

# KUNZMANN®

## FRÄSMASCHINEN

WF 410 MC  
WF 610 MC

UNIVERSAL MILLING AND DRILLING MACHINE



**UNIVERSALITY**

The primary fields of application for KUNZMANN's WF 410 MC and WF 610 MC are training facilities and the precise manufacturing of individual parts and small batches. With our unique machine concept, we unite manual machine operation and CNC milling. The vertical milling head has an extendible quill and you can swivel it by up to  $\pm 90^\circ$ . Our state-of-the-art milling and drilling machines are outstanding in terms of high performance, perfect precision, and easy handling.

**HIGH PERFORMANCE**

Modern, high-torque drives and solid machine axes with hardened flat guideways allow for processing of even difficult-to-cut materials. You can continuously adjust spindle speed and feed rate via potentiometers.

**PERFECT PRECISION**

Infinitely variable single feed drives and backlash-free ball screws guarantee exact positioning and convenient up- and down-milling. For consistently high geometric accuracy and repeatability, our machines have linear encoders in all axes.

**CONVENIENCE FUNCTIONS****► Maintenance time monitoring**

The machine control monitors and timely reports due maintenance services to avoid malfunctions and provide for a high machine availability.

**► Automatic feed reduction AFR**

With this special KUNZMANN software, the control constantly monitors the spindle load during operation. If the set load is exceeded, AFR automatically and gradually adjusts the feed rate.



↑ Right side door open; operation with manual handwheels and 3-axis active digital readout

## MANUAL AND CNC OPERATIONS

Via key switch, you can conveniently switch between Manual Mode and CNC Mode.

In the CNC mode, you have the full functionality of a state-of-the-art contouring control with a large screen and graphic support.

You may choose between four operational modes using two key switches.

Your individual key management ensures that only designated operators use the machine in accordance with their qualification.

### 1. Automatic Mode

Full functionality of HEIDENHAIN TNC 620 contouring control

### 2. Setup Mode

Spindle activation and simultaneous driving of single axis – with open doors upon pushing enabling button

### 3. Intervening Mode

Spindle activation and simultaneous driving of various axes (interpolating motions) for intervening in the program run, e.g. – with open doors upon pushing enabling button

### 4. Manual Mode

In the manual mode, you may operate the WF 410 MC and WF 610 MC like a conventional machine with a digital readout. In addition, you can use the KUNZMANN Positioning Function (with active digital readout).

With our innovative KUNZMANN manual control panel (with dual-channel buttons), these functions are also available with open doors and without constant activation of the enabling button.

#### ► HEIDENHAIN TNC 620

Compact control with various functionalities: You work on a large multitouch display and an angled machine control panel. The TNC 620 allows for an intuitive machine operation via clearly structured and context-sensitive user interfaces and softkeys for frequently used functions. The electronic handwheel HR 510 FS supports the operator in flexibly setting up and retooling the machine.

