

Fully-automatic test system for **water pump shafts** (hardness, material and case depth)

For a renowned German manufacturer of bearings we had to integrate eddy current testing of water pump shafts (3 test positions each) into an existing feeding system of grinding machine. Fully-automatic dimension control is preceding the grinding machine.

Course of movement:

The pump shafts are placed on a conveyor belt by gripping device to go for the grinding machine. At this stage eddy current testing was integrated: the parts will not be returned to the conveyor belt, but be put on an incline above, from where they are rolling to a stopper. If the result of dimensional control is NOT O.K., the stopper lifts up, and the rejected parts fall into a container NOT O.K. (DIMENSION).

However, if decision of dimensional control was O.K., the part is introduced into the test coil by a pneumatic slider, and the part tested before is simultaneously pushed out of the coil.

The coil head includes 3 individual coils. These are combined with the **eddyliner**[®] by a transducer switch to carry out measurement at the 3 positions in series. If the sort decision was O.K. for all 3 positions, the respective part is returned to the conveyor belt and passed on to the grinding machine.

If the sort decision for one of the three positions was NOT O.K., this part will be led to a container NOT O.K. STRUCTURE.

- Test rate (handling included) < 3 sec.
(determined by preceding dimension control
and subsequent grinding machine)
- Range of diameter: 12 - 20mm
- Range of length: 75 - 112mm
- Hardness 58HRc +/- 1HRC
- Case depth 1.7mm +/- 0.2mm

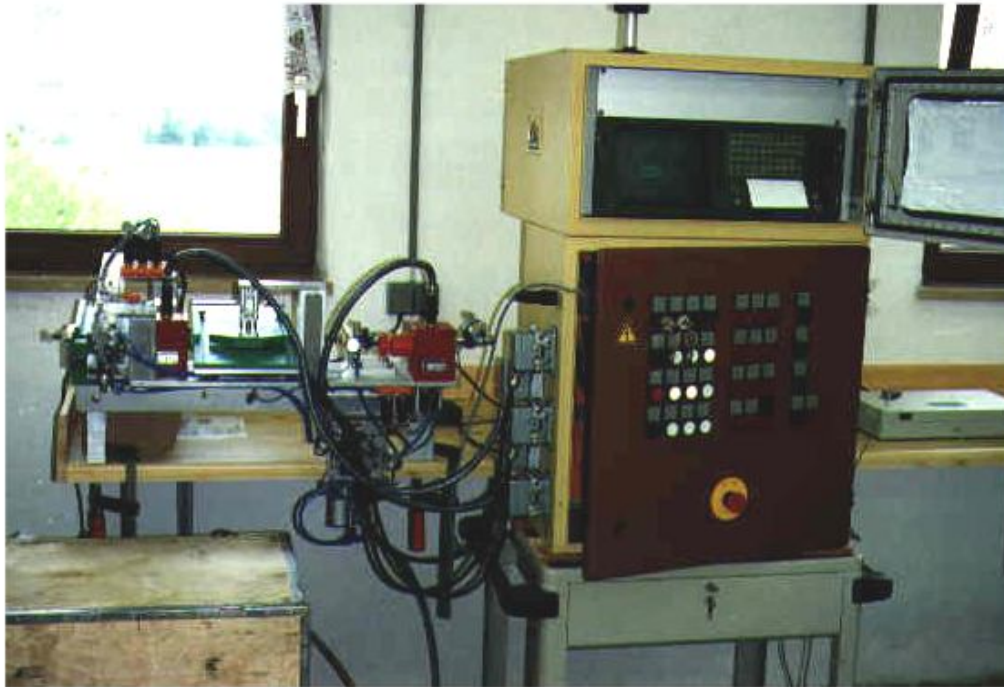
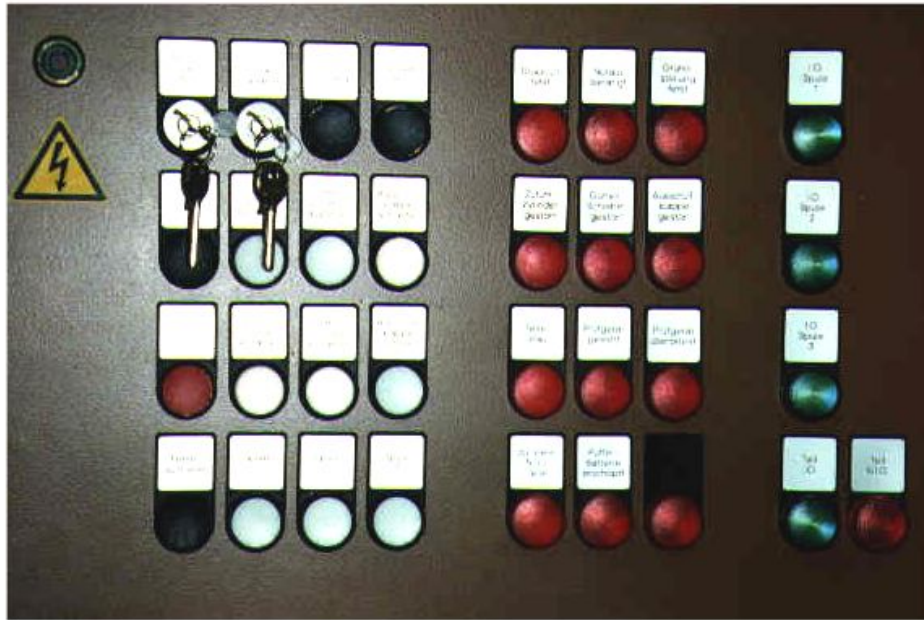


