contact inspection of sizes and forms of metal, plastic and ceramic parts.
- Optical inspection also includes the force-free measuring test of deformable parts e.g. rubber.
- Usable for checking primary samples, spot tests and even up to series inspection of moulds, bended and diecasting parts.
- Inspection of profile gauges, templates, cutting tools, springs etc.
- 0.0001 mm resolution of measured values.
- Incremental steel linear scales.
- Fast and fine adjustment of the measuring stage.
- Transmitted and coaxial incident light plus additionally oblique incident light.
- Stepless brightness control integrated in the instrument.

The VMM 150 detects everything

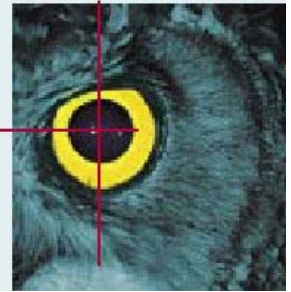
- Changeable micro objectives for up to 1000x magnification.
- For metallurgical examination, plus the observation of material fractures.
- Coaxial incident light provides the perfect illumination.
- Different tube variants are available:
 - binocular measuring tube with exchangeable field inserts for graticules or
 - binokularer Messtubus mit Videoadapter
- The VMM 150 is universally applicable in
 - The production of sub-contracting parts for the automobile industry.
 - Production branches of electrical engineering and electronic industry.
 - Aeronautical and aerospace industries, test laboratories, universities etc.
 - Research and development divisions of the different industries.

Top – the performance

- Untiring work since viewing with both eyes.
- Guided roll-bearing X/Y stage with a measuring range of 150 x 100 or 200 x 100 mm.
- Optical system with telecentric ray path.
- Optional Z measuring system.
- Exchangeable objectives.
- Upright and laterally true image.
- Opto-electronic measuring system with a failure-free readable numerical display.



Introduction



Processing of measured values

The matching software for each application.

• MX230

The compact digital read-out unit with display of 3 axes and integrated calculating functions without image processing for quick measurements in the shopfloor.



• Metlogix M2

Advanced multi-touch application on a tablet PC for 2-4 axes. Clear user interface with displays and symbols. Digital read-out, graphical part view and report with tolerance evaluation and comprehensive data export facilities are the main features.

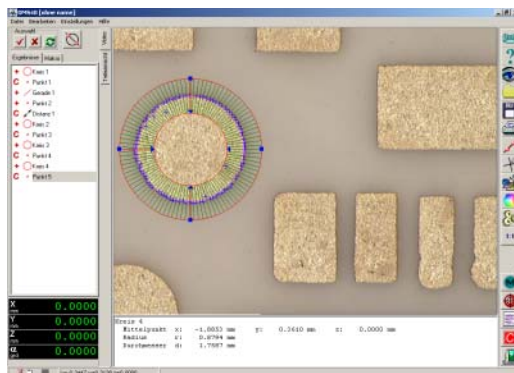


Can be used with manual microscopes.

• OMS

The flexible, easy-to-learn measuring software from UHL; ideally for measuring of first-off samples and small batches. Flexible on-screen masks and measuring lines (distance / angle) for easy visual inspection. Multiple measuring tools with automatic edge detection

Can be used with manual and motorized microscopes.

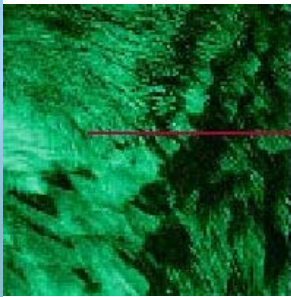


• Metlogix M3

Enhancement of the M2 software with imaging functions. Elements can be measured just by fingertip on the touch screen or classically by mouse.

Can be used with manual and motorized microscopes.



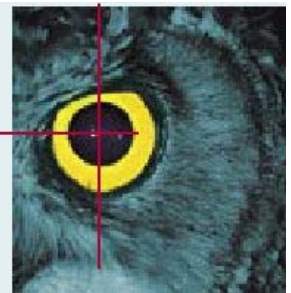


Introduction

Special Accessories

- Field inserts with crosshair and concentric circles for radius measurements.
- Angle measuring insert with digital measuring system (Q).
- Micro optical attachment for micro objectives.
- LED ring light illuminations.
- Swiveling plates and centre supports.





UHL Measuring Microscope VMM150 with binocular measuring tube (without digital read-out)

Consisting of following components:

Order No.

VM3-BT01

1 Main unit with vertical column and height adjustable binocular tube, integrated coaxial incident and transmitted LED illumination with brightness control

VM3-005

1 Graticule slide with crosshair and 2 additional lines at $\pm 60^\circ$

VM4-301

1 Measuring stage, measuring range 150 x 100 mm, with opto-electronic measuring system, cable for signal transmission, fast and fine adjustment

VM3-602

2 Eye-pieces, 10x magnification, with eye cups, Order no. for one piece

WF10XU

1 Measuring objective 2:1, free-working distance 85 mm

OP1-M02

similar to VM3-BT01, but with motorized measuring stage KT6-MSMA, measuring range 200 x 100 mm

VM3-BT01M



UHL Measuring Microscope VMM150 with video measuring tube (without digital read-out)

Consisting of following components:

Order No.