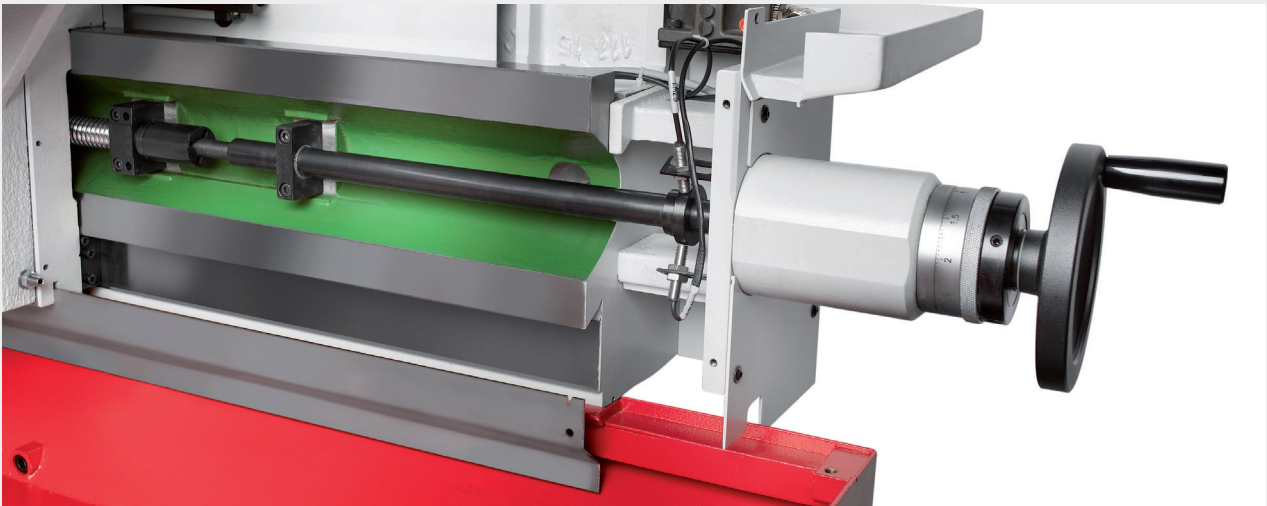


**MANUAL HANDWHEELS**

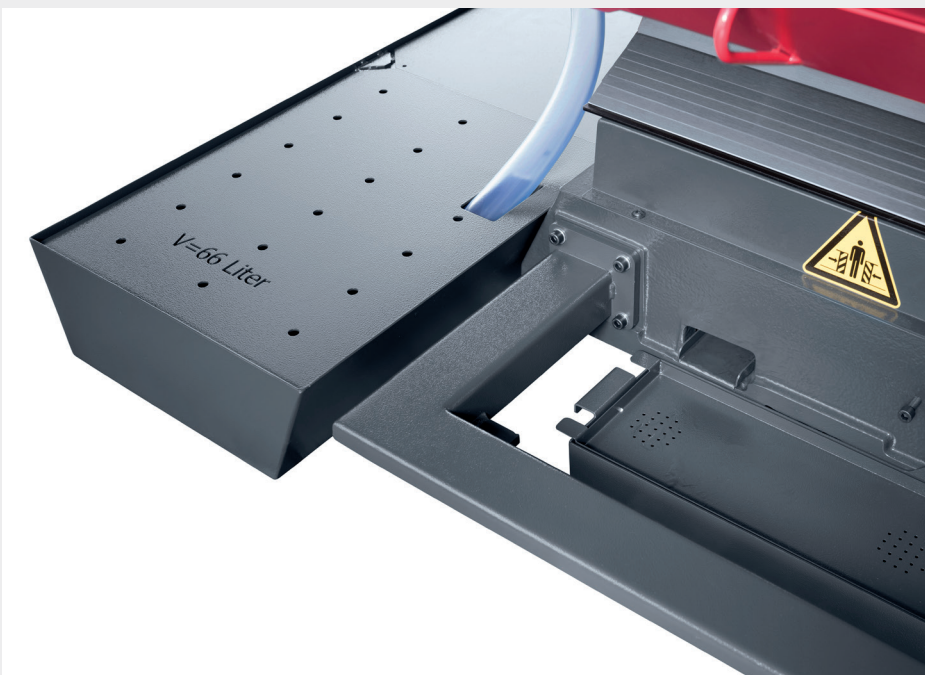
Our machines are equipped with safety handwheels for manual operations. The ergonomic position of the handwheels guarantees optimum access to the working area and a direct view on the workpiece.

**CENTRAL LUBRICATION SYSTEM**

With our lubrication system, track oil is transported directly to the guideways and afterwards centrally recollected. This prolongs the life of coolants as the contamination with track oil is reduced to a minimum. You can conveniently dispose of the collected oil with the removable oil-dripping pan.



↑ Manual handwheel  
of X axis



← Oil dripping pan and  
coolant tank

## OPTIONS

### HORIZONTAL SPINDLE AND ARBOR HOLDER

For horizontal milling, you can conveniently separate and pivot the vertical milling head on a support arm. A further option is working with an arbor holder for additional stability.

### UNIVERSAL TILTING-SWIVELING TABLE

The universal tilting and swiveling table allows the operator to position the workpiece in different angular positions. Adjustment is done manually with the rotation angle of the clamping plate being indicated on a digital readout.

### CNC DIVIDING HEAD

With a CNC dividing head, you may easily process workpieces multilaterally. Programming is done via the 4<sup>th</sup> axis of the control. You may mount the dividing unit on the angular table vertically or horizontally.

### ELECTRONIC HANDWHEEL

With the portable handwheel, the operator is able to work in close proximity to the working area. It features axis-direction keys, keys for feed rates, and function keys.

