KUNZMANN®
FRÄSMASCHINEN

WF 410 M
WF 610 M

UNIVERSAL MILLING AND DRILLING MACHINE



KUNZMANN-FRAESMASCHINEN.DE

CONVENIENT AND HANDY

UNIVERSALITY

The primary fields of application for KUNZMANN's WF 410 M and WF 610 M are workshops and training facilities, but also the precise manufacturing of individual parts and small batches. The vertical milling head has an extendible quill and can be swiveled by up to ±90°. 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.

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. Automatic axis clamping via the feed motor brakes ensures maximum operational safety.

EASY HANDLING

Due to optimum accessibility and ergonomically arranged operating elements, the WF 410 M and WF 610 M are flexible, compact, and easy-to-handle machines. The TNC7 go positioning control is centrally mounted on a rotary control desk and a pivoting arm. The operator can thus equally reach working area and control elements in a convenient manner. Our machine standard includes automatic mechanical tool clamping, an automatic central lubrication system, and a separate coolant system.

AUTOMATIC MODE WITH CABIN

If required, our machines can be equipped with a splash guard cabin for automatic machine operation. Furthermore, you may work with the KUNZMANN software option "Approximate Radius" for milling rounds with constant radii.



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





↑ View manual positioning function



↑ View graphical positioning

HEIDENHAIN TNC7 GO POSITIONING CONTROL

The WF 410 M and WF 610 M are manually operated machines featuring an easy-to-use path control system and a 16-inch touch screen. Operation is workshop-friendly, utilizing dialogs, cycles, and graphical assistance.

Programming:
The control system employs user-friendly plain-text dialog commands, comparable to those found in other Heidenhain CNC controls.

Safety Function:
The AFR function developed by KUNZMANN automatically adjusts the feed rate based on spindle load, effectively preventing overload damage.

User Selection:
A key switch allows selection between three operating modes, with the key being removable. The system enables customization of the control scope according to the user's qualification level.

1. Manual Mode (3-axis digital readout)
- Manual axis movement using directional keys
- Step increment function
- Definition of feed rates and spindle speeds
- Automatic feed without target value input
- Input and execution of a target positioning block with absolute and incremental/chain dimensions, radius compensation
- Visual display of remaining travel distance
- Graphical positioning
- Display of spindle and axis load
- Tool and workpiece offset tables
- Probing functions for setting reference points (edge, centerline, circle center)
- Electronic handwheel (optional)

2. Program Single Block Run
Includes all functions of "Manual Mode", plus:
- Manual Data Input (MDI) – input and execution of multiple target positioning blocks
- Programming
- Graphical simulation
- Single block program run
- Oriented spindle stop

3. Full Sequence Run / Automatic Mode(*)
- Manual Mode" and "Single Run Mode" functions and additionally
- "Full Sequence Run" (automatic run of operating cycles and NC programs)
- "Approximate Radius" option

* (in combination with splash guard cabin)

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.

MECHANICAL COLLISION PROTECTION COUPLINGS

Significantly contribute to increasing machine protection while effectively reducing the extent of potential damage in the event of a collision.

