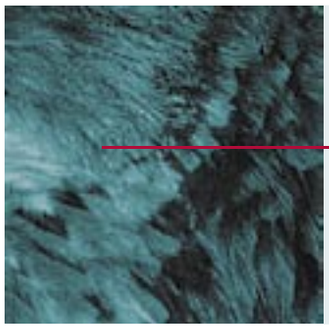
Measuring microscope VMM 100

Techn. Mikroskopie
Feinmechanik



Measuring on high speed and Viewing with 1000x magnification- the VMM 100 can do both.

Exact and versatile in measuring

- The measuring stage grants an accuracy ≤ 6 µm for over 100 mm measuring length.
- Optical inspection, i.e. non-contact inspection of sizes and forms of metal, plastic and ceramic parts.
- Optical inspection also include the free-force 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.

The VMM 100 detects everything

- Changeable micro objectives with up to 1000x magnification.
- For metallurgical examination, plus the observation of material fractures.
- Coaxial incident light provides the perfect illumination.
- Digital image processing by means of an assembled video camera.

Top - the performance

- Developed from practical experience for practical usage.
- Guided roll bearing measuring stage with a measuring range of 100 x 50 mm.
- Optical system with telecentric ray path.
- Changeable objectives.
- Upright and laterally true image.
- Opto-electronic measuring system with a failure-free readable numerical display.
- 0.0005 mm resolution.
- Incremental-divided steel scale.
- Fast and fine adjustability of the measuring stage.
- Swivel stage (optional) for mechanical alignment of workpiece.
- Transmitted and coaxial incident lights plus additionally oblique incident light.
- Stepless brightness control.

The VMM 100 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.

**Measuring and displaying, or do you wish more -
e.g. calculating, memory and printing of measured results.**

UHL measuring microscope VMM 100 without digital readout

	Order-No.	VM3-MT01
consisting of following components:		
1	Main unit with vertical column and adjustable height objective holder, integrated coaxial incident and transmitted lightswith separate brightness control, 120/230 VAC, 50/60 Hz	VM3-001
1	Measuring stage, measuring range 100 x 50 mm, with opto-electronic measuring system, cable for the signal transmission, fast and fine adjustability	VM3-601
1	Ocular 10x magnification, monocular, eye-piece with integrated crosshair plate	VM3-410
1	Measuring objective 2:1, free-working distance 85 mm	OP1-M02

The above mentioned components are ready-packed for delivery with following standard accessories:

1 Mains adapter 100 to 240 VAC, 47 to 63 Hz, 11 to 13 VDC, 55 W

1 Operations manual

1 Factory-calibrated certificate

1 Dust protective cover

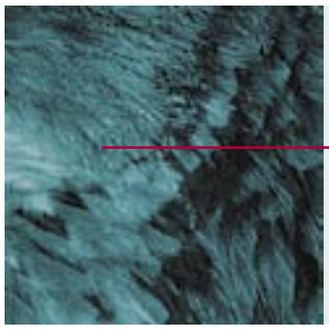
Digital Readout QC100

	Order-No.	
Digital readout for two axis (coordinates X and Y) and digital output RS232, 120/230 VAC, 50/60 Hz.		QC120
•	Numerical interval 0.0005 mm/0.00002 in.	
•	Metric/Inch conversion	
•	Measurements performed with a fixed and freely assignable origin point of coordinates	
•	Switchable counting direction of display	
Digital readout for three axis (coordinates X, Y and Z)		QC130

Ready-packed for delivery with following standard accessories:

1 Cable

1 Operations manual



Product Programme

Digital Readout QC200

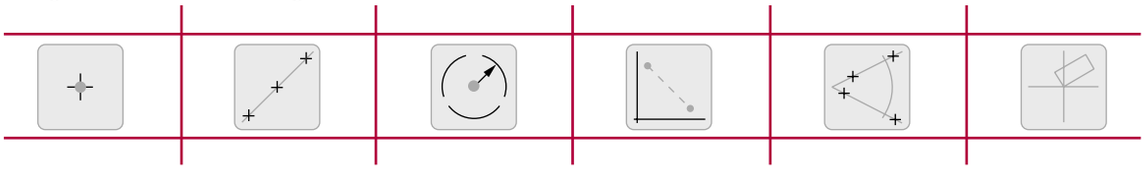
	Order-No.
For two axises (coordinates X and Y, 7 decades) with alphanumeric display for functions, computerized functions for geometrical combination of the measured values, memorized values, digital output RS232 and parallel port for printer 120/230 VAC, 50/60 Hz.	**QC 220**
Digital readout for three axises (X, Y and Z)	**QC 230**

