



# HARMUTH CNC-FRÄSTECHNIK



Perfection  
made in Germany

[www.harmuth-cnc.de](http://www.harmuth-cnc.de)



Acryl- und Frästechnik GmbH



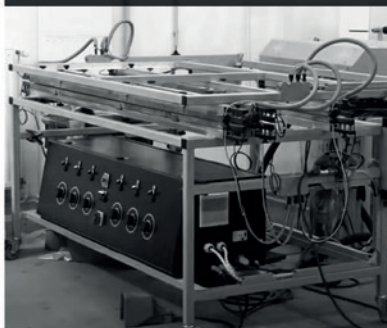
zum  
SHOP



Fräser-Omlineshop



Gebraucht- und Vorführmaschinen



Kunststoff-Bearbeitungsmaschinen



Service + Nachschleifen



## FRÄSWERKZEUGE FÜR KUNSTSTOFFE, ALUMINIUM UND HOLZ HARTMETALL-, DIAMANT- UND PKD WERKZEUGE IN HÖCHSTER QUALITÄT.

In unserem Onlineshop führen wir eine Vielzahl von High End Fräswerkzeugen für CNC-Fräsmaschinen. Alle angebotenen Werkzeuge in unserem Shop werden ausgiebig getestet, damit wir Ihnen den bestmöglichen Fräser anbieten können. Wir sind mit den Harmuth CNC-Maschinen bestens vertraut. Aus diesem Grund sind wir in der Lage, Sie sowohl telefonisch als auch online zu unterstützen, wenn es um die Auswahl von Werkzeugen oder um die Anwendung auf Ihrer Harmuth CNC-Fräsmaschine geht.

Unsere Fräswerkzeugschwerpunkte liegen in den Bereichen Kunststoff, Aluminium und Holz, darüber hinaus liefern wir Sonderwerkzeuge wie VHM, Diamant- und PKD-Schaftfräser oder Formfräser nach Ihren Vorgaben innerhalb 1-2 Wochen.

Ferner bieten wir für den Kunststoffverarbeiter oder Werbetechnik Betrieb verschiedene Maschinen und Handlinggeräte an, die Ihnen das Leben erleichtern.

Lassen Sie sich inspirieren oder nutzen Sie unser Know-how für mehr Erfolg.

[www.afacryl.com](http://www.afacryl.com)





## Harmuth CNC-Frästechnik

We are your specialists for the development, production, sales and service of complete CNC milling systems. With over 20 years of experience, we have been manufacturing CNC-controlled milling machines since 2000 and are one of the leading companies in the industry. Our company headquarters with our production in Germany is a rare quality feature, especially in today's world where production is often outsourced abroad. Our customers and partners, who we consistently inspire with the highest quality work, trust in our „made in Germany“ guarantee. We attach great importance to the robustness and durability of all components installed in our machines.

On an area totalling 3500 m<sup>2</sup> with a new production building and our own assembly hall, we design and manufacture exclusively high-quality and innovative milling machines. Thanks to our comprehensive product range and diverse equipment options, we offer each of our customers an optimal and needs-orientated product solution. 500 satisfied customers and over 600 CNC machines already delivered speak for themselves.

With our first-class services, we are always at your side as experts.  
With us, you receive full support from a single source:

- ✓ Personalised and comprehensive advice
- ✓ Expert system demonstration with your materials
- ✓ Application-orientated configuration of your machine
- ✓ Reliable delivery & expert system instruction
- ✓ On-schedule maintenance & professional repair work
- ✓ Telephone and online support
- ✓ Digital offers: Data and download service, tutorials



# Which milling machine is the right one?

Our portfolio includes three different basic types, two of which can also be manufactured in a vertical design. The choice of the right machine basically depends on the materials to be processed, the required speeds and the desired functions.

## About the design

The F+Serie and Profi-Serie 1 types have a steel frame with a low-vibration aluminium portal. They differ in terms of speed and range of functions. Both systems can be manufactured in a horizontal design or in a space-saving vertical version as F+Vertikal and Vertiform®. The Profi-Serie 2 is characterised by its all-steel construction and is always manufactured to customer specifications.

