

Digital Measuring Microscope/Measuring Projector Ryf-Nikon MM400-M3



NIKON MM-400 ZOOM WITH M3 SOFTWARE DIGITAL PROFILE & MEASUREMENT PROJECTOR / MEASUREMENT MICROSCOPE

⇒ Extremely fast and high precision

- Intuitive touch application, just one gentle touch & the measurement is done!
- Easy-to-learn & clear user interface.
- User-independent measurement results.
- No nested menus.
- Just measure & evaluate → accurate, fast and easy.



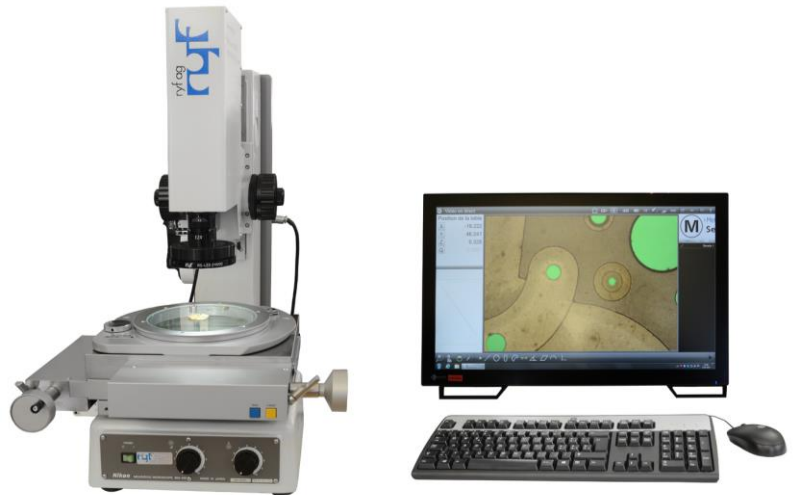
Digital Measuring Microscope/Measuring Projector Ryf-Nikon MM400-M3

Ryf-Nikon MM400-M3 Measurement Software

The new standard for the measurement of parts using DXF/PDF comparison:
Precise, fast, simple and good value!

Features and functions of the software:

- Intelligent image processing for measuring 2D geometries
- Constructions and relations of measured elements
- Alignment function
- Part programs
- Tolerance check according to DIN/ISO
- Multiple coordinate systems
- Multilingual (d/f/e/i)
- Data export and print, including graphics
- Dimensioning of the parts view
- Image memory with/without measurement result
- DXF module to compare the measurement versus a drawing with a tolerance band and good/bad detection
- Automatic measurement processes, pallet measurement
- Lighting control via the software (basic version comes without integrated light control)
- Stitching (automatically mount and measure images in the Y and X axis)



Turnkey: Complete and ready to use measuring projector system:

Microscope Nikon MM400

Measuring table range of motion X-Y 100mm x 100mm (option: 100x150mm or 130x200mm),
 Precision optical zoom lens 12X (manual or motorised)

LED transmitted light, 4-segment ring light (coax LED as an option), controllable via the software

Digital Camera, M3 Control Box and M3 Software/DXF Overlay

HP Windows PC with HD screen EIZO 24" or HP PC All in One 24"

Installation, calibration, measurement protocol and training included.

The new reference for measuring & comparison of your DXF files:

High speed and high precision!

Precise and Easy to Use Measuring Microscope for Dimensioning & Tolerancing.

The new Ryf-Nikon Measuring Microscope MM-400-M3 uniquely designed for all machining engineers and inspectors, who require high precision!

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Precision

- Scale resolution of 0.4µm
- Custom Nikon precision 3+L/50 µm without software correction
- Steel tripod and column with precision guides
- X-Y made from steel with Nikon precision glass scales

Standard Equipment

- Nikon MM400 tripod with adjustable LED transmitted light (Z travel = 150mm)
- Option: integrated digital Z-axis scale (non-contact z-height measuring)
- Nikon MM400 column with dual side coarse / fine focus knob
- Nikon high precision steel Stages 100x100mm and for larger work pieces 100x150mm or 125x200mm
- High-performance LED segment ring light, adjustable and Stage LED illuminator
- Up to four illuminators are controllable and operable via the M3 software (all lights are programmable)
- Option: Nikon 360° rotating table Type 3

