

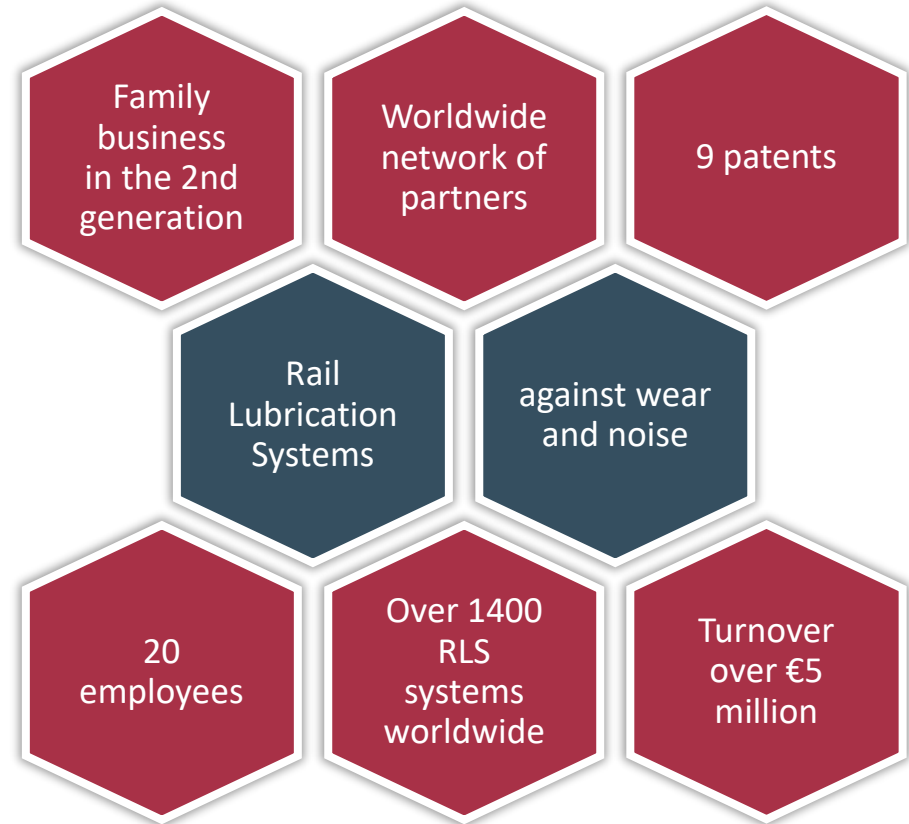
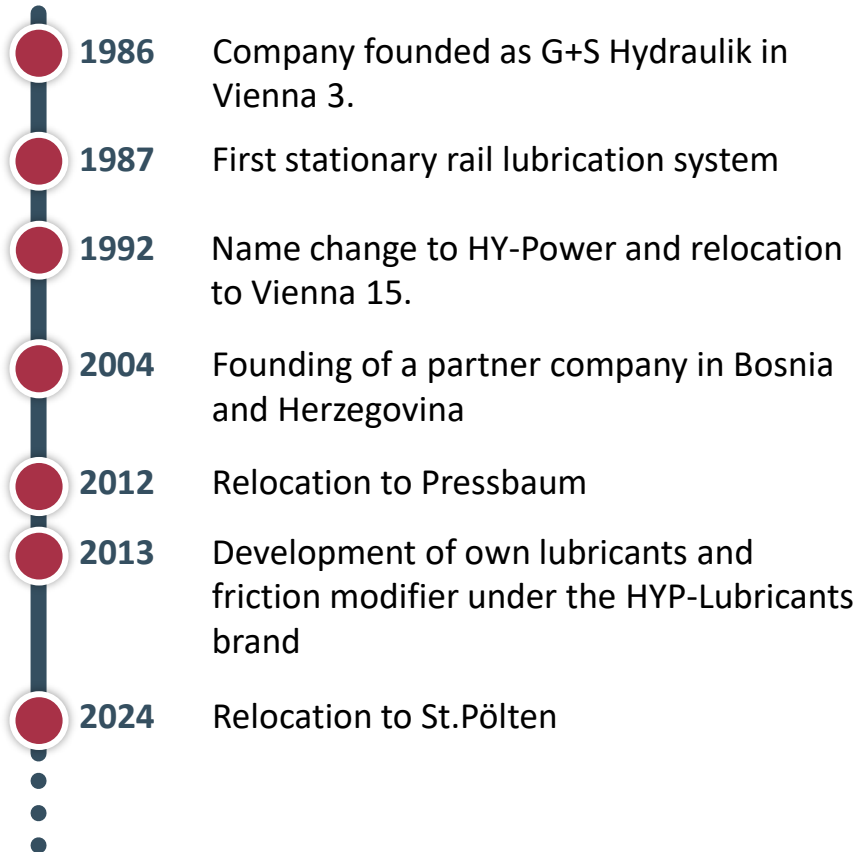
6TH RAILWAY TALK

