

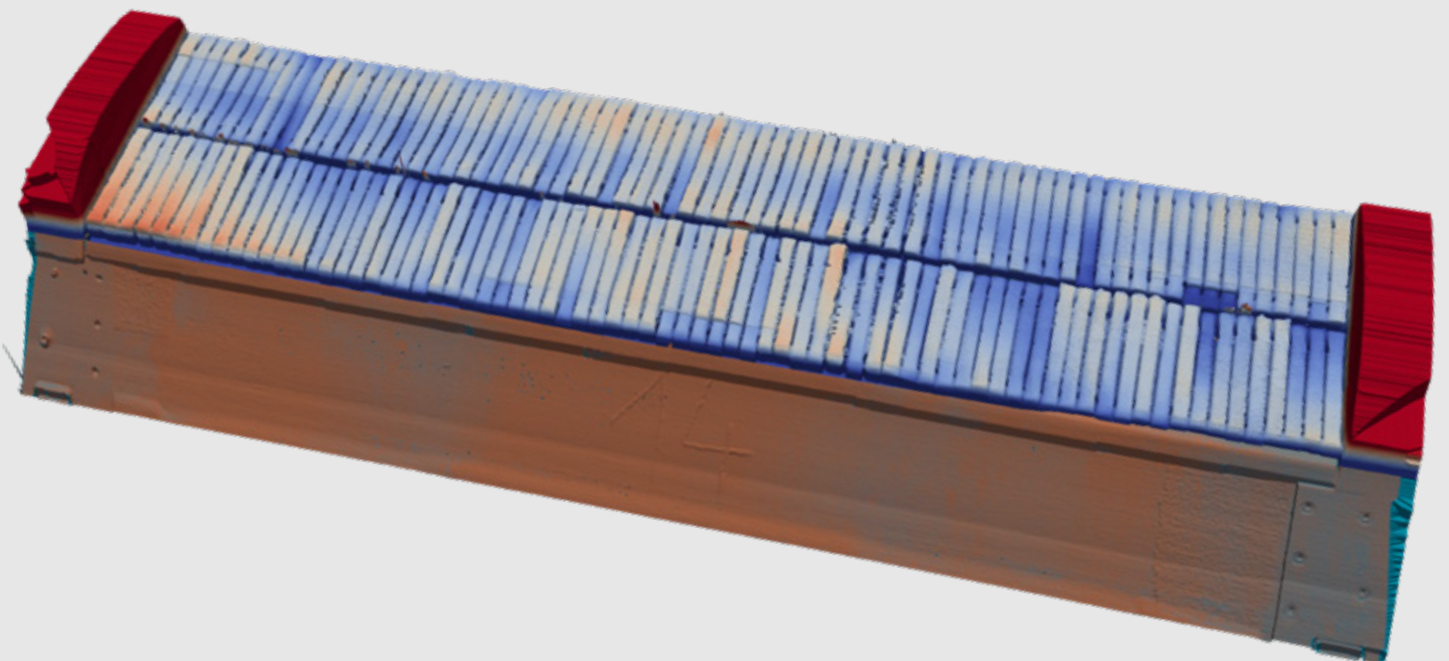
**PAUL WURTH**

SMS group

# Pallet Car Monitoring System

**GRATE** *Tracker*™

Sinter / Pellet Technology



## A Smart Solution

As a key equipment of a sinter or pellet plant, the operation of the pallet car requires high availability. For having access to a pallet car in order to perform regular maintenance, the travelling grate has always to be stopped. Most of the plant operators have established a preventive maintenance plan, but still face a considerable loss of time due to unforeseen failure. This leads to unscheduled production stoppages and increased off-budget consumption of spare parts.

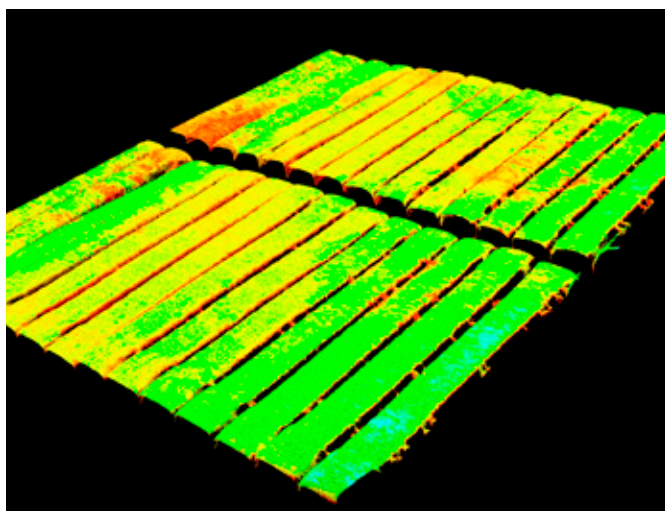
Like any productive maintenance system, such a system has to perform just in time: not too early to avoid frequent shutdowns and replacements; not too late to avoid unscheduled shutdowns leading to even more serious failures of other equipment items.

