BRITISH STANDARD

BS EN 10255:2004

Incorporating amendment no. 1 and corrigendum no. 1

Non-alloy steel tubes suitable for welding and threading — Technical delivery conditions

The European Standard EN 10255:2004, incorporating amendment A1:2007, has the status of a British Standard

ICS 23.040.10

BSI British Standards

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 10255:2004, incorporating amendment A1:2007.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1] ⟨A1⟩. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by [A1] ⟨A1⟩.

EN 10255 is a candidate "harmonized" European Standard and fully takes into account the requirements of the European Commission mandate M131 "Steel tubes and fittings", given under the EU Construction Products Directive (89/106/EEC), and intended to lead to CE marking. The date of applicability of EN 10255 as a harmonized European Standard, i.e. the date after which this standard may be used for CE marking purposes, is subject to an announcement in the *Official Journal of the European Communities*. Although CE marking is not currently mandatory in the UK, it is considered as industry best practice and this is reflected in Regulation 7 of the UK Building Regulations.

The European Commission in consultation with Member States have agreed a transition period for the coexistence of harmonized European Standards and their corresponding national standard(s). It is intended that this period will comprise a period, usually nine months, after the date of availability of the European Standard, during which any required changes to national regulations are to be made, followed by a further period, usually of 12 months, for the implementation of CE marking. At the end of this coexistence period, the national standard(s) will be withdrawn.

EN 10255 is the subject of transitional arrangements agreed under the Commission mandate. In the UK, the corresponding national standard was:

— BS 1387:1985, *Specification for screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or for screwing to BS 21 pipe threads;*

which was withdrawn in June 2006.

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. In particular attention is drawn to the different levels of attestation specified for CE marked products in Annex ZA (Table ZA.2.1) depending on whether the product will be used for the conveyance of water or gas/fuel.

Compliance with this Standard does not automatically imply a presumption that the product is suitable for the transport of water intended for human consumption, within the meaning of European Directive 89/106/EEC (also known as the Construction Products Directive). Until the proposed European Acceptance Scheme for construction products in contact with water intended for human consumption (or an alternative programme put forward by the European Commission to revise European Commission Mandate M136) is in place, and this standard revised to reflect this, products in accordance with this Standard may be used in applications involving the transport of water for human consumption if they conform to the relevant national, regional or local regulatory provisions applicable in the place of use. In the UK, products and processes need to be approved by the Drinking Water Inspectorate (DWI). This involves obtaining approvals under regulation 31 for both the coating and the coating applicator. For more details please refer to http://www.dwi.gov.uk/cpp/index.shtm.

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

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 24 August 2004

ISBN 0 580 44330 2

Amendments issued since publication

Amd. No.	Date	Comments
17127	31 May 2007	See national foreword
17157 Corrigendum No. 1	31 May 2007	Correction of national foreword wording

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 10255:2004+A1

April 2007

ICS 23.040.10

Supersedes EN 10255:2004

English Version

Non-Alloy steel tubes suitable for welding and threading - Technical delivery conditions

Tubes en acier non-allié filetables et soudables - Conditions techniques de livraison

Rohre aus unlegiertem Stahl mit Eignung zum Schweißen und Gewindeschneiden - Technische Lieferbedingungen

This European Standard was approved by CEN on 27 May 2004 and includes Amendment 1 approved by CEN on on 5 March 2007.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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.

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

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

Contents

Foreword

This document (EN 10255:2004+A1:2007) 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 document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2007 and conflicting national standards shall be withdrawn at the latest by October 2007.

This document includes Amendment 1, approved by CEN on 2007-03-05.

This document supersedes EN 10255:2004.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

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 89/106/EEC.

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This European Standard has been derived, with modifications, from ISO 65 “Carbon steel tube suitable for screwing in accordance with ISO 7/1”.

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, 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 document specifies the requirements for circular non-alloy steel tubes suitable for welding and threading and provides a number of options for the finish of tube ends and coatings. This document covers tubes of specified outside diameter 10,2 mm to 165,1 mm (thread size 1/8 to 6) in two series, medium and heavy, and three types of designated thicknesses.

NOTE Tubes manufactured according to this document can be used for the conveyance of fluids as well as for other applications.

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.

The requirements of this European Standard rule when they differ from those in the standards and documents referred to below:

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, ▌A1⟩ *General technical delivery for steel products* ⟨A1▐

EN 10027-1, *Designation systems for steel -* ▌A1⟩ *Part 1: Steel names* ⟨A1▐

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

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

▌A1⟩ *deleted text* ⟨A1▐

EN 10240, *Internal and/or external protective coatings for steel tubes - Specification for hot dip galvanized coatings applied in automatic plants*

EN 10241, *Steel threaded pipe fittings*

EN 10242, *Threaded pipe fittings in malleable cast iron*

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 10226-1 *Pipe threads where pressure-tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

▌A1⟩ EN 10226-2 ⟨A1▐, *Pipe threads where pressure-tight joints are made on the threads - Part 2: Taper external threads and taper internal threads - Dimensions, tolerances and designation*

EN 10266:2003, *Steel tubes, fittings and structural hollow sections - Symbols and definitions of terms for use in product standards*

EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods (ISO 1461:1999)*

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

〉A1〈 EN ISO 8491, *Metallic materials - Tube (in full section) - Bend test (ISO 8491:1998)*

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

EN ISO 9001, *Quality management systems - Requirements (ISO 9001:2000)* 〈A1〉

3 Terms and definitions

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

3.1
Series and Types
designation used in conjunction with the diameter to define the thickness and the mass per unit length of the tube

3.2
Bare tube
tube whose surface is as manufactured without subsequent coating

4 Classification and designation

The steel specified in this document is classified as a non-alloy quality steel in accordance with EN 10020.