2 types of water pump shafts

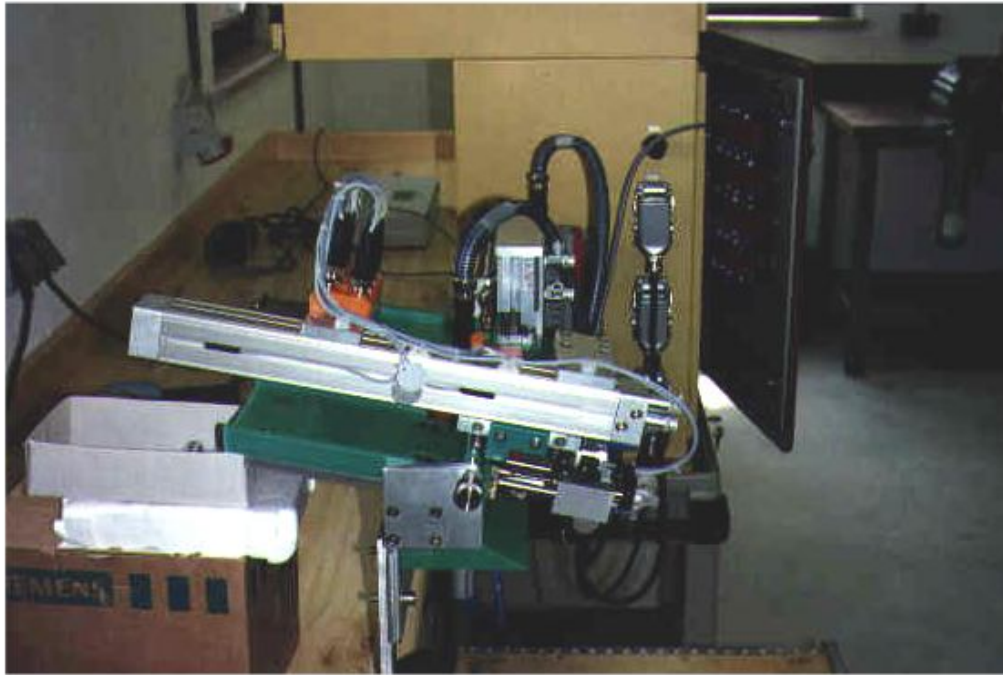


eddyliner[®] in dust-proof steel cabinet

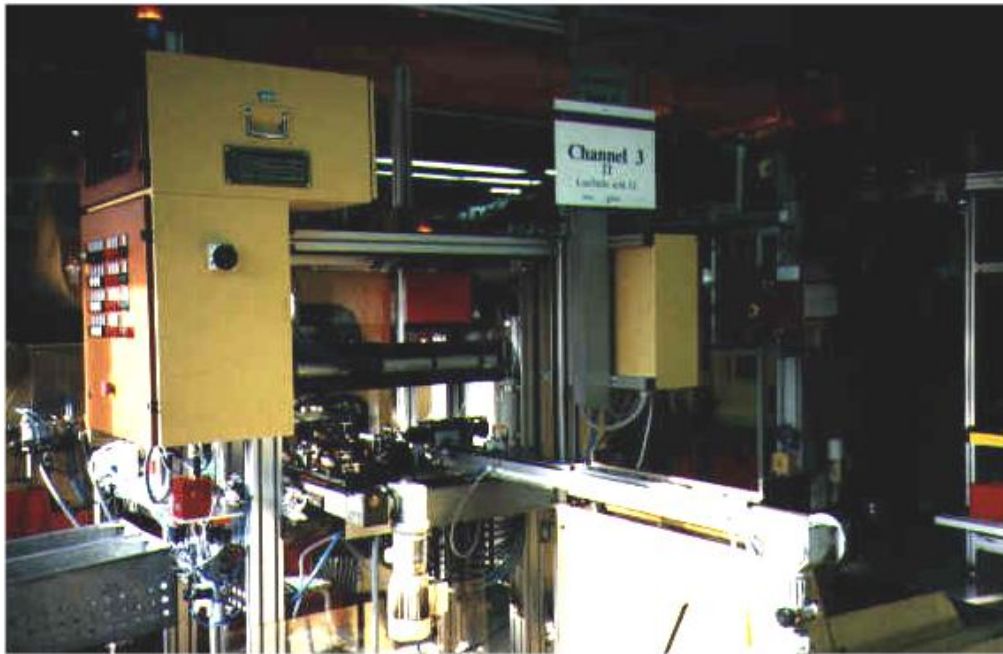
