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Sömlösa rör av stål för tryckändamål – Tekniska leveransbestämmelser –
Del 4: Olegerade och legerade stål med fordrade lågtemperaturegenskaper

Seamless steel tubes for pressure purposes – Technical delivery conditions –
Part 4: Non-alloy and alloy steel tubes with specified low temperature properties

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Europastandarden EN 10216-4:2013 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 10216-4:2013.

Denna standard ersätter SS-EN 10216-4:2004, utgåva 1.

The European Standard EN 10216-4:2013 has the status of a Swedish Standard. This document contains the official version of EN 10216-4:2013.

This standard supersedes the Swedish Standard SS-EN 10216-4:2004, edition 1.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Tryckkärlsstål, SIS/TK 137.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 10216-4

December 2013

ICS 23.040.10; 77.140.75

Supersedes EN 10216-4:2002

English Version

Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 4: Non-alloy and alloy steel tubes with specified low temperature properties

Tubes sans soudure en acier pour service sous pression - Conditions techniques de livraison - Partie 4 : Tubes en acier non allié et allié avec caractéristiques spécifiées à basse température

Nahtlose Stahlrohre für Druckbeanspruchungen - Technische Lieferbedingungen - Teil 4: Rohre aus unlegierten und legierten Stählen mit festgelegten Eigenschaften bei tiefen Temperaturen

This European Standard was approved by CEN on 17 August 2013.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

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

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Foreword

This document (EN 10216-4:2013) has been prepared by Technical Committee ECISS/TC 110 “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 June 2014, and conflicting national standards shall be withdrawn at the latest by June 2014.

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 10216-4:2002.

For the list of the most significant technical changes that have been made in this new edition, see Annex A.

This document 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 document.

This European Standard consists of the following parts, under the general title "*Seamless steel tubes for pressure purposes – Technical delivery conditions*":

Part 1 :Non-alloy steel tubes with specified room temperature properties;

Part 2 :Non-alloy and alloy steel tubes with specified elevated temperature properties;

Part 3 :Alloy fine grain steel tubes;

Part 4: Non-alloy and alloy steel tubes with specified low temperature properties (the present document);

Part 5 :Stainless steel tubes.

Another European Standard series covering tubes for pressure purposes is:

EN 10217: Welded steel tubes for pressure purposes —Technical delivery conditions.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the technical delivery conditions in two test categories for seamless tubes of circular cross section, with specified low temperature properties, made of non-alloy and alloy steel.

NOTE Once this standard is published in the Official Journal of the European Union (OJEU) under Directive 97/23/EC, presumption of conformity to the Essential Safety Requirements (ESR) of Directive 97/23/EC is limited to technical data of materials in this standard and does not presume adequacy of the material to a specific item of equipment. Consequently, the assessment of the technical data stated in this material standard against the design requirements of this specific item of equipment to verify that the ESRs of the Pressure Equipment Directive are satisfied, needs to be done by the designer or manufacturer of the pressure equipment, taking also into account the subsequent manufacturing processes which may affect properties of the base materials.

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.

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

EN 10021, *General technical delivery conditions for steel products*

EN 10027-1, *Designation systems for steels - Part 1: Steel names*

EN 10027-2, *Designation systems for steels - Part 2: Numerical system*

EN 10052, *Vocabulary of heat treatment terms for ferrous product*

EN 10168:2004, *Steel products - Inspection documents - List of information and description*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 10220, *Seamless and welded steel tubes - Dimensions and masses per unit length*

EN 10266, *Steel tubes, fittings and structural hollow sections - Symbols and definitions of terms for use in product standards*

CEN/TR 10261, *Iron and steel - Review of available methods of chemical analysis*

EN ISO 148-1:2010, *Metallic materials - Charpy pendulum impact test - Part 1: Test method (ISO 148-1:2009)*

EN ISO 377:2013, *Steel and steel products - Location and preparation of samples and test pieces for mechanical testing (ISO 377:2013)*

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

EN ISO 6892-1:2009, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1:2009)*

EN ISO 8492:2004, *Metallic materials - Tube - Flattening test (ISO 8492:1998)*

EN ISO 8493:2004, *Metallic materials - Tube - Drift expanding test (ISO 8493:1998)*

EN ISO 8495:2004, *Metallic materials - Tube - Ring expanding test (ISO 8495:1998)*

EN ISO 8496:2004, *Metallic materials - Tube - Ring tensile test (ISO 8496:1998)*

EN ISO 10893-1, *Non-destructive testing of steel tubes - Part 1: Automated electromagnetic testing of seamless and welded (except submerged arc-welded) steel tubes for the verification of hydraulic leak-tightness (ISO 10893-1)*

EN ISO 10893-3, *Non-destructive testing of steel tubes - Part 3: Automated full peripheral flux leakage testing of seamless and welded (except submerged arc-welded) ferromagnetic steel tubes for the detection of longitudinal and/or transverse imperfections (ISO 10893-3)*

EN ISO 10893-8, *Non-destructive testing of steel tubes - Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections (ISO 10893-8)*

EN ISO 10893-10, *Non-destructive testing of steel tubes - Part 10: Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections (ISO 10893-10)*

EN ISO 14284:2002, *Steel and iron - Sampling and preparation of samples for the determination of chemical composition (ISO 14284)*

ISO 11484:2009, *Steel products - Employer's qualification system for non-destructive testing (NDT) personnel*

3 Terms and definitions

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

3.1
test category
classification that indicates the extent and level of inspection and testing

3.2
employer
organization for which a person works on a regular basis

Note 1 to entry: The employer may be either the tube manufacturer or supplier or a third party organization providing Non-Destructive Testing (NDT) services.

4 Symbols

For the purposes of this document, the symbols given EN 10266 and the following apply.

— TC test category

5 Classification and designation

5.1 Classification

In accordance with the classification system in EN 10020, the steel grades P 215NL, P 255QL and P265NL are classified as non-alloy quality steels and the other steel grades are classified as alloy special steels.

5.2 Designation

5.2.1 For the tubes covered by this document, the steel designation consists of:

— the number of this Part of EN 10216;

plus either

— the steel name in accordance with EN 10027-1;

or

— the steel number allocated in accordance with EN 10027-2.

5.2.2 The steel name of non-alloy steel grades is designated by:

— the capital letter P for pressure purposes;

— the indication of the specified minimum yield strength at room temperature, expressed in MPa (see Table 4);

— the symbol of the heat treatment for the steel grade concerned (see Table 1);

— the symbol L for low temperature.

5.2.3 The steel name of alloy-steel grades is designated by the chemical composition (see Table 2) and the symbols for the heat treatment, where specified in column 1 and footnote a) of Table 1.

6 Information to be supplied by the purchaser

6.1 Mandatory information

The following information shall be supplied by the purchaser at the time of enquiry and order:

a) the quantity (mass or total length or number);

b) the term "tube";

c) the dimensions (outside diameter D and wall thickness T) (see Table 6);

d) the designation of the steel grade in accordance with this Part of EN 10216 (see 5.2);

e) the test category for non-alloy steel (see 9.3).

6.2 Options

A number of options are specified in this Part of EN 10216 and these are listed below. In the event that the purchaser does not indicate a wish to implement any of these options at the time of enquiry and order, the tubes shall be supplied in accordance with the basic specification (see 6.1).

1) Cold finishing (see 7.2.2);

2) restriction on copper and tin content (see Table 2);

3) product analysis (see 8.2.2);

4) selection of test method for verification of leak-tightness (see 8.4.2.1);