
**Quality requirements for fusion
welding of metallic materials —**

Part 5:

**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**

*Exigences de qualité en soudage par fusion des matériaux
métalliques —*

*Partie 5: Documents auxquels il est nécessaire de se conformer pour
déclarer la conformité aux exigences de qualité de l'ISO 3834-2,
l'ISO 3834-3 ou l'ISO 3834-4*



STANDARDSISO.COM : Click to view the full PDF of ISO 3834-5:2021



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents		Page
Foreword.....		iv
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Documents with which to claim conformity with the quality requirements of ISO 3834-2, ISO 3834-3 or ISO 3834-4	1
4.1	General.....	1
4.2	Applicability.....	2
4.3	Certificate	2
Bibliography		5

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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 3834-5:2015), which has been technically revised.

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

- Annex A has been deleted;
- the list of welding processes has been expanded, e.g. laser-arc hybrid welding;
- normative references have been moved to the bibliography as none are referenced normatively in the document.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at 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>.

Quality requirements for fusion welding of metallic materials —

Part 5:

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

1 Scope

This document specifies the International Standards, including clauses and subclauses, with which conformity to the quality requirements of ISO 3834-2, ISO 3834-3 or ISO 3834-4 can be claimed.

NOTE For brazing, see ISO 22688.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology 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 Documents with which to claim conformity with the quality requirements of ISO 3834-2, ISO 3834-3 or ISO 3834-4

4.1 General

Conformity with the quality requirements of ISO 3834-2, ISO 3834-3 or ISO 3834-4 can be claimed by a manufacturer according to one or more of the following options:

- a) adoption of the ISO documents listed in [Tables 1](#) to [10](#);
- b) adoption of other documents that provide technically equivalent conditions to the ISO documents listed in [Tables 1](#) to [10](#);
- c) adoption of different supporting standards, where these are required in application standards used by the manufacturers.

4.2 Applicability

Concerning the quality requirements of fusion welding processes, two types of document exist:

- Type A: ISO documents for welding processes for which the quality requirements are given in several documents, see [Tables 1 to 9](#);
- Type B: ISO documents for specific welding processes for which the quality requirements are given in a single document, see [Table 10](#).

NOTE The quality requirements for fusion welding can also be applied to friction welding, friction stir welding and friction stir spot welding, as appropriate (see ISO 15620, ISO 18785 and ISO 25239).

4.3 Certificate

The certification organization or the manufacturer claiming compliance with ISO 3834-2, ISO 3834-3 or ISO 3834-4 shall list the supporting standards or documentation in the certificate.

Table 1 — Welders and welding operators

Welding process	ISO documents	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 9606-1, ISO 9606-2, ISO 9606-3, ISO 9606-4, ISO 9606-5, ISO 14732, ISO 15618-1, ISO 15618-2	7.2	7.2	7.2
Electron beam welding	ISO 14732			
Laser beam welding and laser-arc hybrid welding	ISO 14732			
Gas welding	ISO 9606-1			

Table 2 — Welding coordination personnel

Welding process	ISO document	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 14731	7.3	7.3	None
Electron beam welding				
Laser beam welding and laser-arc hybrid welding				
Gas welding				

Table 3 — Non-destructive testing personnel

Welding process	ISO document	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 9712	8.2	8.2	8.2
Electron beam welding				
Laser beam welding and laser-arc hybrid welding				
Gas welding				

Table 4 — Welding procedure specifications

Welding process	ISO documents	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 15609-1	10.2	10.2	None
Electron beam welding	ISO 15609-3			
Laser beam welding and laser-arc hybrid welding	ISO 15609-4, ISO 15609-6			
Gas welding	ISO 15609-2			

