

**METALLIDE KEEVITUSPROTSEDUURIDE  
SPETSIFITSEERIMINE JA KVALIFITSEERIMINE.  
KEEVITUSE PROTSEDUURI KATSE. OSA 12: PUNKT-,  
JON- JA PROJEKTSIOONKEEVITUS**

**Specification and qualification of welding procedures  
for metallic materials - Welding procedure test - Part  
12: Spot, seam and projection welding (ISO 15614-  
12:2014)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 15614-12:2014 sisaldab Euroopa standardi EN ISO 15614-12:2014 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 15614-12:2014 consists of the English text of the European standard EN ISO 15614-12:2014.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 02.07.2014.	Date of Availability of the European standard is 02.07.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

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English Version

Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 12: Spot, seam and projection welding (ISO 15614-12:2014)

Descriptif et qualification d'un mode opératoire de soudage pour les matériaux métalliques - Épreuve de qualification d'un mode opératoire de soudage - Partie 12: Soudage par points, à la molette et par bossages (ISO 15614-12:2014)

Anforderung und Qualifizierung von Schweißverfahren für metallische Werkstoffe - Schweißverfahrensprüfung - Teil 12: Widerstandspunkt-, Rollennaht- und Buckelschweißen (ISO 15614-12:2014)

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

## Foreword

This document (EN ISO 15614-12:2014) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding and allied processes" the secretariat of which is held by DIN.

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 January 2015, and conflicting national standards shall be withdrawn at the latest by January 2015.

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

This document supersedes EN ISO 15614-12:2004.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 15614-12:2014 has been approved by CEN as EN ISO 15614-12:2014 without any modification.

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## Introduction

It is intended that all new welding procedure qualifications be carried out in accordance with this part of ISO 15614 from the date of its issue.

However, this part of ISO 15614 does not invalidate previous welding procedure qualifications made to other standards or specifications, provided the intent of its technical requirements is satisfied and the previous welding procedure qualifications are relevant to the application and production work on which they are to be employed.

Also, where additional tests have to be carried out to make the qualification technically equivalent, it is necessary only to perform the additional tests on a test piece made in accordance with this part of ISO 15614.

The various parts of ISO 15614 comprise, in their turn, a series of International Standards on welding, details of which are given in ISO 15607, Annex A.

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

## Part 12:

## Spot, seam and projection welding

### 1 Scope

This part of ISO 15614 specifies the tests which can be used for qualification of welding procedure specifications for spot, seam, and projection welding processes.

This International Standard is part of the ISO 15614 series. Details of this series are given in ISO 15607, Annex A.

This part of ISO 15614 defines the conditions for carrying out tests and the limits of validity of a qualified welding procedure for all practical welding operations covered by this part of ISO 15614.

The tests required to qualify the procedure for a particular component/assembly depend on the performance and quality requirements of the component/assembly and shall be established before any qualification is undertaken.

Tests shall be carried out in accordance with this part of ISO 15614 unless more severe tests are specified by the relevant application standard or contract when these shall apply.

The acceptability of applying the principles of this part of ISO 15614 to other resistance welding processes should be established before any qualification is undertaken.

**NOTE** Specific service, material, or manufacturing conditions might require more comprehensive testing than is specified by this part of ISO 15614.

Such tests can include:

- method for fatigue testing for spot welded joints;
- specimen dimensions and procedure for impact, shear and cross-tension testing resistance spot and projection welds;
- bend test;
- surface crack detection;
- ultrasonic tests and X-ray test;
- chemical analysis and corrosion tests;
- micro examination, including assessment of hot cracking behaviour;
- tests of components or complete welded assemblies.

This part of ISO 15614 covers the following resistance welding processes, as defined in ISO 4063:

- 21 – resistance spot welding;
  - 211 – indirect spot welding;

- 212 – direct spot welding;
- 22 – resistance seam welding;
  - 221 – lap seam welding;
  - 222 – mash seam welding;
  - 225 – foil butt-seam welding;
  - 226 – seam welding with strip;
- 23 – projection welding;
  - 231 – indirect projection welding;
  - 232 – direct projection welding.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 669, *Resistance welding — Resistance welding equipment — Mechanical and electrical requirements*

ISO 10447, *Resistance welding — Peel and chisel testing of resistance spot and projection welds*

ISO 14270, *Specimen dimensions and procedure for mechanized peel testing resistance spot, seam and embossed projection welds*

ISO 14271, *Resistance welding — Vickers hardness testing (low-force and microhardness) of resistance spot, projection, and seam welds*

ISO 14272, *Specimen dimensions and procedure for cross tension testing resistance spot and embossed projection welds*

ISO 14273, *Specimen dimensions and procedure for shear testing resistance spot, seam and embossed projection welds*

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

ISO 15609-5, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 5: Resistance welding*

ISO 17653, *Resistance welding — Destructive tests on welds in metallic materials — Torsion test of resistance spot welds*

ISO 17677-1, *Resistance welding — Vocabulary — Part 1: Spot, projection and seam welding*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 669, ISO 15607, and ISO 17677-1 apply.

## 4 Preliminary welding procedure specification (PWPS)

The preliminary welding procedure specification shall be prepared in accordance with ISO 15609-5.