MRO in Rail:
Case study on component maintenance service


- Frank Wachendorf -
1. Company profile HFG

2. Serialization of wheelset bearings

3. Benefits for the fabrication process

4. Benefits for wagon keepers and operations

5. Chances of interaction
1. Company Profile HFG

Overview:

HFG Transport-Technik GmbH
Schmiedeweg 2a
D-01979 Lauchhammer-Süd

Year of founding (GDR):
1959

Management Buy Out:
1992

Employees:
approx. 30
1. Company Profile HFG

Business Segments:

**Reconditioning of Rolling Bearings**
Assessment, refitting and regeneration

**Rolling Bearings & components**
Manufacturing of bearing components

**Serialization**
Consulting and implementation of component marking solutions

**Consulting & Training**
Consulting and training on QM topics, preparation for certifications
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Reconditioning of wheelset bearings

- Bearing assessment and component check
- Refitting with new polyamide cages
- Regeneration by grinding of raceway
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Approvals and references:

- Deutsche Bahn AG
- ÖBB TS
- SBB Cargo
- PKP Cargo
- VPI Hamburg
- VTG / AAE
- Touax
- Vattenfall Europe Mining
- Bochumer Verein / RAFIL
- Villmann-Group
- Railmaint (former Euromaint)
- Ryko a.s.
2. Serialization of wheelset bearings

Direct part marking (DPM) by laser

- Laser engraving at the rim of component
- Implementation of GS1 Application Identifiers
- Datamatrix quality checks with VERIFIER

- Approved marking technology
- Durable and robust marking
- High quality of Datamatrix Coding
2. Serialization of wheelset bearings

**Direct part marking (DPM) by laser**

- Implementation of the GS1 data identifier concept
- Combination with GS1 Datamatrix
- Optional: Additional GS1 Application Identifiers

**Serialization of newly manufactured bearings:** sGTIN

```
[01]04053063013841[21]241174FW
```

- **HFG Article number**
- **HFG serial no.**

**Serialization of used bearings as a “by pass” operation during the regular wheelset maintenance:** GIAI

```
[8004]40582264000000901458951
```

- **Asset identifier given by owner / operator**
3. Benefits for the fabrication process

Component-individual tracking of...

- Maintenance history
- Fabrication data

- machines’ parameters
- responsible workers
- measured tolerances
- primary material batches

Internal benefits

External benefits

**Guarantee claims:**
Short reaction time

**Fabrication failures:**
Exact localization and specific recalls

**USP:**
Additional product value
Component-individual tracking of...

3. Benefits for wagon keepers and operations

- **internal benefits**
  - operational data
  - component life cycle
  - maintenance history
  - logistics & storage

- **external benefits**
  - **Warranty periods**: Exact determination per piece
  - **Guarantee claims**: Exact backtracking
  - **Procurement**: Automated processes
5. Chances and prospect

**Producer:**
Best quality, Smart Factory

**Operator:**
Safety, Availability

**Service/MRO:**
Predictive & condition based maintenance

Exchange of component-individual data and information
5. Chances and prospect

In the case study...

...combination and analysis of information about bearings' condition with operational data

Operator: e.g. conclusion from events (e.g. accident) to component failure (and vice versa)

Service/MRO: e.g. use-based maintenance (dependent on mileage, route)

Producer/OEM: Empirical assessment of OEM-related product quality and other features

...vision of a new business model: „Pay per use“
thank you for your attention