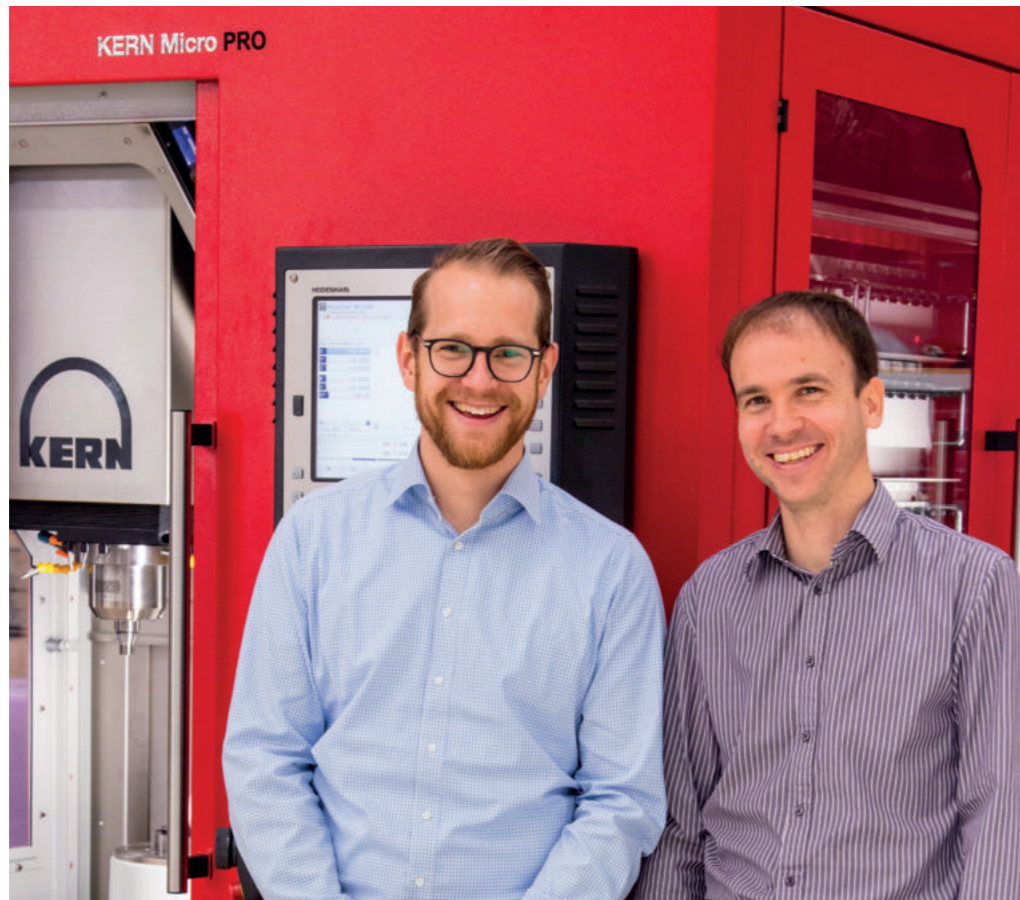




Solution for precise serial production

**KERN Micro<sub>PRO</sub>**





Simon Eickholt, General Manager (left) and Bernhard Uhr, Project Manager for the KERN Micro Pro

“ Our customers often say that their Kern machines are among their most productive and profitable investments. However, maximum precision right at the limits is not always necessary – instead, productivity and reliability are sometimes the focus. With the KERN Micro Pro we offer a machining center specially designed for precise serial production. The compact design and the outstanding performance meet a very attractive price point. The machining center provides an easy access to precision manufacturing. ”

# KERN Micro<sub>PRO</sub>

Even more compact, even more efficient

Ever since it was launched the KERN Micro stood out in the milling industry with a combination of extreme accuracy, unrivalled flexibility and highest performance. The KERN Micro's successful machine platform is the basis of the KERN Micro Pro. This machine was further developed with a focus on the demands of the industrial environment and serial production of very precise parts.

