



**GANTREX®**  
ON TRACK. WITH YOU.

# Gantrex Port Crane Services – IMPROVING STS DRIVER COMFORT

Presenters:



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**500+**



Projects Installed Every Year



**4,000+**  
Years of  
Collective  
Experience

**450+**



Employees

**200+**

Tech Services  
Staff

In Over

**20 Countries**



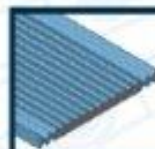
**3,000+**

Highly Satisfied Customers



**2/3**

of Global  
STS Cranes Fleet  
Running on  
Gantrex Solutions



**4,500km+**

Pad  
Produced  
in the last  
decade

**500+**  
Users

On Our Digital Customer Portal

**MY GANTREX**

Supplying  
Port Crane Solutions  
SINCE

**2015**



**ISO** 9001  
2015  
CERTIFIED



**ESG**  
IN ACTION



**15+**

Industries  
Served



**100+**

Active  
Patents



One Stop Shop



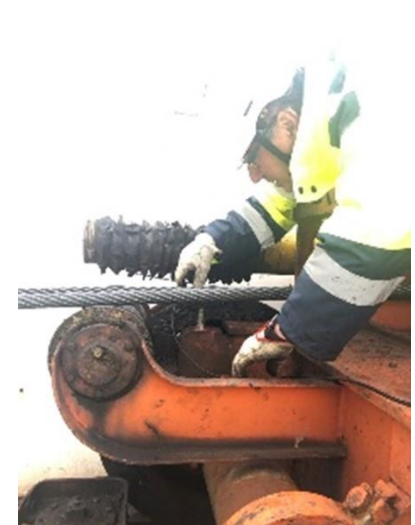






# Diagnosing the Problem – Visual Inspection

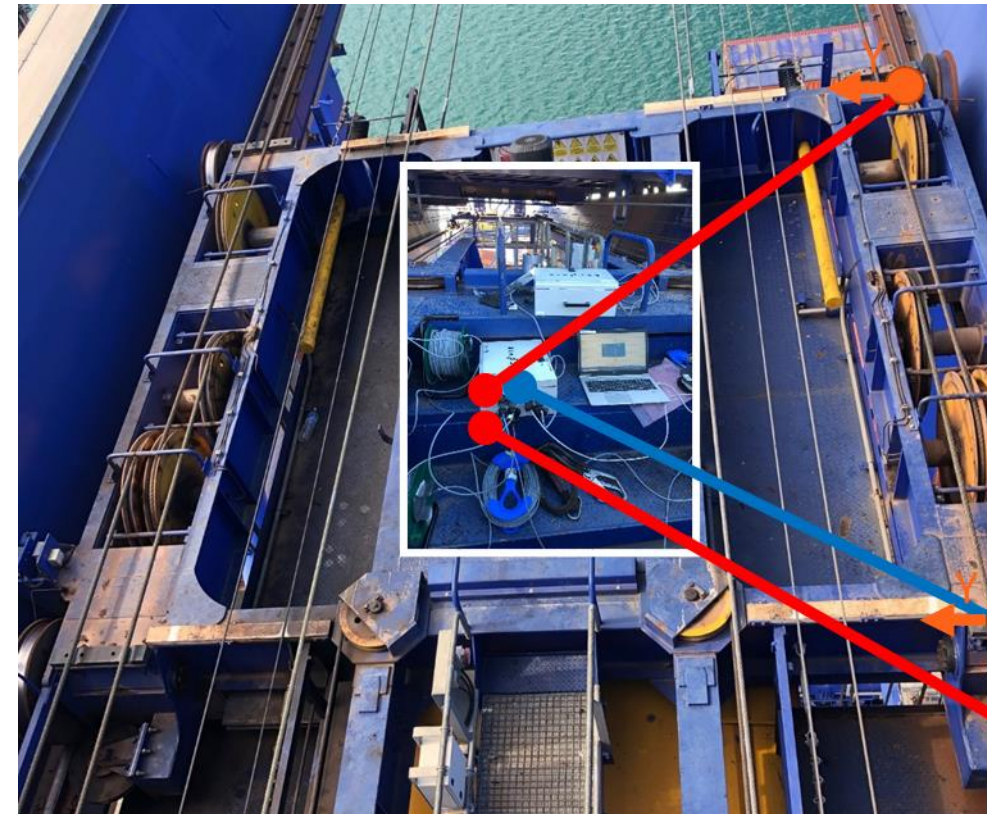