Ready-packed for delivery with following standard accessories:

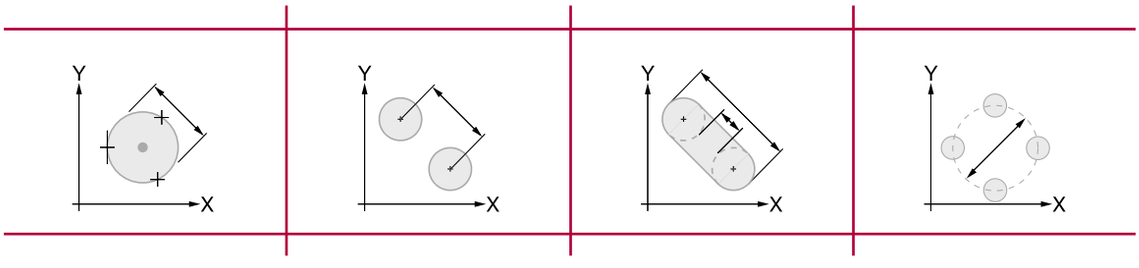
1 Cable

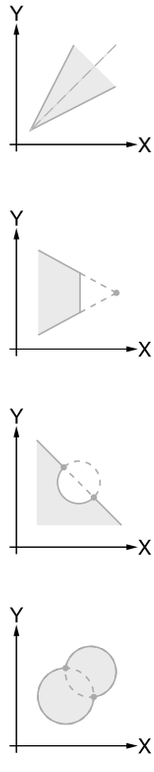
1 Operations manual

Programmed Measuring Functions



- No manual calculation necessary.
- No mechanical workpiece alignment owing to the calculated transformation of coordinates.
- Measuring of diameters on pitch circles of 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 at the user's choice.
- PRESET function
- Programmable measuring sequences (max. 250 measuring steps).





Special accessories for the Measuring Microscope VMM 100

Oblique incident light for 230 V

Order-No. **VM4-503**

consisting of following components:

1 Light unit, suitable for all measuring objectives, dual-arm fibre optic cable

1 Cold light source VMP-GL, 230 VAC, 50/60 Hz; 30 W

Ready-packed for delivery with following standard accessories:

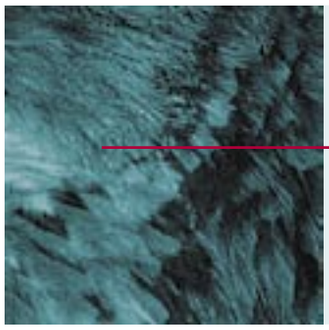
1 Cable

1 Operations manual

Swivel stage

Order-No. **VM3-610**

2 T-slots, stage surface 230 x 160 mm, swivelling range +/- 7.5°



Technical Data

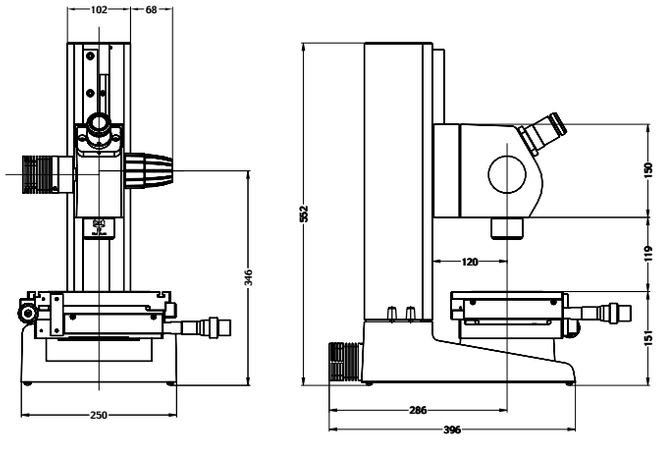
UHL Measuring Microscope VMM 100
Main unit with measuring stage

