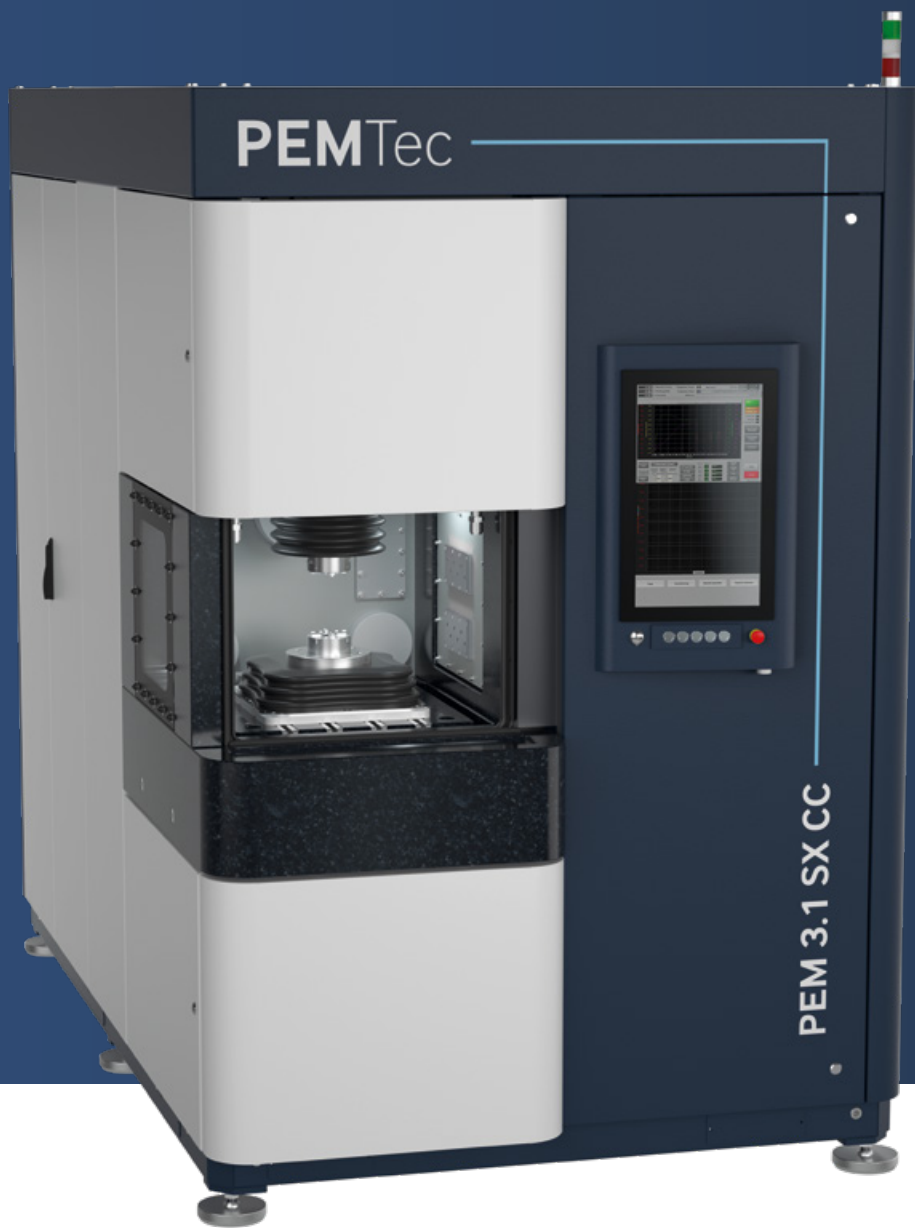


THE CEMENTED CARBIDE SOLUTION
PEM 3.1 SX CC



PEMTEC.DE

EN

PEM Tec
HIGH PRECISION TECHNOLOGY

STRESS-FREE MACHINING OF CEMENTED CARBIDE

The PEM 3.1 SX CC serves one purpose: the precise machining of cemented carbide. We have met the requirements of the market and our customers and developed a breakthrough PECM machine from the ground up. It includes numerous new features and innovations from PEMTec in an all-in-one-concept.

