



Client:

Leading manufacturer of high precision measuring equipment.

Brief:

To develop an on-line production hand held optical measuring system for the assessment of automotive engine block cylinder bores. The system is used to analyse the cross-hatch angle on a plateau-honed cylinder bore as this parameter can have a significant impact on engine performance and fuel consumption.

Project challenges

Key challenges on this project included:

Electronics:

- Circuit and PCB design.
- Network interface to control electronics.
- Firmware and algorithm development for real time motion control.

Software:

- Development of PC based interface libraries for customer system integration.

Optical:

- Selection of precision optical motorised components.
- Design/configuration of the optical elements.

Mechanical:

- Design precision motion elements with fine adjustment features.
- Compact design to achieve weight and footprint criteria.

Solution:

This system was developed in conjunction with AMETEK Taylor Hobson. Micron Design was responsible for the design and manufacture of the complete mechanical, electrical/electronic and software control systems for the measuring head which incorporated fine axis control and motorised optical componentry. Micron supplied the necessary electronics/software interface elements to allow the customer to implement the necessary analytical assessment software.

Summary:

The project has been successfully completed and installed at numerous engine plant facilities worldwide. The dedicated solution enables very quick assessment of cylinder bore parameters on-line.

