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- Railway components
- noise control

Rail Dampers

Innovative Noise Mitigation

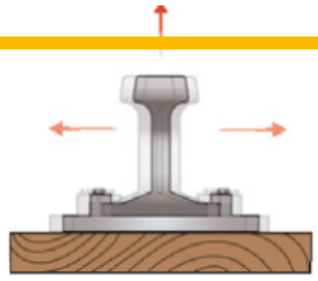
Rail dampers are based on the latest technologies to reduce broadband railway noise at its source. The vibration level within the rail during a train passing by will be damped.

To achieve maximum noise reduction, dampers need to be adapted to the individual shape of a rail at first (e.g. 115RE or 119RE).

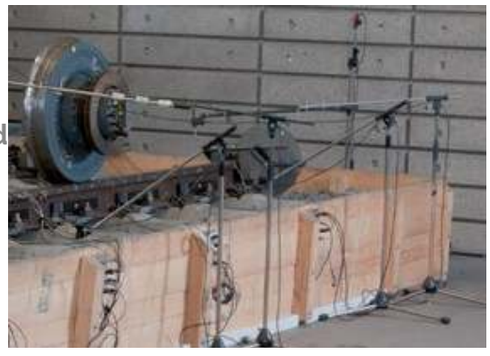
In the next step dampers are mounted on a test track in our laboratory. A passing train is simulated by exciting the rail with a special shaker.

Finally dampers are tuned to reduce emitting noise best possible at corresponding frequency range.

The individual tuning of dampers enables application on all kinds of tracks such as ballasted track, ballastless track and high speed tracks.

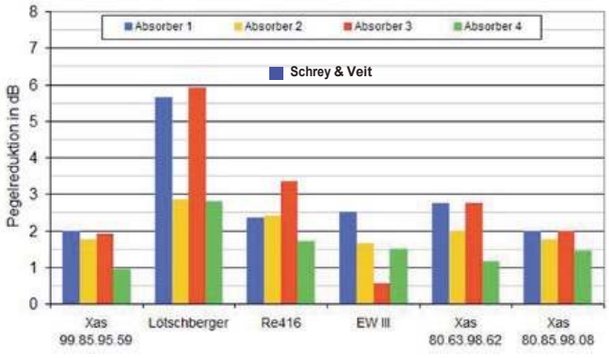


Vibration of rail



Tuned Dampers on ballast track

Tuned Dampers on ballastless track



Performance of different rail dampers during various passing trains

Source: Stieglitz/Czolbe: „Effectivity of rail dampers", Speech DAGA 2012, Prose AG

Installation of Rail Dampers

Assembly of rail dampers is easy, even on ballasted and non-ballasted tracks

First need to be checked if a minor quantity of the ballast has to be removed. At the same time the rail dampers can be distributed on the track and assembly can start right away.
Rail dampers are aligned mechanically. The dampers will be installed by clamping the dampers to the rail by using a spring or by using a clamp device. The bolts are tightened by a motor driven sleeper screw driver and can easily be dismantled that way (e.g. change of rails). The springs can be easily installed by a leverage tool.
It takes an average manpower of 14 track workers to assemble 300 m/ hour (track).
By deploying 3 teams of that size an average output of 1,000 meters/hour is possible.
In case of a rail replacement the dampers can be dismantled quickly, put aside the track and reinstalled on the new rail.

Installed systems:
> 650,000 in Europe
> 13,000 in the US

Test tracks:
> 10,000 (Switzerland, Belgium,Denmark, France,USA , Australia and Kuala Lumpur

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Maintenance and LCC

Based on their components, rail dampers have a long life cycle and need no maintenance. After the wear limit dampers can be easily dismounted and recycled.

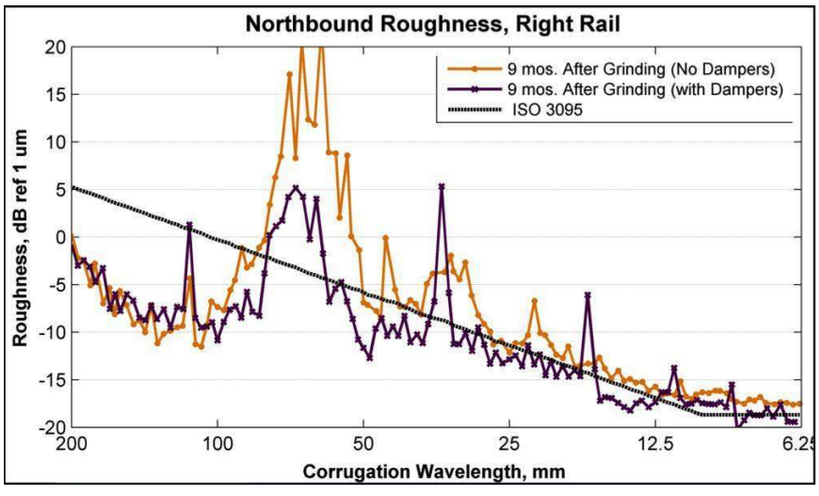
Rail grinding does not interfere with rail dampers since their components are heat resistant. Tamping machines can also operate without interference.

Tamping machine

Rail grinding

Rail Vibration Damper Effectiveness at Retarding Corrugation Growth

The figure shows the growth of corrugation with rail dampers was dramatically less than observed without rail dampers.



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