High-speed
testing of balls

Modern techniques nowadays enable production of large numbers of parts within short periods of time. Up to now, modern material testing was not in a position to keep pace with such short time intervals.

The development of the ***eddyliner®P*** *enabled extremely high test rates. In the present case, the problem was to design mechanical handling so that test results could be transformed into sorting actions without reducing speed. For testing of balls, ibg has solved this problem, ie. application of PMFT at high test speed, mechanical handling, separation and reliable sorting of balls is possible within extremely short periods of time.*

Test task

A renowned manufacturer of balls, KGM Kugelfabrik Gebauer at Fulda, has been testing balls for material mix with mono-frequent instruments for many years. In the past it occurred several times that "bad" balls were not detected with the mono-frequent instruments. ibg was appointed to supply a reliable solution.

The conditions were as follows:

- *Compulsatory use of Preventive Multi-FrequencyTesting*
- *Highest-possible test rate (minimum 36.000 balls/hour)*
- *Highest-possible reliability to detect all possible material mix-ups*
- *Sort system suitable for broad range of dimensions: 1.5mm - 6mm in diameter*

The sort system ***eddysort®K*** *as shown on the photos (following pages) met all these requirements!*

Course of ball testing

The balls are separated and led to the probe via sloped indexing disk equipped with "bags" to pick-up the individual balls. Change-over to different ball diameters only requires exchange of indexing disk.

A bunker preceding to the indexing disk has a storage capacity of 250m³of balls. In case of lack of parts, further balls will be refilled automatically from the main bunker. The indexing disk is turned at constant speed by dc motor. On their way to the test position, the balls inside the "bags" move the balls inside the bunker to avoid "bridging". Testing is triggered synchronously by a rated shift register. A proximity switch ensures that testing is only triggered with a ball available.

After testing the balls reach a sorter, whose position depends on the sort decision made before. The balls are passed on to a sorting channel and to the relevant containers via flexible tubes. Damage of balls is avoided by most careful handling during testing.

- *for material mix and hardness*
- **Error! Bookmark not defined.***using Preventive Multi-Frequency Testing (PMFT)* ***eddyliner®P***
- *6 frequencies from 800Hz to 80kHz*
- **Error! Bookmark not defined.Error! Bookmark not defined.Error! Bookmark not defined.***probe*
- **Error! Bookmark not defined.***40.000 balls/hour*
- **Error! Bookmark not defined.***diameter of balls between 1.5mm and 6mm*

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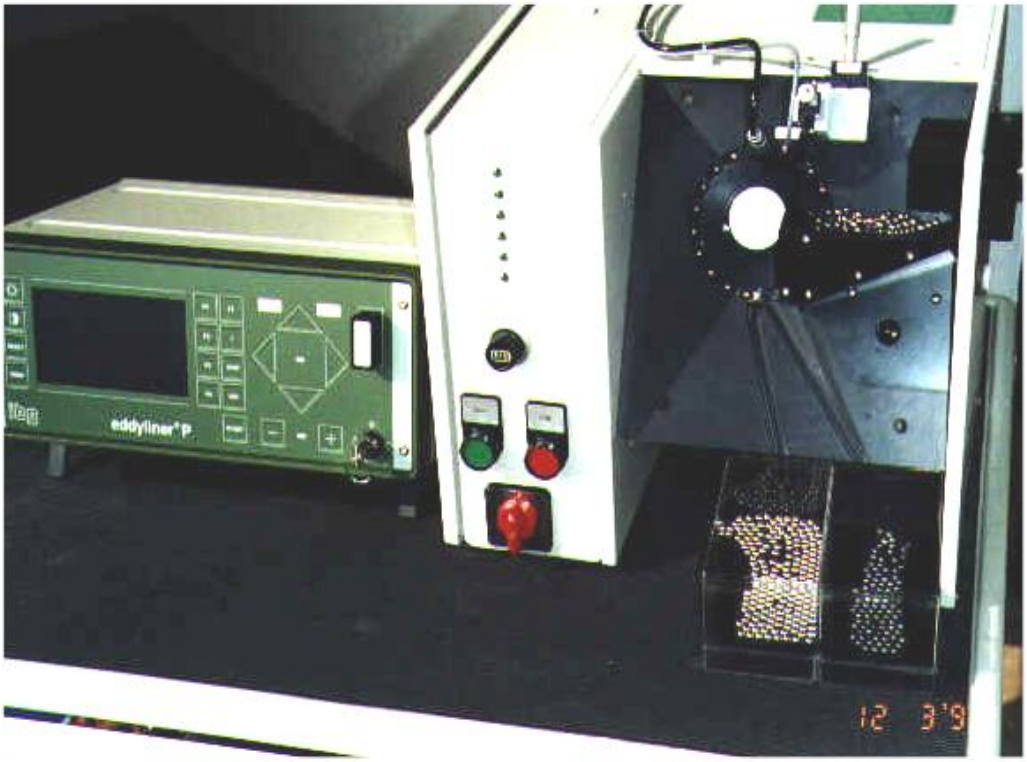

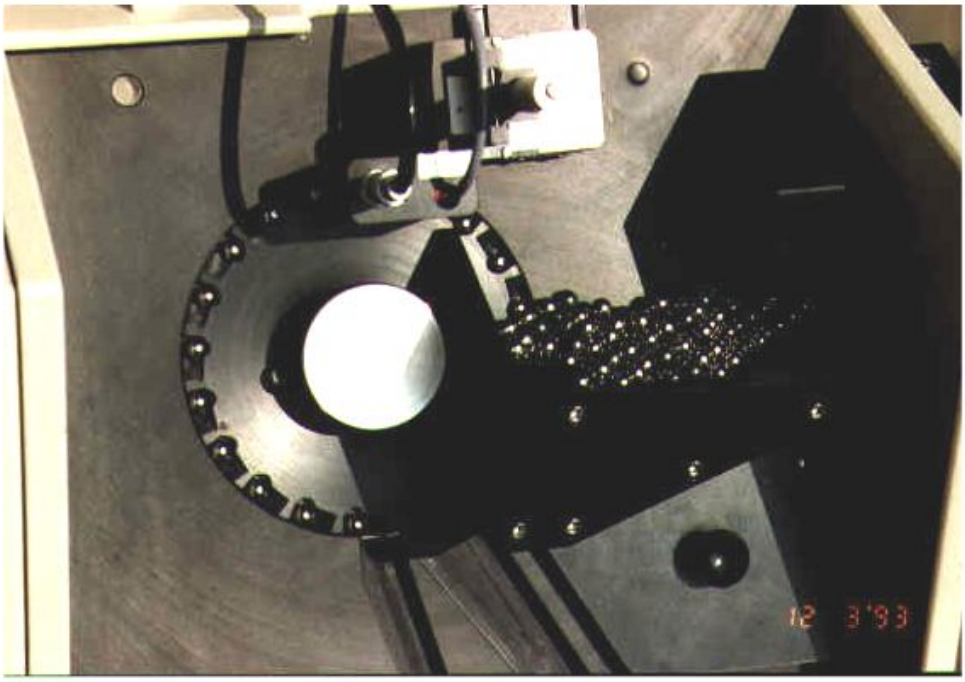

Conveyor disk, bunker, sorting "tongue", sorting channels.

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Speed regulator, shift register, power supply

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