

SVENSK STANDARD

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Welding and allied processes – Types of joint preparation – Part 3: Metal inert gas welding and tungsten inert gas welding of aluminium and its alloys (ISO 9692-3:2016)

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Denna standard ersätter SS-EN ISO 9692-3, utgåva 1 och SS-EN ISO 9692-3/A1:2004, utgåva 1.

The European Standard EN ISO 9692-3:2016 has the status of a Swedish Standard. This document contains the official English version of EN ISO 9692-3:2016.

This standard supersedes the Swedish Standard SS-EN ISO 9692-3, edition 1 and SS-EN ISO 9692-3/A1:2004, edition 1.

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EUROPEAN STANDARD

EN ISO 9692-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2016

ICS 25.160.10

Supersedes EN ISO 9692-3:2001

English Version

**Welding and allied processes - Types of joint preparation -
Part 3: Metal inert gas welding and tungsten inert gas
welding of aluminium and its alloys (ISO 9692-3:2016)**

Soudage et techniques connexes - Types de
préparation de joints - Partie 3: Soudage MIG et TIG de
l'aluminium et de ses alliages (ISO 9692-3:2016)

Schweißen und verwandte Prozesse - Empfehlungen
für Fugenformen - Teil 3: Metall-Inertgasschweißen
und Wolfram-Inertgasschweißen von Aluminium und
Aluminium-Legierungen (ISO 9692-3:2016)

This European Standard was approved by CEN on 10 July 2016.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

SS-EN ISO 9692-3:2016 (E)

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European foreword

This document (EN ISO 9692-3:2016) has been prepared by Technical Committee ISO/TC 44 “Welding and allied processes” in collaboration with Technical Committee CEN/TC 121 “Welding and allied processes” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2017, and conflicting national standards shall be withdrawn at the latest by January 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 9692-3:2001.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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Endorsement notice

The text of ISO 9692-3:2016 has been approved by CEN as EN ISO 9692-3:2016 without any modification.

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Introduction

This part of ISO 9692 defines the parameters characterizing the joint preparation and assembly of the most often encountered dimensions and shapes.

The recommendations given in this part of ISO 9692 have been compiled on the basis of experience and contain dimensions for types of joint preparation that are generally found to provide suitable welding conditions. However, the extended field of application makes it necessary to give a range of dimensions. The dimension ranges specified represent design limits and are not tolerances for manufacturing purposes. Manufacturing limits depend, for instance, on welding process, parent metal, welding position, quality level, etc. Due to the common character of this part of ISO 9692, the examples given cannot be regarded as the only solution for the selection of a joint type.

Specific fields of application and manufacturing requirements may be covered by selected ranges of dimensions specified in the relevant application standard.

Welding and allied processes — Types of joint preparation —

Part 3: Metal inert gas welding and tungsten inert gas welding of aluminium and its alloys

1 Scope

This part of ISO 9692 specifies recommended types of joint preparation for metal inert gas welding, MIG (131), and tungsten inert gas welding, TIG (141), and autogenous TIG welding (142) on aluminium and its alloys.

It applies to fully penetrated welds.

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.

ISO 2553:2013, *Welding and allied processes — Symbolic representation on drawings — Welded joints*

ISO 4063, *Welding and allied processes — Nomenclature of processes and reference numbers*

3 Materials

Joint preparations recommended in this part of ISO 9692 are suitable for all types of aluminium and its weldable alloys.

4 Welding processes

Joint preparations recommended in this part of ISO 9692 are suitable for welding carried out in accordance with the following processes as specified in [Tables 1](#) to [3](#). Combinations of different processes are possible:

- MIG welding with solid wire electrode (131);
- TIG welding with solid filler material (wire/rod) (TIG) (141);
- autogenous TIG welding (142) — only applicable for butt weld between plates with raised edges (see [Table 1](#), 1.20)

NOTE The numbers in parentheses refer to the reference number of the welding process specified in ISO 4063.

5 Finish

Edges should be prepared by mechanical means (e.g. shearing, sawing or milling). No mineral oil-based cleaning fluids shall be used. If plasma cutting is used, consideration shall be given to the quality of cut surfaces (e.g. cracks).

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The longitudinal edges of the root face should be de-burred and chamfered, especially for single-sided butt welds without backing.

6 Type of joint preparation

The recommended types of joint preparation and dimensions are specified in [Tables 1 to 3](#).

The choice of joint details (angle, gap, thickness of root face) depends on the joint thickness, the position and the welding process. The use of larger gaps ($\geq 1,5$ mm) permits smaller angles.

If gaps are $\geq 1,5$ mm, backing is preferably used.

For single-sided welding, backing bars should be grooved.

The reference numbers in [Tables 1 to 3](#) have been determined in accordance with the following scheme:



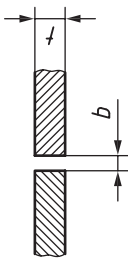
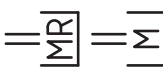

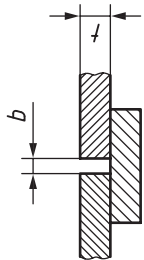


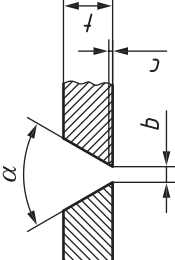
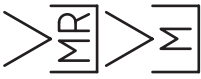

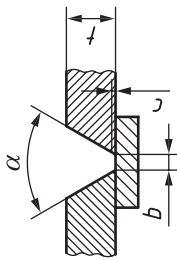
- the first digit corresponds with the number of the table (e.g. digit 1 for [Table 1](#) with joint preparation for butt welds, welded from one side);
- the second digit or numerical group corresponds with the number in ISO 2553 (e.g. digit 2 for square butt weld as given in ISO 2553:2013, Table 1);
- the third indication, expressed by a letter, covers the variants of joint preparations.

EXAMPLE Joint preparation for a butt weld, welded from one side (1), finished for single-V butt weld (3):

1.3

Table 1 — Joint preparation for butt welds, welded from one side

Dimensions in millimetres

Ref. No. ^a	Weld		Illustration	Cross-section	Joint preparation				Recommended welding process ^c	Remarks
	Workpiece thickness t	Designation			Symbol ^b	Angle α, β	Gap b	Thickness of root face c		
1.1	$t \leq 4$	Square butt weld				—	$b \leq 1$	—	141	Chamfering on the root side is recommended
	$2 \leq t \leq 4$	Square butt weld with temporary (MR) or permanent (M) backing				—	$b \leq 1,5$	—	131	—
1.2	$3 \leq t \leq 5$	Single-V butt weld				$60^\circ \leq \alpha \leq 90^\circ$	$b \leq 2$	$c \leq 2$	131	—
		Single-V butt weld with removable/temporary (MR) or permanent (M) backing				$60^\circ \leq \alpha \leq 90^\circ$	$b \leq 4$	$c \leq 2$	131	—