Optical Quality

- Standard camera FHD: **3MP/5MP**, CMOS/ USB3 (1920 x 1200 px/frame rate min. 30 images/sec.)
- Quality screen 24" HD resolution (Eizo touch screen as an option)
- Optical zoom lens 1:12x (manual or motorized)
- Option: with built-in LED coaxial illumination
- Option: with 5 MP/12MP camera (12MPix: possible with high resolution lenses)

Operation

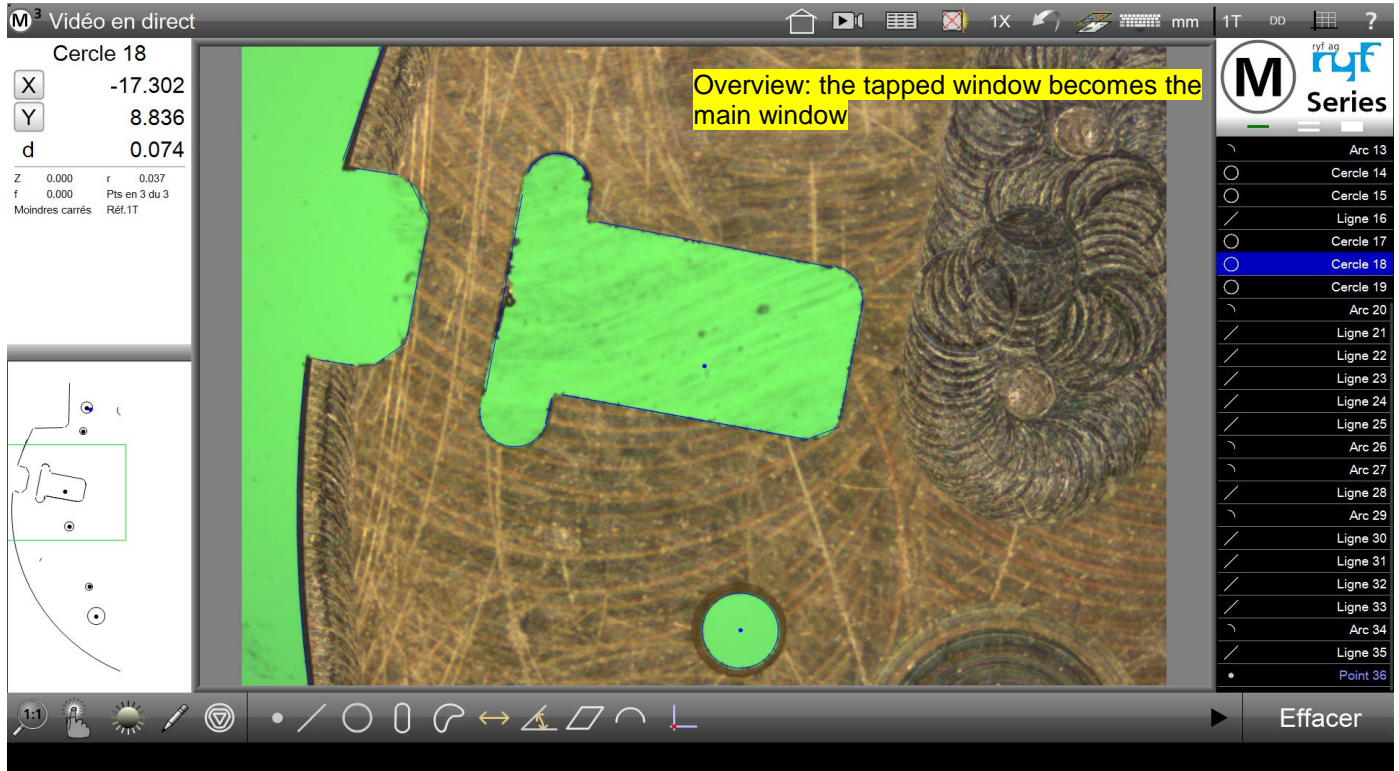
- Easy to use and intuitive measurement software matched to our Nikon-Ryf configuration
- DXF overlay
- Link to an Excel log with a mouse click

