AS/NZS 3545:2020
ISO 6947:2019

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Australian/New Zealand Standard™

Welding and allied processes — Welding positions

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Australasian Corrosion Association
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Australian Welding Institute
Austroads
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Energy Networks Australia
New Zealand Heavy Engineering Research Association
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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WD-003, Welding of Structures, to supersede AS 3545—2004, *Welding positions*.

The objective of this Standard is to define welding positions for testing and production, for butt and fillet welds, in all product forms.

This Standard is identical with, and has been reproduced from, ISO 6947:2019, *Welding and allied processes — Welding positions.*

As this document has been reproduced from an International Standard, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms "normative" and "informative" are used in Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, whereas an "informative" appendix or annex is only for information and guidance.

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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 7, *Representation and terms.*

This fourth edition cancels and replaces the third edition (ISO 6947:2011), which has been technically revised. The main changes compared to the previous edition are as follows:

— Figure 1 and Figure 2 have been revised;

— the concept of a special test position which is not covered by defined test positions has been introduced;

— editorial corrections/improvements have been made.

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 TC 44 documents, where they exist, are available from this page: https://committee.iso.org/sites/tc44/home/interpretation.html.

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Introduction

This document specifies positions for standard discrete test piece orientation, e.g. PA, PB, H-L045, that have been included in this document since the third edition (ISO 6947:2011).

Since the third edition was published, positions for production welding are also defined. These positions are flat, horizontal, vertical, and overhead. Unlike discrete testing positions, these positions are contiguous.

Welding position are not dependent on the geometrical arrangement of the joint, e.g. butt or fillet joint, or that of the semi-finished product. Welds of all types and in all directions are covered.

The direction of welding (i.e. upwards or downwards) can also contribute to defining welding positions.

The main positions have been given symbols which can easily be used for designation purposes; these symbols were not derived from any particular language.

The concept of a special test position, not covered by the existing and well-defined positions, has been included so that testing can be carried out in positions that do not meet the standard requirements.

The relationship between testing positions and production welding positions is specified elsewhere, e.g. in the ISO 9606 series or ISO 15614 series.

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Australian/New Zealand Standard

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1 Scope

This document defines welding positions for testing and production, for butt and fillet welds, in all product forms.

Annex A gives examples of the limits of the slope of a weld axis and the rotation of the weld face about the weld axis for welding positions in production welds.

Annex B gives a comparison of this document and US designation systems for welding positions.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
welding position
position of a weld defined relative to the slope of the axis and rotation of the face of the weld relative to the horizontal plane

3.2
main welding position
welding position (3.1) designated PA, PB, PC, PD, PE, PF, PG, PH, PJ or PK

Note 1 to entry: See Figure 1 and Figure 2 for welding position designations.

3.3
special test position
SP
any *welding position* (3.1) that is not covered by one of the *main welding positions* (3.2) (see 4.3)

3.4
slope
S
<welding positions> angle of the axis of the weld relative to the *main welding position* (3.2)

3.5
rotation
R
<welding positions> angle of the face of the weld relative to the *main welding position* (3.2)

3.6
inclined angle
L
<welding positions> angle of the axis of the pipe

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