



**ECISS**

European Committee for Iron and Steel Standardization  
Comité européen de Normalisation du Fer et de l'Acier  
Europäisches Komitee für Eisen- und Stahlnormung

**afnor**  
NORMALISATION

**Coated and uncoated flat products to be used for cold forming**  
**Produits plats revêtus ou non revêtus pour formage à froid**

**ECISS/TC 109**

Date: **2016/03/17**

Doc. Number:

**N 205**

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## NWIP

**Quality tracking system for flat steel products using barcode – printing, reading and information processing**

**Decision C5/2015 for ballot**

**F**OLLOW UP

**For ballot**

**Please vote via the CEN Committee Internal Balloting (CIB) before 2016/06/17:**

<http://cen.iso.org/livelink/eb33/part/cencib/ballotAction.do?method=doView&tab=ballot.information.label&id=105787>

**C**OMMENTARIES/  
**D**ECISIONS

France proposes this NWIP.

**S**OURCE

ECISS/TC 109 Secretariat - AFNOR

## Decision ECISS/TC 109 C 5/2016 taken on 2016-06-17

### Subject:ECISS/TC 109 - Adoption of a New Work Item

#### ECISS/TC 109 - Coated and uncoated flat products to be used for cold forming

- having considered the proposal for a new work item as documented in ECISS/TC 109 N 205
- having considered the Guidance - Adoption of a new work item in a CEN Technical Committee as documented in the BOSS
- confirming that the new work item falls within its scope
- confirming that the new work item corresponds to real market needs
- confirming that the resources to complete the work below are available
- decides to register the work item described below in its active programme of work

Section	Details
1. Deliverable	EN
2. This item corresponds to	a new project
3. Document developed in drafting body	ECISS/TC 109 - Coated and uncoated flat products to be used for cold forming
4. Title	Quality tracking system for flat steel products using barcode – printing, reading and information processing
5. Scope	All flat steel products including coils and blanks concerned by potential isolated defects which may impact the quality of the final parts. This standard targets first coils for automotive application but the system is also usable for other applications.
6. Environmental aspects	Use of energy Use of materials
7. How do you plan to address these environmental aspects?	Bring in environmental expertise to the WG
8. Vienna Agreement	No or expected CEN lead
9. The project is linked to	No document from another organization
10. Track	Enquiry + Formal Vote (ENQ+FV)
11. Related mandates(s)	No
12. Related directive(s)	No
13. Commitment	The following CEN members (at least five) are committed to participate in the development of the project:
14. The decision was taken by	Weighted vote and simple majority Percentage of positive weighted votes (min. 71%): Number of positive votes: Number of negative votes: number of abstentions:



<b>NEW WORK ITEM PROPOSAL</b>	
Closing date for voting 2016/06/17	Reference number (to be given by the Secretariat)  <b>ECISS/TC 109 N 205</b>
Date of circulation 2016/03/18	<b>ECISS/TC109</b>
Secretariat <b>AFNOR</b>	

**IMPORTANT NOTE: Incomplete proposals risk rejection or referral to originator.**

The proposer has considered the guidance given in Annexes 1 and 2 during the preparation of the NWIP  
BNAC109\_ **C16-057**\_NWIP-quality-tracking\_V3\_24feb2015