Examples of Application

- Measurement of small precision-turned parts
- Watch plates
- Dials
- Screws, axles, implants
- Gears
- Precision milled parts, bridge parts, circuit boards, electronic components/PCB boards
- Suitable for all metals and plastics

Specification:	12x zoom lens (motorized / manual)
Optical System	12x zoom lens, optionally with adjustable LED coaxial illumination, controllable via the software
X-Y-Z axis travel path	100mm x 10mm x 150mm // 100mm x 150mm x 150mm // 130mm x 200mm x 150mm
Precision of the Measuring Table	2.5 + L/50 µm (with LEC), 3 + L/50 µm (L= measuring length in mm)
Scale resolution	0.4 µm
Max. table load	From min. 5 kg for guaranteed accuracy/5 kg operatively possible with the 100x100mm stage (100x150 = 20kg)
Enlargement accuracy	0.1%
Enlargements	Zoom 12x: approx. 15x -180x on a 24" monitor
Light sources	Segment (4) ring light (white daylight LED), green LED transmitted light and, depending on the application, with LED coaxial light
Dimensions & Weight	300 x 600 x 640mm (L x W x H), 65 kg (150x100= 70kg, 130x200 = 78kg)
Operating voltage	100 – 240 V (max. 1.8 A)/50-60Hz

