

INTERNATIONAL STANDARD

ISO
9692

First edition
1992-11-01

Metal-arc welding with covered electrode, gas-shielded metal-arc welding and gas welding — Joint preparations for steel

iTeh STANDARD PREVIEW

Soudage à l'arc avec électrode enrobée, soudage à l'arc sous protection gazeuse et soudage aux gaz — Préparations de joint sur acier

ISO 9692:1992

<https://standards.itih.ai/catalog/standards/sist/ff9a0098-131d-444f-b0f8-0941db531f6d/iso-9692-1992>



Reference number
ISO 9692:1992(E)

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 9692 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Sub-Committee SC 7, *Representation and terms*.

[ISO 9692:1992](https://standards.iteh.ai/catalog/standards/sist/ff9a0098-131d-444f-b0f8-0941db531f6d/iso-9692-1992)

<https://standards.iteh.ai/catalog/standards/sist/ff9a0098-131d-444f-b0f8-0941db531f6d/iso-9692-1992>

© ISO 1992

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Introduction

This International Standard defines the parameters characterizing the joint preparation and the collection of well-experienced values and shapes representing more design limits than manufacturing limits.

The requirements given in this International Standard 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. Therefore, the requirements given are more a recommendation than a specification. Because of the common character of this International Standard, the examples given cannot be regarded as the only solution for the selection of a joint type.

Specific fields of application and manufacturing requirements (e.g. pipeline construction) may be covered by selected ranges specified in other standards adapted from this basic International Standard.

<https://standards.iteh.ai/catalog/standards/sist/ff9a0098-131d-444f-b0f8-0941db531f6d/iso-9692-1992>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This page intentionally left blank

ISO 9692:1992

<https://standards.iteh.ai/catalog/standards/sist/ff9a0098-131d-444f-b0f8-0941db531f6d/iso-9692-1992>

Metal-arc welding with covered electrode, gas-shielded metal-arc welding and gas welding — Joint preparations for steel

1 Scope

This International Standard pertains to types of joint preparation for metal-arc welding with covered electrode, gas-shielded metal-arc welding and gas welding on steel (see clauses 3 and 4).

It applies to joint preparation for fully-penetrated butt welds, except in the case of some recommended types of joint preparation (reference numbers 3.10A, 3.10B and 4.10.10C); if a butt weld is not possible or necessary, special arrangements need to be made. For not-fully-penetrated butt welds, types of joint preparation and dimensions differing from those specified in this International Standard may be stipulated.

The root gaps referred to in this International Standard are those gaps presented after tack welding, if used.

Consideration should be given to altering the joint preparation details (where appropriate) to facilitate temporary backing, "one-sided welding", etc.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2553:1992, *Welded, brazed and soldered joints — Symbolic representation on drawings*.

ISO 4063:1990, *Welding, brazing, soldering and braze*

welding of metals — Nomenclature of processes and reference numbers for symbolic representation on drawings.

ISO 6947:1990, *Welds — Working positions — Definitions of angles of slope and rotation*.

3 Materials

Joint preparations recommended in this International Standard are suitable for all kinds of steel.

4 Welding processes

Joint preparations recommended in this International Standard are suitable for welding carried out in accordance with the following processes as specified in tables 1 to 4; combinations of different processes are possible:

- a) (3) gas welding; fuel gas welding.
- b) (111) metal-arc welding with covered electrode; (manual metal-arc welding); shielded metal-arc welding.
- c) (13) gas-shielded metal-arc welding; gas metal-arc welding:
 - (131) metal-arc inert gas welding; MIG welding;
 - (135) metal-arc active gas welding; MAG welding.
- d) (141) tungsten inert gas welding; TIG welding; gas tungsten arc welding.

NOTE 1 The numbers in parentheses refer to the reference number of the welding process specified in ISO 4063.

5 Finish

The longitudinal edges of the root face should be de-burred and may be chamfered (up to 2 mm).

6 Type of joint preparation

The recommended types of joint preparation and dimensions are specified in tables 1 to 4.

NOTE 2 The reference numbers have been determined in accordance with the following scheme:

The first digit corresponds to the number of the table, the second digit or numerical group corresponds to the number in ISO 2553, the third indication, expressed by a letter, considers variants of joint preparation.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 9692:1992



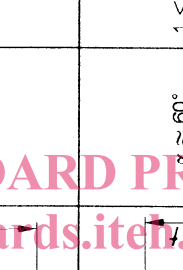


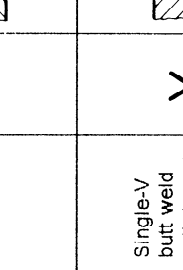
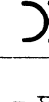
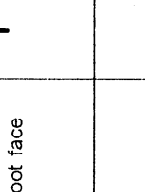
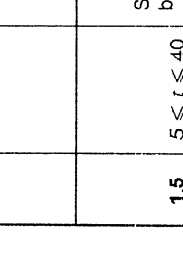
<https://standards.iteh.ai/catalog/standards/sist/ff9a0098-131d-444f-b0f8-0941db531f6d/iso-9692-1992>