**Proposal** (to be completed by the proposer)

<p><b>Title of the proposed deliverable</b> <i>(in the case of an amendment, revision or a new part of an existing document, show the reference number and current title)</i></p> <p>English title      <b>"Quality tracking system for flat steel products using barcode - printing, reading and information processing"</b></p> <p>French title: "Système de suivi de la qualité des produits plats en acier utilisant des codes barres - Marquage, lecture et traitement de l'information "</p> <p>German title: "Qualitätsverfolgungssystem für Flachstahlprodukte mittels Barcode - Druck, Erfassung und Informationsverarbeitung "</p>
<p><b>Scope of the proposed deliverable</b></p> <p><b>All flat steel products including coils and blanks concerned by potential isolated defects which may impact the quality of the final parts. This standard targets first coils for automotive application but the system is also usable for other applications.</b></p>
<p><b>Purpose and justification of the proposal</b></p> <p><b>To allow the customers to read the information of the flat steel products from all suppliers, to lower the risk of defects on final parts and to increase the global resource efficiency of the steel supply chain.</b></p>
<p><b>Is the proposal actively or probably in support of European regulation / legislation or established public policy?</b></p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><b>If Yes, indicate if the proposal is</b></p> <ul style="list-style-type: none"> <li>▪ in relation to EC mandate(s): .....(which one(s))</li> <li>▪ in relation to EC Directive(s)/Regulation(s): .....(which one(s))</li> <li>▪ in relation to other legislation or established public policy: .....(give details)</li> </ul>
<p><b>Indication(s) of the preferred type or types of deliverable(s) to be produced under the proposal.</b></p> <p><input checked="" type="checkbox"/> European Standard      <input type="checkbox"/> Harmonization Document*      <input type="checkbox"/> Technical Specification      <input type="checkbox"/> Technical Report</p> <p>* for CENELEC only</p> <p><b>Envisaged track</b></p> <p><input checked="" type="checkbox"/> Enquiry and vote (see 11.2.3 of IR Part 2)      <input type="checkbox"/> UAP (see 11.2.5 of IR Part 2)</p>

<p><b>Preparatory work</b> (at a minimum an outline should be included with the proposal)</p> <p><input type="checkbox"/> A draft is attached                      <input type="checkbox"/> An outline is attached                      <input checked="" type="checkbox"/> An existing document to serve as initial basis</p> <p>The proposer or the proposer's organization is prepared to undertake the preparatory work required    <input checked="" type="checkbox"/> Yes    <input type="checkbox"/> No</p>	
<p><b>If a draft is attached to this proposal,:</b></p> <p>Please select from one of the following options (note that if no option is selected, the default will be the second option):</p> <p><input type="checkbox"/> Draft document will be registered as a preliminary project in the committee's work programme (stage 00.60)</p> <p><input type="checkbox"/> Draft document will be registered as a new project in the committee's work programme (stage 20.00)</p> <p><input type="checkbox"/> Draft document can be submitted to UAP (FprEN – stage 50.20)</p>	
<p><b>Known patented items</b></p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No    If "Yes", see CEN-CENELEC Guide 8 and provide full information in an annex</p>	
<p><b>A statement from the proposer as to how the proposed work may relate to or impact on existing work, especially existing CEN, CENELEC, ISO and IEC deliverables. The proposer should explain how the work differs from any apparently similar work, or explain how duplication and conflict will be minimized.</b></p> <p>There is no similar existing work. This quality tracking system has been developed recently by the steel producers ArcelorMittal, ThyssenKrupp Steel Europe and Tata Steel Europe. It is open for all other steel producers, car makers, appliance makers, part manufacturers, steel processors, service centres and blanking line builders.</p>	
<p><b>A listing of relevant existing documents at the international, regional and national levels.</b></p> <p>See annex (article published in Stahl und Eisen)</p>	
<p><b>A simple and concise statement identifying and describing relevant affected stakeholder categories (including small and medium sized enterprises) in particular those who are immediately affected by the proposal</b> (see Annexes 1 and 2) and how they will each benefit from or be impacted by the proposed deliverable(s)</p> <p>The stakeholders most involved in this project are suppliers of flat steel products, car makers, appliance makers, part manufacturers, blanking line builders, steel processors, service centres etc. All stakeholders will benefit from this project since defects can be traced and therefore the steel containing defects can be eliminated or separated from the production.</p>	
<p><b>Liaisons:</b> A listing of relevant external European or international organizations or internal parties (other CEN, CENELEC, ISO and/or IEC committees) to which a liaison should be established (in case of ISO and IEC committees via Vienna and Dresden Agreements).</p> <p>None</p>	<p><b>Joint/parallel work:</b> Possible joint/parallel work with:</p> <p><input type="checkbox"/> CEN            (please specify committee ID)</p> <p><input type="checkbox"/> CENELEC (please specify committee ID)</p> <p><input type="checkbox"/> ISO            (please specify committee ID)</p> <p><input type="checkbox"/> IEC            (please specify committee ID)</p> <p><input type="checkbox"/> Other            (please specify)</p>
<p><b>Candidate for European – International cooperation?</b> <b>Vienna Agreement (ISO-CEN Agreement):</b></p> <p><input type="checkbox"/> Yes   <input checked="" type="checkbox"/> No ('Yes' meaning joint ISO-CEN development)</p> <p><b>Dresden Agreement (IEC-CENELEC Agreement):</b></p> <p><input type="checkbox"/> Yes   <input checked="" type="checkbox"/> No ('Yes' meaning that the NWI, if approved, is to be offered to IEC for taking up)</p>	