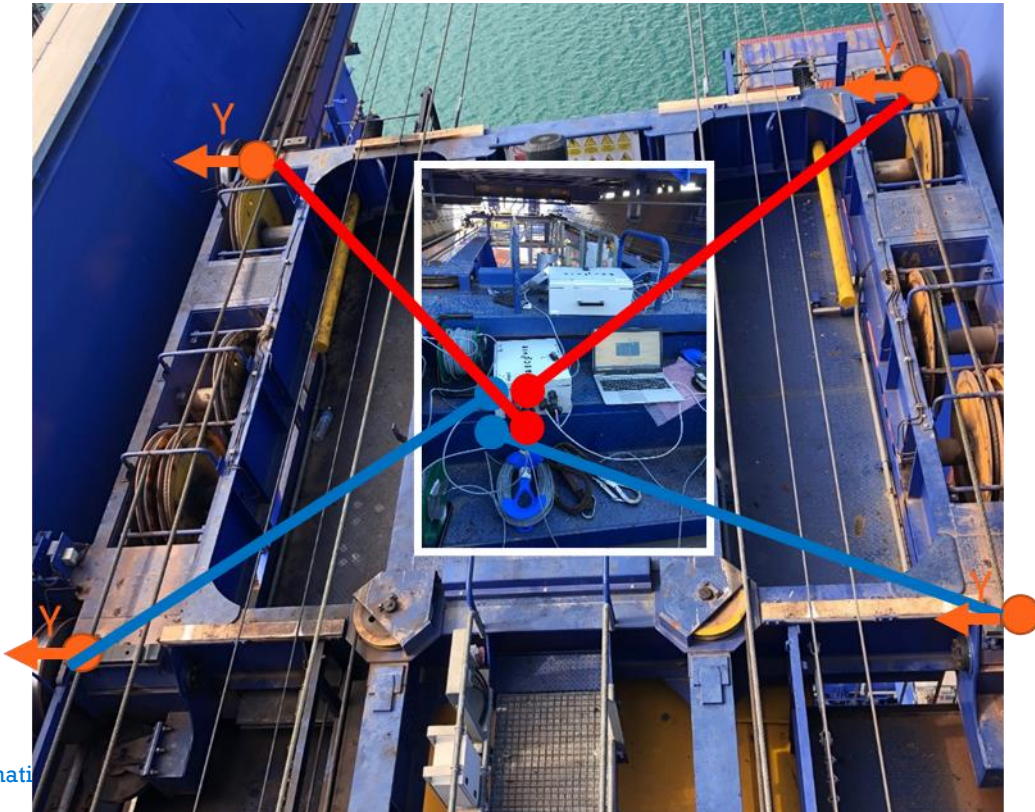
- Visual inspection was performed on the full **trolley rail** and trolley rail **structure**
- Observed **degradation** of the **hinge joint** area with large **localized wear** at the joint
  - Such wear is **typical** with **hard mounted system**
  - Wear is usually **concentrated on the finger** due to the **discontinuity** at the hinge joint and **load transition** from one rail to the next
- Observed **localized wear** on the **welds** of the trolley rail
  - This is **typical** as the **material** at the weld joints is normally slightly **softer** than the head of the rail and wears quicker





# Diagnosing the Problem – Vibration Analysis

- GMP needed to **quantify** the **vibration** and understand where it is coming from
- **Vibration Analysis** was carried out by installing sensors on each corner of the **trolley**, **driver cabin**, and driver seat

