

# Blaser Swissslube: Machining Expertise thanks to its in-house Technology Centre



Recently, lubricant company Blaser Swissslube has extended its ultra-modern Technology Centre which now occupies about 300 m<sup>2</sup> of floor space at its Head Office site in Hasle-Rüegsau (Switzerland). For the last four years, this is where the latest metalworking fluids to be developed are tested, and where the versatile machining operations of its customers and partners are recreated in a realistic way. The Technology Centre enables the machining specialists from Blaser to provide customers with cutting and grinding fluids that deliver an effective form of added value and which help to optimize their productivity, economic efficiency as well as the quality of their machining operations. Test results provide convincing evidence.

Two 5-axis machining centres, one turning and milling centre, a 5-axis tool grinding machine and two new CAD/CAM workplaces: Blaser Swissslube has now created optimum conditions for simulating and testing the latest machining technologies in its Technology Centre, founded at the end of 2008. "That enables us to provide our customers with even better levels of support, and to help them improve their productivity and economic efficiency, as well as to optimize the quality of their machining operations", explains CEO Marc Blaser.

In addition to the tests conducted on recently developed metalworking fluids for the machining of an incredibly diverse range of materials, and the close-to-reality simulation of production situations, the infrastructure enables machining seminars to be delivered from the Blaser head office site in Hasle-Rüegsau. In collaboration with customers, universities, colleges of advanced technology or trade associations, innovative machining technologies and the latest materials are tested with various metalworking fluids, after which the processes as well as the cutting and

grinding fluids can be optimized and developed yet further.

### From coolant to liquid tool

CEO Marc Blaser: "Both projects demonstrate that the three factors of productivity, economic efficiency and machining quality depend in large part on the choice and quality of metalworking fluid and on the expertise of the machining specialists." Accompanying that optimum choice of metalworking fluid is the technical expertise of Blaser specialists in Sales, in the R&D laboratory, in the

Technology Centre and in Customer Service that gives Blaser partners real tangible benefits. "This technological expertise transforms our cutting and grinding fluids into a liquid tool, and into a precisely engineered solution to meet the specific needs of each of our partners."

Blaser Swissslube is a globally active company in the metalworking fluid sector. Blaser Swissslube develops, produces and sells high-quality cutting and grinding fluids. Its customers then use Blaser metalworking fluids with great success to produce everything from the tiniest of components for the watchmaking industry or medicinal technology to gigantic structural elements in the aircraft industry.

### Entry to the Indian market was a unique affair:

A new automotive plant belonging to the Indian industry giant TATA was equipped with the very latest machine tools and the manufacturer recommended the use of metalworking fluids for production operations. That was in 1998 and defined the beginnings of Blaser Swissslube in India. This was followed in 2001 by the founding of a subsidiary, Blaser Swissslube India, with its head office in Gurgaon. Some production takes place in India and important components are supplied from Switzerland.

For any further information do write to [technologycenter@blaser.com](mailto:technologycenter@blaser.com) Visit [www.blaser.com](http://www.blaser.com) to know more about Blaser.

### Test 1: Deep-hole drilling 18 times faster

The influence of metalworking fluids on the machining process is often underestimated. A recent project conducted with the Technical University in Aachen demonstrated this very clearly. The aim of the project was to reduce the machining time required to drill a deep hole in tempered steel, an operation that had taken three minutes, while endeavouring to retain the same standard of quality. Until its collaboration with Blaser Swissslube, the Technical University in Aachen had been using a conventional cutting oil for this machining operation.

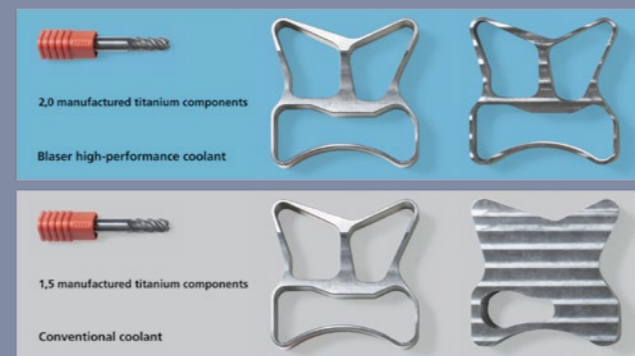
Starting Position:  
 Operation: Deep hole drilling, diameter 8 to a depth of 200 mm  
 Pre-machining of pilot hole of same diameter to a depth of 16 mm  
 Material: 42CrMo4 + QT, tensile strength 1000 MPa  
 Machine type: Mazak Variaxis 500  
 Tool: Kennametal and Titec drilling tools  
 Cutting parameters: Vc 120 m/min, f 0.25 mm/revolution

To optimize these demanding drilling operations, a process of rigorous testing and adjustment was applied to tool, drilling strategy, machining parameters, metalworking fluid delivery and metalworking fluid. The water-miscible cutting and grinding fluid was pumped through the tool at high pressure (60 bar) to evacuate any chips occurring and to prevent the downtime otherwise caused by chip removal. The key thing here is to select a metalworking fluid with no tendency to foam, even at high pressures. Always prevent air bubbles from arising in the emulsion since these counteract the cooling action and also obstruct the flow rate that enables chips to be cleared effectively.

At the end of this project, the original time required of three minutes per hole was reduced to ten seconds for a depth of 200 mm – an 18-fold improvement in efficiency.



### Pocket Machining with Sandvik Solid Carbide Millers



improve the tool life by more than 30% in series production, compared to a conventional metalworking fluid.

Starting Position  
 Operation: Milling (pocket machining)  
 Material: Titanium TiAl6V4  
 Machine type: Mazak Variaxis 500  
 Tool: Sandvik VHM miller  
 Cutting parameters: Vc 160 m/min, fz 0.15 mm, ap 25mm, ae 0.9mm, te<sup>α</sup> 32 (angle of deflection)

### Test 2: Tool life increased

Another successful project at the Technology Centre dealt with the machining of a titanium component. Through the use of the optimum metalworking fluid, it was possible to

The test project involved milling two identical titanium components. For this, the components were produced on the

same Mazak machine, using the same tool, and with a milling program from 3D Concepts. The only difference was the kind of metalworking fluid employed.

With the conventional metalworking fluid, it proved possible to manufacture one and a half titanium components before tool wear made it necessary to stop production. The solid carbide milling tool had been subjected to extreme stress loadings and clear signs of breakage down its cutting edges were visible, alongside the normal signs of wear. With a new high-performance metalworking fluid specifically designed for the machining of titanium, it was possible to manufacture two complete workpieces without reaching the previously defined tool life criterion (wear of 0.2 mm) - an impressive improvement in performance. ■