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Beckhoff at EMO 2017 in Hanover: Hall 25, Booth D42

PC-based CNC: Productivity boost for machine tools

Beckhoff will show how to significantly enhance machine tool productivity through PC-based control at this year's EMO trade fair. Taking place from 18 to 23 September 2017 in Hanover, Germany, EMO is the world's leading trade fair for metalworking and production technology. EMO attendees who visit the Beckhoff booth will see that more competitive metalworking machines with higher performance can be realised not only through end-to-end engineering with integrated intellectual property protection, but also through cloud-based automation with predictive maintenance. This can be achieved using the highly scalable Industrial PC (IPC) range from Beckhoff, which also includes compact entry-level controllers, all the way up to Embedded PCs with 12-cores of processing power.

With the motto "Connecting systems for intelligent production", this year's EMO trade show will focus on the latest trends in digitisation and networking in manufacturing. PC-based control and drive technology from Beckhoff forms the perfect solution in this context. With universal openness, modularity and scalability in software and hardware, this platform offers the ideal foundation to support advanced connectivity and cloud-based solutions, and to help optimise machine tool productivity. To illustrate the intelligent production approach of PC Control, Beckhoff will demonstrate the entire machine tool process chain from NC programming based on CAD/CAM, to digital twinning of the machine for NC program tests, to the final, production-ready machine.

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TwinCAT: All-in-one CNC software with integrated intellectual property protection

The high-performance Beckhoff CNC is ideal for all machine tools: from compact HSC (High Speed Cutting) milling machines to high-performance series machines that perform the widest variety of machining and processing tasks (cutting, milling, eroding). For these purposes, a universal and open hardware and software platform is available that can be finely scaled to suit all performance requirements. As an open, all-in-one CNC, the TwinCAT software solution integrates all functionalities in one control platform, simplifying engineering for the entire range of possible applications. Covering CNC functionalities through to HSC and PLC and other applications such as robotics, HMI, measurement technology and safety can all be implemented efficiently with one comprehensive toolbox.

The TcCOM objects in TwinCAT CNC ensure a unique level of openness and engineering efficiency. These objects allow users to complement or replace certain parts of the CNC application with their own company's code segments. Support of diverse programming languages such as C/C++ and MATLAB®/Simulink® further adds to the openness. With this simple integration of customer-specific process expertise and the implementation of new functions, TcCOM objects optimise CNC performance capabilities. There are other advantages too: the TcCOM objects reliably protect in-house expertise from competitors and control system vendors – as a kind of integrated intellectual property (IP) protection. Added to this is faster time to market and optimised engineering processes.

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TwinCAT IoT and Analytics: Cloud-based services for increased system availability

Cloud-based automation offers enormous potential to optimise production efficiency. The prerequisite, however, is to enable a simple and universal implementation of the system. PC-based control achieves this by permitting the outsourcing of functions to the cloud and by streamlining the incorporation of cloud services.

TwinCAT IoT ensures simple cloud communication with a range of functions to exchange process data via standard communication protocols, offering access to the special data and communication services of cloud service providers. The corresponding services can be hosted in public cloud systems, but can be implemented just as efficiently in corporate networks.

TwinCAT Analytics allows all process-related data of machine tools to be saved in the cloud in synchronisation with the machine cycle for subsequent analysis. This seamless supply of information forms the optimum basis for efficient troubleshooting and successful process optimisation. Moreover, wide-ranging tools are provided to implement predictive maintenance and to use new technologies such as machine learning algorithms.

Industrial PCs: Highly scalable with up to 12 CPU cores on DIN rail

Based on the large portfolio of Industrial and Embedded PCs offered by Beckhoff, CNC processing power can be scaled to exactly match individual requirements. With the newest Embedded PCs in the CX2000 series, many-core processing power, with up to 12 CPU cores, is available even for DIN rail installation. With this innovation, the Embedded PC range from Beckhoff now also offers ample computing

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power and parallel processing capabilities even for extremely demanding automation tasks.

→ Beckhoff at EMO: www.beckhoff.com/emo

→ PC-based CNC: www.beckhoff.com/cnc

Press picture:



Picture caption:

PC-based control is the ideal technology enabler to provide seamless connectivity and optimised operation for machine tools.

Text and picture:

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