SLOVENSKI STANDARD
oSIST prEN ISO 3834-1:2021

01-januar-2021

Zahteve za kakovost pri talilnem varjenju kovinskih materialov - 1. del: Merila za izbiro stopenj sprejemljivosti (ISO/DIS 3834-1:2020)

Quality requirements for fusion welding of metallic materials - Part 1: Criteria for the selection of the appropriate level of quality requirements (ISO/DIS 3834-1:2020)

Qualitätsanforderungen für das Schmelzschweißen von metallischen Werkstoffen - Teil 1: Kriterien für die Auswahl der geeigneten Stufe der Qualitätsanforderungen (ISO/DIS 3834-1:2020)

Exigences de qualité en soudage par fusion des matériaux métalliques - Partie 1: Critères pour la sélection du niveau approprié d'exigences de qualité (ISO/DIS 3834-1:2020)

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Quality requirements for fusion welding of metallic materials —

Part 1: Criteria for the selection of the appropriate level of quality requirements

Exigences de qualité en soudage par fusion des matériaux métalliques —

Partie 1: Critères pour la sélection du niveau approprié d'exigences de qualité

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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.

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 3834-1:2005), which has been technically revised.

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. Official interpretations, where they exist, are available from this page: https://committee.iso.org/sites/tc44/home/interpretation.html.

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

— Standard was editorially revised;

— references to sub-clauses in ISO 9001 were updated.

A list of all parts in the ISO 3834 series can be found on the ISO website.

Introduction

Processes such as fusion welding are widely used to manufacture many products. In some companies, they are the key feature of production. Products may range from simple to complex. Examples include pressure vessels, domestic and agricultural equipment, cranes, bridges, transport vehicles and other items.

These processes exert a profound influence on the cost of manufacture and quality of the product. It is important, therefore, to ensure that these processes are carried out in the most effective way and that appropriate control is exercised over all aspects of the operation.

It is emphasised that the ISO 3834 series is not a quality management system standard replacing ISO 9001:2015. However, it can be a useful tool when ISO 9001:2015 is applied by manufacturers.

Specification of quality requirements for welding processes is important because the quality of these processes cannot be readily or economically validated. Therefore, they are considered to be special processes as noted by ISO 9000:2015.

Quality cannot be inspected into a product: quality has to be built in. Even the most extensive and sophisticated non-destructive testing does not improve the quality of the product.

For products to be free from serious problems in production and in service, it is necessary to provide controls, from the design phase, through material selection, into manufacture and subsequent inspection. For example, poor design may create serious and costly difficulties in the workshop, on site, or in service. Incorrect material selection may result in problems, such as cracking in welded joints.

To ensure sound and effective manufacturing, management needs to understand and appreciate the sources of potential trouble and to implement appropriate procedures for their control.

The ISO 3834 series identifies measures that are applicable for different situations. Typically, they may be applied in the following circumstances:

— in contractual situations: specification of welding quality requirements;

— by manufacturers: establishment and maintenance of welding quality requirements;

— by committees drafting manufacturing codes or application standards: specification of welding quality requirements;

— by organizations assessing welding quality performance, e.g. third parties, customers, or manufacturers.

The ISO 3834 series can be used by internal and external organizations, including certification bodies, to assess the manufacturer's ability to meet customer, regulatory or the manufacturer's own requirements.

Quality requirements for fusion welding of metallic materials —

Part 1: Criteria for the selection of the appropriate level of quality requirements

1 Scope

This document provides a general outline of the ISO 3834 series and criteria to be taken into account for the selection of the appropriate level of quality requirements for fusion welding of metallic materials, among the three levels specified in ISO 3834-2[1], ISO 3834-3[2] and ISO 3834-4[3]. It applies to manufacturing, both in workshops and at field installation sites.

NOTE 1 ISO 3834-2, ISO 3834-3 and ISO 3834-4 provide complete sets of quality requirements for process control related to all fusion welding processes (for each process separately or in combination as specified). ISO 3834-5 specifies the documents with which it is necessary to conform to claim conformity to the quality requirements of ISO 3834-2, ISO 3834-3 or ISO 3834-4.

This document does not specify requirements for a total quality management system. However, Clause 6 identifies quality management system elements where their inclusion will complement ISO 3834.

NOTE 2 ISO 3834-2, ISO 3834-3 and ISO 3834-4 may be used on their own by a manufacturer or in conjunction with ISO 9001:2015.

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 9001:2015, *Quality management systems — Requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9000:2015, the ISO/TR 25901 series and the following 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 http://www.electropedia.org/

3.1
design specification
requirements for products specified by customers or by the organization in anticipation of customer requirements, or by regulation

Note 1 to entry: The requirements for products and in some cases associated processes can be contained in, for example, technical specifications, product standards, process standards, contractual agreements and regulatory requirements.

3.2
qualified person
person whose competence and knowledge have been obtained by education, training and/or relevant practical experience

Note 1 to entry: In order to demonstrate the level of competence and knowledge, a qualification test may be required.

3.3
construction
product, structure or any other welded item

3.4
manufacturer fabricator
person or organization responsible for the welding production

3.5
sub-contractor
supplier of products, services and/or activities to the manufacturer in a contractual situation

3.6
welding operator
person who performs fully mechanised or automatic fusion welding processes

4 General outline of ISO 3834

ISO 3834 specifies quality requirements suitable for fusion welding processes of metallic materials. The requirements contained within this International Standard may be adopted for other welding processes. These requirements relate only to those aspects of the quality of the products, which may be influenced by fusion welding, without being assigned to any specific product group.

ISO 3834 therefore provides a method to demonstrate the capability of a manufacturer to produce products of the specified quality.

It was prepared such that:

a) it is independent of the type of construction manufactured;

b) it defines quality requirements for welding in workshops and/or on site;

c) it provides guidance for describing a manufacturer's capability to produce constructions to meet specified requirements;

d) it provides a basis for assessing a manufacturer’s welding capability.

ISO 3834 is appropriate when demonstration of a manufacturer's capability to produce welded constructions, fulfilling specified quality requirements, is specified in one or more of the following:

a specification;

a product standard;

a regulatory requirement.

The requirements contained within this document may be adopted in full or may be selectively deleted by the manufacturer if not applicable to the construction concerned. They provide a flexible framework for the control of welding in the following applications.

— Case 1: To provide specific requirements in specifications which require the manufacturer to have a quality management system in accordance with ISO 9001:2015 [5].