PROX2$^{CNC2.0}$ BY IMPEX

The proX2$^{CNC2.0}$ is a high-precision scanner and/or a coordinate measuring machine. It can be equipped with 3 possible measuring options. The integration of an option is also possible in the future. The camera can measure 2D objects and with focus analysis it can measure depth. The scanner is able to measure thousands of objects in a short time (holes, slot holes, contour, pads...) and the optional 5-way touch probe realizes 3D objects and faster high accurate depth and thickness measurements.

DIFFERENT PROX2$^{CNC2.0}$ TYPES

The machine can be equipped with 5 different measuring options:

- ✓ **Option A: QC5000 Metrology system**
- ✓ **Option B: Highspeed scanner system**

2D+ MEASURING WITH METROLOGY MEASURING SYSTEM

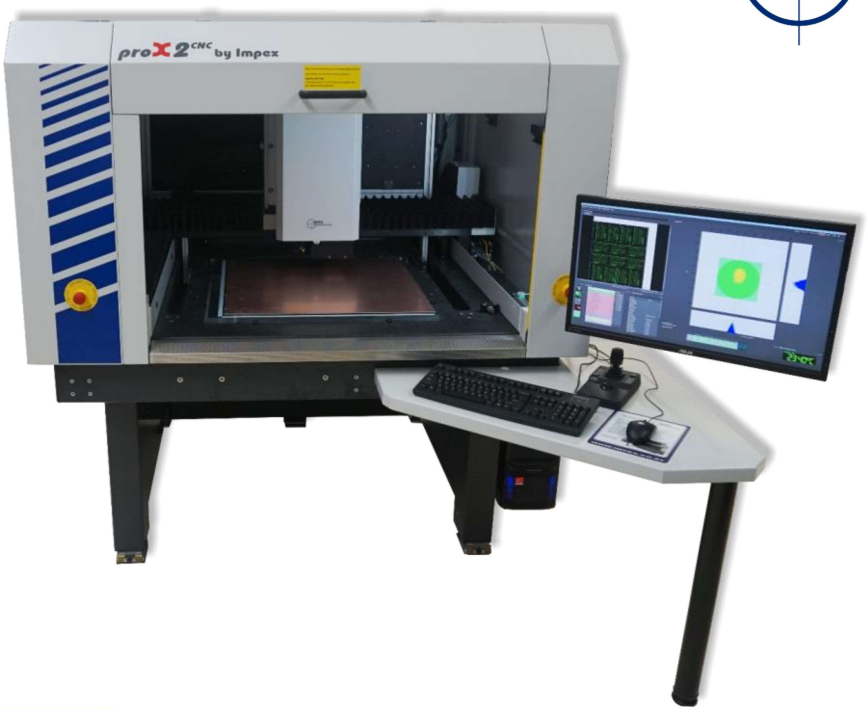
Axes Movement

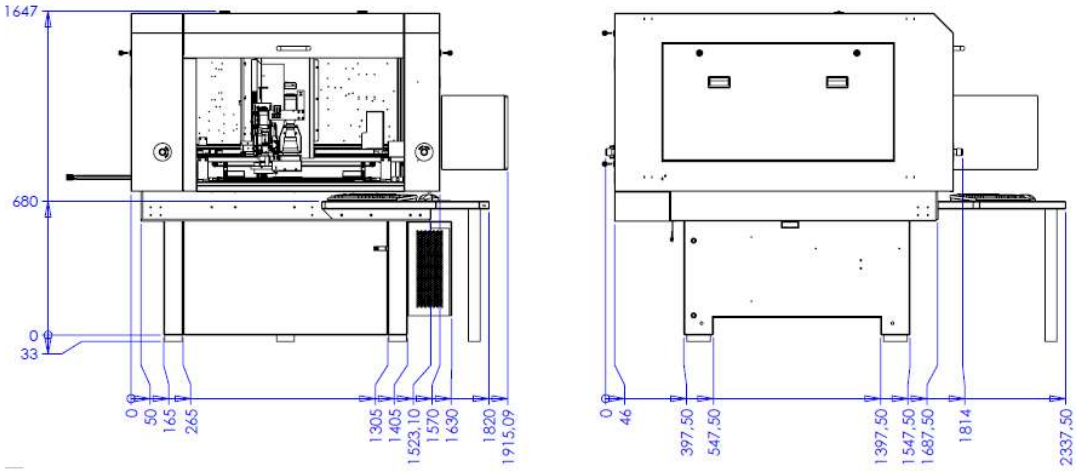
The proX2$^{CNC2.0}$ is equipped with a motorized X, Y and Z axis. These axes are controlled by CNC controlling software. A new measuring panel will be measured the first time by manual mode. This means the operator moves to all positions manually with the joystick and trackball. The software automatically creates a measuring program. This can be used for all following panels. Then the machine will operate in automatic mode.

The second way to create a program is the automatic programming by DXF import.

