

Kistler View



**Absolute Attention
for Tomorrow's
Innovations.**

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An Eye for Detail.

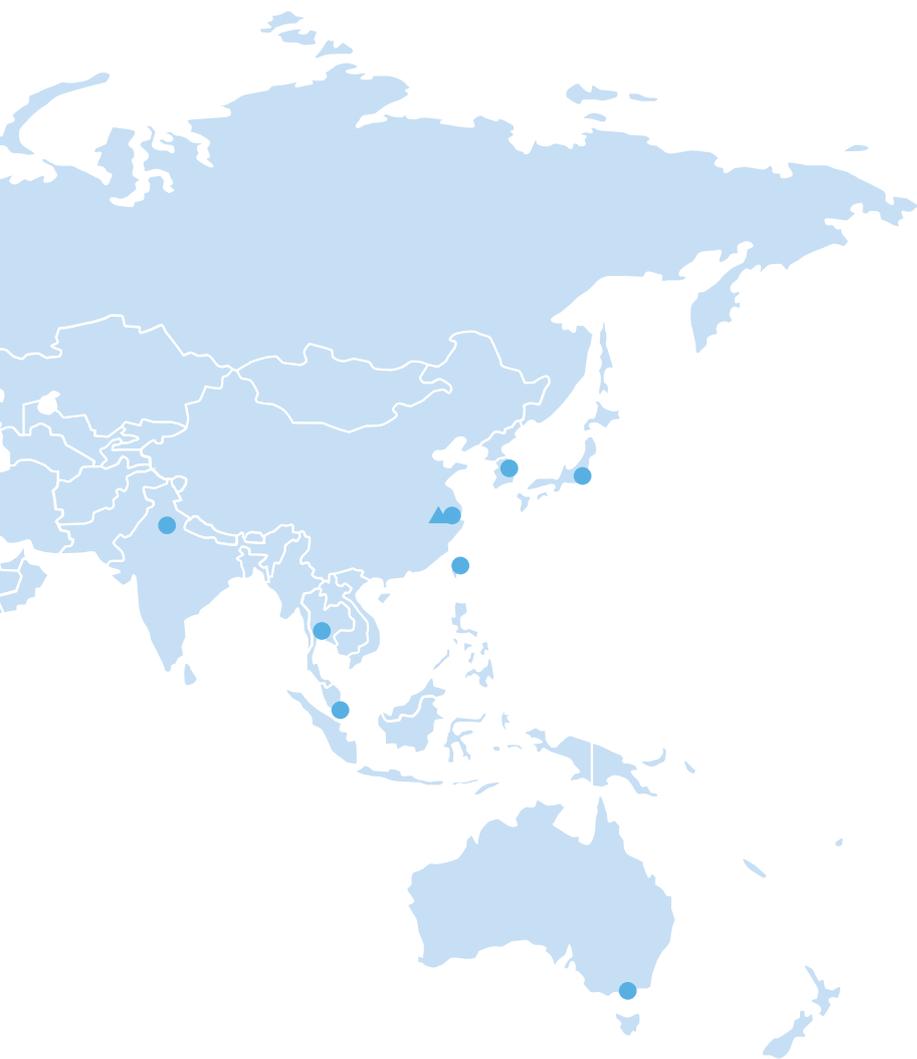


Kistler's ComoNeo process monitoring system cuts production costs permanently by ensuring automated monitoring and analysis of the injection molding process.

Crash test dummies with Kistler sensors play their part in improving road traffic safety by measuring acceleration rates, torques and forces that act on people in the event of an accident.

Kistler measurement equipment can withstand extreme pressure and temperature peaks during tests on airbag components – so it is a key factor in the development and manufacture of safer and better airbag ignition systems.

- Kistler Sales Center
- ▲ Kistler Tech Center
- Kistler Production Center



With our products and systems, we measure physical changes so small that they cannot be detected by human sensory organs. This means that we focus our absolute attention on the most minuscule details – because great accomplishments always have small beginnings.



