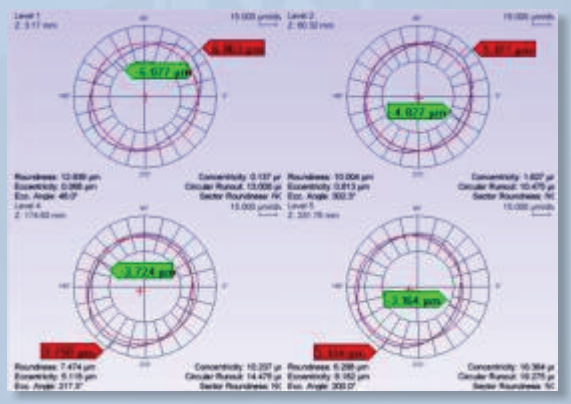
BEE 3-D
Bore Evaluation Equipment in 3-D

CK Engineering
Innovative Solutions

The cylinder bore geometry gage quickly checks bores for roundness, cylindricity, and straightness.

The BEE 3-D®system is computer controlled to give quick, accurate results to 1.0 micron (.000040″).

The system is used by engine manufacturers at all stages – initial design and testing, production quality control, wear testing, and torque plate validation.



Range Capability: (for Model 10A)

Diameter – 225-305 mm (8.85-12.0")
Length – 254-457 mm (10-18")
-other size ranges available (2.5″-12″)

Precision (design objectives):

Roundness < 1.5 µm
Cylindricity < 1.5 µm
Parallelism < 1.5 µm

System Components:

- Mechanical measuring device
- Electrical control/interface module
- TrueRond display software with integrated ring conformability model
- Laptop computer with proprietary Windows-based control software

Features & Benefits:

- Directly calculates ring face-to-cylinder bore void area
- Requires no cylinder head modification
- Measures shape at top ring turn-around
- Top and bottom clamps automatically locate gage in cylinder bore
- Dual measuring probes minimize measurement time
- Windows-based software
- Precision probes are protected from damage
- Precision probes have replaceable contact tips
- Adjustable clamp height
- Cost-effective

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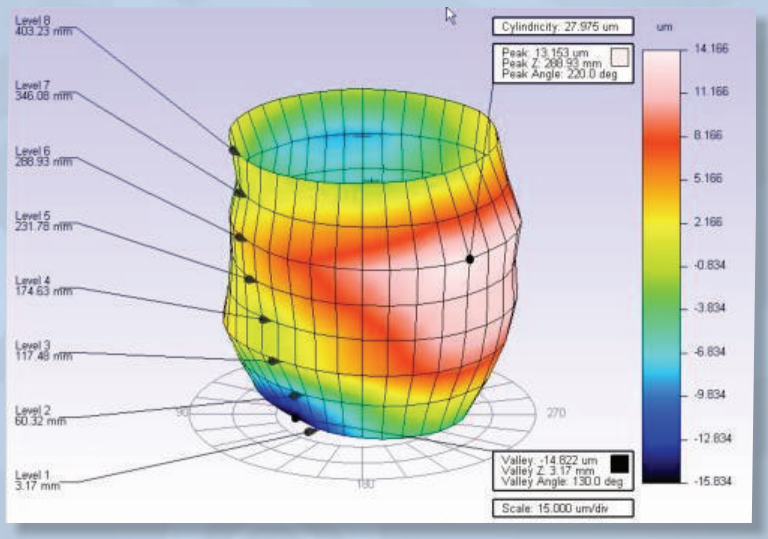
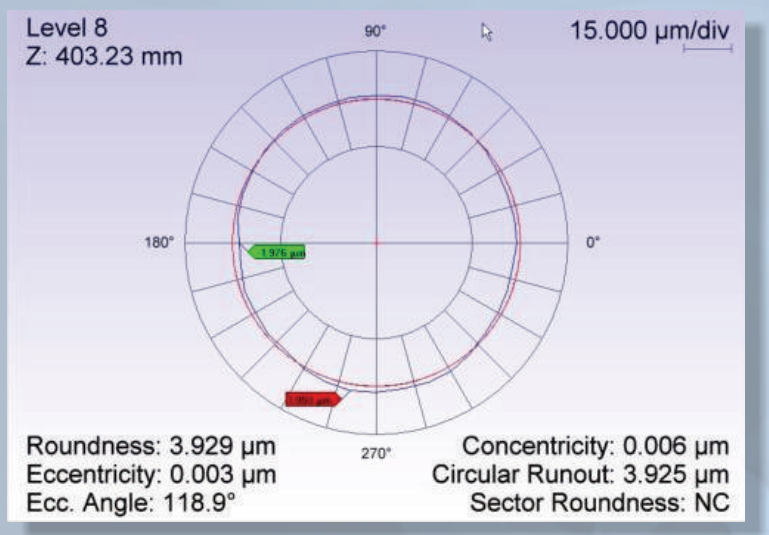
Software Features:

- Calculates void area between the ring and measured bore based on ring tension, material, and other parameters
- Easy-to-use Windows-based program
- 3-D measured bore can be viewed in a CAD-like environment making it easy to zoom and rotate to focus on any area of the cylinder bore
- Easy-to-read color gradients for displacements of the cylinder bore





Hardware Features:

- Measures to 0.251 (6.4m) of top of bore with cylinder head in place
- Clamps at both ends of the shaft for effortless centering of gage in bore
- Sliding rear clamp to accommodate different bore length
- Ability to measure with cylinder head attached without modifying head

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