This concept combines new machine components, flexible and powerful software as well as an adaptive electrolyte system. Our focus: one goal of offering customers a compact machine solution that processes cemented carbide efficiently and stress-free.

The PECM process is the ideal technology to master the multi-layered challenges of cemented carbide machining. The PEM 3.1 SX CC delivers machining results without microstructural changes or microcracks.

THE ADVANTAGES AT A GLANCE

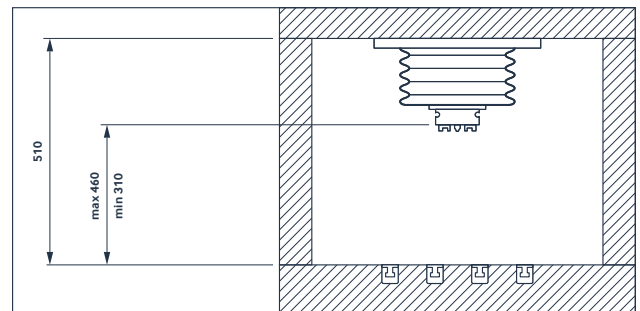
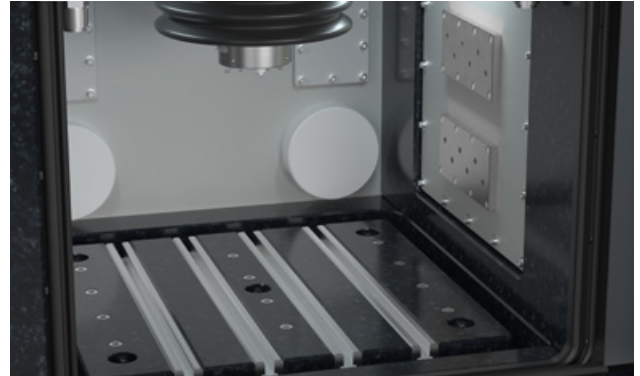
- 7 Compact all-in-one machining solution with a small footprint
- 7 Machining of a very wide range of cemented carbide grades
- 7 High-precision mapping of the finest geometries and structures in cemented carbide
- 7 Roughing, finishing and polishing sequentially (in one operation)
- 7 No melting, no micro-cracks, no formation of external phases
- 7 Dust-free formation during machining



THE SOLUTION FOR CEMENTED CARBIDE MACHINING: PEM 3.1 SX CC

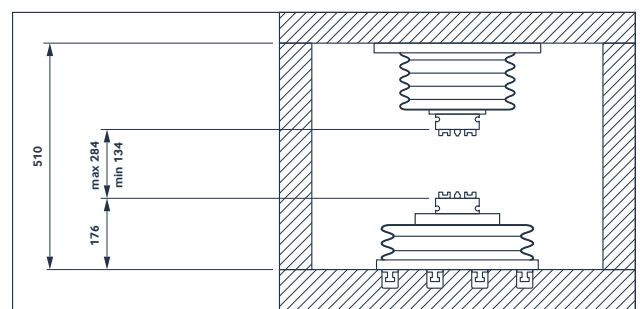
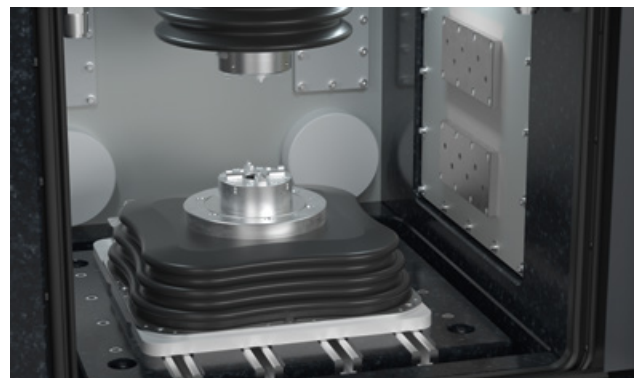
THE POSSIBILITIES

