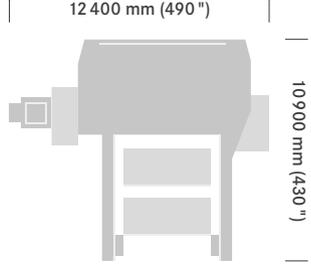
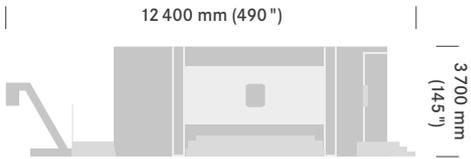
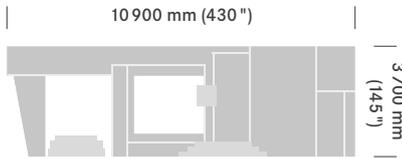


FZH400

HORIZONTAL MACHINING CENTER



The specified dimensions refer to the FZH400 variant.
The machine type can also be manufactured in other variants.

THE NEW HIGH-PERFORMANCE SOLUTION FOR THE AVIATION INDUSTRY: FZH400.

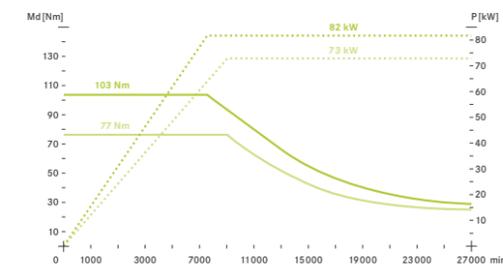
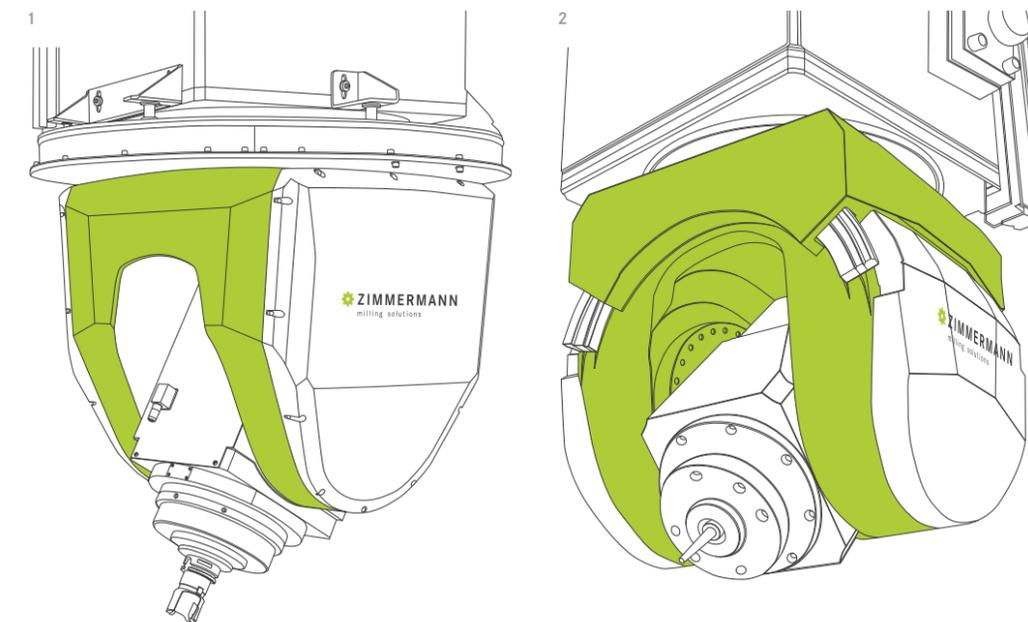
The FZH400 Horizontal Machining Center is Zimmermann's most recent milling solution and bears the „made in Germany“ quality label. The core technology is a robust, water-cooled travelling column. Conventional designs have the drawback that lever effects cause their deviation to increase as the slide extends. This is not the case with the **innovative travelling column design** of the new FZH400. With increasing depth of immersion into the material, the guide carriage distance grows and this leads to advanced rigidity. The stepped drive guide ensures a perfectly constant geometry along the Z axis. This in turn guarantees maximum rigidity in sensitive areas of the workpiece. Used in combination with the highly dynamic **Zimmermann milling heads**, the FZH400 ensures an **extremely efficient milling process** during the machining of aluminum and composites – a basic prerequisite for economic workpiece machining. The versatility of the patented M3ABC 3-axis milling head improves efficiency due to the maximized material removal rate, in particular when machining structural parts. An integral standard component of the FZH400 is its **pallet handling** capability with an area for setting up pallets during machine operation. The newly developed handling system permits the reliable transportation of the pallets, is suitable for longer pallet lengths, and can be extended without difficulty.

Outstanding performance with integrated automation and maximum machining volume – these are the distinctive features of the FZH400.



AT THE HEART OF THE FZH400: OUR MILLING HEADS.