<p><b>Name of the Proposer</b> <i>(include contact details)</i></p> <p><b>Mr. Jean Ménigault</b> French Steel standards organization on behalf of AFNOR, Secretary to BNAC109 (French mirror group to ECISS/TC109). Bureau de Normalisation de l'Acier (BNAcier) 39-41, rue Louis Blanc, F-92400 Courbevoie, France Tél: +33 (0)1 80 90 50 93 E-mail: <a href="mailto:jean.menigault@ffa.fr">jean.menigault@ffa.fr</a> (unchanged)</p>	<p><b>Proposed Project Leader</b> <i>(include contact details)</i></p> <p><b>Ms. Chihyuan Liu</b> Quality Tracking Project Manager Eurofer Avenue de Cortenberg, 172 Mob.: +32(0)491 90 50 49 E-mail: <a href="mailto:C.Liu@eurofer.be">C.Liu@eurofer.be</a></p>
<p><b>Supplementary information relating to the proposal</b></p> <p><input checked="" type="checkbox"/> This proposal relates to a new document;</p> <p><input type="checkbox"/> This proposal relates to the adoption as an active project of an item currently registered as a Preliminary Work Item;</p> <p><input type="checkbox"/> This proposal relates to the re-establishment of a cancelled project as an active project.</p> <p><input type="checkbox"/> This proposal relates to a research project outcome</p> <p>Members already known to support the proposal and willing to participate to the activities:... <i>[Note: The proposal cannot usually be approved without a minimum of 5 national Members]</i></p>	

**Annex(es) are included with this proposal** (give details)

- Yes, see below and Annex. Please note that Stahl und Eisen has the copyright. Please do not diffuse in public.**

**“Defect tracking – an innovative solution as supporter of automotive zero defect vision” by Michele Dunand, Ullrich Heidtmann and Marcel Wilcke, published in Stahl und Eisen 134 (2014) Nr.7**



35-38 Defect tracking an innovativ

More detailed technical specifications e.g. White book of 33 pages, reader technical specification, server technical specification are also available but not yet public.

## **Informative Annex 1 "Principal categories of market needs"**

- Consumer protection and welfare
- Environment
- Innovation
- Support to:
  - public policy
  - European legislation/regulation
- Market access/barriers to trade, i.e. enhancing the free movement of:
  - services
  - goods
  - people
- Interoperability
- Health/Safety
- Terminology

## **Informative Annex 2 "Principal categories of stakeholders"**

- Industry and commerce,
  - where particularly appropriate, to be identified separately as
  - Large enterprises (those employing 250 staff or more)
  - Small and medium sized enterprises (SME), (those employing 250 staff or fewer)
- Government
- Consumers
  - including those organizations representing interests of specific societal groups, e.g. people with disabilities or those needing other particular consideration)
- Labour
- Academic and research bodies
- Non-governmental organisations (NGO),
  - including organizations representing broad or specific environmental interests
- Standards application business (e.g. testing laboratories, certification bodies)

Sometimes it is valuable also identify the immediate affected stakeholders from industry and commerce in terms of their position in a product value chain, as follows:

- Supplier
- Manufacturer
- Intermediary (e.g. warehousing, transport, sales)
- Service provider
- User of the product or service
- Maintenance / disposal

NOTE: 'Immediately affected stakeholders' are considered to be those who, within the context of the proposal, would be in a position to implement the provisions of the intended standard(s) into their products, services or management practices.