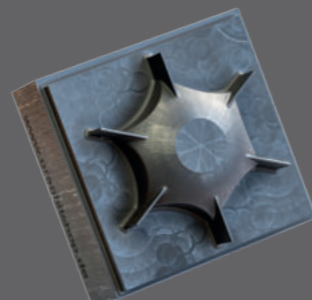
Often the focus is not on achieving a sub-2µm accuracy on the part but rather on a machine's reliability and stability when running serial production. Important factors are of course how the machine can be integrated into an existing processes and the profitability of the machine. The slim KERN Micro Pro is designed to easily meet all these requirements. In addition to high productivity and availability the KERN Micro Pro stands out with its very compact

design and provides easy maintenance. With a strong focus on serial production the KERN Micro Pro combines productivity, efficiency and reliability like no other machine in the industry. The system is based on proven Kern technology and ensures reliability and stability over the long life of this machine.



## AT A GLANCE

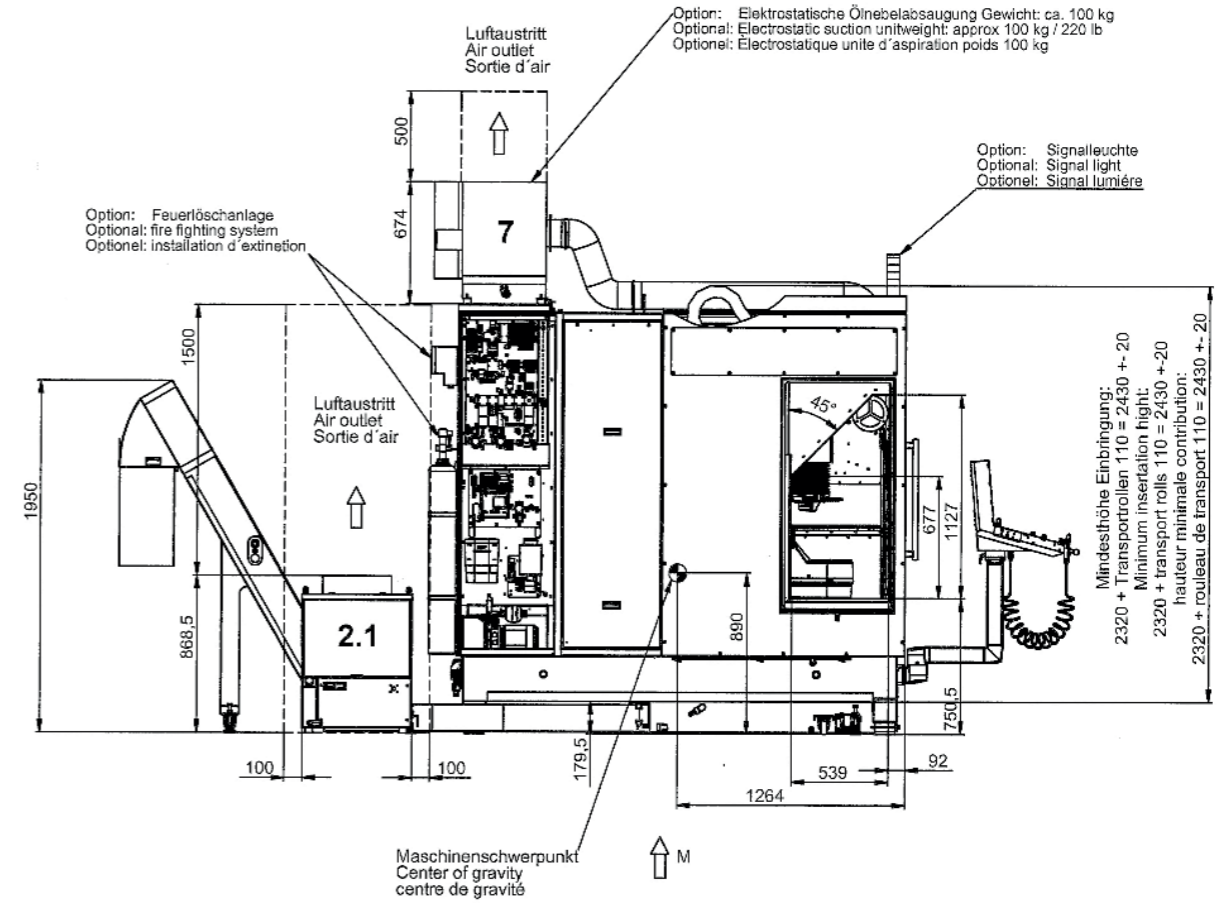
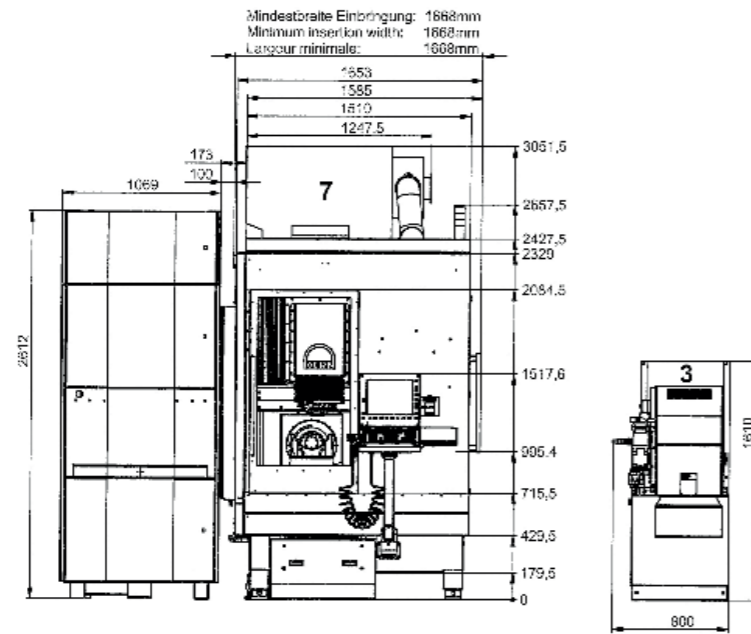
- Small footprint of 4 m<sup>2</sup> / 43 sqft
- Management and maintenance during operation without interruption while machine is running
- Attractive purchase conditions and maintenance costs
- High dynamics and productivity with proven components and processes
- Multi-shift operation without operators and with integrated tool-changer for up to 210 tools and max. 60 workpieces
- Certified interfaces for additional accessories and automation systems