SPINDLE ORIENTATION

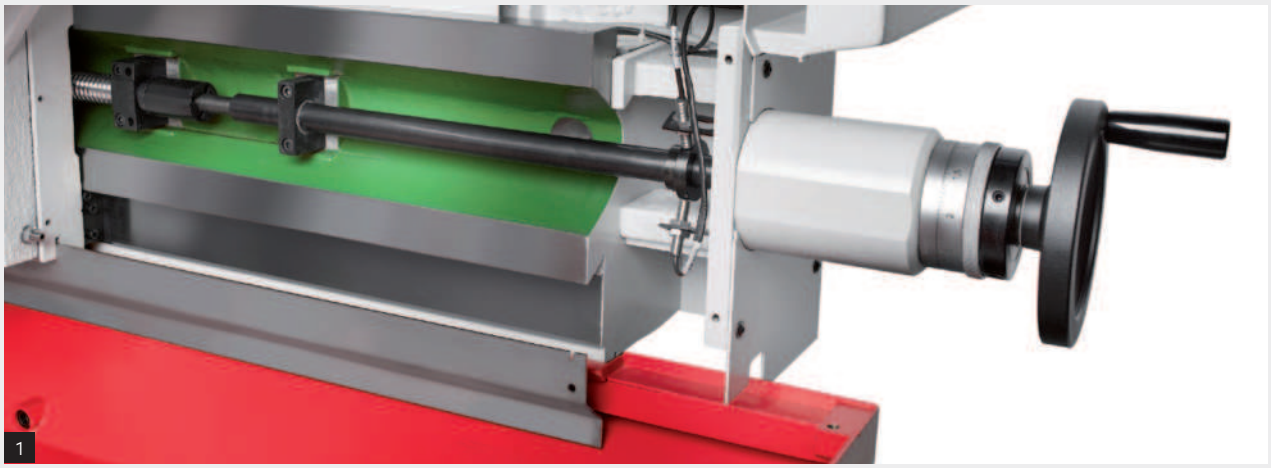
The automatic spindle orientation enables thread cutting without a compensating chuck.

SPLASH GUARD

Mounted on the machine's angle table. The foldable panels allow flexible adjustment to various working requirements.
(Not compatible with the universal tilting and swiveling table)

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.


1


2

Manual handwheel of X axis (1), Oil dripping pan and coolant tank (2), Splash guard (3)


3

MORE OPTIONS

HORIZONTAL SPINDLE WITH GEAR UNIT

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

MINIMUM QUANTITY LUBRICATION (MQL)

Controlled spray and dosing system for precise cooling of tools in the working area using an oil/air mixture.

UNIVERSAL TILTING AND 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.

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.

DIGITAL READOUT FOR QUILL STROKE

The quill stroke is comfortably displayed on the milling head display.

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.

WF 410 M with arbor holder, horizontal spindle (1), universal tilting and swiveling table (2), Electronic handwheel (3)



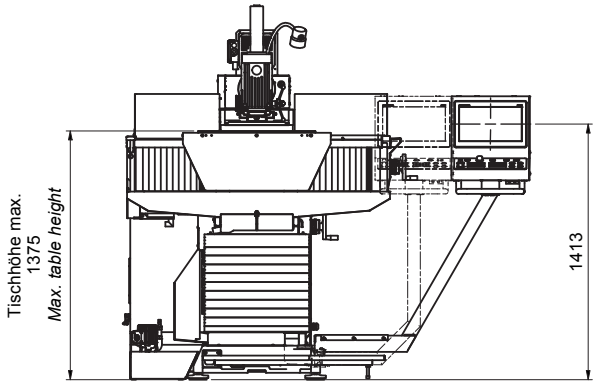
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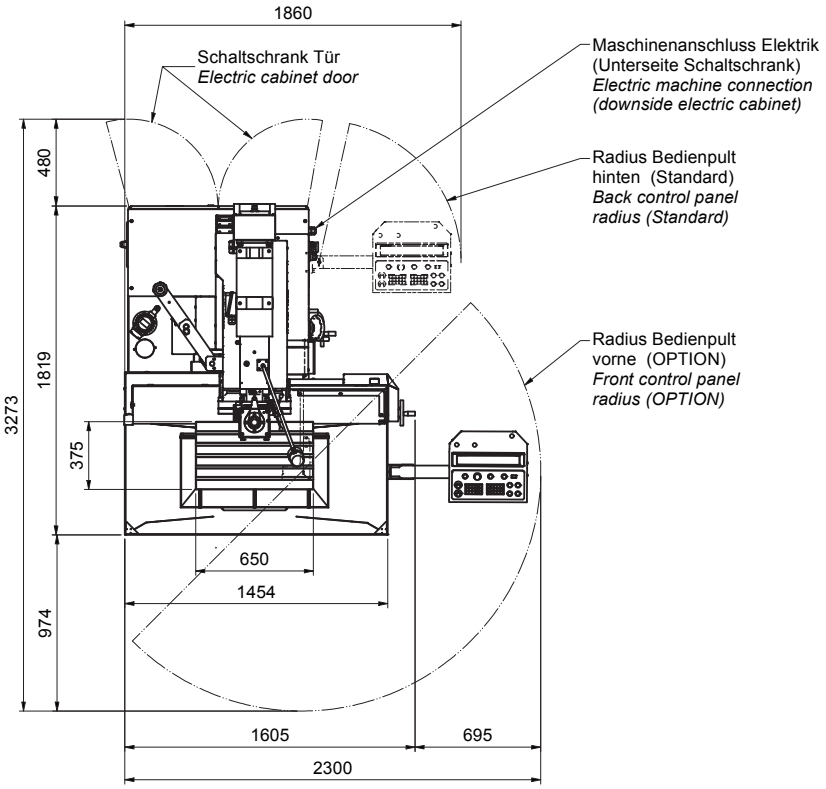