VM3-VT01

1 Main unit with vertical column and height adjustable video tube, integrated coaxial incident and transmitted LED illumination with brightness control

VM3-006

1 Measuring stage, measuring range 200 x 100 mm, with opto-electronic measuring system, cable for signal transmission, fast and fine adjustment

KT6-MHTA

1 High resolution USB color camera

VM4-USB

1 Measuring objective 1:1, free-working distance 88 mm

OP1-M01

similar to VM3-VT01, but with motorized measuring stage KT6-MSMA, measuring range 200 x 100 mm

VM3-VT01M

similar to VM3-VT01, but with motorized measuring stage KT6-LSMA, measuring range 150 x 100 mm

VM3-VT02M



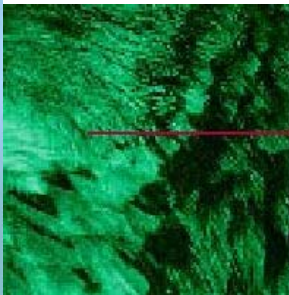
Measuring system for coordinate direction Z

Order No.

Opto-electronic measuring system for coordinate direction Z, incremental-divided scale, resolution 0.0001 mm

VM3-101





Digital read-outs



Digital read-out unit MX230

3-axis digital read-out with alphanumerical and graphical display, calculating functions for geometrical combination of the measured values, serial RS232 and USB interface

Possibility to connect either a Z-axis or a Q-axis (configurable by software)

Order No.

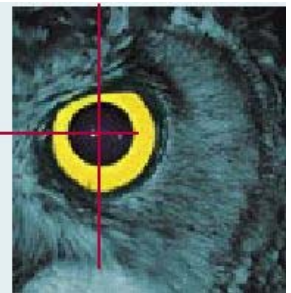
MX230

Programmable Measuring Functions

• Measuring without manual calculation. • No mechanical work-piece alignment owing to the calculated transformation of coordinates. • Measuring of circle diameters with 3 to 50 points. • Right-angled cartesian and polar coordinate systems.			• Combination of up to 50 measured values per geometrical element. • Location of origin points upon user's choice. • PRESET function • Graphical display of geometry elements			



Digital read-outs



Digital read-out unit M2

Measuring software M2 on tablet computer for 2 axes with tablet holder

Order No.

M2-2TD

Measuring software M2 on tablet computer for 2 axes with tablet holder and additional Q-axis angle field insert VM4-302

M2-2TDQ

Measuring software M2 on tablet computer for 3 axes with tablet holder

M2-3TD

Measuring software M2 on tablet computer for 3 axes with tablet holder and additional Q-axis angle field insert VM4-302

M2-3TDQ



Video measuring software M3

hand-driven instruments

Measuring software M3 on All-In-One PC with light control and USB counter for two axes

Order No.

M3-2HAD

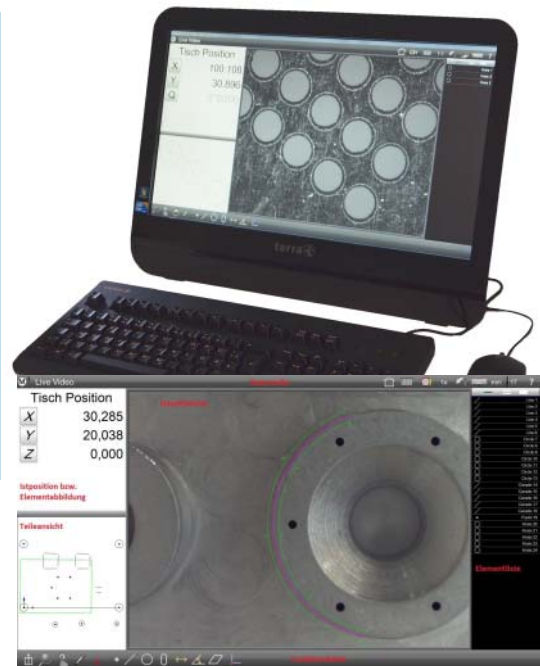
Measuring software M3 on All-In-One PC with light control and USB counter for three axes

M3-3HAD

motorized instruments

Measuring software M3 on All-In-One PC for three axes (details see next page)

M3-3MAD



UHL measuring software OMS

hand-driven instruments

Measuring software M3 on All-In-One PC for three axes, with USB counter, with light control

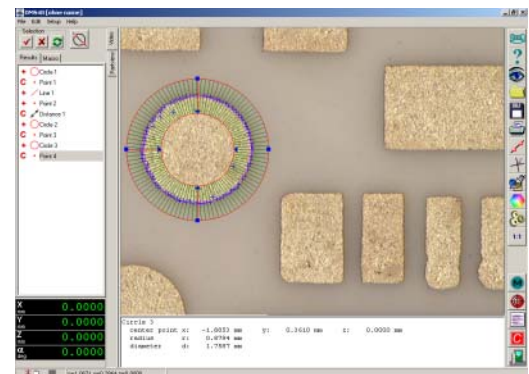
Order No.

