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Note to editors: Link to high-res photo and picture caption follow news release text.

New TwinCAT 3 CNC Features Enhance EDM and Additive Manufacturing Processes

Fully integrated into Beckhoff's high-performance CNC solutions, new software functions and technology packages in TwinCAT boost digital manufacturing applications

SAVAGE, Minnesota, Oct. 15, 2024 – To empower the world's leading digital manufacturing companies with breakthrough automation technologies, Beckhoff is adding two powerful functions and two technology packages to TwinCAT 3 CNC (TF5200) software. For demanding electrical discharge machining (EDM) and additive manufacturing applications, these latest features include online adaptation and extended interpolation, plus a technology package for additive processes and another for advanced wire-erosion and die-sinking EDM machines.

TwinCAT 3 CNC Online Adaption (TF5262) offers TcCOM interfaces that integrate customer-specific modules for the online control of interpolation functions:

- Dynamic contour control (DCC) compensates for contour errors caused by physical deformation of the toolbox by modifying the tool center point path based on current and previous contour elements. The TcCOM object handles calculation of the normalization factor, compensation direction and compensation factor.
- The tool radius compensation function offers online compensation for factors such as the current tool radius, path position and path tangent. Two-path interpolation is also supported.

- The geometric feed rate adjustment is used to calculate a feed override factor to achieve a constant surface feed.

TwinCAT 3 CNC Extended Interpolation (TF5263) enables two-path interpolation, allowing two independent contours to be described in a single NC channel. This feature is particularly advantageous for EDM wire erosion. With conical coupling, the synchronization of path 1 and path 2 can also be used to compensate for additional blocks inserted by the tool radius compensation. The originally programmed connection between the two paths remains unchanged.

TwinCAT 3 CNC AM Plus (TF5291) is a technology package for additive processes. Its extended contour preview makes programmed contour elements available to the PLC in advance and can be activated in the NC program or via the standard PLC interface. TF5291 also enables access to future dynamic data, such as axis positions, velocities and accelerations, at configurable intervals.

TwinCAT 3 CNC EDM Plus (TF5292) is a special technology package for wire-erosion and die-sinking EDM machines. It combines the powerful functions from the TF5262, TF5263 and TF5292 packages with cylindrical compensation for EDM wire erosion, a single real-time cycle per channel and retraction strategies for die-sinking EDM.

[TwinCAT 3 CNC](#)

Link to high-res photo:

https://download.beckhoff.com/download/press/2024/NorthAmerica/Beckhoff_TwinCAT_CNC_EDM_images.zip

Press picture:



Picture caption:

TwinCAT 3 CNC software now delivers new functions and two technology packages to optimize EDM and additive manufacturing applications. (© Beckhoff, 2024)

At Beckhoff, automation is our calling. We empower engineers to differentiate and succeed as industry leaders – to harness new technologies, embrace open standards and solve the world’s most complex problems. Founded and led by engineers, we organically create advanced controls, communication, IoT and motion technologies that become unique tools for your one-of-a-kind challenges in an age of digital transformation. As a global partner with U.S. headquarters in Minneapolis, we remain committed to sustainability, inclusivity and support for the people behind the automation. So whether you’re powering the EV revolution, dazzling on Broadway, launching satellites or harnessing the wind – you can reach new heights for your business, industry and humankind.

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Please send questions regarding “Beckhoff TwinCAT 3 CNC software update” to:

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