Multiple Magnifications

The machine is equipped with a 12x zoom objective which has many different magnification levels. An optional microscope lens can cause magnification levels of up to 1000x or 2000x.


proX 2 CNC by Impex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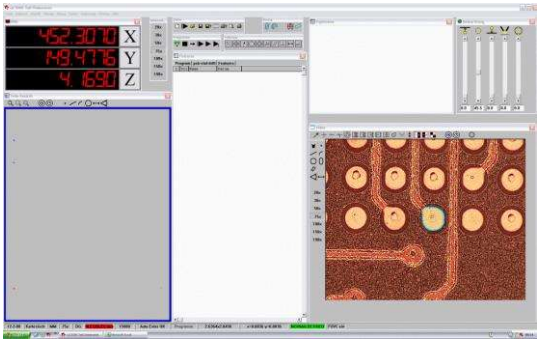
397,50
547,50
1397,50
1547,50
1687,50
1814
2337,50

Option A: QC5000 Metrology system

The metrology system QC5000 is a powerful tool to measure nearly all applications 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.

Measurement can be done manually or inside of a recorded program full automatically.

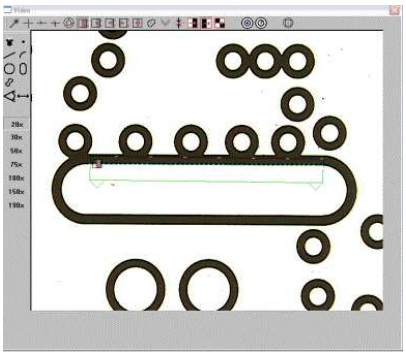


Example of a colour camera image

Many different tools are included

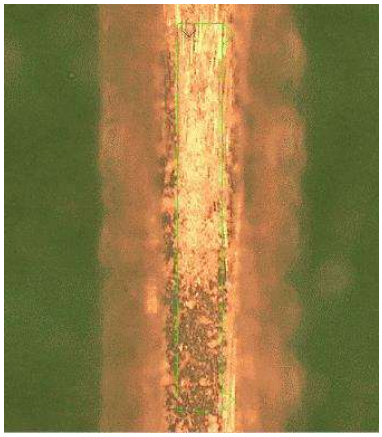
In the QC5000 are many different measuring tools included. Functions like circle-, arc-, line- or centre of gravity measuring are just some of them. Furthermore constructions like intersection points, angles or distances can be generated.

Programs for the automatic run can be generated manually or with the help of a DXF file of the target element.



Depth measuring with the CCD camera

Depth measurements with a high precision can be done via auto focus on an object. Thus the distance calculation of different depth measurements makes it possible to measure the thickness or depth of varnish, depth controlled holes and depth controlled milled patches or scoring lines.

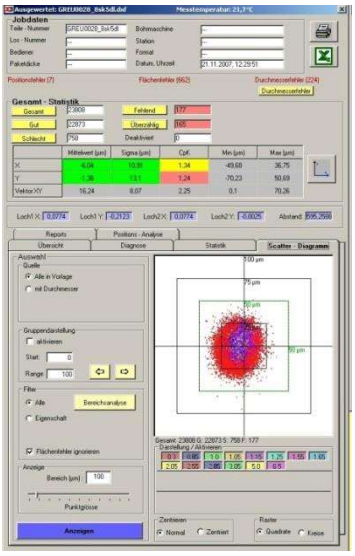

Example of a scored line

TECHNICAL DATA proX2$^{CNC2.0}$	
Measuring area X:	~25 Inch (~635mm)
Measuring area Y:	~26 Inch (~660mm)
Camera System:	1.3MPixel color CCD camera
Lens system:	12x zoom lens
Approximate Field of View Size:	0.04x0.04 Inch to 0.4x0.32 Inch (1.1x0.9mm up to 10.2x8.2mm)
Pixel Size:	~0.03 – 0.3mil (~0.8 – 8µm)
Light Options:	❖ White through light ❖ 4-color ring light white, red, green, blue ❖ White top light ❖ Coaxial top light ❖ Wide-Angle top ring light (option)
Operating System:	Win7 64-bit
System Resolution:	0.02mil (0.5µm)
Position Accuracy on full measuring area:	±0.24mil (±6 µm)
Position Accuracy in camera field-of-view:	100x mag.: <3µm 200x mag.: <2µm 500x mag.: <1.5µm
Size:	92.2 x 75.6 x 66.5 Inch (234 x 192 x 169cm)
Weight:	1600kg

Option B: Highspeed scanner system (older scanner software with contour scan possibility)

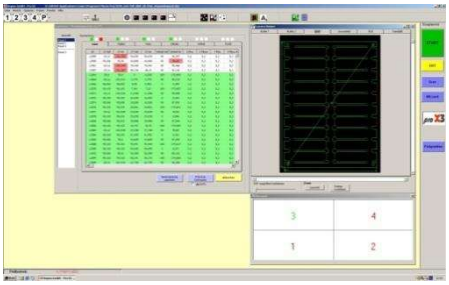
The high speed scanner system was developed to measure a high number of elements in a very short time. It measures thousands of elements per second.

