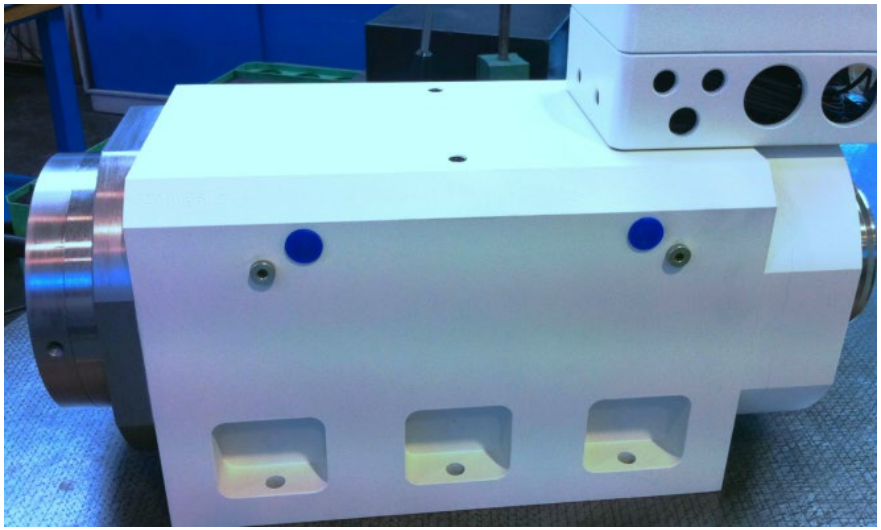
HSTec
HIGH SPEED TECHNIQUE

DEVELOPMENT OF NEW GENERATION GRINDING SPINDLES

(Monitoring, vibration control, process during balancing, intelligent bearing application …)



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Our company

- HSTEC was founded in the year 1997 for development, design and production of high speed precision motorized spindles, direct drives and other high speed technology, as well as for engineering and design of special machine tools, industrial automation and robotics.

- HSTEC has developed a wide range of motorized spindles and direct driven applications in machine tools.

- A flexible team of highly skilled mechanical and electrical engineers with great working experience in development, design and production of special machine tools and implementation of industrial robots offers optimal solutions in industrial automation.

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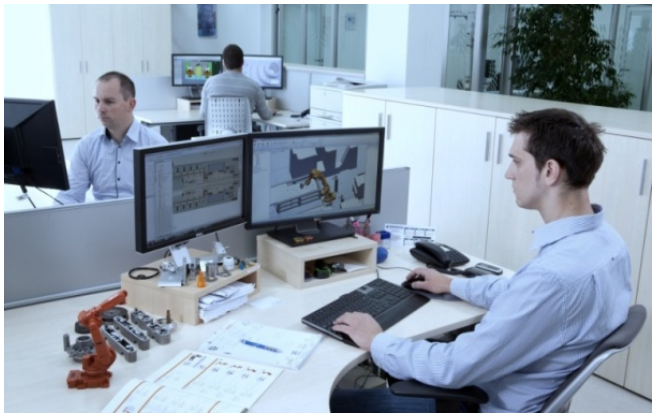
Company facts

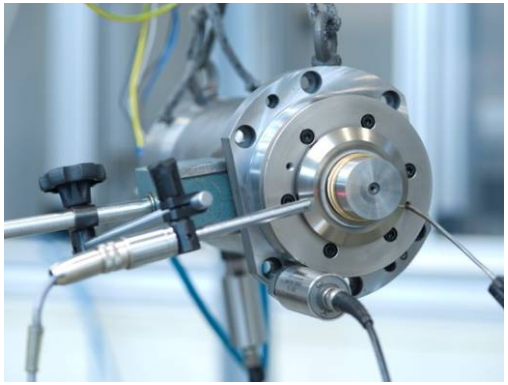
- HSTEC is a highly awarded company. We developed our own design office, manufacturing facility, product assembly department and department for final control and testing of products

- HSTEC is an export oriented company with 75% of products and services exported, 90% of which to the West European market and 15% to the USA

- HSTEC is a midsize company with 82 employees and with an annual turnover of 9 Mio €