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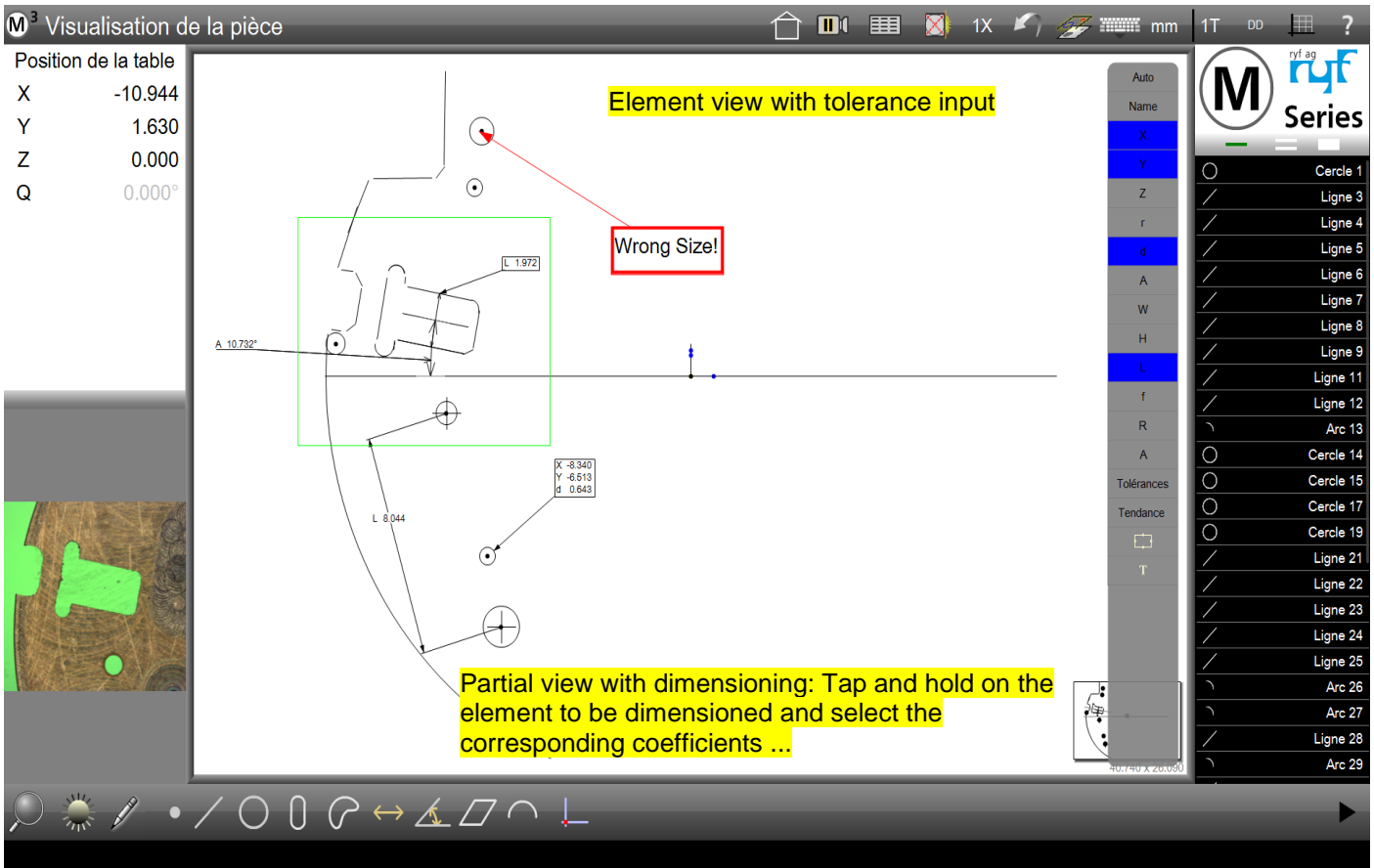
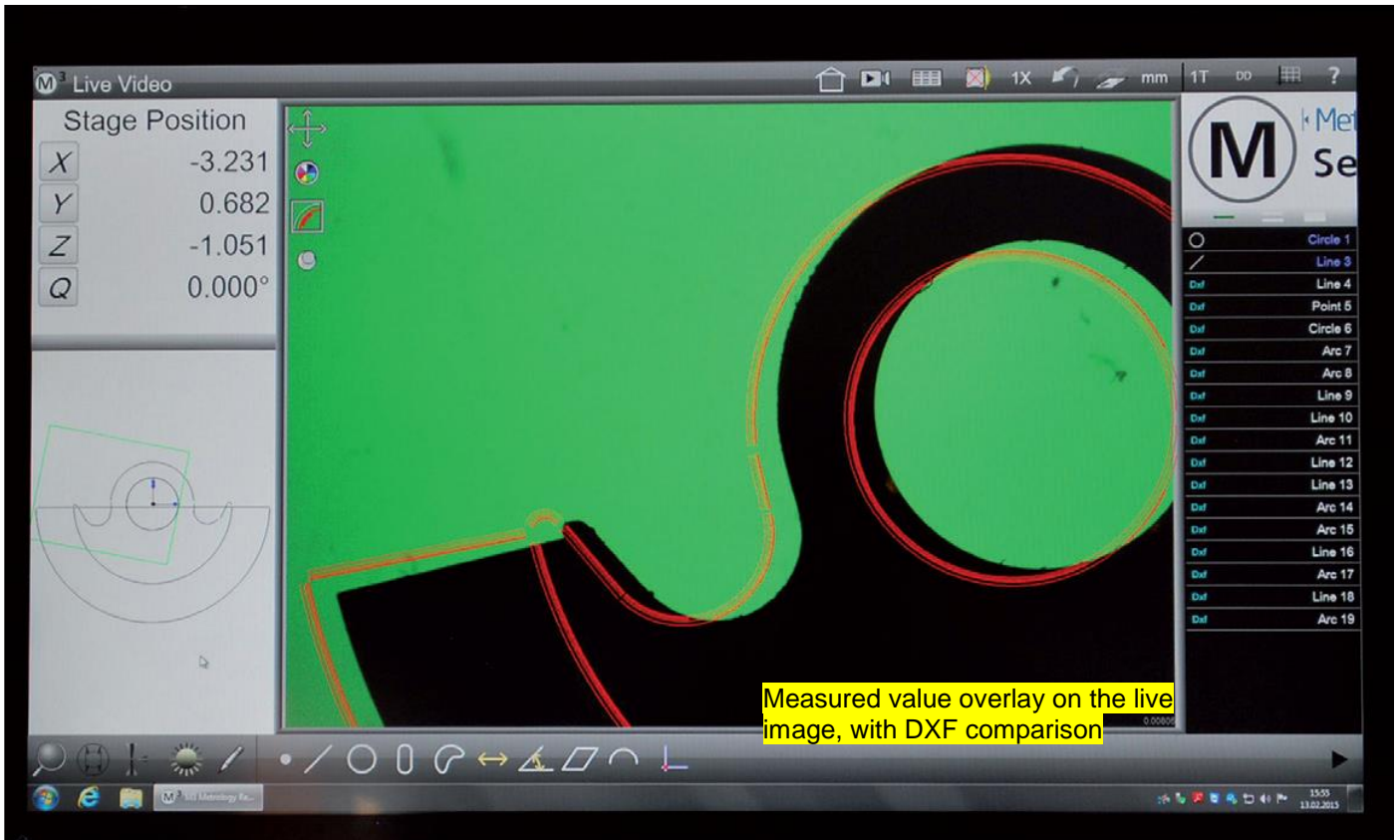