Many possibilities to prepare diagnoses



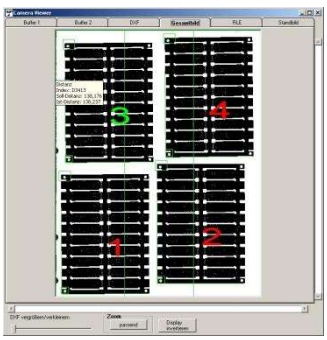
After the scan process the machine calculates many important values like mean, sigma, Cpk, Cp, maximum deviation, minimum deviation, number of element with different characteristics and much more. Additional the machine provides many different tools and functions to locate problems and solutions. Therefore problems like angle faults, shrinking or stretching, offsets or similar problems can be located very easy. Single elements can be showed on the screen without rescanning because the complete image is stored on the system. If the machine is a ProX3-K, the CCD camera can be moved to defined element with just some mouse clicks. Thus you cam make additional evaluations.

Contour measuring



The scanning system is able to measure 2-dimensional elements like lines, circles and arcs. The reference is always a dxf-file. The machine compares the dxf-data and the real data and shows the deviation. Additional constructions like distances, points and angles can be added into the dxf-file. Thus the machine calculates also these results. The dxf-file will be connected to one of many different free programmable tolerance data base. To guarantee a very high precision it is necessary to use min. 2 circles for the alignment.

Free step & repeat function



This function makes it possible to measure many boards of the same type with just one scan process. Just put as many boards as possible on the glass table and the machine will recognize automatically the number of boards and the alignments (min. 2 holes). Now all boards will be evaluated.

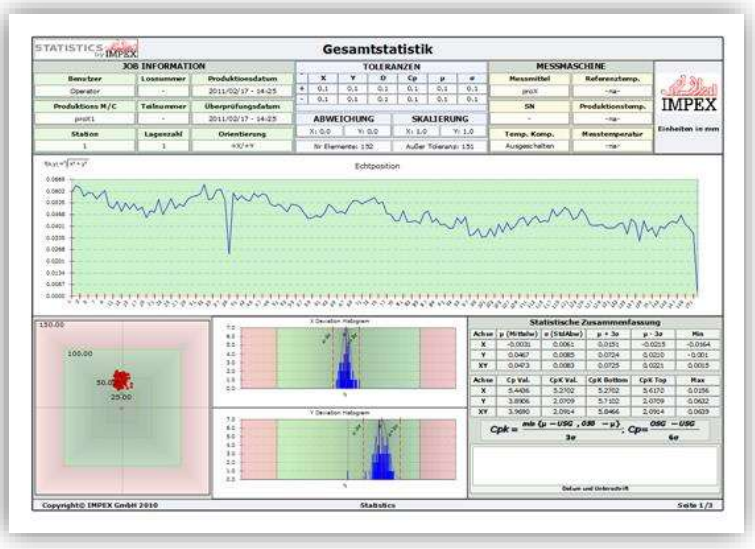
TECHNICAL DATA OF HIGHSPEED SCANNER	
Measuring area X-axis:	~24.8 Inch (~630mm)
Measuring area Y-axis:	~25.9 Inch (~658mm)
Scanning time of whole measuring area:	~ 150 seconds
Hole evaluation type:	❖ centre of gravity analysis ❖ best fit analysis
Contour evaluation type:	❖ best fit analysis
Scanning position accuracy:	±0.315mil (±8µm)
Smallest hole diameter:	2.4mil (60µm)
Light options:	❖ Bottom light through panel (hole, contour) ❖ Coaxial top light ❖ Diffusive top light
Standard input format:	DXF format (list format like AutoCAD2000)
Special functions:	❖ Automatic slot hole measuring ❖ Contour measuring of circles, lines and arcs via scan process (optional) ❖ Construction of distances, points and angles in the dxf-file (contour measuring) ❖ Free programmable tolerance databases for holes and contour data

DXF files

The scan software needs DXF files in list format (e. g. AutoCAD RT12/14 format) with only circles, arc or lines. Polylines, blocks, inserts, splines and line width bigger 0.0 are not allowed. This DXF file must include all elements which should be measured. It includes the nominal values for the measurement.

The DXF file can be exported from the CAM application or with converter software which converts drill or rout programs to DXF format. The need of this additional converter software depends on the CAM software or CAM possibilities. For further information, please contact Impex.

„STATISTICS“ REPORT SOFTWARE



We designed the report software „Statistics by Impex“ to create professional reports of the Impex measure machine results. The different result formats will be recognized automatically. You can change between the different reports after import.

Following types of report are possible in the report software „Statistics“:

- ✓ **Drill statistic**
- ✓ **Areas A,B,C,D (4-quadrant analysis)**
- ✓ **Overall statistics AB, CD & AC,BD**
- ✓ **Real positions report**
- ✓ **First article report**
- ✓ **Process accuracy analysis**
- ✓ **VDA report**
- ✓ **Quick scanner report**