

PD CEN ISO/TR 14745:2015



BSI Standards Publication

Welding — Post-weld heat treatment parameters for steels

bsi.

...making excellence a habit.™

National foreword

This Published Document is the UK implementation of CEN ISO/TR 14745:2015.

The UK participation in its preparation was entrusted to Technical Committee WEE/-/1, Briefing committee for welding.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2015. Published by BSI Standards Limited 2015

ISBN 978 0 580 79164 2

ICS 25.160.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 January 2015.

Amendments issued since publication

Date	Text affected
------	---------------

ICS 25.160.01

English Version

**Welding - Post-weld heat treatment parameters for steels
(ISO/TR 14745:2015)**

Soudage - Paramètres de traitement thermique après
soudage des aciers (ISO/TR 14745:2015)

This Technical Report was approved by CEN on 15 December 2014. It has been drawn up by the Technical Committee CEN/TC 121.

CEN members are the national standards bodies of 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 United Kingdom.



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

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

Foreword

This document (CEN ISO/TR 14745:2015) 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.

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.

Endorsement notice

The text of ISO/TR 14745:2015 has been approved by CEN as CEN ISO/TR 14745:2015 without any modification.

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	2
4.1 Symbols	2
4.2 Abbreviated terms	2
5 General information	2
6 Heat treatment conditions	2
7 Application of PWHT	4
7.1 General	4
7.2 Heating and cooling	4
7.3 Heating in a furnace	7
8 Post-weld heat treatment of dissimilar ferritic joints	8
8.1 General	8
8.2 Holding temperature	8
Annex A (informative) Additional information about PWHT	9
Bibliography	11

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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification requirements in the field of metal welding*.

Requests for official interpretations of any aspect of this Technical Report 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.

Welding — Post-weld heat treatment parameters for steels

1 Scope

This Technical Report provides recommendations for post-weld heat treatment (PWHT) of steels with recommendations for holding temperatures and holding times for different materials and material thicknesses. These recommendations are limited to stress relieving for non-alloy steels (groups 1, 2, 3, 4, and 11) and to tempering for Cr-Mo-(Ni) steels (groups 5 and 6) and martensitic stainless steels (group 7.2), and are independent of type of product or location. The recommendations do not supersede any guidance given in material supplier specifications, e. g. thermo-mechanically treated fine-grain steels.

This Technical Report does not specify when PWHT is required. Such requirements are given in product standards, material specifications, or material data sheets.

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.

EN 10052, *Vocabulary of heat treatment terms for ferrous products*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10052 and the following apply.

3.1

cooling rate

variation in temperature as a function of time during cooling cycle

[SOURCE: ISO 4885:1996, 3.37]

3.2

heating rate

variation in temperature as a function of time during heating cycle

[SOURCE: ISO 4885:1996, 3.78]

3.3

holding temperature

temperature at which the product or component is kept in order to achieve specified properties

Note 1 to entry: The holding temperature depends on the type of heat treatment, type of material, and material thickness.

Note 2 to entry: Normally the holding temperature is expressed as a temperature range.

[SOURCE: ISO 17663:2009, 3.3]

3.4

holding time

time the product or component is kept at the holding temperature

Note 1 to entry: The holding time starts when the temperature in all measuring points has reached the minimum value of the range of the holding temperature and stops when one of the measuring points falls below that temperature.