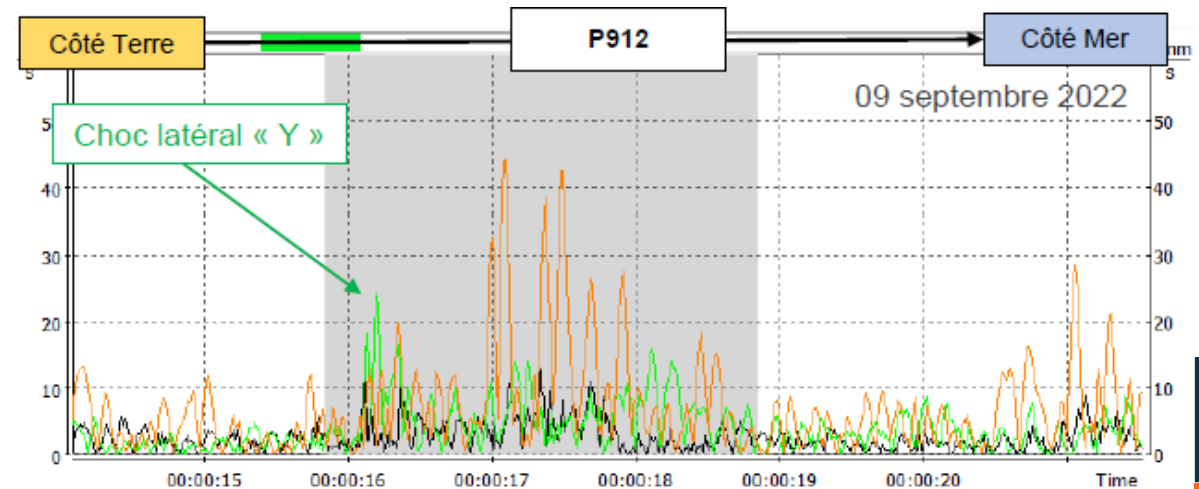
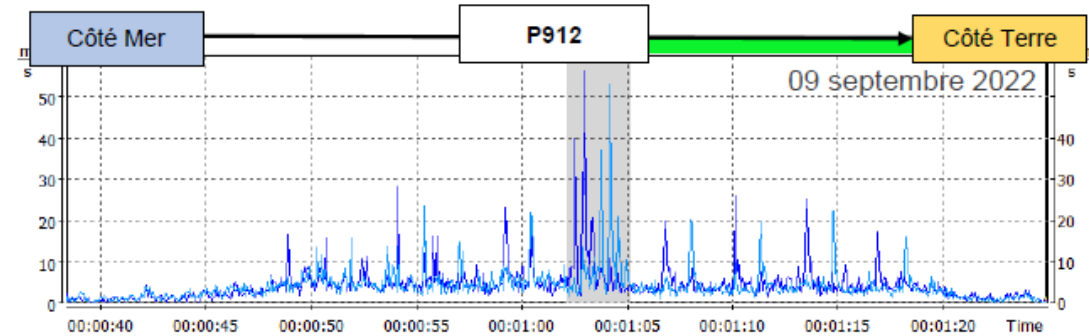