OMS-HADL

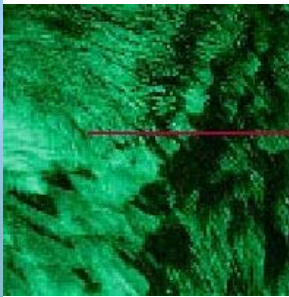
motorized instruments

Measuring software OMS on Desktop-PC for three axes (details see next page)

OMS-MDDL



Technische
Mikroskopie

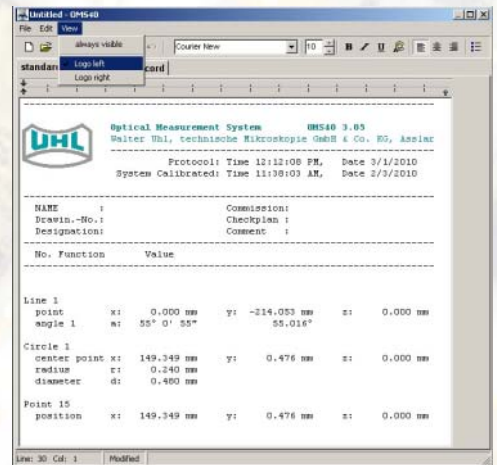
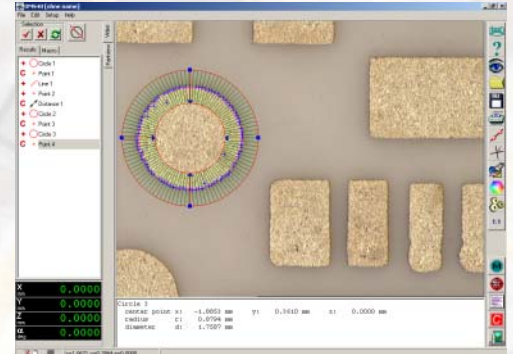


Video Measuring Software

OMS

The flexible, easy-to-learn measuring software for two dimensional measurements of primary samples and small batches by either hand-operated or motorized-operated measuring microscopes, for use in laboratories or production areas.

- Element-related combination of geometrical forms in a tree structure.
- Simple manual placement of the measuring points in the video image via the mouse.
- Immediate result display in a text protocol.
- Easy in memorizing or programming of measuring sequences and additionally the possibility of automated edge findings.
- Rectangular, circular, lattice and interactive image screen masks can be created as measuring frames for quick, visual control.

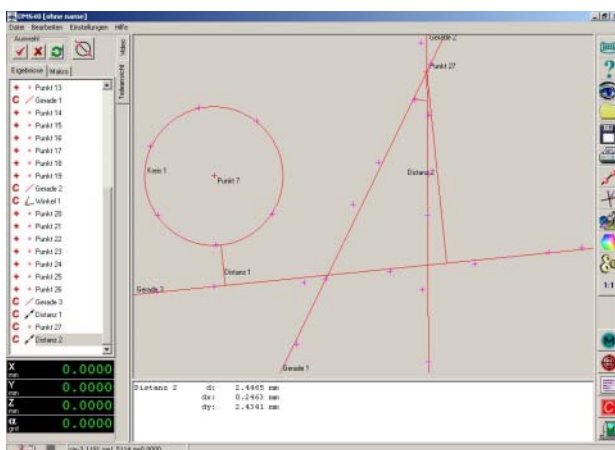


Measuring Software System UHL OMS Complete system for 3 axes

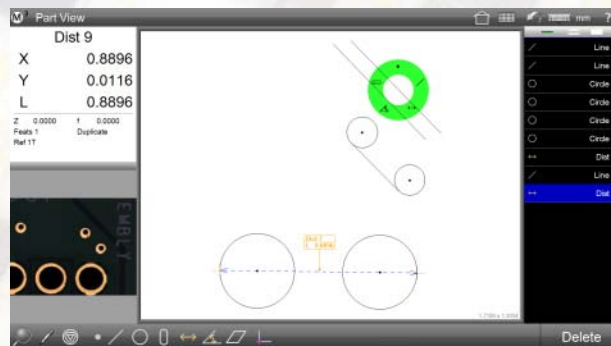
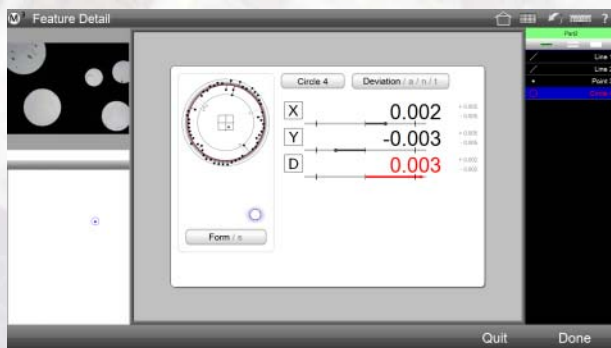
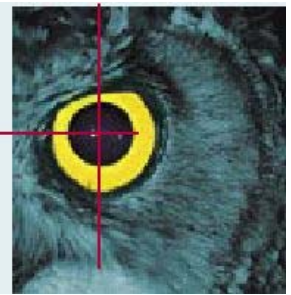
Order No. **OMS-MDDL**

consisting of following components:

