



ZIMMERMANN

PORTAL MILLING MACHINES



FZ 100



M3 ABC



FZ 42



VH 6



FZ 38



VH 30



FZ 37



VH 20



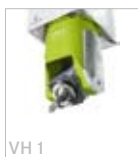
FZ 33



VH 12



FZ 32



VH 1



FZ 30 / FZ 35



FZ 25

 **F. Zimmermann GmbH**
Portal Milling Machines
Goethestraße 23 – 27
73770 Denkendorf, Germany
Phone +49 711 934935-0
Fax +49 711 934935-300
info@f-zimmermann.com
www.f-zimmermann.com



ZIMMERMANN

PORTAL MILLING MACHINES

FZ30 FZ35

Portal Milling Machines



THE PORTAL TO SUCCESS

THE UNIVERSAL



CL^NSSIC FOR MODEL AND MOLD MAKING

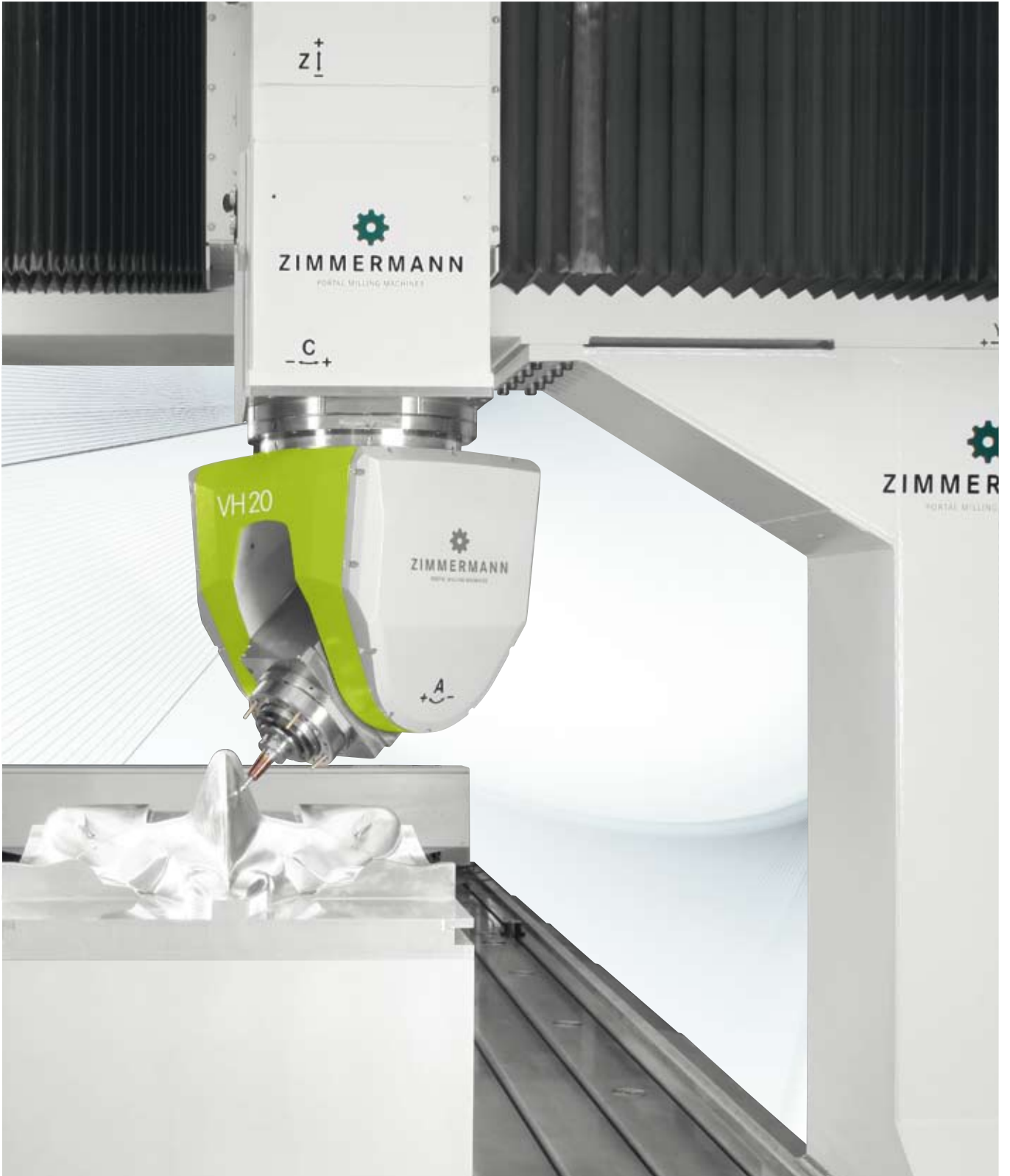
Whether for a visit to the opera, moving house or vacations, minibuses are our everyday faithful companions worldwide. The champion in this class for over 60 years is the Volkswagen Transporter.