Live video: Optimum edge detection using "Measure Logic" or and active or fixed cross-hair

Function list: Selection of measuring tools, measuring functions and data export



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M³ CSV

Stage Position

X -0.202
Y -3.988
Z 30.170
Q 12°20'00

Name	X/r	Y/a	Z	R	D	L	W	A	f
Line 1	-0.161	-10.753						-1°10'07	0.199
Line 2	19.377	-7.136						89°02'41	0.025
Line 3	19.050	-2.540						-41°08'57	0.033
Line 4	17.807	-2.099						-1°07'26	0.018
Arc 5	17.369	-0.803		1.271					0.019
Line 6	18.064	0.479						3°55'16	0.052
Line 7	19.192	0.911						43°34'40	0.012
Line 9	19.586	4.519						88°57'34	0.034
Line 10	0.113	8.385						-1°11'15	0.028
Line 11	-19.441	5.471						89°25'42	0.041
Line 12	-18.934	1.664						-45°29'39	0.012
Line 13	-17.543	1.154						-2°05'39	0.034
Arc 14	-16.967	-0.143		1.156					0.110
Line 15	-17.682	-1.392						-0°30'18	0.050
Line 16	-18.885	-1.762						43°13'24	0.016

Blade15A

Line 1
Line 2
Line 3
Line 4
Arc 5
Line 6
Line 7
Line 9
Line 10
Line 11
Line 12
Line 13
Arc 14
Line 15
Line 16

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Super Admin 3:33:20

Measurement protocol:

Measurement protocol with reduced part view and result list as printout or data export in CSV or TXT format or even with DXF.

Measurement program:

Measurement programs are automatically created during the survey. Measurement program sequence with graphical support, where and what should be measured. Data is output automatically after the survey.

Retrofitting: The software is also available without the image processing and dimensioning module as M2 (also suitable for older measuring microscopes, such as the Nikon MM40, MM60 or profile projectors, such as the Nikon V-12B).

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MM400-M3 with all in one computer with 24" touch screen



Table in mm of MM400-M3- 12x zoom lens with 8 steps:

12x zoom	X mm	Y mm	Diagonal mm	Enlargement x
1: 0.58	17.3	14.0	22.3	19
2: 1.00	10.2	8.3	13.14	33
3: 2.00	5.1	4.2	6.58	65
4: 3.00	3.4	2.8	4.4	98
5: 4.00	2.6	2.1	3.31	130
6: 5.00	2.1	1.7	2.66	162
7: 6.00	1.7	1.4	2.22	194
8: 7.00	1.5	1.2	1.91	225

Easy to use: The Digital-video-based M3 is multi-touch software that can pan and zoom with the touch of a finger....

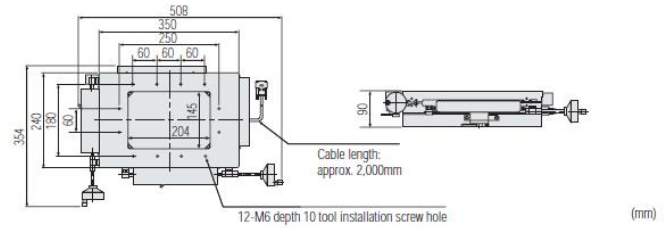
It works with active part views and live video feeds as well as a conventional mouse interface. Along with a host of other features, the M3 offers simple machine/camera calibration with popular video measurement system correction methods.