The steel name S195 T has been established in accordance with EN 10027-1.

The steel number 1.0026… has been established in accordance with EN 10027-2.

5 Information to be 〉A1〈 obtained from 〈A1〉 the purchaser

5.1 Mandatory information

The following information shall be 〉A1〈 obtained from 〈A1〉 the purchaser at the time of enquiry and order:

a) Quantity (mass or total length or number of tubes);

b) Seamless or Welded tube manufacturing process (S or W);

c) The term “tube”;

d) The number of this European Standard (EN 10255);

e) Specified outside diameter (D) in millimetres or thread size (R) (see Table 2 or Annex B);

f) Wall thickness (T) in millimetres or series (M or H) (see Table 2) or type (L or L1 or L2) (see Annex B).

5.2 Options

A number of options are specified in this document 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 5.1).

1) Threaded ends (see 7.2);

2) Tube with socket (see 7.2);

3) Socket type to be specified (see 7.2);

4) Closed ends to prevent ingress of foreign matter (see 7.2);

5) Thread varnish or thread protection (see 7.2);

6) Suitable for galvanizing to EN ISO 1461, or to EN 10240 coating quality other than A.1 (see 7.3);

7) Suitable for galvanizing to EN 10240 coating quality A.1 (see 7.3);

8) Hot dip galvanized to EN ISO 1461 (see 7.4);

9) Hot dip galvanized to EN 10240, coating quality to be specified (see 7.4);

10) Delivery length (see 8.4.10);

11) Inspection document type 2.2 (see 9.2);

12) Temporary protective coating (see Clause 11).

5.3 Examples of ordering

5.3.1 By outside diameter and thickness

To order 6000 metres of seamless tubes in accordance with EN 10255, with 26.9 mm outside diameter, 2.6 mm wall thickness, galvanized according to EN 10240 - coating quality A.1, threaded.

EXAMPLE 6000 m - S tubes - 26,9 x 2,6 - EN 10255 - Options 1 and 9: A.1.

5.3.2 By thread size and series

To order 80 tonnes of welded tubes in accordance with EN 10255, with thread size 2, series medium, in standard length of 6,4 m with caps or plugs fitted to the ends.

EXAMPLE 80 t – W tubes – 2 – M - EN 10255 - Options 4 and 10: 6.4 m.

6 Manufacturing process

6.1 Steelmaking process

The steelmaking process is at the discretion of the manufacturer. The steel shall be fully killed.

6.2 Tube manufacturing process

The tubes shall be manufactured by a seamless (S) or longitudinally welded (W) process, as specified (see 5.1 b).

Cold formed tubes of Type L shall be heat treated (see B.2). The other series and types of tubes may be heat treated at the discretion of the manufacturer

Tubes shall not include welds used to join lengths of strip prior to forming the tube.

7 Delivery conditions

7.1 General

Unless otherwise specified (see 7.2 to 7.4) the tubes shall be supplied bare with plain ends. The tube ends shall be cut nominally square to the axis of the tube and shall be free from excessive burrs.

7.2 Alternative finishes and protection of the tube ends

Alternative types of end finish may be obtained by selecting from the following options:

Option 1: *Tube ends shall be supplied with external taper threads in accordance with EN 10226-1 / EN 10226-2.*

Option 2: *Tube shall be supplied with one socket per tube. The socket shall be in accordance with EN 10241 or EN 10242 and unless Option 3 is requested the choice of standard and the socket type shall be at the discretion of the manufacturer. The purchaser shall be informed to which standard and of which type of socket is to be supplied.*

Option 3: *The purchaser shall specify the standard, and which type of socket is to be supplied in accordance with Option 2.*

NOTE Purchasers who require tubes to be threaded and supplied with a socket should specify either Options 1 and 2 or Options 1 and 3.

