

Press release

Robotics made easy

G-code programming simplifies the operation of robot cells

Georgensgmünd (D), 2018: The robotics industry is growing worldwide. In 2017, turnover in Germany alone climbed to an all-time high of 4.2 billion euros, which is 17% more than in 2016. Installations in the country, imports and exports all reached record-breaking levels. The sector is focusing on increasing performance capacity and building intelligent systems. toolcraft is playing a role in this by designing universal robotics solutions – taking them from the initial idea to the final system integration stage. Use of the CNC-based G-code programming language makes the technology accessible to users without prior in-depth knowledge of robot programming.

G-code programming simplifies the operation of robot cells

G-code programming makes robot cells more user-friendly. The computer language from the field of CNC machining is subject to standards and is used globally. This means that machine operators around the world can control robots without the need to perform complex offline programming. In turn, this strips away any feelings of anxiety, as operators can continue working in their familiar environments where they are accustomed to giving commands. "G-code programming allows operators to access the program during the production process and to change this directly within the cell," says Thomas Wieland, head of engineering and robotics at toolcraft.

G-code programming creates a wealth of opportunities

Measurement cycles can also be incorporated into the production process. The robot simply picks up the measuring probe and executes a specific G-code. The sequence can be entered directly within the cell. If a command is forgotten during the programming, the operator can add this on the spot. During such processes, a post-processor can try to identify collisions with as much warning as possible. Changes to offline programming always have to be retransmitted, which involves the robot restarting the program from scratch. However, robot simulation software is recommended to rule collisions out completely.

Universal programming language – ruled surfaces are advantageous

While G-code programming can be used in virtually all robot cells, it is particularly suitable for ruled surfaces like recesses or drilled holes. Offline robot programming is always the more favourable choice for freeform surfaces. However, G-code programming pays off during the production of less complex individual components and parts with simple geometries. There is no need to spend a lot of money on a CAM system or expensive programming training courses. Instead, operators with no knowledge of robot programming can purchase a robot cell and put it into operation immediately.

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About toolcraft

toolcraft is a pioneer of forward-looking technologies, such as 3D metal printing and the construction of customised turnkey robotic solutions. The company tests and develops innovative engineering processes until they are ready to be used on production lines. As a provider of comprehensive solutions, toolcraft covers the entire process chain, from the initial idea to manufacturing, quality assurance and testing in the areas of CNC machining, 3D metal printing, injection moulding, spark erosion (EDM) and mould making. Its clients include market leaders in the semiconductors, aerospace, medical technology, optical, special machinery manufacturing, motor sports and automotive industries. Building close working relationships with collaborative partners as well as universities, other institutions of higher education and research centres is an important part of its corporate philosophy. The medium-sized family-owned company, located in Georgensgmünd and Spalt, was founded by Bernd Krebs in 1989.