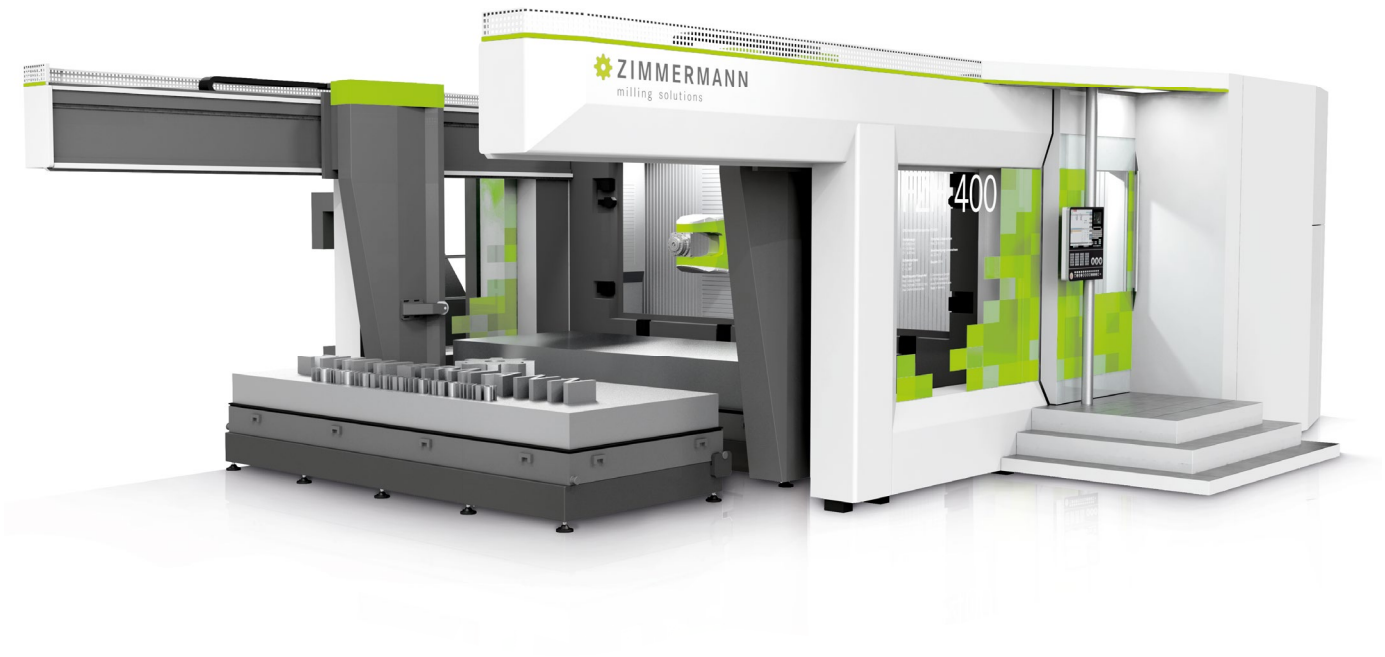
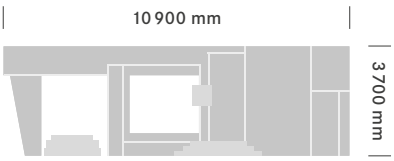
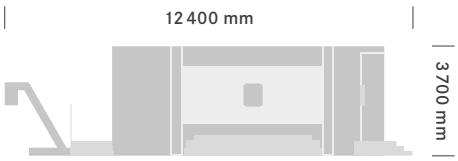
ZIMMERMANN
milling solutions

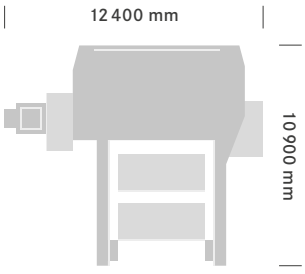
FZH

HORIZONTAL MACHINING CENTER









The specified dimensions refer to the FZH416 variant.
The machine type can also be manufactured in other variants.

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

The FZH 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 FZH. 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 FZH 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 FZH 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.

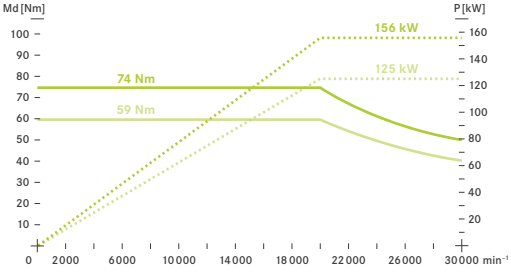
Outstanding performance with integrated automation and maximum machining volume - these are the distinctive features of the FZH.

AT THE HEART OF THE FZH: OUR MILLING HEADS.

