



EMAG: High-precision electrochemical metal machining with a ready-to-install handling system from Bosch Rexroth

Space-saving, robust and ultraprecise

Today, machines for electrochemical metal machining (ECM) should achieve short cycle times and work with micron precision, even at long travel distances. In addition, use in corrosive salt spray places extreme requirements on the material. The EMAG Group has developed a new machine concept for this area, which is based on a pre-assembled, six-axis solution made up of corrosion-resistant components from Bosch Rexroth.

The medium-sized EMAG Group is known for its versatile vertical production machines and manufacturing systems. The new modular machine concept for electrochemical metal machining had to be especially compact and cover all process steps, from pre-cleaning to electrochemical machining, post-cleaning and checking. ECM processes executed in parallel help to further shorten the cycle times of the dynamic system.

High dynamics with a space-saving design

The six-axis handling system consists of standard modules with application specific modifications from the linear motion technology modular system from Bosch Rexroth. Two identical three-axis systems installed back to back serve as the foundation. The longitudinal axis is made up of the linear modules MKR-145 with belt drive, whose frames contain two ball rail systems and four runner blocks. In order to achieve the required precision within microns, the ball rail systems are equipped with the integrated measuring system IMS. The IMS-I runner blocks contains the complete maintains free measuring equipment incl. electronics. All components, from the profile bodies to the ball screw drives, profiled guide rails and runner blocks, are made of corrosion-resistant materials. The handling systems are delivered completely pre-assembled by Rexroth. The positive-locking connection technology enables quick final assembly without extensive adjusting and an automated one-point lubrication ensures minimal maintenance effort and maximum service life in use.

Challenge

Space-saving, dynamic and high-precision handling system for all ECM machining process steps.

Solution

Adapted, corrosion-resistant six-axis system with integrated measuring system.

Result

“Rexroth has achieved the goals defined when it comes to compactness, costs and flexibility.”

Alexander Noller, EMAG



Solved with

- ▶ Two three-axis systems
- ▶ Linear modules MKR-145
- ▶ Compact modules CKK-145 and CKK-200
- ▶ Integrated measuring system IMS-I