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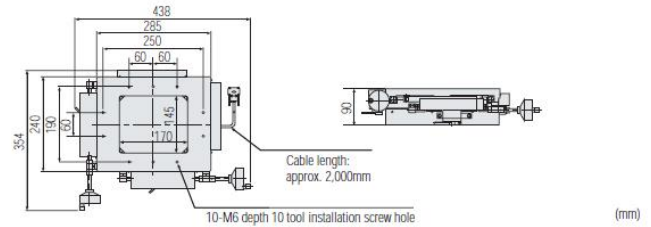
Stage specifications

Type	Surface area (mm)	Stage glass dimensions (mm)	Stroke (mm)	Reading method	Min. reading (mm)	Zero position adjustment (mm)	Stage top	Tool installation	Loading capacity (kg)	Weight (kg)
8x6	400 x 280	245 x 192	200 x 150	Linear encoder	0.0001	Discretionary	—	M6 (screw)	15	Approx. 36
6x4	350 x 240	204 x 145	150 x 100	Linear encoder	0.0001	Discretionary	—	M6 (screw)	10	Approx. 27
4x4	285 x 240	170 x 145	100 x 100	Linear encoder	0.0001	Discretionary	—	M6 (screw)	6	Approx. 23

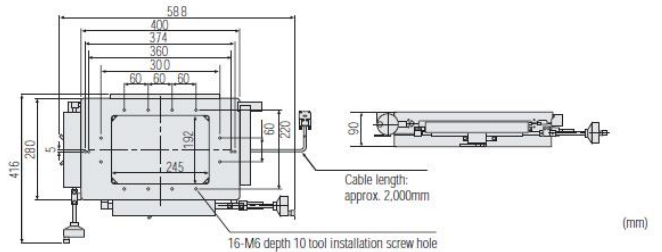
6x4 Stage



4x4 Stage

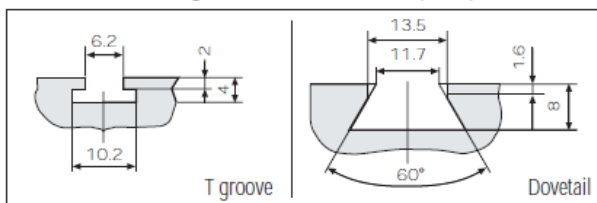


8x6* Stage



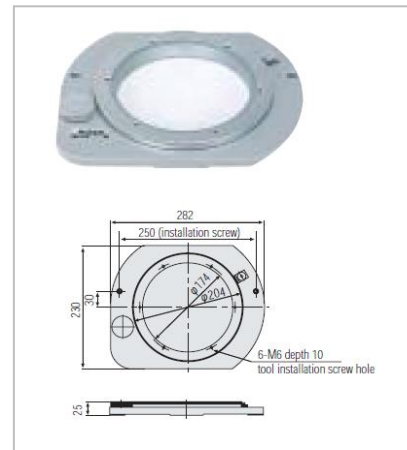
*Stage adapter is required.

Tool installation groove dimensions (mm)