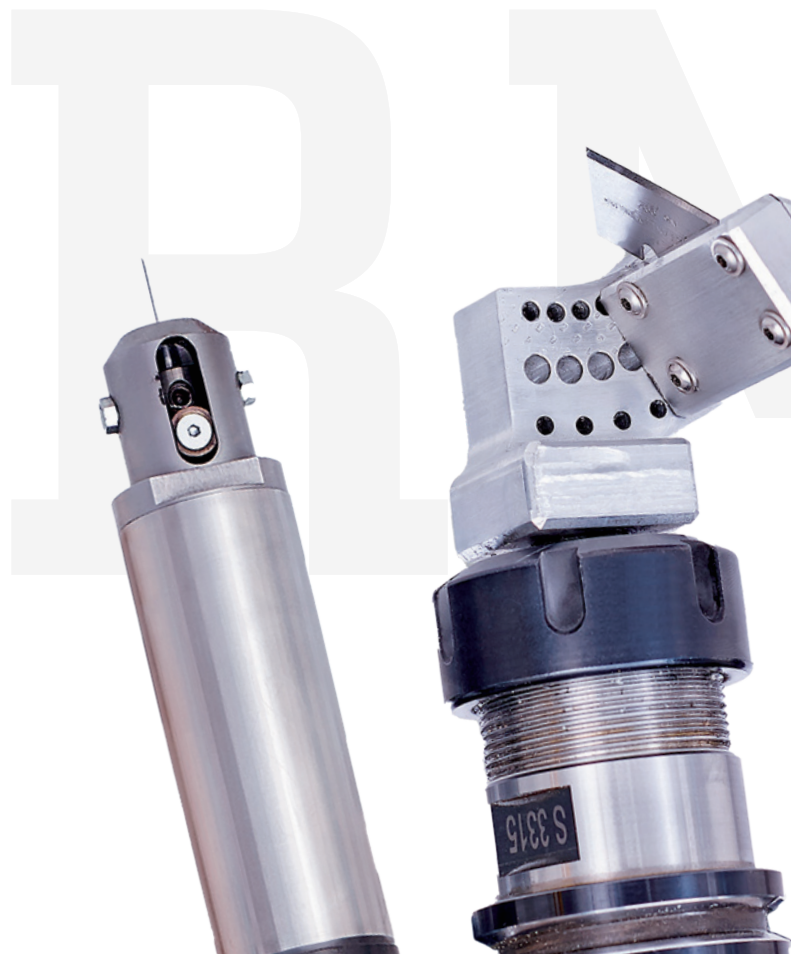
## Differences at a glance

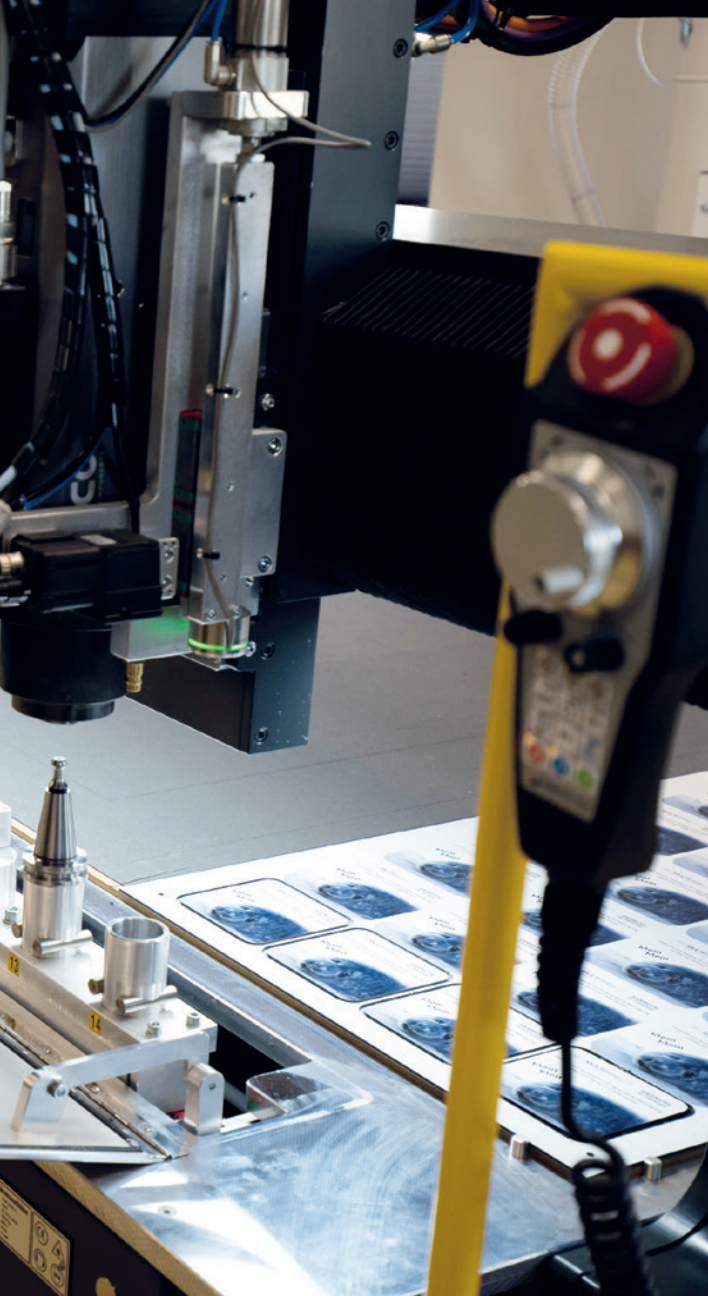
The F+Serie and F+Vertikal machines are our entry-level models. They are equipped with closed-loop stepper motor technology. The controller is more limited in its functions compared to our other systems. With their features, we recommend these machines if high speed and a wide range of functions are not required. The F+ models are used, for example, in advertising technology, plastics production or aluminium processing.

The Profi-Serie 1 and the vertical version Vertiform® are absolute top performers. They are manufactured with an industrial control system from „Beckhoff“ and deliver a wide range of functions and high speeds. With their advantages, they are mainly used in the fields of advertising technology, plastics production or aluminium processing.

Our special machine construction Profi-Serie 2 combines high speed with extreme stability. We recommend this model if very heavy or very long components are to be produced. The special table provides many clamping options. Areas of application include vehicle construction, aircraft construction and other branches of industry.

Profi-Serie 1, Vertiform® and Profi-Serie 2 are laser-measured on all axes (axis correction) and are therefore always very precise at all positions.





## Energy efficiency of the milling machines

One of the biggest advantages of our CNC milling technology is the unique energy efficiency of our machines. Many of our equipment features enable remarkable energy savings - often up to 70%!

### Standby mode

After 10 minutes of non-use, the machine automatically switches to standby mode.

