

KUNZMANN® FRÄSMASCHINEN

WF 400 CNC
WF 600 CNC

UNIVERSAL MILLING MACHINE



UNIVERSALITY

WF 400 CNC and WF 600 CNC are the perfect solution for tool and jig makers, prototype construction, training as well as processing of precise individual parts and small batches. The universal milling machines are outstanding in their high productivity, maximum precision, and accessibility. In place of the rigid angular table, WF 400 CNC and WF 600 CNC can also be equipped with a universal tilting and swiveling table including a digital readout.

HIGH PERFORMANCE

Modern high torque drives as well as a solid machine column with hardened flat guideways also make it possible to process materials that are difficult to machine. Maximum performance machining is possible due to an angular gearbox with intermediate transmission, which even allows operations with disk milling cutters up to a diameter of 150 mm. Spindle speeds and feed rates can be steplessly adjusted via potentiometer.

MAXIMUM PRECISION

Direct path measurement systems and ball screws in all axes provide high-precision positioning and repeatability. Maximum precision is guaranteed by circulatory cooling in the upper slide and the electronic temperature compensation of the Y axis.

CONVENIENCE FUNCTIONS

► MONITORING OF MAINTENANCE TIMES

The machine control monitors and reports coming due maintenance services. The report of important maintenance requests avoids machine malfunctions and guarantees a high machine availability.

► AFR – AUTOMATIC FEED REDUCTION*

The control constantly monitors the spindle load during operating. If the set load is exceeded, the AFR automatically and gradually adjusts the feed rate.

Advantages of AFR:

- The maximum spindle load can be set for each tool individually.
- The tools are monitored, which conserves the spindle and machine mechanics.
- Damage to the tool, the work piece, and the machine/spindle due to an overload is avoided. This ensures machine availability.

► ORIENTATED SPINDLE STOP

Machine and control allow thread cutting without compensating chuck

ERGONOMICS AND ACCESSIBILITY

A large slide front door as well as a slide door on the right machine side make the working area and the workpiece perfectly accessible. You can position the ergonomic control desk right in front of the machine. The electronic handwheel supports the operator in setting up and retooling the machine.

OPERATING MODES

- Depending on the control, you can choose between up to four operating modes by key switches (fig. 3). The operator's key management guarantees that only qualified operators can call the respective operating modes.

► Automation

Full contouring control functions with closed cabin doors

► Setup

Axes can be moved separately and milling spindle can be activated (with doors open, if enabling switch is pressed)

► Intervening

Axes can be moved simultaneously (interpolant movements) and milling spindle can be activated (with doors open, if enabling switch is pressed). Thus, you can intervene with the program run.

► Manual Mode (with Heidenhain control only):

You can operate the machine like a manual milling machine.

- Axis direction buttons
- Incremental jog function
- Electronic handwheel
- KUNZMANN positioning function: You can set a positioning block and travel according to this block with incremental or absolute dimensions, or with radius compensation respectively.

Furthermore, you can use the quill for manual drilling operations (like a box collum drill).

* In combination with Heidenhain control



Optimum working area accessibility (1),
WF 600 CNC with full protection cabin (2), key switches (3)



► SIEMENS 840D sl

High-end control with 19" multitouch display and large keyboard and control panel. The bent and pivotable control desk allows ergonomic working. The electronic Mini-BHG handwheel supports the operator in setting up and retooling the machine.

**► HEIDENHAIN TNC 640**

High-end control with 19" multitouch display and large keyboard and control panel. The bent and pivotable control desk allows ergonomic working. The electronic HR 510 FS handwheel supports the operator in setting up and retooling the machine.



OPTIONS

ARBOR HOLDER

The arbor holder is an additional device for horizontal milling. In just a few steps, it is mounted to the upper slide of the machine and allows the efficient use of long cutter spindles with one or more disk milling cutters up to a diameter of 150 mm.

UNIVERSAL TILTING AND SWIVELING TABLE

The universal tilting and swiveling table allows the operator to position the workpiece in different angular positions. The adjustment is done manually using a handwheel while the rotation angle of the clamping plate is digitally indicated on the display of the control system.

CNC DIVIDING UNIT

By including a CNC dividing unit, you can process your workpieces from various sides. Programming is done via the 4th axis of the control. The dividing unit can be vertically (A axis) or horizontally (C axis) fastened on the angular table.

TOUCH PROBE SYSTEMS

Together with the probing cycles of the control system, triggering 3D touch probe systems simplifies the setup, measuring, and monitoring functions when manufacturing workpieces.

AUTOMATIC TOOL MEASUREMENT

The tool is a vital element in ensuring consistent manufacturing quality. Various control system cycles are used to automatically register tool parameters such as the exact tool length, tool radius and even tool wear.

