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Specification and qualification of welding procedures for metallic materials — Qualification based on previous welding experience

Descriptif et qualification d'un mode opératoire de soudage pour les matériaux métalliques — Qualification sur la base de l'expérience en soudage

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 15611 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

Contents

Foreword

This document (EN ISO 15611:2003) has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

This European Standard EN ISO 15611:2003 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2004, and conflicting national standards shall be withdrawn at the latest by April 2004.

This document supersedes EN 288-6:1994.

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

In EN ISO 15607, one of the methods of welding procedure qualification is by relating to previous welding experience.

Many manufacturers have considerable experience in fabricating welded structures. Welded components and structures may have been supplied to end users/clients for a variety of applications and have performed satisfactorily over a period of time in service. If this experience is traceable and documented this standard provides a route to welding procedure qualification based on this experience.

This European Standard is a part of a series of standards, details of this series are given in EN ISO 15607:2003, annex A.

1 Scope

This European Standard gives the necessary information to explain the requirements referenced in EN ISO 15607 about the qualification of welding procedures based on previous welding experience.

In addition it gives the range of qualification and the validity.

The use of this European Standard may be restricted by an application standard or a specification.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 15607:2003, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607:2003).*

prEN ISO 15609-1, *Specification and approval of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding (ISO/DIS 15609-1:2000).*

EN ISO 15609-2, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 2: Gas welding (ISO 15609-2:2001).*

prEN ISO 15609-3, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 3: Electron beam welding (ISO/DIS 15609-3:2000).*

prEN ISO 15609-4, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 4: Laser beam welding (ISO/DIS 15609-4:2000).*

prEN ISO 15609-5, *Specification and approval of welding procedures for metallic materials - Welding procedure specification - Part 5: Resistance welding (ISO/DIS 15609-5:2000).*

EN ISO 15614-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2003).*

prEN ISO 15614-2, *Specification and approval of welding procedures for metallic materials - Welding procedure tests - Part 2: Arc welding of aluminium and its alloys (ISO/DIS 15614-2:2000).*

prEN ISO 15614-3, *Specification and qualification of welding procedures for metallic materials - Welding procedure tests - Part 3: Welding procedure tests for the arc welding of casts iron (was submitted to CEN Enquiry as prEN 288-12).*

prEN ISO 15614-4, *Specification and qualification of welding procedures for metallic materials - Welding procedure tests - Part 4: Finishing welding of aluminium castings (was submitted to CEN Enquiry as prEN 288-13).*

prEN ISO 15614-5, *Specification and approval of welding procedures for metallic materials - Welding procedure tests - Part 5: Arc welding of titanium, zirconium and their alloys (ISO/DIS 15614-5:2000).*

prEN ISO 15614-6, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 6: Arc welding of copper and copper alloys.*

EN ISO 15614-8, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 8: Welding of tubes to tube-plate joints (ISO 15614-8:2002).*

prEN ISO 15614-9, *Specification and qualification of welding procedures for metallic materials - Welding procedure tests - Part 9: Underwater hyperbaric wet welding (ISO/DIS 15614-9:2000).*

prEN ISO 15614-10, *Specification and approval of welding procedures for metallic materials - Welding procedure test - Part 10: Hyperbaric dry welding (ISO/DIS 15614-10:2000).*

EN ISO 15614-11, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 11: Electron and laser beam welding (ISO 15614-11:2002).*

prEN ISO 15614-12, *Specification and approval of welding procedures for metallic materials - Welding procedure tests - Part 12: Spot, seam and projection welding (ISO/DIS 15614-12:2000).*

prEN ISO 15614-13, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 13: Resistance butt and flash welding (ISO/DIS 15614-13:2002).*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN ISO 15607:2003 apply.

4 Preliminary welding procedure specifications (pWPS)

The qualification of a welding procedure related to previous welding experience shall be based on a pWPS according to the relevant part of prEN ISO 15609. This pWPS shall specify the range for all the relevant parameters.

5 Qualification of the welding procedure

The essential items for the qualification are:

— pWPS according to the relevant part of prEN ISO 15609;

— documentation of the existing previous welding experience (see clause 6).

6 Existing previous welding experience

Previous welding experience shall be demonstrated by documented examination and/or test data and either a summary of welding manufacturing or satisfactory service performance. This shall involve:

a) satisfactory documentation covering the essential properties of the product of weld tests (e.g. non-destructive, destructive, leak or pressure tests) in all cases.

AND

EITHER

b) a summary of welding manufacturing of at least one year during an appropriate period

OR

c) suitability of welds in service for an appropriate period.

A period of five years is considered as an appropriate period unless otherwise specified.

7 Range of qualification

The range of qualification given to a welding procedure qualified in accordance with this standard shall be as given in the appropriate part of prEN ISO 15614.

8 Validity

The qualified welding procedure related to previous welding experience is valid as far as the welding production is carried out in the specified range, see clause 7.

9 Welding Procedure Qualification Record (WPQR)

The WPQR shall consist of documentation of existing previous welding experience (see clause 6).

The relevant items listed for the WPS in the relevant part of prEN ISO 15609 shall be included. The WPQR shall be signed and dated by the examiner or examining body.