Our motto for the year, and our brand promise, is 'Absolute Attention': these words underscore our claim to be at the very forefront of technological progress. Together with our customers, we operate at the limits of what is technically feasible – and hand-in-hand with them, we go one step further. As we move forward, we support our customers in our role as a product and system provider; but also, as a solution partner, we become an integral part of their innovation and improvement process.

Small steps to bring about great achievements. Understanding our customers, and sharing their mindset. Not just thinking – but thinking of *everything*. Being prepared to *think out of the box* – together with our customers. These goals deserve our absolute attention.

Rolf Sonderegger
CEO Kistler Gruppe



**Complete Testing
Systems with
All-Round Support.**

Flexibility and Process Reliability for Standard Vehicle Tests.

Braking distance, driving behavior or fatigue strength: when variables such as these have to be measured, today's flexible test systems must incorporate the latest developments in measurement technology, backed up by professional all-round support. Standard vehicle tests pose two major challenges: compliance with testing guidelines, and satisfying customers' individual requirements.

Kistler collaborates closely with development centers across the globe to support its customers with complete solution packages for testing. OEMs, tire manufacturers and suppliers benefit from the flexibility of additional capacity, tried-and-tested technology from one single source, and a partner with complete mastery of the entire measuring chain from start to finish.

Official guidelines give precise definitions of the physical measurands that must be recorded, and how they have to be evaluated. The criteria are strict – and this is where know-how accumulated over the years pays dividends. Kistler provides support for all phases of testing: from setting the vehicle up and performing the measurements all the way through to correct data output. State-of-the-art measuring solutions for universal use maximize process reliability and cut costs.



'Shorter throughput times thanks to complete test systems, and expert support throughout all phases of testing: Kistler is on hand to assist every customer with all-round support – available at short notice – and measuring solutions for universal use in demanding standardized vehicle tests.'

Dr. Thomas Wagner
Head of Division
Automotive Research & Test

Automated Process Monitoring to Cut Costs.

The trend towards miniaturization has been with us for many years. Devices and components are becoming smaller and smaller, but at the same time they have to deliver ever-increasing functionality. This trend is especially marked in the communication electronics sector. The smart phones that we take with us everywhere feature compact, minimalist design: wide-ranging functionality with minimum space requirements. The same is true of car dashboards: in less and less space, they have to accommodate numerous control elements, such as switches for assistance systems, electronic parking brakes, and multimedia systems.

Malfunctions on safety system switches can put human life at risk – and they may also lead to product recalls, with fatal consequences for the manufacturer's business. Consistent control of every single switch is the only way to make sure that no faulty parts are installed. To achieve this goal, Kistler's sensors measure the forces when the control elements are operated, and they assess the product's quality on the basis of the measured force-displacement profile. The results: 100% monitoring of all manufactured parts, as well as substantial reductions in production and quality costs – because further processing of faulty parts is avoided and they are excluded from the application.



'In the 'Smart Factory'– the intelligent factory of tomorrow – production resources such as manufacturing and assembly systems will control and improve themselves automatically. Our sensors record the situation on the spot, in real time, and feed this data back into the control system.'

Dr. Oliver Schnerr
Head of Sales of Division
Industrial Process Control

**Quality Assurance
when Space is
Limited.**



Efficiency and Lean Combustion with Pressure Pulsation Monitoring.

Measuring Thermoacoustic Phenomena in High-Temperature Environments.



'New Thermoacoustics Strategic Business Field focuses on monitoring pressure pulsations in harsh environments at extreme temperatures. Kistler's solutions ensure that gas turbines are operated safely and efficiently – in total compliance with the strict limits on pollutants.'

Marc Schaad
CTO and Head of Division
Sensor Technology

The new Thermoacoustics business field focuses on the interaction between combustion processes and pressure pulsations. Complex thermal processes, which play a significant role in the combustion chambers of gas turbines or as noise emissions in aircraft engines, are potentially unstable and difficult to control. In order to operate gas turbines efficiently and at the same time comply with pollutant emission limits, the turbines have to operate close to the stability limit. By means of pressure pulsation monitoring, combustion dynamics can be kept under control.