Control panel:hardness test



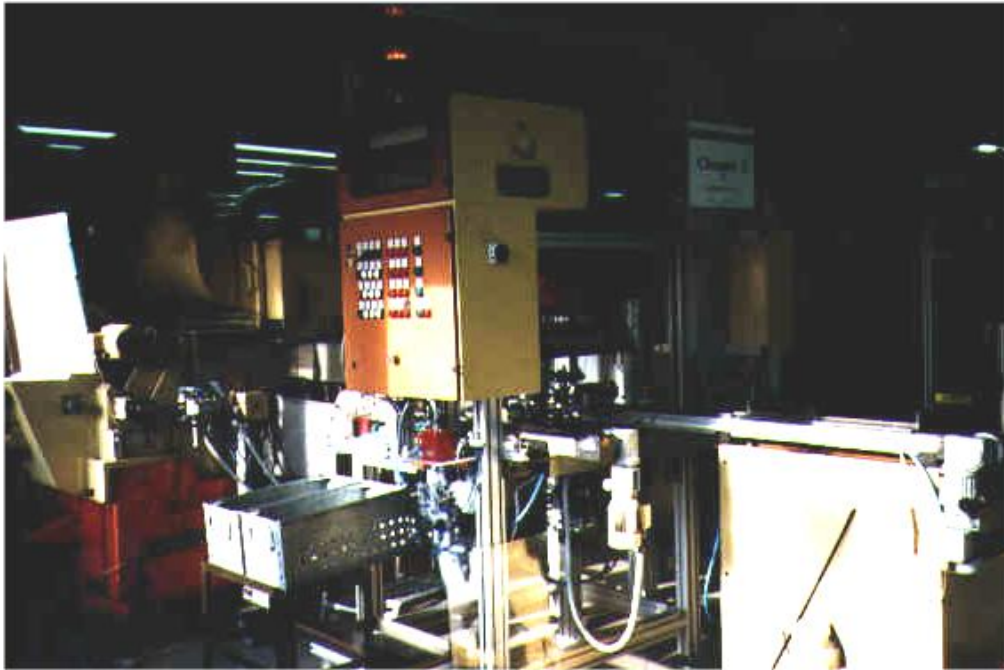
Test system ready for first official acceptance



