

Even faster production:

# ∇max technology

makes it possible



**“Much quicker, more precise and more economical” – that was the forecast of the small parts turning experts a few years ago. The trend clearly pointed in the direction of higher production speeds. As a result of even more powerful machines and new technologies, this vision has long been reality.**

The fact that such forecasts make those responsible in the small parts turning sector sit up and listen, is self-evident. Since the beginnings of the first series production at increased cutting and feed rates just 10 years ago, technologically remarkable progress has been made in the areas of machine tools, tooling, machining fluids and materials. Also of great importance for the perfect interaction of the factors mentioned, is the cutting oil used. The fact that time has not stood still, is demonstrated by the new ∇max technology from MOTOREX.

#### **MOTOREX-∇max technology compared**

Metalworking is a precise operation and of particular interest are such properties as cutting and feed rates, surface quality, tool life and, last but not least, the output per machine hour. Therefore a practical test was recently run on a modern CNC machine at a neutral location, where the machine operator ran the machine up to its performance limit. Comparisons were made of the tool life and output between a modern, high-quality cutting oil

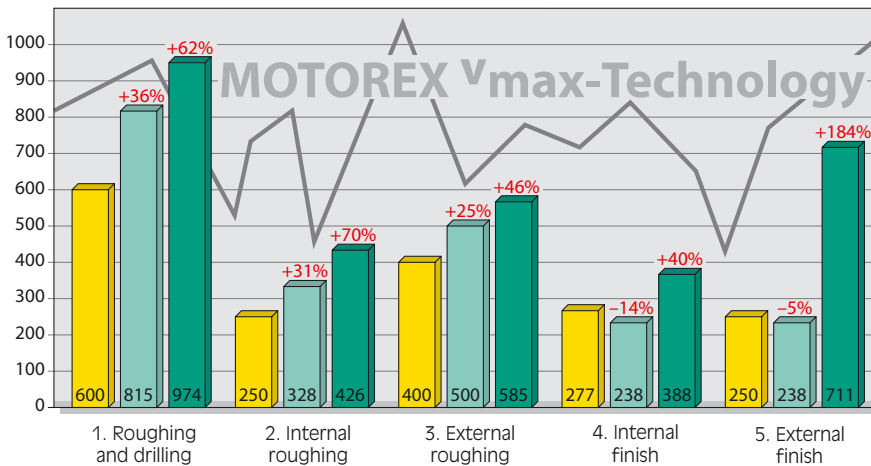
and MOTOREX ORTHO 400 of the ∇max generation. For evaluation purposes, five representative machining steps were performed on a workpiece made from molybdenum STAINLESS STEEL.



The following three test stages were run:

Comparative values for tool life / work pieces at the limit of performance

Workpieces per throw-away insert



- 1) Production at the performance limit of the conventional modern cutting oil
- 2) Production using MOTOREX ORTHO 400 at the cutting values of stage 1)
- 3) Production at the increased performance limit with  $\nu$ max technology and MOTOREX ORTHO 400

### Concerning heat and exponential performance enhancement

Up to now heat has been something that should be dissipated and avoided as efficiently as possible. This is no longer quite the case where the new  $\nu$ max technology from MOTOREX is concerned. A clearly defined high temperature can trigger desirable chemical synergies at the crucial moment at maximum production speed during the machining process, thus making possible exponential performance enhancement in the first place. Previously, such experiments regularly went up in smoke – nowadays, impressive increases in output are achieved with the optimised factors and cutting values.

This enhanced performance is directly related to the solvent-refined base oils used that are low in aromatic hydrocarbons and which have been combined with synthe-

tic materials and special additives in a novel way. The result is an above-average tool life with excellent surface quality and enhanced performance.

We will be pleased to give you further information about the new  $\nu$ max technology and also recommend that you have a performance test carried out in your company:

**MOTOREX AG**  
Customer service  
Postfach  
CH-4901 Langenthal  
Tel. ++41 (0)62 919 74 74  
[www.motorex.com](http://www.motorex.com)

**TORNOS SA**  
Customer service  
Postfach  
CH-2740 Moutier  
Tel. ++41 (0)32 494 44 44  
[www.tornos.ch](http://www.tornos.ch)

Surface quality provides unmistakable information about the course of the machining process. Ever more powerful machine tools, combined with the  $\nu$ max generation of MOTOREX machining fluids, are the ideal basis for the successful maximisation of production performance.



#### About the material used:

UGINOX 18-13 MS (also X2CrNiMo18-14-3 or 1.4435).

This stainless, austenitic (hardened by heat treatment) steel, is convincing, given properties, such as strong corrosion resistance towards acids and chlorine-containing media, excellent resistance to compression and deformation, good weldability and excellent polishing properties (mirror finish).

Amongst others, it is used in the areas of chemical plant construction (piping), the food industry (tanks), marine engineering, the horology industry etc.