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



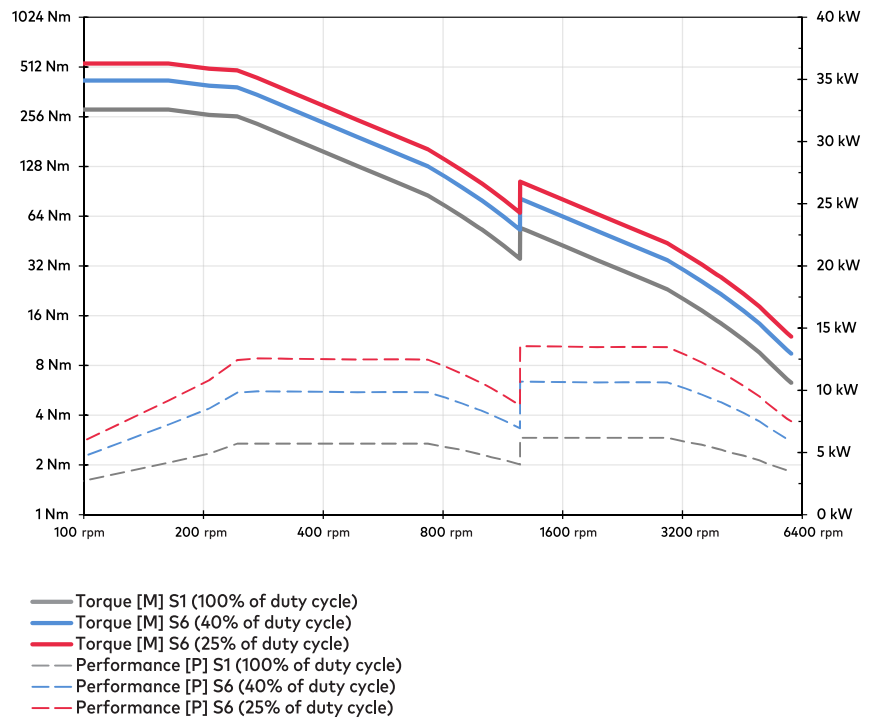
**HORIZONTAL/VERTICAL SPINDLE
5,000 RPM**

The universal milling machines KUNZMANN WF 400 CNC and WF 600 CNC are equipped with a two-stage gear box. Additionally, the spindle speed in each gear stage is infinitely adjustable through a potentiometer.

► **Performance**
5.5 kW (100% of duty cycle)*
12 kW (25% of duty cycle)*

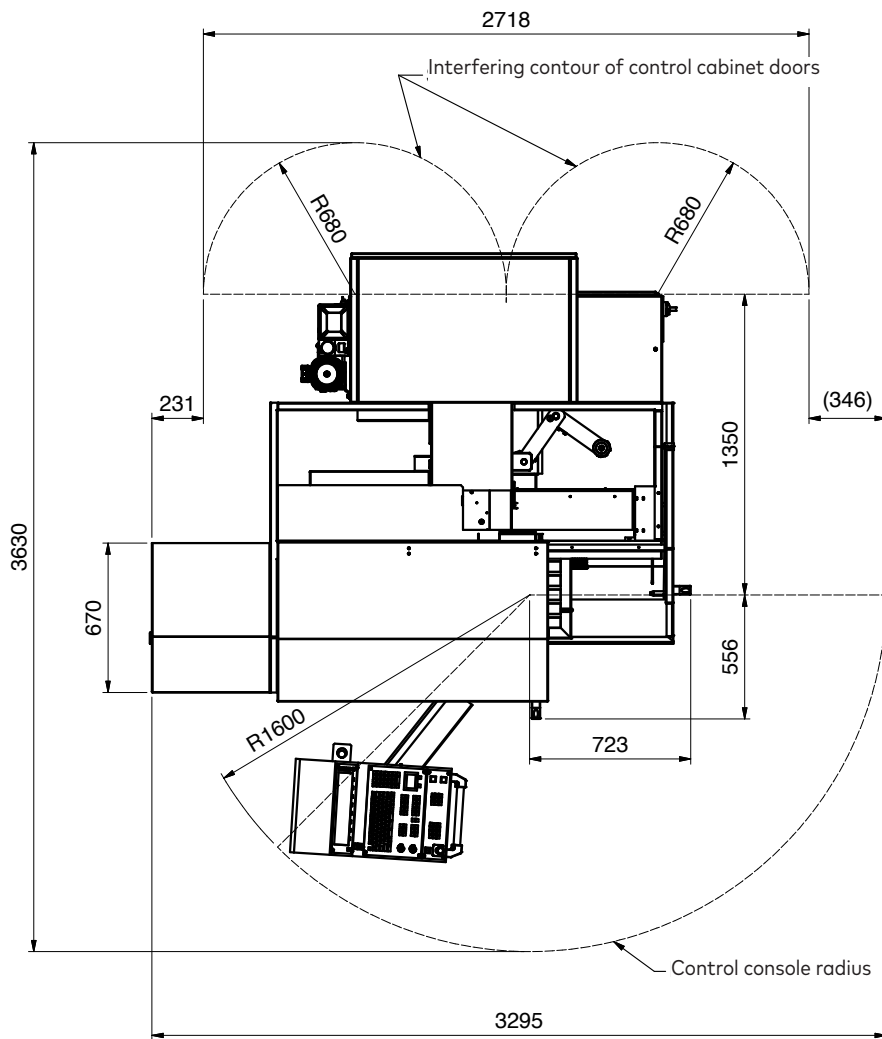
► **Torque**
74 Nm (100% of duty cycle)*
140 Nm (25% of duty cycle)*