*Savings of 70% when not in use!*

### Milling spindle

The encoder-controlled milling spindles regulate the spindle speed depending on the load.

*Savings of approx. 15%!*

### Vacuum pump

Our machines use pressure-regulated vacuum pumps that are controlled by the software used.

*Savings of up to 70%!*

### Automatic vacuum valves

The vacuum valves are controlled by the software. Vacuum areas are automatically switched on where milling is taking place. The vacuum is switched off in areas that have already been processed. This automatic switching on and off saves energy and avoids secondary air.

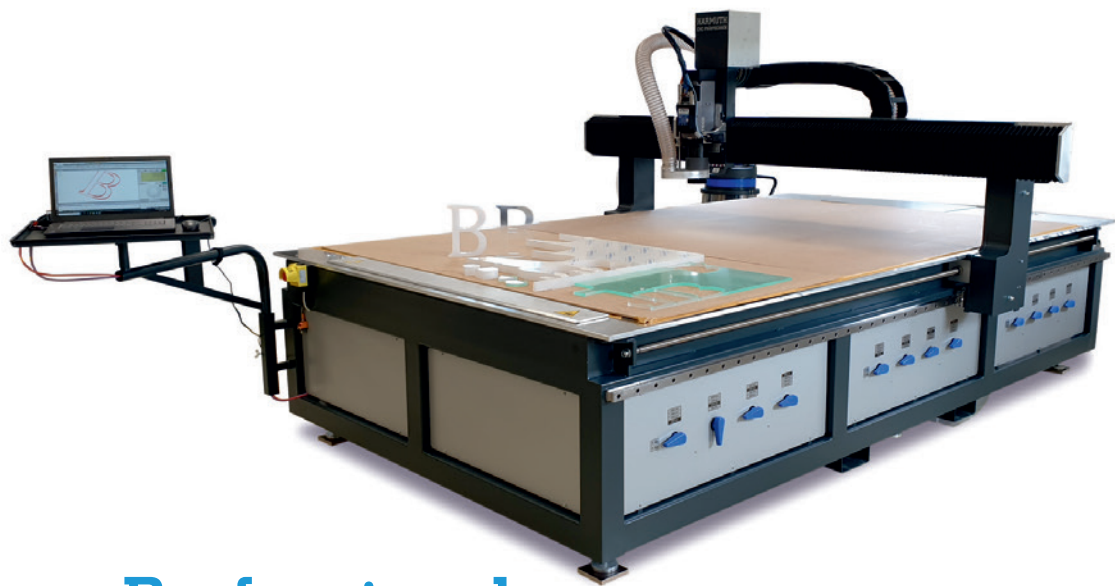
*Savings of 50-70%!*

### Industrial vacuum system Profi 4 kW

Thanks to the frequency-regulated, software-controlled professional vacuum system, only the power required to convey the chips is needed.

*Savings of 50%!*





## F+Serie – Professional milling machine at an entry-level price

The newly developed F+Serie is identical in design to our professional series. Thanks to the construction of steel profiles and the portal made of a heavy aluminium profile, there is less vibration, which optimises the milling results.

Another new feature is the modern closed-loop stepper motor technology, which ensures dynamic axis movements. This drive technology makes the system run more smoothly and with less resonance. High torque at low speeds enables more precise positioning.

The F+Serie is frequently used in advertising technology. Lettering for advertising structures, boards for labelling or free-form shapes can be produced from all non-ferrous materials. Due to its low price, the model is particularly suitable for beginners who want to establish themselves on the market.

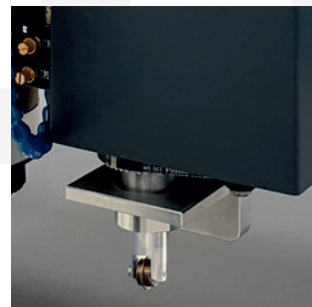
The new machine is ready for immediate production upon delivery. The “Penta-Tec” software specially developed for Harmuth CNC is easy to operate and already offers many presets for standards in advertising technology. Once a simple text form has been opened, the software carries out milling paths and numbering completely automatically. Collaboration with various rib software such as “Colorgate” also works smoothly.

For those who want more, we offer an extensive range of accessories. The F+Serie can be optionally equipped with register mark recognition, tool changer, various milling spindles, positioning laser, vacuum pump, industrial vacuum system and much more.

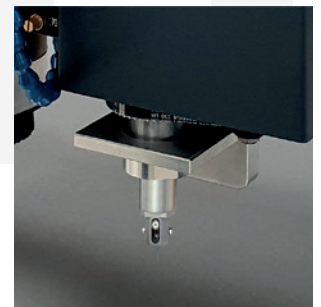
A particular highlight is our new C-axis, which can be quickly and easily changed between tangential knife, oscillating knife and even the creasing wheel using a quick-clamping system.



Tangential knife



Creasing wheel



Oscillating knife

# F+Vertikal – the space-saving alternative

The F+Vertikal is also the ideal milling machine for beginners. It has been specially designed for small spaces and is particularly space-saving, easy to load and energy-efficient thanks to its design.

The F+Vertikal combines all the advantages of the F+Serie with the space-saving advantages of our professional Vertiform®. The milling system is ready for immediate use upon delivery and is ideally suited for newcomers to the world of CNC milling.

