

Press release

Freight train monitoring made simple

Kistler launches next-generation Rail Weigh In Motion system

Winterthur, August 2021

As the outcome of an intensive test phase that also included physical modeling, Kistler now offers a completely redesigned Weigh In Motion (WIM) system for rail applications. Simple and fast to install – with only minimal track closures required, or none at all – the new solution delivers multiple parameters of passing rail vehicles based on integrated calculation of accurate piezoelectric force measurements.

With over a million kilometers of rail track installed throughout the world, monitoring of rail traffic is a challenge that cannot be underestimated. Soaring traffic volumes on roads as well as railways are generating unprecedented demand for automatic systems such as those used to monitor freight trains. Based on decades of experience and success with its WIM solutions for roads, Kistler has now launched the redesigned Rail WIM system 9192B – covering a wide range of possible applications:

- Bridge and infrastructure protection (overload, dynamic impact, wheel defects)
- Fraud and theft protection (car number, presence and weight verification)
- Derailment protection (imbalances, axle distance/parallelism)
- Track and train monitoring (traffic data collection, e.g. speed, braking capacity, spacing)
- Condition of rolling stock (flat spots, bogie twist)

Automatic collection of comprehensive train data

The new solution comes with a piezoelectric force sensor 9008B that was optimized with the help of a validated simulation model – so the design is even more robust than before, and the manufacturing process has been greatly improved. The new sensor layout consists of 12 sensors in six pairs. Data acquisition and processing take place in a cabinet near the sensor installation site: Kistler provides the complete backpanel for the WIM system as well as the web interface for data visualization.

Powered by highly accurate sensor technology and sophisticated electronics, the new Kistler Rail WIM system 9192B delivers precise measurements of a wide range of train characteristics: weight (wheel, axle, bogie, vehicle and train load) as well as additional data (train speed, number and type of cars, lateral vehicle imbalance rate, and longitudinal vehicle imbalance rate). The solution is

virtually maintenance-free thanks to advanced self-monitoring features. And the list of customer benefits goes on:

- No sensor fatigue, no ageing of the sensor integration
- No temperature dependency (in the range from –40 to +60°C)
- Long-term stability and minimized influence of vehicle dynamics
- Very high sensitivity and wide measuring range (from empty wagons to heavy mine cars)
- Advanced functions such as flat spot detection and system self-diagnostics

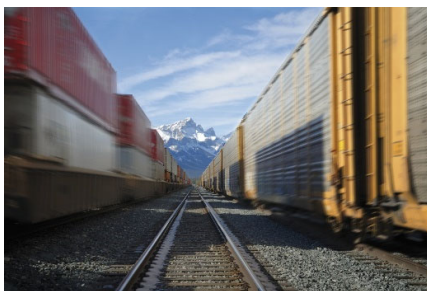
Universal application, low maintenance effort

Before installing a system, it is advisable to measure and analyze the track – usually with the help of a system integrator. This procedure will determine the best sensor layout for maximum WIM performance with accuracy of $\pm 2\%$ GVW. The new Rail Weigh In Motion system from Kistler covers a measuring range of 2 to 25 t per wheel, while train speeds can vary between 5 and 200 km/h. With a temperature range from –40 up to +60°C, the WIM solution 9192B is ready for operation in almost all climates on every continent.

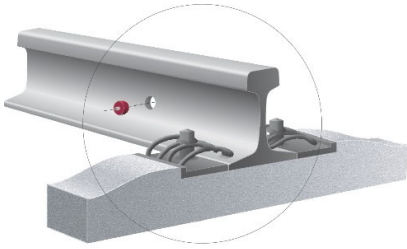
A calibration campaign is needed to ensure that every WIM system user benefits from the highest standards of operational excellence. Ideally, this should include selected cars with adjusted bogies that are measured both statically and at different speeds. Depending on the availability of cars, the quality and accuracy of the initial calibration will optimize overall WIM performance.

To find out more about the new solution from Kistler, visit: <https://www.kistler.com/en/solutions/traffic-solutions/rail-technology/rail-weigh-in-motion/>

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



The new Rail WIM system 9192B from Kistler enables efficient freight train monitoring, delivering a wide range of train characteristics over the long term.



The core of the new Rail WIM solution from Kistler is the improved piezoelectric sensor 9008B (in red) which is installed into the rail tracks in an optimized layout of twelve sensors in six pairs.

Media contact

Suzanne Graeser Bieri
Head of Marketing
Tel.: +41 52 2241 469
Email: suzanne.graeserbieri@kistler.com

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 2,050 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 2020, it posted sales of CHF 361 million. About 9% of this figure is reinvested in research and technology – with the aim of delivering better results for every customer.