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Welding — Post-weld heat treatment parameters for steels

Soudage — Paramètres de traitement thermique après soudage des aciers

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Foreword

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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*.

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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.

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