5 JUNE 2024

NOISE PROBLEMS IN MARSHALLING YARDS



INTRODUCTION



INTRODUCTION



RAIL LUBRICATION SYSTEMS

- To minimize wear and tear as well as noise:
 - Railway
 - Metro
 - Tram
- With or without rail drillings
- Potential modules depending on client:
 - Rain sensor
 - Web connection
 - Detection of direction
 - Detection of tracks
 - And many more

INTRODUCTION

AREAS OF APPLICATION FOR SYSTEMS BY HY-POWER:



Rail flank lubrication



Top of rail conditioning



Guide rail lubrication



Beam rail brake conditioning



MARSHALLING YARDS: BRIEFLY EXPLAINED



By Dr.G.Schmitz - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=6014611>
Marshalling yard Hagen-Vorhalle, Germany

PURPOSE

Trains for freight transport with different destinations are made up of individual wagons or groups of wagons

STRUCTURE

- Reception siding
- Marshalling hump (man-made hump or natural gradient)
- Sorting siding (with 10-40 tracks)
- Departure siding

MARSHALLING YARDS: BRIEFLY EXPLAINED



Marshalling yard Graz, Austria

PROCEDURE

Wagons (individually or in groups) are pushed over the hump with a shunting locomotive

RAIL BRAKES

Rail brakes have been used since around 1920 – most of them designed as beam rail brake

PROBLEM AREAS/NOISE SOURCES

BENDS



Rail flank



Top of rail



PROBLEM AREAS/NOISE SOURCES

TURNOUTS



Guide rail



RAIL BRAKE



Beam rail brake



POSSIBLE SOLUTIONS

NOISE BARRIERS

- Good protection for neighbors
- No protection for workers on the track



TOP OF RAIL CONDITIONING

- Against squeaking
- Against height wear and corrugation



POSSIBLE SOLUTIONS

GUIDE RAIL LUBRICATION

- Against squeaking
- Against wear



RAIL BRAKE CONDITIONING

- Against squeaking



RAIL BRAKES



Beam rail brake Graz, Austria

- Hydraulic, double-sided beam rail brake
- Speed, weight and distance of the target in sorting siding of the rolling wagons will be considered when braking
- The brake beams are pressed onto the side of the wheel tires → Noise/squeaking occurs

RAIL BRAKES



Beam rail brake Graz, Austria

- If a medium is applied to the braking elements of the beam track brake, braking must still be possible
→ Friction coefficient $\geq 0,25$
- A friction modifier with solid lubricant components must be used for this purpose

POSSIBLE SOLUTIONS



Austrian Railways

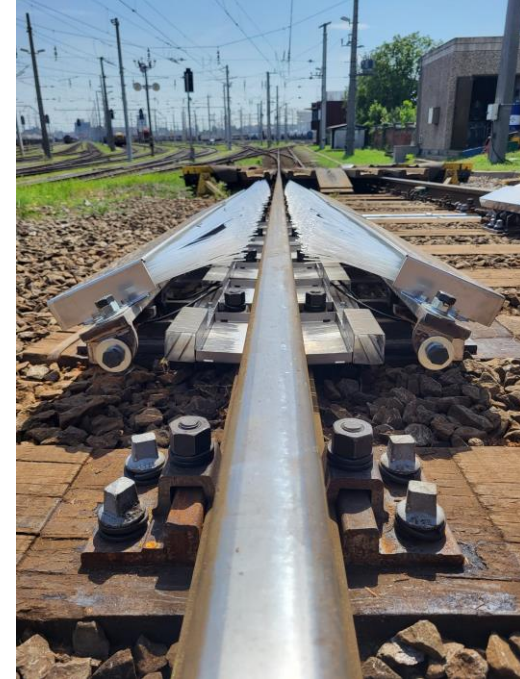


WWG - Weichenwerk Wörth
GmbH (member of voestalpine
Turnout Technology and ÖBB)

