ASSESSMENT EVALUATION and REPORTING

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our services

. MEASURING TRACK PARAMETERS

. MEASURING RAIL TENSION

. RAIL PROFILE MEASUREMENT

. RAIL CORRUGATION MEASUREMENT

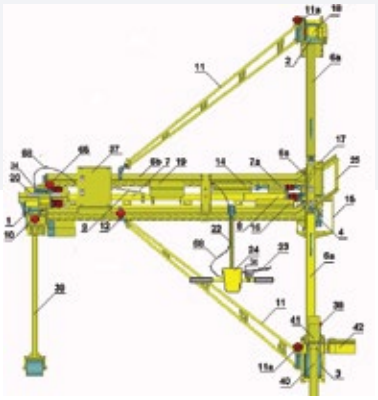
. TRACK ULTRASONIC EXAMINATION

. SWITCH GEOMETRY and FROG PROFILE MEASUREMENTS

. HEAD-CHECK and RAIL SURFACE QUALITY MEASUREMENT

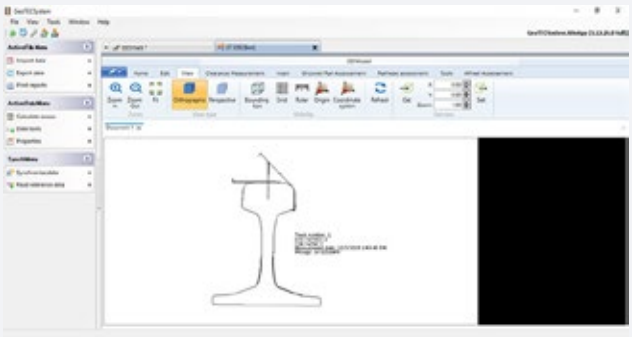
track geometry parameters
rail profile measurement

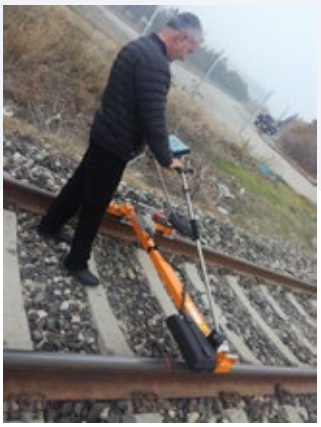
Complying with **EN 13231** and **EN 13848** standards, we perform our measurements with approved equipment. We report measurement results with our expert engineers.



We use quite practical measurement techniques for the measurement of relative railway track geometry and rail profile. With our measurement precision and powerful software, we can analyse all measurement data in office environment in a multifaceted fashion and make equivalent taper calculations. During the measurement, we can define position/defect and record the measurement of a specific point.

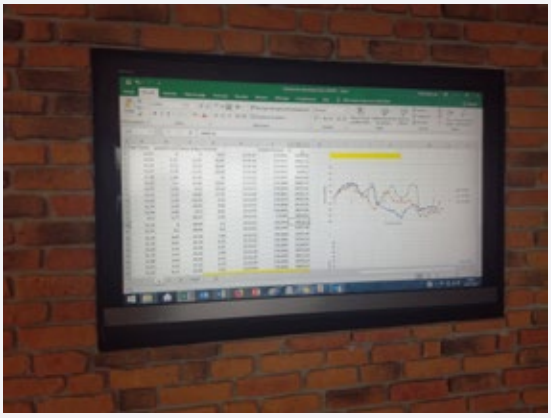
Measurement trains are not efficient for delivery in terms of operation and cost. On the other hand, point measurements are not sufficient for the acceptance of grinding work. Track geometry and continuous rail measurements are suitable for measuring between train runs. Thanks to our experience in this field, we can work with accurate timing. We can also determine the equivalent taper values especially in high speed train lines without the need for measurement train.





non-destructive track destressing measurement

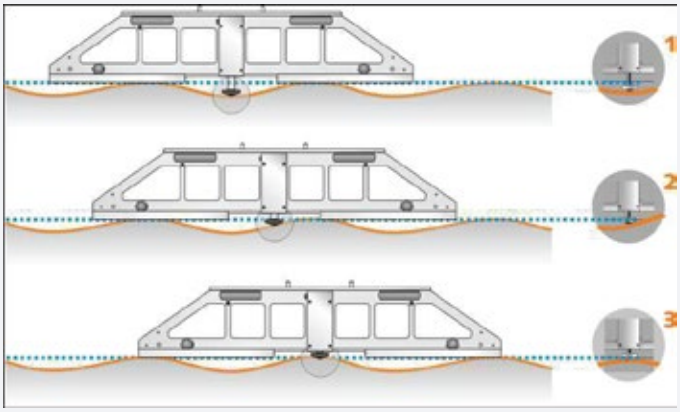
For new and maintained continuous welded rail lines, it is vital to do the destressing of the rails complying with **UIC 720** and to preserve destressing conditions. Rail fractures due to tensile stress in winter months, and loss of line due to increase in compression stress in summer times may occur, and these may cause fatal rail accidents. Therefore, it is clear that the destressing is a track parameter that must be monitored and controlled. With the help of the devices developed for this purpose for the French Rail Authority (**SNCF**) that we also utilise, we are able to measure the destressing condition of any kind of railway line in a non-destructive, fast and reliable manner.

