



**SLOVENSKI STANDARD**  
**oSIST prEN ISO 15613:2022**  
**01-september-2022**

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**Popis in kvalifikacija varilnih postopkov za kovinske materiale - Kvalifikacija na podlagi predproizvodnega preskusa varjenja (ISO/DIS 15613:2022)**

Specification and qualification of welding procedures for metallic materials - Qualification based on pre-production welding test (ISO/DIS 15613:2022)

Anforderung und Qualifizierung von Schweißverfahren für metallische Werkstoffe - Qualifizierung aufgrund einer vorgezogenen Arbeitsprüfung (ISO/DIS 15613:2022)

Descriptif et qualification d'un mode opératoire de soudage pour les matériaux métalliques - Qualification sur la base d'un assemblage soudé de préproduction (ISO/DIS 15613:2022)

**Ta slovenski standard je istoveten z: prEN ISO 15613**

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**ICS:**

25.160.10      Varilni postopki in varjenje      Welding processes

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# DRAFT INTERNATIONAL STANDARD

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## Specification and qualification of welding procedures for metallic materials — Qualification based on a pre- production welding test

*Descriptif et qualification d'un mode opératoire de soudage pour les matériaux métalliques —  
Qualification sur la base d'un assemblage soudé de préproduction*

ICS: 25.160.10

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## ISO/DIS 15613:2022(E)

### 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Quality management in the field of welding*.

Any feedback, question or request for official interpretation related to any aspect of this document should be directed to the Secretariat of ISO/TC 44/SC 10 via your national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

This second edition cancels and replaces the first edition (ISO 15613:2004), which has been technically revised.

The main changes compared to the previous edition are as follows:

- normative references have been updated;
- further changes to be identified after DIS ballot.

## Introduction

One of the methods for welding procedure qualification is based on a pre-production welding test as given in ISO 15607.

Qualification based on a pre-production welding test can be used where the shape and dimensions of the standard test pieces do not adequately represent the joint to be welded.

In such cases, one or more special test pieces can be made to simulate the production joint in all essential features, e.g. dimensions, restraint, heat sink effects, limited access. In the case of resistance welding, actual components have to be used for the pre-production test.

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# Specification and qualification of welding procedures for metallic materials — Qualification based on a pre-production welding test

## 1 Scope

This document specifies how a preliminary welding procedure specification is qualified based on pre-production welding tests.

This document is applicable to arc welding, gas welding, beam welding, resistance welding, stud welding and friction welding of metallic materials. The principles of this document may be applied to other welding processes.

This document is a part of a series of standards dealing with specification and qualification of welding procedures. Details are given in ISO 15607.

The use of this document can be restricted by an application standard or specification.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 10447, *Resistance welding — Testing of welds — Peel and chisel testing of resistance spot and projection welds*

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

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

ISO 15609 (all parts), *Specification and qualification of welding procedures for metallic materials — Welding procedure specification*

ISO 15614 (all parts), *Specification and qualification of welding procedures for metallic materials — Welding procedure test*

ISO/TR 25901 (all parts), *Welding and allied processes — Vocabulary*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in the ISO/TR 25901 (all parts) and ISO 15607 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Preliminary welding procedure specification (pWPS)

A preliminary welding procedure specification shall be prepared in accordance with the relevant part of ISO 15609.

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### 5 Qualification of the welding procedure

Qualification of the welding procedure shall be carried out by an examiner or examining body in accordance with the relevant part of ISO 15614 as modified by this document.

### 6 Welding of test pieces

Preparation and welding of the test pieces shall be carried out under the general conditions of production welding which they shall represent with shapes and dimensions of the test piece simulating the actual welding conditions of the structure. This includes welding positions and other essential items, e.g. stress conditions, heating effects, limited access, edge condition.

When actual components are used, jigs and fixtures shall be those which will be used in production. If tack welds are to be fused into the final joint, they shall be included in the test piece.

### 7 Testing

#### 7.1 Fusion welding

Test pieces shall be tested as far as possible in accordance with the relevant part of ISO 15614.

In general, as a minimum, the following tests shall be performed:

- a) visual testing (VT) (100 %);
- b) testing for surface imperfections:
  - for magnetic materials by magnetic particle testing (MT);
  - for non-magnetic materials by penetrant testing (PT) only.
- c) hardness tests (not required for parent metals of ferritic steels with  $R_m < 420 \text{ N/mm}^2$  or  $R_e < 275 \text{ N/mm}^2$  or for steels in accordance with group 8 or aluminium alloys in accordance with groups 21, 22 and 23 of ISO/TR 15608;
- d) macroscopic examination (number depends on the geometry of the structure).

#### 7.2 Resistance welding

##### 7.2.1 General

If available, the results of other WPS can be taken into consideration if all conditions are sufficiently comparable, e.g. equipment, electrodes, material (type, surface, thickness) and weld data.

##### 7.2.2 Overlap welding

For pre-production weld testing of overlap welds related to ISO 15614-12, all types of tests in accordance with Table 1 of that standard shall be carried out as far as necessary.

In general, the following tests shall be performed at least:

- a) visual testing (VT);
- b) workshop test to determine weld size and fracture type;
- c) macroscopic examination to determine at least nugget diameter and indentation respectively minimum width of a resistance seam weld (number depends on the geometry of the structure);
- d) chisel tests in accordance with ISO 10447 of pre-production test piece.