SLOVENSKI STANDARD
oSIST prEN ISO 13916:2017

01-maj-2017

Varjenje - Navodilo za merjenje temperature predgrevanja, medvarkovne temperature in temperature dogrevanja (ISO/DIS 13916:2017)

Welding - Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature (ISO/DIS 13916:2017)

Schweißen - Anleitung zur Messung der Vorwärm-, Zwischenlagen- und Haltetemperatur (ISO/DIS 13916:2017)

Soudage - Lignes directrices pour le mesurage de la température de préchauffage, de la température entre passes et de la température de maintien du préchauffage (ISO/DIS 13916:2017)

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ICS:

25.160.10 Varilni postopki in varjenje Welding processes

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Welding — Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature

Soudage — Lignes directrices pour le mesurage de la température de préchauffage, de la température entre passes et de la température de maintien du préchauffage

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Foreword

ISO 13916 was prepared by Technical Committee ISO/TC 44, Welding and allied processes, Subcommittee SC 10, Quality management in the field of welding.

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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).

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The committee responsible for this document is ISO/XXX

This second/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

ISO XXXX consists of the following parts. [Add information as necessary.]

Welding — Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature

1 Scope

This standard specifies requirements for the measurement of preheating temperature, interpass temperature and preheat maintenance temperature for fusion welding. This standard may also be applied as appropriate in the case of other welding processes. This standard does not cover the measurement of post weld heat treatment temperatures.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
preheating temperature
***T*p**
temperature of the workpiece in the weld zone immediately prior to any welding operation

Note 1 to entry: It is normally expressed as a minimum and is usually equal to the minimum interpass temperature.

2.2
interpass temperature
***T*i**
temperature in a multi-run weld and adjacent parent metal immediately prior to the application of the next run.

Note 1 to entry: It is normally expressed as a maximum temperature.

2.3
preheat maintenance temperature
***T*m**
minimum temperature in the weld zone which shall be maintained if welding is interrupted

3 Requirements

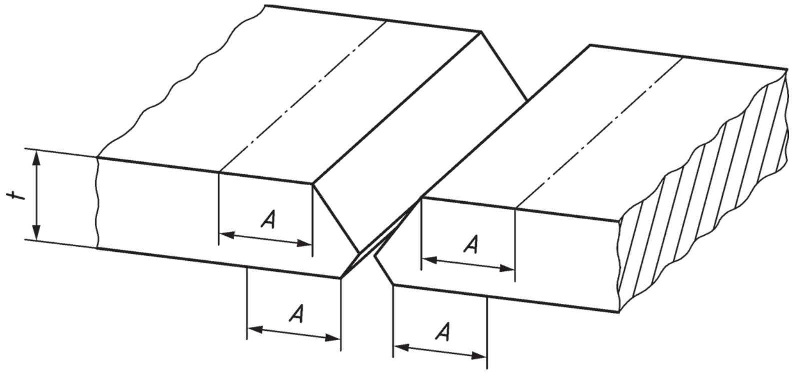
3.1 Point of measurement

The temperature measurement shall normally be made on the surface of the workpiece facing the welder, at a distance of $A = 4 \times t$, but not more than 50 mm, from the longitudinal edge of the groove (see Figure 1). This shall apply for workpieces thickness t not exceeding 50 mm in the weld.

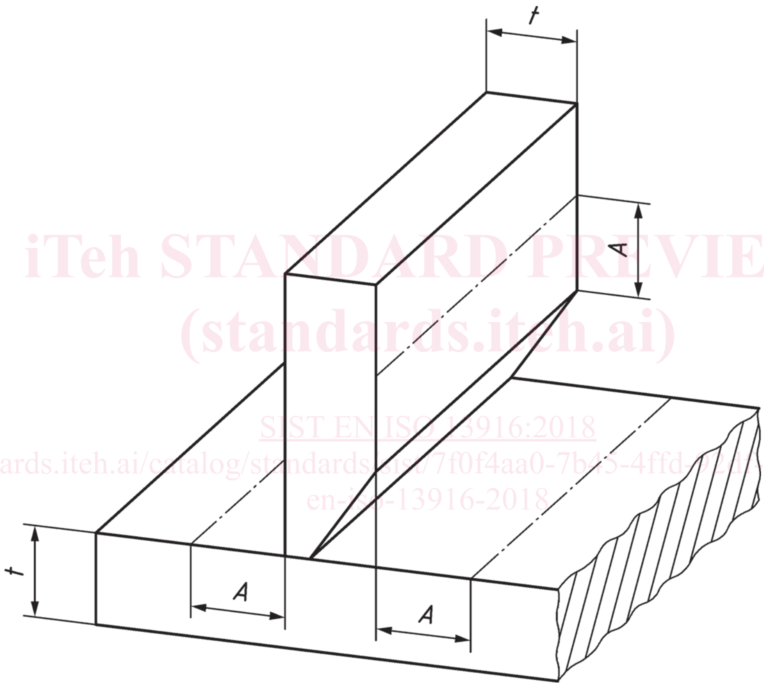
When the thickness exceeds 50 mm, the required temperature shall exist in the parent metal for a distance of minimum 75 mm or as otherwise agreed in any direction from the Joint preparation. Where practicable, the temperature shall be measured on the face opposite to that being heated. Otherwise, the temperature shall be confirmed on the heated face at a time after removal of the heat source related to parent metal thickness to allow for temperature equalization. Where fixed permanent heaters are in use and there is no access to the reverse face for temperature measurement, readings shall be taken on the exposed parent metal surface immediately adjacent to the weld preparation. The time allowed for the temperature equalization shall be of the order of 2 min for each 25 mm of parent metal thickness.

Interpass temperature shall be measured on the weld metal or the immediately adjacent parent metal.

Dimensions in millimetres



a) butt joint



b) fillet joint

Key

$t \leq 50$ mm: $A = 4 \times t$, max. 50 mm

$t > 50$ mm: A = min. 75 mm

Figure 1 — Distance between points of measurement

3.2 Time of measurement

Interpass temperature shall be measured in the weld area immediately before passage of the arc.

If the preheat maintenance temperature is specified it shall be monitored during the period of welding interruption.

3.3 Test equipment

Equipment used for temperature measurement should be specified in the welding procedure specifications, e.g.:

— temperature sensitive materials (e.g. crayons or paints) (TS);

— contact thermometer (CT);

— thermocouple (TE);

— optical or electrical devices for contactless measurement (TB).

4 Test report

If a test report is required, it shall refer to this standard and give the following minimum information in accordance with the specification in welding procedure specification:

— measured preheating temperature, in °C;

— measured interpass temperature, in °C;

— measured preheat maintenance temperature, in °C;

— any deviation from this standard, if applicable.

5 Designation

Examples of designation, which should be used in test reports:

5.1 Example 1

A preheating temperature T_p measured only once in accordance with this standard as 155 °C (T_p 155) using a contact thermometer (CT) shall be designated as follows:

Temperature ISO 13916:2016 T_p 155 — CT

5.2 Example 2

An interpass temperature T_i measured more than once in accordance with this standard as 130 °C, 153 °C and 160 °C (T_i 130/160) using a thermocouple (TE) shall be designated as follows:

Temperature ISO 13916:2016 T_i 130/160 — TE

Bibliography

[1] ISO 17662, *Welding — Calibration, verification and validation of equipment used for welding, including ancillary activities*

