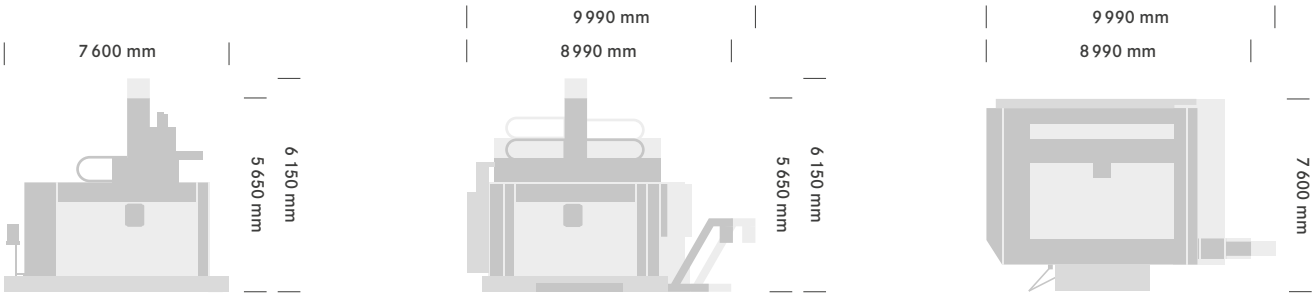
ZIMMERMANN
milling solutions

FZ33 COMPACT

5-AXIS PORTAL MILLING MACHINE



Illustrations are similar.
Subject to technical modifications.

THE MULTI-PURPOSE 5-AXIS MILLING MACHINE: THE FZ33 COMPACT.

With its 5 axes, **inherently rigid design**, totally enclosed working area, fixed machine table and **overhead portal that travels in the X-direction**, the FZ33 compact gantry milling machine is perfect for machining aluminum and composite materials. The machine sits on a flat foundation and can be set up on any solid industrial floor. The machine table is firmly anchored to the FZ33 compact so the workpiece does not have to be moved. The milling process is highly precise, regardless of weight and size of the workpiece. The moving bridge, consisting of the structurally rigid portal, the cross- and Z-slides and the **dynamic VH20 or VH30 milling head**, facilitate a consistent, efficient milling process. Thanks to its combination of high stability and rigidity the machine meets all the requirements of model making, tool and mold industry, including the demands of the aerospace, automotive and alternative energy industries.

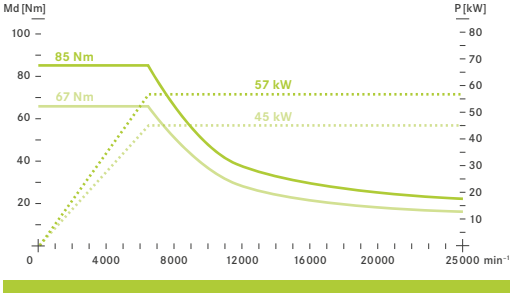
High precision and surface quality: the FZ33 compact from Zimmermann.

AT THE HEART OF THE FZ33 COMPACT: OUR VH20 AND VH30 MILLING HEADS.

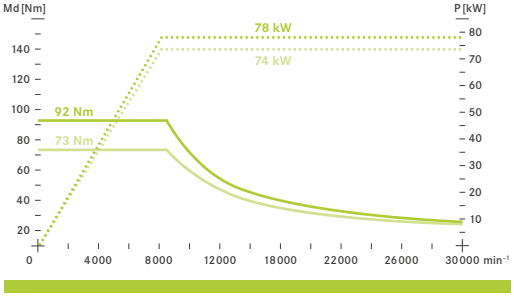
The FZ33 compact is equipped with a **dynamic 2-axis VH20** (1) or **VH30** (2) **milling head** (A-axis and C-axis). Both milling heads can be equipped with a variety of spindles best suited for your materials. The fork-type heads are cast iron components. This design ensures outstanding temperature stability, extreme accuracy and vibration damping for even greater milling precision. The A-axis is powered by a zero-backlash torque drive package, and the C-axis is powered directly by a torque motor. The two milling heads thus have very high acceleration and deceleration and achieve high-precision positioning and repeatability in the A- and C-axes. A liquid cooling system dissipates the heat from simultaneous machining. Both heads are suitable for milling aluminum, composites, steel and cast iron.