cabin



# Root Cause Analysis

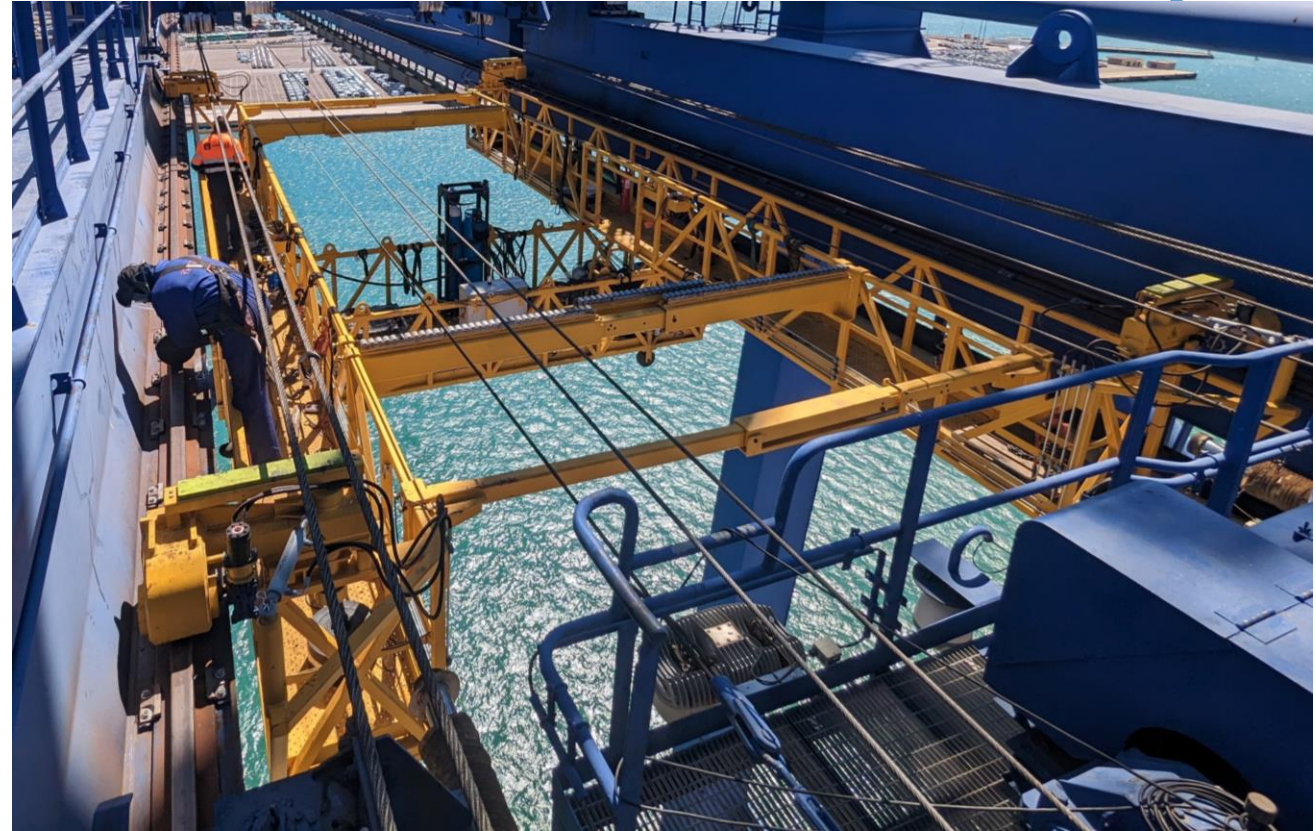
- Large shocks and vibrations were observed especially when the trolley passed over the Hinge Joint
- Some shock and vibration observed over the welded joints on the long rail
- Lateral vibrations at the driver seat were excessive
- Visual inspection confirmed wear at the weld joints and a degraded hinge joint





# Solution – Hinge Joint Replacement

- 12m Self-propelled platform was used to replace the hinge joint area
- The use of the platform made us self-sufficient on the project and allowed us to replace the Hinge Joint area in 6 days
- Trolley Rail welds were grinded smooth to minimize shocks and vibrations at the welded joints



