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THE NEW GENERATION OF MEASURING



High precision

scanning & measuring

machine for the PCB industry

The new generation of measuring



Ergonomically display

The scan & metrology application are displayed on one 24" TFT Flat screen monitor.



Simple & easy to operate

A pleasant work station increases the work quality. Human and machine is our slogan. This is reflecting to our ergonomic organisation of the system.



Two machines in one system

High speed scanning combined with fully metrology CCD measurement in one machine

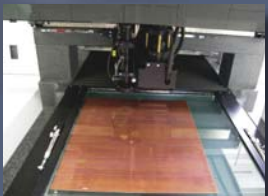


The solid machine base

Machine in type of bridge construction from solid black Impalla granite. All guiding surfaces in one piece.

Absolute non contact positioning and guiding system on air bearings and driven by U-type linear motors.

Machine accuracy does not affect from outside temperature influence. Temp coefficient <math><0.3\mu\text{m}/^\circ\text{C}/\text{mtr}</math>.



No maintenance required

The system is very easy for servicing. All parts inside are very is to reach. Except cleaning is the system maintenance free.

Technical Data Sheet

Active measuring and scanning area	
X axis:	630 mm (24.80 Inch)
Y axis:	610 mm (24.00 Inch)
Z axis: (optional)	
Total system accuracy with Metrology system:	U1 = 2.5 + L / 300 MSA test 1 Cgk > 1.33 on T = ± 0.030 mm (on min. 150x magnification)
System resolution	
XY axes:	0.0002 mm (0.2 μm)
Z axis: (optional)	0.0002 mm (0.2 μm)
Axes speed & acceleration	
XY axes speed:	> 500 mm / sec.
XY axes acceleration:	> 1000 mm / sec. ²
Scanning system	
Scanning time on 500 x 500 mm board:	< 60 seconds
Scanning accuracy:	± 0.005 mm
Scanning range on drilled holes:	from 0.08 mm up to 6.5 mm
Scanning speed:	> 180 mm / sec.
Track width:	appr. 80 mm
Standard Input format:	DXF Format
Input format for converter:	Excellon I+II, Posalux, S&M, DPF, Gerber
Special functions:	Slot measure function on drill scanning Contour measurements of holes, arcs and lines on scanning. Construction of points, angle and distances. Free programmable tolerance data base.
Scan computer:	Pentium IV 3.6 GHz, 4096 MB RAM, 80GB HD, DVD, FD, Dual Network
Metrology Sytem QC5000	
Camera system	Matrix CCD colour camera
Objective	12x Zoom objective (25x to 220x mag.)
QC computer	Intel DualCore 2.4 GHz, 1028 MB RAM, 80GB HD, DVD, FD, Dual Network
Machine weight	appr. 3.000 Kg
Air connection:	Min. 0.68 MPa (6.8 Bar), 75 NL / min.
Power connection:	380 Volti, 3 Phase, 50/60 Hz, 25 Amp.

Available configurations of the Pro-X3 series



Pro X3-Standard

- Standard configuration with QC5000 Metrology Matrix CCD measuring system in 2 1/2 axes (XY & Z height)
- Free programmable 12x Zoom Objective Magnification range from 25x to 220x
- 4 free programmable light sources
White LED sector under light, Fibre optics top ring light, White LED coaxial light, 4 sector red LED ring light



Pro X3-SC (Scanner)

- High speed scanner measuring machine for two Dimensional objects
- Line cam with telecentric objective. Sector controlled Under light. Optional fibre optics top light available
- Drilled hole measurement with centre of gravity analysis
Contour measurement with best fit analysis
- Programmable Z axis system



Pro X3-K (Combination QC Metrology - Scanner)

- High speed scanner measuring in combination with QC5000 metrology matrix CCD measuring system
- Two independent or combined working systems
- Scanned features can be immediate viewed by the live camera

The high speed scanning system



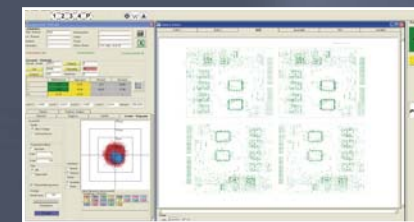
Scan with bottom light

The high speed scanning system was especially designed to measure large amount of drilled holes for the PCB industry.

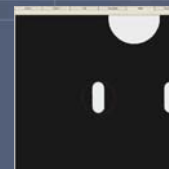
Diameter can be various between 0.08 mm and 6.5mm. The amount of holes is only limited by the internal memory. Up to 500.000 holes can be easily done . A typical speed time for a 500x500mm board with 100.000 holes is less then 60 seconds.

