The **heart** of **precision.**

PEMTec

High precision
technology

200.000 years ago

Yesterday →

Progress always starts with ambition.

At one time, striking one stone against another was a high precision technique. Today, the pinnacle of precision is electrochemical machining – a process suitable for virtually any metal.

Nowadays, we refrain from a satisfied grunt when holding one of the workpieces produced by our machines for the first time. But that would be perfectly understandable.

Completion
approx. 12 hours

Completion
3.04 seconds

21st century

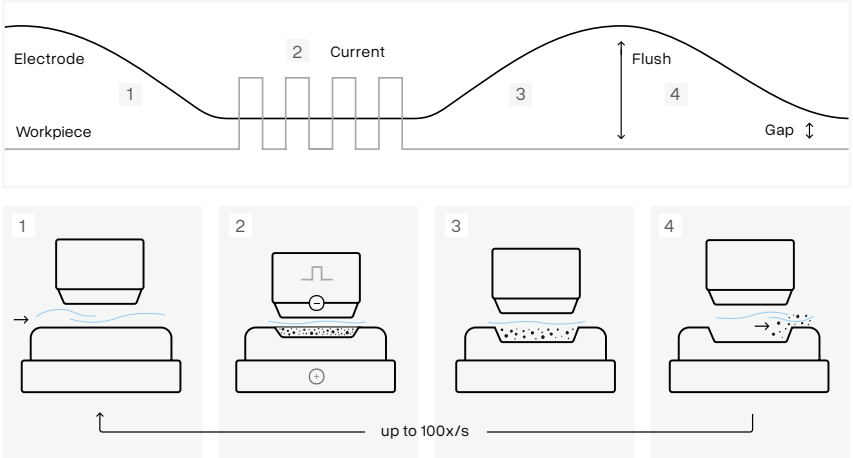
Today

Precision with passion.

Rapid production times; totally burr-free products; no thermal or mechanical stresses thanks to the contact-free manufacturing process; ideally suited for high quality series production – and all this from a single machine?

It's okay to let the excitement take over. Your heart beats faster and your pulse rises. Passion on every level.

The PECM Technology



Step 1

A continuous flow of electrolyte is established to flush the machining area. The tool electrode and the workpiece approach within a few micrometers (typ. 5 – 50 µm).

Step 2

A controlled current pulse is initiated, resulting in the selective electrochemical removal of the material at that precise moment.

Step 3

The working gap (an adjustable flushing gap of between 10 µm and 3,000 µm) opens to release the dissolved material to be flushed out.

Step 4

The dissolved products are flushed out of the machining gap by the electrolyte.

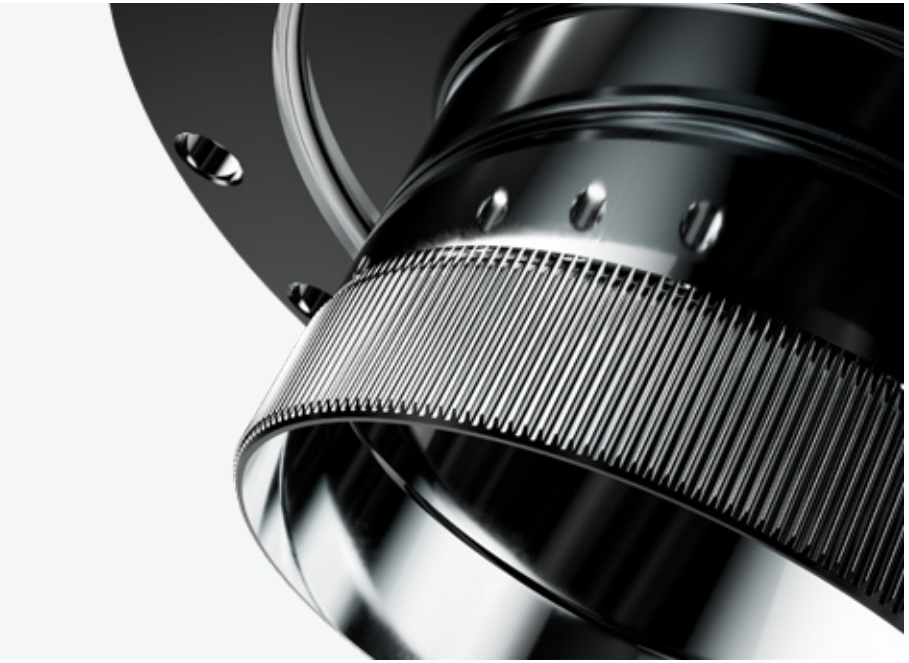
Repeating the sequence up to 100x/s.

Manufacturing features

With our technology, you can increase the lifetime of your workpieces up to ten times.

Typical feed rates

Roughing 0.5 – 2.0 mm/min
Finishing 0.1 – 0.5 mm/min
Polishing < 30 sec.



Advantages

- Contactless and cold machining
- Absolutely burr-free and clean surfaces
- Surface quality up to Ra 0.015 µm
- No changes in structure or characteristics
- No white layers or micro cracks
- No tool wear

Material

- All steel grades (even hardened)
- Nickel-based alloys (e.g., Inconel, Hastelloy)
- Titanium and titanium alloys
- Cobalt alloys
- Molybdenum
- Copper & aluminum
- Cemented carbide & tungsten alloys
- Sintered metals (e.g., MIM)
- and much more

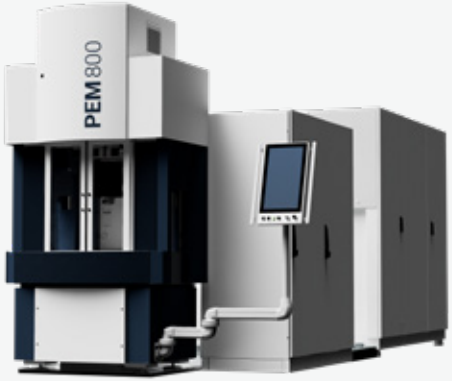
Our machines

PEM 3.1 SX

The PEM 3.1 SX is our most modern machine for toolmakers and small batch production. With a machining area of up to 32 cm², innovative short-pulse technology and a free programmable axis, it offers a maximum of precision and customization. With a footprint of approx. 4 m², it is compact, universal and cost-effective – the perfect choice not only for high-end projects.

PEM 800

The PEM 800 performs impressively in mass production worldwide and has been continuously improved and perfected. Robust, easy to operate and ideal for workpieces with a machining area of up to 96 cm², it offers a versatile, reliable solution for your production. Trust proven efficiency and quality.



PEM 3.1 SX CC

The PEM 3.1 SX CC revolutionizes cemented carbide machining with a proven technology and a new, patented PECM process. It offers faster machining, better surface finish and minimal tool wear. Ideal for precise, efficient production – the future of cemented carbide machining is now.

PEM 800 S

Discover our flagship PECM machine. The PEM 800 S doubles the processing speed of conventional PECM machines through a freely programmable axis, delivering impressive precision and flexibility. Suitable for workpieces up to 96 cm², it's the perfect combination of efficiency and precision for your production needs.

PEMTec.de/en

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