Measuring stage:	
Measuring range:	100 x 50 mm
Guiding:	roll bearing
Movement:	Ergonomic fast and fine adjusting
Fasteners:	2 T-slots
Max. weight limit:	10 kg
Measuring system:	opto-electronic, incremental transducer
Resolution:	0.0005 mm
Accuracy limit:	2 µm + 0.02 x L µm (L in mm)
Optic holder:	height adjustable by coaxial coarse and fine drive

Optical system:

Image:	Upright and laterally true image
Total magnification:	20x*
Eye-piece:	monocular, dioptric compensation, integrated crosshair plate
Magnification:	10x
Objective:	telecentric measuring objective 2:1*, changeable, bayonet mount
Object field diameter:	10 mm*
Numerical aperture:	0.06*
Free working distance:	85 mm* (see below)
Lighting:	integrated transmitted light and coaxial incident light with stepless brightness control, each 20 W

*see also changeable measuring objectives chapter Optional 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
Measurements:	see drawing
Weight (VM3-MT01):	26 kg

Digital Readout QC100:

Display:	1 LCD-screen 150 mm screen diagonal (coordinates X and Y)
Measuring values:	11.5 mm numerical height
Numerical intervals:	0.0005mm/0.00002 in.
Casing:	metal, painted
Digital output:	RS 232
Operating temperature:	0 °C to 45 °C
Power supply:	120/230 VAC, 50/60 Hz
Measurements (WxDxH):	292 x 215 x 215 mm
Weight (without cable):	4.8 kg

Digital Readout QC 200:

Display:	1 LCD-screen 150 mm screen diagonal (coordinates X and Y as well as function)
Measuring values:	11.5 mm numerical height
Numerical intervals:	0.0005mm/0.00002 in., 00°00‘01“
Casing:	metal, painted
Digital output:	RS 232
Operating temperature:	0 °C to 45 °C
Power supply:	120/230 VAC, 50/60 Hz
Measurements (WxDxH):	292 x 215 x 215 mm
Weight (without cable):	4.8 kg

Measuring objectives

Image scale	Total magnification	Object-field diameter	Numerical aperture	Free working distance	Focusing depth	Order-No.
1 : 1	10x	20 mm	0.03	88 mm	0.3 mm	**OP1-M01**
2 : 1	20x	20 mm	0.06	85 mm	0.08 mm	**OP1-M02**
5 : 1	50x	4 mm	0.13	62 mm	0.02 mm	**OP1-M05**
10 : 1	100x	2 mm	0.20	52 mm	0.01 mm	**OP1-M10**
20 : 1	200x	1 mm	0.35	30 mm	0.002 mm	**OP1-M20**

Micro objectives Plan Fluor for metallurgical examination

Suitable for both transmitted light and coaxial incident light. To be used with a single bayonet mount.

Image scale	Total magnification	Object-field diameter	Numerical aperture	Free working distance	Focusing depth	Order-No.
2.5 : 1	25x	8.0 mm	0.075	5.50 mm	0.05 mm	**OP1-L02**
5 : 1	50x	4.0 mm	0.100	10.50 mm	0.03 mm	**OP1-L05L**
10 : 1	100x	2.0 mm	0.200	10.50 mm	0.01 mm	**OP1-L10L**
20 : 1	200x	1.0 mm	0.400	10.50 mm	0.002 mm	**OP1-L20L**
50 : 1	500x	0.4 mm	0.600	3.60 mm	0.001 mm	**OP1-L50L**
100 : 1	1000x	0.2 mm	0.700	3.60 mm	0.0005 mm	**OP1-L99L**

Single bayonet mount for micro-objectives

Order No. **VM4-308**

Thread for micro objectives 2.5:1 to 100:1

C-mount adapter **VM3-401**

Allows the use of a video camera instead of the ocular (TV-image laterally reversed) and the connection of an image processing software (i.e. UHL-OMS)

Foot switch

2 functions: setting the display to zero and for triggering data transfer to a computer or printer. Connectable to digital readouts QC100 and QC200

Walter Uhl
Loherstraße 7
D-35614 Aßlar
Germany

Tel. ++49 64 41 88 60 3
Fax ++49 64 41 85 71 8

www.walteruhl.com

Techn. Mikroskopie
Feinmechanik