The FZ 30 and FZ 35 have not yet been around quite as long, but both are already success stories.

Learn more about these mature classics among the Portal Milling Machines from Zimmermann.



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■	Advantages
■	Technical details
■	Milling heads
■	Technical data



FZ 30 and FZ 35 Portal Milling Machines guarantee maximum efficiency

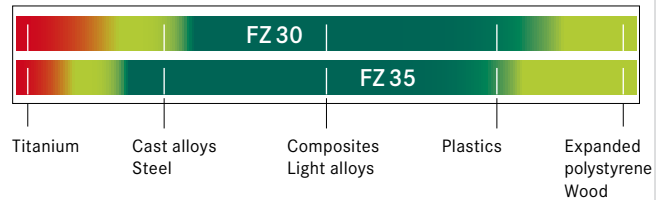
The FZ 30 and FZ 35 Portal Milling Machines are the economical solution for a vast variety of tasks. For finishing, and with the FZ 35 even roughing of steel and cast alloys, light alloys and plastics, these machines can be used for all types of materials*. This model range satisfies the sector-specific requirements of many industries.

- In pattern and mold making for machining patterns, molds, injection-molding dies and sheet-metal forming tools in all their variety.
- Outstanding capacity utilization, because different parts can be set-up at the same time and then machined in succession – of course in unmanned shifts as well.
- In aircraft production for the trimming of panels, stretch-forming parts, rudders etc., or for special applications of acrylic sheet, cockpit canopies for example.
- In ship and boatbuilding for the manufacture of laminating forms, deck structures etc.

The FZ 30 and FZ 35 are suitable for wet or dry machining workpieces of various sizes, and distinguish thanks to the following features:

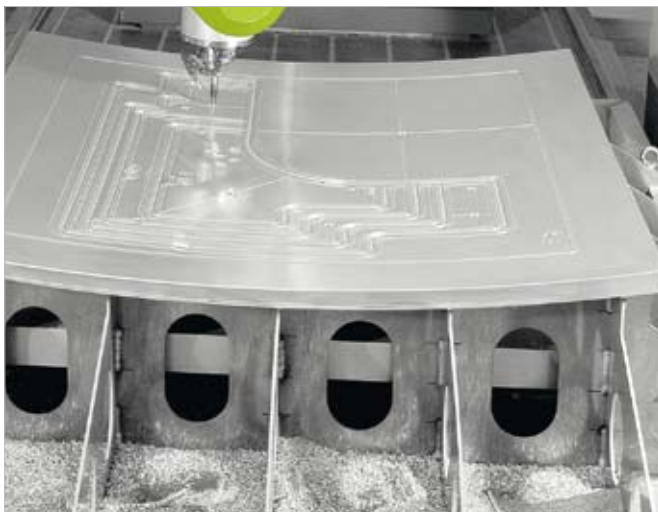
- Work area up to 6 000 mm on the X-axis, 3 360 mm on the Y-axis and 1 500 mm on the Z-axis.
- Optimum accuracy and surface finish.
- Outstanding accessibility of the machine table is an advantage when setting up, and when space in the workshop is restricted.

Maximum economy



*Machining performance for these materials depends on the cutting parameters recommended by the tool manufacturer.

Vacuum clamping fixture



Tailgate





Dust-proof bellows on the Y- and Z-axes,
Telescopic steel covers on the X-axis

Reinforced cross-section of the Z-axis with larger
cross-slide plate

Reinforced portal, greater stability for extreme
accuracy and fast machining

Fourth generation milling head:
Milling Head VH 20 for the FZ 30 Portal Milling Machine
Milling Head VH 30 for the FZ 35 Portal Milling Machine

Machining with coolant (optional)

On the X-axis, mass-optimized portal for high dynamics and
precision, driven at floor level

Fixed machine bed



The advantages of a remarkable design

The FZ 30, the best-selling Portal Milling Machine, with its versatile concept can be adapted precisely to your task. A vast variety of options for almost every conceivable application round off the concept.

