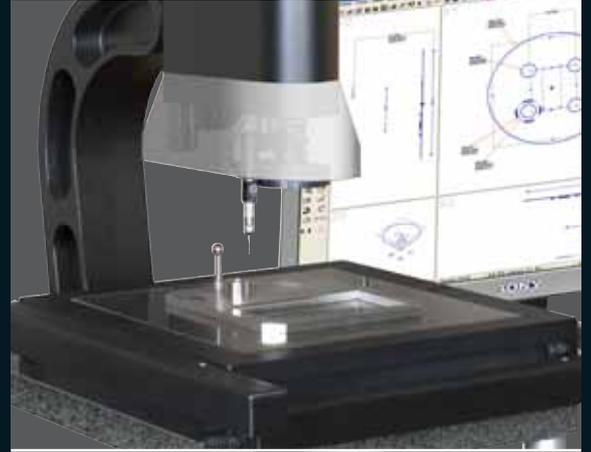




vision systems



2D MANUAL



is a manual 2D vision system with a massive difference.

Due to the newly patented Colourmap™ scale system, the VuMaster does not have a conventional stage or encoders – just a floating measuring camera that moves anywhere in the measuring range. The result is fast, accurate, ‘non contact’ measurement over a much larger measuring range – 400mm x 300mm to be exact!

Because the camera moves and the part stays still, there is often no need for expensive and time consuming work holding devices.

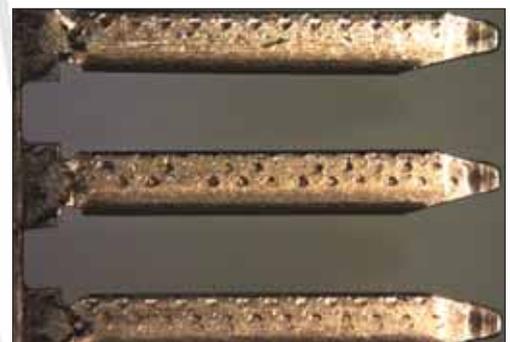
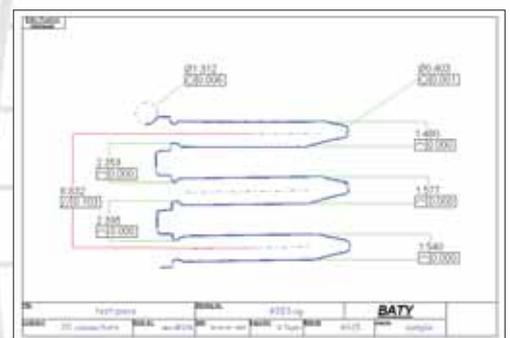
Although VuMaster is manually* operated, inspection routines can be recorded and stored. When played back, these ‘programs’ guide the operator through a pre-defined inspection procedure recreating the same lighting conditions and using ‘Video Edge Detection’ to automatically ‘capture’ feature data.

Finally, a report is generated in the form of a fully dimensioned drawing of the measured part.

