Standards like eCl@ss and RDS-PP® in the field of the wind power industry

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Agenda

• Introduction / Challenges
• Status Quo / Common Standards
• Use Case
• Example
• The Solution: WindSOC
• Platform: windindustrie-live.com
THE STORY BEHIND ........ THE STORY
The Challenges in Wind Energy
Basics of eCl@ss

eCl@ss is a hierarchical standard of master data to classify and describe products and services

✓ Classification structure on 4 levels
✓ Properties are allocated on the 4th level
✓ Values are allocated to properties
✓ Keywords are allocated to all levels
Common Standards – ecl@ss

ADVANTAGE: LOSSLESS COMMUNICATION

Request for quotation
Orders
Catalogs (print)
Catalogs (electronic)
Product data sheet
EDI
After Sales Service
RDS-PP® is the consistent further development of the proven KKS. It offers a number of innovations and extensions that meet today’s requirements for the marking of power plant components. Compared to the KKS, RDS-PP® has also been further developed with a view to new technologies in electricity and heat generation.

RDS-PP® is based on international standards, in particular DIN ISO/TS 81346-3/10, with regard to its structuring principles and marking system. The VGB working group "Plant Marking and Documentation" played a decisive role in the development of RDS-PP®.

The internationality of the RDS-PP® as well as the continuous structuring help to avoid mistakes and misunderstandings in the marking, which increases the plant safety. Like KKS, RDS-PP® is also a common standard for operators and manufacturers of power plants. This worldwide recognition opens up further potential for long-term cost reductions in the planning, construction and operation of power plants.
Common Standards – RDS-PP

Basic Regulations

Extended Regulations for Specific Power Plants

Extended Regulations for Special Topics
### Common Standards – RDS-PP

Labeling according to RDS-PP follows a fixed structure, which is based on structure levels.

#### Figure 5 - Designation structure

Bild 5 - Kennzeichenaufbau

<table>
<thead>
<tr>
<th>Breakdown level BL</th>
<th>Prefix/Vorzeichen</th>
<th>Letters (A), Digits (N) / Buchstaben (A), Ziffern (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gliederungsstufe GS</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Figure 6 - Breakdown levels, sections and data positions

Bild 6 - Gliederungsstufen, Abschnitte und Datenstellen

<table>
<thead>
<tr>
<th>Breakdown level BL</th>
<th>Section/Abschnitt</th>
<th>Number and type of data positions/Anzahl und Typ Datenstellen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>A N N N A A A N N A A N N N</td>
</tr>
</tbody>
</table>
The marking process of a plant, e.g. a wind power plant, takes place in the following three steps:
1. structuring the plant into individual objects
2. classification of these objects
3. assignment of the indicator to these objects
Conjoint designation for Wind Power Plant: #5154N00883E.DE_NW.EU1WN

Main system designation e.g. for Wind Turbine Generator: =G001

System designation e.g. for Yaw System: =G001 MDL

Subsystem designation e.g. for Yaw Drive System: =G001 MDL10

Basic Function designation e.g. for Yaw Drive 1: =G001 MDL10 MZ010

Product designation e.g. for Yaw Motor 1: =G001 MDL10 MZ010–MA001

Product designation e.g. for Yaw Gear 1: =G001 MDL10 MZ010–TL001
Common Standards – GS1

WHO IS GS1?

