Nederlandse norm

NEN-EN 287-6

(en)

Het kwalificeren van lassers - Smeltlassen - Deel 6: Gietijzer

Qualification test of welders - Fusion welding - Part 6: Cast irons

Vervangt NEN-EN 287-6:2010;
NEN-EN 287-6:2016 Ontw.

ICS 25.160.01

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Normcommissie 342071 'Gietentechniek'

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Postbus 5059, 2600 GB Delft
Telefoon (015) 2 690 390, Fax (015) 2 690 190

EUROPEAN STANDARD

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Supersedes EN 287-6:2010

English Version

Qualification test of welders - Fusion welding - Part 6: Cast irons

Épreuve de qualification des soudeurs - Soudage par fusion - Partie 6 : Fontes

Prüfung von Schweißern - Schmelzschweißen - Teil 6: Gusseisen

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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Contents

Page

European foreword

This document (EN 287-6:2018) has been prepared by Technical Committee CEN/TC 190 “Foundry Technology”, 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of an identical text or by endorsement, at the latest by October 2018, and conflicting national standards shall be withdrawn at the latest by October 2018.

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 287-6:2010.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 13 “Welding of cast iron” to revise the following standard:

EN 287-6: 2010, *Qualification test of welders — Fusion welding — Part 6: Cast iron*

The following modifications were made:

— Normative references revised;

— Subclause 4.2: Process designations brought in accordance with EN ISO 4063 and welding processes "138" and "143" added;

— Subclause 5.5: Last paragraph revised;

— Subclause 6.5: Table 2 revised;

— Subclause 6.6: Revised and Tables 4 and 5 inserted;

— Subclause 7.4 Table 6: NOTE added;

— Subclause 7.5.2: Tolerances added in Figures 1, 2a), 3, 4a) and 5; "*F*" and Key added in Figures 2b), 2d) and 4b);

— Annex A: Title changed in “Material groups of cast irons (relating to CEN ISO/TR 15608:2017);

— Annex A: Table A.1 revised;

— Annex C, C.2.2.4: Welding processes "138" and "143" added;

— Bibliography revised.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The ability of a welder to follow written instructions and verification of a person's skills are important factors in ensuring the quality of a welded product.

The testing of a welder's skill in accordance with this standard depends on welding techniques and conditions used in which uniform rules are complied with, and standard test pieces are used.

The principle of this European Standard is that a qualification test qualifies the welder not only for the conditions used in the test, but also for all joints which are considered easier to weld on the presumption that the welder has received a specific training and/or has industrial practice within the range of qualification.

The qualification test can be used to qualify a welding procedure and a welder provided that all the relevant requirements, e.g. test piece dimensions, are satisfied.

1 Scope

This document specifies main requirements, limits, inspection conditions and acceptance requirements as well as related inspection documents of welders for welded cast iron test pieces and workpieces.

It provides a set of technical rules for a systematic qualification test of a welder‘s skills, and enables such qualifications to be uniformly accepted independently of the type of product, location and examiner or examining body.

This document specifies the testing of a welder’s skill unless a higher level skill test is required.

The acceptance of a welder’s skill in accordance with this document implies a practical experience and knowledge regarding the welding process, materials and safety requirements (see Annex C).

This document is to be used when requirements on part of a customer, testing or monitoring body or other organization are postulated.

This document defines the qualification test of welders for the fusion welding of cast irons. The welding processes referred to in this standard include those fusion welding processes which are designated as manual or partly mechanized welding. It does not cover fully mechanized and automated welding processes (see EN ISO 14732). Cast iron materials which are covered by this document are mentioned in 5.4.

The inspection document and certification are made out under the responsibility of the testing body.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN ISO/TR 15608:2017, *Welding — Guidelines for a metallic materials grouping system (ISO/TR 15608:2017)*

EN 1011-8, *Welding — Recommendations for welding of metallic materials — Part 8: Welding of cast irons*

EN ISO 1071, *Welding consumables — Covered electrodes, wires, rods and tubular cored electrodes for fusion welding of cast iron — Classification (ISO 1071)*

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 6520-1, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 1: Fusion welding (ISO 6520-1)*

EN ISO 6947, *Welding and allied processes — Welding positions (ISO 6947)*

EN ISO 9017, *Destructive tests on welds in metallic materials — Fracture test (ISO 9017)*

EN ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels (ISO 9606-1)*

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

EN ISO 15609-2, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 2: Gas welding (ISO 15609-2)*

EN ISO 17637, *Non-destructive testing of welds — Visual testing of fusion-welded joints (ISO 17637)*

EN ISO 17638, *Non-destructive testing of welds — Magnetic particle testing (ISO 17638)*

EN ISO 17639, *Destructive tests on welds in metallic materials — Macroscopic and microscopic examination of welds (ISO 17639)*

ISO/TR 25901-3, *Welding and allied processes — Vocabulary - Part 3: Welding processes*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 9606-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Symbols and abbreviations

4.1 General

Where the full wording is not used, the following abbreviations and reference numbers shall be used when completing the welder's qualification test certificate (see Annex B).

4.2 Reference numbers of welding processes

This European Standard covers the following manual or partly mechanized welding processes (reference numbers of the symbolic designation of welding processes are listed in EN ISO 4063):

111 Manual metal arc welding;

114 Self-shielded tubular cored arc welding;

131 MIG welding with solid wire electrode;

135 MAG welding with solid wire electrode;

136 MAG welding with flux cored electrode;

138 MAG welding with metal cored electrode;

141 TIG welding with solid filler material (wire/rod);

143 TIG welding with tubular cored filler material (wire/rod);

15 Plasma arc welding;

311 Oxyacetylene welding.

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