**HEIDENHAIN at EMO 2019:**

**Debut of the new OCM and grinding functions for the TNC**

*At EMO 2019, HEIDENHAIN introduced two new TNC functions that open up completely new possibilities for shop-friendly machining with high process reliability. Thanks to OCM, the user can program innovative milling strategies for any pocket and island directly on the TNC control. The OCM algorithm uses ideas taken from trochoidal milling but considerably expands their range of application. Meanwhile, new grinding functions round off the TNC 640’s capabilities for complete machining in a single setup.*

**Optimized Contour Milling (OCM): the next generation of trochoidal milling**

Trochoidal milling stands for highly dynamic milling at excellent material removal rates. Unfortunately, the tool paths involved are optimal only for grooves. At EMO 2019, HEIDENHAIN changed this state of affairs with a new option for the TNC 640, TNC 620, and TNC 320 controls. Optimized Contour Milling (OCM) allows the trochoidal milling principle to be utilized for a considerably wider range of applications. In addition to the roughing of any open or closed pocket and island, OCM also offers cycles for the finishing of pocket floors and side walls.

As is the case with trochoidal milling, OCM limits the wrap angle and permits milling along the entire cutting edge. With OCM, the user can program any contour on the TNC 640 as usual from the shop floor. The control then automatically calculates the optimum tool paths for holding the cutting parameters constant. The subsequent machining operation runs with continuously optimum cutting values, resulting in increased machining speed and a noticeable reduction in tool wear.

A sample part presented at EMO showed just how effective the new milling strategy is. For our sample workpiece at the tradeshow, OCM lowered the machining time and tool wear by a factor of three compared with conventional milling strategies.

**Grinding: achieve perfect finishes in a single setup**

The TNC 640 was already able to handle milling and turning operations in a single setup. But at EMO, HEIDENHAIN showed that the control can master a third production process for the complete machining of a workpiece; namely, jig grinding. Having a milling, turning, and grinding package on a single machine offers many benefits, particularly for quality-intensive industries such as mold making and medical technology. These industries can now machine parts to exceptional surface quality in a single clamping.

The new functions enable the jig grinding of any contour on a milling machine. In addition, easy-to-use standard dressing cycles on the TNC 640 can true up grinding tools inside the machine tool. The standardized operating design for milling, turning, and grinding makes usage particularly easy. What’s more, optimized tool management for every process supports the user with both grinding and dressing.

**Locations of** **HEIDENHAIN, AMO, and ETEL at EMO 2019:**

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| Controls and encoders | Hall 9, Booth I32 |
| TNC Club | Hall 9, Booth K32 |
| Live demonstration of “Intelligent data management in automated manufacturing” with OPS-Ingersoll and Haimer | Hall 9, “industrie 4.0 area” |
| Young Talent Foundation for Mechanical Engineering | Hall 25 |

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|  | *Machining time and tool wear are reduced by a factor of three: the new OCM option of the HEIDENHAIN TNC 640 demonstrated its capabilities on a sample part at the trade show.* |
|  | *Rounding off the TNC 640’s milling and turning capabilities: the HEIDENHAIN control will enable mastery of grinding operations for exceptional surface quality.* |

***For more information, visit:***

emo.heidenhain.de

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