

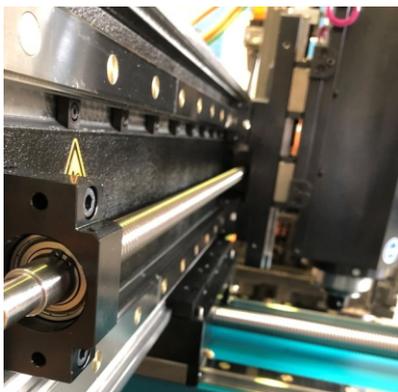
P O R T A B L E 3 - A X I S M I L L I N G M A C H I N E

The new generation of portable milling technology with integrated encoder systems and feed control. Our TFM3500 covers all needs asked for, when a portable 3-axis milling machine is required.

MACHINE BED (X-AXIS)

Our full-material rigid steel bed is heat-treated and fully machined in high accuracy. The integrated pre-loaded guideway systems in combination with heavy-duty ball-screw arrangement provides highest rigidity and smooth machining performance on-site while achieving high machining accuracies.

The redundant lead-nut system (master/slave arrangement) allows safe machining performance even in vertical machining position.



RAM AND CROSS SLIDE ASSEMBLY (Y-AXIS)

The ram assembly comes as a complete weld design with inner rib-arrangement for highest rigidity and accuracy. The ram and cross slide assembly is also equipped with pre-loaded guideway systems and ball screw arrangement.

For achieving highest flexibility for your on-site machining applications, the ram and cross slide assembly is infinitely adjustable (by sliding) on the bed slide.

VERTICAL SLIDE UNIT (Z-AXIS)

The vertical slide unit is equipped with pre-loaded guideway systems. The ACME leadscrew arrangement (metric version) provides full breaking performance to keep the slide in position.

All main components are parallel ground to provide highest accuracy.

Of course all axes are equipped with safety guideway brakes (manual).



MILLING SPINDLE

Our milling spindles are equipped with pre-loaded spindle bearings for providing superb rotating performance even at high RPM without significant temperature influence. No sealing friction due to contactless labyrinth seals. In addition, we have equipped the spindle with an air sealing system, which also allows perfect sealant of the spindle housing when performing grinding operations. The cast iron housing provides ideal damping. Our spindle shafts with ISO #40 tool location are ground to highest accuracy for achieving perfect runout results and long lasting accurate tool adaption. The max. allowed spindle speed is 4000 RPM. For safety reasons our spindles are limited to 1500 RPM max.

As an additional benefit our spindles also allow drilling applications. The max. drilling capacity (drilling into full material) is $\varnothing 37$ mm [2"] (steel 600 N/mm² [87.000 psi]).



REMOTE PENDANT

Our remote pendant comes in a compact design and provides full control of all machine functions. The integrated touchscreen panel in combination with a PLC-control unit (Siemens) provides a maximum of functionality. Of course, we have taken good care of current safety guidelines to ensure a high level of safety for operator, machine and environment. The extensive remote pendant functionality includes functions like:



- Readout of travel (shows exact travel distance of axes)
- Readout and adjustment of feed rate [mm/min]
- Pre-selection of required travel
- Dynamic power consumption display of spindle drive
- Messaging system in German and English language
- Set-up/aligning function with safety hardware button (slow axis movement) etc.

ELECTRICAL INSTALLATION AND DRIVE UNITS

We provide two different electric spindle drives at your choice:

- Asynchronous motor, 15 kW, 90 Nm [66 lbf-ft].
- Compact servo motor, 11 kW, 75 Nm [55 lbf-ft]

Feed drives available for all 3 axes.

The standard machine configuration includes 2 feed drives (X- /Y-axes). The Z-axis may also be used with one of the feed drives.

All of our feed drives are equipped with integrated safety break and encoder system. X- and Y- axes are equipped with safety end-switches on both sides.

The electric cabinet comes with a rigid frame for safe fork lift or crane transportation (lifting points on top of the frame).

The machine accepts different power supplies with or without "zero-line" (4- or 5- wire connections). The internal phase control saves you the time-consuming change of wires in the plug or cabinet.