Therefore Paul Wurth developed GrateTracker™, a pallet car monitoring system allowing online surveillance of all inserted pallet cars with regard to their operational condition, thus also allowing to track the maintenance of the pallet cars. Thanks to Paul Wurth's solution, the detailed condition of grate bars can be monitored. Depending of the machine configuration, GrateTracker is easily upgradable to also monitor all other relevant parts of the pallet car, such as wheels, pressure rollers, spring seal bar, head plate and sidewalls.

GrateTracker solution developed by Paul Wurth is a one-of-a-kind system for which a patent was filed. It is the only system on the market that continuously monitors the condition of your pallet cars.

Grate bar detail, with colour scale representing,

1. surface roughness
2. surface discoloration/staining
3. grate bar gap contamination and grate bar top surface irregularities

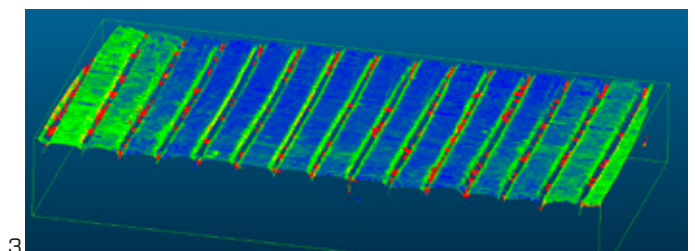
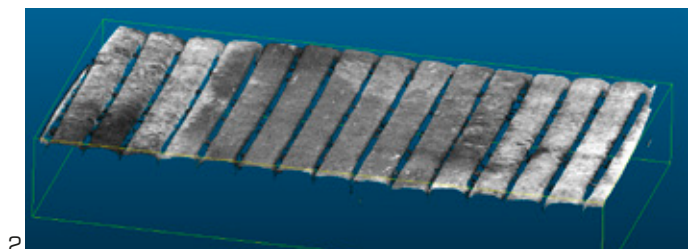


## Benefits of the Paul Wurth Pallet Car Monitoring System

By operating a pallet car monitoring system, the **Maintenance team** will be able to:

- ▶ Monitor and track the grate bar condition of all pallet cars in the furnace at any time;
- ▶ Analyse more accurately the grate bar lifetime through historical data and develop a predictive maintenance strategy;
- ▶ Track and evaluate the evolution of the following grate bar characteristics:
  - Width and angle position of grate bar
  - Thickness of grate bar and width of grate bar gaps
- ▶ Monitor grate bar degradation through surface analysis;
- ▶ Assess the total gap area blocked by "pellets" or "sinter"
- ▶ Detect and monitor wheels, pressure rollers, sidewalls and sealing elements.

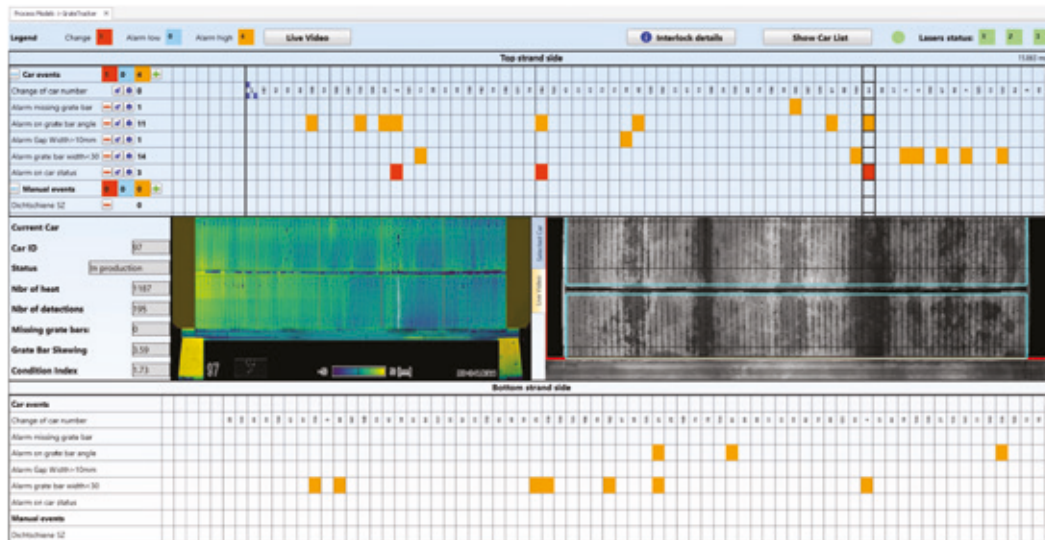
In all, the pallet car monitoring system will contribute to a reduction of unplanned stoppages due to pallet car failure.



