

---

---

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

*Descriptif et qualification d'un mode opératoire de soudage pour les  
matériaux métalliques — Règles générales*



**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO 2003

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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.

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

ISO 15607 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

|                                                                                                                                                | page |
|------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Foreword .....                                                                                                                                 | v    |
| Introduction .....                                                                                                                             | vi   |
| 1 Scope .....                                                                                                                                  | 1    |
| 2 Normative references .....                                                                                                                   | 1    |
| 3 Terms and definitions .....                                                                                                                  | 2    |
| 4 Abbreviations .....                                                                                                                          | 5    |
| 5 Welding procedure specification format .....                                                                                                 | 5    |
| 6 Development and qualification of welding procedures .....                                                                                    | 5    |
| 6.1 General .....                                                                                                                              | 5    |
| 6.2 Qualification based on welding procedure test .....                                                                                        | 7    |
| 6.3 Qualification based on tested welding consumables .....                                                                                    | 8    |
| 6.4 Qualification based on previous welding experience .....                                                                                   | 8    |
| 6.5 Qualification based on a standard welding procedure .....                                                                                  | 8    |
| 6.6 Qualification based on a pre-production welding test .....                                                                                 | 9    |
| 7 Validity .....                                                                                                                               | 10   |
| Annex A (informative) New numbering system - Details of the standards dealing with specification and qualification of welding procedures ..... | 11   |
| Annex B (informative) Different phases in welding procedure qualification .....                                                                | 12   |
| Annex C (informative) Flow diagram for the development and qualification of a WPS .....                                                        | 13   |
| Bibliography .....                                                                                                                             | 14   |

## 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 April 2004, and conflicting national standards shall be withdrawn at the latest by April 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.

This document is a preview generated by EVS

## 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 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: 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