



**NSAI**  
Standards

Irish Standard  
I.S. EN 16725:2016

# Railway applications - Track - Restoration and repair of manganese crossings

**I.S. EN 16725:2016**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN 16725:2016 is the adopted Irish version of the European Document EN 16725:2016, Railway applications - Track - Restoration and repair of manganese crossings

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**EUROPEAN STANDARD**

**EN 16725**

**NORME EUROPÉENNE**

**EUROPÄISCHE NORM**

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English Version

## **Railway applications - Track - Restoration and repair of manganese crossings**

Applications ferroviaires - Voie - Réparation des cœurs en acier au manganèse

Bahnanwendungen - Oberbau - Instandsetzung und Reparatur von Herzstücken aus Manganhartstahlguss

This European Standard was approved by CEN on 22 July 2016.

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<b>Contents</b>	<b>Page</b>
European foreword.....	4
Introduction .....	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions .....	7
4 Consumable and WPS approval tests for MMA electrodes and FCAW wires .....	8
4.1 General.....	8
4.2 Consumable and WPS approval model.....	8
4.2.1 Flow chart .....	8
4.2.2 Minimum information to be included in the pWPS .....	9
4.3 Information supplied by the manufacturer of the welding consumable to the certifying body .....	10
4.4 Laboratory examinations of weld samples.....	11
4.5 Description of the samples for laboratory test for resurfacing work.....	11
4.5.1 General requirements for laboratory tests .....	11
4.5.2 Single bead on AMS.....	11
4.5.3 Multi-layer on AMS .....	12
4.5.4 Single bead on tri-metal zone .....	13
4.5.5 Single layer on tri-metal zone.....	13
4.5.6 Multi-layer on tri-metal zone.....	14
4.5.7 Preparation and examination of AMS samples .....	15
4.5.8 Preparation and examination of the tri-metal zone samples .....	16
4.6 Assessment of general weldability .....	18
4.7 Acceptance criteria.....	18
4.7.1 Visual inspection .....	18
4.7.2 PT examination.....	18
4.7.3 Hardness.....	18
4.7.4 Macro and micro examination of single and multi-layer sections .....	19
4.8 Track trial tests.....	19
4.8.1 General.....	19
4.8.2 Excavation detail for track trials .....	19
4.8.3 Track trial test categories .....	20
4.8.4 Test methods .....	20
4.8.5 Number of in-track test samples .....	20
4.8.6 Welder's report from track trials.....	20
4.8.7 Acceptance criteria for track trial tests .....	20
4.9 Evaluation, reporting and decision following track trials .....	21
4.9.1 General.....	21
4.9.2 List of general information .....	21
4.9.3 Track trial tests inspection records .....	21
4.9.4 Decision by approving RA on consumable and WPS .....	21
4.10 Validation of consumables.....	21
5 Approval of contractors.....	22
5.1 Quality management systems.....	22
5.2 Inspection and testing .....	22

5.3	Subcontracting.....	22
5.4	Equipment.....	22
5.5	Welding activities.....	22
5.6	Storage and handling of welding consumables.....	22
5.7	Care of the infrastructure.....	22
5.8	Welding procedure specifications.....	23
5.9	Pre-heating of rails when welding in tri-metal zone.....	23
5.10	Welders.....	23
5.11	Welder records.....	23
5.12	Supervision.....	23
5.13	Traceability.....	23
5.14	Audits.....	23
5.15	Training.....	23
5.16	Documentation.....	24
6	Personnel and qualification requirements.....	24
6.1	Training and qualification requirements.....	24
6.2	Diploma in electric arc welding of cast manganese track components.....	24
6.3	Permit to weld cast manganese components in track.....	24
7	Repair applications.....	25
	Annex A (informative) Welding Procedure Specification (WPS).....	26
	Annex B (informative) Permit to weld cast manganese track components by electric arc welding.....	28

## **EN 16725:2016 (E)**

### **European foreword**

This document (EN 16725:2016) 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 May 2017, and conflicting national standards shall be withdrawn at the latest by May 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.

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## **Introduction**

Restoration of cast manganese crossings by electric arc welding is a special process requiring the co-ordination of welding and grinding activities to establish confidence and reliability of the weld deposit and safety of the line. Incorrect selection of materials, consumables or procedure may result in serious track welding failure. The correct application of the approved processes and the types of repairs permitted to be carried out on various rail components need to be strictly adhered to. Only consumables approved by the method described in this standard are to be used. The tasks and responsibilities of personnel involved in restoration e.g. planning, executing, supervising and inspection need to be clearly defined.

**EN 16725:2016 (E)****1 Scope**

This European Standard specifies restoration of cast austenitic manganese steel for fixed crossings and cradles for crossings with movable parts, designed to be flash butt welded or bolted to adjoining rails manufactured according to EN 15689. The standard also applies to flash welded leg ends of austenitic manganese steel crossings and the associated tri-metal zone.

The standard specifies the approval systems for consumables and procedures used in manual metal arc and flux cored metal deposit repair welding. The standard includes the quality-related tasks and responsibilities and qualifications of personnel involved in the electric arc repair welding of cast crossings.

The permitted welding processes are limited to Electric Arc (EA) in accordance with EN ISO 4063, specifically Process No 111: MMA (Manual Metal Arc) and Process No 114: FCAW (Flux Cored Arc Welding). Their applications are described.

This standard may be applied for procedures *in situ*, at line side or at out of track locations.

The purpose of this standard is to unify restoration of cast manganese crossings by electric arc welding across Europe. The standard provides control systems for the approval and qualification of welding processes, WPS, welding consumables, contractors and welders for the successful delivery of welds on crossings in service.

**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 1371-1, *Founding - Liquid penetrant testing- Part 1: Sand, gravity die and low pressure die castings*

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

EN 15689, *Railway applications - Track - Switches and crossings - Crossing components made of cast austenitic manganese steel*

EN ISO 544, *Welding consumables - Technical delivery conditions for filler materials and fluxes - Type of product, dimensions, tolerances and markings (ISO 544)*

EN ISO 2560, *Welding consumables — Covered electrodes for manual metal arc welding of non-alloy and fine grain steels — Classification (ISO 2560)*

EN ISO 3452-1, *Non-destructive testing - Penetrant testing - Part 1: General principles (ISO 3452-1)*

EN ISO 4063, *Welding and allied processes - Nomenclature of processes and reference numbers (ISO 4063)*

EN ISO 5817, *Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections (ISO 5817)*

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

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding (ISO 15609-1)*

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