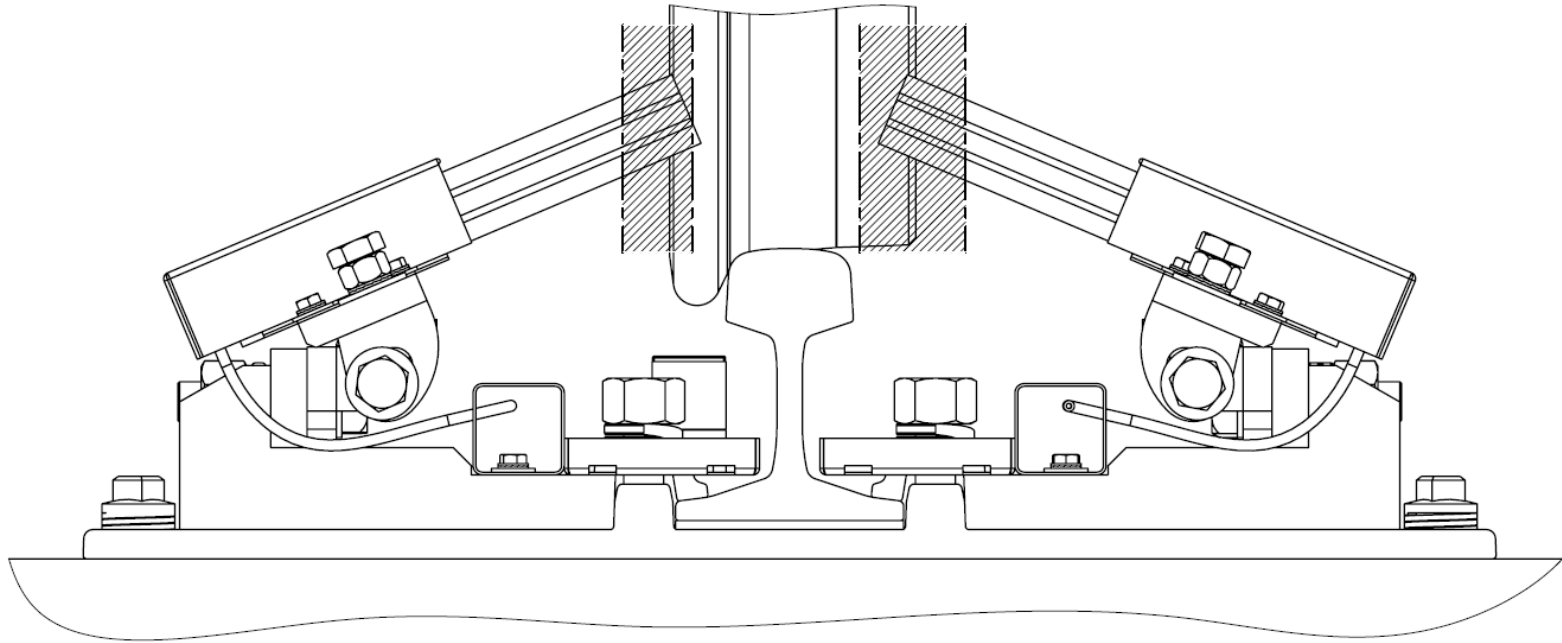


BRAKEMASTER BR-25

POSSIBLE SOLUTIONS



POSSIBLE SOLUTIONS



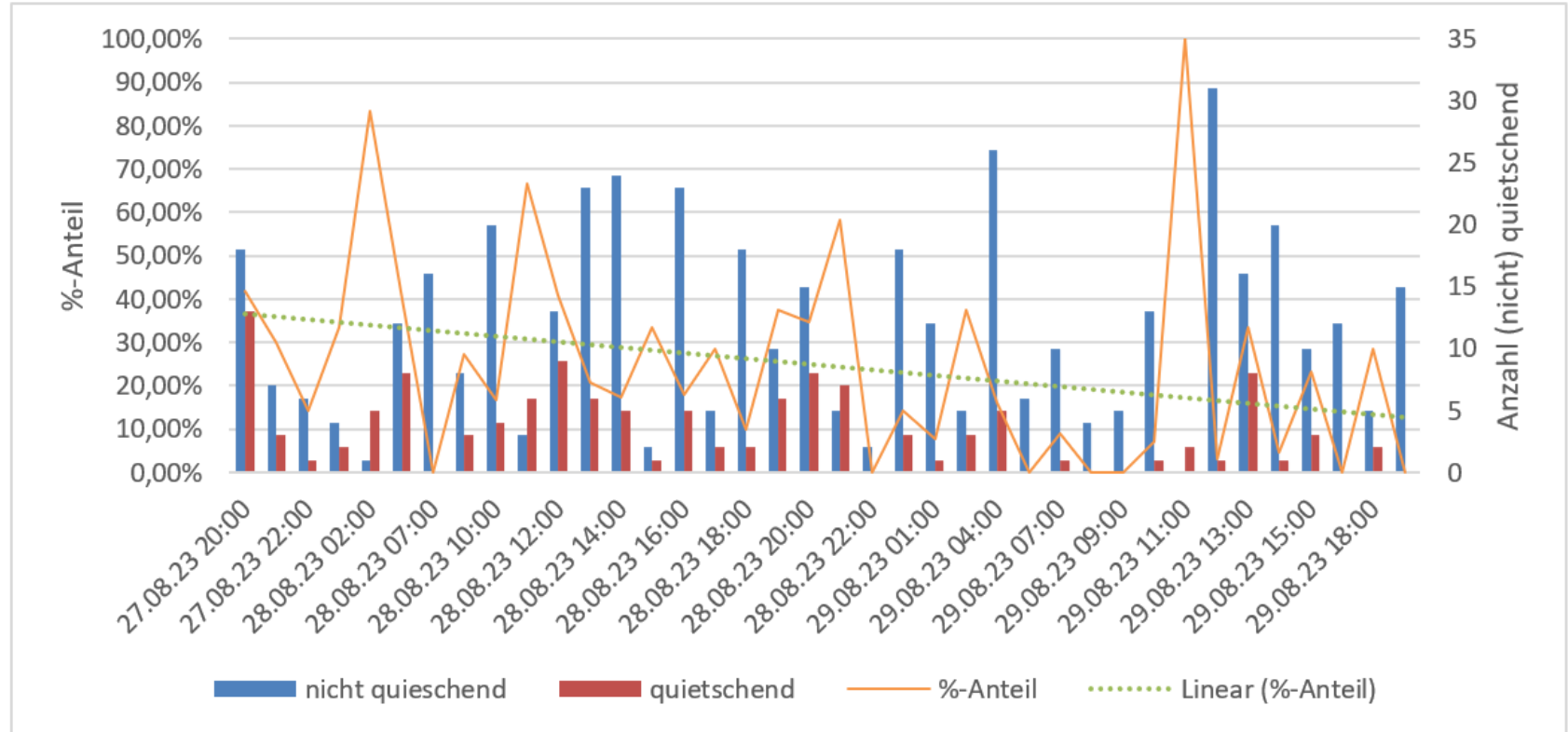
POSSIBLE SOLUTIONS



ATM – ACOUSTIC TRAIN MONITORING

- Relative noise measurements, no standardized recordings
- Used to find out about the effectiveness of noise reduction measure
- Evaluation parameters
 - - „no screeching noise“ ⇔ „screeching noise“
 - - Development of volume
 - - Duration of noise

POSSIBLE SOLUTIONS





**For me the railway is a symbol of life:
You sit quietly and still move forwards quickly.**
- Wolfgang Korruhn, German journalist

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