

## Drum Type Turret

The ELHA FM production module is the ultimate solution for highly productive mass production. Utilizing the new drum type turret expands this concept of transfer centers by flexible components which are based on well established and proven tool turret technology. As a result we combine productivity and flexibility within one machine.

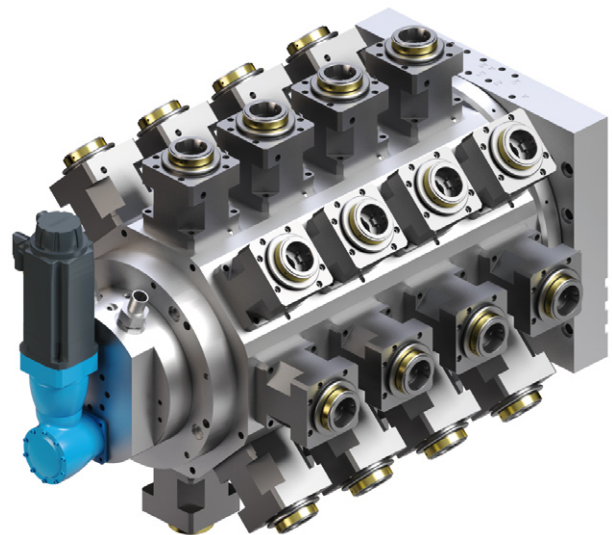
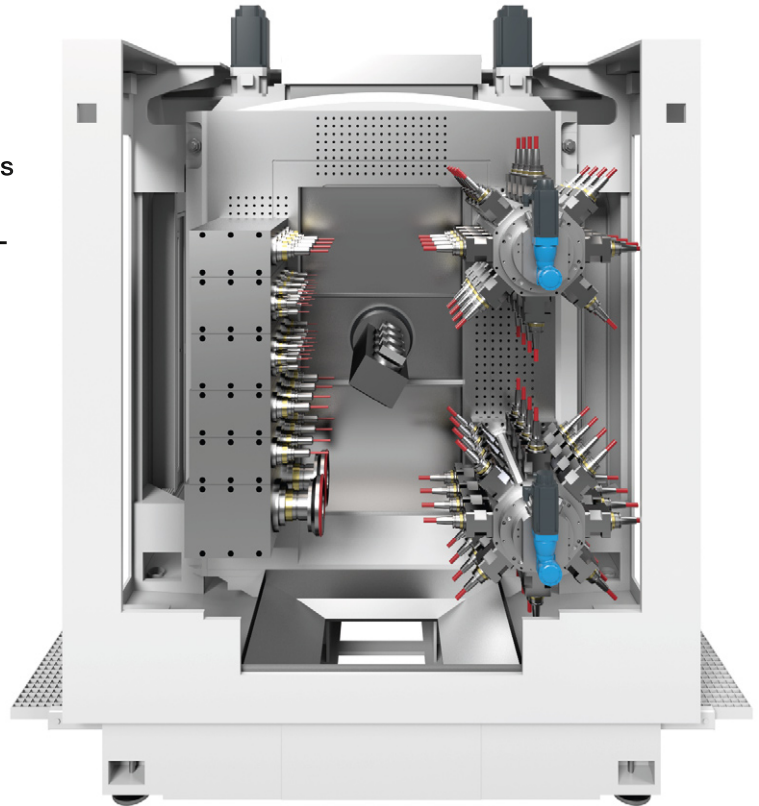
The drum type turret offers a capacity of 32 (4x8) tools. By utilizing e.g. four drum type turrets, the maximum number of tools could be increased to 128 for extensive multispindle machining.

### Design concept

- Drum type turret with 8 tool positions each with four spindles
- Powerful, integrated direct drive for each spindle / tool
- Through spindle coolant up to 8 MPa
- Dynamic turret index drive

### Advantages

- Higher flexibility due to increased capacity of different tools
- Extremely short chip-to-chip times by turret indexing instead of linear tool travels
- Ergonomic and simple tool maintenance outside of machining area
- Very compact, space saving options for automated loading systems
- Simplified and user friendly interference check
- Maintenance friendly design