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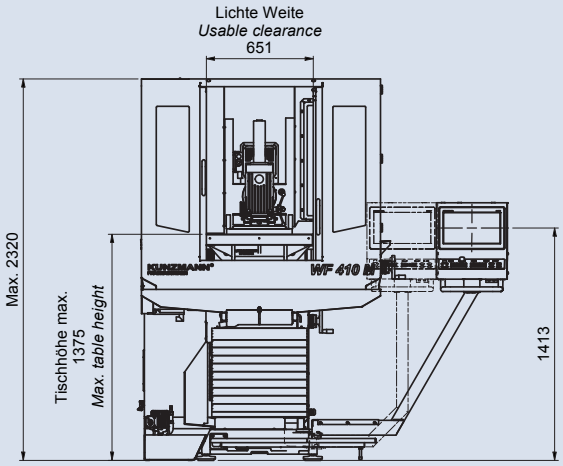
LAYOUTS

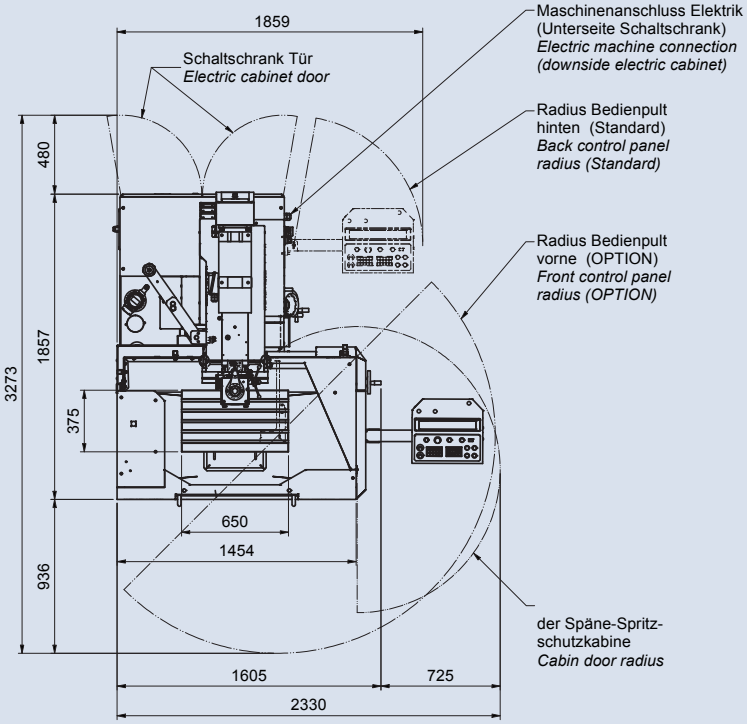
WF 410 M



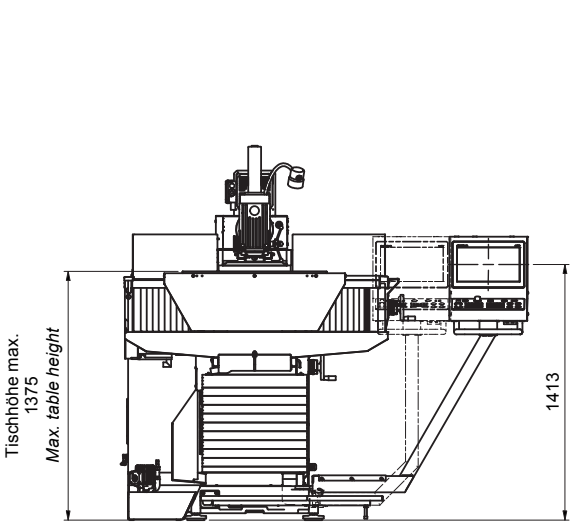


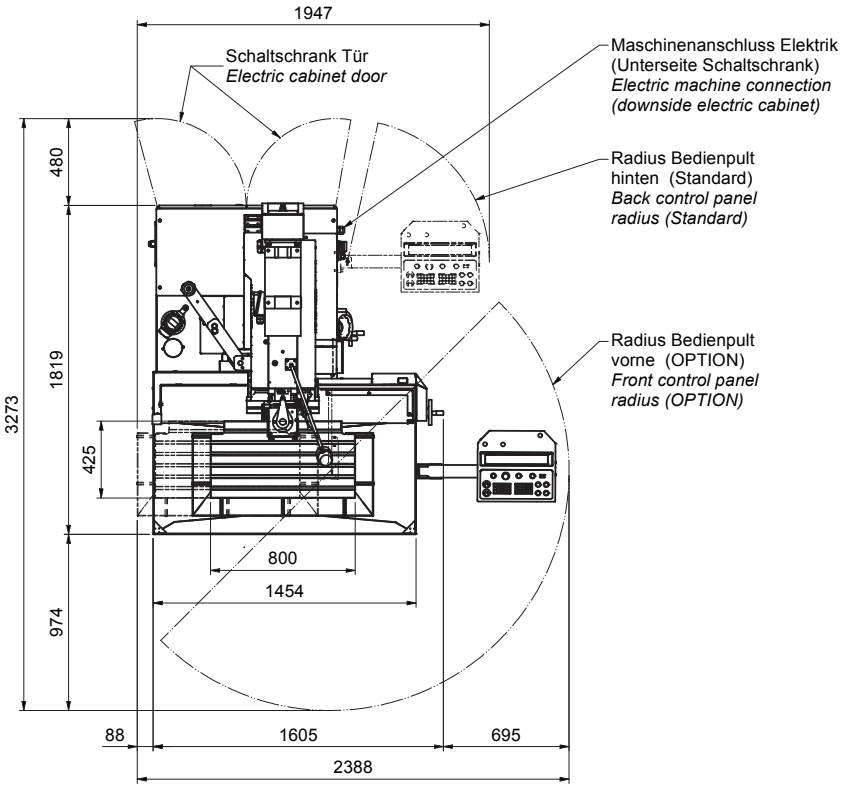
WF 410 M with splash guard cabin



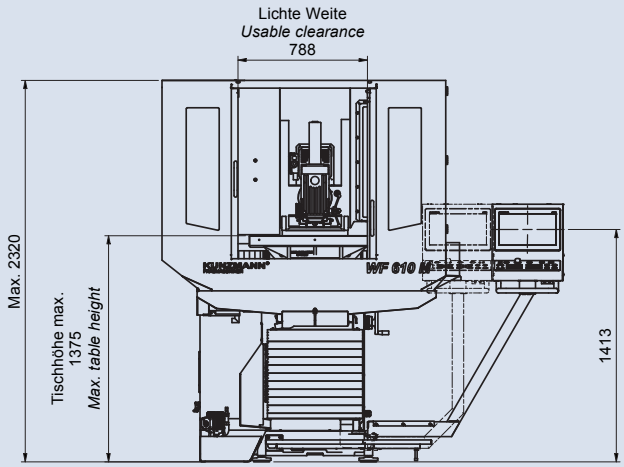


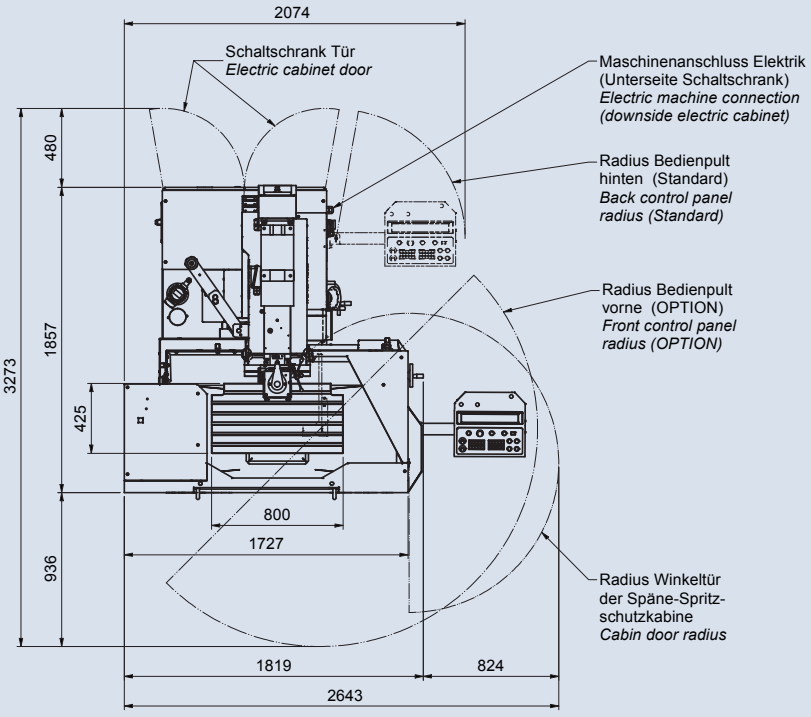
WF 610 M





WF 610 M with splash guard cabin





TECHNICAL DATA

STANDARD EQUIPMENT

- Rigid angular table
- Vertical milling head with quill
- Flat guideways in all axes (hardened)
- Ball screws
- Automatic axis clamping
- Automatic mechanical tool clamping
- Linear encoders
- Manual handwheels
- Automatic central lubrication
