

Analyzing and commanding sophisticated machining processes

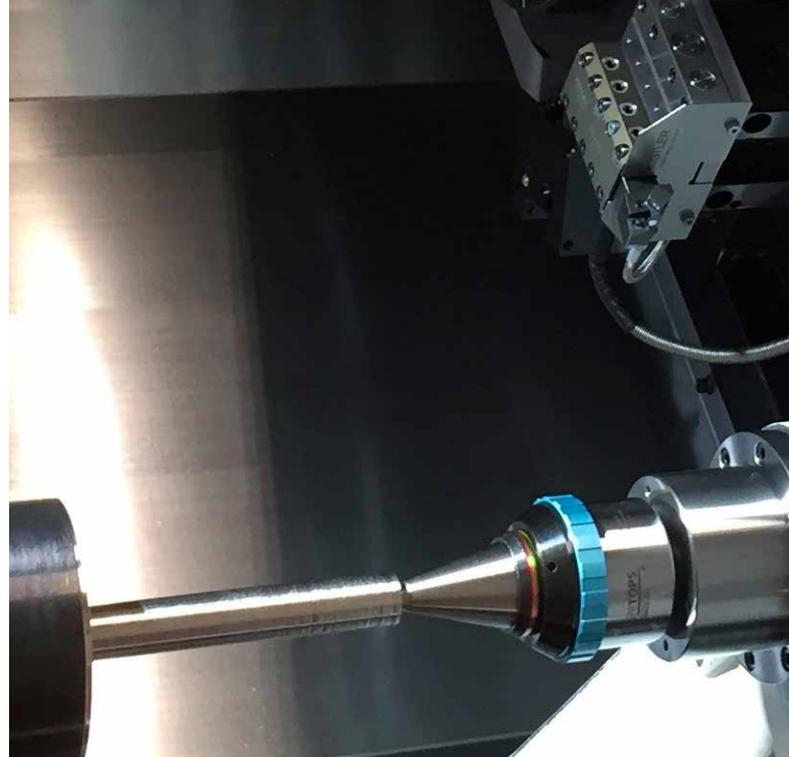


Modern equipment and unique in the industry - the Blaser Technology Center at their headquarters in Switzerland

Evaluation of cooling lubricants under operating conditions

Ensuring high quality lubricants thanks to Kistler sensorics

Kistler 3-component measurement system enables cooling lubricants to be evaluated under real operating conditions



Integration of Kistler dynamometer Type 9129AA in a lathe for machining tests

Cooling lubricants are becoming increasingly important in industrial production. The Swiss company Blaser Swisslube AG in Hasle-Rüegsau is a leading manufacturer of high quality metal-working fluids and relies on measurement systems from Kistler during development. High-precision measurement data ensures exact adaptation of the cooling lubricants to the application requirements to ensure that they function reliably in practical use.

Continuous optimization as a challenge

More than 80 specialists at Blaser Swisslube headquarters R&D and technology center are busily devising new and better solutions for tomorrow. The number of application fields for cooling lubricants continues to grow as a result of the development of new materials and processes. However, at the same time they also face new challenges. To meet the requirements, the lubricants must have different properties and must function reliably.

Basis for success: reliable measurement data

To test the properties of newly developed cooling lubricants and to constantly develop them further, the collection of reliable data

generated under industrial operating conditions is essential to Blaser Swisslube AG. The goal is to be able to collect as many relevant parameters as possible in order to draw conclusions about the cooling and lubricating behavior. In their work, Blaser Swisslube AG relies on state-of-the-art machines and measurement technology.

The recording of the cutting force components is very important in the assessment of new lubricant recipes, since the force components are directly related to the tribological ratios in the cutting zone. It is thus possible to gain detailed knowledge of the lubricating properties of the coolant and its individual constituent parts. Furthermore, the influence of the coolant can be analyzed as the tool wear increases.

To record meaningful cutting force signals for the evaluation of cooling lubricants, high demands on the dynamics and accuracy of the measurement system must be met. It is important that stability in the cutting process is not negatively influenced. The conditions of industrial production can thus be maintained

'Force distributions vary greatly depending on the cooling lubricant technology. Together with other modern measurement tools, we are thus able to precisely record the mechanisms of action of the cooling lubricant in the cutting process.'

Manfred Schneeberger, Process Engineering Manager
at Blaser Swisslube AG

Blaser Swisslube AG, Hasle-Rüegsau, www.blaser.com





Measurement setup in front of machining center

and valid measurement results collected. For measurements in this extreme range, a very rigid and compact measurement system must be used.

The solution from Kistler

During the measurements, Blaser Swisslube AG uses the Kistler 3-component measurement system, Type 9129AA. This instrument satisfies all requirements with respect to accuracy, dynamics, and very high rigidity. Furthermore, it has a compact design and can be installed directly in the machine without significant effort.

The system is used in all cutting tests on the lathe and delivers reliable data on the cutting force, feed force, and passive force. The piezo technology that is used allows the measurement range and the resolution to be easily adapted to the respective application without changing the stability of the system.

Success with Kistler

By constantly recording the force, Blaser is able to compare cooling lubricants and their constituent parts. "Force distributions vary greatly depending on the cooling lubricant technology. Together with other modern measurement tools, we are thus able to precisely record the mechanisms of action of the cooling lubricant in the cutting process," explains Manfred Schneeberger, Process Engineering Manager at Blaser Swisslube AG. The Development department benefits from the knowledge thus acquired. As a result, it will be possible to tailor future cooling lubricant solutions even more precisely to the respective requirements.

Complete measuring chain from Kistler

Type 9129AA: 3-Component measuring system for turning up to 8kN



Universal dynamometer with high natural frequency. The setup of dynamometer enables accurate measurement of highly dynamic forces and guarantees minimal influences of thermal effects.

Multicomponent measuring system for 3 components of the resultant force vector and 3 components of the resultant moment vector.

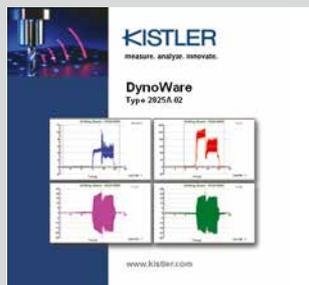


Multichannel charge amplifier 5070A... for multicomponent Force Measurement.



Universal data acquisition box controlled by DynoWare program.

DAQ-System with DynoWare Acquisition



DAQ-system with DynoWare acquisition and evaluation software offers high sampling rate and USB connection. The DAQ system for DynoWare consists of a connection box and the DynoWare program.

More information about the products

www.kistler.com/cutting-force

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