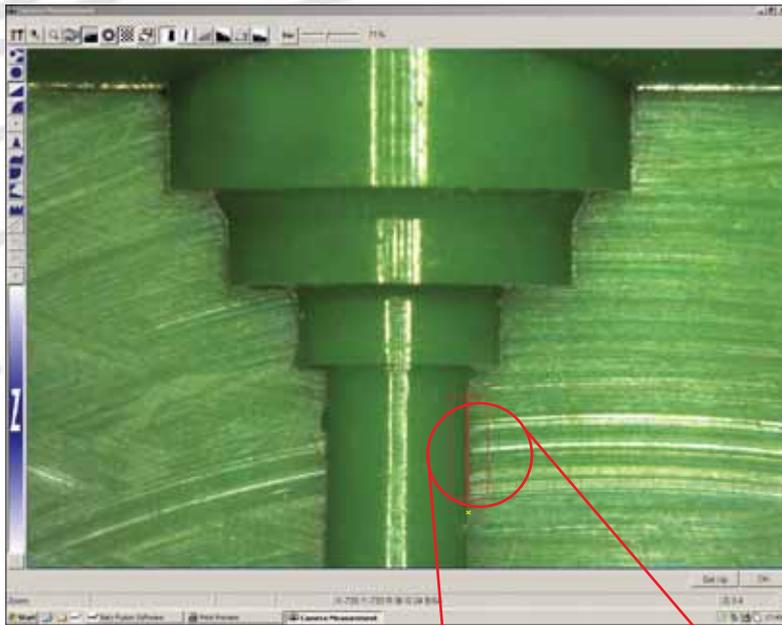


VuMaster

- Large 400mm x 300mm measuring range
- Patented measuring technology
- Teach and repeat part programming
- Video edge detection
- Digital zoom
- Fully integrated system – everything is included: built-in PC, 19" flat screen monitor and printer
- Programmable segmented LED lighting system
- Motorised autofocus
- Image grab

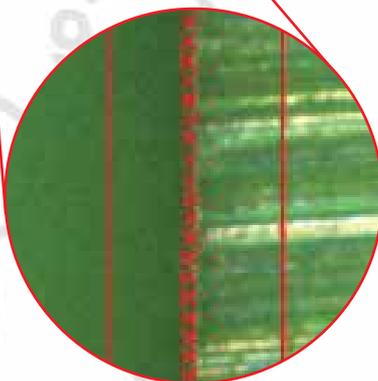
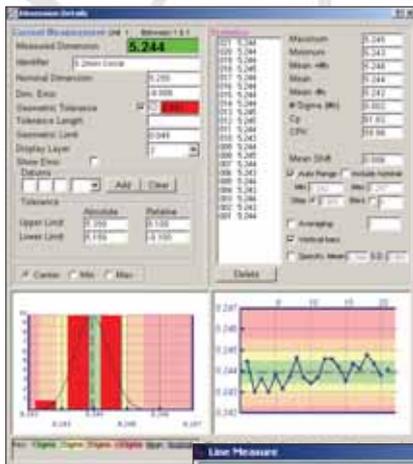


* CNC option available



Baty's PC based Fusion software is powerful and easy to use. The graphical user interface minimises keyboard use and the need for multiple toolbars. The result is a software package that enables the user to produce a fully dimensioned drawing of the measured part in minutes!

Other standard reports include tabulated results and multiple part reports all of which can be exported to Excel® in a single click.

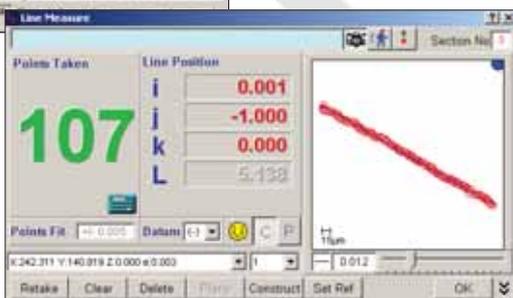


VIDEO EDGE DETECTION

Video edge detection (VED) ensures a repeatable result without relying on the skill of the operator. Hundreds of data points can be taken in an instant to calculate standard geometric features. Standard VED tools include arc, circle, line, point, focus and curve.

PROFILE SCANNING

The curve tool automatically traces the profile of an undefined part. The resulting data-point cloud can then be compared to a pre-toleranced DXF master for best fit analysis.