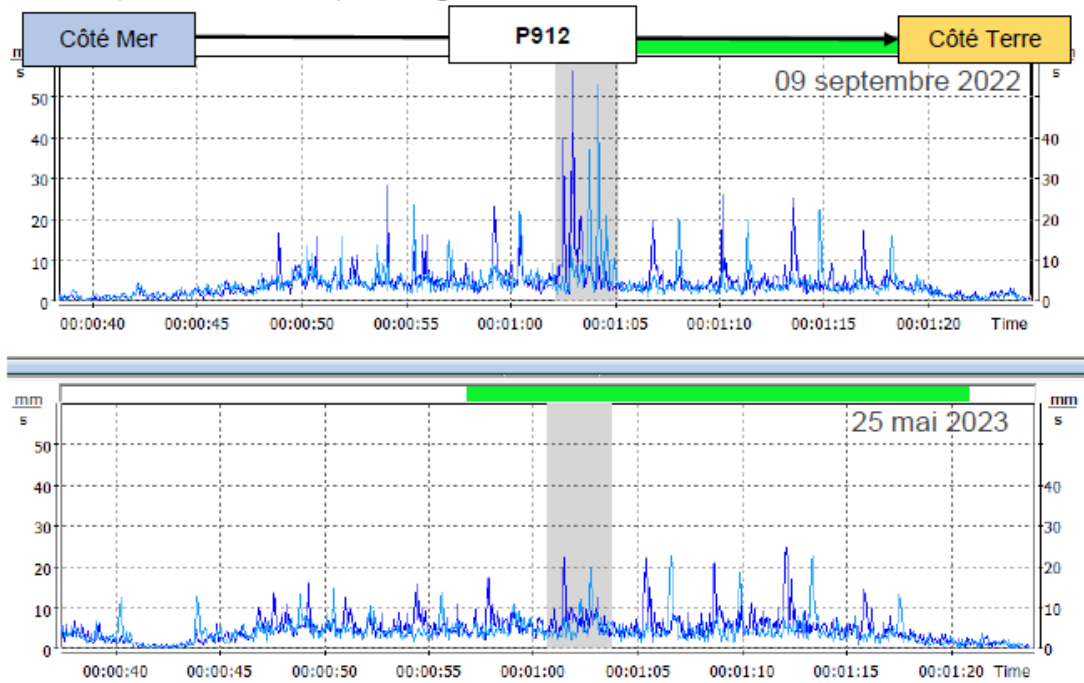
# Solution – Gantrex HingeGuard™

- Gantrex HingeGuard™ was installed at the hinge joint to **soften the shocks** and **minimize the vibrations** at the joint
- Gantrex HingeGuard™ is a patented solution that extends the **soft mounting feature** to the joint
- A **vulcanized rubber layer** is fitted inside the rail between the rail head and base of the short rail
- Trolley Rail **welds** were **grinded** smooth to minimize shocks and vibrations at the welded joints

