Seamless circular steel tubes for mechanical and general engineering purposes - Technical delivery conditions - Part 1: Non-alloy and alloy steel tubes

Seamless circular steel tubes for mechanical and general engineering purposes - Technical delivery conditions - Part 1: Non-alloy and alloy steel tubes

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 10297-1:2003 sisaldab Euroopa standardi EN 10297-1:2003 ingliskeelset teksti. Käesolev dokument on jõustatud 15.04.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 10297-1:2003 consists of the English text of the European standard EN 10297-1:2003. This document is endorsed on 15.04.2003 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This Part of EN 10297 specifies the technical delivery conditions for seamless circular tubes made of non-alloy and alloy steels for mechanical and general engineering purposes	**Scope:** This Part of EN 10297 specifies the technical delivery conditions for seamless circular tubes made of non-alloy and alloy steels for mechanical and general engineering purposes

ICS 77.140.75

Võtmesõnad: acceptance testing, forming machines, materials, orders : sales documents, ph, pipes, sampling, seamless pipes, seamless tubes, specification (approval), specifications, steel pipes, steel products, steels, test specimens, testing, tubes, unalloyed steels

Hinnagrupp S

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 10297-1

February 2003

ICS 77.140.75

English version

Seamless circular steel tubes for mechanical and general engineering purposes - Technical delivery conditions - Part 1: Non-alloy and alloy steel tubes

Tubes sans soudure en acier pour utilisation en mécanique générale et en construction mécanique - Conditions techniques de livraison - Partie 1: Tubes en acier non allié et allié

Nahtlose kreisförmige Stahlrohre für den Maschinenbau und allgemeine technische Anwendungen - Technische Lieferbedingungen - Teil 1: Rohre aus unlegierten und legierten Stählen

This European Standard was approved by CEN on 16 October 2002.

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 Management Centre 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 Management Centre 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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 10297-1:2003 E

Contents

Foreword

This document (EN 10297-1:2003) has been prepared by Technical Committee ECISS /TC 29, "Steel tubes and fittings for steel tubes" the secretariat of which is held by UNI.

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 August 2003, and conflicting national standards shall be withdrawn at the latest by August 2003.

In this European Standard the annexes A, C, D and E are normative and annex B is informative.

Another Part of EN 10297 in course of preparation is :

— Part 2 : *Stainless steel tubes*

Another European Standard series covering welded tubes for mechanical and general engineering purposes is currently being prepared.

prEN 10296, *Welded circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions.*

Other European Standard series being prepared in this area are prEN 10294 for hollow bars for machining and prEN 10305 for steel tubes for precision applications.

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, Hungary Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This Part of EN 10297 specifies the technical delivery conditions for seamless circular tubes made of non-alloy and alloy steels for mechanical and general engineering purposes.

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 (including amendments).

EN 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature.*

EN 10020, *Definition and classification of grades of steel.*

EN 10021, *General technical delivery requirements for steel and iron products.*

EN 10027-1, *Designation systems for steel — Part 1: Steel names, principal symbols.*

EN 10027-2, *Designation systems for steel — Part 2: Numerical system.*

EN 10045-1, *Metallic materials — Charpy Impact test — Part 1: Test method.*

EN 10052, *Vocabulary of heat treatment terms for ferrous products*.

prEN 10168, *Iron and steel products — Inspection documents – List of information and description*.

EN 10204, *Metallic products — Types of inspection documents.*

EN 10220, *Seamless and welded steel tubes - General tables of dimensions and masses per unit length.*

EN 10246-1, *Non-destructive testing of steel tubes — Part 1: Automatic electromagnetic testing of seamless and welded (except submerged arc-welded) ferromagnetic steel tubes for verification of hydraulic leak-tightness*.

EN 10246-3, *Non-destructive testing of steel tubes — Part 3 : Automatic eddy current testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of imperfections.*

EN 10246-5, *Non-destructive testing of steel tubes — Part 5 : Automatic full peripheral magnetic transducer/flux leakage testing of seamless and welded (except submerged arc-welded) ferromagnetic steel tubes for the detection of longitudinal imperfections*.

EN 10246-7, *Non-destructive testing of steel tubes — Part 7 : Automatic full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal imperfections.*

EN 10256, *Non-destructive testing of steel tubes — Qualification and competence of level 1 and 2 non-destructive testing personnel.*

CR 10260:1998, *Designation systems for steel - Additional symbols.*

prEN 10266, *Steel tubes, fittings and structural hollow sections — Symbols and definition of terms for use in product standards.*

EN ISO 377, *Steel and steel products — Location and preparation of samples and test pieces for mechanical testing (ISO 377:1997).*

EN ISO 642, *Steel — Hardenability test by end quenching (Jominy test) (ISO 642:1999).*

EN ISO 2566-1, *Steel — Conversion of elongation values — Part 1: Carbon and low alloy steels (ISO 2566-1:1984).*

EN ISO 6506-1, *Metallic materials - Brinell hardness test — Part 1: Test method (ISO 6506-1:1999).*

EN ISO 6508-1:1999, *Metallic materials - Rockwell hardness test — Part 1 : Test method (scales A, B, C, D, E, F, G, H, K, N, T) (ISO 6508-1:1999).*

EURONORM 103, *Micrograph determination of the ferritic or austenitic grain size of steels*.

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 10020, EN 10021, EN 10052 and prEN 10266 and the following terms and definitions apply.

3.1
fine grain steel
steel having an austenitic/ferritic grain size equal to or finer than 6 when measured in accordance with EURONORM 103

3.2
normalizing rolling
a rolling process in which the final deformation is carried out in a certain temperature range leading to a material condition equivalent to that obtained after normalizing so that the specified values of the mechanical properties are retained even after normalizing (+N)

NOTE Delivery condition of tubes manufactured by a normalizing rolling process or normalized by heat treatment in a furnace are both identified with the same symbol.

3.3
as rolled
formed after heating into the austenitic region (i.e. above AC 3) without subsequent heat treatment (+AR)

3.4
annealing
heat treatment at a temperature slightly below AC 1 (+A)

3.5
TH treatment
heat treatment with the object of achieving a hardness within a specified range (+TH)

3.6
FP treatment
heat treatment with the object of producing a ferritic and pearlitic structure and achieving a hardness within a specified range (+FP)

3.7
employer
organization for which the person works on a regular basis

NOTE The employer may be either the tube manufacturer or a third party organization providing non-destructive testing (NDT) services.