# Defect tracking — an innovative solution as supporter of automotive zero defect vision

*Defect Tracking — eine innovative Lösung zur Unterstützung der Null-Fehler-Vision der Automobilindustrie*

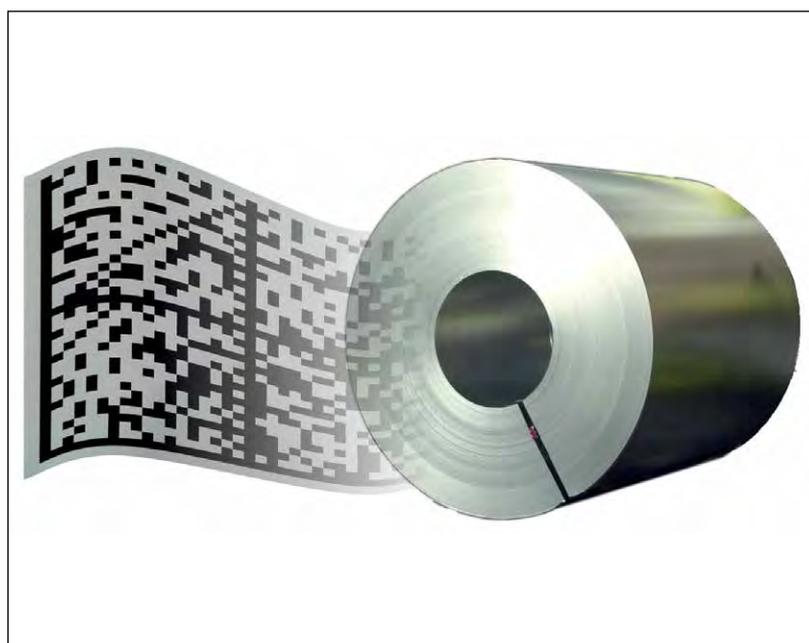
Isolated defects may create serious disturbances and costs in the car manufacturing process, but a guarantee of zero surface defects is currently impossible for steel strip products. A solution to indicate reliably their position will be a win-win approach for customer and supplier. The three European major steel companies, ArcelorMittal Europe, Tata Steel Europe and ThyssenKrupp Steel Europe have combined their efforts providing such a solution by developing an open defect tracking standard using 1-D barcodes printed on the strip. This new service is expected to be available in the near future.

**Michèle Dunand,  
Ullrich Heidtmann  
and Marcel Wilcke**

*Einzelfehler können im Automobilherstellungsprozess bedeutende Störungen und Mehraufwandkosten hervorrufen, allerdings kann derzeit eine absolut fehlerfreie Oberfläche für die als Coil gelieferten Stahlfeinbleche nicht garantiert werden. Die Fehlerposition verlässlich zu verfolgen, wäre ein Win-Win-Ansatz für Kunde und Lieferant. Die drei bedeutendsten europäischen Stahlhersteller, ArcelorMittal Europe, Tata Steel Europe und ThyssenKrupp Steel Europe haben ihre Anstrengungen gebündelt, um hierfür die Lösung mithilfe eines auf das Band gedruckten 1-D-Barcodes zu entwickeln und als offenen Standard anzubieten. Es wird erwartet, dass dieser neue Service in naher Zukunft verfügbar ist.*

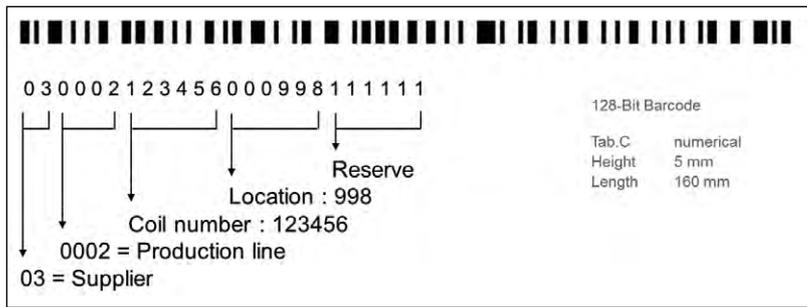
**I**solated defects may create serious disturbances and costs in the automotive manufacturing process, but a guarantee of zero surface defects is currently impossible for steel strip products as supplied in coil form to our customers. Some isolated defects are inherent to the steel manufacturing process such as slivers, blisters, local scratches, ... These defects cannot be completely detected and eliminated; repair is not always possible (coil specifications) and may lead to additional defects. Advanced Surface Inspection Systems are able to detect most of the isolated defects. A solution to indicate their position to the customers will be a win-win approach for both parties.