Protection, to prevent ingress of foreign matter or physical damage or rusting of the threads, may be obtained by selecting from the following options:

Option 4: *One cap or plug fitted to each tube end to prevent ingress of foreign matter; the type is at the discretion of the manufacturer.*

Option 5: *The tube shall be supplied with the thread varnished or with thread protection. The type of protection is at the discretion of the manufacturer.*

7.3 Suitability for hot dip galvanizing

Option 6*: The tubes shall be suitable for galvanizing to EN ISO 1461 or to EN 10240 coating quality A.2, A.3, B.1, B.2 or B.3.*

Option 7: *The tubes shall be suitable for galvanizing to EN 10240 coating quality A.1 (see 8.4.9).*

7.4 Hot dip galvanized condition

Option 8: *The tubes shall be supplied galvanized according to EN ISO 1461.*

Option 9: *The tubes shall be supplied galvanized according to EN 10240; the coating quality shall be specified by the purchaser at the time of enquiry and order.*

8 Requirements

8.1 General

The tubes when inspected in accordance with Clause 9 shall conform to the requirements of this document.

In addition to the requirements of this document, the general technical delivery requirements specified in EN 10021 shall apply.

8.2 Chemical composition and mechanical properties

8.2.1 The chemical composition and the mechanical properties shall conform to the requirements of Table 1.

Table 1 — Chemical composition (cast analysis) and mechanical properties

Steel Grade		Chemical composition %				Mechanical Properties		
						Upper Yield strength	Tensile strength	Elongation
Steel Name	Steel Number	C max	Mn max	P max	S max	R_{eH} min. (MPa)	R_m (MPa)	A min. %
S 195T	1.0026	0,20	1,40	0,035	0,030	195	320 to 520	20

NOTE The steel specified in this document is weldable, however when subsequently welding tubes produced according to this document account should be taken of the fact that the behaviour of the steel during and after welding is dependent not only on the steel but also on the conditions of preparing for and carrying out the welding.

8.2.2 Tubes shall be suitable for cold bending and threading.

NOTE When bending tubes produced in accordance with this document, appropriate tooling should be correctly used.

8.3 Appearance

8.3.1 The tubes shall be free from such external and internal surface defects that can be detected by visual examination.

8.3.2 The internal and external surface finish of the tubes shall be typical of the manufacturing process and, where applicable, the heat treatment employed. The finish and surface condition shall be such that any surface imperfections or marks requiring dressing can be identified.

8.3.3 It shall be permissible to dress, only by grinding or machining, surface imperfections provided that, after doing so, the tube thickness in the dressed area is not less than the specified minimum wall thickness. All dressed areas shall blend smoothly into the contour of the tube.

8.3.4 Surface imperfections which encroach on the specified minimum wall thickness shall be considered defects and tubes containing these shall be deemed not to conform to this document.

8.4 Dimensions, masses and tolerances

8.4.1 Specified outside diameters (D), wall thicknesses (T) and masses per unit length Medium and Heavy series tubes are listed in Table 2.

Table 2 — Dimensions, diameter tolerance and mass per unit length

Specified outside diameter[a]	Thread Size[a]	Outside diameter		H			M		
				Heavy series			Medium series		
				Wall thickness	Mass per unit length of bare tube		Wall thickness	Mass per unit length of bare tube	
D	R	max.	min.	T	Plain end	Socketed	T	Plain end	Threaded and socketed
(mm)		(mm)	(mm)	(mm)	(kg/m)	(kg/m)	(mm)	(kg/m)	(kg/m)
10,2	1/8	10,6	9,8	2,6	0,487	0,490	2,0	0,404	0,407
13,5	1/4	14,0	13,2	2,9	0,765	0,769	2,3	0,641	0,645
17,2	3/8	17,5	16,7	2,9	1,02	1,03	2,3	0,839	0,845
21,3	1/2	21,8	21,0	3,2	1,44	1,45	2,6	1,21	1,22
26,9	3/4	27,3	26,5	3,2	1,87	1,88	2,6	1,56	1,57
33,7	1	34,2	33,3	4,0	2,93	2,95	3,2	2,41	2,43
42,4	1 1/4	42,9	42,0	4,0	3,79	3,82	3,2	3,10	3,13
48,3	1 1/2	48,8	47,9	4,0	4,37	4,41	3,2	3,56	3,60
60,3	2	60,8	59,7	4,5	6,19	6,26	3,6	5,03	5,10
76,1	2 1/2	76,6	75,3	4,5	7,93	8,05	3,6	6,42	6,54
88,9	3	89,5	88,0	5,0	10,3	10,5	4,0	8,36	8,53
114,3	4	115,0	113,1	5,4	14,5	14,8	4,5	12,2	12,5
139,7	5	140,8	138,5	5,4	17,9	18,4	5,0	16,6	17,1
165,1	6	166,5	163,9	5,4	21,3	21,9	5,0	19,8	20,4

[a] For relationship between specified outside diameter (D), thread size (R) and nominal diameter (DN), see Annex A.

T = specified wall thickness.

8.4.2 Specified outside diameters (D), wall thicknesses (T) and masses per unit length for tube Types L, L1 and L2 are listed in Table B.1, B.2 and B.3 respectively.

8.4.3 The tolerance on out of roundness is included in the diameter tolerance.

8.4.4 For welded tubes the tolerance on wall thickness is:

— ± 10 % .for M and H series and Type L ;

— – 8 % with the plus tolerance limited by the mass tolerance, for Types L1 and L2.