The new F+Vertikal can be equipped with additional accessories on request. Possible options include Pneumatic changing system for milling spindle, tool changer and tool holder

- ✓ High-frequency spindle
- ✓ Point laser for easier setting of the zero point
- ✓ Register mark recognition by means of a camera

## Technical data for F+Serie and F+Vertikal:

- ✓ Machine substructure made entirely of steel
- ✓ Portal made of heavy aluminium profile
- ✓ Driven nut with closed-loop system stepper motors
- ✓ C-axis interchangeable for all blade types and also the creasing wheel via quick-clamping system
- ✓ Recirculating ball screws on all axes from Bosch Rexroth
- ✓ Length measuring probe for tool measurement
- ✓ Suction device
- ✓ Vacuum table made of cast aluminium, milled as a "checkerboard pattern", which is divided into adjustable areas (500 × 1000 mm) via ball valves
- ✓ Y-axis protected from dust by bellows
- ✓ Complete control electronics integrated
- ✓ Milling ranges from 2100 × 1560 × 170mm to 4100 × 2060 × 170mm

## Specially for F+Serie:

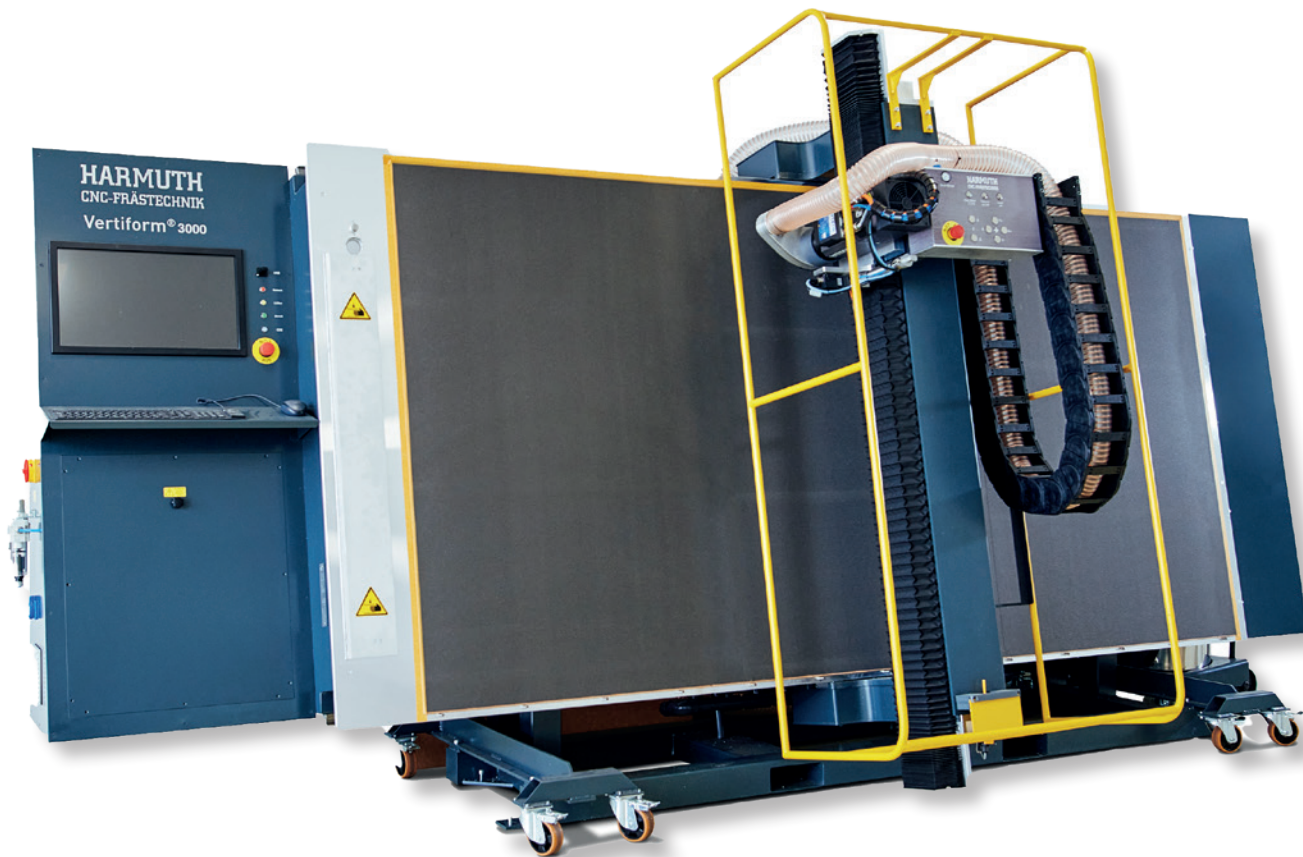
- ✓ Adjustable steel feet

## Speziell für F+Vertikal:

- ✓ Permanently installed control computer



And the milling machine is upside down



## Vertiform® – the latest generation

With the latest generation of our Vertiform®, different materials can be easily processed with the highest precision. It combines all the advantages of a CNC portal milling machine from our Profi-Serie 1 with the space-saving concept of a panel saw.

This new way of milling is particularly interesting for advertising and plastics technicians. With milling speeds exceeding 10 m/min for plastics and up to 4 m/min for aluminium, components for illuminated signs and outdoor advertising systems can be produced in minimum time. This is an incredible advantage, especially in series production.

The new Vertiform® has a safety bar that triggers under load and stops the fast-moving milling unit. The vacuum is

constantly monitored by the software so that the system switches to the “stop” state if the vacuum is too low. For manual positioning, each milling unit has a special control panel with fast and fine control of the increments.