The three major steel companies in Europe, Tata Steel Europe, ThyssenKrupp Steel Europe and ArcelorMittal Europe, combine their efforts in a technical consortium to develop an open standard providing such a solution. "Defect tracking" aims at transferring additional material information to the steel customers, especially the localisation of some isolated defects, in a reliable way, adapted to automotive customers' industrial constraints.



**Defect tracking by barcode marking**

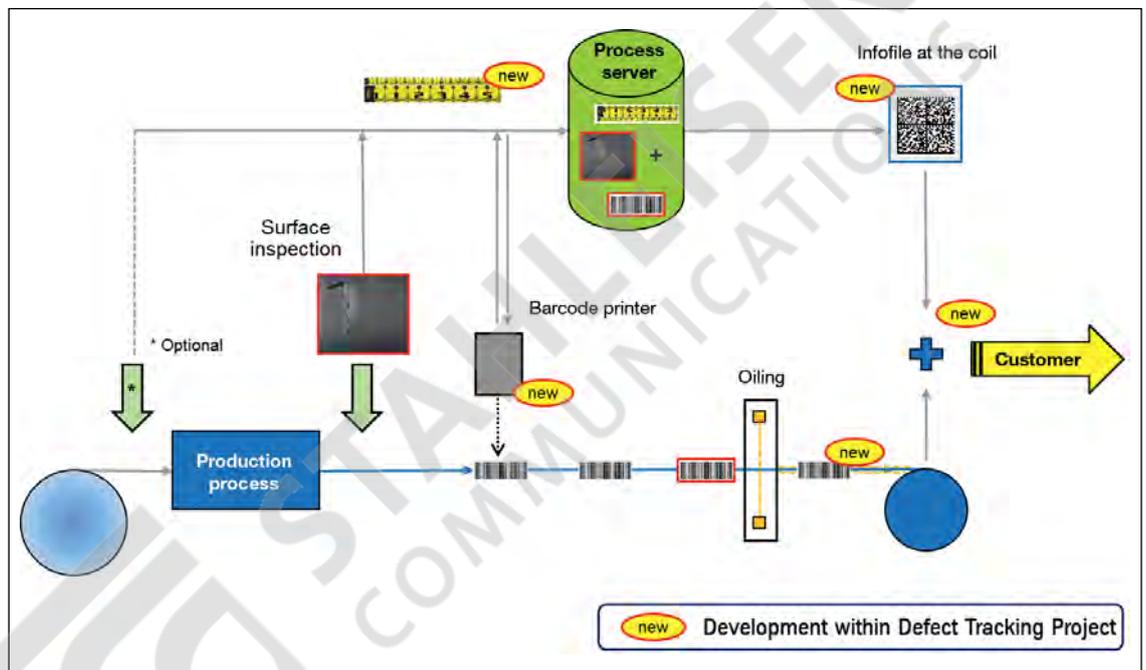
*Defect Tracking mittels Barcodekennzeichnung*



