QUINDOS

QUINDOS Ovality of Pistons

Inspection of the ovality of pistons of internal combustion engines.

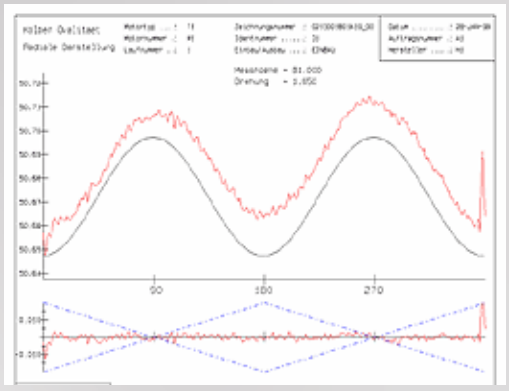
Pistons of internal combustion engines are manufactured with either single, double or triple ovality. The QUINDOS option Ovality of Pistons is used to inspect and evaluate those ovalities with a precision 3D coordinate measuring machine (CMM).

The ovality of a piston is described according to one of the following formulas:

Single ovality (Circle with double sine overlay)
$r(\phi) = \text{Radius} - (\text{Ovality}/2) \times \sin(\phi - \phi\,o)^2$

Double ovality (Single ovality with a quadruple sine overlay)
$r(\phi) = \text{Radius} - (\text{Ovality}/2) \times \sin(\phi - \phi\,o)^2 - \text{Overlay} \times \sin(2(\phi - \phi\,1))^2$

Triple ovality (Double ovality with a sixfold sine overlay)
$r(\phi) = \text{Radius} - (\text{Ovality}/2 + \text{Overlay}/2) \times \text{Sin}(\phi - \phi\,o)^2 - (\text{Overlay}/2) \times \sin(3(\phi - \phi\,1))^2$



For the inspection of the ovality of a piston a 3D coordinate measuring machine with continuous scanning capability is required.

The measurement is done without a rotary table, therefore pistons can be mounted on a pallet and measured with maximum throughput in one go.

Measuring technology for ovality of pistons by Hexagon Metrology: fast, precise and cost-efficient!

MTW-510-OVA-001

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