

CylScan Cylinder Face Scanner



Visual evaluation and documentation of inner cylinder walls was traditionally expensive and the results produced were often inadequate.

Typically, the use of a special camera with an objective adapted to the radius enabled the optical survey of a cylinder wall. Less expensively is the use of a mirror trowel to look for polished areas, scratches, sink holes, carbonisation, seizure marks, and corrosion spots.

Alternatively, special angle microscopes can be used to examine small areas or conventional photography can be used on cylinders that are sliced

The CylScan instrument, however, scans the entire cylinder wall surface with high resolution so that the complete wall is displayed as a whole.

This is accomplished using a photo diode rod with an integrated light source to scan the entire cylinder wall.

The scanning head is self centring and suitable for all standard automotive cylinder diameters.

Application

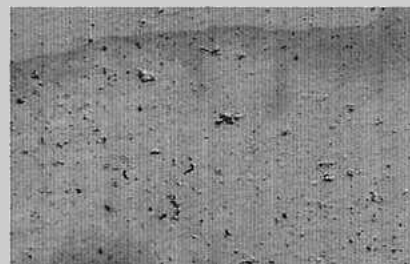
- Surface inspection and analysis of cylinder faces and liners
- Scanning of bushings

Features

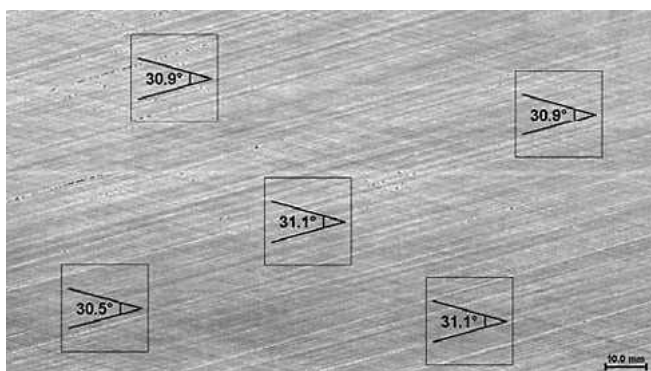
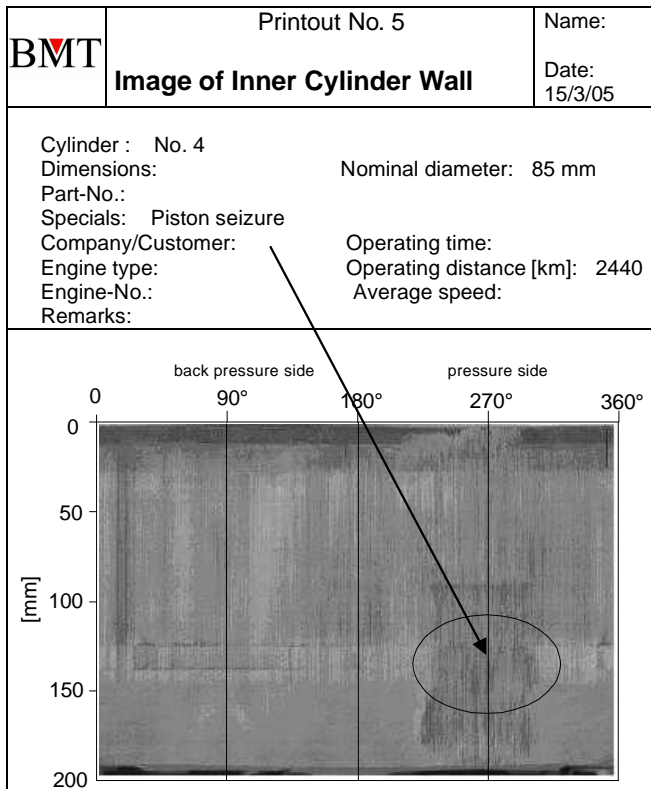
- Non-contact automatic inspection of inner cylinder walls
- Motorized drive lowering the scanner head
- Motorized centering of the scanning rod
- Recording and preview mode
- Suitable for all common cylinder diameters
- Data acquisition with standard PC
- Photo realistic image quality

Benefits

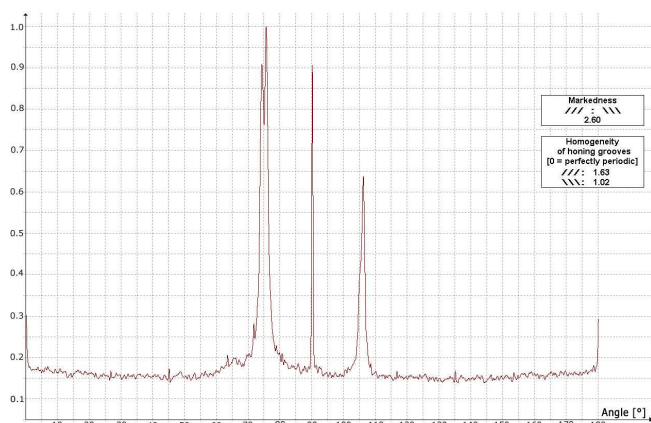
- Simple recognition of surface anomalies like scratches, pits, voids
- Clearly defined pictured documentation and filing of inner cylinder wall surface structures
- External fixture of the instrument enables scanning of the entire cylinder wall



Example: defects on the Fe coating of a cylinder wall



Cylinder face with honing structure, evaluation of the honing angle at user-defined locations.



Detailed analysis of the honing structure. Periodogram showing the two honing groove directions, parameters describing the relative strength of the two groove directions and their homogeneity.

Technical data

Scanner

- Cylinder diameter D [mm] 72 – 142
- Axial scanning range [mm] 210
- Radial resolution, max. [μm] D/30
- Axial resolution, max. [μm] 20
- Max. measurable depth [mm] 270
- Vertical displacement range [mm] 120 – 270
- Non measurable area [mm] 25
(at the end of the scanning rod)
- Scanning time, approx. [s] 3-20
- Weight [kg] 15

Software

- Operating system Windows XP
- Scan and display similar to *Photo Shop*

Options

- Rack to hold the Cylinder Scanner
- Calibration cylinder
- Customised data evaluation software package

Version for in-line use in the shop floor

With this embodiment one can check several cylinders simultaneously. The scanners are lowered at the same time into the cylinder holes. The complete engine block can be checked within 30 s.