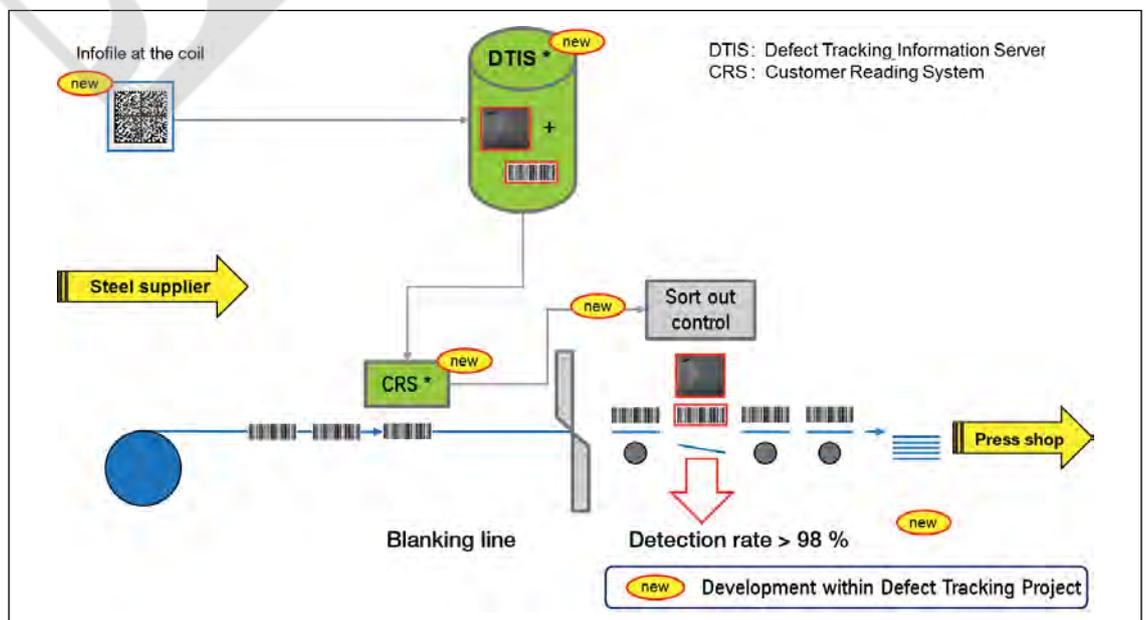
The solution is based on uniquely identifying every metre of strip. The steelmaker will print a 1-D barcode on the strip. Each 1-D barcode will be unique to guarantee the tracking. Each defect as detected using on-line inspection systems will be identified using the 1-D barcode. The user will have a reading system at the blanking line to read the barcodes and interpret their content: defect occurrence or not, at one's discretion to use this information to eliminate the defect at the blanking line or the press shop.

As of today, the consortium already assesses industrial-scale defect tracking prototypes in order

1 Description of the barcode content  
Beschreibung des Barcodeinhalts



2 Schematic diagram of defect tracking at steel supplier  
Schematischer Ablauf des Defect Tracking beim Stahlhersteller



3 Schematic diagram of defect tracking at customer  
Schematischer Ablauf des Defect Tracking beim Verbraucher

to have soon a reliable solution and to propose this new service to the automotive customers in a near future.

## Defect tracking solution

The consortium works to develop an open standard providing a defect tracking solution by introducing a barcode on the steel strip. The objectives are to print at the steel supplier regularly spaced barcodes on the whole length of the strip, to read the barcode as a position in the following application process and finally to steer a process reaction (eg sorting out a blank) by combining this information with a data file containing the quality information. For the moment, the barcode itself doesn't include any quality information but provides, in combination with a dedicated information file, the exact defect position. The idea is quite simple but the technical solution was a real challenge.

**Basic specification details.** The consortium is following one dimensional marking system associated with a specific data concept:

- ▷ continuous in-line position marking to identify the supplier and the material
- ▷ a correlating data file containing the quality information.

By combining both sets of information using an automated barcode reading unit at the blanking line any defective parts can be removed without human input. There are good reasons for deciding on this concept. The identification of the part is unambiguous at the time of processing, all quality relevant information is not available at the time of barcode printing, figure 1; there is a wide range of options using the barcode later in processing to carry different contents.

The non-encrypted barcode itself is readable by standard barcode reading equipment, even by mobile apps. All information is based on clear coding tables which allow a unique data correlation. The target is to create a European or even worldwide standard, open for all steel suppliers and customers.

The workflow for printing and providing the information at the steel manufacturing site is as follows, figure 2. With washable ink the barcode is printed continuously on the strip offering the exact position for the reader. In parallel possible single defects detected manually or by automatic surface inspection systems are processed in a server creating an information file which is placed in a next step as a 2-D barcode tag on the coil.

The combination of barcode and information tag allows the customer the clear identification of the defected strip length to react with a sort-out operation, figure 3. The detection rate of the barcode is specified with >98 %. That means that the detection rate of the announced defect will be even much higher due to statistical evidence.

● 1-D Barcode	128 bit code, Tab. C
● Printing surface	Dry (without oil or emulsion), posttailing
● Technology	Inkjet
● Ink	Black washable
● Printed side	Unexposed / both sides
● Crossweb position	Centered
● Marking period	~ 1 / m
● Position exactness	± 2m
● Max. reading speed	120 m/min
● Max. barcode length	~ 160 mm
● Barcode height	~ 5 mm
● Barcode element width	0.8 - 1.0 mm
● Strip crossweb deviation	± 50 mm
● Strip passline variation	0 ... 50 mm



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### Basic specification of defect tracking solution

*Wesentliche Spezifikationsmerkmale der Defect-Tracking-Lösung*

The basic specification for the defect tracking solution contains beside others the 1-D barcode structure, the position on the strip, the dimension, the positioning accuracy, marking period and reading speed, figure 4.

