Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 13: Upset (resistance butt) and flash welding (ISO 15614-13:2012)

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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 15614-13:2012 sisaldab Euroopa standardi EN ISO 15614-13:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 15614-13:2012 consists of the English text of the European standard EN ISO 15614-13:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.07.2012.	Date of Availability of the European standard is 01.07.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 13: Upset (resistance butt) and flash welding (ISO 15614-13:2012)

Descriptif et qualification d'un mode opératoire de soudage pour les matériaux métalliques - Épreuve de qualification d'un mode opératoire de soudage - Partie 13: Soudage en bout par résistance pure et soudage par étincelage (ISO 15614-13:2012)

Anforderung und Qualifizierung von Schweißverfahren für metallische Werkstoffe - Schweißverfahrensprüfung - Teil 13: Pressstumpf- und Abbrennstumpfschweißen (ISO 15614-13:2012)

This European Standard was approved by CEN on 30 June 2012.

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Foreword

This document (EN ISO 15614-13:2012) has been prepared by Technical Committee ISO/TC 44 “Welding and allied processes” in collaboration with Technical Committee CEN/TC 121 “Welding” 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of an identical text or by endorsement, at the latest by January 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

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

This document supersedes EN ISO 15614-13:2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 15614-13:2012 has been approved by CEN as a EN ISO 15614-13:2012 without any modification.

Contents

Page

Introduction

It is intended that all new welding procedure qualifications be carried out in accordance with this part of ISO 15614 from the date of its issue.

However, this part of ISO 15614 does not invalidate previous welding procedure qualifications made to other standards or specifications, provided the intent of its technical requirements is satisfied and the previous welding procedure qualifications are relevant to the application and production work on which they are to be employed.

Also, where additional tests have to be carried out to make the qualification technically equivalent, it is necessary only to perform the additional tests on a test piece made in accordance with this part of ISO 15614.

The various parts of ISO 15614 comprise, in their turn, a series of International Standards on welding, details of which are given in ISO 15607:2003, Annex A.

Specification and qualification of welding procedures for metallic materials — Welding procedure test —

Part 13: Upset (resistance butt) and flash welding

1 Scope

This part of ISO 15614 specifies tests for the qualification of welding procedure specifications applicable to upset (resistance butt) welding and flash welding of metallic materials, e.g. with solid, tubular, flat or circular cross-section. Its basic principles can also be applied to other resistance welding processes when this is stated in the specification.

This part of ISO 15614 defines the conditions for carrying out tests and the limits of validity of a qualified welding procedure for all the practical welding operations that it covers. The tests required to qualify the procedure for a particular component or assembly depend on the performance and quality requirements of the component or assembly, as defined in the design specification. The tests are intended to be carried out in accordance with the requirements of this part of ISO 15614, unless more severe tests are specified by the relevant application standard or specification and when these apply.

NOTE Specific service, material, or manufacturing conditions can require more comprehensive testing than specified by this part of ISO 15614. Such tests can include microsections, fatigue or endurance tests, impact tests, radiographic testing, ultrasonic testing, corrosion testing and tests of components or complete welded assemblies.

This part of ISO 15614 covers the following resistance welding processes, as defined in ISO 4063:

— 24 flash welding, using direct current or alternating current with various movement sequences, constant flashing and pulsed flashing;

— 25 resistance upset welding, using direct current or alternating current with various pressure sequences.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 4063:2009, *Welding and allied processes — Nomenclature of processes and reference numbers*

ISO 4136, *Destructive tests on welds in metallic materials — Transverse tensile test*

ISO 5173, *Destructive tests on welds in metallic materials — Bend tests*

ISO 6520-2, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 2: Welding with pressure*

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

ISO 9015-1, *Destructive tests on welds in metallic materials — Hardness testing — Part 1: Hardness test on arc welded joints*

ISO 9015-2, *Destructive tests on welds in metallic materials — Hardness testing — Part 2: Microhardness testing of welded joints*

ISO 11666, *Non-destructive testing of welds — Ultrasonic testing of welded joints — Acceptance levels*

ISO 14271, Resistance welding — *Vickers hardness testing (low force and microhardness) of resistance spot, projection, and seam welds*

ISO 14732, *Welding personnel — Approval testing of welding operators for fusion welding and of resistance weld setters for fully mechanized and automatic welding of metallic materials*

ISO 15607:2003, *Specification and qualification of welding procedures for metallic materials — General rules*

ISO/TR 15608:2005, *Welding — Guidelines for a metallic materials grouping system*

ISO 15609-5, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 5: Resistance welding*

ISO 15620:2000, *Welding — Friction welding of metallic materials*

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

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

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

ISO 17640, *Non-destructive testing of welds — Ultrasonic testing — Techniques, testing levels, and assessment*

ISO 17643, *Non-destructive testing of welds — Eddy current testing of welds by complex-plane analysis*

ISO 20482, *Metallic materials — Sheet and strip — Erichsen cupping test*

ISO 23277, *Non-destructive testing of welds — Penetrant testing of welds — Acceptance levels*

ISO 23278, *Non-destructive testing of welds — Magnetic particle testing of welds — Acceptance levels*

ISO 23279, *Non-destructive testing of welds — Ultrasonic testing — Characterization of indications in welds*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15607 and ISO 6520-2 apply.

4 Preliminary welding procedure specification

The preliminary welding procedure specification (pWPS) shall be prepared in accordance with ISO 15609-5. It shall specify all relevant parameters and requirements.