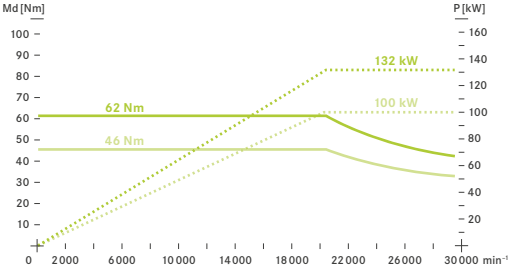
The FZH can be equipped with the VH40 2-axis milling head or the patented M3ABC 3-axis milling head as required. Both of these fork-type heads are designed as cast iron monoblock components. This design ensures outstanding temperature stability and possesses integrated oscillation and vibration damping for optimized surface quality and machining performance. Thanks to the zero-play drive mechanism, the **VH40 2-axis milling** (1) head permits high-precision positioning and repeatability in the A- and C- axes. The VH40 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.

1

2



Torque / Output diagram VH40



Torque / Output diagram VH40 and M3ABC

TECHNICAL DATA FZH.

Working Ranges		
X-axis		4 100 – 20 100 mm (161" – 791")*
Y-axis		1 600 / 2 100 / 2600 mm (63" / 82" / 102")
Z-axis		650 / 850 mm (25" / 33")
Clamping Pallet		
Length x Width x Height		≥ 4 100 mm x 1 600 mm x 250 mm (≥ 163" x 65" x 10")
Pallet Loading (max.)		≥ 4000 kg**
Threaded Sockets		M16 (standard)
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/s² (236 in/s²)
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 (optional)
Safety Housing		Safety Housing Protection Fence and Safety Glasses Light Beam Sensors
Pallet Changing Concept		1 x Set-up Unit 1 x Storage Unit

TECHNICAL DATA MILLING HEADS.

Milling Head VH40		
External Dimensions Milling Head	Length x Width	500 mm x 675 mm (20" x 26")
Torque Rotary Axes	in control	A-axis: min. 1 200 Nm (885 ft lb) C-axis: min. 1 279 Nm (943 ft lb)
	clamped	A- and C-axis: 3 000 Nm (2213 ft lb)
Working Ranges VH40		
A-axis		± 110°
C-axis		± 225°
Drives Rotary Axes VH40		
Rate of Feed	A-, C-axis	360° / s (60 rpm)
Acceleration	A-, C-axis	700° / s²
Resolution	A-, C-axis	0,0001°
Milling Head M3ABC		
External Dimensions Milling Head	Length x Width	698 mm x 610 mm (27" x 24")
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° / s²
Resolution	A-, B-, C-axis	0,0001°
Milling Spindle (Fischer) – VH40 / M3ABC		
Spindle Power	S1 (100 %)	74 kW (99 hp)
	S6 (40 % / 2 min)	78 kW (105 hp)
Spindle Speed		30 000 rpm (Oil-Mist Lubrication)
Torque	S1 (100 %)	73 Nm (54 ft lb)
	S6 (40 % / 2 min)	92 Nm (68 ft lb)
Constant Power	S1 (100 %)	9 690 – 30 000 rpm
	S6 (40 % / 2 min)	8 140 – 30 000 rpm
Swivel Axis – Spindle Nose VH40		301 mm (12")
Swivel Axis – Spindle Nose M3ABC		331 mm (13")
Tool Holder		HSK-A63
Tool Clamping		Spring Clamp
Tool Release		Hydraulic
Coolant Supply		External and Through Tool
Milling Spindle (Fischer) – VH40 / M3ABC		
Spindle Power	S1 (100 %)	100 kW (135 hp)
	S6 (40 % / 2 min)	132 kW (179 hp)
Spindle Speed		30 000 rpm (Oil-Mist Lubrication)
Torque	S1 (100 %)	47 Nm (35 ft lb)
	S6 (40 % / 2 min)	62 Nm (45 ft lb)
Constant Power	S1 (100 %)	20 400 – 30 000 rpm
	S6 (40 % / 2 min)	20 400 – 30 000 rpm
Swivel Axis – Spindle Nose VH40		301 mm (12")
Swivel Axis – Spindle Nose M3ABC		331 mm (13")
Tool Holder		HSK-A63
Milling Spindle (Fischer) – VH40		
Spindle Power	S1 (100 %)	125 kW (169 hp)
	S6 (40 % / 2 min)	156 kW (212 hp)
Spindle Speed		30 000 rpm (Oil-Mist Lubrication)
Torque	S1 (100 %)	60 Nm (44 ft lb)
	S6 (40 % / 2 min)	75 Nm (55 ft lb)
Constant Power	S1 (100 %)	20 000 – 30 000 rpm
	S6 (40 % / 2 min)	20 000 – 30 000 rpm
Swivel Axis – Spindle Nose VH40		301 mm (12")
Tool Holder		HSK-A63

***Up to 20 m (800") (X-axis) in 1 or 2 m step increments.**
****Depending on X-axis' working range.**
We reserve the right to make technical changes without prior notice.

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