- Chip tray
- Coolant tank, free-standing, 66 liters
- LED machine light
- Leveling elements
- Spindel orientation
- KUNZMANN AFR (Automatic Feed Reduction)

OPTIONS

- Universal tilting-swiveling table
- Digital readout for quill stroke
- Electronic handwheel HR 510 FS
- Splash guard, foldable
- Splash guard cabin
- Minimum-quantity lubrication system
- Horizontal spindle
- Collision protection coupling
- Arbor holder
- Dividing head
- Touch probe systems
- KUNZMANN StateViewer Premium

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Working range 410 M / 610 M	longitudinal, X axis cross, Y axis vertical, Z axis	410 / 610 mm 350 / 400 mm 450 mm
Main drive * 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*	7.5 13 75 Nm 129 Nm
Spindle speed		1-4,500 rpm
Feed drives	AC single drives	
Feed	X and Y axis Z axis	5 m/min 5 m/min
Swiveling range of vertical milling head		+/- 90°
Vertical quill	stroke	70 mm
Tool taper		SK 40 DIN 7388-1 HSK 63-A DIN 69893-1
Angular table	WF 410 M WF 610 M	650 x 375 mm 800 x 425 mm
Universal tilting-swiveling table	rotational angle digitally indicated	650 x 395 mm
Operating voltage		400 V / 50 Hz
Control	HEIDENHAIN	TNC7 go
Power consumption		12 kVA
Installation weight	WF 410 M WF 610 M	approx. 1,950 kg approx. 2,000 kg

Technical changes reserved – as of 7/2023, design: DEEGDESIGN

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