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SUPPLEMENT

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High Speed Two: Application of good noise control design

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Being a good neighbour – reducing vibrations near railway lines

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know. now. how.

This slogan of kooCoo technology & consulting GmbH reflects our long established track record of knowing NOW how to get the best out of existing means and resources. We specialise in identifying new railway engineering products, taking them a step further and supporting our customers with a successful market launch.



Calmmoon Rail – rail web noise protection system on the DB network – kooCoo.

Take rail noise reduction for example:

In 2007, we took the innovative rail web noise suppression product "Calmmoon Rail" and saw it through to a market launch.

We looked into this technology and committed ourselves to it from day one, undertaking an Application and Technology Evaluation in association with SEKISUI. Thanks to our many years of experience, we succeeded in enhancing the noise-reducing efficiency of Calmmoon Rail by another 50%.

In 2008, we prepared the documentation for the first use of Calmmoon Rail on the tracks of ÖBB, the Austrian Federal Railways, in Austria. This was followed by highly constructive technical discussions with research and development staff at ÖBB. We then designed Presentations and prepared written Submission Documents.

In spring 2009, the moment had come: Calmmoon Rail had to prove itself in Europe for the first time, i.e. in Hainburg on the Danube, in direct competition with Schrey & Veit, a company with long experience in the field of rail noise suppression.

Results showed that under the given conditions both systems achieved equal rail noise suppression results. This encouraged us to look beyond the Hainburg project and run tests on Calmmoon Rail at ÖBB's permanent test site in Deutsch Wagram over a period of more than four months. The test report by psiA Consult based on more than 2,500 train tests and comparisons confirmed the Hainburg results, proving that, depending on the type and speed of the train, Calmmoon Rail reduced overall train noise emission by 2 to 4 dB(A).

The next step in April 2010 saw us

awarded the Approval for operational trials with the EBA (German Federal Railway Authority) for the use of Calmmoon Rail on the Deutsche Bahn (DB) network.

In November 2010, SEKISUI implemented the first project in collaboration with Schwerkraft for DB when the SEKISUI and Schwerkraft partnership installed the first 700m of Calmmoon Rail.

The highly satisfactory result was that by the end of 2011, more than 35km of DB track will be equipped with Calmmoon Rail.

kooCoo technology & consulting GmbH designed with its partners professional marketing material for this product, such as the website and brochures, and provided planning and design services for trade fairs and exhibitions, presentations and specialist articles.

Our extensive technical expertise, long-standing international experience and excellent network mean our customers can rely on getting their products approved and used on the European market – with our invaluable support.



Dr. Günther Koller, CEO, and civil engineer specialising in construction, founded the kooCoo consulting company in 2006. In previous roles he managed major infrastructure projects throughout Europe including the Lötschberg Tunnel in Switzerland and was a senior manager at Bahntechnik Rhomberg.

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to be implemented to reduce the annoyance from the experience of combined railway noise and vibration unless the vibration is also reduced.

RIVAS – on the right track to improve the quality of life near railway lines

RIVAS will concentrate on the development of an integrated system of practice-orientated technologies for the reduction of vibrations emitted from passing trains and transmitted into buildings close to the track. On open railway lines, vibration is always accompanied by the generation and reception of rolling noise which has its origin also at the rail/wheel contact. However, the parameters influencing the generation mechanism and the transmission to the receiver locations are different. This holds in particular for the respective mitigation measures, which are also different for vibrations and for rolling noise. Therefore, rolling noise and other air-borne noise sources from railways in general are not within the scope of the project.

Several previous and ongoing projects have focussed on noise reduction for railways with the result that industrialised noise mitigation techniques are available and in regular use. The RIVAS partners are aware of the fact that some vibration mitigation measures implemented in the track can lead to an increase in air-borne noise. It will be an intrinsic part of the technology assessment to be carried out for all the developments in RIVAS to ensure that the vibration reduction technologies do not lead to increased air-borne noise. The RIVAS consortium comprises partners with the proven capability to assess the effect on rolling noise (e.g. using the TWINS software).

RIVAS will systematically follow the approach that the priorities are set according to the needs of the end-users. The end-users are:

- ◆ Railway infrastructure managers
- ◆ Operators of rail services
- ◆ City planners / planners for railway infrastructure.

As already explained above, RIVAS will focus on open lines as several established mitigation measures already exist for tunnels, which, however, cannot be applied to open lines. Furthermore, a systematic difference between railway lines in tunnels and on surfaces is that, in the latter case, vibration always occurs in combination with rolling noise. However, it can be anticipated that the RIVAS results, on the other hand, will be transferable to a large extent also to railways in tunnels.

With the focus on residents, effects on building structures and sensitive equipment are not within the scope of RIVAS.

A toolbox of measures and clear procedures for their assessment are needed. Without the close interaction of these two fundamental 'building blocks', efficient control of the impact of vibration from rail traffic on residents of railway lines is not possible at costs which do not endanger the competitiveness of rail. It is vital not to increase the costs of freight operations, which are already subject to a highly competitive market. Considering this, the following key objectives of the RIVAS project have been defined:

Innovative solutions for vibration mitigation technologies

This will include the rail fastening system, sleepers, resilient elements

Technology Consulting

Technology analysis
Market strategy
Approval procedures
Marketing
Market launch

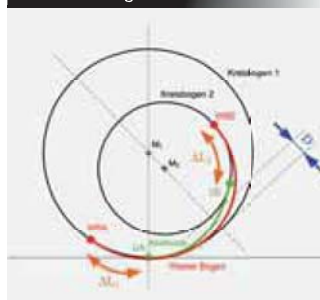
Permanent way -
FFU synthetic wood



Substructure -
Consolid soil improvement



Railway line layout -
Wiener Bogen curves



Rail noise reduction -
Calmmoon Rail



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