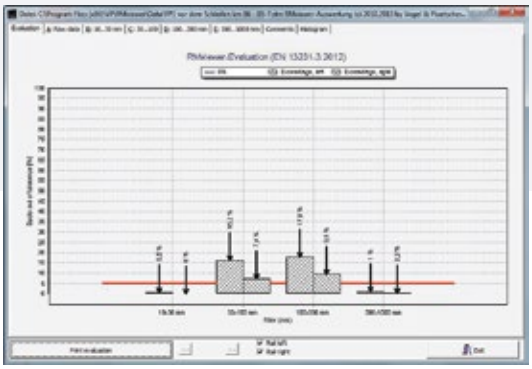


rail corrugation measurement

In terms of railway operations and safety, it is important that the rails under operation are within the standard limits of **EN 13231-3.** Otherwise, the Rail*Wheel dynamic loads increase, and the noise level inside and outside the vehicle may exceed the legal limits. The most common negative impact of the railway on people and the environment is noise. To minimise this effect and to prolong the lifespan of rails and train wheels, longitudinal profile of the rail should be known and maintenance should be conducted based on the profile.

It is necessary to carry out longitudinal profile measurements of the rail at a wavelength of 10-30, 30-100, 100-300, and 300-1,000mm.





switch geometry and frog profile measurements

Switches are critical line elements in railway operations. It is also important to ensure that the maintenance is conducted accurately as much as its installation. In particular, the geometry of the wheel passage areas is of vital importance. In this sense, the method and quantity of the corrective action to be performed on the wear of the wing rail - crossing must be accurately determined and applied. Otherwise, the wheel-rail relationship is impaired, resulting in undesirable results in terms of both cost and switch and wheel life. Crossing maintenance conducted insensibly may result in damage costing millions. Our measurement equipment that eliminates the shortcomings of other template gauges carry out simultaneous measurements at switch crossing and wing rail and ensures the identification of filling and grinding quantities required for the formation of a geometry complying with **UIC 510-2, EN 13232-6** standards and with the switch design. Measurement must also be performed to verify the manufacturing.

Measurement trains are currently unable to measure the geometry of the railway switch. Periodic measurements of switch parameters and geometry according to **EN 13232**, maintenance and acceptance measurements, evaluation, and reporting are carried out quickly and reliably by our expert engineers and teams. The parameters are defined for each type of switches and the fast measuring feature provides practical measurement even in lines under operation. Approved machinery and equipment are used to measure and report rapid switch geometry measurements by minimising the human factor. By providing sustainable and traceable reporting for the switch operation, the next decision can be clarified.

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ultrasonic inspection of the line

PANORAY UDS2-73

As specified in **UIC 715-2** and **UIC 725**, ultrasonic examination of the railway lines should be carried out periodically. Complying with the **EN 16729** standard, **PANORAY UDS2-73** ultrasonic inspection tool has been produced and developed for the identification of defects by conducting fast, accurate and reliable ultrasonic examination of line rails. With a speed of 10 km/h, it performs ultrasonic examination of the rail head, the body, and the body projection at the base. Due to the fact that it is the fastest and most reliable non-destructive testing method for the determination of current rail defects, railway lines should be performed an ultrasonic examination at least once a year by **PANORAY UDS2-73.**

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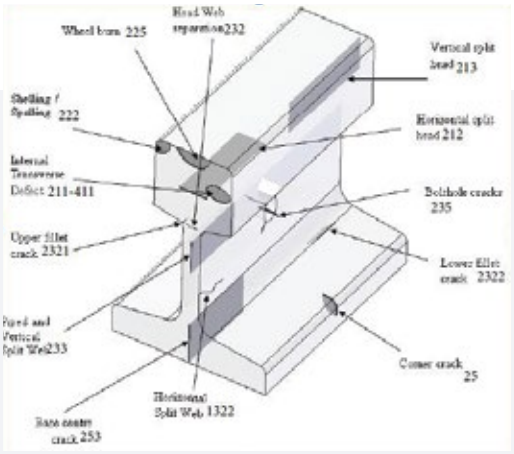
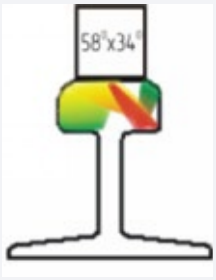
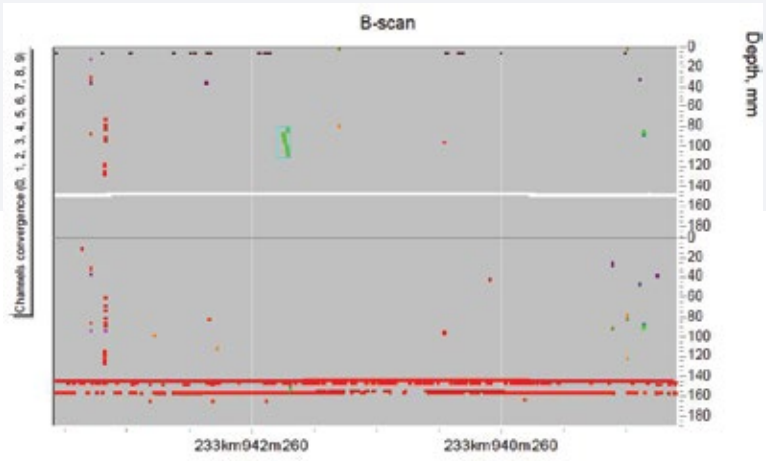