The **KERN Micro<sub>PRO</sub>** is your reliable solution for a stable and cost-efficient serial production of precision parts. The perfect approach to precision manufacturing.

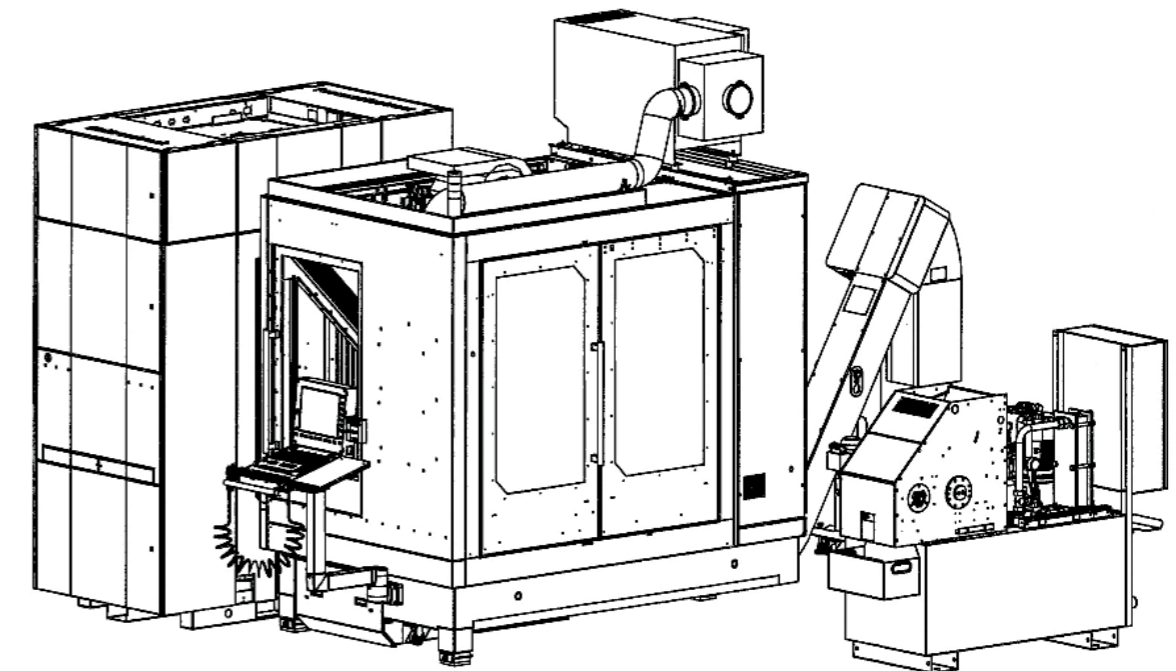
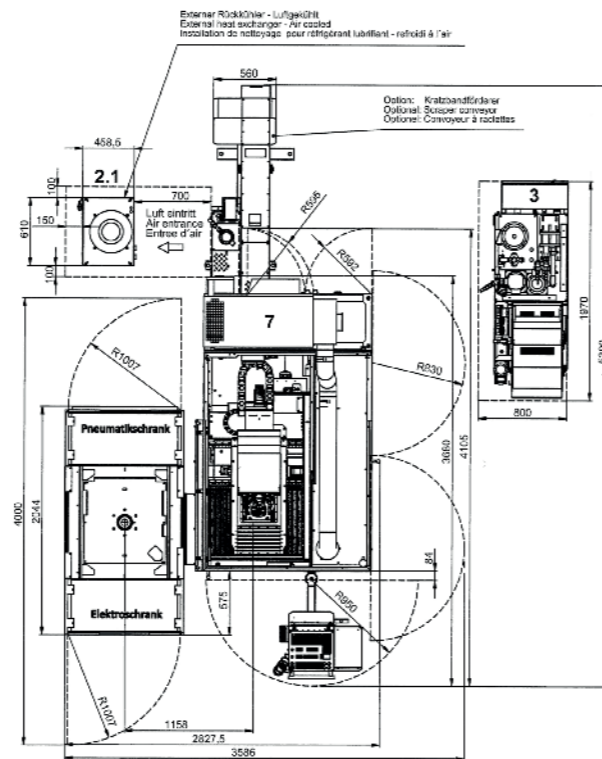
Even more compact, even more efficient

