

ICS 23.040.10; 77.140.70

English version

Seamless and welded steel tubes - Dimensions and masses per unit length

Tubes lisses en acier, soudés et sans soudure - Tableaux généraux des dimensions et des masses linéiques

Nahtlose und geschweißte Stahlrohre - Allgemeine Tabellen für Maße und längenbezogene Masse

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Foreword

This document (EN 10220:2002) 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of an identical text or by endorsement, at the latest by June 2003, and conflicting national standards shall be withdrawn at the latest by June 2003.

When transforming the European Prestandard ENV 10220 into this European Standard EN 10220, ECISS/TC 29 regarded it as necessary to avoid any conflict with and to deviate as little as possible from ISO 4200:1991 because of the international trade in steel tubes and tubular products.

Table 1 of ENV 10220, which is identical with Table 2 of ISO 4200:1991, was therefore left unchanged for EN 10220.

Table 2 of EN 10220 contains dimensions for heavy wall tubes, that are not covered by ISO 4200:1991.

All parts of the European Standard series EN 10305 on steel tubes for precision applications contain tables with preferred dimensions, that are specific for the various parts of the standards series and the products and fields of application specified therein. Therefore, Table 3 from ENV 10220 with preferred dimensions for steel tubes for precision applications has become unnecessary, and has not been included in this standard.

This document supersedes ENV 10220:1993.

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

1 Scope

This European Standard specifies, for seamless and welded circular steel tubes for general purposes (e. g. mechanical, pressure and structural applications), the following:

- preferred dimensions for outside diameter and wall thickness in millimetres and
- masses per unit length in kilogrammes per metre of plain end tube.

Technical Committees of ECISS and CEN should select these preferred dimensions for their product or functional standards, where appropriate.

The outside diameters are classified into three series reflecting the availability of accessories for piping systems (see Clause 4). This classification of outside diameters into different series and of preferred wall thicknesses indicates the range of steel tubes usually produced.

NOTE Information on dimensions for steel tubes for special applications can be found in other European Standards, e.g. prEN 10255, EN 10305 series, EN ISO 11960 and EN ISO 11961, information on dimensions for stainless steel tubes in EN ISO 1127.

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 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).

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

3 Terms and definitions

For the purpose of this European Standard the terms and definitions in prEN 10266 apply.

4 Classification of outside diameters

The outside diameters given in Tables 1 and 2 are classified into three series which may be described in the following way:

- series 1: outside diameters for which all the accessories needed for the construction of piping systems are standardized;
- series 2: outside diameters for which not all accessories are standardized;
- series 3: outside diameters for which very few standardized accessories exist.

NOTE 1 It is recommended to select, for tubes intended to be used as components of piping systems, outside diameters from series 1 in Table 1. Tubes with outside diameters in accordance with series 2 and 3 may not, or not easily, be available.

NOTE 2 Accessories for heavy wall tubes with dimensions in accordance with Table 2 may not be available regardless of the series in Table 1 to which the relevant outside diameter is allocated.

5 Method of calculating masses per unit length

The masses per unit length given in Tables 1 and 2 have been calculated from outside diameter D and wall thickness T to at least five significant figures, using the formula given below. They have been rounded to three significant figures for values of less than 100 and to the nearest whole number for larger values.

$$M = (D - T) T \times 0,0246615^{1)} \text{ kg/m}$$

where

M is the mass per unit length in kg/m,

D is the specified outside diameter in mm and

T is the specified wall thickness in mm.

The calculated values may also be applied to tubes with different density values, but have then to be multiplied by a factor of

- 1,015 for austenitic stainless steel²⁾
- 0,985 for ferritic and martensitic stainless steel³⁾.

NOTE EN 10088-1 provides distinguished density values for various groups of stainless steel grades which may be used for calculating purposes.

6 Dimensions and masses per unit length

Table 1 gives dimensions consisting of outside diameters D , from 3 series as described in Clause 4, and related wall thicknesses $T \leq 65$ mm and the calculated masses per unit length of plain end tube.

Table 2 gives dimensions consisting of outside diameters D and related wall thicknesses T from 70 mm to 100 mm and the calculated masses per unit length of plain end tube.

1) This factor is based on a density of 7,85 kg/dm³.

2) This factor is based on a density of 7,97 kg/dm³.

3) This factor is based on a density of 7,73 kg/dm³.

Table 2 – Dimensions (wall thicknesses $70 \text{ mm} \leq T \leq 100 \text{ mm}$) and masses per unit length

Outside Diameter D mm	Wall thickness T , mm			
	70	80	90	100
	Mass per unit length kg/m			
219,1	257			
244,5	301	325		
273	350	381		
323,9	438	481	519	552
355,6	493	544	590	630
406,4	581	644	702	765
457	668	744	815	880
508	756	844	928	1006
559	844	945	1041	1132
610	932	1046	1154	1258
660	1019	1144	1265	1381
711	1107	1245	1378	1507

Bibliography

EN 10088-1, *Stainless steels – Part 1: List of stainless steels.*

prEN 10255, *Non-alloy steel tubes suitable for welding or threading – Technical delivery conditions.*

EN 10305-1, *Steel tubes for precision applications – Technical delivery conditions - Part 1: Seamless cold drawn tubes.*

EN 10305-2, *Steel tubes for precision applications – Technical delivery conditions - Part 2: Welded cold drawn tubes.*

EN 10305-3, *Steel tubes for precision applications – Technical delivery conditions - Part 3: Welded cold sized tubes.*

prEN 10305-4, *Steel tubes for precision applications – Technical delivery conditions - Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems.*

prEN 10305-5, *Steel tubes for precision applications – Technical delivery conditions - Part 5: Welded and cold sized square and rectangular tubes.*

prEN 10305-6, *Steel tubes for precision applications – Technical delivery conditions - Part 6: Welded cold drawn tubes for hydraulic and pneumatic power systems.*

EN ISO 1127, *Stainless steel tubes - Dimensions, tolerances and conventional masses per unit length (ISO 1127:1992).*

EN ISO 11960, *Petroleum and natural gas industries – Steel pipes for use as casing or tubing for wells (ISO 11960:2001)*

EN ISO 11961, *Petroleum and natural gas industries – Steel pipes for use as drill pipe – Specification (ISO 11961:1996).*

ISO 4200:1991, *Plain end steel tubes, welded and seamless – General tables of dimensions and masses per unit length.*