Our Vertiform® can be equipped with an encoder-controlled milling spindle and enables the use of different tools directly via the tool changer. This means that different materials such as magnetic foils, cardboard, foams, plastic or aluminium can be processed directly without changing over. Everything is possible with the new spindle: creasing, oscillating knife, tangential knife, V-cut, thread cutting, milling.

### ALUMINIUMVERBUNDPLATTEN - EINE VIELZAHL VON ANWENDUNGEN



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a multitude of applications

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und Wegeführungsanwendungen –  
Multipanel bietet die passende Lösung.

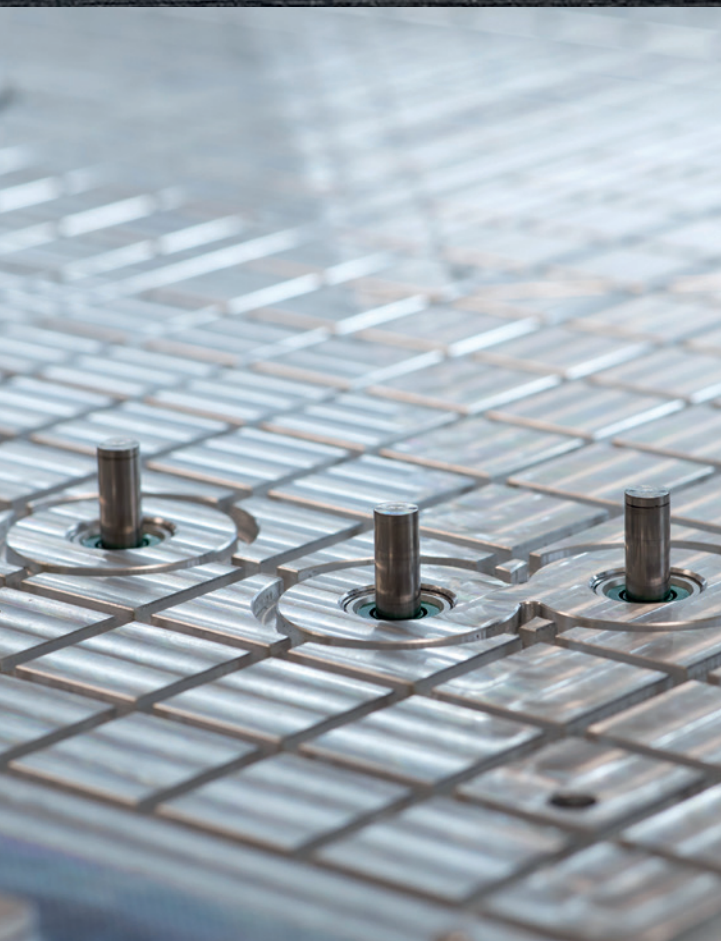
👍 Alupanel 👍 Alupanel A-Lite 👍 Multishield 👍 Alupanel Lite  
👍 Alupanel Eco 👍 Alupanel Colours 👍 Alupanel Smart



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Film ab!