- 1 Desktop-PC with a 19 " TFT monitor
- 1 Software Package OMS
- 1 3-axis stepper motor control system with Joystick
- 1 calibration graticule



Video Measuring Software



Metlogix M3

- comes with following standard functions:

- Intelligent imaging functions to measure regular 2D geometry elements
- Combinations and relations from measured elements
- Leveling and alignment functions
- Part programs
- Tolerance evaluation according to Din/ISO
- Multiple coordinate systems
- Multilingual
- Data export and printout with graphic
- Dimensioning of the part view
- Image export with/without measuring result
- DXF module to compare the measurements with the drawing, good/bad evaluation
- Light control
- Optimal edge detection by „Measure Logic“ or active/fixed crosshair

Measuring software system Metlogix M3 Complete system for 3 axes

Order No. **M3-3MAD**

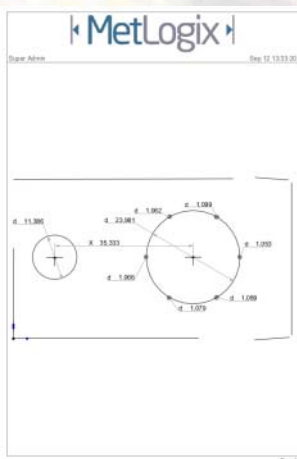
consisting of following components:

- 1 All-In-One PC with touchscreen and the software Metlogix M3
- 1 Motion controller for 3 axes
- 1 calibration graticule

optional:

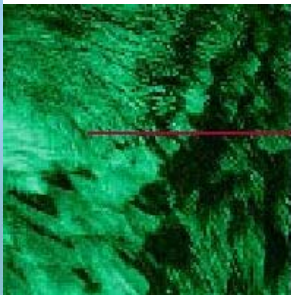
DXF module to compare the measurements with the drawing, good/bad evaluation

M3.DXF



Order	Ref	Circle	Radius	Ref	Ref	Dimension	Value	Unit
Circle 1	X	140.000	140.000	140.00	140.00	0.0000	0.0000	mm
	Y	40.000	40.000	40.00	40.00	0.0000	0.0000	mm
	Z	0.000	0.000	0.00	0.00	0.0000	0.0000	mm
Circle 2	X	140.000	140.000	140.00	140.00	0.0000	0.0000	mm
	Y	40.000	40.000	40.00	40.00	0.0000	0.0000	mm
	Z	0.000	0.000	0.00	0.00	0.0000	0.0000	mm
Circle 3	X	140.000	140.000	140.00	140.00	0.0000	0.0000	mm
	Y	40.000	40.000	40.00	40.00	0.0000	0.0000	mm
	Z	0.000	0.000	0.00	0.00	0.0000	0.0000	mm
Circle 4	X	140.000	140.000	140.00	140.00	0.0000	0.0000	mm
	Y	40.000	40.000	40.00	40.00	0.0000	0.0000	mm
	Z	0.000	0.000	0.00	0.00	0.0000	0.0000	mm
Circle 5	X	140.000	140.000	140.00	140.00	0.0000	0.0000	mm
	Y	40.000	40.000	40.00	40.00	0.0000	0.0000	mm
	Z	0.000	0.000	0.00	0.00	0.0000	0.0000	mm
Circle 6	X	140.000	140.000	140.00	140.00	0.0000	0.0000	mm
	Y	40.000	40.000	40.00	40.00	0.0000	0.0000	mm
	Z	0.000	0.000	0.00	0.00	0.0000	0.0000	mm
Circle 7	X	140.000	140.000	140.00	140.00	0.0000	0.0000	mm
	Y	40.000	40.000	40.00	40.00	0.0000	0.0000	mm
	Z	0.000	0.000	0.00	0.00	0.0000	0.0000	mm
Circle 8	X	140.000	140.000	140.00	140.00	0.0000	0.0000	mm
	Y	40.000	40.000	40.00	40.00	0.0000	0.0000	mm
	Z	0.000	0.000	0.00	0.00	0.0000	0.0000	mm





Accessories

UHL Measuring Microscope with Binocular Measuring Tube

A video camera with C-mount connector can be assembled when using one of the following adaptors.

C-Mount Adapter with 1x magnification

Order No. **VM4-406**

Video adapter with 1x magnification
suitable for 1" cameras



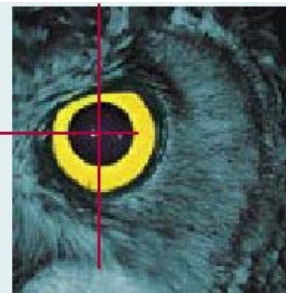
C-Mount Adapter with 0.5x magnification

Order No. **VM4-407**

Video adapter with 0.5x magnification
suitable for 1/1.8" cameras



Accessories



USB digital color camera

Order-No.

Digital cameras for the c-mount adapters (not included) to store images or view live picture (required for OMS or M3 software).

