

**Terastorud täppisseadmetele. Tehnilised
tarnetingimused. Osa 4: Õmblusteta külmtõmmatud
torud hüdraulilistele ja pneumaatilistele
elektrisüsteemidele**

Steel tubes for precision applications - Technical delivery
conditions - Part 4: Seamless cold drawn tubes for hydraulic
and pneumatic power systems

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 10305-4:2011 sisaldab Euroopa standardi EN 10305-4:2011 ingliskeelset teksti.

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This Estonian standard EVS-EN 10305-4:2011 consists of the English text of the European standard EN 10305-4:2011.

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English Version

Steel tubes for precision applications - Technical delivery conditions - Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems

Tubes de précision en acier - Conditions techniques de livraison - Partie 4: Tubes sans soudure étirés à froid pour circuits hydrauliques et pneumatiques

Präzisionsstahlrohre - Technische Lieferbedingungen - Teil 4: Nahtlose kaltgezogene Rohre für Hydraulik- und Pneumatik-Druckleitungen

This European Standard was approved by CEN on 11 December 2010.

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Foreword

This document (EN 10305-4:2011) has been prepared by Technical Committee ECISS/TC 110 “Steel tubes, and iron and steel fittings”, 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of an identical text or by endorsement, at the latest by July 2011, and conflicting national standards shall be withdrawn at the latest by July 2011.

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 10305-4:2003.

Annex A provides details of significant technical changes between this European Standard and the previous edition.

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 97/23/EC.

For relationship with EU Directive 97/23/EC, see informative Annex ZA, which is an integral part of this document.

EN 10305, *Steel tubes for precision applications — Technical delivery conditions*, consists of the following parts:

- *Part 1: Seamless cold drawn tubes;*
- *Part 2: Welded cold drawn tubes;*
- *Part 3: Welded cold sized tubes;*
- *Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems;*
- *Part 5: Welded cold sized square and rectangular tubes;*
- *Part 6: Welded cold drawn tubes for hydraulic and pneumatic power systems.*

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies the technical delivery conditions for seamless cold drawn steel tubes of circular cross section used in hydraulic and pneumatic power systems with specified outside diameter $D \leq 80$ mm.

Tubes according to this document are characterised by having precisely defined tolerances on dimensions and a specified maximum surface roughness.

The allowed pressure rates and upper temperatures are the responsibility of the customer in accordance with the state of the art and in application of the safety coefficients specified in the applicable regulations, codes or standards. Concerning the lower temperature range applicability the impact energy requirements are given at 0° C.

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 (ESRs) 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.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10020:2000, *Definition and classification of grades of steel*

EN 10021:2006, *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 10052:1993, *Vocabulary of heat treatment terms for ferrous products*

EN 10168, *Steel products — Inspection documents — List of information and description*

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

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

EN 10266:2003, *Steel tubes, fittings and structural hollow sections — Symbols and definitions 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 2566-1, *Steel — Conversion of elongation values — Part 1: Carbon and low alloy steels (ISO 2566-1:1984)*

EN ISO 4287, *Geometrical product specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters (ISO 4287:1997)*

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

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

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

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 instead of the hydrostatic test (ISO 10893-1:2011)*

EN ISO 10893-2:2011, *Non destructive testing of steel tubes — Part 2: Automated eddy current testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of imperfections (ISO 10893-2:2011)*

EN ISO 10893-3:2011, *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 transversal imperfections (ISO 10893-3:2011)*

EN ISO 10893-10:2011, *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 transversal imperfections (ISO 10893-10:2011)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10020:2000, EN 10021:2006, EN 10052:1993, EN 10266:2003 and the following apply.

3.1

employer

organization for which a person works on a regular basis

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

3.2

manufacturer

party to produce and to deliver tubes in accordance with this document

NOTE Where tubes are delivered by a supplier, see EN 10021:2006, Clause 6.

3.3

imperfection

discontinuity in the wall or on the pipe surfaces detectable by methods described in this document

NOTE Imperfections with a size complying with the acceptance criteria specified in this document are considered to have no practical implication on the intended use of the product.

3.4

defect

imperfection of a size not complying with the acceptance criteria specified in this document

NOTE Defects are considered to adversely affect or limit the intended use of the product.

3.5

mother tube

length of tube produced in the final cold drawing process