Since the start in 2011 the project has made significant progress. The barcode printers are optimized, prototypes of the customer reading units work under test conditions and the defect tracking information system is in the validation phase. First customers are ready to collaborate for example for testing some technical points such as the workflow, the change of printed barcodes during coils transport and storage, the reading in the blanking line, the data transfer, the marking distance and so on.

## Outlook

The automotive philosophy, of not sending defects further up the supply chain, still stands due to the fact that steel suppliers can now reach a better ppm rate on an average yearly supplied volume, and the singular defects that were already in the coil remain in the coil. They just do not disturb the customer's processes any more.

The advantages for steel suppliers are: better hit rate in correct and less repairing, no secondary defects by cutting out the primary defect, repairing coils all over the world in exactly the same manner, reliable product quality level especially for automotive outer panel supply customers, fulfilling final needs of the automotive customers approaching zero defect at the pressed part and finally higher level of customer satisfaction.

The advantages for the customers are: more transparency on the coil quality, less inspection required after pressing, less handling of parts after pressing,

higher level of trust that the coil is of the right quality approaching zero defect in the press shop, increased press shop yield, better hit rate in coil weight and amount of welds.

After the project will be finished there will be a technology available as open source and working at pilot customers. The target of the consortium is to reach a level of acceptance of the system as wide as possible in the market in order to support the potential value creation in the automotive market.

*Presented at the 1st European Steel Technology & Application Days (ESTAD) / 31st Journées Sidérurgiques Internationales (JSI) on 7 – 8 April 2014 in Paris, France.*

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Produkte

## Fettsauger reinigt gebrauchte Walzenlager



Die neue Sauganlage ist besonders für Walzwerke interessant, wo die gebrauchten Walzenlager von Altfetten gereinigt werden müssen

Bei der Industriereinigung werden verbrauchte oder verschmutzte Fette mit unterschiedlichen Methoden gelöst (z. B. Hochdruckstrahlen). Das abgeschiedene Fett ist nach der Ablösung sehr schwer zu handhaben und muss weitertransportiert bzw. entsorgt werden.

Wieland Lufttechnik GmbH & Co KG aus Erlangen hat hierfür eine Vakuumabsauganlage entwickelt, die das Fett zuverlässig und schnell absaugt. Der Fettsammelbehälter der Sauganlage hat ein Volumen von 400 l. Zur Entleerung drückt ein Druckluftzylinder das Fett nach außen in einen geeigneten Behälter. Dieser kann dann von einem Entsorgungsunternehmen abgeholt und umweltgerecht entsorgt werden.

Das Gerät ist besonders für Walzwerke interessant, wo die gebrauchten Walzenlager von schweren verunreinigten Altfetten gereinigt werden müssen. Diese bislang äußerst „schmutzige“ Arbeit kann nun auf besonders einfache Art erledigt werden.

In einem deutschen Walzwerk wird der neuentwickelte Fettsauger bereits in der Reparaturwerkstatt für Lager und große Teile der Antriebstechnik benutzt. Das Fett aus den Lagerschalen kann mit wenig Aufwand schnell und kostengünstig abgesaugt werden. Die erzielte Arbeitszeiterparnis ist enorm. Da das Fett mit diesem Industriesauger verschüttungsfrei in den Sammelbehälter eingesaugt werden kann, besteht auch nicht die Gefahr der gewöhnlichen Werkstättenverschmutzung beim Hantieren mit dem gebrauchtem Altfett.

Mit einer Leistung von 7,5 kW erzeugt der Fettsauger FA-450 einen Unterdruck von über 700 mbar (70 % Vakuum); so kann das zähflüssigste Saugmaterial verstopfungsfrei abgesaugt werden. Der Saugschlauch hat einen Durchmesser von 50 mm und es können Saugstrecken bis 50 m horizontal bzw. 8 m vertikal nach oben realisiert werden. swz

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