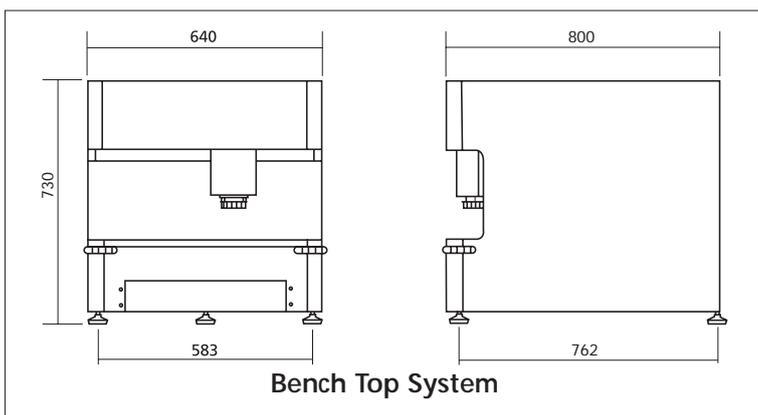
Once 'fitted' the data points appear red or green to indicate whether in tolerance. In addition to best fit, conventional dimensions can also be applied to the scan.

SPC INCLUDED

Baty Fusion software will also display SPC batch information for multiple components. Information given includes maximum value in batch, minimum value, user definable sigma value, CP and CPK value, mean shift and also plots two different charts of the batch data. SPC data can also be exported to Excel™ for further analysis.

DIMENSIONED PART VIEW

Measured results are displayed in the form of a fully dimensioned drawing. Dimensions within the specified tolerance are shown in green whilst dimensions out of tolerance are shown in red for immediate visual status of the measured part.



3D MANUAL



The highly successful Venture range includes both manual and full CNC systems that cover two standard measuring ranges:

The VI-2510 has a 250mm x 120mm x 165mm X,Y,Z measuring capacity and the VI-3030 has 300mm x 300mm x 165mm.

The original design brief was to bring together high-end software functionality with a proven mechanical design at a competitive price. With 20 years experience as a manufacturer of vision systems and 75 years in Metrology, Baty have built up a sound knowledge of vision application requirements. Whether manual or CNC, we believe the newly revised Venture range includes more functionality as standard than any other vision system package on the market.

VENTURE QC3

This is a manually operated 3D vision system designed for the shop floor. The fully integrated QC300 measuring system has a colour touch screen so there is no need for a mouse or keyboard to clutter the workstation.

Full geometric functionality is included so features like circles, lines arcs and points can be measured using dedicated tools. Data points are automatically taken along the edge of the feature using Video Edge Detection, then all measurements are automatically saved in the on-screen features list.

The programmable LED lighting is also controlled using the touch screen. Surface, through the lens and profile lighting conditions can be adjusted to ensure that the feature edge is perfectly illuminated.

Tolerances are set for each dimension so that the final inspection report clearly displays a pass or fail status.

For parts that need to be measured regularly, measurement routines can be 'recorded', saved and played back. During this process the operator is guided through the process by the display. Magnification, VED tool positioning, number of data points required and the exact lighting conditions are all reproduced by the system ensuring that each part in a batch is measured the same way for optimum repeatability.



Venture QC3

STANDARD QC3 SYSTEM FEATURES INCLUDE:

- High resolution 0.5 μm scales for increased accuracy
- 6.5:1 Zoom lens
- Programmable segmented LED lighting system
- Z axis dovetail slide mount for increased Z axis capacity
- High precision cross-roller stage
- Ultra-smooth plain rod drives
- Auto Video Edge Detection tools
- Auto programming
- On screen focus Meter (Man) / Auto-focus (CNC)



FUSION 3D SOFTWARE

Baty's powerful Fusion software is also available with full 3D functionality for use with the Venture range of Vision systems. The measured part can now be dimensioned in all three projections showing true 3D results.