8.4.5 The mass tolerance on welded tubes is:

— ± 7,5 % on bundles of 10 tons or more, for M and H series and Type L ;

— +10% -8% on individual tubes for Types L1 and L2.

8.4.6 For seamless tubes the tolerance on wall thickness is ± 12,5 %. The maximum tolerance does not apply if the actual weight of a bundle does not exceed the theoretical weight, calculated from the nominal mass per unit length (see Tables 2, B1, B2, or B3, as appropriate), by more than + 7,5 %.

8.4.7 The external weld bead of electric welded tubes shall be trimmed to an essentially flush condition.

8.4.8 The height of the internal weld seam of welded tubes shall not exceed 60 % of the specified wall thickness (T).

8.4.9 When welded tubes are specified as suitable for galvanizing to EN 10240 quality A.1 (Option 7) or galvanized to EN 10240 quality A.1 (Option 9), the internal weld bead shall have no sharp edges or porosity. The height of the internal weld seam shall not exceed 0,3 mm + 0,05 T and the internal weld seam profile shall blend smoothly into the contour of the tube.

8.4.10 Unless Option 10 is specified, tubes shall be delivered in one standard length per order item, either 6 m or 6,4 m at the discretion of the manufacturer.

Option 10: *The tubes shall be supplied in the standard length, either 6 m or 6,4 m, or an alternative type of length given in Table 3 as specified by the purchaser at the time of enquiry and order.*

Table 3 — Type of length and tolerance

Type of length	Length (L) (m)	Tolerance	
		Welded	Seamless
Standard	6 or 6,4	$^{+150}_{-50}$ mm	± 500 mm
Random	$4 \leq L \leq 16$ with a range of 2 m per order item	Up to 10 % of tubes supplied may be below the minimum length ordered, but not shorter than 75 % of the minimum range length	
Exact	$L \leq 6$	$^{+10}_{0}$ mm	
	$6 < L \leq 12$	$^{+15}_{0}$ mm	
	$L > 12$	$^{+by\cdot agreement}_{0}$	

8.4.11 For tubes with a specified outside diameter equal to or greater than 33,7 mm, the deviation from straightness over any tube length L, where L is the manufacturer's delivered length, shall not exceed 0,002 L.

NOTE It is not possible to specify a straightness requirement for this product with D less than 33,7 mm due to bending during processing and subsequent handling, however they should be reasonably straight.

8.5 A1 Leak tightness

All tubes shall be leak tight. Leak tightness shall be demonstrated either by a hydrostatic test or by an electromagnetic test in accordance with 9.6.

8.6 Dangerous substances

Tubes, produced in accordance with this European Standard, shall not release any dangerous substances in excess of the maximum permitted levels specified in the relevant European Standard for the material or permitted in the national regulations of the member state of destination.

8.7 Reaction to fire

In accordance with Commission Decision 96/303/EEC of 4 October 1996 amended by Council Decision of 28 September 2000 the material is Class A1 and therefore does not require to be tested to reaction to fire. ⟨A1⟩

9 Inspection

9.1 Type of inspection

Conformity to the requirements of the order shall be checked by non specific inspection and testing in accordance with EN 10021.

9.2 Inspection documents

Unless Option 11 is specified, tubes shall be supplied with an inspection document type 2.1, in accordance with EN 10204.

Option 11: *The tubes shall be supplied with an inspection document type 2.2, in accordance with EN 10204.*

9.3 Tensile test

The tensile test shall be performed on bare tube in accordance with EN 10002-1 and the following shall be determined;

— the tensile strength (R_m),

— the upper yield strength (R_{eH}) or,

  — if a yield phenomenon is not present, either the 0,2 % proof strength ($R_{p\ 0,2}$) or the 0,5 % total elongation ($R_{t\ 0,5}$),

— the percentage elongation after fracture (A) with a gauge length $L_0 = 5{,}65\sqrt{S_0}$,

  — if a non-proportional test piece is used, the percentage elongation value obtained shall be converted to the value for a gauge length $L_0 = 5{,}65\sqrt{S_0}$ using the conversion tables given in EN ISO 2566-1.

In cases of dispute, $R_{t\ 0,5}$ for the yield strength and a gauge length $L_0 = 5{,}65\sqrt{S_0}$ for elongation shall be used.

9.4 Bend test

The bend test shall be applied to bare tubes with specified outside diameters (D) of 17,2 mm up to and including 60,3 mm and shall be carried out in accordance with ⟨A1⟩ EN ISO 8491 ⟨A1⟩ to an angle of 90°.

The groove in the forming tool shall have a width that fits the tube diameter accurately and a depth not less than 0,5 D. The radius at the bottom of the groove of the former shall be as given in Table 4.

Welded tubes shall be bent with the weld at the outside of the bend.

The tubes shall show no cracks visible without magnifying aids.

Table 4 — Specified outside diameter (D) and corresponding bending radius

Dimensions in millimetres

D	17,2	21,3	26,9	33,7	42,4	48,3	60,3
Bending radius	50	65	85	100	150	170	220

9.5 Flattening test

The flattening test shall be applied to bare tubes with specified outside diameters (D) greater than 60,3 mm and shall be carried out in accordance with [A1] EN ISO 8492 [A1].

