



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 15614-14:2013

Specification and qualification of welding procedures for metallic materials -  
Welding procedure test - Part 14: Laser-arc hybrid welding of steels, nickel and nickel alloys (ISO 15614-14:2013)

## I.S. EN ISO 15614-14:2013

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Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 14: Laser-arc hybrid welding of steels, nickel and nickel alloys (ISO 15614-14:2013)

Descriptif et qualification d'un mode opératoire de soudage pour les matériaux métalliques - Épreuve de qualification d'un mode opératoire de soudage - Partie 14: Soudage hybride laser-arc des aciers, du nickel et des alliages de nickel (ISO 15614-14:2013)

Anforderung und Qualifizierung von Schweißverfahren für metallische Werkstoffe - Schweißverfahrensprüfung - Teil 14: Laserstrahl-Lichtbogen-Hybridschweißen von Stählen, Nickel und dessen Legierungen (ISO 15614-14:2013)

This European Standard was approved by CEN on 14 March 2013.

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## **Foreword**

This document (EN ISO 15614-14:2013) 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of an identical text or by endorsement, at the latest by December 2013, and conflicting national standards shall be withdrawn at the latest by December 2013.

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.

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### **Endorsement notice**

The text of ISO 15614-14:2013 has been approved by CEN as EN ISO 15614-14:2013 without any modification.

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STANDARD**

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

**Part 14:  
Laser-arc hybrid welding of steels,  
nickel and nickel alloys**

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

*Partie 14: Soudage hybride laser-arc des aciers, du nickel et des  
alliages de nickel*



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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 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 15614-14 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*.

ISO 15614 consists of the following parts, under the general title *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*
- *Part 2: Arc welding of aluminium and its alloys*
- *Part 3: Fusion welding of non-alloyed and low-alloyed cast irons*
- *Part 4: Finishing welding of aluminium castings*
- *Part 5: Arc welding of titanium, zirconium and their alloys*
- *Part 6: Arc and gas welding of copper and its alloys*
- *Part 7: Overlay welding*
- *Part 8: Welding of tubes to tube-plate joints*
- *Part 10: Hyperbaric dry welding:*
- *Part 11: Electron and laser beam welding*
- *Part 12: Spot, seam and projection welding*
- *Part 13: Upset (resistance butt) and flash welding*
- *Part 14: Laser-arc hybrid welding of steels, nickel and nickel alloys*

Requests for official interpretations of any aspect of this part of ISO 15614 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](http://www.iso.org).

## **Introduction**

It is intended that all new welding procedure tests 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 tests made to former national standards or specifications.

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



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

## Part 14: Laser-arc hybrid welding of steels, nickel and nickel alloys

### 1 Scope

This part of ISO 15614 specifies how a preliminary welding procedure specification is qualified by welding procedure tests.

This part of ISO 15614 defines the conditions for the execution of welding procedure tests and the range of qualification for welding procedures for all practical welding operations within the range of variables listed in [Clause 8](#).

NOTE 1 It is possible that additional tests are required by applications standards.

NOTE 2 The various parts of ISO 15614 comprise, in their turn, a series of International Standards on welding, details of which are given in ISO 15607:2003, Annex A.

### 2 Normative references

The following referenced 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 3452-1, *Non-destructive testing — Penetrant testing — Part 1: General principles*

ISO 4136, *Destructive tests on welds in metallic materials — Transverse tensile test*

ISO 5173, *Destructive tests on welds in metallic materials — Bend tests*

ISO 6947, *Welding and allied processes — Welding positions*

ISO 9016, *Destructive tests on welds in metallic materials — Impact tests — Test specimen location, notch orientation and examination*

ISO 12932, *Welding — Laser-arc hybrid welding of steels, nickel and nickel alloys — Quality levels for imperfections*

ISO 14732, *Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials*

ISO 15607:2003, *Specification and qualification of welding procedures for metallic materials — General rules*

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

ISO 15609-6, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 6: Laser-arc hybrid welding*

ISO 15613, *Specification and qualification of welding procedures for metallic materials — Qualification based on pre-production welding test*

ISO 17636 (all parts), *Non-destructive testing of welds — Radiographic testing*

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