The FZH400 can be equipped with the VH30 2-axis milling head or the patented M3ABC 3-axis milling head as required. Both of these fork-type heads are designed as cast iron monoblock components. This design ensures outstanding temperature stability and possesses integrated oscillation and vibration damping for optimized surface quality and machining performance. Thanks to the zero-play drive mechanism, the **VH30 2-axis milling** (1) head permits high-precision positioning and repeatability in the A- and C- axes. The VH30 is designed for the HSC machining of aluminum and composite materials and maximizes performance during volume machining. The versatile **M3ABC 3-axis milling head** (2) possesses an additional B-axis and therefore has an even greater swiveling range. The M3ABC is immensely versatile and was specially developed for the machining of structural parts. It is characterized by maximum machining volumes, short throughput times and a high level of economic efficiency.



Torque/output diagram VH30 and M3ABC

TECHNICAL DATA FZH400.

| Working Ranges | | |
|---------------------------------|----------------|--|
| X-axis | | 4 100 mm (161")* |
| Y-axis | | 1 600 mm (63")* |
| Z-axis | | 650 mm (26")* |
| Clamping Pallet | | |
| Length x Width x Height | | 4 100 mm x 1 600 mm x 250 mm (163" x 65" x 10") |
| Pallet Loading | | 4000 kg/m ² |
| Threaded Sockets | | M16 |
| Grid Dimension | | 200 mm x 200 mm (8" x 8") |
| Drives – Linear Axes | | |
| Rate of Feed | X-axis | 60 m/min (2 362 ipm) |
| Rate of Feed | Y-, Z-axis | 40 m/min (1 574 ipm) |
| Acceleration | X-, Y-, Z-axis | 6 m/s ² (236 in/s ²) |
| Automation | | |
| Y1-axis (Lifting axis) | | approx. 2 200 mm (87") |
| Z1-axis (Feeding axis) | | approx. 4 800 mm (189") |
| Number of Pallets | | 2 units |
| Pallet Changing Time | | approx. 4 minutes |
| Connections Ports on the Pallet | | 1 x Vacuum Port |
| Safety Housing | | Safety Housing Protection Fence and Safety Glasses Light Beam Sensors |
| Pallet Changing Concept | | 1 x Set-up Unit 1 x Storage Unit |

* Other dimensions on request.

We reserve the right to make technical changes without prior notice.

TECHNICAL DATA MILLING HEADS.

| Milling Head VH30 | | |
|----------------------------------|-----------------|---|
| External Dimensions | Length x Width | 500 mm x 650 mm (20" x 26") |
| Milling Head | | |
| Torque Rotary Axes | in control | A-axis: min. 1 200 Nm (885 ft lb) C-axis: min. 1 047 Nm (772 ft lb) |
| | clamped | A- and C-axis: 3 000 Nm (2 213 ft lb) |
| Working Ranges VH30 | | |
| A-axis | | ± 110° |
| C-axis | | ± 225° |
| Drives Rotary Axes VH30 | | |
| Rate of Feed | A-, C-axis | 360°/s (60 rpm) |
| Acceleration | A-, C-axis | 700°/s ² |
| Resolution | A-, C-axis | 0,0001° |
| Milling Head M3ABC | | |
| External Dimensions | Length x Width | 698 mm x 610 mm (27" x 24") |
| Milling Head | | |
| Torque Rotary Axes | in control | A-axis: min. 825 Nm (608 ft lb) B-axis: min. 1 200 Nm (885 ft lb) C-axis: min. 1 200 Nm (885 ft lb) |
| | clamped | A-axis: min. 2 000 Nm (1 475 ft lb) B-axis: min. 1 700 Nm (1 254 ft lb) C-axis: min. 3 000 Nm (2 213 ft lb) |
| Working Ranges M3ABC | | |
| A-axis | | ± 110° |
| B-axis | | ± 14° |
| C-axis | | ± 225° |
| Drives Rotary Axes M3ABC | | |
| Rate of Feed | A-axis | 180°/s (30 rpm) |
| | B- and C-axis | 120°/s (20 rpm) |
| Acceleration | A-, B-, C-axis | 700°/s ² |
| Resolution | A-, B-, C-axis | 0,0001° |
| Milling Spindle (Fischer) | | |
| Spindle Power | S1 (100 %) | 73 kW (98 hp) |
| | S6 (40 %/2 min) | 82 kW (110 hp) |
| Spindle Speed | | 27 000 min ⁻¹ (Oil-Mist Lubrication) |
| Torque | S1 (100 %) | 77 Nm (57 ft lb) |
| | S6 (40 %/2 min) | 103 Nm (76 ft lb) |
| Constant Power | S1 (100 %) | 9 000–27 000 min ⁻¹ |
| | S6 (40 %/2 min) | 7 590–27 000 min ⁻¹ |
| Swivel Axis – Spindle Nose VH30 | | 301 mm (12") |
| Swivel Axis – Spindle Nose M3ABC | | 331 mm (13") |
| Tool Holder | | HSK-A 63 |
| Tool Clamping | | Spring Clamp |
| Tool Release | | Hydraulic |
| Coolant Supply | | External and Through Tool |

F. Zimmermann GmbH

| | | | | | |
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