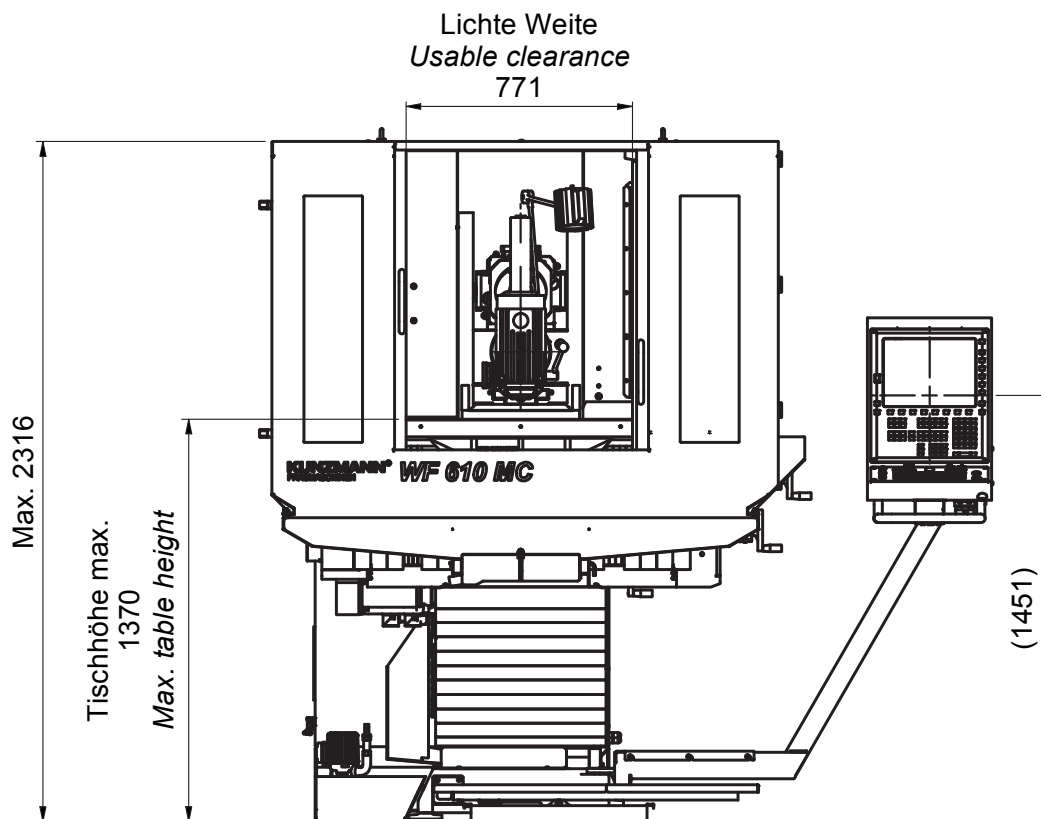
### TOUCH PROBE SYSTEMS AND AUTOMATIC TOOL MEASUREMENT

Combined with the probing cycles of the control, triggering 3D touch probe systems facilitate setup, measuring, and monitoring during manufacturing. Specific control cycles are used to automatically measure tool length, tool radius, and tool wear with a matching probe.

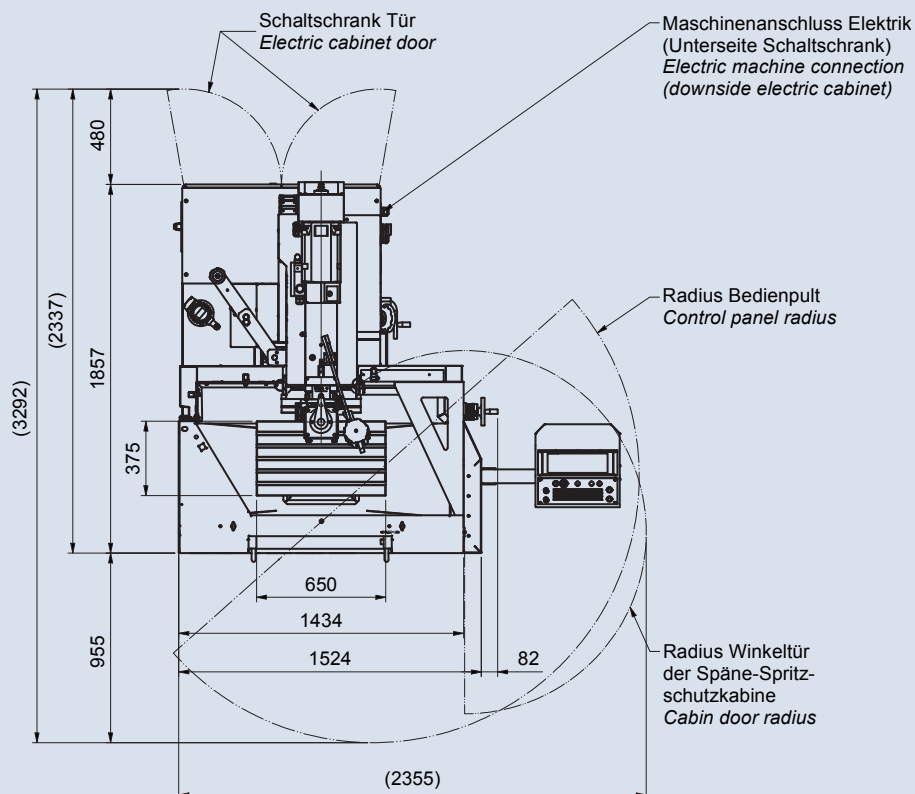
CNC dividing head (1), arbor holder (2), touch probe system and automatic tool measurement (3)