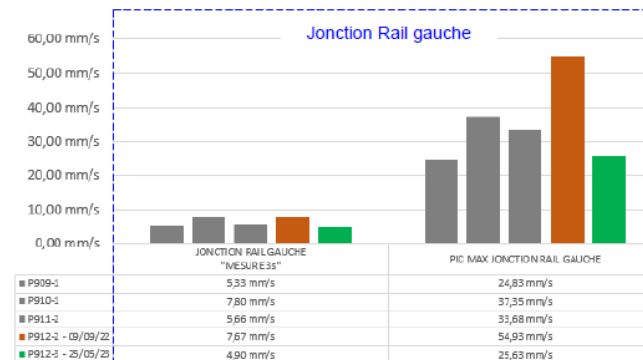
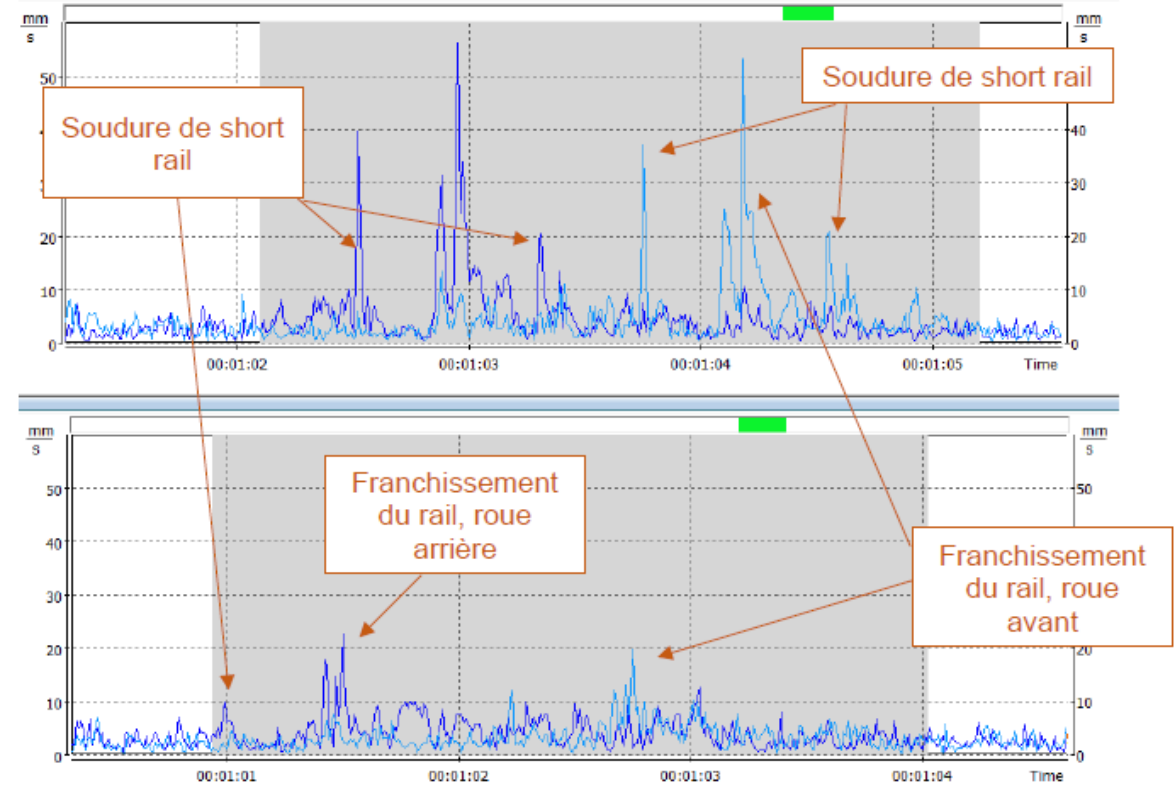
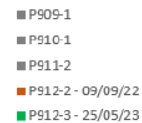




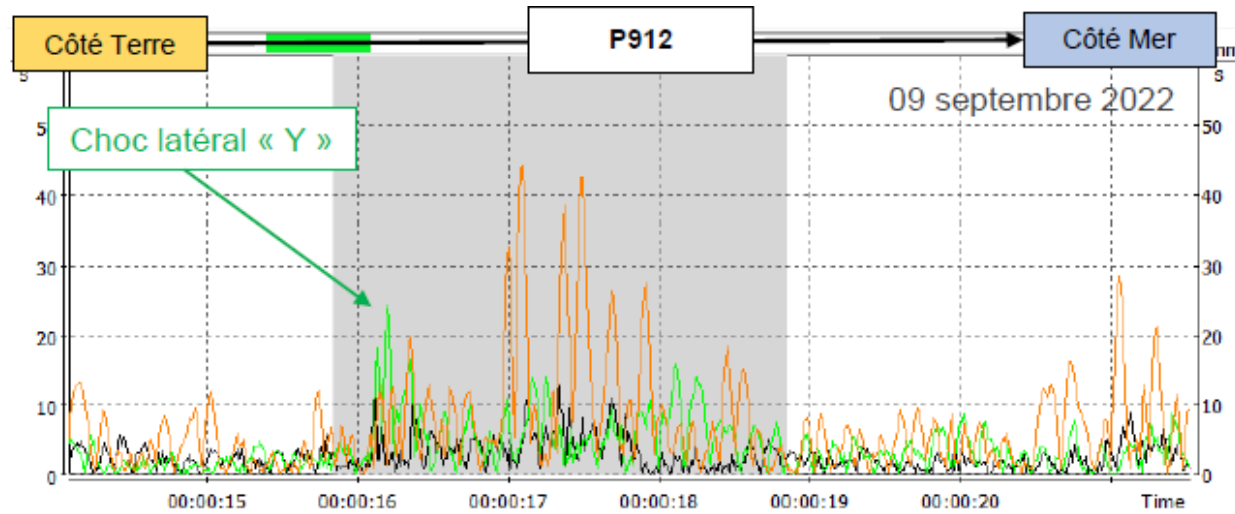
# Gantrex HingeGuard™ – Vibration at the Joint



