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New Taptor® technology for the production of internal threads

EMUGE Taptor® is a new technology for the production of internal threads developed together by EMUGE and AUDI AG. The threading tool combines a twist drill with a tap and leads to a significant saving in machining time.

The target behind the development was to achieve high time savings in the production of internal threads in blind holes and through-holes. While the EMUGE Punch Tap and Speedsynchro® technologies generate time savings via shorter tool paths or higher cutting speeds, Taptor® achieves these savings by reducing one working step.

The core hole and thread are produced simultaneously in one operation by the Taptor® tool, developed by EMUGE. The process for which AUDI AG has applied for a patent is basically divided into two steps. In the first step, the movement of the tool corresponds to synchronous tapping. The drill feed per revolution therefore matches the thread pitch. In the second step, the tool cuts free at the drilling depth. And the thread teeth create a circumferential undercut. Then the Taptor® is retracted through the generated thread.

The time advantage results from several individual elements. On the one hand, the entire pre-drilling cycle, including all traverse paths, positioning and tool changes, is eliminated. On the other hand, the main time of the individual thread machining is reduced by the collet holder Speedsynchro Taptor®, which enables a higher cutting speed with its integrated transmission gear. For example, when machining a

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cylinder head side with 26 threads M6 2xD in cast aluminum, there is a time saving of 41% or 2 seconds per thread.

The process can be used on any machine that is suitable for synchronous tapping, has a spindle with torque support and a suitable tool magazine for holding the Speedsynchro Taptor®.

The Taptor® process is still under further development and is used at AUDI AG for first series production of engine components made of GAL. It will probably be available to all interested parties from mid-2020.

About EMUGE-FRANKEN:

For nearly 100 years, the German company group EMUGE-FRANKEN has been one of the world's leading manufacturers of precision tools for thread cutting, gauging, clamping and milling. With 1,900 employees, EMUGE-FRANKEN offers an innovative product program with 40,000 in-stock items and a multiple of that with customer-specific tools. The product range is focused on applications in the automotive industry, power plants, aerospace industry, medical technology as well as mechanical and plant engineering. As a system supplier for machining industry, EMUGE-FRANKEN has own branch offices or sales partners in 52 countries.

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Images:



Image 1: EMUGE Taptor® achieves high time savings by avoiding the pre-drilling cycle and higher cutting speeds.



Bild 2: The Taptor® tool combines a twist drill with a tap.

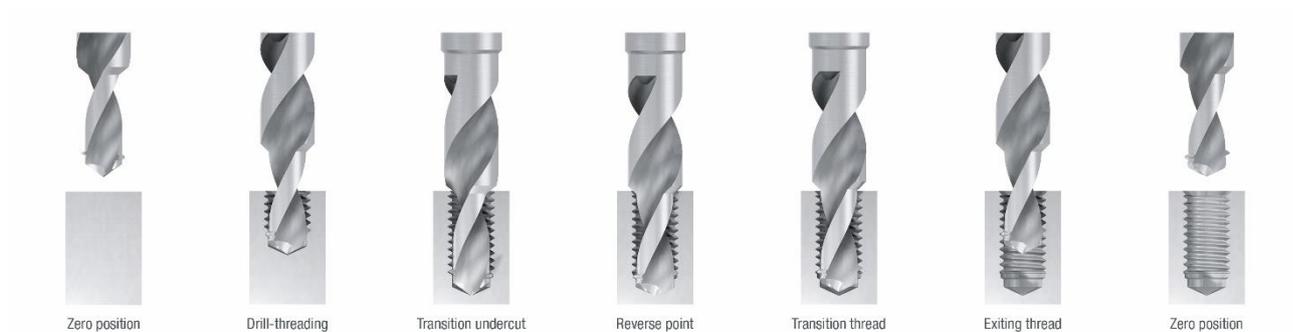


Bild 3: The functional phases of Taptor® technology.

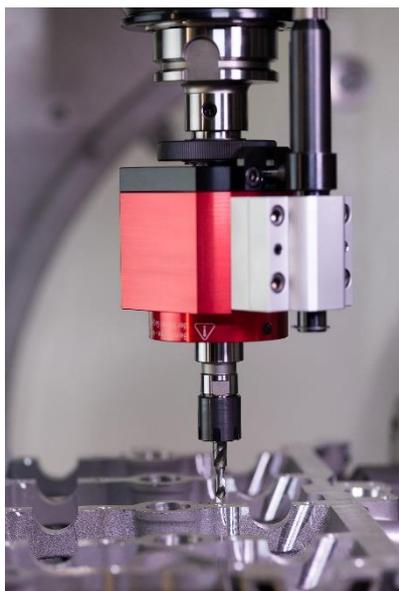


Bild 4: Taptor® technology in use at the cylinder head.