



Solution for precise serial production

KERN Micro_{PRO}





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 now offer a machining center specially designed for precision serial production, which impresses thanks to its compact design and unique price-performance ratio.* ”

KERN Micro_{PRO}

Even more compact, even more efficient

Since its launch on the market, the Kern Micro has stood out from the competition by combining extreme precision with unrivaled flexibility and performance. Based on a mature machine platform, the Kern Micro Pro is a solution focused on the industrial environment and precision serial production.

In many applications the focus is not on achieving a sub-2 μm precision on the workpiece, but rather on the machine's series stability, integration capability and cost-effectiveness. The sleek Kern Micro Pro is designed to perfectly meet these requirements. In addition to high productivity and availability, the Kern Micro Pro is characterized by an extremely compact design and excellent maintainability.

Due to the consistent focus on serial production, a machine was created that combines productivity, efficiency and reliability like no other. The system is based on proven, high-quality KERN technology and guarantees reliability and stability over a long machine life.



At a glance:

- Minimal footprint of less than 4 m²
- Uninterrupted monitoring and maintenance of lubricants during operation
- Attractive purchase conditions and maintenance costs
- High dynamics and productivity thanks to proven components and processes
- Unmanned multi-shift operation thanks to an integrated changer for up to 210 tools and up to 30 workpieces
- Certified interfaces for external units and automation systems



The **KERN Micro_{PRO}** is your highly process-stable solution for the efficient serial production of precision parts. The ideal solution for getting started in precise machining.



SMALL, YET POWERFUL

Compact and efficient thanks to the one-box design. All units are integrated in the machine with a footprint of less than 4 m², an optimized height of only 2.50 m and a narrow width of 1.59 m. The system weight is just under 5.2 metric tonnes



PERFECTLY INTEGRATED

Additional units such as dust extraction or emulsion mist extraction systems can be integrated into the machine without requiring additional space. Furthermore, the connection for the optional belt filter system and the chip conveyor has been optimized to save space

SOLIDE FOUNDATION

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



FULL AUTOMATION

An effective automation solution is often the key to high efficiency. The integrated tool cabinet for up to 210 tools and up to 30 workpieces allows unmanned operation with no additional space requirements. Whether with an external or internal workpiece changer, the Kern Micro Pro comes perfectly prepared



UNPARALLELED IN THE 5TH DIMENSION

Powerful and highly dynamic rotary/swivel axis with torque motors for simultaneous 5-axis machining, market-tested and continuously optimized. Maximum utilization of the workspace enables machining of the largest possible workpieces thanks to intelligent design and optimum arrangement of the 5 axes



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

PRODUCTIVE CONTROL

The clear and fully accessible maintenance area on the left side of the machine allows inspection and filling of lubricants without machine downtime. In addition, any necessary maintenance work can be identified at a glance

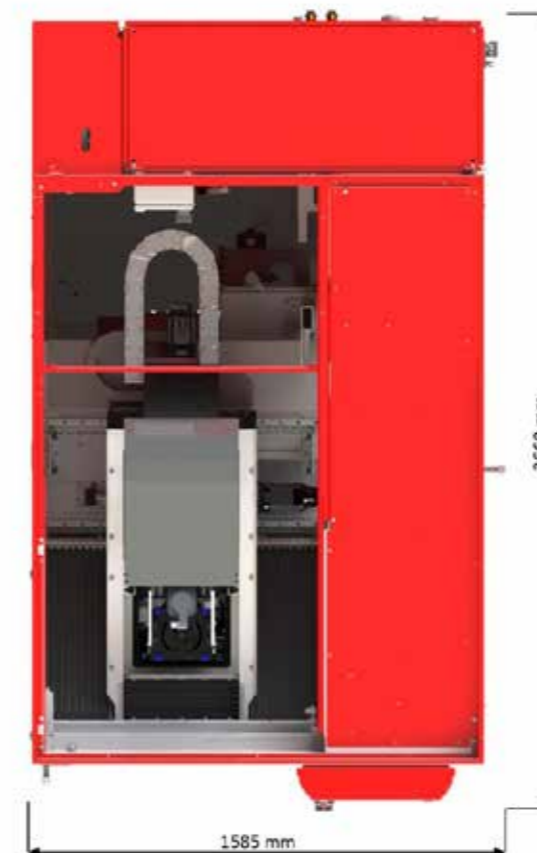


FLEXIBLE UND VARIABLE

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



- INTERNAL COOLANT SUPPLY (ICS)**
 Rotary feedthrough for use of internally cooled tools with emulsion or oil
- BELT 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
- EXTERNAL WORKPIECE CHANGER**
 Electrical, pneumatic and mechanical interfaces for the connection of all common automation systems
- OPTIMIZED SWIVEL AREA**
 Extended swivel range of the B axis. Swivel range: $-170^\circ / +110^\circ$ (standard $\pm 110^\circ$). This enables (among other features) optimized cleaning of the workpieces, especially in automated operation
- DYNAMIC WORKSPACE MONITORING (DCM)**
 Software for permanent collision monitoring of the workspace components (dividing attachment, laser, chuck, spindle and tool holder) in both manual and automatic operation
- TELESERVICE**
 Online remote diagnostic access for fast analysis and process optimization of the Kern Micro Pro
- ENERGY SAVING PACKAGE**
 To reduce the machine's total energy consumption and increase its productivity
- BDE INTERFACE**
 To enable querying of individual machine data (Industry 4.0)
- SPECIAL VARIANTS**
 Models for processing graphite and other dust-generating materials are also available



Linear axes

Traverse paths X/Y/Z: 350/220/250 mm
Max. clamping area: Ø 350 mm
Max. workpiece weight: 50 kg
Traverse speed: 30 m/min
Acceleration: 10 m/s²

Rotary and swivel axes

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

Spindle options

HSK 40-E: 42.000 rpm 8 kW (S1)

Workpiece size

Height up to 200 mm
Diameter up to 350 mm

Accuracy (VDI/DGQ 3441)

Positioning tolerance P: ≤ 2 µm
Average positioning scatter \bar{P}_s : ≤ 1 µm

Accuracy (ISO 230-4)

Roundness deviation Gyx: ≤ 5 µm
Roundness deviation Gxy: ≤ 5 µm

Tool changer

HSK 40: 18-, 102- and 210-capacity
Max. tool diameter: 70 mm
Max. tool length: 155 mm
Optional: Expansion with combined tool and workpiece changer

Technical concept

Central cooling management with 0,2 K control accuracy
One-box machine design
5-axis simultaneous machining
Heidenhain TNC 640 controller

Dimensions and weight

Weight: 5,200 kg
Min. space requirement W/D/H:
1,59 x 2,66 x 2,50 m

Version date 06/2018
Subject to technical changes