- 7 Reproducibility of complex component geometries and structures
- 7 Multiple machining of workpieces possible in one operation
- 7 Wide range of electrode materials for optimum process conditions
- 7 Polished surfaces directly from the process, up to Ra 0.05 μm
- 7 Zero melted layers nor cracks in the microstructure
- 7 Automated loading for autonomous operation optionally possible



THE WORKING CHAMBER

- 7 Interior 590 x 680 mm (W x D)
- 7 Natural granite cell with an usable working height of 310 - 460 mm
- 7 PLC controlled X/Y adjustment aid, resulting in an usable working height of 134 - 284 mm (enlargement by a further 125 mm possible, without standard worktable)



TECHNICAL DATA

- 7 Compact machine design with all necessary modules in an enclosed all-in-one-concept
- 7 Machine decoupled by air suspension elements
- 7 Footprint 1.630 x 2.790 x 2.590 mm (W x D x H) plus door opening
- 7 Machine table 540 x 520 mm (W x D) with T-slots for universal applications
- 7 PECM axis travel 150 mm
- 7 PECM machining module in natural granite
- 7 Free programmable process stroke between 50 µm and 3 mm
- 7 Universal reference clamping system designed for 3R Macro and/or EROWA ITS 100 clamping systems
- 7 HMI user interface via 21.5" touch display
- 7 Latest advancement in PECM power technology with more than 1.600 A pulse current

MACHINE OPTIONS

- 7 Motor-controlled X/Y adjustment aid for workpiece alignment:
 - 7 XY travel ± 10 mm
 - 7 Positioning accuracy ± 0.9 µm
 - 7 Positioning speed 30 mm/s
 - 7 Controlled by PLC
 - 7 Max. axial load capacity 1 kN
 - 7 Optional interface for automatic workpiece set-up via RFID or QR code
- 7 Standard interface for automation
- 7 Automated workpiece loading system, e.g. EROWA Robot Compact 80
- 7 CEEP Unit – stabilizes the PECM process and ensures even better processing results
- 7 C-axis, as a freely programmable rotary axis
- 7 Machine feet with active damping

PRECISION MAKES THE DIFFERENCE

ECONOMICAL SERIES PRODUCTION

Complex geometries can be machined precisely and formative in a short process time for a wide range of cemented carbide. By using several tool electrodes in parallel, workpieces can be machined synchronously. With multiple uses of the electrodes, the tool costs per piece are significantly reduced compared to alternative traditional manufacturing processes methods. This means shorter process times are achieved. Our new cemented carbide machining process is the benchmark technology worldwide in the field of precise electrochemical metal machining.

STRESS-FREE MATERIAL MACHINING

Absolutely contact-free and without thermal or mechanical influences, workpieces with the highest stability and repeatability are produced. Electrochemical machining takes place without melting the material. The machined cemented carbide parts therefore contain zero micro-cracks nor structural changes and are absolutely burr-free as a consequence of the process. Roughing, finishing and polishing are done sequentially and in one operation. Imaging accuracy and repeatability in a lower micrometre range and a surface quality of up to Ra 0.05 μm (depending on the material) can be produced.



Experience the world of PEMTec

Simply record code with your mobile phone camera.

<https://bit.ly/PEM31SXCCEN>

IF PECM, THEN WITH PEMTEC

Today, PEMTec is one of the technology leaders in precise electrochemical machining of metals.

As a globally active mechanical engineering company, PEMTec has further developed PECM technology into an unique and in series industry proven standard: the "Pemmen"®.

Today, "pemmed" components already fly into space and return safely. Exactly according to the specifications of many industrial sectors, PEMTec's PECM technology is constantly finding new applications.

Worldwide, more and more high-precision workpieces are machined with PEMTec machines in the metalworking industry. Whether automotive, aerospace or medical technology – the machines developed and built by PEMTec offer unique opportunities for new economic efficiency in the production of precision parts compared to conventional manufacturing techniques.

From standard machines to individual customer applications to fully automated series production: With PEMTec's high-tech solutions, precision becomes the new success factor for your company.

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