FZ30 FZ35
Portal Milling Machines
THE UNIVERSAL
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.
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.

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

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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

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 FZ 30 and FZ 35 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 sliderway 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 FZ 30 and FZ 35 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 FZ 30 and FZ 35 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 VH20 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 VH20 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 crosssection 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
Machine | FZ 30 and FZ 35
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Working ranges | |
X-axis | 3 000 – 6 000 mm
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/m²
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 | up to 1.5 m/s²

Accuracy | |
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
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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 | |
Positioning accuracy A, C-axes | 12° = 0.0033°
Repeatability A, C-axes | 8° = 0.0022°

Milling spindle | VH 20 | VH 30
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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 – 15 300 rpm | 6 000 – 22 000 rpm

Tool holder | HSK 63A | HSK 63A
Swivel axis – spindle nose | 286 mm | 301 mm
Tool clamping | spring clamp | spring clamp
Tool release | hydraulic | hydraulic
Lubrication | permanent | permanent
Grease lubrication | (opt. oil-air lubrication)

Coolant supply | Both external and through the tool | Both external and through the tool
Minimum-quantity lubrication | Air blowing | Air blowing

VH 20 Milling spindle torque diagram

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