A new generation of modern grinding spindles

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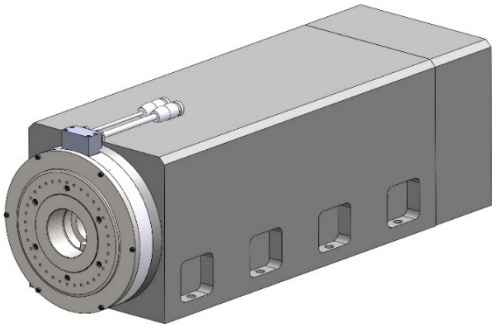

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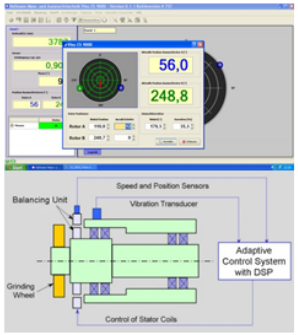
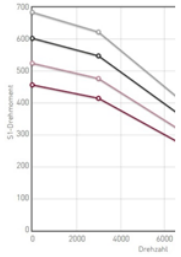
Balancing system



Built-in motor: Synchronous



- P=66 kW
- M=410 Nm
- n_{max}=3000

Rotary encoder:

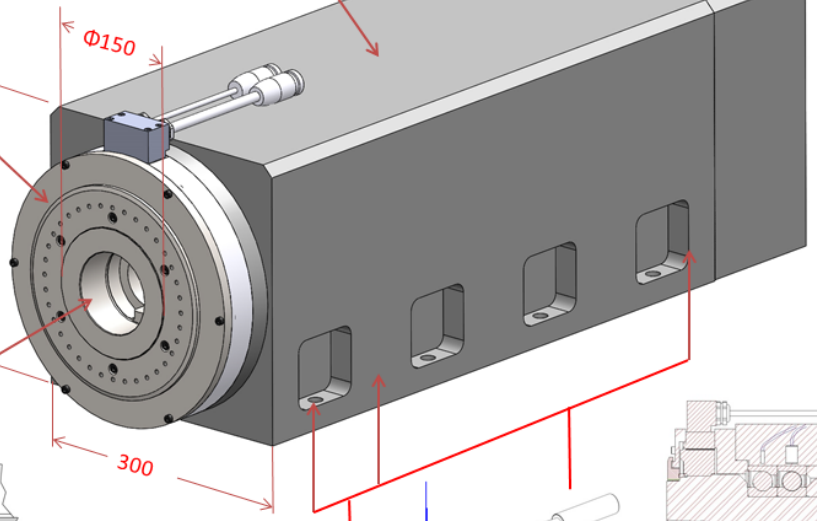
- Incremental (Lenord+Bauer)
- Absolute (Heidenhain)

Clamping system:

- Spring tension with hydraulic release unit

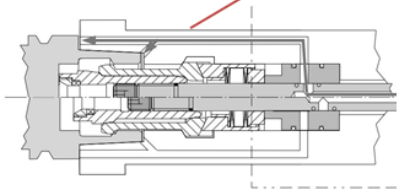
Sealed steel bearing:

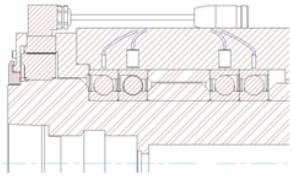
- Bearing bore=140 mm

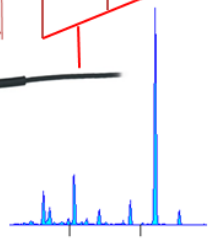


Tool interface:

- HSK-A125
- Cone cleaning



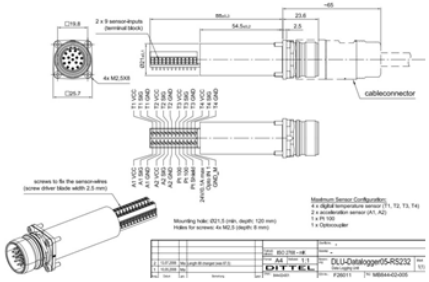




Process monitoring:

- Bearing temperature (per bearing pair)
- Vibration (per bearing pair)
- Coil temperature supervision (2x KTY)

Data Logger



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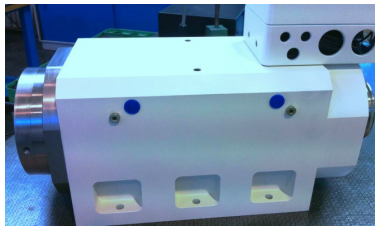
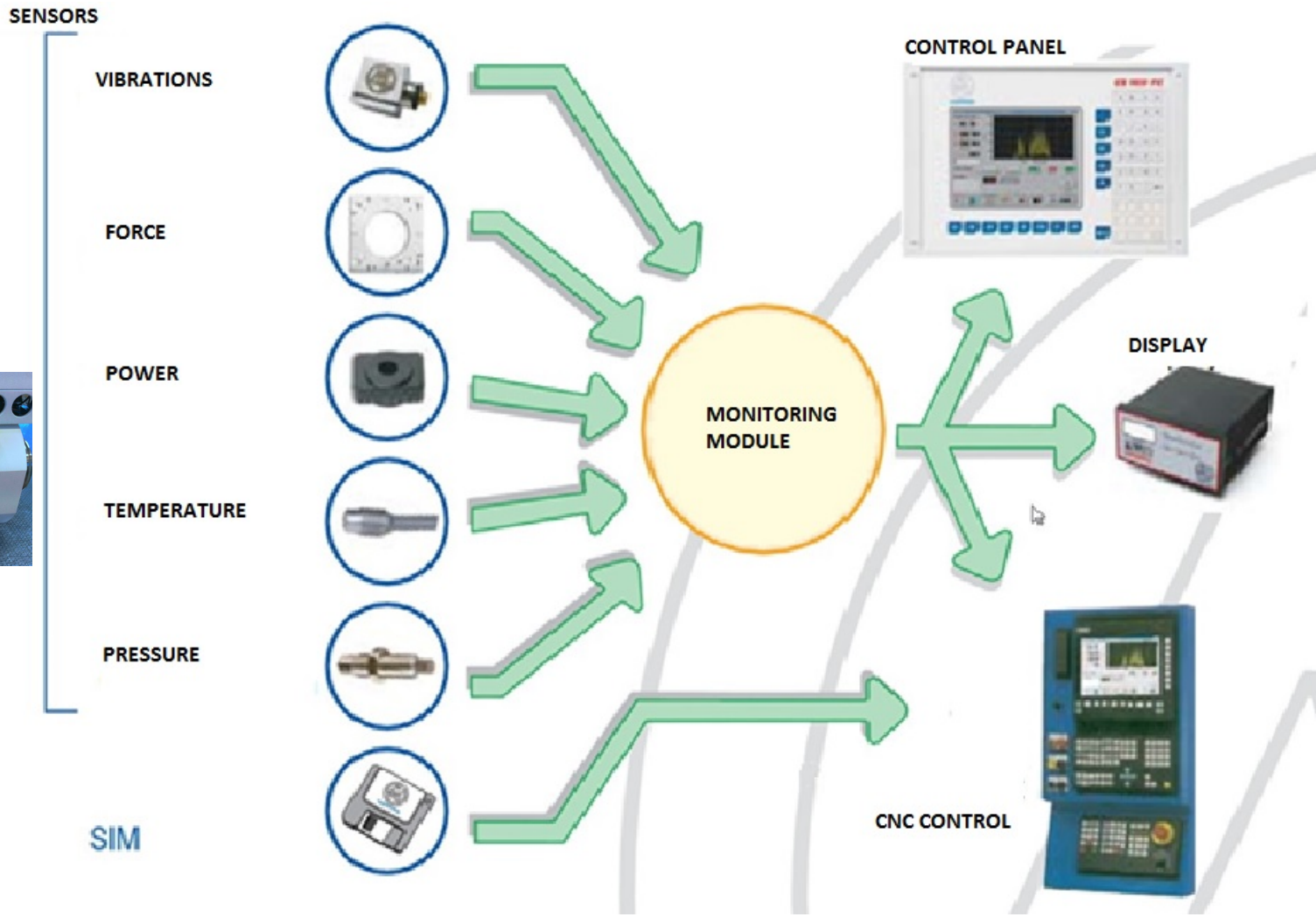
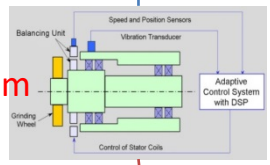
Development of a continuous grinding spindle monitoring system





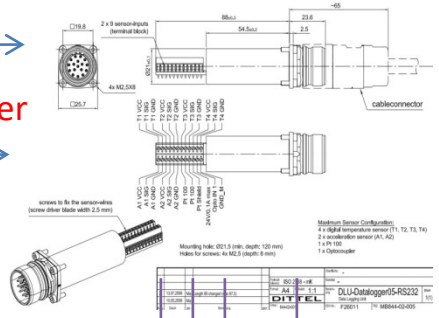
Development of a continuous grinding spindle monitoring system

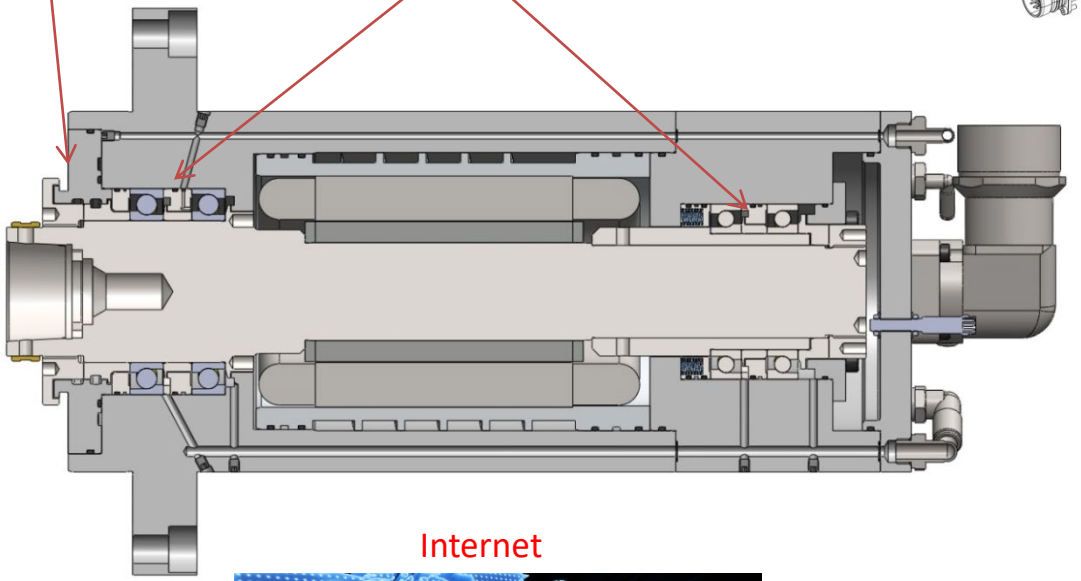
Balancing system



Sensor:
- vibration
- temperature

Datalogger

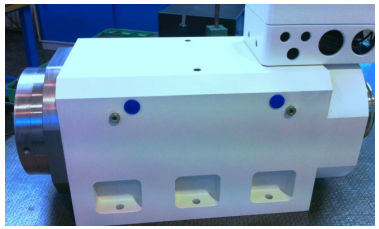




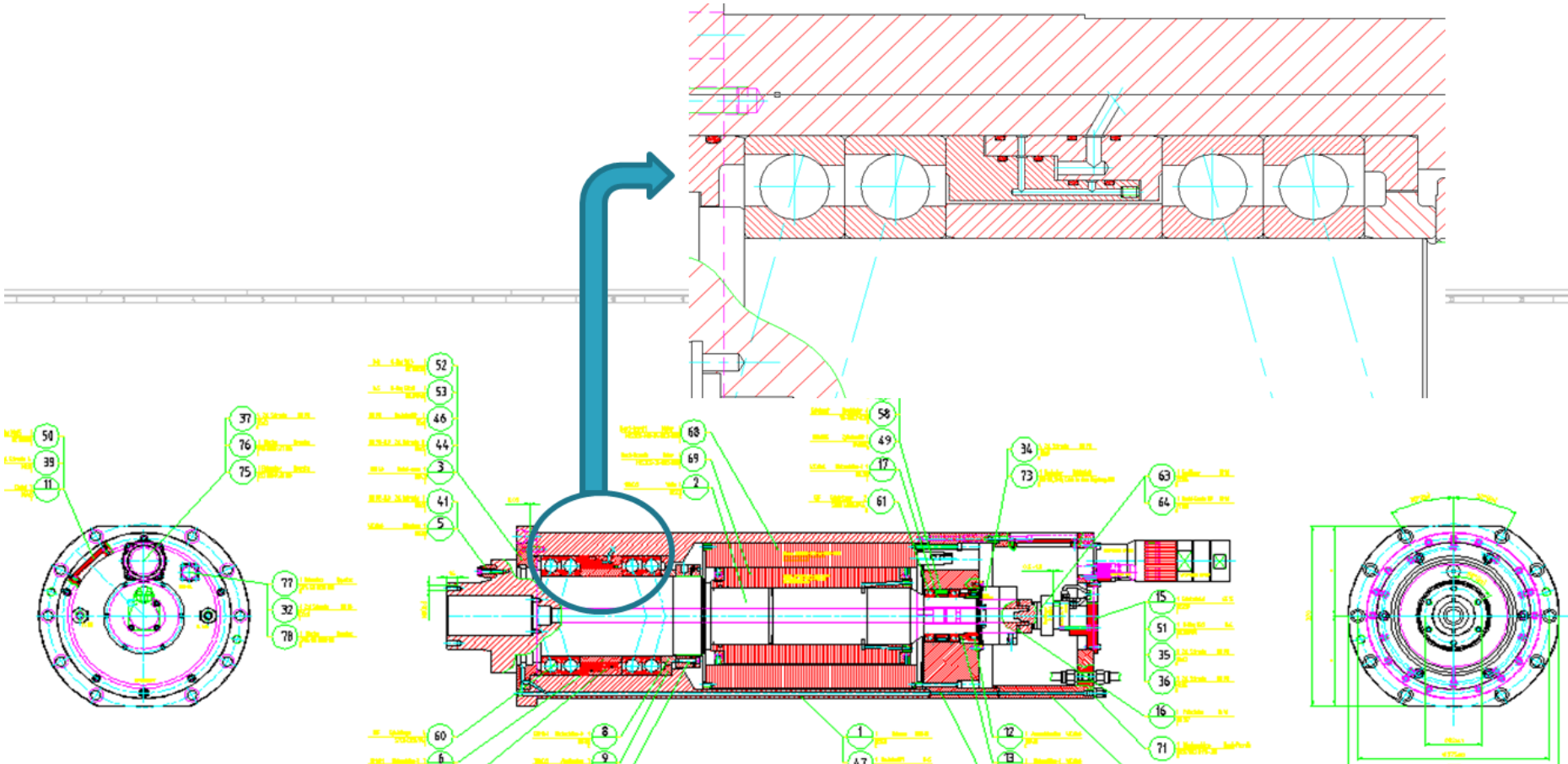
Internet

PC - wireless

