

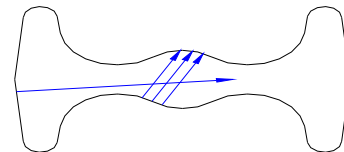
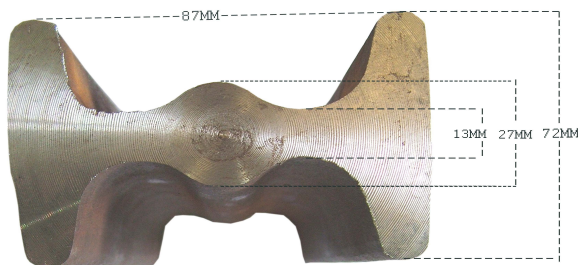
Application Report

BRANCH : Automotive Industry, Forging industry and user's of forged workpieces
TEST TASK : Subsurface defect detection in large connecting rods
SOLUTION : Ultrasonic testing technique

A very interesting solution rendered by us was for ultrasonic inspection of large connecting rods used in marine applications. The overall forged weight of connecting rod was 72 kgs.



The entire connecting rod had to be tested – however, special attention was necessary at the 'I' section along its length. In this special case, we developed the testing procedure with support from the very experienced personnel from the application lab of our principal company **M/s KARL DEUTSCH GmbH, Germany**. We offered our modern and lightweight digital ultrasonic flaw detector **Model ECHOGRAPH 1090 DAC/DGS** with required probes and test accessories.

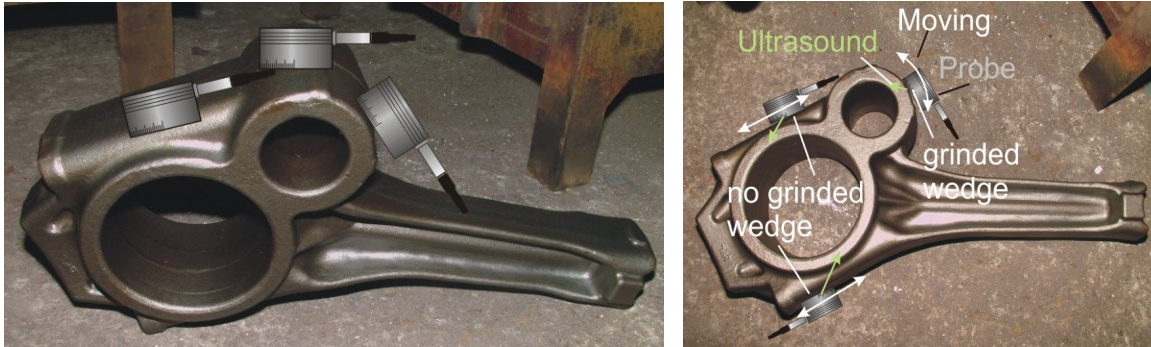


'I' Section of the Con-Rod

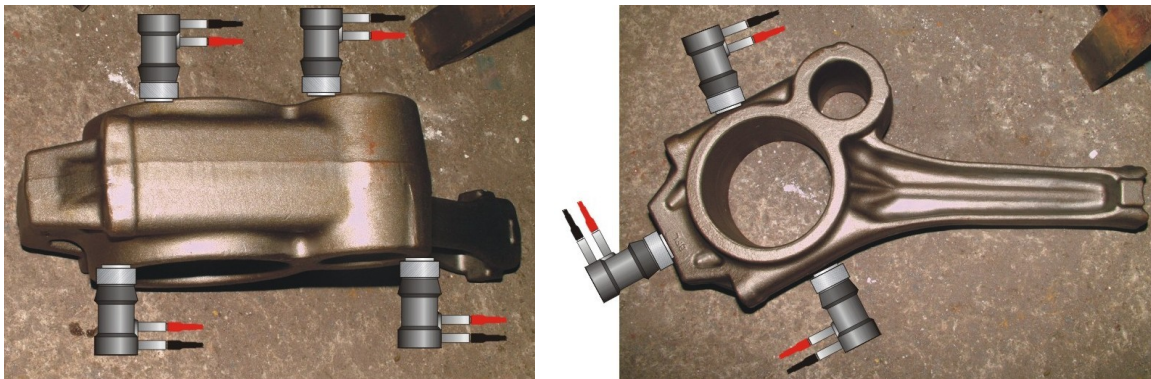
The end customer for our client had instructed them the use of a 0.25" element dia transducer for scanning from top and bottom and from both sides, total of 8 directions. We recommended a 6 MHz TR probe and a miniature screw in 5 MHz with 2 no's of 45 deg wedges (one of them was specially ground to match the surface curvature and other was used, as it is). This helped to inspect maximum possible and thicker zones

in the connecting rod, without many problems. As the testing was carried out in a manual way, some portion in the 'I' section remained untested because of the diverse geometry changes in those specific areas.

Ultrasonic inspection with angle beam probe and zones covered:



Ultrasonic inspection with TR probe and zones covered:



In this way, our customer could, in turn, keep his client satisfied in this specific order !

Suitable Equipment:

- ECHOGRAPH 1090 DAC/DGS
- TR probe: SE 4.2/4 P6, Screw in probe S6 WB 5WM, Angle beam wedge WM 70 (2 no's)
- PC Software ECOM 90
- Sample blocks for calibration and sensitivity setting
- Accessories like probe cable, couplant etc