USB 3.0 interface

incl. PC-software for the image acquisition

1/1.8" resolution: 2048x1536 pixel
(suitable for VM4-407)

VM4-USB

1" resolution: 2592 x 2048 Pixel
(suitable for VM4-406)

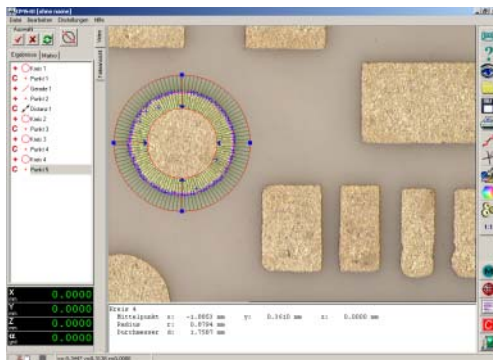
VM4-USB5

optional:

Easy software to measure samples in the video image, movable video scale with distance measurement, images can be watermarked and saved with a comment.

OMS-LT

OMS is available in german or english.



Swiveling stage plate

Order-No. **VM3-611**

For product alignment on the stages
VM3-602 and KT6-LSMA

swiveling range: $\pm 3^\circ$



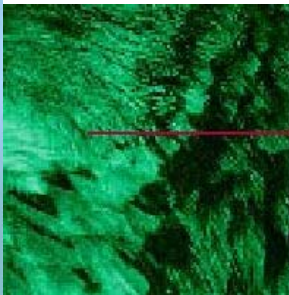
Centre supports

Order-No.

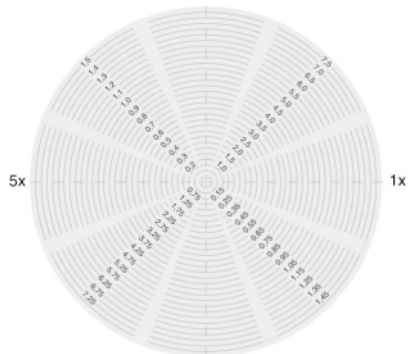
To fix turned parts on the stages VM3-602
and KT6-LSMA
optional with swiveling

VM4-611
VM3-612





Accessories



Field insert with crosshair and concentric circles

Order No. **VM4-304**

Crosshair 90° with 2 additional lines
± 60° as well as each 2 sets
of 30 concentric circles

Usable in conjunction with binocular
measuring tube VM3-303

Total magnification	Diameter	Increments
10x	0.25 to 7.50 mm	0.250 mm
20x	0.25 to 3.75 mm	0.125 mm
50x	0.05 to 1.50 mm	0.050 mm
100x	0.05 to 0.75 mm	0.025 mm

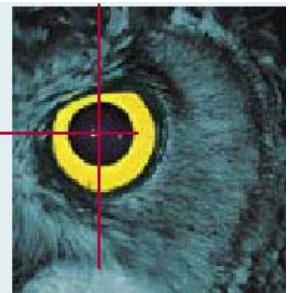


Angle measuring insert with digital measuring system

Order No. **VM4-302**

Rotatable crosshair combined with opto-
electronic measuring system, based on an
incremental-scale, usable in conjunction
with binocular measuring tube





Measuring objectives

Telecentral measuring objectives of highest quality *designed by LEICA*, perfectly corrected, plane and distortionless images allowing a definable and precise edge detection.

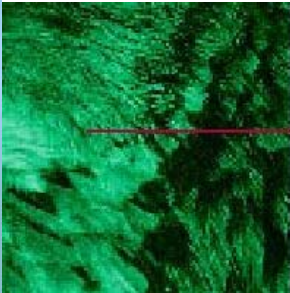
Large working distances for measuring test objects e.g. disturbance edges or in bore holes.

Easily and quickly changeable secured fixing via the bayonet mount.



Lens magnification	Total magnification	Object-field diameter	Numerical aperture	Free-working distance	Sharpness depth	~ Probing accuracy	Order-No.
1 : 1	10-fold	20 mm	0,03	88	0,3	5	OP1-M01
2 : 1	20-fold	10 mm	0,06	85	0,08	3	OP1-M02*
5 : 1	50-fold	4 mm	0,13	62	0,02	1.5	OP1-M05
10 : 1	100-fold	2 mm	0,20	52	0,01	1	OP1-M10

* Measuring objective 1:1 or 2:1 included in basic version of UHL Measuring Microscope VMM 150.



