INTERNATIONAL STANDARD

ISO 15609-2

First edition
2001-09-01

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

Part 2: Gas welding

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

Partie 2: Soudage aux gaz

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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 3.

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 part of ISO 15609 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15609-2 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...".

ISO 15609 consists of the following parts, under the general title *Specification and qualification of welding procedures for metallic materials — Welding procedure specification*:

— *Part 1: Arc welding*

— *Part 2: Gas welding*

— *Part 3: Electron beam welding*

— *Part 4: Laser beam welding*

— *Part 5: Resistance welding*

— *Part 6: Laser beam cladding*

Annex A of this part of ISO 15609 is for information only.

For the purposes of this part of ISO 15609, the CEN annex regarding fulfilment of European Council Directives has been removed.

Contents

Foreword

The text of EN ISO 15609-2:2001 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 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2002, and conflicting national standards shall be withdrawn at the latest by March 2002.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

Annex A is 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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies requirements for the content of welding procedure specifications for gas welding processes.

This standard is part of a series of standards, details of this series are given in prEN ISO 15607, annex A.

Variables listed in this standard are those influencing the quality of the welded joint.

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 6947, *Welds - Working positions - Definitions of angles of slope and rotation (ISO 6947:1993).*

prEN ISO 15607, *Specification and approval of welding procedures for metallic materials – General rules (ISO/DIS 15607:2000).*

CR ISO 15608, *Welding – Guidelines for a metallic material grouping system (ISO/TR 15608:2000).*

3 Terms and definitions

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

4 Technical contents of Welding Procedure Specification (WPS)

4.1 General

The Welding Procedure Specification (WPS) shall give details of how a welding operation is to be successfully performed.

Welding Procedure Specifications may cover a certain range of thickness of the joined parts and may also cover a range of parent materials or welding consumables. Some manufacturers may prefer additionally to prepare work instructions for each specific job as part of detailed production planning.

Information listed in 4.2 to 4.4 is adequate for most gas welding procedures. For some applications it may be necessary to supplement or reduce the list.

Ranges and tolerances, according to the relevant standard of the series (see prEN ISO 15607) and to the manufacturer's experience, shall be specified where appropriate.

An example of the WPS-format is shown in annex A.

4.2 Information related to the manufacturer

— Identification of the manufacturer;

— Identification of the WPS;

— Reference to the Welding Procedure Qualification Record (WPQR) or other documents as required.

4.3 Information related to the parent material

4.3.1 Parent material type

— Designation of the material, and reference standard;

— Number of the group as given in CR ISO 15608.

A WPS may cover more than one group of materials.

4.3.2 Material dimensions

— Thickness ranges of the joint ;

— Outside diameter ranges for pipes.

4.4 Information common to all welding procedures

4.4.1 Welding process

The welding process in accordance with EN ISO 4063.

4.4.2 Joint design

— Sketch of the joint design showing configuration and dimensions. Details may be given by reference to an appropriate standard on joint design.

— Weld run sequence, if essential for the properties of the weld.

4.4.3 Welding position

Applicable welding positions in accordance with EN ISO 6947.

4.4.4 Initial and interpass preparation and cleaning

Information related to groove cleaning, degreasing, jigging and tack welding, grinding and gouging including methods to be used.

4.4.5 Welding technique

Leftward welding or rightward welding.

4.4.6 Welding data

— Nozzle size ;

— Fuel gas type and pressure ;

— O_2 pressure ;

— Type of flame.

4.4.7 Welding consumables, designation

Designation, manufacturer and trade name.

4.4.8 Welding consumables, dimensions

Diameter of rod.

4.4.9 Post-weld heat-treatment

For any post-weld heat-treatment, procedure to be followed (or reference to a separate post-weld heat-treatment specification).

Annex A
(informative)

Manufacturer's Welding Procedure Specification (WPS)

Manufacturer's welding procedure

Reference No. :

WPQR No. :

Manufacturer :

Welding process :

Joint type :

Weld preparation details (Sketch)*

Method of preparation and cleaning :

Parent material designation :

Parent material group :

Material thickness (mm) :

Outside diameter (mm) :

Welding position :

Joint design	Welding sequences

Welding details

Run	Process	Welding technique	Welding data					Welding consumables	
			Nozzle size	Fuel gas type	Fuel gas pressure	O_2 pressure	Type of flame	Designation	Dimension

Post-weld heat treatment :

Time, temperature, method :

Heating and cooling rates* :

Remarks :

.....
Manufacturer
(name, signature, date)

* If required

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