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Railway applications – Track – Aluminothermic welding of rails – Part 1: Approval of welding processes

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Denna standard ersätter SS-EN 14730-1:2006+A1:2010, utgåva 1.

The European Standard EN 14730-1:2017 has the status of a Swedish Standard. This document contains the official version of EN 14730-1:2017.

This standard supersedes the Swedish Standard SS-EN 14730-1:2006+A1:2010, edition 1.

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English Version

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Bahnanwendungen - Oberbau - Aluminothermisches Schweißen von Schienen - Teil 1: Zulassung der Schweißverfahren

This European Standard was approved by CEN on 13 August 2016.

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European foreword

This document (EN 14730-1:2017) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2017, and conflicting national standards shall be withdrawn at the latest by September 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14730-1:2006+A1:2010.

The European Standard EN 14730 “Railway applications – Track – Aluminothermic welding of rails” is composed of two parts:

— *Part 1: Approval of welding processes*

— *Part 2: Qualification of aluminothermic welders, approval of contractors and acceptance of welds*

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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Introduction

This standard defines the approval procedure for aluminothermic welding processes for rail welding through laboratory tests of welds produced in a workshop. This laboratory approval will provide the railway authority with sufficient information for tests in the track if required.

1 Scope

This European Standard defines the laboratory tests and requirements for approval of an aluminothermic welding process using welds produced in workshop conditions.

It applies to the joining of new Vignole rails as described in EN 13674-1 of the same profile and steel grade.

Compliance with the requirements of this standard does not of itself ensure the suitability of a welding process for specific conditions of track and traffic.

The standard does not cover welds made between different rail sections, differently worn rails and different rail grades.

In addition to the definitive requirements this standard also requires the items detailed in Clause 4 to be documented. For compliance with this standard, it is important that both the definitive requirements and the documented items be satisfied.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13674-1, *Railway applications - Track - Rail - Part 1: Vignole railway rails 46 kg/m and above*

EN ISO 6506-1, *Metallic materials - Brinell hardness test - Part 1: Test method (ISO 6506-1:2014)*

EN ISO 6507-1, *Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1:2005)*

EN ISO 9712, *Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712:2012)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
fusion zone
area of the weld which has been in a liquid state and which is revealed by etching sections cut through the weld

3.2
visible heat-affected zone
areas on either side of the fusion zone within which rail steel microstructure has been visibly modified by the heat of the welding process as revealed by Fry macro-etching

3.3
heat softened zone
part of the Heat Affected Zone (HAZ) characterised by a lower hardness

3.4
weld collar
external profile of the as-cast weld metal that remains after removal of the moulds