The specific demands of industrial serial production are all covered with the KERN Micro Pro. Hardly any other machine has such a strong focus on this and provides smarter solutions for serial production in an industrial environment. Small footprint, convenient height, easy to integrate and low energy consumption make the KERN Micro Pro number one when it comes to profitable production.



THE BENEFITS AT A GLANCE

- **Small space and light weight** due to reduced footprint and even more compact design
- Smart and **space-saving integration** of bandfilter and chip conveyor
- **Low maintenance cost** with a great service concept and low energy consumption
- High dynamics and productivity with **proven components** and workflows
- Easy access to the **service panel** on the side of the machine





**SMALL AND POWERFUL**

Compact and powerful because of the smart one-box design. All accessories are integrated in the machine with a footprint of only 4 m<sup>2</sup> (43 sqft), an optimized height of only 2.50 m (8.20 ft) and a narrow width of only 1.59 m (5.22 ft). The weight is just 5.2 tonnes (11464 lbs).



**PERFECTLY INTEGRATED**

Additional components such as a flood cooling unit can be integrated into the machine without requiring additional space. Also, the connection of the optional belt filter system and the chip conveyor has been optimized to save space.

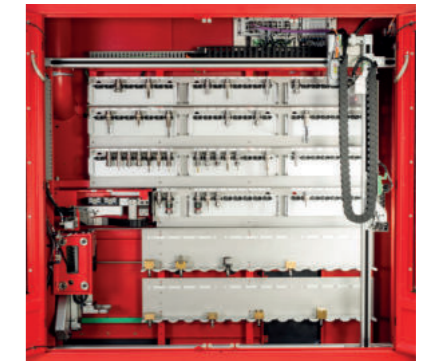
**SOLID BASIS**

Innovative machine stand made from UHPC (Ultra High Performance Concrete). No disruptive interfaces, thermo-symmetrically constructed, made from a single casting and equipped with unique material properties.



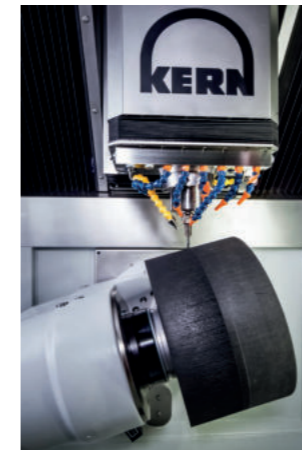
**100% AUTOMATION**

An effective automation solution is often the key to cost-effectiveness. The integrated tool cabinet for up to 210 tools and a maximum of 60 workpieces allows unattended operation without additional space requirements. Whether external or internal workpiece changer, the KERN Micro Pro is perfectly prepared.



