# Keevitamine. Soovitused metallmaterjalide keevitamiseks. Osa 3: Roostevabade teraste kaarkeevitus

# Welding - Recommendations for welding of metallic materials - Part 3: Arc welding of stainless steels

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

| | |
|---|---|
| See Eesti standard EVS-EN 1011-3:2001+A1:2004 sisaldab Euroopa standardi EN 1011-3:2000+EN 1011-3:2000/A1:2003 ingliskeelset teksti. | This Estonian standard EVS-EN 1011-3:2001+A1:2004 consists of the English text of the European standard EN 1011-3:2000+EN 1011-3:2000/A1:2003. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.09.2000. | Date of Availability of the European standard is 20.09.2000. |
| Standard on kättesaadav Eesti Standardikeskusest. | The standard is available from the Estonian Centre for Standardisation. |



Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Võtmesõnad: metall, metals, principles of execution, quality assurance, quality management, specification (approval), specifications, stainless steels, steel welding, steels, storage, suitability, testing conditions, welded joints, welding, welding engineering, welding processes,

# EUROPEAN STANDARD
# NORME EUROPÉENNE
# EUROPÄISCHE NORM

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**English version**

Welding

# Recommendations for welding of metallic materials

## Part 3: Arc welding of stainless steels

Soudage – Recommandations pour le soudage des matériaux métalliques – Partie 3: Soudage à l'arc des aciers inoxydables

Schweißen – Empfehlungen zum Schweißen metallischer Werkstoffe – Teil 3: Lichtbogenschweißen von nichtrostenden Stählen

This European Standard was approved by CEN on 2000-08-13.

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS.

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 March 2001, and conflicting national standards shall be withdrawn at the latest by March 2001.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This European Standard is composed of the following parts:

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

Annexes A, B, C and D are informative.

## Introduction

This European Standard is being issued with several annexes in order that it may be extended to cover the different types of steel which will be produced to all the European steel standards for stainless steels.

When this standard is referenced for contractual purposes, the ordering authority should state the need for compliance with the standard and such other annexes as are appropriate.

This standard gives general guidance for the satisfactory production and control of welding and details the possible detrimental phenomena which may occur with advice on methods by which they may be avoided. It is generally applicable to all stainless steels and is appropriate regardless of the type of fabrication involved, although the application standard 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.

This Part of this European Standard contains additional details for fusion welding of stainless steels and should be read in conjunction with the general recommendations in EN 1011-1.

## 1 Scope

This European Standard gives general recommendations for the fusion welding of stainless steels. Specific details relevant to austenitic, austenitic-ferritic, ferritic and martensitic stainless steels are given in annexes A to D.

## 2 Normative references

This European Standard incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 288-2 Specification and approval of welding procedures for metallic materials – Part 2: Welding procedure specification for arc welding

EN 439 Welding consumables - Shielding gases for arc welding and cutting

EN 1600 Welding consumables - Covered electrodes for manual metal arc welding of stainless and heat resisting steels - Classification

EN 1011-1 Welding - Recommendations for welding of metallic materials – Part 1: General guidance for arc welding

EN 10088-1 Stainless steels - Part 1: List of stainless steels

EN 12072 Welding consumables - Wire electrodes, wires and rods for arc welding of stainless and heat resisting steels - Classification

EN 12073 Welding consumables - Tubular cored electrodes for metal arc welding with or without a gas shield of stainless and heat resisting steels - Classification

EN 25817 Arc-welded joints in steel - Guidance on quality levels for imperfections (ISO 5817 : 1992)

EN 29692 Metal-arc welding with covered electrode, gas-shielded metal-arc welding and gas welding - Joint preparations for steel (ISO 9692 : 1992)

EN ISO 8249 Welding – Determination of Ferrite Number (FN) in austenic and duplex ferritic-austenitic Cr-Ni stainless steel welds metals (ISO 8249:2000)

CR ISO 15608 Welding - Guidelines for a metallic material grouping system (ISO/TR 15608 : 2000)

## 3 Terms and definitions

For the purposes of this European Standard the following terms and definitions apply.

**3.1**
**passive layer**
a thin, transparent and tightly adherent film on the surface of stainless steels which protects them from corrosive attack.

**3.2**
**stabilized/unstabilized**
stabilized steels contain additions of strong carbide/nitride forming elements, (usually titanium or niobium), which limit the formation of chromium carbides/nitrides, allowing the stainless steel to retain its corrosion resistance, particularly around grain boundaries.

**3.3**
**ferrite number (FN)**
a number indicating magnetic attraction, relative to a series of reference samples and therefore, proportional to the ferro-magnetic phase content, approximately equal to ferrite (delta ferrite) content over the range 0 % to 10 % but more readily measured [EN ISO 8249].