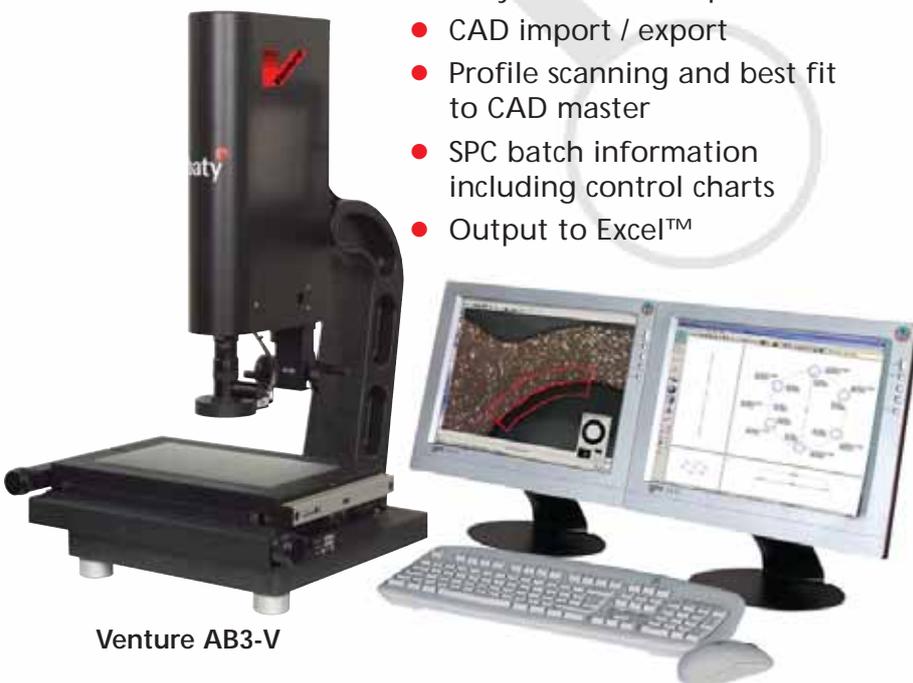
TOUCH PROBE

The popular Renishaw Touch probe option often helps to solve complex 3D measurement applications. The software allows the use of both touch probe and camera measurements in the same inspection so that features that are out of the camera's view can be measured without re-positioning the part.



ADDITIONAL AB3-V SYSTEM FEATURES INCLUDE:

- Fully dimensioned part view
- CAD import / export
- Profile scanning and best fit to CAD master
- SPC batch information including control charts
- Output to Excel™



Venture AB3-V

* dependant on monitor size

EASY REPORTING

In addition to the graphical representation above, detailed reports can be instantly created showing the feature name, nominal dimension, actual, error, upper and lower limits and a green pass or red fail label for each measured dimension in tabulated format. Geometric tolerance details can also be displayed along with a thumbnail view of the part and batch/customer information.

The entire report can be duplicated as an Excel workbook for email.

3D CNC



Venture CNC models take the power of fusion software one stage further by completely automating the inspection process. Now advanced features like scanning and best fitting can be done quickly without taking up the time of skilled operators.

CNC programming is a simple teach and repeat process. Just measure the part once and a full CNC program is created automatically. The zoom lens can also be controlled so that magnification changes are all recorded into the program.

LARGE MEASUREMENT VOLUME

The use of a touch probe is optimised on a CNC system. Measurements from data points taken using the touch probe can be combined with those taken using Video Edge Detection for optimum speed and reduced inspection times.

A probe changer rack can be installed so that probe modules fitted with a variety of pre-calibrated styli can also be used in the same inspection. When a change of stylus is required, the system automatically puts the current probe module back in the rack and picks up the next to continue the inspection process. When programming using the touch probe, use only the minimum points required to define each element. Then simply edit in the optimum number of points for each element. The new probe path is then automatically created when the program is played, cutting down both programming and inspection time.



Graphical reports show the measured part as a dimensioned drawing with 'in tolerance' dims shown in green and 'out of tolerance' dims shown in red for an instant pass / fail classification. Geometric call outs can also be shown as well as datum features and true position.

Supplementary tabulated reports show nominals as well as tolerance values with a 'PASS' or 'FAIL'

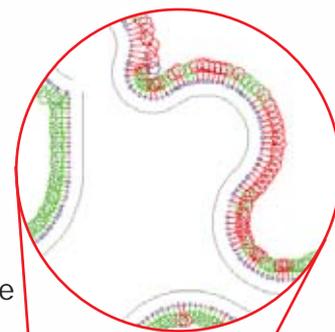
SPC information can either be reported or exported to excel. Distribution and control charts are also produced.