**UNMATCHED IN THE 5TH DIMENSION**

Powerful and highly dynamic rotary / swivel axis with torque motors for simultaneous 5-axis machining, market-tested and continuously optimized. Perfect use of available working space and thus it is possible to work on larger workpieces - smart design and best possible arrangement of the 5 axes offer more space.



**MASTER OF PRODUCTION**

Perfect sealing of the working area prevents chips, dusts and liquids from escaping to the outside – a must for a modern and safe working environment.

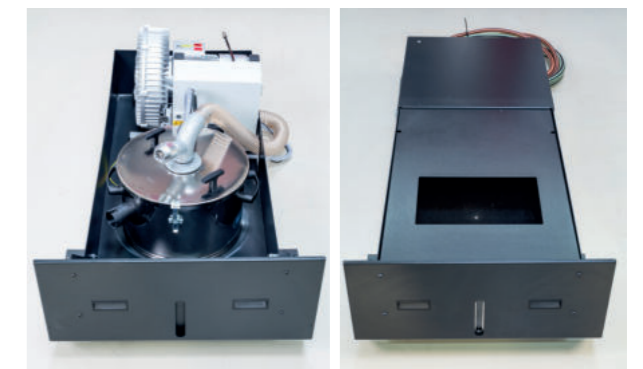
**MAINTENANCE AND PRODUCTION – ALL AT THE SAME TIME**

The well-arranged and fully accessible maintenance area on the side of the machine allows checks and re-filling of lubricants without machine downtime. In addition, necessary maintenance work can be recognized at a glance.



**FLEXIBLE UND VARIABLE**

No matter what type of processing is required, the KERN Micro Pro is compatible with a wide range of adaptations and customizations. This ensures the best possible performance for your specific application.



**COOLANT THROUGH SPINDLE**

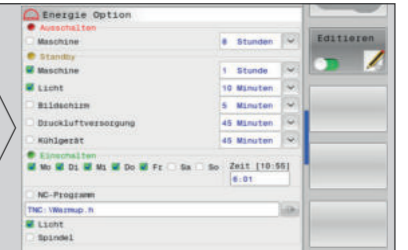
Optional rotary union to cool tools internally with water-based coolant or cutting oil in combination with belt filter.  
Only available for spindle HSK 40-E.



Source: Walter AG

**POWER PACK**

To optimize the overall energy consumption as well as to increase the productivity and to ensure maximum availability of the machine.

**BAND FILTER AND CHIP CONVEYOR**

Integrated chip conveyor with ejection to the rear. Connected to the external belt filter system, optionally with high pressure for ICS. Tank capacity: 490 l (108 gallons).

**WORKPIECE CHANGER**

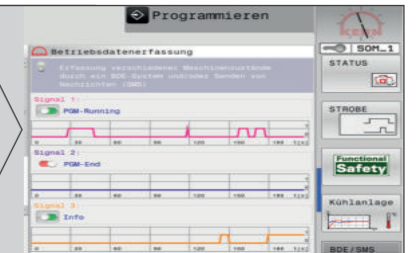
Integrated workpiece changer for up to 60 work pieces allow unmanned operation without additional space requirements. The KERN Micro Pro runs fully automated via internal, external workpiece changers or hybrid variants.

**SPINDLE ALTERNATIVES**

KERN provides a great variety of spindles for the Micro Pro, which is ideal for the individual demand of each customer. Standard spindles are available for roughing and finest finishing as well as ultra-precision high-frequency spindles for surfaces in demand of highest optical quality.

**BDE INTERFACE**

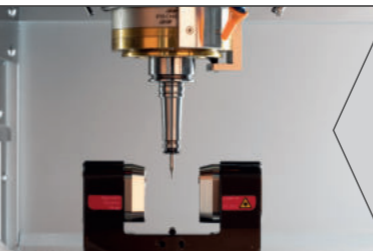
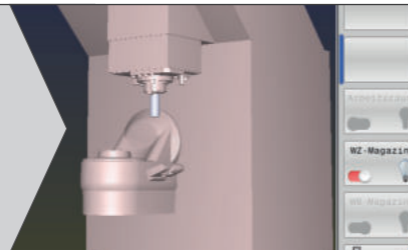
Individual monitoring of machine and operating data for control and evaluation in the customer's own system (Industry 4.0).