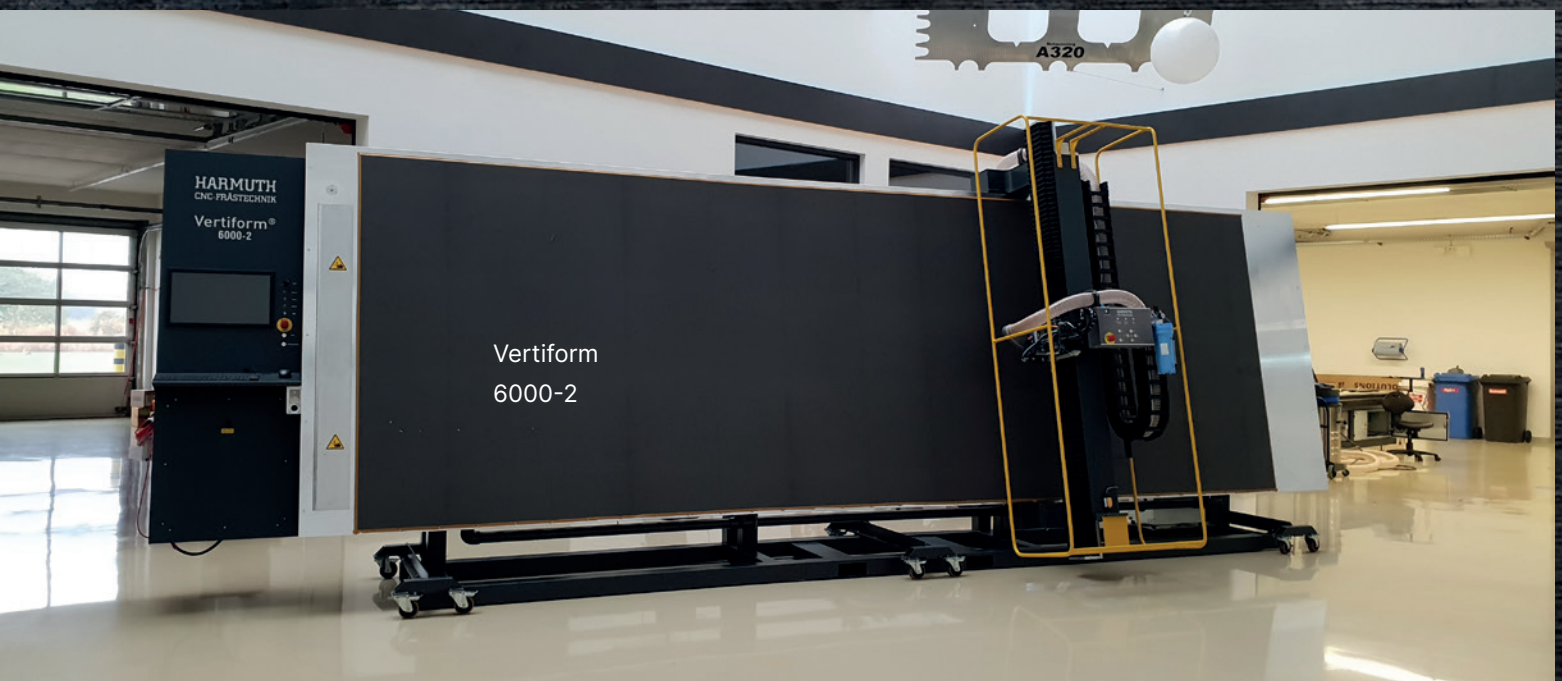


### Technical data:

- ✓ Construction made of steel profiles, welded and painted
- ✓ Z-travel height of 170 mm for standard machines (height with oscillating blade is 270 mm)
- ✓ Suction guide and cable guide completely integrated in the machine
- ✓ Manual and pneumatic tool changing systems
- ✓ Driven by recirculating ball screws. The ball nuts are driven on the X-axis and the spindles on the Y- and Z-axes.
- ✓ Servomotors with multi-turn absolute value system
- ✓ No reference run at start, machine always knows the current position via the internal absolute encoder
- ✓ Positioning speeds X/Y up to 37m/min, Z 8m/min
- ✓ Electronics are integrated in the machine.
- ✓ All machines are manufactured from industrial components and have a control panel with integrated industrial computer.
- ✓ Incl. control electronics, industrial components "Beckhoff" via EtherCat
- ✓ Vacuum table made of cast aluminium, milled as a "chessboard pattern", which is divided into various adjustable areas (500 × 1000 mm)
- ✓ An MDF panel is screwed onto the vacuum table and an induction foam is fixed in place.
- ✓ The induction foam only allows air to pass in the Z direction and acts as a seal and anti-slip mat on the sides.
- ✓ Milling ranges from 2100 × 1560 × 170mm to 6100 × 2060 × 170mm

### Optional equipment:

- ✓ Pneumatic tool changer
- ✓ Zero-point stop
- ✓ Register mark recognition by means of camera
- ✓ Tangential knife
- ✓ Oscillating knife
- ✓ V-Cut
- ✓ Thread cutting
- ✓ Automatically controlled vacuum valves
- ✓ LED light bar
- ✓ Pneumatic vices



# Profi-Serie 1 – the powerful all-rounder

Compared to the F+Serie, the Profi-Serie 1 has been developed for milling work in heavier materials at a significantly higher speed. Thanks to the more stable frame construction using a fully welded steel structure and a portal made from an extruded heavy aluminium profile, the system is particularly stable and therefore makes effective use of the high speed advantages of the fast servomotor. In contrast to the stepper motor, the servomotor delivers a much higher resolution and therefore an extremely fine feed movement of  $\pm 0.01$  mm. At the same time, it does not generate any resonance. The integrated absolute value and absolute path detection eliminates the need for reference runs.

The Profi-Serie 1 can be equipped with an encoder-controlled milling spindle, enabling the use of different tools directly via the tool changer without the need for changeovers. The tried-and-tested Profi-Serie 1 is supplied with the “Penta-Tec”