With the classic portal design, a cast machine bed securely anchored to the foundation, and the portal moving along the X-axis on floor level slideways, the workpiece does not move, machining is independent of the weight of the workpiece. The floor level drive allows easy loading from all sides and optimum accessibility for setting up.

These machines are predestined for one-off jobs and small batches – their high cost-effectiveness is evident even for one-offs.

Highlights

- Well balanced all-round capabilities
- Five-axis and five-sided machining
- Good accessibility
- Compact, newly developed milling heads
VH 20 and VH 30

The intelligence is in the detail



Modularity

The FZ 30 and the FZ 35 are highly variable and individually adaptable both from the point of view of work area sizes, and also regarding accessories and equipment such as extraction and coolant systems, chip conveyors, toolchangers etc. .

Measuring systems

The three linear axes, X, Y and Z, have direct Heidenhain length measuring systems. The measuring systems are pressurized to protect them against dirt. The A and C swivel axes are equipped with high-resolution angular measuring systems.

Worktable

The worktable is securely anchored to the foundation, so that a clamped workpiece does not move during machining. Machining is independent of the weight of the workpiece and highly accurate.





Drives

The FZ30 and FZ35 are equipped for simultaneous 5-axis machining; and are driven on both sides on floor level slideways. As standard the X-, Y- and Z-axes have highprecision, preloaded, recirculating roller slideway bearings. Power transmission is by means of ground ballscrews. The slideways, drive and measuring systems for the Y- and Z-axes are protected against dirt by dust-proof bellows, while the X-axis has telescopic steel covers as standard.



Ballscrews

The classic drive for short axes is distinguished by its high precision, low cost and, in consequence, great economic efficiency.

Control systems

The FZ30 and FZ35 can be equipped with several different control systems. They include, as a matter of course, functions such as “look ahead”, jerk limitation, spline interpolation, and 5-axis machining. An almost unlimited range of options is available on request, for example, measurement probes, tool measurement, measuring software. For optimum integration into your production environment, we have the flexibility to install control systems from several different manufacturers.

Safety

Zimmermann takes safety seriously. As standard the FZ30 and FZ35 have a protective enclosure on four sides, or a complete enclosure is available as an option. Or invite us to develop an individual safety concept for you.



VH 20 – the newly developed 2-axis Milling Head

The VH 20 Milling Head sets new standards. In order to implement the idea of a universal Portal Milling Machine for large material removal volumes with a wide choice of working areas on all axes, a new milling head has been developed. The VH 20 combines high torque with high rotation speeds of up to 360°/s around the A- and C-axes.



The A-axis drive employs dual torque motors with electronic pre-load for backlash elimination. The C-axis has a direct torque drive. This enables rapid and, in conjunction with high-resolution measuring systems, high precision positioning. The combination with the superior accuracy of the entire machine concept results in high surface-finish quality.

With its symmetrical and compact design, which tapers towards the tool, the VH 20 milling head has a low interference contour and can be combined with spindles from various manufacturers.



VH 20 highlights

- High torques about the swiveling axes in simultaneous operation
- Holding torque 3 000 Nm on the swiveling axes included
- Positioning accuracy 12" or better, repeatability 8" or better (DIN 3441)
- Supply of coolant, minimum quantity lubrication (MQL), cooling air external or through the tool possible
- Slim design makes setting up and machining complex workpieces easier



FZ 35 with VH 30

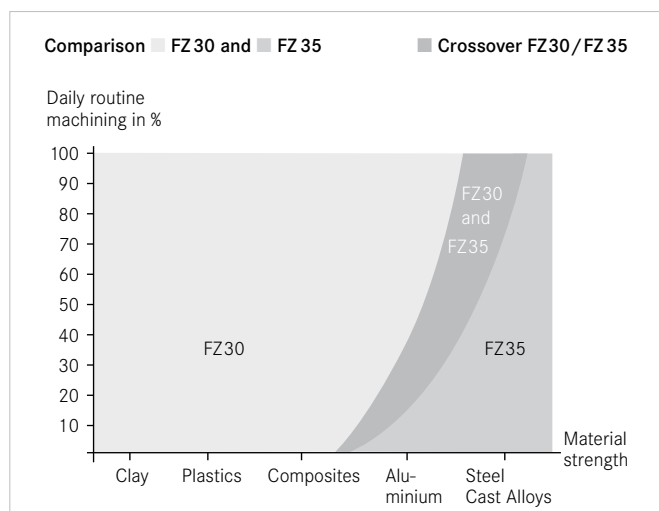
For pattern and mold makers who also machine steel and cast alloys on a daily basis, Zimmermann developed the FZ 35.