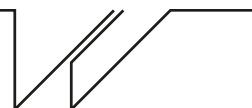
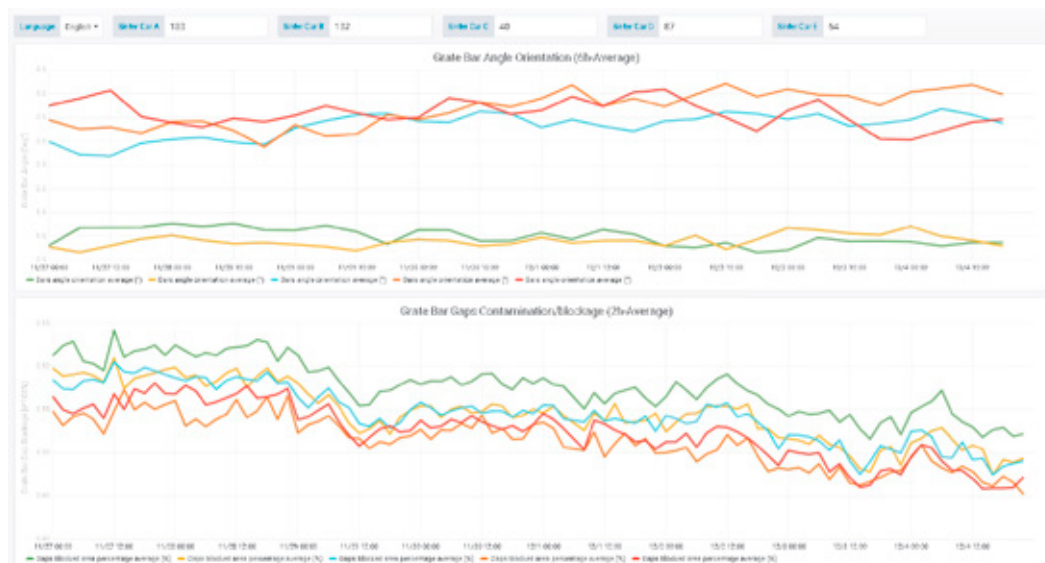
The pallet car monitoring system will provide the process team with historical data and current status of the pallet car condition, e.g. grate bars, allowing deeper analysis and definition corrective actions based on:

- ▶ Correlation between overheating occurrences of grate bar vs. lifetime/degradation
- ▶ Correlation between grate bar gaps condition vs. WB temperature
- ▶ Possibility to draw conclusion of pellet quality fluctuations vs. grate bar condition

GrateTracker software: Main overview of Human Machine Interface



Trend analysis of all pallet car parameters detectable by the monitoring system



# Engineering & Technology worldwide

The Paul Wurth Group is today one of the world leaders in the design and supply of complete plants, systems and processes as well as specialised mechanical equipment for

■ **the iron & steel industry:**

Blast Furnaces & Auxiliary Plants  
Coke Making Plants  
Direct Reduction Plants  
Environmental Protection, Recycling & Energy-Saving Technologies

■ **other industries:**

Solutions for Decentralised Energy Production  
Intralogistics Solutions for Heavy Loads  
Engineering & Project Management for Civil Construction and Infrastructure Projects

**Feasibility Studies – Conceptual, Basic and Detail Engineering – Project Management – Plant and Components Supply – Turnkey Projects – Digital Solutions – Assistance in Plant Assembly and Commissioning – Technology and Operations Consultancy – On-site and Remote Operational Assistance – After-sales Services**

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