To operate the scanning system is very easy and don't need special skilled people. There is no programming required. Just select the Drill file DXF, scan over the part, set the alignment holes and run the evaluation.

A large amount of statistical information can be viewed. Cpk, Sigma, Mean and lot more. A scatter diagram shows you immediately the status of the panel.

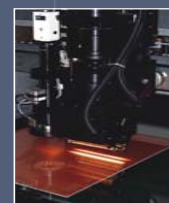


Operation panel of the MicroVision scanning system



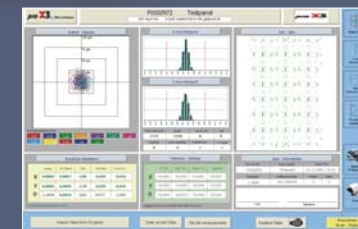
Automatic slot measurement center, length, width & angle

In case of errors, there is no need to re scan the object's. All digitized pictures are stored on the system. On the combination machine there is a smart feature to move the CCD camera to the selected object for additionally evaluation. This save a lot of time and give a high trough put of inspections. The Pro-X3 is a perfect tool for the 100% quality control in your factory.



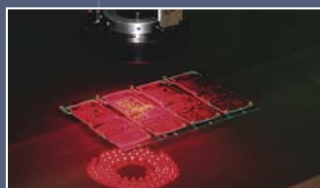
Top light system

An optional top light system is also available. This can be used for blind via inspection or drill deflection evaluation. The top light is programmable and designed with fibre optics technique.



PCB Scan viewing tool for final print out

The metrology system QC5000



Large amount of lightning possibilities

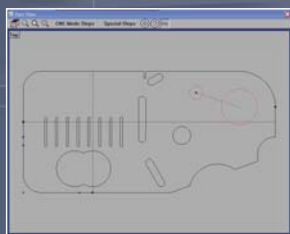
The metrology system QC5000 is a powerful tool to measure nearly all application in the PCB industry. A Matrix CCD camera with a 12x zoom objective deliver the image from the objects. The measurement is based on edge detection. Functions like circle, arc, line, centre of gravity and lot more measurements can be done. The system measures on 2½ axes (XY and Z height).

Measurements can be made manually or inside of a recorded program fully atomized. The programming is very simple and easy to learn. The construction features like distance, point, arc are helpful tools to generate all application data which are needed. Many tolerance settings can be applied to the features. Even the taken objects can be calculated in different way's like best fit, min superscribed, max inscribed calculation and more.



QC5000 operation panel

From a DXF data set it is possible to auto program the necessary features and measured fully atomized. To convert other formats like Excellon, Posalux, Sieb & Meyer, Barco and Gerber data, the with the machine delivered Imbach converting tool can be used.



Graphical features display



Depth measurements are been made by focusing on the objects with an accuracy of $\pm 5\mu\text{m}$. Applications are trace measurements, blind via, depth routing measurements, scoring lines and a lot more applications.



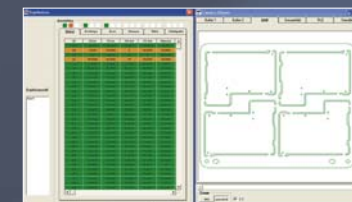
PCB-STAT-2000 statistical evaluation software for drilling and contour calculation. Process capability calculations

Contour measurement by scanning



The new contour measurement feature is a fast tool to measure the contours on 2 dimensional parts. Lines, Circles and Arcs are probed in the best fit method with the speed of >90 features per second. Constructions of distances, points and angle are possible. The input format is a DXF File which is created by the internal NC-DXF converter from a routing program in Excellon or S&M format.

If all required features for measurement belong to the part zero, then no further programming is needed. Distances, points and angles can be additionally constructed. A free programmable tolerance data base can be set. The first article report can be made in a short time.

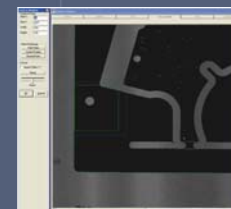


Results display of a scanned and measured part



Free Step & Repeat function

The free Step & Repeat function is a powerful tool to measure multiple parts without programming. Just place all the parts on the complete scan area. The amount and the positions of the parts do not to be programmed. The system detects automatically the alignment positions and creates for each sample an own report. In the part view display, you can see immediately, which sample is in or out of tolerance.



Teach In window of the wizard

The operation is same simple as on the drilling function. An internal wizard guides the operator thru the process and within view minutes a new part scan program is written.



PCB Scan viewing tool for the final first article report