Welded tubes shall be flattened with the weld placed alternately at 0 or 90° (12 or 3 o'clock) to the direction of the flattening.

The tube section shall be flattened in a press until the distance between platens, measured under load, reaches 75 % of the original outside diameter of the tube. The tube shall show no cracks or flaws visible without magnifying aids.

No cracks or flaws visible without magnifying aids shall occur in the metal other than in the weld until the distance between platens, measured under load, reaches 60 % of the original outside diameter.

Slight premature failure at the edges shall not be considered as a cause for rejection.

9.6 Leak tightness test

Each tube (before threading, if applicable) shall be tested for leak-tightness.

At the discretion of the manufacturer, the test can be either a hydrostatic test at a minimum of 50 bar for at least 5 s [A1] , with no evidence of leaks [A1], or an electro-magnetic test in accordance with EN 10246-1.

9.7 Dimensional inspection

[A1] The dimensions of the pipe shall be inspected for compliance with 8.4, with equipments calibrated to provide an accuracy which can assure conformity with the requirements of this European Standard. [A1]

9.8 Visual examination

Tubes shall be visually examined to ensure compliance with 8.3.

10 Marking

10.1 The tubes shall be marked by suitable and durable methods with at least:

— the manufacturer's mark;

— the symbol to indicate the series (H or M) (see Table 2) or the type (L, L1 or L2) (see Annex B);

— the symbol S (seamless) or W (welded), to indicate the tube manufacturing process;

Marking shall appear at least once within 1 m of one end of each tube.

At the discretion of the manufacturer, the series or type marking may be replaced by color coding as follows:

— Heavy: red;

— Medium: blue;

— Types: see Annex B.

Color coding bands shall be approximately 50 mm wide.

10.2 Each bundle shall have a label attached which contains the following minimum information:

— the manufacturer's name or mark;

— the number of this European Standard EN 10255;

— the symbol S (seamless) or W (welded), to indicate the tube manufacturing process;

— the D (specified outside diameter) or R (thread size);

— the series or type or specified wall thickness.

11 Temporary protective coating

Unless Option 12 is specified, the tubes are supplied bare.

Option 12: *The tube shall be supplied with a temporary protective coating.*

12 〈A1〉 Evaluation of conformity

12.1 General

Conformance of tubes to this European Standard shall be demonstrated by:

- initial type testing (ITT);
- factory production control (FPC).

12.2 Initial type testing (ITT)

12.2.1 General

ITT is the complete set of tests or other procedures described in the technical specification, determining the performance of samples of products representative of the steel tube. Initial type testing shall be performed to show conformity with this document on first use of this European Standard for steel tubes suitable for welding or threading being put onto the market and:

- at the beginning of the production of a new or modified steel tube;
- at the beginning of a new or modified method of production.

Testing shall be carried out on the largest and thickest and the smallest and thinnest product manufactured by each process route/mill. The tests shall be carried out in accordance respectively with 9.3, 9.6 and 9.7 of this European Standard.

In the case of type testing on steel tubes for which initial type testing in accordance with this European Standard was already performed, type testing may be reduced:

- if it has been established that the performance characteristics compared with the already tested steel tubes have not been affected or;
- if historical data is available (see 12.2.4).

The results of all type tests shall be recorded and stored for at least 5 years.

12.2.2 Characteristics

All characteristics in Clause 8, for which the manufacturer is stating a value, shall be subject to ITT by tests and/or calculation and/or tabulated values in accordance with the relevant subclauses of Clause 8, with the exception of 'Release of dangerous substances'. This may be assessed indirectly by controlling the content of the substance concerned, providing the manufacturer is able to demonstrate the content, or lack, of the identified substance(s) and that the manufacturing process does not increase the level of any established substance(s).

12.2.3 Product families

For the purposes of testing (including FPC testing) steel tubes may be grouped into families, where it is considered that the results for a characteristic from any one product is common to all tubes within that family.

12.2.4 Use of historical data

Tests previously performed on the same steel tube design in accordance with the provisions of this document (same characteristic(s), test method, sampling procedure, system of attestation of conformity etc.) may be taken into account.

12.2.5 Deemed to satisfy' provisions and use of reference tabulated data

In those cases where conformity with this document is based on 'deemed to satisfy' provisions or tabulated values, type testing shall be limited to the verification of whether the steel tube meets the requirements to use those values, classes or levels, unless better values, classes or levels are being claimed.

12.2.6 Sampling

ITT shall be performed on samples of steel tubes in accordance with Table 5. The frequency of testing or assessment shall be in accordance with Clause 9, 12.2.1 and 12.3.1.

