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## **Welding — Recommendations for welding of metallic materials —**

Part 4:

### **Arc welding of aluminium and aluminium alloys**

*Soudage — Recommandations pour le soudage des matériaux  
métalliques —*

*Partie 4: Soudage à l'arc de l'aluminium et des alliages d'aluminium*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. 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.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this part of ISO/TR 17671 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 17671-4 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*.

ISO/TR 17671 consists of the following parts, under the general title *Welding — Recommendations for welding of metallic materials*:

- *Part 1: General guidance for arc welding*
- *Part 2: Arc welding of ferritic steels*
- *Part 3: Arc welding of stainless steels*
- *Part 4: Arc welding of aluminium and aluminium alloys*

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## Introduction

This part of ISO/TR 17671 has been issued with two annexes in order to cover aluminium and the different types of its alloys in all forms which will be produced to the relevant International Standards.

In this part of ISO/TR 17671 the term aluminium stands for aluminium and its alloys.

This part of ISO/TR 17671 gives general guidance for the satisfactory design, production and control of welding and details the possible detrimental effects which may occur, together with advice on methods by which they may be avoided. Generally it is applicable to all types of aluminium materials and is appropriate regardless of the type of fabrication involved, although the application standard/contract may have additional requirements.

Permissible design stresses in welds, methods of testing and acceptance levels are not included because they depend on the service conditions of the fabrication. These details should be obtained from the design specification.

Informative annexes give information on detrimental effects (see annex A) and choice of consumables (see annex B).

This part of ISO/TR 17671 details only welding-related matters and does not give any details of mechanical properties of the welded joint.

This part of ISO/TR 17671 identifies the main factors that affect the welding of aluminium. This will be influenced by parent metal, consumables, design, welding procedure, welding equipment, joint preparation, etc.

General requirements for fusion welding of metallic materials are detailed in ISO/TR 17671-1, in particular:

- tack welds;
- temporary attachments;
- arcing;
- inter-run cleaning and treatment;
- welding procedures;
- identification;
- inspection and testing;
- quality requirements;
- correction of non-conformity;
- distortion;
- post-weld heat treatment;
- abbreviations and symbols;
- run-on/ run-off plates.