Accessories

Ring Light - Illumination Unit

Order No. **VM4-506**

Suitable for all OP1-M measuring objectives

For use in connection with cold light source VMP-GLL

add-on devices:

Set of polarisation filters

RL2.09

Diffusor

RL2.10

Segment aperture

RL2.11



Automatic LED Cold Light Source

Order No. **VMP-GLL**

Hand- or computer-driven (by USB),
approx. 640 lumen,
stepless brightness control
with field insert





4 Segment LED Ring Light - Illumination Unit

Order No. **VM4-508Q**

Suitable for all OP1-M measuring objectives, with power supply and intensity control, 40 LEDs



4 Segment LED Ring Light - Illumination Unit

Order No. **VM4-509**

Suitable for all OP1-M measuring objectives, with power supply and intensity control, 80 LEDs

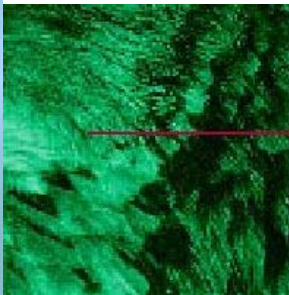


4 Segment LED Ring Light - Illumination Unit remote controlled

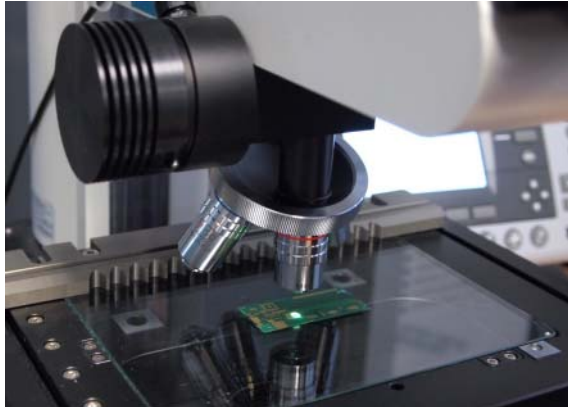
Order No. **VM4-507**

Suitable for all OP1-M measuring objectives, with power supply and intensity control, remote control unit for IMS/OMS software via USB/RS232





Accessories



Micro optical attachment for 4 micro objectives

Order No. VM3-3094

Revolving attachment for 4 micro objectives 2:1 to 100:1



Apochromatic incident light objectives, parfocalizing length 45 mm, RMS thread

Lens magnification	Total magnification	Field of view diameter	Numerical aperture	Free-working distance	Depth of focus (μm)	~ Probing accuracy	Order-No.
2 : 1	20x	9 mm	0.04	5.8	76	5	OP1-V2
5 : 1	50x	3.6 mm	0.18	13.5	8	3	OP1-V5
10 : 1	100x	1.8 mm	0.25	5.9	4	1.5	OP1-V10
20 : 1	200x	0.9 mm	0.40	1.8	2	1	OP1-V20
50 : 1	500x	0.36 mm	0.65	0.4	1	1	OP1-V50
100 : 1	1000x	0.18 mm	0.95	0.5	1	1	OP1-V99

LED Ring Light



Order-No. RL4-ALV

Suitable for 5:1, 10:1 and 20:1
OP1-AL and V Objectives, 16 LEDs

related power supplies:

Transformer with power supply

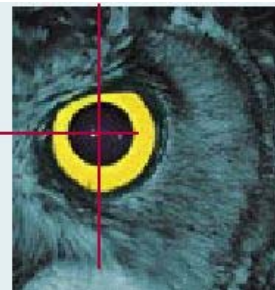
TR7-N

Transformer with power supply,
remote controlled

TR7-NU



Accessories



Micro Optical Attachment for 4 micro objektives with extra long working distance*

Order No. VM3-309R

Revolving attachment for 4 micro objektives 2:1 to 50:1 with integrated coaxial incident light

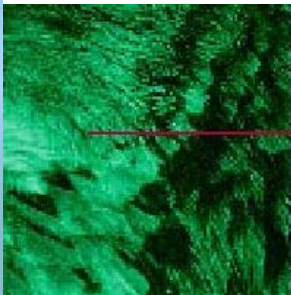


*Reduces the maximum specimen height to 115 mm



Apochromatic incident light objectives with extra long working distances, parfocalizing length 95 mm, RMS thread

Lens magnification	Total magnification	Field of view diameter	Numerical aperture	Free-working distance	Depth of focus (μm)	~ Probing accuracy	Order-No.
2 : 1	20x	9 mm	0,06	35,6	76	5	OP1-VX02
5 : 1	50x	3,6 mm	0,14	35	14	3	OP1-VX05
10 : 1	100x	1,8 mm	0,28	35	4	1.5	OP1-VX10
20 : 1	200x	0,9 mm	0,42	20,2	2	1	OP1-VX20
50 : 1	500x	0,36 mm	0,55	13,1	1	1	OP1-VX50



Accessories



Ring Light - Illumination Unit

Order No. **MS3-504**

Suitable for all OP1-VX objectives,
with one fibre optic light guide.

For use in connection with cold light
source VMP-GLL.