**ENLARGED SWIVEL RANGE**

Extension of the swivel range of the B axis. Easy cleaning of workpieces, especially in automated operation.  
Swivel range:  $-180^\circ / +110^\circ$  (standard  $\pm 110^\circ$ ).

**DYNAMIC COLLISION MONITORING (DCM)**

Software for real-time collision monitoring of the workspace components (rotary and swivel table, laser, clamping device, spindle and tool holder) in manual and automatic operation.

**BLUM LASER LC 50**

Laser measuring system with DIGILOG technology. For tool presetting as well as breakage and wear control. Also suitable for smallest tool diameters. Including calibration mandrel with tool holder.

**INTEGRATED CONTROL PANEL**

Space-saving and ergonomically, specially optimised for series production. All information relevant for production is visible at a glance.

**REMOTE SERVICE**

Remote diagnostic with online access for a fast analysis by the KERN service department and process optimization of the KERN Micro Pro through KERN application engineers.



### Linear axes

Travel X/Y/Z: 350/220/250 mm  
 Max. clamping surface: Ø 350 x 200 mm  
 Max. workpiece weight: 50 kg (110,23 lbs)  
 Feed rate: 30 m/min (1,181 in/min)  
 Acceleration: up to 10 m/s<sup>2</sup>

### Rotary and swivel axes

Rotary axis: 360° infinite / 200 rpm  
 Swivel axis: 220° (opt. 280°) / 100 rpm  
 Clamping swivel axis: 300 Nm

### Spindle options

HSK 25-E: 50.000 rpm 6 kW (S1) Roller bearing  
 HSK 32-E: 40.000 rpm 6,3 kW (S1) Roller bearing  
 HSK 40-E: 32.000 rpm 7 kW (S1) Roller bearing

### Workpiece size

Height up to 200 mm (7.88 in)  
 Diameter up to 350 mm (13.78 in)

### Accuracies (VDI/DGQ 3441)

Positioning accuracy P: < 2 µm  
 Repeatability Ps: < 1 µm

### Accuracies (ISO 230-4)

Circular deviation Gyx: < 3 µm  
 Circular deviation Gxy: < 3 µm

### Tool changer

HSK 40: 18-, 102- and 210-pockets  
 Max. tool diameter: 70 mm (2.76 in)  
 Max. tool length: 155 mm (6.10 in)  
 Optional: Combination of tool and workpiece changer