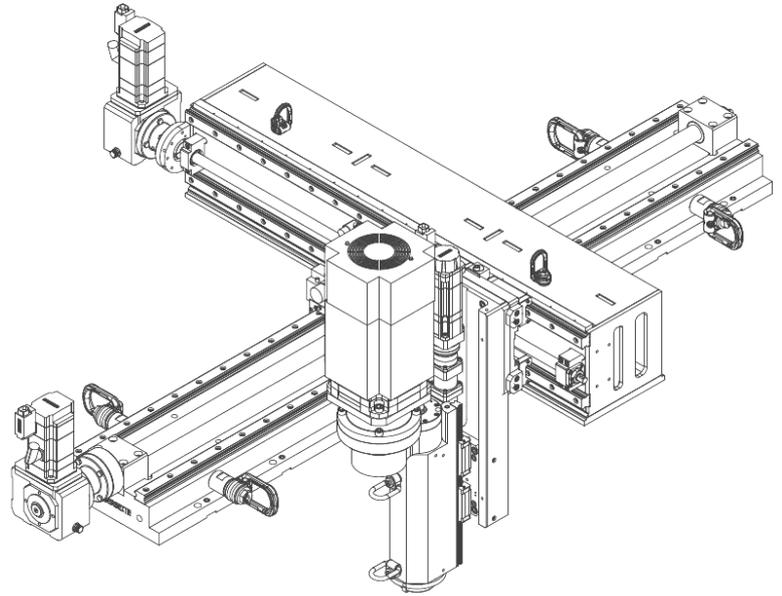
TECHNICAL DETAILS & INFORMATION

1. MAIN BED OPTIONS:

| Part No: | Bed Travel Length | Bed Length |
|-------------|-------------------|------------|
| TFM35-XB-01 | 1100mm | 1480mm |
| TFM35-XB-02 | 1660mm | 2040mm |
| TFM35-XB-03 | 2060mm | 2440mm |
| TFM35-XB-04 | 2460mm | 2840mm |
| TFM35-XB-05 | 2640mm | 3000mm |
| TFM35-XB-06 | 3100mm | 3480mm |
| TFM35-XB-07 | 3540mm | 3940mm |

2. RAM OPTIONS:

| Part No: | RAM Travel Length | RAM Length |
|-------------|-------------------|------------|
| TFM35-YR-01 | 320mm | 820mm |
| TFM35-YR-02 | 700mm | 1320mm |
| TFM35-YR-03 | 1250mm | 2150mm |
| TFM35-YR-04 | 1520mm | 2070mm |
| TFM35-YR-05 | 2200mm | 2720mm |



3. MILLING HEAD ASSEMBLY:

| Part No: | ISO | Stroke |
|-------------|--------|--------------------------|
| TFS40-FS-01 | ISO 40 | Stroke 8 inch (203.2mm) |
| TFS50-FS-01 | ISO 50 | Stroke 8 inch (203.2mm) |
| TFS50-FS-02 | ISO 50 | Stroke 12 inch (304.8mm) |

Additional Option – SPINDLE MILLING HEAD ASSEMBLY:

| Swivel Plate Assembly | |
|-----------------------|---------------------|
| Part No: | Description |
| TFM35-SWV-01 | Swivel Plate Z-Axis |

4. MILLING HEAD CUTTER:

| Part No: | Description |
|------------|---------------------------------------|
| TFS-MT-10 | BOX 10/ Inserts for ISO 40 and ISO 50 |
| FS50-MH-01 | 200mm Diameter ISO 50 with holder |
| FS40-MH-01 | 160mm Diameter ISO 40 with holder |

5. SHIPPING CONTAINER OPTIONS:

| Part No: | Description |
|-------------|------------------------|
| TFM35-WB-00 | Wooden Box for machine |
| TFM35-MB-00 | Metal Box for machine |

TECHNICAL DETAILS & INFORMATION

6. DRIVE OPTIONS:

ELECTRIC MOTOR / ELECTRIC FEED:

| Part No: | Description |
|--------------|--|
| TFM35-ELE-01 | Electric main drive with 1 electric axial motor (with electric cabinet) |
| TFM35-ELE-02 | Electric main drive with 2 electric axial motors (with electric cabinet) |
| TFM35-ELE-03 | Electric main drive with 3 electric axial motors (with electric cabinet) |

ELECTRIC FEED / HYDRAULIC SPINDLE:

| Part No: | Description |
|------------------|--|
| TFM35-HYD/ELE-01 | Hydraulic main drive with 1 electric axial motor (including power pack) |
| TFM35-HYD/ELE-01 | Hydraulic main drive with 2 electric axial motors (including power pack) |
| TFM35-HYD/ELE-01 | Hydraulic main drive with 3 electric axial motors (including power pack) Power pack 15kW with integrated electrical cabinet |

HYDRAULIC OPTION:

| Part No: | Description |
|--------------|---|
| TFM35-HYD-01 | Hydraulic main drive with 1 axial motor (not including power pack) |
| TFM35-HYD-02 | Hydraulic main drive with 2 axial motors (not including power pack) |
| TFM35-HYD-00 | Hydraulic power pack 15kW |

PNEUMATIC OPTION:

| Part No: | Description |
|--------------|---|
| TFM35-PNE-01 | Pneumatic main drive with 1 axial motor (conditioning unit included) |
| TFM35-PNE-02 | Pneumatic main drive with 2 axial motors (conditioning unit included) |

7. GANTRY KIT OPTION:

GANTRY ASSEMBLY (including RAM conversation, rails for x-axis, motor adaption kit)

| Part No: | Description |
|-------------|---|
| TFM35-GK-01 | Length of rail 2 meter (standard) |
| TFM35-GR-01 | 1-meter lengths can be ordered in multiples to extend rail system |