50 Years of Precision Machining

The name KERN has been synonymous with micron-level precision in the contract manufacturing of precision parts for half a century.

We have been using milling, drilling, electrical discharge machining as well as grinding to fulfill your orders since 1962, and we are now Europe’s largest contract manufacturing company in the field of micro-machining. We can increase your production capacity on a flexible basis as and when required. This will enable you to accept additional orders at any time, without extra investment. However, KERN can do more than simply manufacture components: we develop manufacturing processes for series production readiness, design customised automation equipment and offer our customers a complete service for transferring processes to their own manufacturing systems when they buy our machinery.

KERN Areas of Expertise

- Manufacturing of microparts and microstructures
- High-precision machining in the micron range
- Automated series production
- Hard milling
- Surface quality up to Ra 0.05
- Complete production using various machining technologies
- High-end measurement technology
- Engineering and assembly production

Industries

We serve customers in the following industries: optics, analytics, watch industry, fibre optic technology, nanopositioning systems, microsystems technology, precision engineering, aerospace, medical technology, electronics, fibre chemistry, drive technology and many more.

Materials

We process stainless steel, tool steel (including hardened steel), brass, nickel silver, copper, tungsten copper, aluminium, titanium, molybdenum, Invar, Kovar, Hastelloy, Inconel, Macor (glass ceramics), plastics (Vespel), carbide metals, silver, gold, platinum, etc.
Micro-machining
- Precision machining: tolerance of ± 2 μm
- Micro-machining with drills from Ø 0.03 mm, endmills from Ø 0.1 mm and screw taps from M 0.35
- 3-axis to 5-axis simultaneous machining
- Programming via CAD/CAM systems
- HSC milling: spindle speeds up to 50,000 rpm
- Use of diamond tools
- Series production with customised automation

High-precision milling
- High precision up to ± 1 μm
- Machining of 3D free-form surfaces
- Hard milling
- Optimal surface quality achieved by means of hydrostatic milling

Wire cutting and die sinking
- Wire cutting with tolerances of ± 1.5 μm and surface quality up to Ra 0.05
- Fine EDM with Ø 0.03 mm wire
- Wire cutting with CNC dividing head
- CNC die sinking with 16-position electrode changer
- Hole drilling EDM from Ø 0.23 mm
KERN Technology

→ From CNC milling to complete machining
  - Machining part sizes up to approx. 250 x 600 mm
  - Machining of materials that are difficult to process
  - Combined machining of your component: milling, drilling, electrical discharge machining, grinding
  - Component production with assembly

→ Grinding and milling in one clamping set-up
  - Flat and parallel grinding to 2 μm
  - Jig grinding to 2 μm in position and diameter

→ Measurement technology
  - State-of-the-art tactile and optical 3D coordinate measuring machines
  - Measurement of microstructures with touch probes of Ø 120 μm and Ø 300 μm
  - Measurement results with a minimal measuring uncertainty of 0.25 μm
  - SPC evaluation
Equipment

Our modern machinery, which is constantly being updated and extended, can take on even the most difficult tasks. Our extensive expertise and CAD/CAM programming enable 3-axis to 5-axis simultaneous machining. Our air-conditioned facilities, free from vibrations and fluctuations in temperature, offer the perfect conditions for processing each workpiece with the highest precision.

Next to our own KERN Micro, Evo, Triton and Pyramid Nano machines, we also work with leading machine manufacturers such as Agie, Hermle and Zeiss.

Combined Machining Technology

Whether we are producing series components or prototypes, our work is precise down to the nanoscale. You can benefit from our work experience with virtually all kinds of complex geometries and an extensive range of materials. We can combine processes such as micro-, high-speed and hard milling, conventional CNC cutting, wire cutting and die sinking as well as flat and profile grinding. We take the greatest care in producing sophisticated components for you and can also draw on our pool of suppliers to reliably provide additional manufacturing processes.

Automated Series Production

KERN has flexible automation equipment for 3- as well as 5-axis milling, which enables efficient series production of batch sizes as small as approximately 100 units. The extremely high repeatable accuracy of all KERN machines provides the basis for reliable series production processes. Operating in the second or third shift, we produce serial parts on attractive terms.

KERN is certified in accordance with

- the ISO 9001 quality management standard
- the ISO 14001 environmental management standard
- QSF-A and QSF-B aerospace certification

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always.KERN.precision

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