

Press release

Analysis of thermodynamic processes in engines

KiBox KID supplies detailed information about engine knocking behavior

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The key to optimizing combustion engines is detailed information about the thermodynamic processes that take place in the engine. Factors to be investigated for this purpose include knocking behavior, which has a major influence on consumption and engine smoothness. Now, the new KiBox KID from Kistler supplies engine application engineers with precise data about these processes.

The tried-and-tested KiBox from Kistler is an indicating system for combustion analysis. It provides detailed information about the quality of combustion and the thermodynamic processes that take place in a combustion engine. All the relevant measurands are calculated and visualized in real time. This compact system is equally suitable for mobile use while the vehicle is traveling, and as a stationary application on a test stand.

Knock control in production vehicles

Kistler added a new variant to the KiBox family of products at the start of 2019. The Knock Intensity Detection functionality – or KID – is based on the proven Bosch methodology for applying the knock protection function in engine control units (ECUs). Knock control in production vehicles is based on structure-borne signals. To calibrate the knock application, cylinder pressure signals are captured simultaneously with corresponding structure-borne signals, and are then analyzed and combined with the measurement labels provided by the ECU.

Excellent compatibility

KID is the next stage in the evolution of this methodology, making it possible to apply the latest generation of Bosch ECUs with model-based knock detection methods. Another new feature: the standardized XCP interface. This supports PTP (Position Time Protocol) for cross-system, synchronous recording of measurement data in combination with other components. Existing KiBox users can also implement these groundbreaking functions thanks to an attractive upgrade concept.

Custom solutions

As an added benefit, our customers have access to direct on-site support and advice from the Kistler Group's global network of specialists. Users can also request customized services for KiBox – an excellent way to guarantee highly efficient, goal-oriented engine indication.

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



The new KiBox KID integrates the tried-and-tested Bosch methodology for applying the knock protection function in Bosch ECUs.

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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 2018, it posted sales of CHF 475 million. About 8% of this figure is reinvested in research and technology – with the aim of delivering better results for every customer.