Table 5 — Characteristics and compliance criteria for initial type testing of tubes and fittings

Characteristic	Requirement clause	Test / assessment method	Compliance criteria
Yield strength	8.2.1 and Table 1	9.3	Threshold value
Dimensional tolerances	8.4	9.7	Pass
Tightness: liquid	8.5	9.6	Pass

12.3 Factory production control (FPC)

12.3.1 General

The manufacturer shall establish, document and maintain an FPC system to ensure that the products placed on the market conform to the stated performance characteristics. The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

An FPC system conforming with the requirements of EN ISO 9001, and made specific to the requirements of this European Standard, shall be considered to satisfy the above requirements.

The results of inspections, tests or assessments requiring action shall be recorded, as shall any action taken. The action to be taken when control values or criteria are not met shall be recorded and retained for the period specified in the manufacturer's FPC procedures.

12.3.2 Equipment

Testing - All weighing, measuring and testing equipment shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

Manufacturing - All equipment used in the manufacturing process shall be regularly inspected and maintained to ensure use, wear or failure does not cause inconsistency in the manufacturing process. Inspections and maintenance shall be carried out and recorded in accordance with the manufacturer's written procedures and the records retained for the period defined in the manufacturer's FPC procedures.

12.3.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their conformity.

12.3.4 Product testing and evaluation

The manufacturer shall establish procedures to demonstrate that the stated values of all declared performance characteristics are being maintained during regular production and record the results of these as part of the production control system. These records shall be retained for the period defined in the manufacturer's FPC procedures and shall include at least the following:

- identification of the product tested;
- the dates of sampling;
- the test methods used;
- the test and inspection results;
- the dates of the tests;
- the identification of the responsible authority within the factory.

12.3.5 Inspection

Inspection of steel tubes shall be in accordance with Clause 9, 12.2.1 and 12.3.1.

12.3.6 Non-conforming products

The manufacturer shall have written procedures which specify how non-conforming products shall be dealt with. Any such events shall be recorded as they occur and these records shall be kept for the period defined in the manufacturer's written procedures. A1

Annex A
(informative)

Correlation between specified outside diameter, thread size, and nominal diameter

Table A.1 provides information on the relationship between specified outside diameter (D) or thread size(R) and the nominal diameter (DN).

Table A.1 — Specified outside diameter, thread size and corresponding nominal diameter

Specified outside diameter D mm	Thread Size R	*Nominal Diameter* *DN*
10,2	1/8	6
13,5	¼	8
17,2	3/8	10
21,3	½	15
26,9	¾	20
33,7	1	25
42,4	1 ¼	32
48,3	1 ½	40
60,3	2	50
76,1	2 ½	65
88,9	3	80
114,3	4	100
139,7	5	125
165,1	6	150

Annex B
(normative)

Types of tubes with wall thickness different from medium and heavy series

B.1 General

This annex give the dimensions of Types of tubes which have wall thickness different from those included in Table 2.

B.2 Requirements

The tubes shall conform to the technical requirements specified in Clauses 5, 6, 7, 8, 9, 10 and 11, except for dimensions, masses and tolerances on diameter, which shall be in accordance with Tables B.1. B.2 or B.3, as applicable.

Cold formed tubes of Type L included in Table B.1 shall be heat treated.

B.3 Marking

Tubes of Type L shall be marked L and when colour coding replaces the marking, the colour shall be green.

Tubes of Type L1 shall be marked L 1 and when colour coding replaces the marking, the colour shall be white.

Tubes of Type L2 shall be marked L 2 and when colour coding replaces the marking, the colour shall be brown.

Table B.1 — Dimensions, diameter tolerance and mass per unit length of tubes: Type L

Specified outside diameter [a]	Designation of thread [a]	Outside diameter		Wall Thickness	Mass per unit length of bare tube	
D	R	max.	min.	T	Plain end.	Threaded and socketed
(mm)	--	(mm)	(mm)	(mm)	(kg/m)	(kg/m)
13,5	1/4	13,9	13,2	2,0	0,567	0,571
17,2	3/8	17,4	16,7	2,0	0,750	0,756
21,3	1/2	21,7	21,0	2,3	1,08	1,09
26,9	3/4	27,1	26,4	2,3	1,40	1,41
33,7	1	34,0	33,2	2,9	2,20	2,22
42,4	1 1/4	42,7	41,9	2,9	2,82	2,85
48,3	1 1/2	48,6	47,8	2,9	3,25	3,29
60,3	2	60,7	59,6	3,2	4,51	4,58
76,1	2 1/2	76,0	75,2	3,2	5,75	5,87
88,9	3	88,7	87,9	3,2	6,76	6,93
101,6	3 1/2	101,2	100,3	3,6	8,70	8,88
114,3	4	113,9	113,0	3,6	9,83	10,1
139,7	5	140,8	138,5	4,5	15,0	15,5
165,1	6	166,5	163,9	4,5	17,8	18,4

[a] For relationship between specified outside diameter (D), thread size (R) and nominal diameter (DN), see Annex A.

T = specified wall thickness.