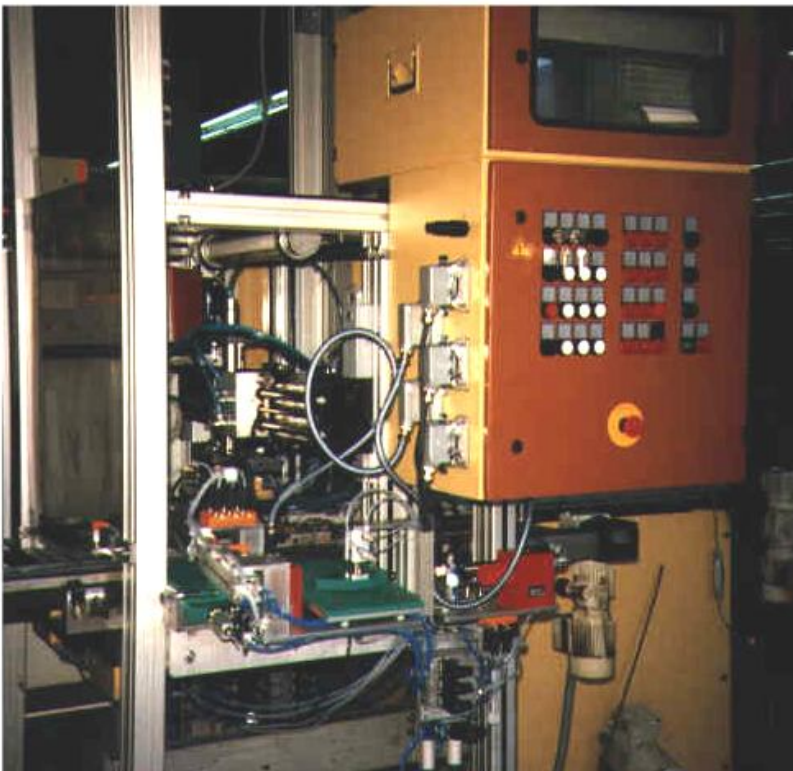
View on output O.K.parts



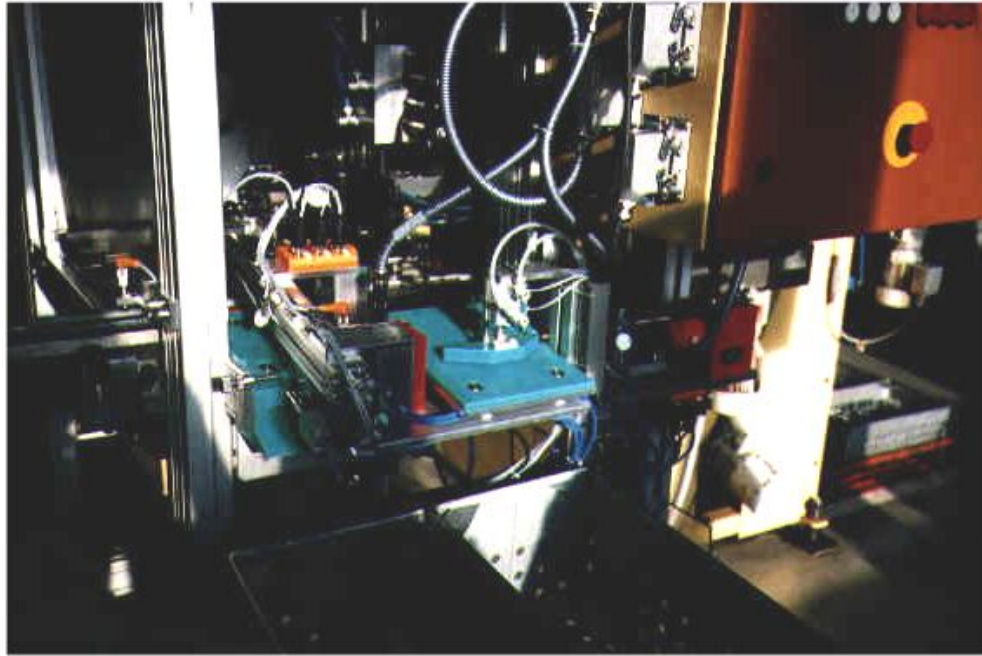
Integrated and connected with dimension control (center of photo) and automatic feeding (foreground on the right)



