

RAUDTEEALASED RAKENDUSED. RÖÖBASTEE.
RÖÖBASTE TERMIITKEEVITUS. OSA 1:
KEEVITUSPROTSESSIDE HEAKSKIITMINE

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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ICS 25.160.10, 93.100

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English Version

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

Applications ferroviaires - Voie - Soudage des rails par aluminothermie - Partie 1: Approbation des procédés de soudage

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

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Contents

Page

European foreword.....	5
Introduction	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions	7
4 Information to be supplied by the railway authority.....	8
5 Approval procedure.....	8
5.1 General.....	8
5.2 Process identification.....	8
5.3 General requirements	9
5.4 Documents to be submitted with the request for approval.....	9
5.4.1 The process manual	9
5.4.2 Drawing with the required measurements	10
Figure 1 — Dimensions taken from mould pattern	10
5.4.3 Chemical analysis ranges and tolerances.....	11
5.5 Initial compliance testing.....	11
Table 1 — Rail profile groups	11
Table 2 — Testing scheme.....	11
5.6 Extension of initial compliance testing.....	12
5.7 Preparation and allocation of test welds.....	12
6 Re-approval following process changes	13
6.1 Changes requiring approval.....	13
6.1.1 Geometric parameters	13
6.1.2 Crucible system.....	13
6.1.3 Tapping system.....	13
6.1.4 Pre-heating system.....	13
6.1.5 Portion	13
6.1.6 Welding gap.....	14
6.2 Test requirements for re-approval following process changes	14
Table 3 process changes	15
7 Laboratory tests.....	17
7.1 Visual surface examination	17
7.1.1 As-cast weld surface.....	17
Table 4 — Maximum dimensions of slag or sand defects	17
7.1.2 Ground weld surface	17
7.1.3 Visible heat affected zone.....	17
7.2 Running surface hardness test.....	17
Table 5 — Ranges for running surface hardness tests.....	18
7.3 Slow bend test	18
7.4 Internal examination	18
7.4.1 Weld soundness.....	18

Figure 2 — Transverse section of head, web and foot of the rail	19
Figure 3 — Sectioning of Welds	20
7.4.2 Fusion zone – Shape and dimension	21
Figure 4 — Shape of fusion zone on the etched longitudinal vertical section	21
7.4.3 Fusion zone	21
7.4.4 Heat softened zone width	22
Table 6 — Ranges of heat softened zone	22
7.5 Fatigue test.....	22
7.6 Chemical analysis	22
Table 7 — Chemical composition.....	23
Annex A (informative) Steps in approval.....	24
Annex B (informative) Suggested sequence of laboratory test.....	25
Annex C (normative) Procedure for Fry etching	26
Annex D (informative) Procedure for measurement of surface hardness.....	27
Figure D.1 — Location of surface hardness tests.....	27
Annex E (normative) Procedure for slow bend test.....	28
Figure E.1 — Slow bend test schematic.....	28
Annex F (normative) Procedure for recording test weld fracture face defects	29
Figure F.1 — Rail profile grid	30
Annex G (normative) Ultrasonic inspection procedure on aluminothermic welds to be sectioned.....	31
G.1 General	31
G.2 Test equipment.....	31
G.3 Preparation of samples	31
G.4 Adjustment.....	31
G.5 Testing.....	32
G.6 Reporting.....	32
Annex H (normative) Procedure for microscopic examination of the visible heat affected zone and fusion zone of welds	33
Figure H.1 — Scheme for taking samples for microscopic examination	33
Annex I (normative) Procedure for measurement of the heat softened zone width	34
I.1 Measurement of hardness	34
Figure I.1 — Longitudinal hardness measurement.....	34
I.2 Evaluation of hardness data	34
I.2.1 General	34
Figure I.2 — Typical hardness profile	35
I.2.2 Mean hardness of parent rail	35
I.2.3 Measurement hardness line	35

I.2.4	Heat softened zone width measurement.....	35
I.2.5	Parent rail hardness variation	35
Annex J (normative) Fatigue test methods for aluminothermic welds		36
J.1	General.....	36
J.2	Test equipment.....	36
Figure J.1 — Fatigue test arrangement.....		36
J.3	Calibration procedure	37
J.4	Fatigue test results	37
J.4.1	General.....	37
J.4.2	Staircase testing method	37
J.4.2.1	Test pieces	37
J.4.2.2	Procedure.....	37
J.4.2.3	Data analysis.....	38
J.4.2.4	Acceptance criteria.....	39
J.4.3	Example of the data analysis of a fatigue strength determination by the staircase method	39
Table J.1 — Experimental results		39
J.4.4	Past-the-post testing method.....	40
J.4.4.1	Test pieces	40
J.4.4.2	Procedure.....	40
J.4.4.3	Information to be reported	40
J.4.4.4	Acceptance criterion	40
Annex K (informative) A-deviations		41
Bibliography.....		42

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.

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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