In addition to the positive capabilities of the FZ 30, the FZ 35 is equipped with a reinforced portal and an enlarged cross-section on the Z-axis.

The combination with the high-torque VH 30 Milling Head is a big advantage when taking roughing cuts on steel and cast alloys.

Depending on the materials to be machined, Zimmermann offers the optimum machine concept.

The Zimmermann Competence Team will be pleased to advise you.



Highlights FZ 35 with VH 30

- Especially stable design
- High material removal rates
- Five-axis and five sided machining
- Good accessibility
- Compact VH 30 Milling Head
- Swiveling axes with large angle ranges
- Suitable for light roughing on steel and cast alloys

FZ 30 and FZ 35

Technical Data

Machine	FZ 30 and FZ 35
Working ranges	
X-axis	3 000 – 6 000 mm ^①
Y-axis	2 360 – 3 360 mm
Z-axis	1 000 – 1 500 mm
Table size	
Length	5 000 – 8 000 mm
Width	2 000 – 3 000 mm
Height	400 mm
Table load	max. 30 000 kg/m ² ^②
T-slots (longitudinal)	18 ^{H12} (optional 18 ^{H8})
Pitch of T-slots	250 mm
Feed drives	
Feed rate on X-, Y-, and Z-axes	up to 20 000 mm/min.
Acceleration on linear axes ^③	up to 1.5 m/s ²
Accuracy^④	
Positioning accuracy on X-axis	0.050 mm
Positioning accuracy on Y- and Z-axes	0.030 mm
Repeatability on X-axis	0.020 mm
Repeatability on Y- and Z-axes	0.015 mm

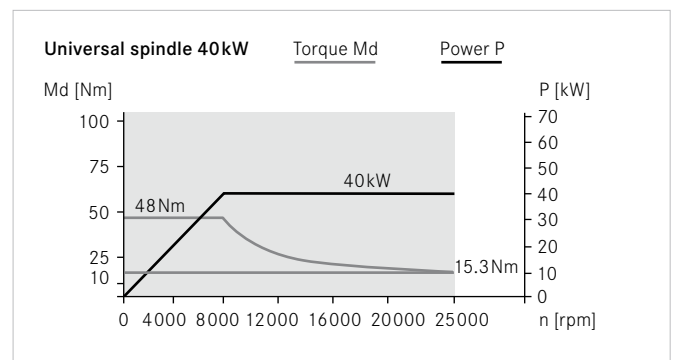
Milling head	VH 20	VH 30
Swiveling range		
A-axis	± 110° or + 125°/-95°	
C-axis	up to ± 360°	
Performance		
Torque, A-axis	min. 1 200 Nm	
Torque, C-axis	1 047 Nm opt. 1 279 Nm	
Holding torque (clamped)	3 000 Nm	
Feedrate about A-, C-axes	360°/s	
Accuracy^④		
Positioning accuracy A, C-axes	12" = 0.0033°	
Repeatability A, C-axes	8" = 0.0022°	

- ① X-axis up to 40 000 mm with rack and pinion drive on request
 ② Max. 15 000 kg/m², as basis for surface accuracy to DIN 876
 ③ In accordance with VDI 230-2 / DGQ.3441, based on basic machine, length dependent
 ④ Permanent grease lubrication with automatic replenishment system (opt. oil-air lubrication)

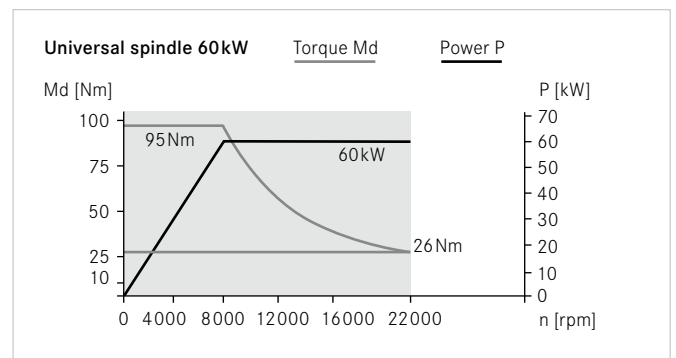
We reserve the right to make technical changes

