Kistler Sensors in Heavy Fuel Oil Operation since 2002.

For over ten years, Kistler pressure sensors (Type 6013CA) have been successfully monitoring combustion in the low speed main engine of the oil/chemical tanker – Bow Cecil. At the time, the Bow Cecil was one of the first vessels with online monitoring sensors supplied by Kistler. Since then, Kistler has played a major role in the development and viability of Closed Loop Combustion Control (CLCC).

Responding both to the environmental and economic market requirements, large engine manufacturers and marine design engineers are constantly striving to be at the forefront of cutting edge technology in developing large marine heavy fuel engines.

In 2002, the Bow Cecil was equipped with Kistler Type 6013CA sensors for the monitoring of combustion pressures in its main engine. In order to avoid HFO/soot deposits on the sensor’s membrane and therefore ensure long term stability, Kistler’s patented slotted adapter was installed along with the sensors.

After 55 000 running hours, the sensors were still in service and completely fulfilled the customer’s expectations. Final analysis of the sensors showed that an increase in sensitivity had occurred, indicating that some relaxation had taken place. It was decided that, it was time to exchange the sensors as they have reached the end of their life after 55,000 running hours. Periodic recalibration would maintain the optimal accuracy of these sensors. Once more, Kistler pressure sensors have proved their value, reliability and durability with long-term partners.
Formula Student Racing with the KiBox®.

Formula Student is an international design competition bringing together universities from around the world. Students design and build their own race cars before competing with each other under real race conditions. Regulations define the design limits which apply to both chassis and powertrain. The students are required to stick to those design criteria when working on power and torque delivery as well as efficiency.

One lucky student gets to be the driver and is responsible for taking the car to its limits during the driving section of the competition. In order to be competitive the focus of development will be therefore on the real dynamic driving conditions. The team from the University of Applied Science Esslingen (Germany) optimized gearshift, race start (launch) and throttle response by utilizing mobile combustion analysis with the KiBox®. Within the processed combustion data e.g. after a gear shift, the team identified a very slow return of IMEP to the base level when using the regular

Vehicle performance is just a part of the overall result. However, thanks to the optimization of the engine map, the team from Esslingen achieved third place in the Formula Student Germany Event in Hockenheim. Congratulations, Team Esslingen!

KiBox® Feature:
- Universal application
- Compact Setup
- Ready to measure
- Simple operation
- INCA Integration
- Standalone operation

New Water-Cooled M14 Cylinder Pressure Sensor Type 7061C.

The new M14 cylinder pressure sensor Type 7061C is a development of the proven water-cooled Type 7061. It can be classified as a reference pressure sensor and features an improved diaphragm design with low thermal shock error and excellent durability.

The new M14 sensor Type 7061C is ideal for thermodynamic measurements, such as friction analysis in large engines and particularly those with high peak pressures requiring a robust sensor. Improvements over the previous version of the Type 7061B have been made in several key areas. These include a strengthened diaphragm, designed to increased service life and reduce thermal sensitivity shift.

Additional changes have also been made to optimize the coolant flow, reducing cavitation noise while stabilizing the sensor element temperature leads to an improved signal quality. These changes, coupled with the excellent linearity and high output sensitivity, have allowed Kistler to increase the measuring range from 250 bar to 300 bar without compromising the reference class accuracy. Gas exchange studies are still possible with a sensor that can now withstand an overload pressure of 350 bar. The Type 7061C is available, please contact your local Kistler Engines Specialist for further details.

Online Monitoring System Type 2508A.

The Type 2508AQ20 is a data processing unit for the online monitoring of cylinder pressure on large 2-stroke and medium speed 4-stroke engines with up to 20 cylinders. This unit measures between 10 ... 100 pressure cycles, from which it calculates the arithmetic mean value of standard deviation and the peak pressure as well as plotting deviation between cylinders, pressure curves and mean values in a trend window.

With such a monitoring system, failure detection, cylinder balancing and predictive maintenance become possible. Depending on the configuration, cylinder pressure for periodic measurement can be measured via the indicator valve, or for an online measurement in an adapter, such as Type 7523B, mounted directly on the engine with the Type 6613CA pressure sensor for instance, which also features an in line amplifier.

Data processing unit Kistler Type 2508A for successful online cylinder pressure monitoring.