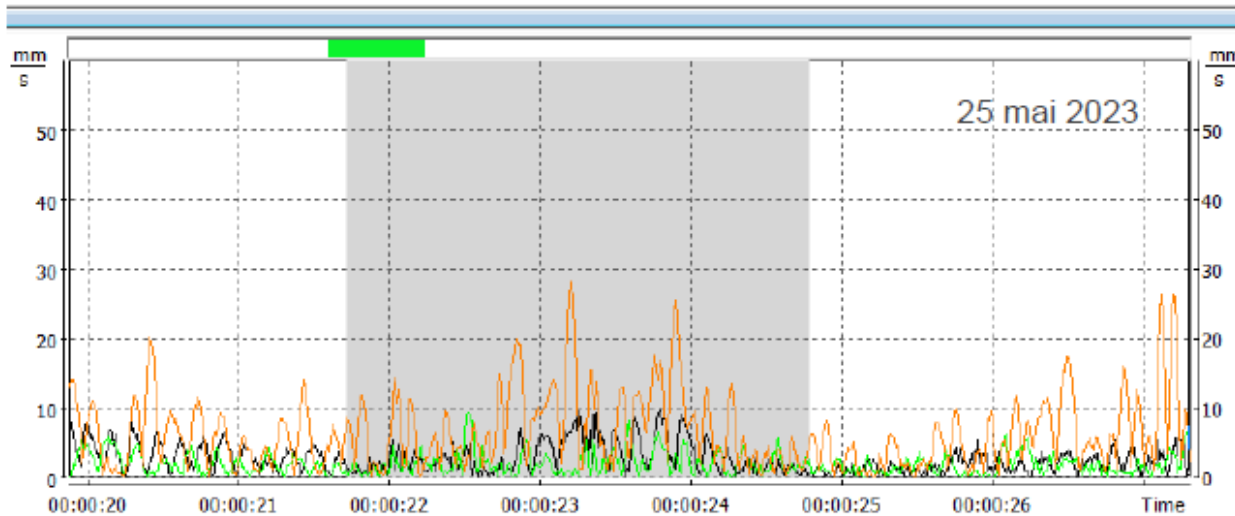
- Vibrations -36% & 2x shocks



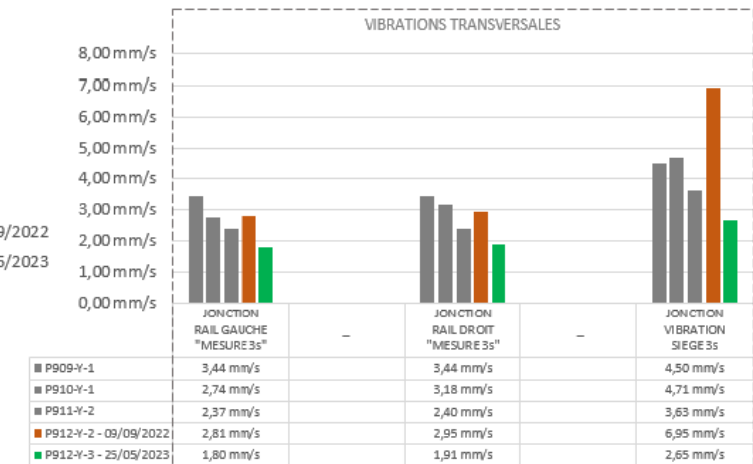
# Gantrex HingeGuard™ – Driver Seat Vibration