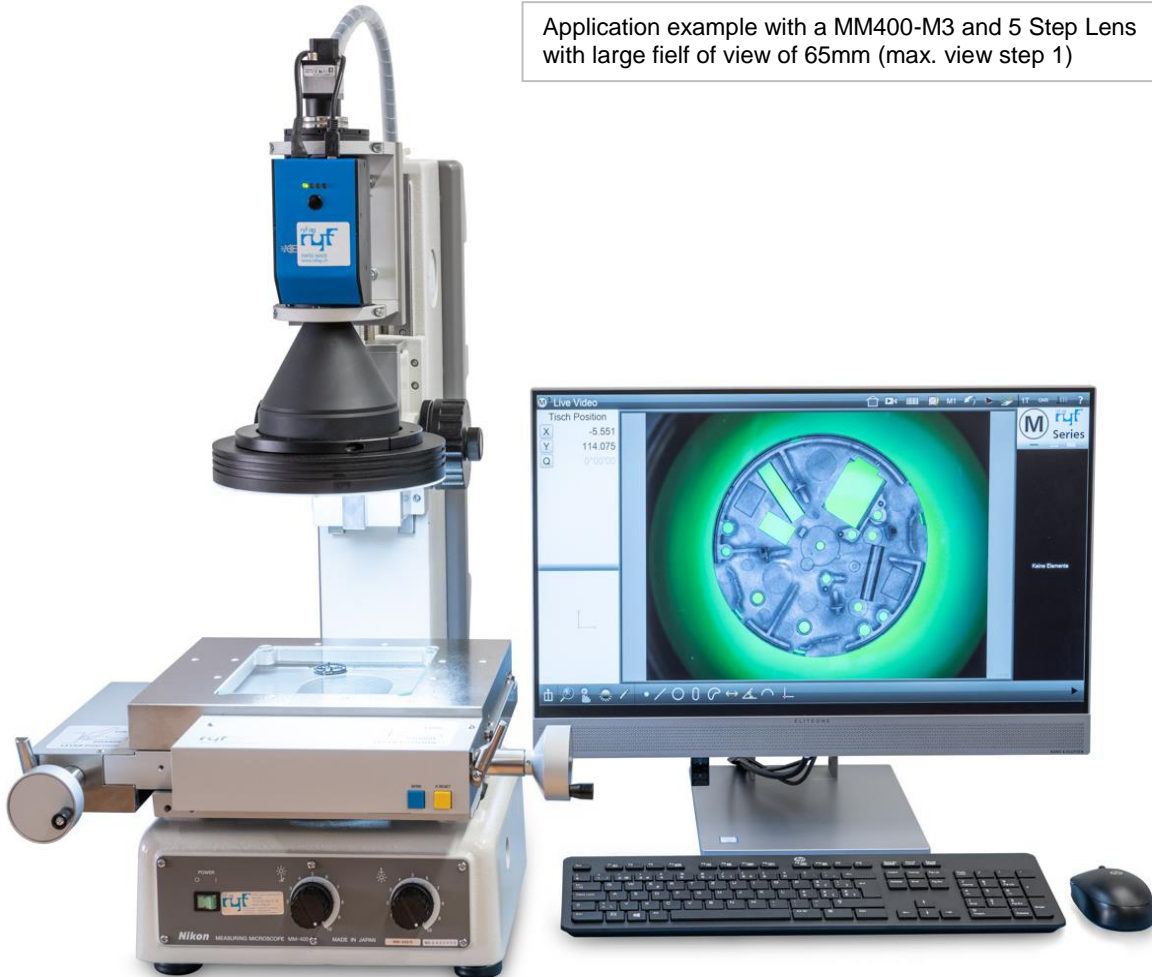
T groove: Rotating table A2 Dovetail: O3L

- Stages other than O3L and rotating table C/D require M6 depth 10 tool installation screw holes.
- T grooves may be specially ordered for 2x2 rotating boards.

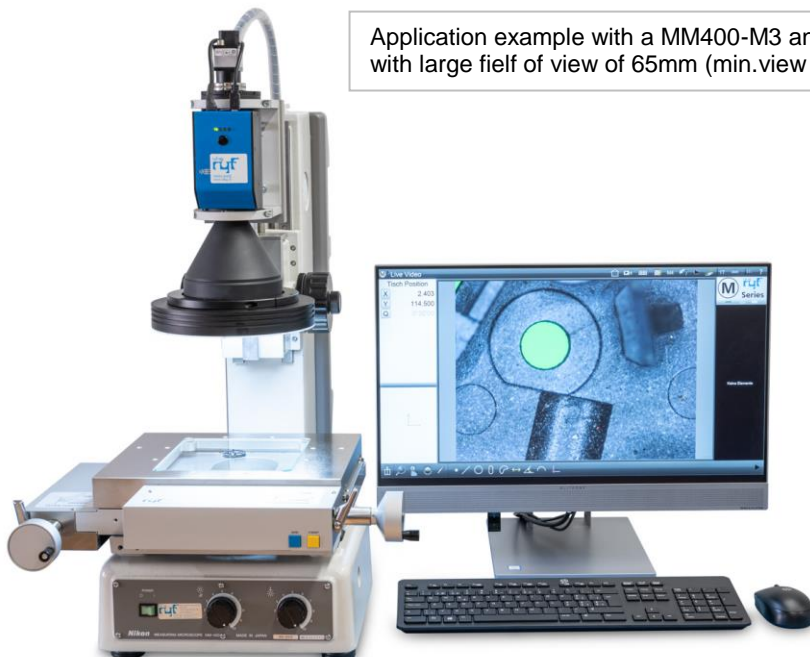


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Application example with a MM400-M3 and 5 Step Lens with large field of view of 65mm (max. view step 1)