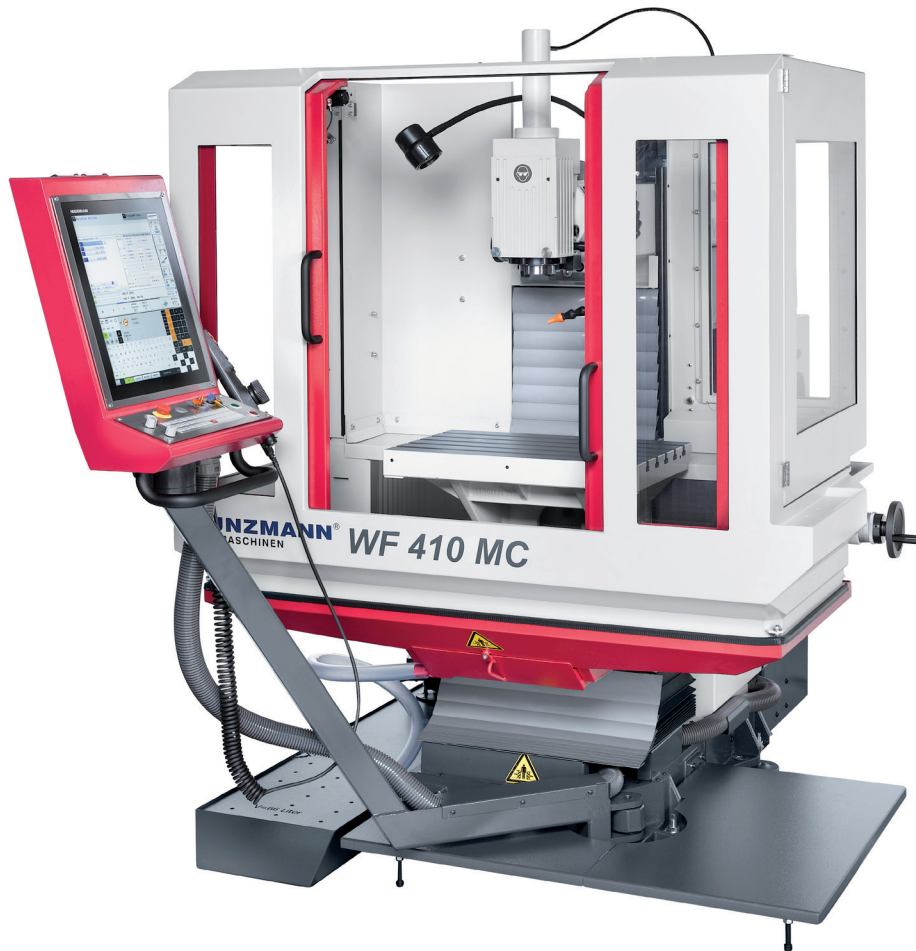
WF 610 MC



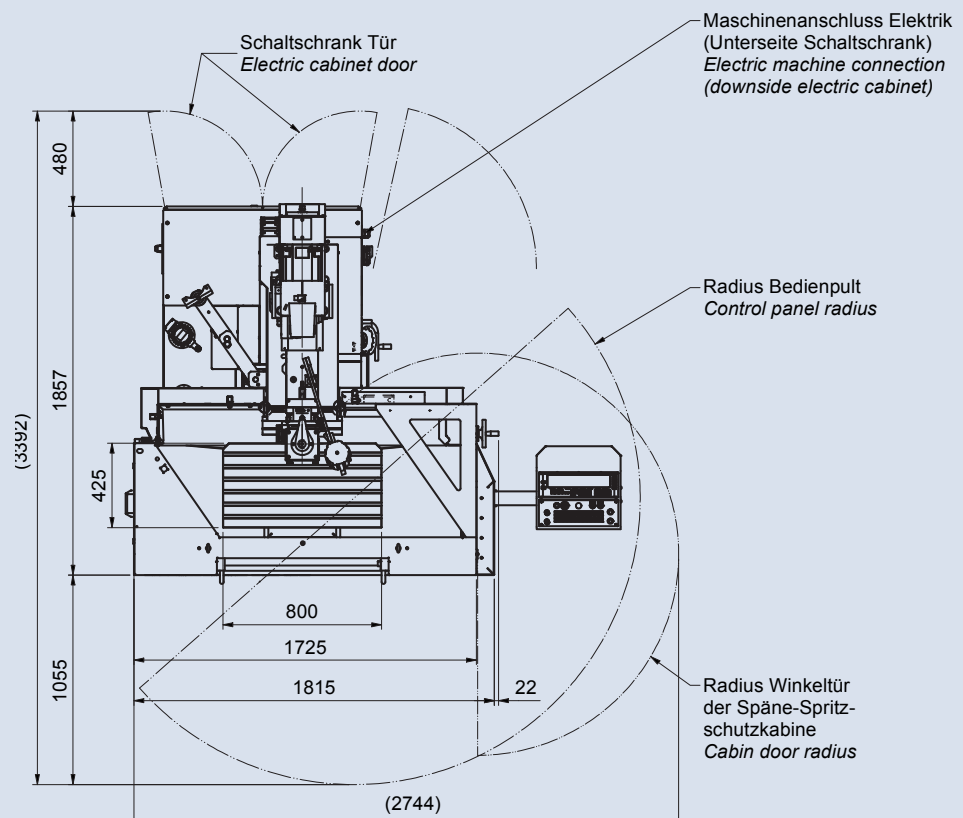
WF 410 MC



WF 410 MC



WF 610 MC



**STANDARD EQUIPMENT**

- Vertical milling head with quill
- Oriented spindle stop
- Flat guideways in all axes (hardened)
- Ball screws
- Linear encoders
- Manual handwheels
- Automatic central lubrication
- Coolant tank, free-standing, 66 liters
- LED machine light
- Leveling elements

**OPTIONS**

- Rigid angular table
- Universal tilting-swiveling table
- Minimum-quantity lubrication system
- Horizontal spindle
- Arbor holder
- Electronic handwheel HR 510 FS
- Touch probe systems
- CNC dividing head
- Collision protection coupling
- Rinsing gun
- KUNZMANN StateViewer Premium

<b>Working range</b>	longitudinal, X axis cross, Y axis vertical, Z axis	410 / 610 mm 350 / 400 mm 450 mm
<b>Main drive</b> at 1,000 rpm	perf. at 100% of duty cycle perf. at 25% of duty cycle torque at 100% of duty cycle torque at 25% of duty cycle	6.8 kW 13 kW 65 Nm 124 Nm
<b>Spindle speed</b>		5,000 rpm
<b>Feed drives</b>	AC single drives	
<b>Feed</b>	X / Y / Z axis	5 m/min
<b>Swiveling range of vertical milling head</b>		+/- 90°
<b>Vertical quill</b>	stroke	70 mm
<b>Tool taper</b>		SK 40 DIN 69871 HSK 63-A DIN 69893-1
<b>Angular table</b>	WF 410 MC WF 610 MC	650 x 375 mm 800 x 425 mm
<b>Universal tilting-swiveling table</b>	rotational angle digitally indicated	650 x 395 mm
<b>Operating voltage</b>		400 V / 50 Hz
<b>Control</b>	HEIDENHAIN	TNC 620
<b>Power consumption</b>		13 kVA
<b>Installation weight</b>	WF 410 MC WF 610 MC	approx. 2,100 kg approx. 2,200 kg



Visit our  
Website

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