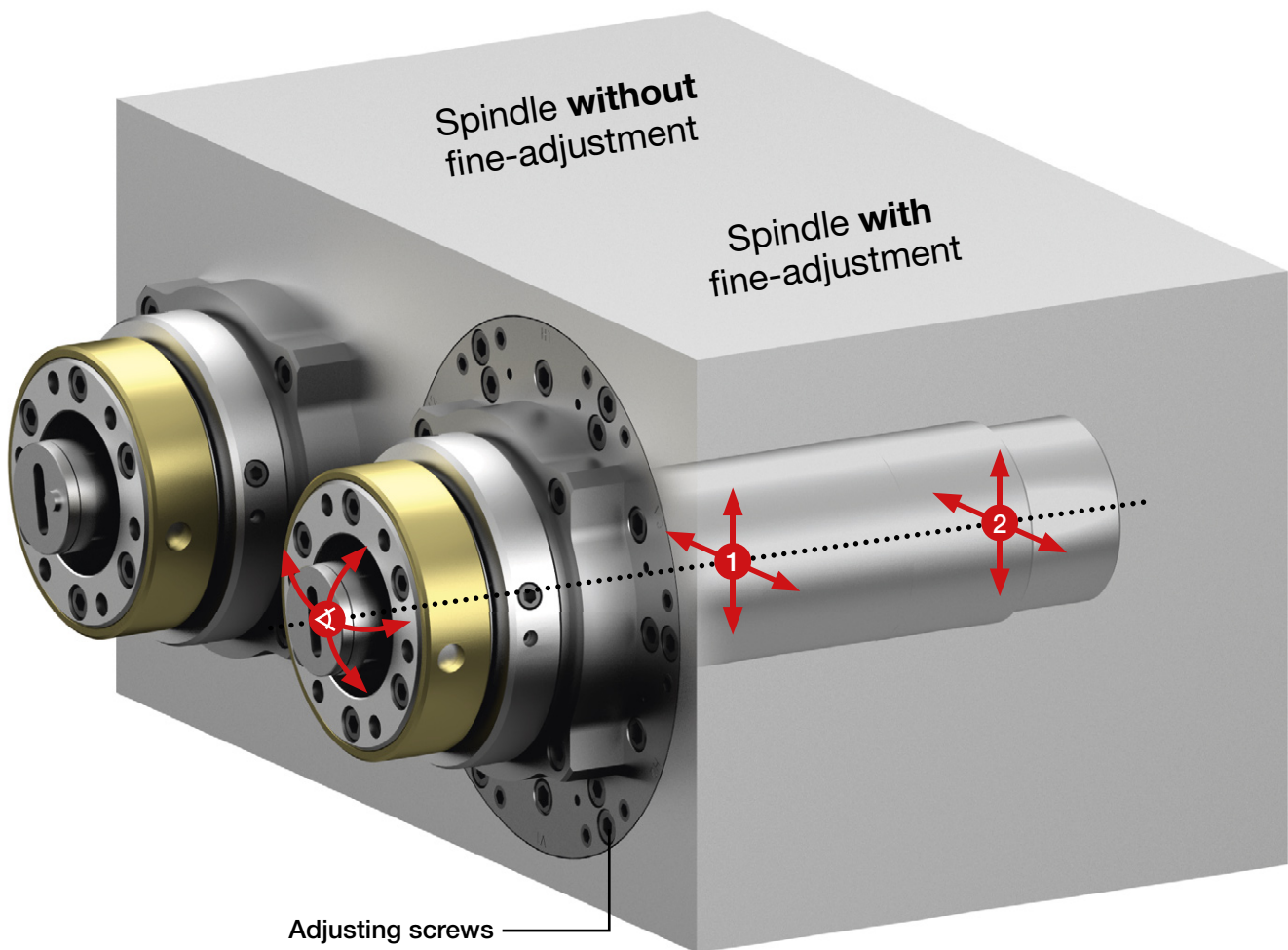
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# Spindle Fine-Adjustment for Multispindle Heads

The new and patented ELHA spindle fine-adjustment for multispindle heads allows a manual 2-axes-position adjustment as well as simultaneous 2-axes-angle adjustment for the spindles in the range of a few microns for the very first time.

This fine adjustment will be applied, when position tolerances of less than 20  $\mu\text{m}$  must be guaranteed. This is often especially required with multispindle precision machining.

For this purpose the front bearing pair as well as the rear bearing can be independently radially adjusted within a range of  $\pm 25 \mu\text{m}$ .



Examples of multispindle heads used in ELHA FM production modules.

Numbers, sizes, distances and layouts of the spindles are specifically defined according to process-requirements.