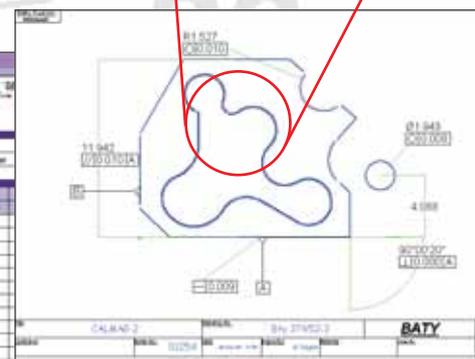
Venture AB3-V-CNC

STANDARD CNC SYSTEM FEATURES INCLUDE:

- Teach and Repeat programming
- Programmable segmented LED lighting
- High resolution 0.5µm scales for increased accuracy
- CAD import / export
- Scanning & best fitting
- Fully dimensioned part view
- SPC included
- One click output to Excel™
- Autofocus
- 165mm Z axis measuring range on adjustable dovetail slide
- 250mm x 120mm and 300mm x 300mm XY stages available



Baty International						
Drawing No.	Order No.	Order No.	Date			
017-0101	017-0101	017-0101	01/01/01			
Title	Drawing title	Part No.	017-0101-001			
Comments	Drawn Dimension	Material	Stainless			
Feature	Nominal	Min	Max	Units	Actual	Pass/Fail
01 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
02 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
03 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
04 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
05 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
06 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
07 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
08 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
09 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
10 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
11 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
12 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
13 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
14 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
15 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
16 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
17 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
18 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
19 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
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36 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
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38 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
39 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
40 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
41 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
42 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
43 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
44 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
45 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
46 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
47 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
48 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
49 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS
50 Hole Dia	10.000	9.995	10.005	mm	10.000	PASS





Venture Plus
VP-6464-CNC

The Venture Plus range includes all of the standard Venture features with a little more... measuring range that is.

LARGE MEASUREMENT VOLUME

The Venture Plus is available in two models:

VP-6464 with 640mm x 640mm x 250mm measuring range

VP-6494 with 640mm x 940mm x 250mm measuring range

The bridge type construction is all aluminium resulting in low inertia and low thermal mass. Air bearings are used on all axes and a granite Y beam is used for increased accuracy. This ensures that the machine will expand and contract uniformly with temperature changes ensuring minimal distortion and subsequent errors. Ambient temperature can be compensated for within the Fusion software making Venture Plus ideal for use on the shop floor.

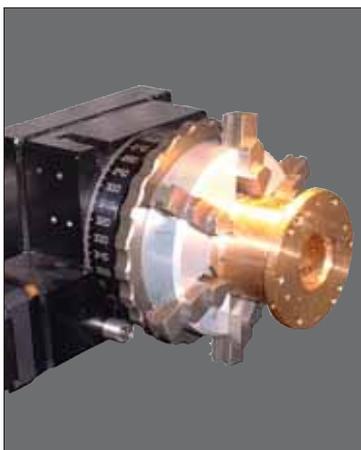
Complete with our standard zoom optics and lighting, Venture Plus offers the same level of camera based functionality as every other Venture.

VENTURE PLUS ADDITIONAL FEATURES INCLUDE:

- Rigid, low mass bridge construction
- Integral zoom optics
- Patented light table technology
- 250mm Z axis measuring range
- 640mm x 640mm and 640mm x 940mm bridge formats available

OPTIONS INCLUDE:

Rotary Q axis



Laser scanning probe



PROGRAMMABLE SEGMENTED LIGHT

Lighting is critical to ensure that the correct edge is measured. Baty's new programmable LED lighting head allows the user to define any segment pattern to be switched on. This means that oblique lighting conditions can be achieved to illuminate more difficult edges.