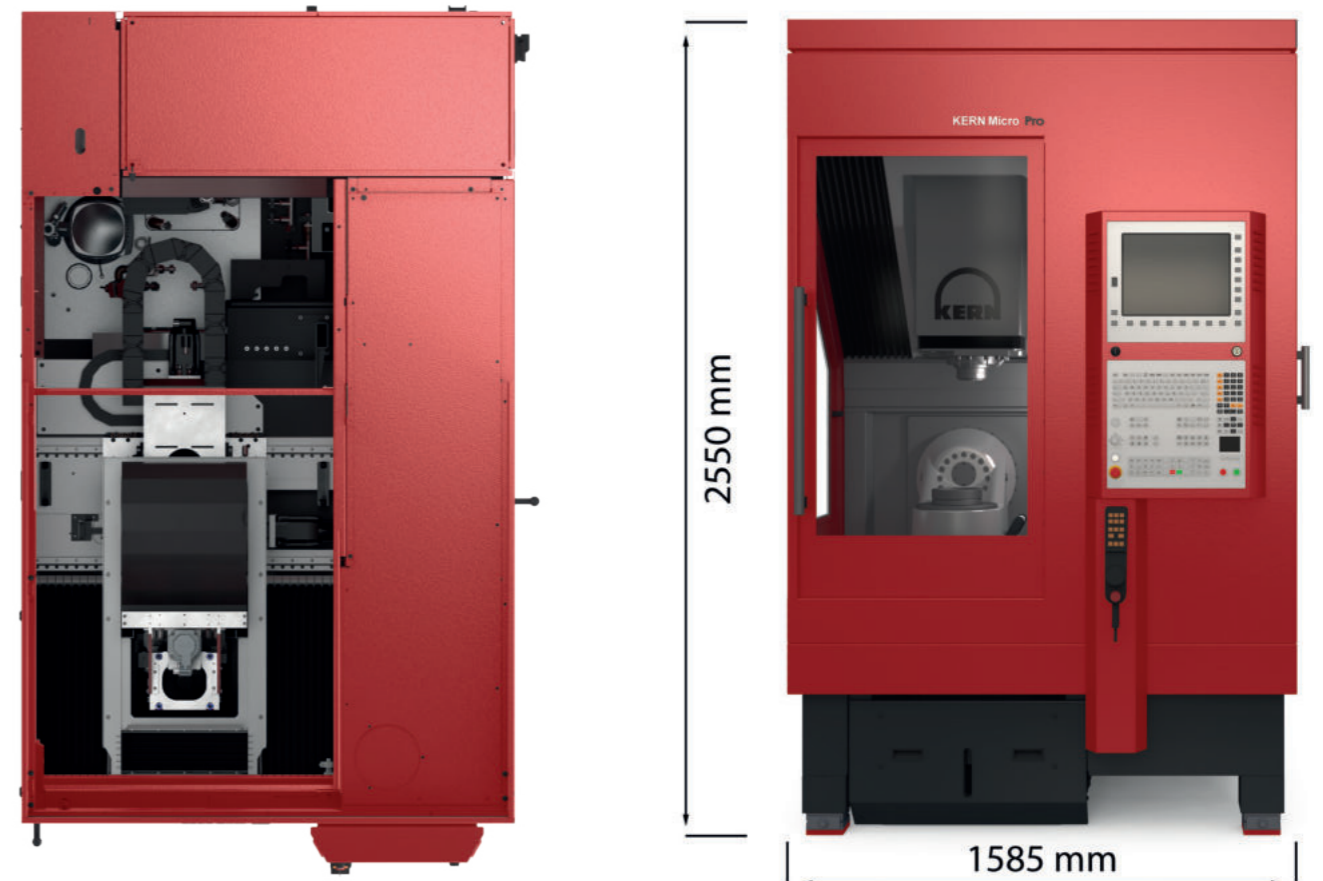
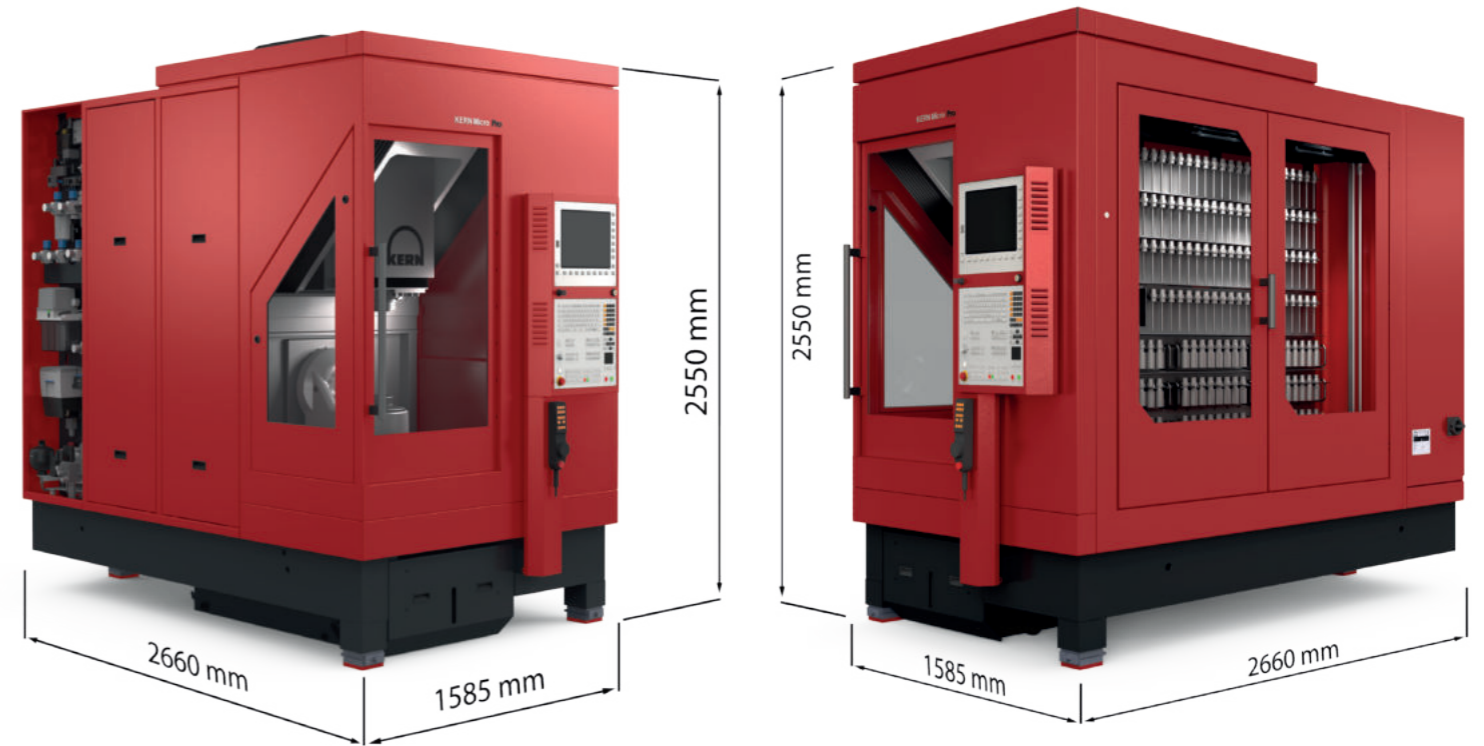
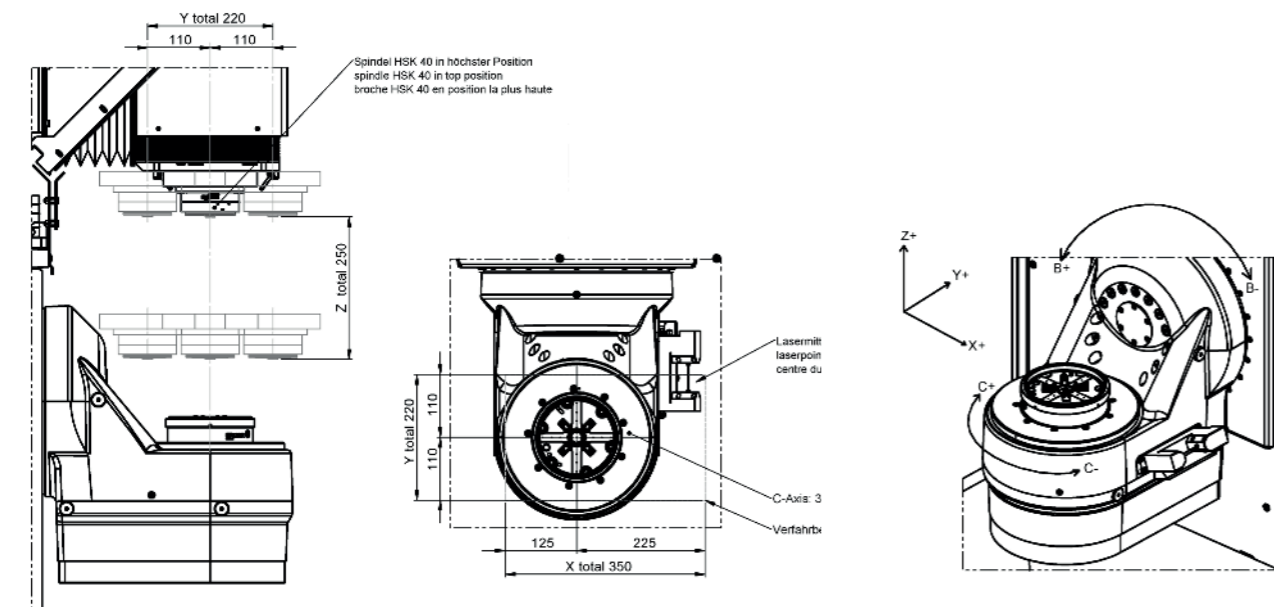
### Technology

Internal temperature management with 0,2 mK control accuracy  
 5-axis simultaneous machining  
 Heidenhain control TNC 640  
 Ultra-compact one-box design

### Dimension and Weight

Weight: 5.200 kg (11464 lbs)  
 Min. space required W / D / H:  
 1,59 x 2,66 x 2,50 m (5.22 x 8.73 x 8.20 ft)

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 Technical details may change





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