Measuring systems for cylinder heads
for high precision measurements
on the shop floor
Software and Computerhardware

Software features
• numerical and graphical display of the measurement results
• multilingualism
• export into QS-Stat data-file
• quality control plan administration
• off-line processing

Computer features
• TFT display with touch screen
• robust case with IP-protection
• wide input power supply

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Partial list of references:
Aston Martin – Audi – BMW – Daimler – Fiat – Ford – General Motors
Harley Davidson – Honda – Krupp Presta AG – Mahle – Mitsubishi
Philips – PSA – SFK – Toyota – Thyssen Krupp – Volkswagen and others

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Precision measuring technique since 20 years

Computer features
• TFT display with touch screen
• robust case with IP-protection
• wide input power supply
Since many years our company "Horst Knäbel GmbH" manufactures measuring systems to check cylinder heads in the production area. Customers nearly all over the world use these established devices to measure:

- seat contour
- seat form
- seat distance to deck face
- as well as diameters in these parts.

Our measuring devices improve tool life and assist our customers in manufacturing their products under the permanent demand of decreasing tolerances.

Benefits:

- all measuring devices from one source
- more than 20 years of experience in precision measuring technique
- continuous development
- innovations by communicating with our customers

Form measurement with VSM

**VSM** evaluates dynamically roundness of valve seats and concentricity between valve guide and seat. Due to its unique cardan coupling, the mandrel performs the measurement without operator influence and even the use in align position is possible. Additionally, a combined version – measuring intake and exhaust seat with one gage - is available.

The VSM lays upon the valve seat and rotates 360 degrees. During one motion it scans the valve seat, as well as the upper diameter of the valve guide bore and evaluates roundness and concentricity by a MIN-MAX comparison. Cycle time approximately four seconds.

Universal contour measurement with SlideScan

Within only one operation this gage scans the outline of valve seats and reports seat angle, seat width, straightness of the seat and the position of the gage line diameter.

**SlideScan** is a universal gage and enables the measurement of several seats within a big range of different gage line diameters, like i.e. between 24mm and 34mm (other ranges are available on request). Cycle time is appr. four seconds.

Combined form and contour measurement with VSKM

**VSKM** combines form and contour measurement within one gage. It verifies:

- roundness and run out
- seat angle
- seat width
- straightness
- and gage line position / position of gage line diameter

The gage is equipped with two opposite probes scanning the complete seat contour. One of these probes (likewise both) is used to measure the roundness one the seat. A third probe – located in the gage shaft - measures run out between guide bore and seat.

By its compact design this gage is very immune to interference contours and can easily perform the measurement of these features through adapter plates.

Diameter and cylindricity

To measure bearing bores we offer several types of measurement mandrels. Likewise with two or four transducers for each level they verify diameters, as well as the concentricity between them, i.e. bearing bores.

Diameter and cylindricity

**VTM** measures the distance between the gage line diameter and deck face. These gages are applicable for all standard gage diameters, never mind if the seats are horizontal or tilt. Likewise they can be equipped with inductive probes or dial indicator.