1

2



Torque / Output diagram VH20 – 45 kW (60 hp)



Torque / Output diagram VH30 – 74 kW (99 hp)

TECHNICAL DATA.

FZ33 COMPACT

Working Ranges		
X-axis		2 500 mm (98")
Y-axis		3 000 / 4 000 mm (118"–157")
Z-axis		1 250 / 1 500 mm (49"–59")
Table Size		
Length		2 500 mm (98")
Width		3 250 / 4 250 mm (128"–164")
Height		600 mm (24")
Table load		8 000 kg/m² (max. 16 000 kg)
T-Slots (longitudinal)		18^{H12} (opt. 18^{H8})
Pitch of T-slots		250 mm (10")
Drives – Linear Axes		
Feed rate	X-, Y-, Z-axis	up to 60 m/min (2 362 ipm)
Acceleration	X-, Y-, Z-axis	up to 5 m/s² (197 in/s²)
Dimensions, Weight		
Required space (without peripherals) Y = 3 000 mm (118")	Length Width Height	7 600 mm (299") 8 990 mm (354") 5 650 mm (222")
Required space (without peripherals) Y = 4 000mm (157")	Length Width Height	7 600 mm (299") 9 990 mm (393") 6 150 mm (242")
Total weight		appr. 53 500 kg / 59 500 kg
Accuracy		
Standard accuracy	in accordance to VDI / DGQ 3441 or ISO 230-2	
Special accuracy	on request	

MILLING HEADS VH20, VH30

Performance		
Torque rotary axes	in control	A-axis: min. 1 200 Nm (885 ft lb) C-axis: 1 047 Nm (772 ft lb) [opt. 1 279 Nm (943 ft lb)]
	clamped	A-, C-axis: 3 000 Nm (2 212 ft lb)
Swivelling Range		
A-axis		±110° or +125°/-95°
C-axis		300° [1 250 Nm] 260° [1 500 Nm]
Drives - Rotary Axes		
Rate of feed	A-, C-axis	360°/s
Acceleration	A-, C-axis	700°/s²
Resolution	A-, C-axis	0.0001°
Accuracy		
Positioning accuracy	A-, C-axis	10"
Repeatability	A-, C-axis	6"
VH20 Milling Spindle – 45 kW (60 hp)*		
Spindle power	S1 (100 %) S6 (40 %/2 min)	45 kW (60 hp) 57 kW (76 hp)
Spindle speed		25 000 rpm
Torque	S1 (100 %) S6 (40 %/2 min)	67 Nm (49 ft lb) 85 Nm (62 ft lb)
Constant power		6 400 – 25 000 rpm
Swivel axis – spindle nose		326 mm (13")
Tool holder		HSK-A63
Tool clamping		spring clamp
Tool unclamping		hydraulic
Lubrication		permanent grease lubrication
Coolant supply, minimum-quantity lubrication, air blowing		external and through tool
VH30 Milling Spindle – 74 kW (99 hp)*		
Spindle power	S1 (100 %) S6 (40 % /2 min)	74 kW (99 hp) 78 kW (105 hp)
Spindle speed		30 000 rpm
Torque	S1 (100 %) S6 (40 %/2 min)	73 Nm (54 ft lb) 92 Nm (68 ft lb)
Constant power	S1 (100 %) S6 (40 %/2 min)	9 690 – 30 000 rpm 8 140 – 30 000 rpm
Swivel axis – spindle nose		301 mm (12")
Tool holder		HSK-A63
Tool clamping		spring clamp
Tool unclamping		hydraulic
Lubrication		oil mist lubrication
Coolant supply, minimum-quantity lubrication, air blowing		external and through tool

* Other spindle options on request.

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

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