Table B.2 — Dimensions, diameter tolerance and mass per unit length of tubes Type L1

Specified outside diameter [a]	Designation of thread [a]	Outside diameter		Wall Thickness	Mass per unit length of bare tube	
D	R	max.	min.	T	Plain end	Threaded and socketed
(mm)	--	(mm)	(mm)	(mm)	(kg/m)	(kg/mm)
13,5	1/4	13,9	13,2	2,0	0,570	0,574
17,2	3/8	17,4	16,7	2,0	0,742	0,748
21,3	1/2	21,7	21,0	2,3	1,08	1,09
26,9	3/4	27,1	26,4	2,3	1,39	1,40
33,7	1	34,0	33,2	2,9	2,20	2,22
42,4	1 1/4	42,7	41,9	2,9	2,82	2,85
48,3	1 1/2	48,6	47,8	2,9	3,24	3,28
60,3	2	60,7	59,6	3,2	4,49	4,56
76,1	2 1/2	76,3	75,2	3,2	5,73	5,85
88,9	3	89,4	87,9	3,6	7,55	7,72
114,3	4	114,9	113,0	4,0	10,8	11,1

[a] For relationship between specified outside diameter (D), thread size (R) and nominal diameter (DN), see Annex A.

T = specified wall thickness.

Table B.3 — Dimensions, diameter tolerance and mass per unit length of tubes Type L2

Specified outside diameter [a]	Designation of thread [a]	Outside diameter		Wall Thickness	Mass per unit length of bare tube	
D	R	max.	min.	T	Plain end	Threaded and socketed
(mm)	--	(mm)	(mm)	(mm)	(kg/m)	(kg/m)
13,5	1/4	13,6	13,2	1,8	0,515	0,519
17,2	3/8	17,1	16,7	1,8	0,670	0,676
21,3	1/2	21,4	21,0	2,0	0,947	0,956
26,9	3/4	26,9	26,4	2,3	1,38	1,39
33,7	1	33,8	33,2	2,6	1,98	2,00
42,4	1 1/4	42,5	41,9	2,6	2,54	2,57
48,3	1 1/2	48,4	47,8	2,9	3,23	3,27
60,3	2	60,2	59,6	2,9	4,08	4,15
76,1	2 1/2	76,0	75,2	3,2	5,71	5,83
88,9	3	88,7	87,9	3,2	6,72	6,89
114,3	4	113,9	113,0	3,6	9,75	10,0

[a] For relationship between specified outside diameter (D), thread size (R) and nominal diameter (DN), see Annex A.

T = specified wall thickness.

Annex ZA
(informative)

[A1] Clauses of this European Standard addressing the provisions of the EC Construction Products Directive for applications covered by Mandate M/131

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under Mandate M/131 “PIPES, TANKS and ANCILLARIES not in contact with water intended for human consumption” given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard shown in this annex meet the requirements of the Mandate given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of the construction products covered by this annex for their intended uses indicated herein; reference shall be made to the information accompanying the CE marking.

WARNING: Other requirements and other EU Directives, not affecting the fitness for intended use may be applicable to a construction product falling within the scope of this standard.

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA (accessed through http://ec.europa.eu/enterprise/construction/internal/dangsub/dangmain_en.htm).

This annex establishes the conditions for the CE marking of the non-alloy steel tubes suitable for welding and threading intended for the uses indicated in Table ZA.1 and shows the relevant clauses applicable.

This annex has the same scope as Clause 1 of this standard and is defined by Table ZA.1.

Table ZA.1 — Relevant clauses

Construction product: Non-Alloy steel tubes suitable for welding and threading Intended uses: Distribution of aqueous liquids, gas and fuel.			
Requirement/characteristic from the mandate	Requirement clauses in this standard	Mandated Levels and/or classes	Notes
Reaction to fire	8.7	Class A1	-
Yield strength	8.2 and Table 1		Threshold (MPa)
Dimensional tolerances	8.4.3 to 8.4.6		Pass/fail
Tightness: Gas and liquid	8.5		Pass/fail
Dangerous substances	8.6		ppm (declared content)
Durability [a]	7.4		μm
[a] Durability is dependent on the method of protection and/or the type and thickness of the coating.			

The requirement on a certain characteristic is not applicable in those Member States where there are no regulatory requirements on that characteristic for the intended use of the product. In this case manufacturers placing their products on the market of these Member States are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option “No performance determined” (NPD) in the information accompanying the CE marking (see ZA.3) may be used. The NPD option may not be used, however, where the characteristic is subject to a threshold level.

ZA.2 Procedure for attestation of conformity of pipes

ZA.2.1 Systems of attestation of conformity

The systems of attestation of conformity of non-alloy steel tubes indicated in Table ZA.1 in accordance with the Decision of the Commission (1999/472/EC) of as given in Annex III of the mandate for “PIPES, TANKS and ANCILLARIES not in contact with water intended for human consumption” is shown in Table ZA.2.1 and Table ZA.2.2 for the indicated intended use(s) and relevant level(s) or class(es).