Flow of parts from the right to the left (grinding machine background left)



Integration into existing test system enabled by ibg engineering inspite of difficult conditions

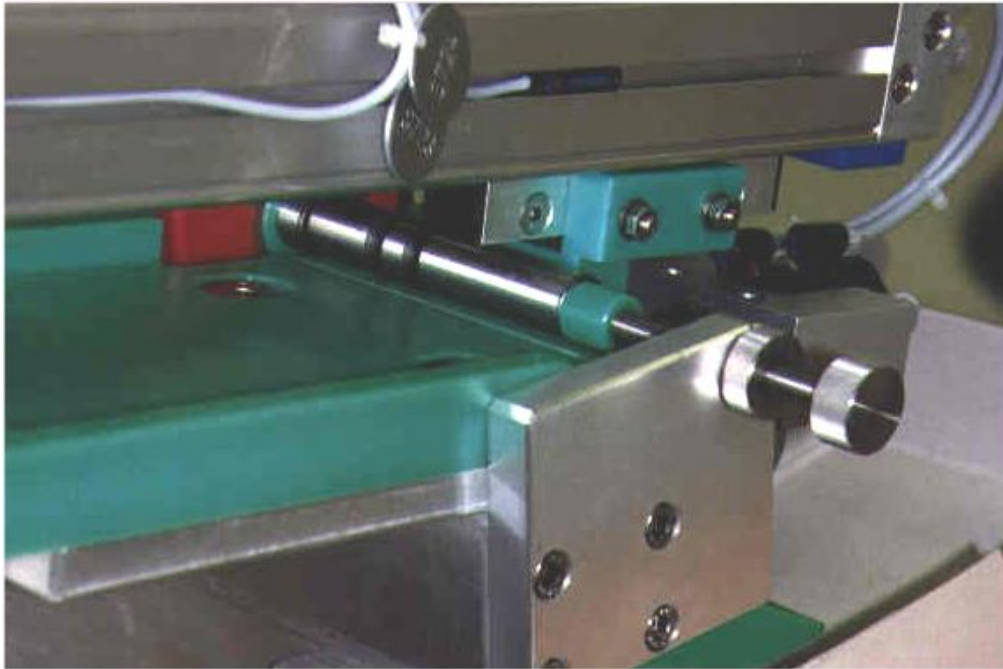


Output NOT O.K. parts: steel box on the right for NOT O.K. (DIMENSION), steel box on the left for NOT O.K. (HARDNESS) and NOT O.K. (CASE DEPTH)

