

## **Specification and qualification of welding procedures for metallic materials - General rules**

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for metallic materials - General rules

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 15607:2004 sisaldab Euroopa standardi EN ISO 15607:2003 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.05.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 15607:2004 consists of the English text of the European standard EN ISO 15607:2003.</p> <p>This document is endorsed on 18.05.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This European Standard is part of a series of standards. Annex A gives details of this series of standard, annex B gives a flowchart for the use of these standards and Annex C gives a flow diagram for the development and qualification of a WPS.</p>	<p><b>Scope:</b></p> <p>This European Standard is part of a series of standards. Annex A gives details of this series of standard, annex B gives a flowchart for the use of these standards and Annex C gives a flow diagram for the development and qualification of a WPS.</p>
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English version

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

Descriptif et qualification d'un mode opératoire de soudage  
pour les matériaux métalliques - Règles générales (ISO  
15607:2003)

Anforderung und Qualifizierung von Schweißverfahren für  
metallische Werkstoffe - Allgemeine Regeln (ISO  
15607:2003)

This European Standard was approved by CEN on 7 May 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
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Management Centre: rue de Stassart, 36 B-1050 Brussels

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## Foreword

This document (EN ISO 15607:2003) 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 15607:2003 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

This document supersedes EN 288-1:1992.

Annexes A, B and C are informative.

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

Welding procedure specifications are needed in order to provide a well defined basis for planning of the welding operations and for quality control during welding. Welding is considered a special process in the terminology of standards for quality systems. Standards for quality systems usually require that special processes be carried out in accordance with written procedure specifications.

Preparation of a welding procedure specification provides the necessary basis for, but does not in itself ensure that the welds fulfil the requirements. Some deviations, notably imperfections and distortions, can be evaluated by non-destructive methods on the finished product.

Metallurgical deviations constitute a special problem, however, because non-destructive evaluation of the mechanical properties is impossible at the present level of non-destructive technology, this has resulted in the establishment of a set of rules for qualification of the welding procedure prior to the release of the specification to actual production. This European Standard defines these rules.

## 1 Scope

This European Standard is part of a series of standards. Annex A gives details of this series of standard, annex B gives a flowchart for the use of these standards and Annex C gives a flow diagram for the development and qualification of a WPS.

This standard defines general rules for the specification and qualification of welding procedures for metallic materials. This standard also refers to several other standards as regards detailed rules for specific applications.

This standard is applicable to manual, mechanized and automatic welding.

Welding procedures are qualified by conforming to one or more welding procedure qualification records (WPQR). The use of a particular method of qualification is often a requirement of an application standard.

Qualification of pWPS by more than one method is not recommended. It is assumed that welding procedure specifications are used in production by competent welders, qualified in accordance with the relevant part of EN 287 or EN ISO 9606 or by competent operators qualified in accordance with EN 1418.

## 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 4063, *Welding and allied processes – Nomenclature of processes and reference numbers*. (ISO 4063:1998)

EN ISO 14555, *Welding — Arc stud welding of metallic materials*. (ISO 14555:1998).

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 15610, *Specification and qualification of welding procedures for metallic materials - Qualification based on tested welding consumables* (ISO 15610:2003).

EN ISO 15611, *Specification and qualification of welding procedures for metallic materials - Qualification based on previous welding experience* (ISO 15611:2003).

prEN ISO 15612, *Specification and qualification of welding procedures for metallic materials - Approval by a standard welding procedure* (ISO/DIS 15612:2000).

EN ISO 15613, *Specification and qualification of welding procedures for metallic materials - Qualification based on pre-production test* (ISO 15613:2000).

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 cast 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: 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).*

EN ISO 15620, *Welding - Friction welding of metallic materials (ISO 15620:2000).*

ISO 857-1, *Welding and allied processes — Vocabulary — Part 1: Metal welding processes.*

### 3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

#### 3.1

##### **welding procedure**

specified course of action to be followed in making a weld, including the welding process(es), reference to materials, welding consumables, preparation, preheating (if necessary), method and control of welding and post-weld heat treatment (if relevant), and necessary equipment to be used

#### 3.2

##### **welding process**

for the welding processes, the nomenclature and definitions given in ISO 857-1 are followed in this standard. The numbering system for welding processes in EN ISO 4063 is also followed