After three years of in-depth research and development work, Kistler is launching a complete line of Thermoacoustics products for high-temperature pressure measurements. Kistler developed its PiezoStar® crystals specifically to withstand temperatures of up to 700°C: this capability was proven during thousands of test hours and temperature cycles in a HALT (Highly Accelerated Lifetime Test) chamber, and also in field tests. This places Kistler among the world's handful of sensor manufacturers who can offer such products. Special Ex variants are available for installations in environments with explosion hazards.

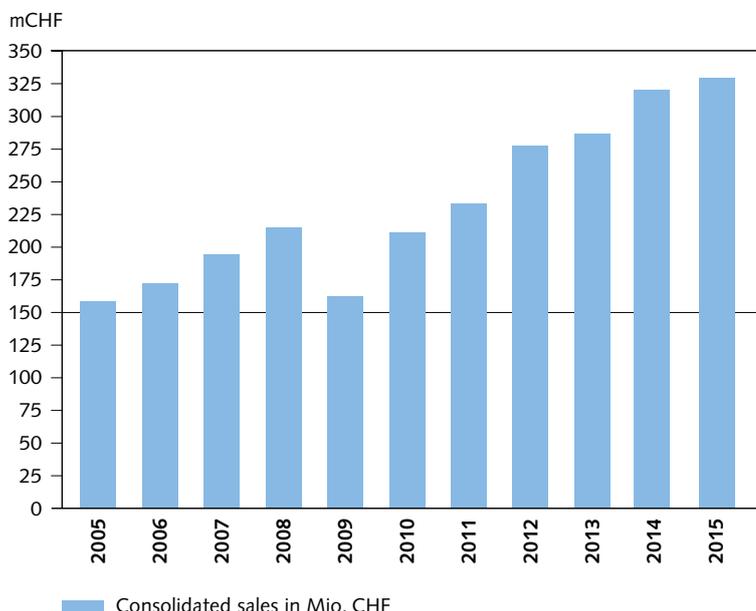
Growth Despite Swiss Exchange-Rate Turmoil

Despite the difficult Swiss economic environment, the Kistler Group again succeeded in achieving year-on-year growth in 2015, with sales of about 329 million Swiss francs (CHF). The abolition of the minimum euro exchange rate by the Swiss National Bank at the start of last year curbed the growth trend to some extent, but Kistler's growth of 10 % (after currency-related adjustments) means that the Group remains well on course.

Kistler customers should have to pay no more than the minimum of attention to details of measurement technology – so from 2016 onwards, they will benefit from even more comprehensive support thanks to the targeted expansion of our service operations. To achieve this aim, new tailor-made service products are being launched for all business fields; they will be available in our Tech Centers in the Stuttgart, Shanghai, and Detroit areas. Our Shanghai facility has been expanded for this purpose and a new Tech Center is currently under construction at Kistler's new European headquarters in Böblingen-Sindelfingen. Another new Tech Center is scheduled to open in Tokyo during 2016.



Sales 2005 to 2015



The Kistler Group comprises 31 companies. They are present across the globe at 56 locations in 30 different countries. In over 30 other countries, Kistler's products and solutions are distributed by selected agencies. The Kistler Group currently employs more than 1 400 people (January 2016), including about 560 in Switzerland.

Future Prospects

The opening of Kistler's new European headquarters at Böblingen-Sindelfingen, Germany, in May is set to be one of the highlights of the 2016 financial year. Numerous processes and operations will be optimized and accelerated by merging the existing facilities at Ostfildern and Schönaich. 2016 will also see a targeted expansion of Kistler's product portfolio, with the new Thermoacoustics business field and additional applications for tire testing, welding, and press-fit.

Kistler Group

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Kistler Group includes the Kistler Holding AG and
all its subsidiaries in Europe, Asia, Americas and Australia.

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measure. analyze. innovate.