International, not-for-profit and neutral organisation

➢ developing and maintaining global standards
➢ enabling all industry stakeholders to identify, capture and share information smoothly
➢ with a presence in 112 and activities in more than 150 countries
➢ focussing on increased efficiency, productivity and safety through traceability and visibility in:
  - Supply Chain
  - Full Product Lifecycle

…and it all started in 1974 with a pack of chewing gum!
Common Standards – GS1

THE GLOBAL LANGUAGE OF BUSINESS

**GS1 standards - segmentation**

- **Identify**
  - GS1 Identification Numbers
  - Companies, Products, Locations, Logistics, Assets and Services

- **Capture**
  - GS1 Data Carriers
  - Barcodes and EPC-enabled RFID

- **Share**
  - GS1 Data Exchange
  - Master Data, Transactional Data and Physical Event Data
Interaction Between the Standards

INTERACTION OF RDS-PP AND GS1 STANDARDS

GTIN: 4056354008434
SN: ABC1452OP_5
RDS-PP: =G035M0L20QM023-QM001
GLN: 4056354000001
Interaction Between the Standards
Interaction Between the Standards

Application level

- Collaborative data management
- Basis for electronic data exchange
- Maintenance process
- Materials management
- Service logistics

Type of Standard:
- Functional Standard
- Structuring of WEAs
- Classification Standards
- Structuring/Description of products
- Identification Standards
- Unique identification of products

For what?
- RDS-PP
- ...eCl@ss...
- ...GTIN...

Examples:
- eCl@ss
### Use Case Service

<table>
<thead>
<tr>
<th>Subject</th>
<th>Further development of maintenance and procurement</th>
</tr>
</thead>
</table>
| **Status Quo**   | • Various constellations for the maintenance of wind turbines (from full maintenance contracts to various partner constellations)  
|                  | • Cases: Repair (case of damage), maintenance, inspection  
|                  | • Complex search for spare parts: Inquiry to manufacturer > Old system > Information not available > Sell with surcharge > Long delivery time > High costs |
| **Development Goal** | Order directly from the supplier on the basis of clearly identified components and processes by providing:  
|                  | • Clear identification of the part (the maintenance technician knows what to order and the supplier knows what to deliver))  
|                  | • Digital ordering process (one system or networking of systems)  
|                  | • Digital / Realtime billing process (with "Zugferd")  
|                  | • Supplementary digital information (e.g. removal and installation instructions, etc.)  
|                  | Challenges: Connection of systems, marking of components, development and use of standards. |
| **Partner/User** | • Maintenance staff  
|                  | • Suppliers (several)  
|                  | • Standardizer  
|                  | • Platform Developer |
| **Usefulness**   | Reduction of throughput times for ordering and maintenance processes (incl. billing) by 20%. |
The dependencies in the overall system

WindSOC = System of Order Connectivity

- RDS-PP
- eCl@ss
- ISO 29404
- Global Service Protokoll
- Company's own labelling systems etc.
- GTIN et al.
WindSOC System of Connectivity

Product Catalogues (static data)

Products History (dynamic data)

industrial processes (drains)

Application
- Purchase / Sale
- system monitoring
- quality assurance
- Audits/Certification
- Transport & Logistics
- Maintenance / Repair
- quality control

Resources
- Mobile App
- WebService
- Checker
- Assessment
- Soc.Network

Tools:
- Tool1
- Tool2
- Tool3
- Tool4
- Tool5

Suppliers
- Z

Manufacturer
- H

Expert
- G

Operator / Supplier
- BV

Service
- S

Classification societies
- K
Example: System-oriented Product Data Process

Manufacturer

- eCl@ss Advanced (Example: Phoenix Contact)
- eCl@ss Basic (Example: Phoenix Contact)

Standardized product data with eCl@ss classification and properties

WindSOC

- Product database for
  - Search, Parametric Search
  - Comparison
  - Product Data Download

- GS1 Standards
- eCl@ss
- RDS-PP

Wind Turbine Manufacturer

- Transfer to and storage in SAP

- Show all filters
- Max. 1. output voltage 4 V, 5 V, 6 V
- RDS-PP class
WindSOC - all systems connected on one Social Media platform

- Information – Knowledge over markets, industries, competitors, suppliers, etc.
- Communication - the exchange with colleagues
- Retail - integrated business processes

- the answer: www.windindustrie-live.com
The wind energy industry at a glance
Wind industry provides comprehensive access to business contacts, technical discussions and news from the wind world.