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Australian Standard™

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

Standards Australia

This Australian Standard was prepared by Committee WD-003, Welding of Structures. It was approved on behalf of the Council of Standards Australia on 11 April 2003 and published on 27 June 2003.

The following are represented on Committee WD-003:

Australian Chamber of Commerce and Industry

Australian Industry Group

AUSTROADS

Bureau of Steel Manufacturers of Australia

Electricity Supply Association of Australia

Institution of Engineers Australia

New Zealand Heavy Engineering Research Association

New Zealand Non-destructive Testing Association

New Zealand Welding School

Steel Reinforcement Institute of Australia

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WD-003, Welding of Structures. It is technically identical to, and reproduced from ISO 13916:1996, *Welding—Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature*.

After consultation with stakeholders on both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

As this Standard is reproduced from an international Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text 'this International Standard' should read 'this Australian Standard'.

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 13916 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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AUSTRALIAN STANDARD

Welding—Guide 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 Definitions

For the purposes of this standard the following definitions apply.

2.1 preheating temperature (T_p): the temperature of the workpiece in the weld zone immediately prior to any welding operation. It is normally expressed as a minimum and is usually equal to the minimum interpass temperature.

2.2 interpass temperature (T_i): the temperature in a multi-run weld and adjacent parent metal immediately prior to the application of the next run. It is normally expressed as a maximum temperature.

2.3 preheat maintenance temperature (T_m): the 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 x 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 at least 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.