Application example with a MM400-M3 and 5 Step Lens with large field of view of 65mm (min.view Step 5)



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Standard with the latest 12x zoom lens MM400-M3 with 4x4 stage 100x100mm



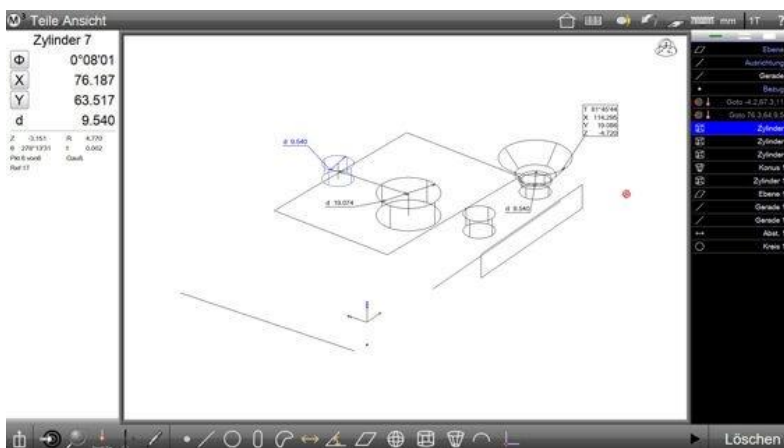
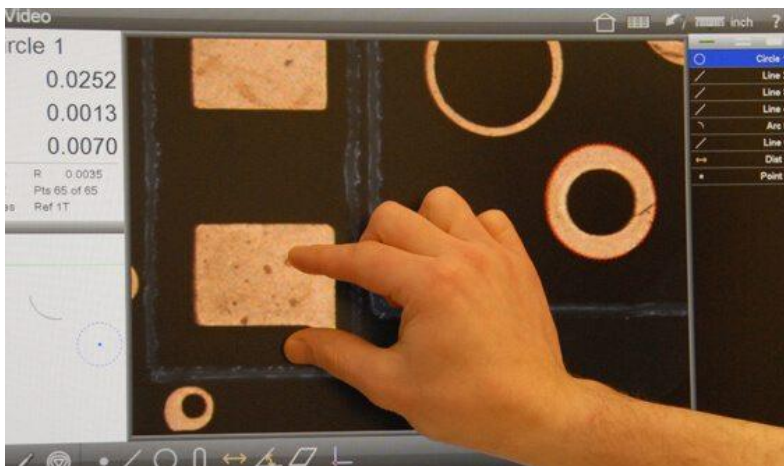
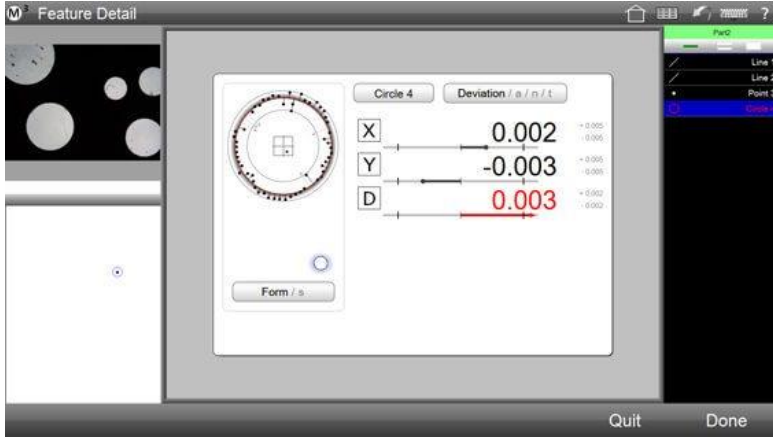
After-Sales Service Ryf Ltd.:

Measuring instruments and microscopes must be checked, calibrated and cleaned at regular intervals. A maintenance and service contract with Ryf AG protects you from nasty surprises, as at the agreed time (after 6, 12, 18 or 24 months), we automatically contact you and perform the maintenance expertly and competently. Of course, we also carry out all work without a maintenance agreement.

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