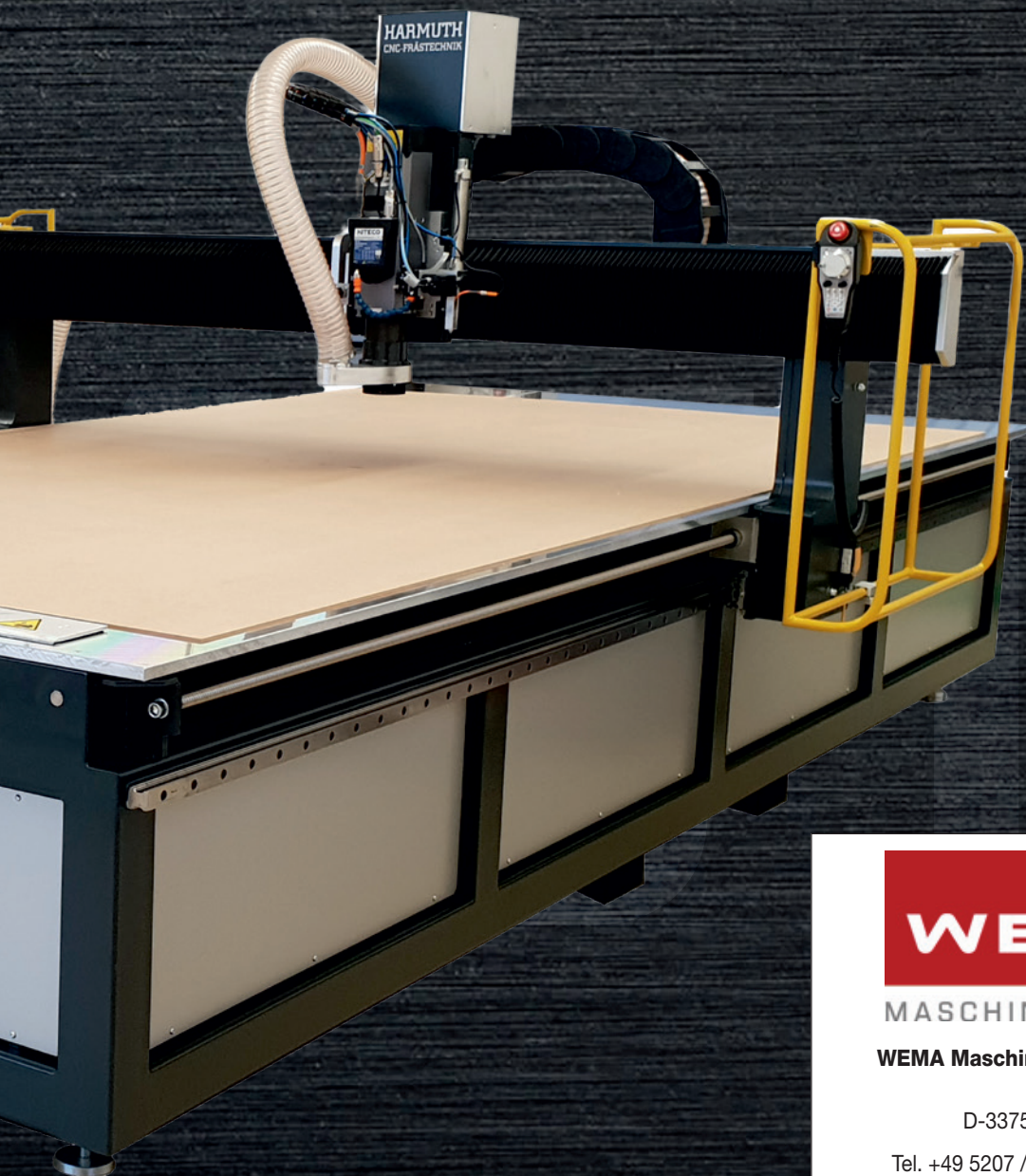


V3 software, in which the vacuum output of the system can be adjusted energy-efficiently according to the individual milling levels. The modern software also allows new projects to be programmed while the system is in operation. This significantly optimises the workflow. The integrated tool wear monitoring also supports a smooth production process.



## Technical data:

- ✓ Construction made of steel profiles, welded and painted
- ✓ Adjustable feet
- ✓ Z-travel height of 270 mm for standard machines, can be increased according to customer requirements
- ✓ Suction guide and cable guide fully integrated in the machine
- ✓ Manual and pneumatic tool changing systems
- ✓ The drives are equipped with recirculating ball screws (with dirt guard) and tapered roller flange bearings with a maximum clearance of 1/100 mm.
- ✓ On the X-axes, the machine is moved with a driven ball nut.
- ✓ Servomotors with multiturn absolute value system
- ✓ No reference run at start, machine always knows the position via the internal absolute encoder
- ✓ Positioning speeds X/Y up to 37m/min, Z 8m/min
- ✓ Electronics integrated in the substructure
- ✓ Control unit has additional relay for milling motor, dust extraction, minimum quantity lubrication or vacuum pump, which can be controlled both by the software and manually.
- ✓ Incl. control electronics, "Beckhoff" industrial components via EtherCat
- ✓ Control system can be expanded at any time
- ✓ All machines are manufactured with industrial components and have a control panel with integrated industrial computer. The signals all run according to the latest standard via EtherCAT.
- ✓ Milling table as T-slot table, vacuum table, both in combination, or with special fixtures
- ✓ Levelling probe for height measurement of the table (machine table correction)
- ✓ Operating unit on the machine, probe for automatic tool measurement
- ✓ Milling ranges from 2100 × 1560 × 270 mm to 6100 × 2060 × 270 mm



# WEMA

MASCHINENSCHUTZELEMENTE

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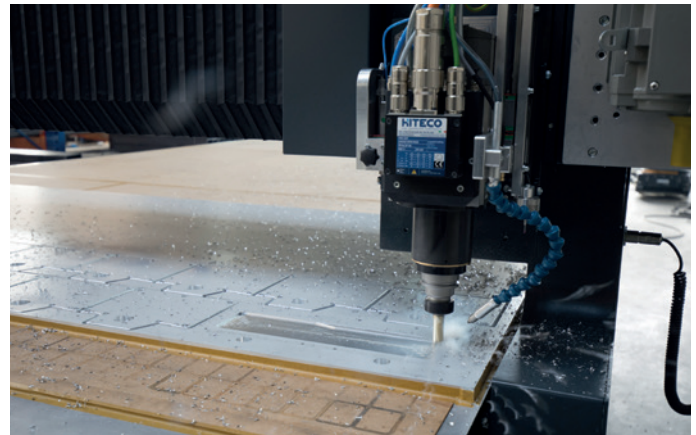
# Profi-Serie 2 – the customised special machine

With our customised machines, we manufacture your machine entirely according to your wishes and requirements, specifically tailored to your area of application and the materials to be processed.

The main components of the Profi-Serie 2 correspond to the configuration of the Profi-Serie 1 with a few special features. To accommodate large, heavy milling motors, the portal is made exclusively of steel, as are the linear guide and the ball screw.

For working under high, continuous loads, we use more powerful electronics and motors in the Profi-Serie 2. Additional stiffening in the basic construction prevents resonance vibrations and at

the same time enables heavy workpieces to be accommodated. The Profi-Serie 2 can accommodate milling spindles with an output of up to 30 kW for machining a wide range of materials.



Als zuverlässiger Partner für den gesamten Supply Chain-Prozess bieten wir Ihnen Beratung, Planung und Realisierung in den Bereichen CNC gestützter Metallverarbeitung, Intralogistikdienstleistungen und individuellen IT-Lösungen.

