

Steel tubes for precision applications — Technical delivery conditions —

Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems

The European Standard EN 10305-4:2003 has the status of a
British Standard

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National foreword

This British Standard was published by BSI. It is the UK implementation of EN 10305-4:2003. Together with BS EN 10305-1:2002 it supersedes BS 6323-4:1982 which is withdrawn. Together with BS EN 10296-1:2003, BS EN 10296-2:2005, BS EN 10297-1:2003, BS EN 10305-1:2002, BS EN 10305-2:2002, BS EN 10305-3:2002, BS EN 10305-5:2003 and BS EN 10305-6:2005 it supersedes BS 6323-1:1982 which is withdrawn.

This standard does not conflict with BS 7416.

The UK participation in its preparation was entrusted to Technical Committee ISE/8, Steel pipes.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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Foreword

This document (EN 10305-4:2003) 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of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

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 document includes a Bibliography.

EN 10305 consists of the following parts under the general title *Steel tubes for precision applications - Technical delivery conditions* :

¾ *Part 1 : Seamless cold drawn tubes*

¾ *Part 2 : Welded cold drawn tubes*

¾ *Part 3 : Welded cold sized tubes*

¾ *Part 4 : Seamless cold drawn tubes for hydraulic and pneumatic power systems*

¾ *Part 5 : Welded and cold sized square and rectangular tubes*

¾ *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, 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 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.

Tubes according to this part of this European Standard are characterised by having precisely defined tolerances on dimensions and a specified surface roughness.

The allowed pressure rates and 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.

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

prEN 10168¹⁾, *Steel products — Inspection documents — List of information and description.*

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

EN 10233, *Metallic materials — Tube — Flattening test.*

EN 10234, *Metallic materials — Tube — Drift expanding test.*

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

prEN 10266¹⁾, *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 2566-1, *Steel — Conversion of elongation values — Part 1: Carbon and low alloy steels (ISO 2566-1:1984).*

1) In preparation, until this document is published as a European Standard a corresponding national standard should be agreed at the time of enquiry and order.

CR 10260, *Designation system for steel — Additional symbols*.

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 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.

4 Symbols

See prEN 10266.

5 Classification and designation

5.1 Classification

In accordance with the classification system in EN 10020 the steel grades given in Table 1 are non-alloy quality steels.

5.2 Designation

For the tubes covered by this part of EN 10305 the steel designation consists of :

$\frac{3}{4}$ the number of this part of EN 10305 ;

plus either :

$\frac{3}{4}$ the steel name in accordance with EN 10027-1 and CR 10260 ; or

$\frac{3}{4}$ the steel number in accordance with EN 10027-2.

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 and inside diameter or other pair of dimensions) (see 8.5.1.1 and Table 4) ;
- d) the designation of the steel grade in accordance with this part of EN 10305 (see 5.2) ;
- e) the type of tube length (see 8.5.2) ;