

Press release

Measuring vibrations at up to 1000 degrees Celsius

Kistler launches new accelerometer for extremely high temperatures

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Kistler launches a new uniaxial accelerometer for vibration monitoring. It delivers reliable results at temperatures of 700 degrees Celsius over the long term and can even withstand temperatures of up to 1000 degrees for short periods of time. The 8211A sensor is certified to ATEX and IECEx for use in explosion protection. This makes it suitable not only for monitoring purposes, but also for use under extreme conditions in a wide variety of applications.

When measuring vibrations inside the combustion chambers of gas turbines, rocket or aircraft engines, ambient temperatures of the sensors are often in the high three-digit range. Under extreme conditions, these measurements must provide exact data as basis for further developments – for example on instabilities in the combustion process. However, only few sensors withstand the extreme heat and temperature fluctuations and still deliver reliable measurement data. The new 8211A sensor from Kistler is especially designed for such conditions in order to measure vibrations in various extreme industrial environments.

Maximum accuracy even at extreme temperatures

The sensor owes its heat resistance primarily to the PiezoStar crystal at the heart of the accelerometer, which is especially suitable for these applications. Kistler grows the artificial crystal in its own laboratories. Quality fluctuations and supply bottlenecks, such as with the gemstone tourmaline, used in similar applications, are not a concern with the artificial crystal. In addition, the sensor's robust hardline cable is insulated with magnesium oxide and equally resistant to heat: Enduring temperatures of up to 1000 degrees Celsius is not a problem for sensor or cable.

Differential measurement chain ensures reliable results

The functioning principle of the 8211A accelerometer from Kistler is based first and foremost on the piezoelectric effect: when force acts on the crystal, it generates an electric charge that is proportional to the acceleration. The accelerometer can measure this charge along an axis in both directions. Due to the sensor's basic insulated design the positive and negative charge is constantly evaluated. In combination with a differential charge amplifier a complete and stable differential measurement chain

can be formed. This provides reliable data that is not influenced by environmental factors such as electromagnetic interferences.

Image material (please name the Kistler group as picture source)

Measures vibrations under extreme conditions: the new 8211A sensor from Kistler.



The 8211A sensor is suitable for many applications with extremely high ambient temperatures, such as testing rocket engines.

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About the Kistler Group

Kistler is the global market leader for dynamic pressure, force, torque and acceleration measurement technology. Cutting-edge technologies provide the basis for Kistler's modular solutions. Customers in industry and scientific research benefit from Kistler's experience as a development partner, enabling them to optimize their products and processes so as to secure sustainable competitive edge. Unique sensor technology from this owner-managed Swiss corporation helps to shape future innovations not only in automotive development and industrial automation but also in many newly emerging sectors. Drawing on our extensive application expertise, and always with an absolute commitment to quality, Kistler plays a key part in the ongoing development of the latest megatrends. The focus is on issues such as electrified drive technology, autonomous driving, emission reduction and Industry 4.0. Some 2,200 employees at more than 60 facilities across the globe are dedicated to the development of new solutions, and they offer application-specific services at the local level. Ever since it was founded in 1959, the Kistler Group has grown hand-in-hand with its customers and in 2019, it posted sales of CHF 466 million. About 7% of this figure is reinvested in research and technology – with the aim of delivering better results for every customer.