**A&T Manufacturing GmbH, Flagbalger Straße 5, 26954 Nordenham**

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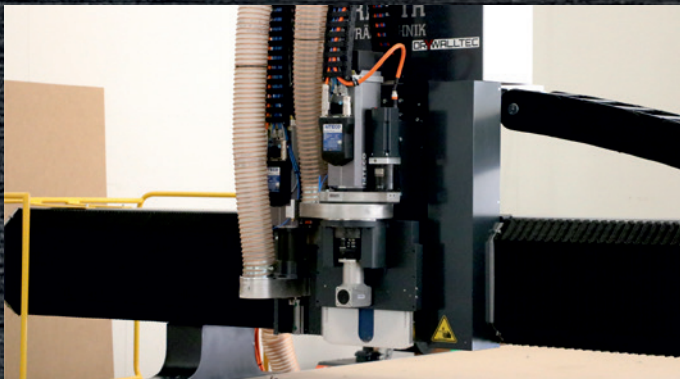
**WE MOVE  
YOUR PROCESS**

### Technical data:

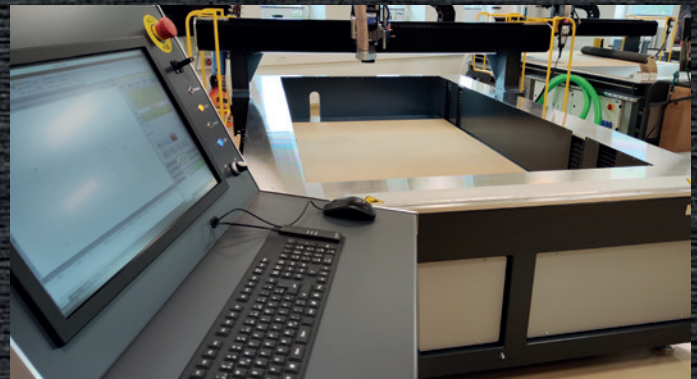
- ✓ The main technical data corresponds to the configuration of the Profi-Serie 1 with the following additions:
- ✓ Steel portal for large and heavy milling motors that can machine at low and high speeds
- ✓ Drives (X- and Y-axis) via precision racks from Alpha Wittenstein
- ✓ Z-axis via ball screw
- ✓ Linear guides and ball screw in reinforced design
- ✓ More powerful electronics and motors for high continuous loads
- ✓ Servomotors with multi-turn absolute value system
- ✓ No reference run necessary



Carousel changer 28-fold travelling on the portal



Additional spindle with saw unit can be swivelled 360° 300 mm saw blade



Machines with height-adjustable table

Die äußerst leichtgewichtigen und gleichzeitig äußerst robusten Kernverbundplatten der renommierten Marke KEVESOL® sind äußerst vielseitig einsetzbar und finden Anwendung in einer breiten Palette von Industrien. Diese Paletten haben sich im Maschinen- und Flugzeugbau, in Freizeitfahrzeugen sowie in der Raumfahrt bewährt. Als Ergebnis bieten KEVESOL-Paneele eine kosteneffiziente Alternative zu teuren und schweren Schweißkonstruktionen.

**EINLAGETECHNOLOGIE**  
**KLEBEFESTIGKEITEN**  
**SCHWEISSTECHNOLOGIE**

**KEVESOL**



# Electronics

Our electronics are characterised by the following features:

- ✓ The electronic components are integrated in the substructure of all standard machines so that no cables are in the way.
- ✓ Depending on the machine size and application, different drive systems can be used, depending on the speed requirements.
- ✓ The control system has additional relays for the milling motor, dust extraction, minimum quantity lubrication or vacuum pump, which can be controlled by the software or manually. The control system can be expanded at any time.
- ✓ All machines are manufactured with industrial components and have a control panel with integrated industrial computer.
- ✓ Signals according to the latest standard via EtherCAT
- ✓ Voltage: 400V
- ✓ The servomotors used have an absolute value measuring system and do not require a reference run when the machine is started, as only the two X drives are aligned with each other.



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# Software

The Penta-Tec CNC control system is supplied with all of our machines. Both beginners and professionals will be interested in the many presets that allow you to start milling straight away. The software is clearly structured and a clearly laid out user interface makes working with our CNC milling machines particularly efficient. An assistant guides you step by step through our software and makes it easier for you to create milling tasks. Our software is constantly being further developed. You will receive an introduction to the control software upon delivery. Further information and videos can be found at: [www.harmuth-cnc.de](http://www.harmuth-cnc.de)

- ✓ Contour definition (inside, outside, spaces, islands, bore, thread cutting)
- ✓ Automation (e.g. contour assignment, numbering)
- ✓ Electronic table levelling
- ✓ Multiple tangential axes or milling spindles possible
- ✓ Recognition and correction of register marks
- ✓ Measuring probe for tool length measurement
- ✓ Intelligent management of the tool changer
- ✓ With teach-in function
- ✓ Height measurement of workpiece surfaces

## Some important functions:

- ✓ Compatible with NC codes and DFX files
- ✓ Graphical representation of objects
- ✓ Drawing function
- ✓ Material and tool management
- ✓ Rotate, mirror, duplicate, panel creation
- ✓ Layer assignment, starting point, numbering



**Our experts are at your disposal:**

**Are you interested or do you have any questions?**

**We are happy to advise you!**

## Harmuth CNC-Frästechnik

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MODULE



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