Milling spindle	VH 20	VH 30
Power S1 max. (100% duty cycle)	40 kW	60 kW
Torque S1 max. (100% duty cycle)	48 Nm	95 Nm
Speed max.	25 000 rpm	22 000 rpm
Constant power	8 000 – 25 000 rpm	6 000 – 22 000 rpm
Tool holder	HSK 63 A	HSK 63 A
Swivel axis – spindle nose	286 mm	301 mm
Tool clamping	spring clamp	spring clamp
Tool release	hydraulic	hydraulic
Lubrication	permanent grease lubri. ^④	permanent grease lubri. ^④
Coolant supply	Both external and through the tool	Both external and through the tool
Minimum-quantity lubrication		
Air blowing		

VH 20 Milling spindle torque diagram



VH 30 Milling spindle torque diagram



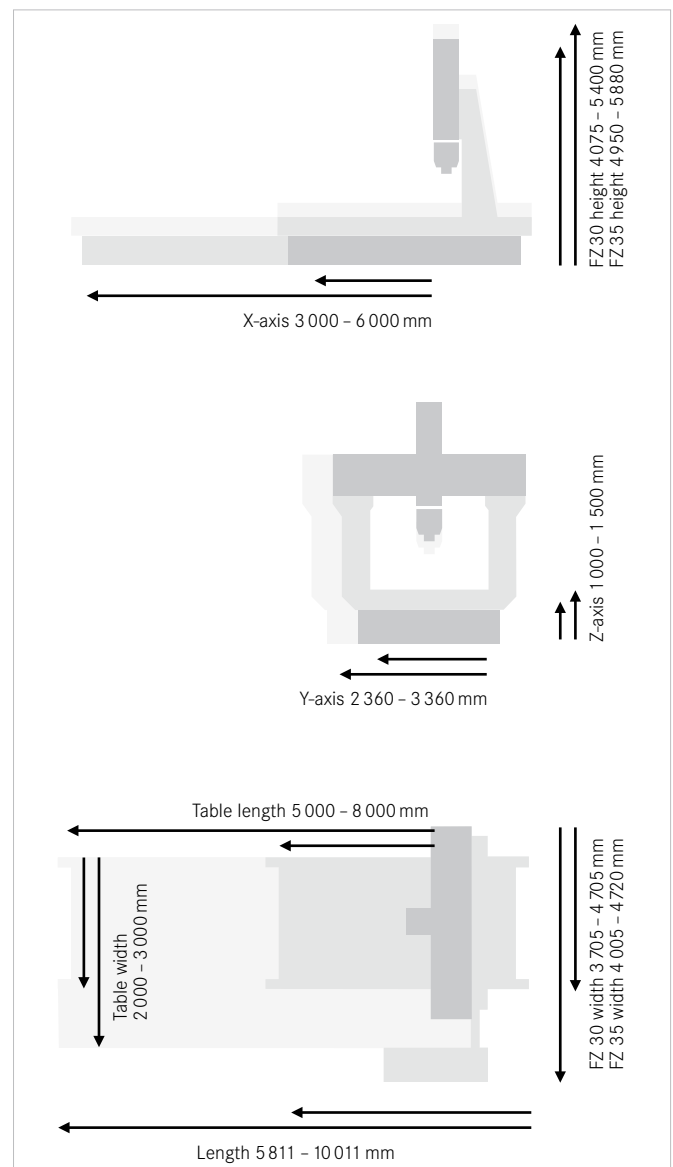
Equipment options

FZ 30 and FZ35

Simultaneous A-axis	■
Simultaneous C-axis	■
A-, C-axis clamping	■
Control cabinet air conditioning	■
Enclosure	■
Minimum quantity lubrication	■
Toolchanger 15, 30 positions or more	■
Measuring probe	■
Tool measurement	■
Chip conveyors	■
Extraction systems	■
Clamping devices	■

■ Standard ■ Option

Dimensions



All dimensions given are examples for the FZ 30 and FZ 35 in the minimum or maximum sizes realized to date.