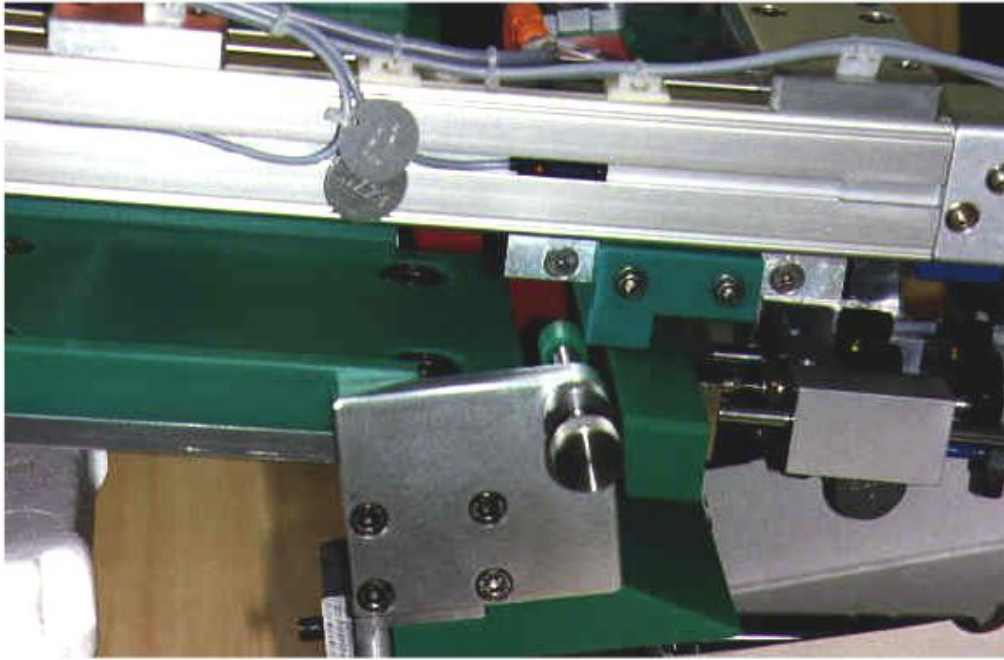




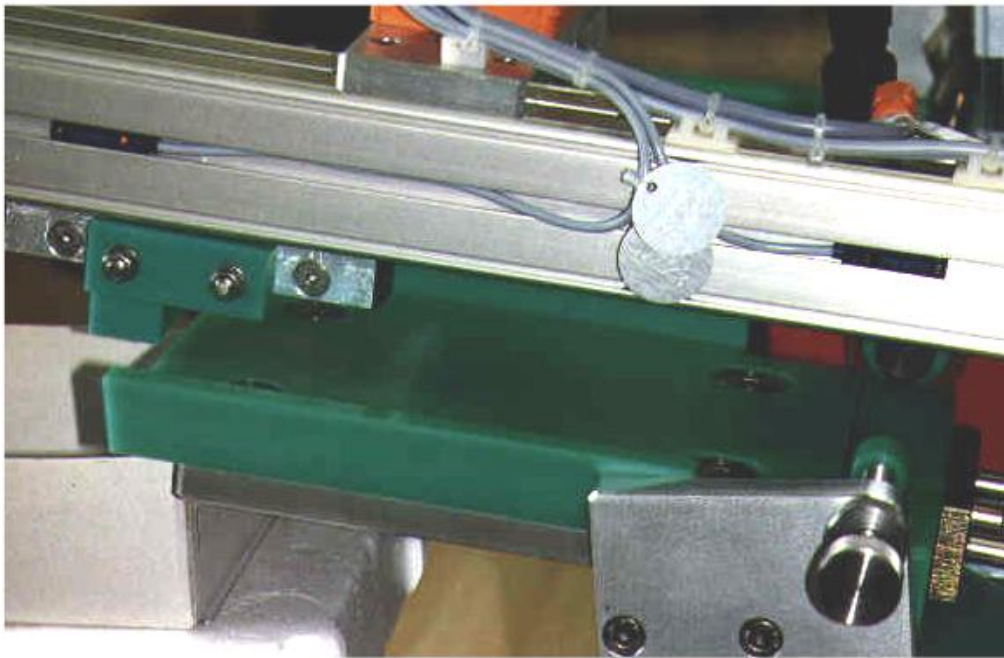
Parts are approaching the stopper for NOT O.K. (DIMENSION) output from the left. Stopper lifts up as soon as sort decision dimension was NOT O.K. The slider (left) pushed the test part into the test coil (to the right).



Part after test coil. Slider leads part to the conveyor belt to the left.



NOT O.K. output open. Rejected parts reach NOT O.K. output after the test coil.



O.K. parts slider in position "eject" (left), NOT O.K. output closed (right). Next test part inside coil (red).