*(at 800 rpm)

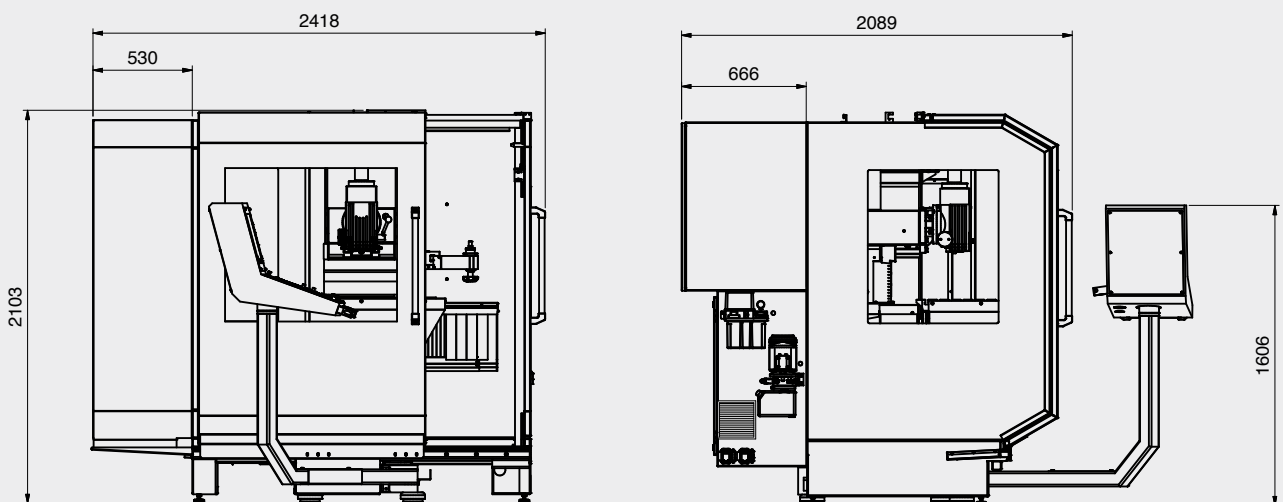


LAYOUTS

WF 400 CNC / WF 600 CNC



WF 400 CNC / WF 600 CNC



STANDARD EQUIPMENT

- ▶ Vertical milling head with extending quill
- ▶ Horizontal spindle
- ▶ Orientated spindle stop
- ▶ Stable cast iron column with flat guideways in all axes (hardened)
- ▶ Circulatory cooling in upper slide
- ▶ Y axis temperature compensation
- ▶ Hydraulic tool clamping
- ▶ Ground ball screws
- ▶ Linear path measuring systems
- ▶ Electronic handwheel
- ▶ Full protection cabin
- ▶ Coolant fluid tank, free-standing, 70 liters
- ▶ Leveling elements

OPTIONS

- ▶ Rigid angular table
WF 400 CNC: 650 x 375 mm
WF 600 CNC: 800 x 425 mm
- ▶ Universal tilting/swiveling table
650 x 395 mm (rotary angle digitally indicated)
- ▶ Arbor holder
- ▶ Touch probe systems
- ▶ Minimum-quantity lubrication system
- ▶ CNC dividing unit – 4th axis

Working range 400 CNC / 600 CNC	Longitudinal, X axis	400 / 600 mm
	Cross, Y axis	350 / 400 mm
	Vertical, Z axis	400 mm
Main spindle drive * at 800 U/min	Horizontal/vertical spindle	
	Performance at 100% of duty cycle*	5,5 kW
	Performance at 25% of duty cycle*	12 kW
Spindle speed	Horizontal and vertical spindle	1 - 5,000 rpm
	steplessly adjustable, 2 mechanical gear stages	
Feed	X and Y axis	10 m/min
	Z axis	6 m/min
Swiveling range of vertical milling head		+/- 90°
Vertical quill	Stroke	70 mm
Tool taper		SK 40 DIN 69871 / 2080 / 7388
Operating voltage		400 V / 50 Hz
Controls	HEIDENHAIN	TNC 640
	SIEMENS	840D sl
Power consumption		approx. 23 kVA
Machine weight	WF 400 CNC	approx. 2,000 kg
	WF 600 CNC	approx. 2,200 kg



Visit our website

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- ▶ Manufacturer of universal milling machines and vertical machining centers
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