



SLOVENSKI STANDARD
SIST EN 1592-1:1998

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Aluminij in aluminijeve zlitine - VF varjene cevi - 1. del: Tehnični pogoji za prevzem in dobavo

Aluminium and aluminium alloys - HF seam welded tubes - Part 1: Technical conditions for inspection and delivery

Aluminium und Aluminiumlegierungen - HF-längsnahtgeschweißte Rohre - Teil 1: Technische Lieferbedingungen

Aluminium et alliages d'aluminium - Tubes électrosoudés HF - Partie 1: Conditions techniques de contrôle et de livraison

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EUROPEAN STANDARD

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English version

Aluminium and aluminium alloys - HF seam welded tubes - Part 1: Technical conditions for inspection and delivery

Aluminium et alliages d'aluminium - Tubes électrosoudés
HF - Partie 1: Conditions techniques de contrôle et de
livraison

Aluminium und Aluminiumlegierungen - HF-
längsnahtgeschweißte Rohre - Teil 1: Technische
Lieferbedingungen

This European Standard was approved by CEN on 19 September 1997.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. 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.

This European Standard exists 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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Introduction

HF seam welded aluminium tubes are made from coils of slit aluminium strip, which are progressively shaped by a series of forming rolls on a mill. At the point during its passage through the mill that the tube becomes fully formed, it is welded. HF currents are induced into the tube by an induction coil through which the tube passes. The current is confined to the surface of the tube which causes the edges of the strip to reach welding temperature. These edges are forced into contact with each other by pressure rolls and a perfectly formed weld is achieved. No filler wire is used and the resultant weld is perfectly uniform.

The external fin from the weld is removed by planing in the next section of mill before the tube passes through a final series of sizing rolls, which gives its final shape. This continuous operation is carried out at high speed.

In this way, the HF seam welded tube benefits from the properties of the initial strip, such as a wide variety of potential alloys and mechanical properties are available.

Because of the forming technique used, the seam welded tube also benefits from specific properties :

- thin wall and/or large diameter tubes can be obtained ;
- different shapes can be produced, from the most frequently used ones to special order shapes ;
- various finishes can be obtained. Standard tubes are produced with a bright finish. Other finishes available are : "mill finish", anodized matt or bright in many colours. Tubes can also be supplied painted ;
- various patterns are available that can be embossed into the surface of the tubes. Due to the great variety of patterns available, the user is advised to contact the supplier for further information ;
- the external fin is removed by planing. By special order, the internal fin can also be removed.

Due to the great variety of tubes available, the user is advised to consult the supplier with regards to any new application of HF seam welded tubes.

1 Scope

This part of EN 1592 specifies the technical conditions for inspection and delivery of HF seam welded aluminium tubes.

It is applicable to HF seam welded tubes obtained by forming cold-rolled strips.

It is applicable to aluminium tubes produced from uncoated aluminium strip, as well as to tubing that is pre-lacquered, pre-painted or pre-anodized prior to forming.

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", the secretariat of which is held by AFNOR.

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 April 1998, and conflicting national standards shall be withdrawn at the latest by April 1998.

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC 132/WG 12 "HF Seam Welded Tubes" to prepare the following standards :

EN 1592-1 Aluminium and aluminium alloys - HF seam welded tubes -
Part 1 : Technical conditions for inspection and delivery

This standard is part of a series of four standards. The other standards deal with :

EN 1592-2 Aluminium and aluminium alloys - HF seam welded tubes -
Part 2 : Mechanical properties

EN 1592-3 Aluminium and aluminium alloys - HF seam welded tubes -
Part 3 : Tolerances on dimensions and form for circular tubes

EN 1592-4 Aluminium and aluminium alloys - HF seam welded tubes -
Part 4 : Tolerances on dimensions and form for square, rectangular and
shaped tubes

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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.

2 Normative references

This European Standard incorporates by dated or 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.

EN 515	Aluminium and aluminium alloys - Wrought products - Temper designations
EN 573-3	Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3 - Chemical composition
EN 573-4	Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 4 : Forms of products
EN 1592-2	Aluminium and aluminium alloys - HF seam welded tubes - Part 2 : Mechanical properties
EN 1592-3	Aluminium and aluminium alloys - HF seam welded tubes - Part 3 : Tolerances on dimensions and form for circular tubes
EN 1592-4	Aluminium and aluminium alloys - HF seam welded tubes - Part 4 : Tolerances on dimensions and form for square, rectangular and shaped tubes
EN 10002-1	Metallic materials - Tensile testing - Part 1 - Method of test (at ambient temperature)
EN 10204	Metallic products - Types of inspection documents

NOTE : Informative references to documents used in the preparation of this standard, and cited at the appropriate places in the text, are listed in a bibliography, see annex A.

3 Definitions

For the purposes of this standard the following definitions apply :

3.1 HF seam welded aluminium tube

Welded tube produced from strip by use of HF current without filler wire.

3.2 round tube

Hollow product of circular section, supplied in straight lengths.

3.3 square and rectangular tube

Hollow product of square or rectangular section, supplied in straight lengths.

3.4 shaped tube

Hollow product, of special section, defined by a drawing or pattern, supplied in straight lengths.

3.5 modified surface

The surface of the HF seam welded aluminium tube can be modified either by etching, or by a coating of paint, or by anodizing.

NOTE : Pre-anodized, pre-painted or pre-lacquered coils can also be used.

3.6 inspection lot

Consignment, or part thereof, submitted for inspection, comprising products of the same grade or alloy, form, temper, thickness or cross-section, and processed in the same manner.

3.7 heat treatment batch or lot

A quantity of products of the same grade or alloy, form, thickness or cross section and produced in the same way, heat treated in one furnace load, or such products as solution-treated and subsequently precipitation-treated in one furnace load.

More than one solution-treatment lot can be included in a furnace load.

NOTE : For the heat treatment in a continuous furnace, the products heat treated during a time less than 8 h can be considered as belonging to the same heat treatment lot.

3.8 sample

One or more products taken from an inspection lot.

3.9 specimen

One or more pieces taken from each product in the sample, for the purpose of producing test pieces.

3.10 test piece

A piece taken from each specimen and suitably prepared for the test.

4 Orders or tenders

The order or tender shall define the product required and shall contain the following information :

- a) the shape and type of the product : round, square, rectangular or shaped HF seam welded aluminium tube ;

- b) description of the material : alloy and metallurgical condition. The latter is shown by the symbol for the heat and/or mechanical treatment given to the material (see EN 515, EN 573-3 and EN 1592-2) ;
- c) the dimensions of the product :
- diameter or width across flats ;
 - wall thickness ;
 - length ;
- d) quantity :
- mass in kilograms or tonnes ;
 - number of lengths ;
- e) any requirements for inspection documents ;
- f) any special requirements agreed between the producer and purchaser ;
- g) surface finish condition ; unless otherwise agreed the tubes shall be supplied in a mill finish condition ; other surface finishes can be specified, if applicable, such as painted, lacquered or anodized ;
- h) special packaging and delivery requirements (where applicable) :
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- ship freight packaging ;
 - unit mass of non-standard packages ;
 - staggering of delivery intervals ;
- i) in the case of coated HF welded tubes, the coating shall be specified by agreement between producer and purchaser with reference to the relevant standards ;
- j) in the case of etched tubes, the producer and the purchaser shall agree the dimensions and tolerances.

5 Requirements

5.1 Quality control

The producer is responsible for the performance of all inspection and tests required by the relevant European Standard and/or the particular specification, prior to shipment of the product. If the purchaser wishes to inspect the product at the producer's works, he shall notify the producer at the time of placing the order.