Segments can then be rotated and intensity varied to suit the radial position of the edge. Once set, the lighting condition for each measured feature is now automatically programmed and will be reproduced by the software each time a new part is measured. Through the lens (TTL) lighting is included for applications like blind bore measurement. 64 white LED's are used to ensure Venture's high quality colour image is achieved.

Only now can this functionality be combined with traditional touch probe technology to offer the ultimate in large format multi-sensing Vision systems - Venture Plus.

MANUAL SYSTEMS

	VM-4030 VuMaster	VI-2510 Venture	VI-3030 Venture	VP-6464 Venture Plus
X, Y, Z measuring range (mm)	400 x 300	250 x 120 x 165	300 x 300 x 165	640 x 640 x 250
Workstage area	420mm x 320mm	414mm x 262mm	464mm x 462mm	700mm x 940mm
Max workpiece load (kg)	25	25	25	150
Drive type	Manual	Manual	Manual	Manual
Bearings	Air bearings	Cross roller rail guide	Cross roller rail guide	Air bearings
Max drive speed	N/A	N/A	N/A	N/A
Camera type	2048 x 1590 pixel colour USB2 camera with 8 x 9mm chip and dynamic latch			
Optics / lighting	Fixed objective telecentric lens with programmable LED lighting	6.5:1 detent zoom lens. Fully programmable software controlled white LED segmented surface lighting head with understage and through the lens (TTL) lighting as standard		
Resolution	0.001mm	0.0005mm	0.0005mm	0.0005mm
Accuracy	7.5µm	2+L/100	2+L/100	2.5+L/150
Max field of view (FOV)	12mm*	16mm*	16mm*	16mm*
Magnification	20 x 350x	Optical zoom ratio 27x – 175x on 17" monitor with digital zoom enhancement to over 1200x		
Touch probe option available	No	Yes	Yes	Yes
Probe type	N/A	Renishaw TP20	Renishaw TP20	Renishaw TP20
Change rack compatible?	N/A	N/A	N/A	N/A

*using optional 0.5x adapter lens

CNC SYSTEMS

	VM-4030 VuMaster	VI-2510 Venture	VI-3030 Venture	VP-6464 Venture Plus	VP-6494 Venture Plus
X, Y, Z measuring range (mm)	400 x 300	250 x 120 x 165	300 x 300 x 165	640 x 640 x 250	640 x 940 x 250
Workstage area	420mm x 320mm	414mm x 262mm	464mm x 462mm	700mm x 940mm	700mm x 1240mm
Max workpiece load (kg)	25	25	25	150	150
Drive type	CNC / handwheel	CNC / joystick	CNC / joystick	CNC / joystick	CNC / joystick
Bearings	Air bearings	Cross roller rail guide	Cross roller rail guide	Air bearings	Air bearings
Max drive speed	100mm / sec	200mm / sec	200mm / sec	500mm / sec	500mm / sec
Camera type	2048 x 1590 pixel colour USB2 camera with 8 x 9mm chip and dynamic latch				
Optics / lighting	Fixed objective telecentric lens with programmable LED lighting	6.5:1 detent zoom lens. Fully programmable software controlled white LED segmented surface lighting head with understage and through the lens (TTL) lighting as standard			
Resolution	0.001mm	0.0005mm	0.0005mm	0.0005mm	0.0005mm
Accuracy	7.5µm	2+L/100	2+L/100	2.5+L/150	2.5+L/150
Max field of view (FOV)	12mm*	16mm*	16mm*	16mm*	16mm*
Magnification	20-350x	Optical zoom ratio 27x – 175x on 17" monitor with digital zoom enhancement to over 1200x			
Touch probe option available	No	Yes	Yes	Yes	Yes
Probe type	N/A	Renishaw TP20	Renishaw TP20	Renishaw TP20	Renishaw TP20
Change rack compatible?	N/A	Yes	Yes	Yes	Yes

*using optional 0.5x adapter lens

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