Head Web
Wheel burn 225
Vertical split
head 213
Shelling /
Spalling 222
Horizontal split
head 212
Internal
Transverse
Defect 211-411
Bolthole cracks
235
Upper fillet
crack 2321
Lower fillet
crack 2322
Vertical
Split Web233
Corner crack
25
Horizontal
Split Web 1322
Base crack 253

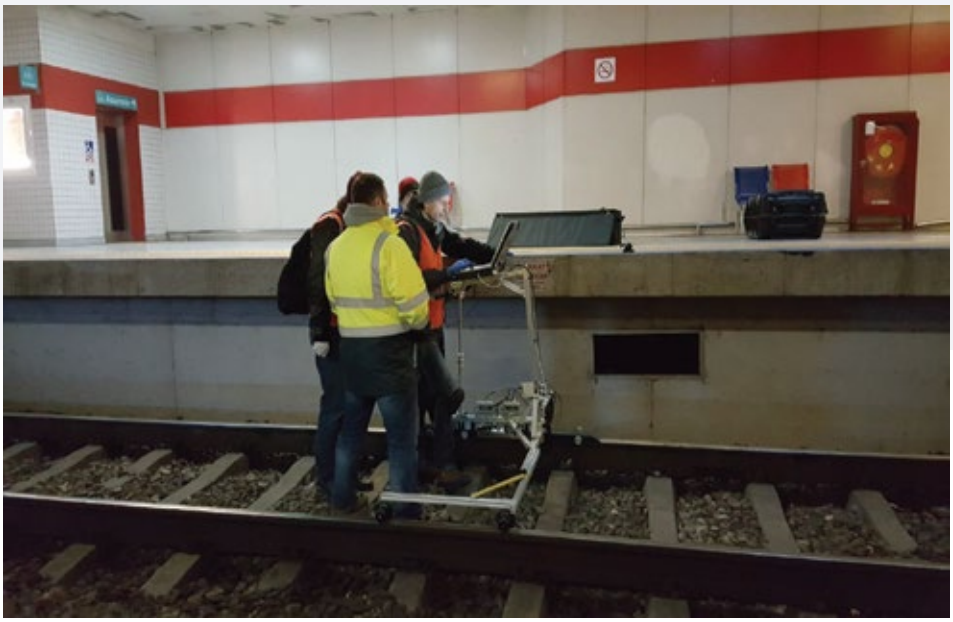

58°x34°


B-scan
Channels convergance (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
Depth, mm
0
20
40
60
80
100
120
140
160
180
233km942m260
233km940m260

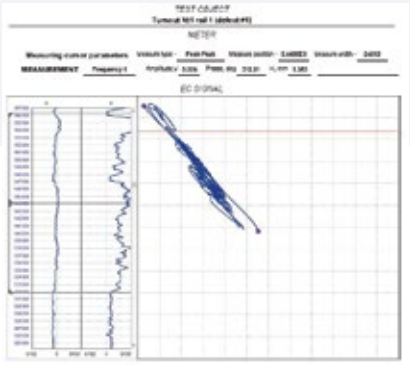
HEAD-CHECK and rail surface quality measurement

Over the course of the railway line and switch rails under operation, the **2223** coded **HEAD-CHECK** defects occur in time as specified in **UIC 712**. If these imperfections are not eliminated, the problem will manifest itself in breakage of the rails or coming off of the parts. It is an important defect which must be eliminated in terms of operational security.

In order for it to be economically corrected, it is necessary to determine the **HEAD-CHECK** zones, to identify the depth of the cracks in these regions and to carry out rail grinding in the specified sections and depth. As noted in the **DB 821.2007** specifications, the depth of these defects is ensured by the eddy currents non-destructive inspection method. Our equipment that provide eddy current measurements carries out the identification of **ETS2-77 HEAD-CHECK** zones and depths, and our expert engineers holding **LEVEL 3, 2,** and **1** certificates interpret these results.



We are able to provide the identification of rail surface quality with principles of eddy currents and **HEAD-CHECK** depths.



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