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

Dimensions in millimetres

Reference No.		Workpiece thickness	Designation	Symbol (in accordance with ISO 2553)	Illustration	Cross-section	Angle ¹⁾ α, β	Gap ²⁾ b	Thickness of root face c	Depth of preparation h	Recommended welding process ³⁾ (reference number in accordance with ISO 4063)	Remarks
1.1	$t \leq 2$	Butt weld between plates with raised edges					—	—	—	—	3 111 141 131 135	Usually without filler metal
1.2	$t \leq 4$	Square butt weld					—	$b \approx t$	—	—	3 111 141	—
1.3	$3 \leq t \leq 10$	Single-V butt weld				$40^\circ \leq \alpha \leq 60^\circ$	$b \leq 4$	$c \leq 2$	—	3 ⁴⁾	Where applicable with backing strip	

iTeH STANDARD PREVIEW
(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/f9a0098-131d-444f-b0f8-0941db5711fd/iso-9692:1992>

Weld		Joint preparation					Remarks				
Reference No.	Workpiece thickness t	Designation	Symbol	Illustration	Cross-section	Angle ¹⁾ α, β		Gap ²⁾ b	Thickness of root face c	Depth of preparation h	Recommended welding process ³⁾ (reference number in accordance with ISO 4063)
1.14	$t > 16$	Steep-flanked single-V butt weld				$5^\circ \leq \beta \leq 20^\circ$	$5 \leq b \leq 15$	—	—	111 131 135	With backing strip
1.5	$5 \leq t \leq 40$	Single-V butt weld with broad root face				$\alpha \approx 60^\circ$	$1 \leq b \leq 4$	$2 \leq c \leq 4$	—	111 131 135 1+1	—
1.3.7	$t > 12$	Single-U butt weld with V root				$60^\circ \leq \alpha \leq 90^\circ$ $8^\circ \leq \beta \leq 12^\circ$	$1 \leq b \leq 3$	—	$h \approx 4$	1+1 131 135 1+1	$R = 6 \text{ to } 9$

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 9692:1992
https://standards.iteh.ai/catalog/standards/sis/1b540099-131d-444f-b0f8-0941d111f6d/iso-9692-1992

Weld		Joint preparation				Dimensions			Recommended welding process ²⁾ (reference number in accordance with ISO 4063)	Remarks	
Reference No.	Workpiece thickness t	Designation	Symbol (in accordance with ISO 2553)	Illustration	Cross-section	Angle ¹⁾ α, β	Gap ²⁾ b	Thickness of root face c			Depth of preparation h
1.3.3	$t > 12$	Single-V butt weld with V root				$70^\circ \leq \alpha \leq 90^\circ$ $10^\circ \leq \beta \leq 15^\circ$	$2 \leq b \leq 4$	≈ 3	—	111 131 135 141	—
1.7	$t > 12$	Single-U butt weld				$8^\circ \leq \beta \leq 12^\circ$	$1 \leq b \leq 4$	$c \leq 3$	—	111 131 135 141	—
1.4	$3 < t \leq 10$	Single-bevel butt weld				$35^\circ \leq \beta \leq 60^\circ$	$2 \leq b \leq 4$	$1 \leq c \leq 2$	—	111 131 135 141	—

iTeh STANDARD PREVIEW
(standards.iteh.ai)

https://standards.iteh.ai/catalog/standards/sist/11a06798-111d-444f-b0f8-09413b55116d/iso-9692-1992

Weld			Joint preparation				Recommended welding process ²⁾ (reference number in accordance with ISO 4063)	Remarks			
Reference No.	Workpiece thickness t	Designation	Symbol (in accordance with ISO 2553)	Illustration	Cross-section	Angle ¹⁾ α, β			Gap ²⁾ b	Thickness of root face c	Depth of preparation h
1.15	$t > 16$	Steep-flanked single-bevel butt weld				$15^\circ \leq \beta \leq 30^\circ$	$6 \leq b \leq 12$ $b \approx 12$	—	—	111 131 135	With backing strip
1.8	$t > 16$	Single-J butt weld				$10^\circ \leq \beta \leq 20^\circ$	$2 \leq b \leq 4$	$1 \leq c \leq 2$	—	111 131 135 141 ³⁾	—

1) Angles are also larger and/or asymmetric for welding in position PC according to ISO 6947 (horizontal position).

2) Dimensions given apply to the tacked condition.

3) The indication of the welding process does not mean that it is applicable for the whole range of workpiece thicknesses.

4) In special cases also applicable for 111, 131, 135, 141.

5) Symbol not yet standardized in ISO 2553.

Table 2 — Joint preparations for butt welds, welded from both sides

Dimensions in millimetres

Weld		Joint preparation				Remarks				
Reference No.	Workpiece thickness t	Designation	Combined symbols (in accordance with ISO 2553)	Illustration	Cross-section		Angle ¹⁾ α, β	Gap ²⁾ b	Thickness of root face c	Depth of preparation h
2.2	$t \leq 8$	Square butt weld				$\alpha, \beta \approx 90^\circ$	$b \approx \frac{t}{2}$	—	—	111 141
2.3.9	$3 \leq t \leq 40$	Single-V butt weld with run sealing				$\alpha \approx 60^\circ$ $40^\circ \leq \alpha \leq 60^\circ$	$b \leq 3$	$c \leq 2$	—	111 141 131 135
2.5.9	$t > 10$	Single-V butt weld with root face and sealing run				$\alpha \approx 60^\circ$ $40^\circ \leq \alpha \leq 60^\circ$	$1 \leq b \leq 3$	$2 \leq c \leq 4$	—	111 141 131 135

iTech STANDARD PREVIEW
(standards.iteh.ai)
ISO 9692:1992
<https://standards.iteh.ai/catalog/standards/sist/f9a0098-131d-444f-b018-0941db531f6d/iso-9692-1992>