■ P909-1  
■ P910-1  
■ P911-2  
■ P912-2 - 09/09/22  
■ P912-3 - 25/05/23



■ P909-Y-1  
■ P910-Y-1  
■ P911-Y-2  
■ P912-Y-2 - 09/09/2022  
■ P912-Y-3 - 25/05/2023

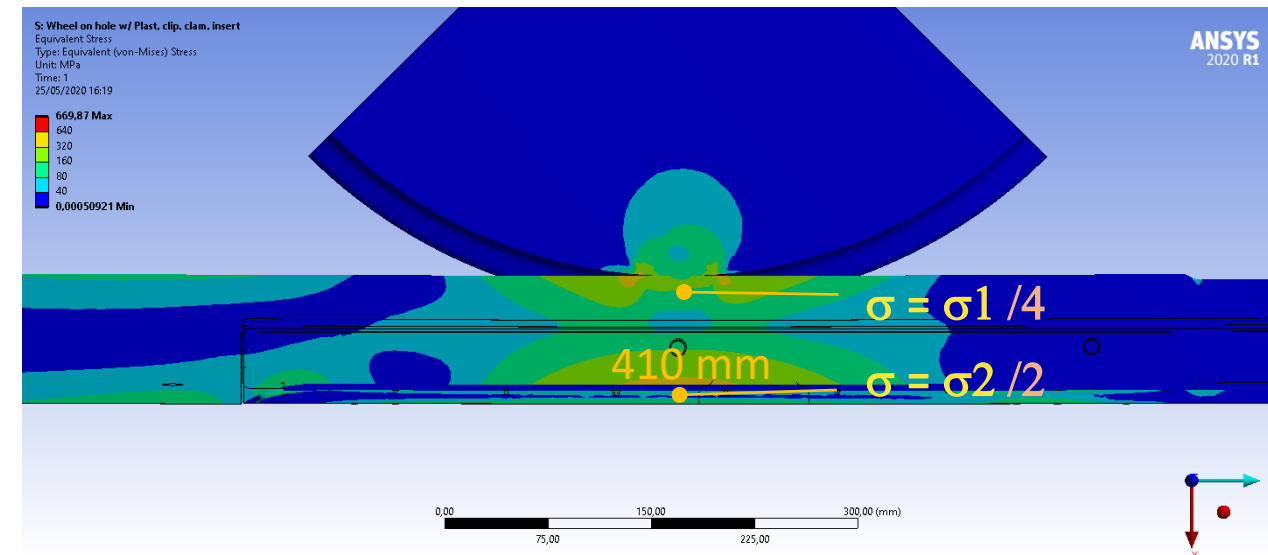
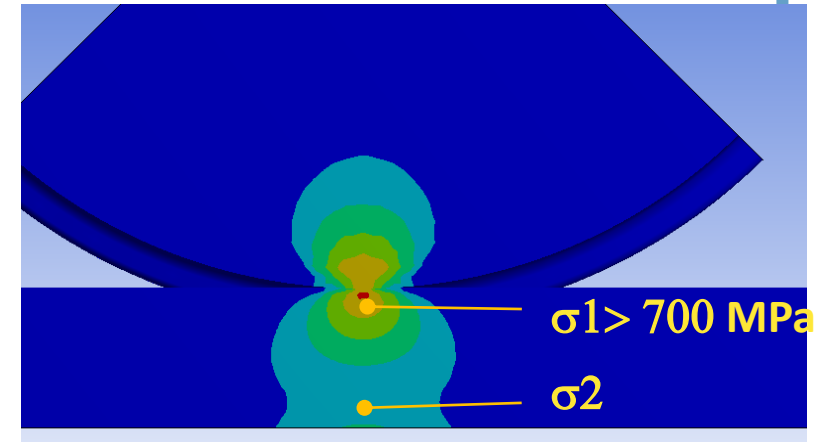


Driver seat : RMS reduced by 62% in lateral direction



# Improving Driver Comfort – Gantrex HingeGuard™

- Follow up **vibration analysis** was carried out in **March 2024** – almost 1yr after the replacement
- **No increase in vibration** from the time of replacement
- The **rubber layer** within the HGSR **protects the top of the rail** from localized wear at the joint
- This has been **modeled with FEA** and is now **observed on site**





we are optimistic about the future.