Table ZA.2.1 — System of attestation of conformity

Product	Intended use	Level(s) or class(es)	Attestation of conformity system(s)
Non-alloy steel Tubes	In installations for the transport/distribution/storage of gas/fuel intended for the Supply of building heating/cooling systems, from the external storage reservoir or the last pressure reduction unit of the boiler/heater/cooler system(s) of the building(s)	-	3
	In installations for the transport/disposal/storage of water, not intended for human consumption.	-	4
System 3: See Directive 89/106/EEC (CPD) Annex III.2.(ii), second possibility System 4: See Directive 89/106/EEC (CPD) Annex III.2. (ii), Third possibility			

The attestation of conformity of the non-alloy steel tubes in Table ZA.1 shall be according to the evaluation of conformity procedures indicated in Tables ZA.2.2 to ZA.2.3 resulting from application of the clauses of this or other European Standard indicated therein.

Table ZA.2.2 — Assignment of evaluation of conformity tasks for Non-alloy steel Tubes under system 3

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1 relevant for the intended use	12.3
	Initial type testing (ITT) by a notified test laboratory	Yield strength Dimensional tolerances Tightness: Gas and Liquid	12.2
	Initial type testing (ITT) by the manufacturer	Declaration Class A1 Durability	

Table ZA.2.3 — Assignment of evaluation of conformity tasks for Non-alloy steel Tubes under system 4

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1 relevant for the intended use	12.3
	Initial type testing (ITT) by the manufacturer	All characteristics of Table ZA.1 relevant for the intended use	12.2

ZA.2.2 Declaration of conformity

(In case of products under system 3): When compliance with the conditions of this annex is achieved, the manufacturer or his agent established in the EEA shall draw up and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 1 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

- description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;

NOTE 2 Where some of the information required for the Declaration is already given in the CE marking information, it does not need to be repeated.

- provisions to which the product conforms (i.e. Annex ZA of this EN), and a reference to the ITT report(s) and factory production control records (if appropriate);
- particular conditions applicable to the use of the product, (e.g. provisions for use under certain conditions);
- name and address of the notified laboratory(ies);
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

(In case of products under system 4): When compliance with this annex is achieved, the manufacturer or his agent established in the EEA shall draw up and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 3 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

- description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;

NOTE 4 Where some of the information required for the Declaration is already given in the CE marking information, it does not need to be repeated.

- provisions to which the product conforms (i.e. Annex ZA of this EN), and a reference to the ITT -report(s) and factory production control records (if appropriate);
- particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

NOTE 5 Duplication of information between the declaration and certificate should be avoided. To avoid duplication of information, cross-reference between documents may be made when one contains more information than the other.

The above mentioned declaration and certificate shall be presented in the language or languages accepted in the Member State in which the product is to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to affix shall be in accordance with Directive 93/68/EC and shall be shown on the [construction product] (or when not possible it may be on the accompanying label, the packaging or on the accompanying commercial documents e.g. a delivery note. The following information shall accompany the CE marking symbol:

- name or identifying mark and registered address of the manufacturer (see Note 1 in ZA.2.2);
- the last two digits of the year in which the marking is affixed;
- reference to this European Standard;
- description of the product: generic name, material, dimensions, … and intended use;
- information on those relevant essential characteristics listed in Table ZA.1 which are to be declared;
- declared values and, where relevant, level or class (including “pass” for pass/fail requirements, where necessary) to declare for each essential characteristic as indicated in "Notes" in Table ZA.1;
- “No performance determined” for characteristics where this is relevant.

The “No performance determined” (NPD) option may not be used where the characteristic is subject to a threshold level. Otherwise, the NPD option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements in the Member State of destination.

Figure ZA.1 gives an example of the information to be given on commercial documents.

CE		CE conformity marking, consisting of the CE symbol given in the Directive 93/68/EEC
Any Co Ltd, PO. Box 21, B -1050		Name or identifying mark and registered address of the manufacturer
07		Last two digits of the year in which the marking was affixed
EN 10255:2004+A1:2007		Number of the European Standard
26,9 x 2,6 mm Non-Alloy steel tubes suitable for welding and threading		Description of the product
Intended uses: Distribution of aqueous liquids, gas and fuel.		
Reaction to fire:	Euroclass A 1	Information on regulated characteristics
Minimum specified yield strength:	195 MPa	
Durability:	Uncoated (NPD)	
Dimensions:	Pass	
Leak tightness:	Pass	

Figure ZA.1 — Example of CE marking information

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE European legislation without national derogations need not be mentioned. A1

[A1⟩ *deleted text* ⟨A1]

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: +44 (0)20 8996 9000. Fax: +44 (0)20 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: +44 (0)20 8996 9001. Fax: +44 (0)20 8996 7001. Email: orders@bsi-global.com. Standards are also available from the BSI website at http://www.bsi-global.com.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: +44 (0)20 8996 7111. Fax: +44 (0)20 8996 7048. Email: info@bsi-global.com.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: +44 (0)20 8996 7002. Fax: +44 (0)20 8996 7001. Email: membership@bsi-global.com.

Information regarding online access to British Standards via British Standards Online can be found at http://www.bsi-global.com/bsonline.

Further information about BSI is available on the BSI website at http://www.bsi-global.com.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL