



High Frequency Spindles for automatic tool change Features

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Features: Standard and options

Bearing damping

To avoid chatter vibrations, our own design of a hydrostatic damping sleeve is used. This improves the machining results and can extend the service life of the bearings essentially.

Vibration sensor

Vibrations are recorded and converted into electrical signals. Unacceptable vibrations can be detected early on and immediate appropriate action can be taken to stabilise the process.

GMN high precision ball bearings

Ball bearings made by GMN feature highest running accuracies. Outstanding reliability and extensive high-quality lifetime level.

Pneumatic surface contact control

Sensor monitoring detects possible material residues by measuring the air flow between shaft surface and tool. This assures a 100% correct tool fitting.

Taper cleaning

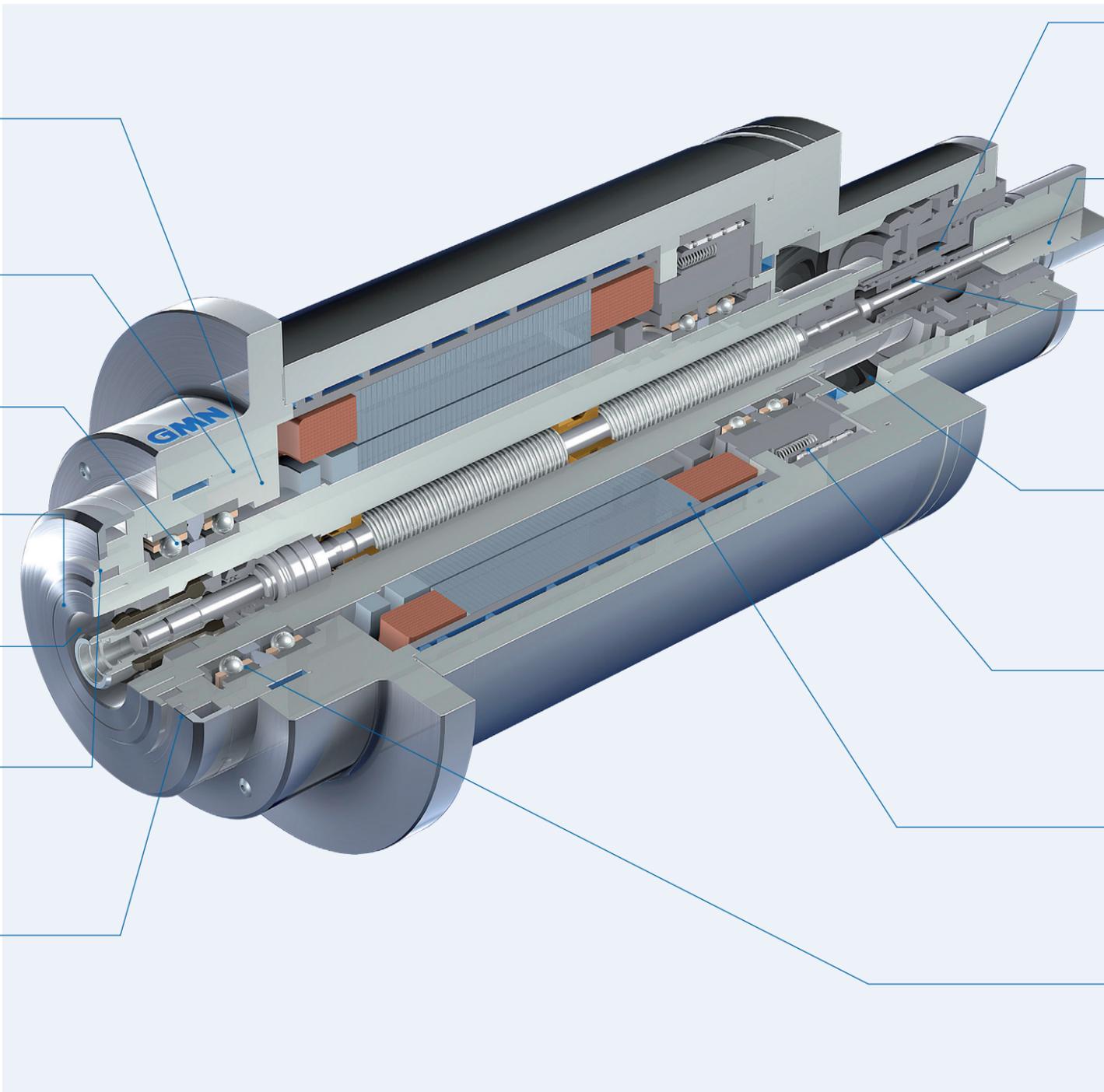
The conical surfaces of the tool holder are cleaned by compressed air. This improves the requirements for firm and secure tool seating.

Air purge – a proven GMN design

A consumption-optimized continuous air stream escaping from the gap between shaft and housing protects the spindle against contamination by coolant and particles. This assures functional safety of the spindle.

Measurement of the axial shaft growth by sensor

The immediate detection of the axial shaft growth is compensated for by the machine control and the tool is held in its defined position. Highest accuracy of machining results can be achieved.



Unclamp unit

The tool is unclamped via a pneumatic or hydraulic unclamp unit.
• NEW! THE ELECTRIC UNCLAMP UNIT
 This environmentally friendly solution requires neither compressed air nor hydraulic oil for the tool change.

Rotary union

The rotary union enables the supply of coolant lubricant or MMS lubricant directly to the cutting edge resulting in longer tool service life.

Analog drawbar monitoring

The drawbar positions “tool clamped”, “tool unclamped” and “clamped without tool” are monitored with an analog sensor integrated into the spindle. This contributes crucially to safe operating conditions for the system of spindle and tool.

Encoder

The high-resolution encoder inside the spindle records the actual speed and the exact angular position of the shaft at any time. Thereby for instance a constant rotary movement of the shaft at low speeds and the possibility of thread cutting by using tool holder without tension and compression systems is possible.

Adjustable bearing preload

This system facilitates adaptation of the bearing preload to the machining requirements. Rigidity and service life can be optimized for specific spindles by speed-dependant modification of the preload.

Motor

According to the requirements the spindle can be equipped with an asynchronous or a synchronous motor. Motors selected by GMN are highly efficient regarding performance and power requirements.

Temperature measurement at the outer ring of the front bearing

It serves for detecting a temperature rise of the front bearing. The bearing system can be protected against overload and thermal shaft displacements can be compensated easily and inexpensively.