



SLOVENSKI STANDARD SIST EN ISO 10042:2018

01-oktober-2018

Nadomešča:

SIST EN ISO 10042:2006

SIST EN ISO 10042:2006/AC:2006

Varjenje - Obločni zvarni spoji na aluminiju in njegovih zlitinah - Stopnje sprejemljivosti nepopolnosti (ISO 10042:2018)

Welding - Arc-welded joints in aluminium and its alloys - Quality levels for imperfections (ISO 10042:2018)

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Schweißen - Lichtbogenschweißverbindungen an Aluminium und seinen Legierungen - Bewertungsgruppen von Unregelmäßigkeiten (ISO 10042:2018)

SIST EN ISO 10042:2018

Soudage - Assemblages en aluminium et alliages d'aluminium soudés à l'arc - Niveaux de qualité par rapport aux défauts (ISO 10042:2018)

Ta slovenski standard je istoveten z: EN ISO 10042:2018

ICS:

25.160.40	Varjeni spoji in vari	Welded joints and welds
77.120.10	Aluminij in aluminijeve zlitine	Aluminium and aluminium alloys

SIST EN ISO 10042:2018

en,fr,de

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EUROPEAN STANDARD

EN ISO 10042

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2018

ICS 25.160.40

Supersedes EN ISO 10042:2005

English Version

Welding - Arc-welded joints in aluminium and its alloys - Quality levels for imperfections (ISO 10042:2018)

Soudage - Assemblages en aluminium et alliages
d'aluminium soudés à l'arc - Niveaux de qualité par
rapport aux défauts (ISO 10042:2018)

Schweißen - Lichtbogenschweißverbindungen an
Aluminium und seinen Legierungen -
Bewertungsgruppen von Unregelmäßigkeiten (ISO
10042:2018)

This European Standard was approved by CEN on 10 June 2018.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN ISO 10042:2018) 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 2019, and conflicting national standards shall be withdrawn at the latest by January 2019.

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

This document supersedes EN ISO 10042:2005.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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The text of ISO 10042:2018 has been approved by CEN as EN ISO 10042:2018 without any modification.

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INTERNATIONAL
STANDARD

ISO
10042

Third edition
2018-06

**Welding — Arc-welded joints in
aluminium and its alloys — Quality
levels for imperfections**

*Soudage — Assemblages en aluminium et alliages d'aluminium
soudés à l'arc — Niveaux de qualité par rapport aux défauts*

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ISO 10042:2018(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).

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).

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.

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

This third edition cancels and replaces the second edition (ISO 10042:2005), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- reference numbers from ISO 4063 have been deleted in the Scope;
- in [Table 1](#), 1.3, reference number ISO 6520-1 has been changed from “2012 - uniformly distributed porosity” to “2018 - surface porosity”;
- in [Table 1](#), 1.8, a new figure has been inserted and changes to quality levels B and C have been made;
- in [Table 1](#), 1.9, changes to quality level C have been made;
- in [Table 1](#), 1.14, a drawing has been added;
- in [Table 1](#), 1.15, changes to quality level D have been made;
- in [Table 1](#), 1.18, a drawing has been deleted and a new one inserted, and reference to 6520-1-5013 “shrinkage groove” has been deleted;
- in [Table 1](#), 1.19 to 1.21, imperfections have been added with values from ISO 5817: poor restart, stray arc, spatter;
- in [Table 1](#), 2.2, changes to quality levels B and C have been made;
- in [Table 1](#), 2.10, changes to quality levels C and D have been made;
- in [Table 1](#), 2.11, a drawing has been deleted and new ones introduced, requirements for “Butt joint (full penetration)” have been updated;
- in [Table 1](#), 2.12, a new drawing has been introduced with new requirements, and changes to quality levels C and D have been made;

— editorial changes have been made.

Requests for official interpretation of 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.

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ISO 10042:2018(E)

Introduction

This document is intended to be used as a reference in drafting application codes and/or other application standards. It contains a simplified selection of arc welding imperfections based on the designations given in ISO 6520-1.

Some imperfections described in ISO 6520-1 have been used directly while others have been grouped together. The basic numerical referencing system from ISO 6520-1 has been used.

The purpose of this document is to define the dimensions of typical imperfections which can be expected in normal fabrication. It can be used within a quality system for the production of welded joints. It provides three sets of dimensional values from which a selection can be made for a particular application. The quality level necessary in each case needs to be defined by the application standard or the responsible designer, in conjunction with the manufacturer, user and/or other parties concerned. The quality level are prescribed before the start of production, preferably at the enquiry or order stage. For special purposes, additional details can be necessary.

The quality levels given in this document provide basic reference data and are not specifically related to any particular application. They refer to the types of welded joint in fabrication and not to the complete product or component itself. It is possible, therefore, that different quality levels are applied to individual welded joints in the same product or component.

It is normally be expected that, for a particular welded joint, the dimensional limits for imperfections can all be covered by specifying one quality level. In some cases, it can be necessary to specify different quality levels for different imperfections in the same welded joint.

The choice of quality level for any application takes account of design considerations, subsequent processing (e.g. surfacing), mode of stressing (e.g. static, dynamic), service conditions (e.g. temperature, environment) and consequences of failure. Economic factors are also important and include not only the cost of welding but also of inspection, test and repair.

Although this document includes types of imperfection relevant to the arc welding processes given in [Clause 1](#), only those which are applicable to the process and application in question are considered.

Imperfections are quoted in terms of their actual dimensions, and their detection and evaluation can require the use of one or more methods of non-destructive testing. The detection and sizing of imperfections is dependent on the testing methods and the extent of testing specified in the application standard or contract.

This document does not address the methods used for the detection of imperfections. However, ISO 17635 contains a correlation between the quality level and acceptance level for different NDT (non-destructive testing) methods.

This document is directly applicable to visual testing of welds and does not include details of recommended methods of detection or sizing by other non-destructive means. There are difficulties in using these limits to establish appropriate criteria applicable to NDT methods such as ultrasonic (UT), radiographic (RT) and penetrant testing (PT), for which additional requirements for testing can be necessary.

The values given for imperfections are for welds produced using normal welding practice. Requirements for smaller (more stringent) values as stated in quality level B can include additional manufacturing processes, e.g. grinding, TIG dressing.