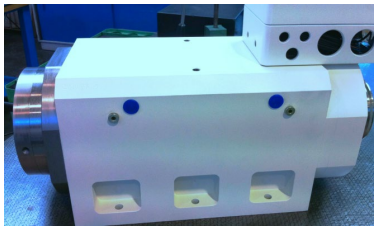
Intelligent bearing system

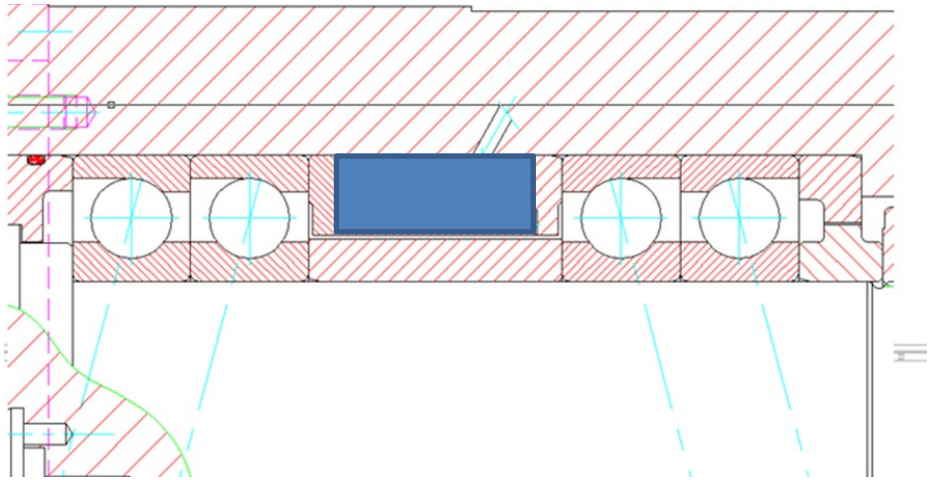


Intelligent hydraulic preload control
Principle:
Due to the force and vibratory state the pressure in the bush is controlled via a PLC system.