LED Ring Light - Illumination Unit

Order No. **RL8-LED**

Suitable for all OP1-VX objectives,
16 LEDs

related power supplies:

Transformer with power supply

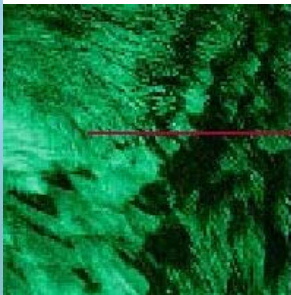
TR7-N

Transformer with power supply,
remote controlled

TR7-NU



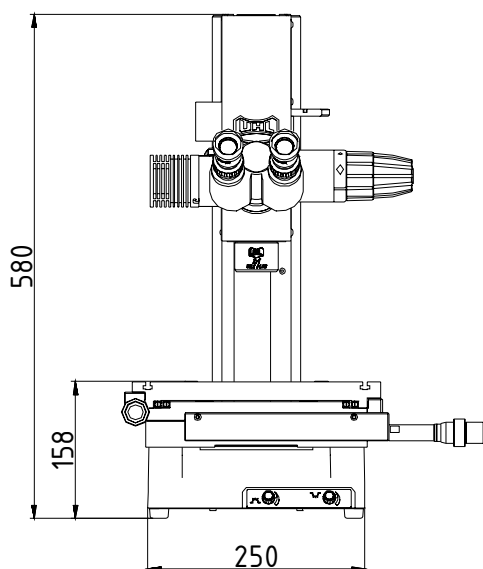




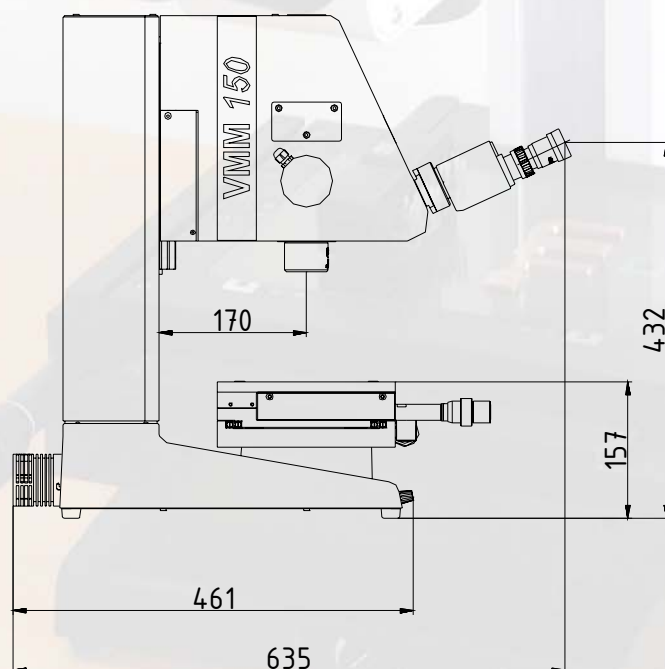
Technical data

Measuring Microscope VMM 150 main unit with measuring stage

Main unit:	solid aluminium cast
Optics holder:	guided roll bearing, coaxial coarse and fine focus; optional Z-measurement (opto-electronic linear scale).
Movement range:	150 mm
Measuring stages:	
Measuring range:	150 x 100 mm or 200 x 100 mm
Guiding:	roll bearing
Movement:	fast and fine adjustment
Fasteners:	2 T-slots with measuring stage 150 x 100 mm
Max. weight limit:	15 kg
Measuring system:	opto-electronic incremental steel scale
Resolution:	0,0001 mm
Accuracy limit for a coordinate direction, valid for working temperature range:	$1.8 \mu\text{m} + 0.005 * L \mu\text{m}$
Lighting:	coaxial incident and transmitted LED illumination
Light sources (accessories):	with integrated stepless brightness control
Light supply:	integrated LEDs