Table 5 — Qualification of the welding procedures

Welding process	ISO documents	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 15607, ISO 15610, ISO 15611, ISO 15612, ISO 15613, ISO 15614-1, ISO 15614-2, ISO 15614-3, ISO 15614-4, ISO 15614-5, ISO 15614-6, ISO 15614-7, ISO 15614-8, ISO 15614-10	10.3	10.3	None
Electron beam welding	ISO 15607, ISO 15611, ISO 15612, ISO 15613, ISO 15614-11			
Laser beam welding and laser-arc hybrid welding	ISO 15607, ISO 15611, ISO 15612, ISO 15613, ISO 15614-11, ISO 15614-14			
Gas welding	ISO 15607, ISO 15610, ISO 15611, ISO 15612, ISO 15613, ISO 15614-1			

Table 6 — Post-weld heat treatment

Welding process	ISO document	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 17663	13	13	None
Electron beam welding				
Laser beam welding and laser-arc hybrid welding				
Gas welding				

Table 7 — Inspection and testing during welding

Welding process	ISO documents	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 13916, ISO/TR 17671-2, ISO/TR 17844	14.3	14.3	None
Electron beam welding	None			
Laser beam welding and laser-arc hybrid welding	None			
Gas welding	None			

Table 8 — Inspection and testing after welding

Welding process	ISO documents	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 10863, ISO 13588, ISO 17635, ISO 17636-1, ISO 17636-2, ISO 17637, ISO 17638, ISO 17639, ISO 17640, ISO 22825	14.4	14.4	None
Electron beam welding				
Laser beam welding and laser-arc hybrid welding				
Gas welding				

Table 9 — Calibration and validation of measuring, inspection and testing equipment

Welding process	ISO document	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Arc welding	ISO 17662	16	16	None
Electron beam welding				
Laser beam welding and laser-arc hybrid welding				
Gas welding				

Table 10 — Other fusion welding processes

Welding process	ISO documents	Subclause in ISO 3834-2:2021	Subclause in ISO 3834-3:2021	Subclause in ISO 3834-4:2021
Stud welding	ISO 14555	All, if relevant	All, if relevant	All, if relevant
Aluminothermic welding/ thermite welding	No ISO documents available at the time of publication	—	—	—

Bibliography

- [1] ISO 3834-2:2021, *Quality requirements for fusion welding of metallic materials — Part 2: Comprehensive quality requirements*
- [2] ISO 3834-3:2021, *Quality requirements for fusion welding of metallic materials — Part 3: Standard quality requirements*
- [3] ISO 3834-4:2021, *Quality requirements for fusion welding of metallic materials — Part 4: Elementary quality requirements*
- [4] ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels*
- [5] ISO 9606-2, *Qualification test of welders — Fusion welding — Part 2: Aluminium and aluminium alloys*
- [6] ISO 9606-3, *Approval testing of welders — Fusion welding — Part 3: Copper and copper alloys*
- [7] ISO 9606-4, *Approval testing of welders — Fusion welding — Part 4: Nickel and nickel alloys*
- [8] ISO 9606-5, *Approval testing of welders — Fusion welding — Part 5: Titanium and titanium alloys, zirconium and zirconium alloys*
- [9] ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*
- [10] ISO 10863, *Non-destructive testing of welds — Ultrasonic testing — Use of time-of-flight diffraction technique (TOFD)*
- [11] ISO 13588, *Non-destructive testing of welds — Ultrasonic testing — Use of automated phased array technology*
- [12] ISO 13916, *Welding — Measurement of preheating temperature, interpass temperature and preheat maintenance temperature*
- [13] ISO 14555, *Welding — Arc stud welding of metallic materials*
- [14] ISO 14731, *Welding coordination — Tasks and responsibilities*
- [15] ISO 14732, *Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials*
- [16] ISO 15607, *Specification and qualification of welding procedures for metallic materials — General rules*
- [17] ISO 15609-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding*
- [18] ISO 15609-2, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 2: Gas welding*
- [19] ISO 15609-3, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 3: Electron beam welding*
- [20] ISO 15609-4, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 4: Laser beam welding*
- [21] ISO 15609-6, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 6: Laser-arc hybrid welding*
- [22] ISO 15610, *Specification and qualification of welding procedures for metallic materials — Qualification based on tested welding consumables*