Intelligent bearing system





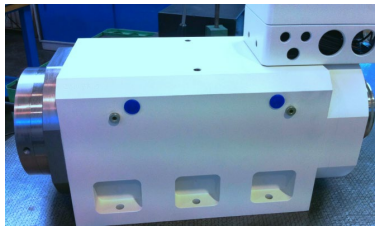
Intelligent piezo-control of the preload for the grinding spindles

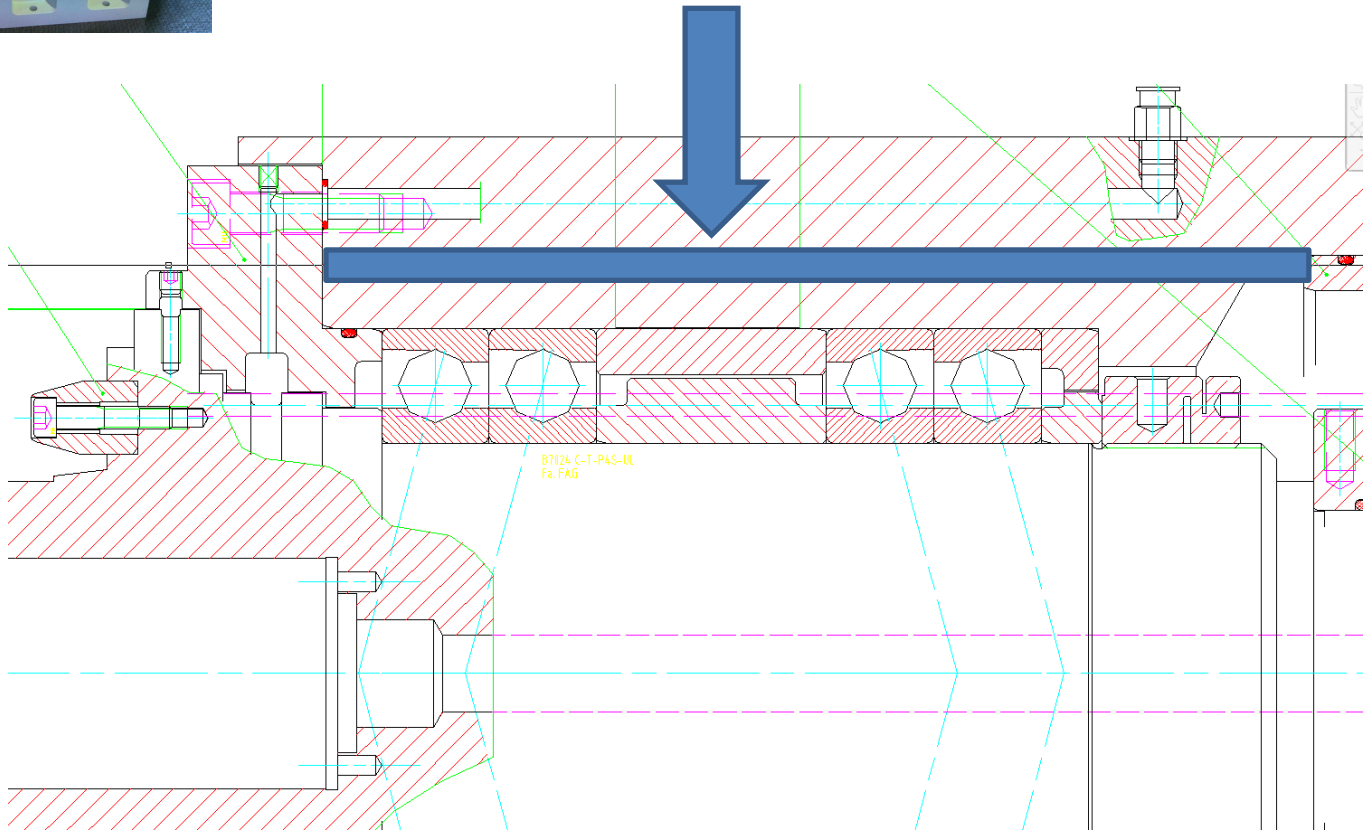
Principle:

- The actuators, due to the material conversion such as piezoceramic materials, implement forces and deformation in the bearing structure (e.g. spacer sleeve of bearing set).
- The sensors measure static and dynamic loads acting on the structure.
- Based on this information, the adjustment is required to control the actuators. These reduce e.g. the resulting vibration; increase the preload or the bearing attenuation.

Control attenuation of a bearing set

- Active special materials





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Thank you for your attention!

“ Where others spend their holidays, we develope our innovative products “