Dimensions VM3-BT01



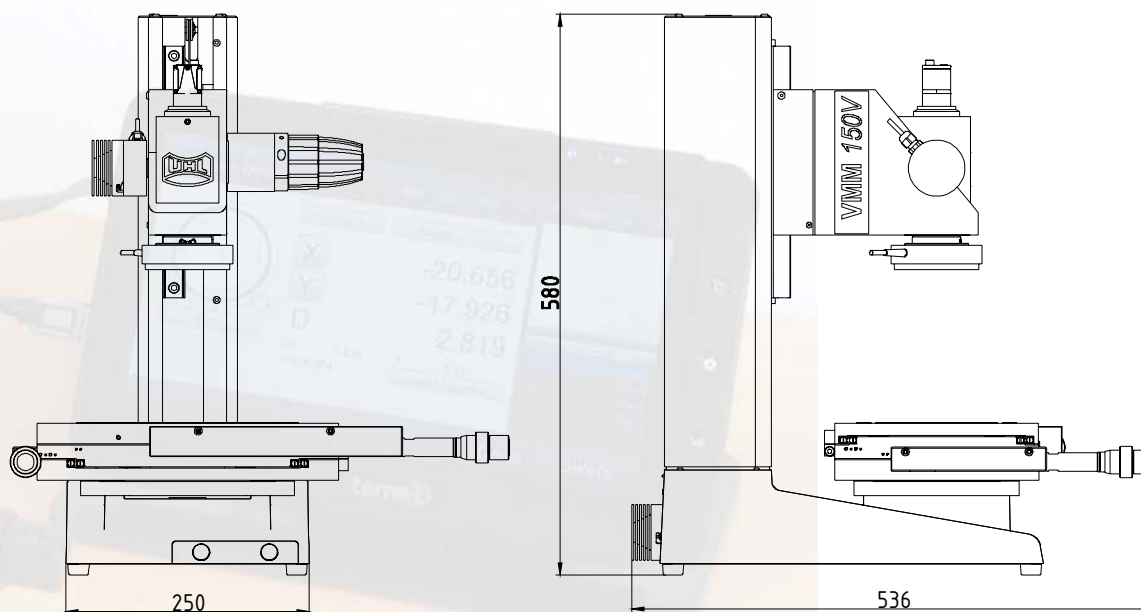


Optical System

Measuring tube:	binocular with dioptric compensation
Eye-pieces:	10x, with eye cups, (FOV18)
Viewing angle:	25 °
Image:	upright and laterally true image
Total magnification:	see table for objectives
Measuring objectives:	changeable, telecentric ray path
Measuring or video tube reception:	bayonet mount
Further technical data:	refer to "Accessories"
Micro objectives:	for viewing surface structures
Technical data:	refer to "Accessories"

General

Operating temperature:	10° C to 40° C
Working temperature:	20 +/- 0,5° C
Storage temperature:	-10° C to 60° C
Power supply:	120/230 Vac, 50/60 Hz
Weight (net)	
Main unit No.VM4-BT01:	30 kg



Dimensions VM3-VT01

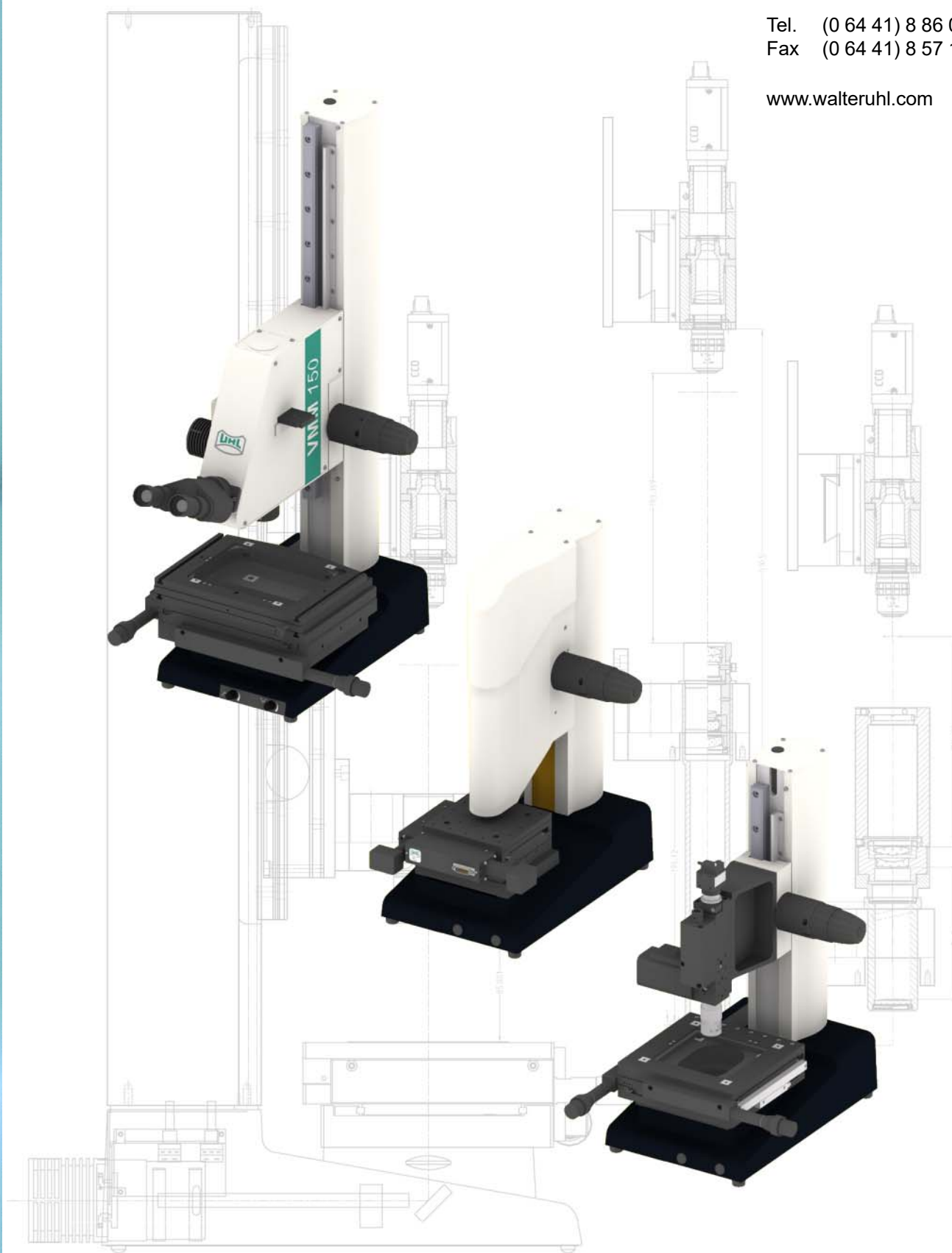


Special designs and OEM models using parts of our component system are possible at any time:

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Specifications are about to change without notice!



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