Case Study
Industrial
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PCB Vision Inspection Machine

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PCB Vision Inspection Machine

Mecelec Design has worked in conjunction with a major UK supplier of PC based vision systems to develop a series of machines that carry out precision inspection of the printed circuit boards used inside car engine management modules.

A precision X—Y—Z servo system indexes the high resolution camera over the regions of interest of the printed circuit board inspecting the regions of interest and a total of nearly 200 solder joints.

As well as the vision test an electrical continuity test is carried out on the unit via a ruggedized connector that interfaces with the component.

The series of machines were installed into a major first tier automotive supplier in Hungary.

Technical Data	
Component Variants	3—via quick type change tooling
Air Supply	6 Bar
Guard System	High Resolution Light Guards
Electrical Power Supply	1 Phase 220V @ 16A
Control System	Bespoke C++ and PC Based Vision System
Operator Interface	Industrial PC
Cycle Time	<50 seconds

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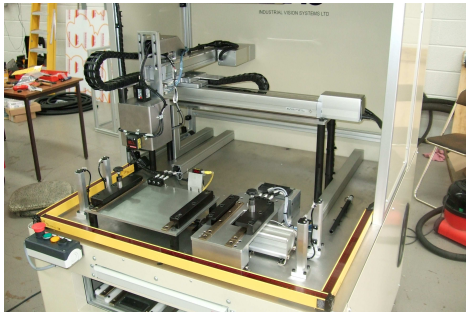
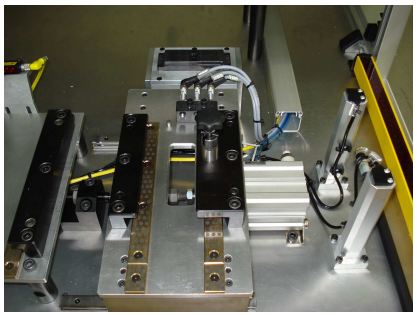


A precision X-Y-Z servo system positions the high resolution camera and lighting arrangement over the component.

Purpose designed light guards give the best ergonomics for component loading



Type change tooling for a range of component variants were supplied & commissioned with the machine. Accurate nesting features are provided ion the machine to ensure repeatability between variants.

Clear operating instructions and test results displayed on high resolution screen

'Clean' design and build to suit use in a laboratory environment

Machine mounted to jacking castors to provide position flexibility

Secure storage is provided for the type change tooling

19" rack industrial PC's are provided for the machine control system, Continuity check and vision system.

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