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Handläggande organ

SMS, SVERIGES MEKANSTANDARDISERING

SVENSK STANDARD SS-ENV 10 220

Fastställd	Utgåva	Sida
1994-03-25	1	1 (1 + 12)

Stålrör — Sömlösa och svetsade — Mått samt massa per längdenhet

Den europeiska förstandarden ENV 10 220:1993 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ENV 10 220:1993.

Standarden ersätter SMS 1777, SMS 1786, SS 1787, SMS 1795, SMS 1886, SS 1887 och SMS 1895.

Motsvarigheten och aktualiteten i svensk standard till de publikationer som omnämns i denna standard framgår av "Katalog över svensk standard", som årligen ges ut av SIS. I katalogen redovisas internationella och europeiska standarder som fastställts som svenska standarder och övriga gällande svenska standarder.

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

The European Prestandard ENV 10 220:1993 has the status of a Swedish Standard. This document contains the official English version of ENV 10 220:1993.

This standard supersedes the Swedish Standards SMS 1777, SMS 1786, SS 1787, SMS 1795, SMS 1886, SS 1887 and SMS 1895.

Swedish Standards corresponding to documents referred to in this Standard are listed in "Catalogue of Swedish Standards", annually issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

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ENV 10220

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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 - Maße und längenbezogene Masse

This European Prestandard (ENV) was approved by CEN on 1993-11-05 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into an European Standard (EN).

CEN members are required to announce the existance of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

The European Committee for Iron and Steel Standardization (ECISS) placed the order to the Technical Committee ECISS/TC 29 "Steel tubes and fittings for steel tubes" to elaborate an European dimensional standard defining dimensions and masses of steel tubes on the basis of ISO 4200: 1991. The work on the corresponding standard EN 10 220 is coordinated by ECISS/TC 29/SC 8 "Steel tubes; dimensions and tolerances" the secretariat of which is held by Normenausschuß Eisen und Stahl (FES) in DIN.

ECISS/TC 29/SC 8 regarded it as necessary in developing EN 10 220 to

- adhere to the principle on which ISO 4200 was based; i. e. to take into account present practice even if this is not quite in line with a pure metric dimensional series.

- preserve the essential details agreed in ISO for tube dimen sions because of the international trade in steel tubes and tube products.

Table 2 and table 3 of ISO 4200 were therefore adopted unchanged into this document as tables 1 and 3.

The committee noted however various possibilities for amendment of ISO 4200 as outlined below.

In order to allow for discussion of these proposals in ISO/TC 5/ SC 1, and considering that EN 10 220 should not be published until decisions have been taken on these proposals in ISO TC 5/SC 1, ECISS/TC 29/SC 8 prefers to publish this document for the time being as European Prestandard (ENV).

In preparing the European Prestandard the following amendments were considered necessary:

a) The scope of ISO 4200 was considered to be insuffiently clear particularly with reference to the terms "tubes for general purposes" "precision tubes" and "particular use and application", and has therefore been revised.

b) Table 1 and the relevant clause 3 were deleted for the follow- ing reason:

The indications given in clause 3 for the use of the dimensions covered by groups A to G were not regarded as generally appli-

cable. It should be left to the committees for the various fields of application and to the competent subcommittees for steel tubes to specify a reasonable selection of pipes from general dimensional tables.

c) In order to indicate the manufacturing range for seamless tubes an additional table was added (as table 2) with the note that the dimensions specified there are not usually stock dimensions and that fittings and accessories may be not available for them.

The following propositions were identified for discussion in ISO/TC 5/SC 1 for later implementation in EN 10 220.

d) In the scope the most important aims of the standard should be made more clear:

- to rationalize manufacturing and stockholding of tubes;
- to provide tubes for piping systems fitted to the dimensions of accessories;
- to indicate the range of producible dimensions.

e) Further in the scope or at another appropriate place it should be indicated that the competent Subcommittees for steel tubes and the application committees should select from the preferred dimensions a restricted number for their purposes.

f) In view of the aims mentioned under d) and e) it is intended to review the need for those dimensions marked in annex 1 (table A.1) and to reduce the series 2 and 3 to one series.

g) All wall thicknesses should be reviewed. Especially the wall thickness of 5,4 mm seems not to be necessary. The same seems to apply for the wall thickness of 65 mm after having implemented the new table 2.

h) Outside diameter 762 mm should be inserted in series 1. Outside diameters greater than 1 554 mm which are not being delivered from stocks should only quote the diameter and a range of thickness.

i) A detailed proposal for the amendment of table 3 is to be expected after discussions in ECISS/TC 29/SC 11/WG 3 (Tubes for mechanical and general engineering purposes - Precision tubes). Probably this will cover the proposal to extend the range of diameters up to about 400 mm.

j) The conversion factors to be used for calculatuion of masses per unit length for high-alloy steel tubes should be taken from ISO 683-13:1986 with the note given there to table 8.

This European Prestandard was adopted and following countries are bound to announce the existence of this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

1 Scope

This European Prestandard gives tables of preferred dimensions in millimetres and masses per unit length in kilogrammes per metre of plain end seamless and welded steel tubes. It covers two groups of tubes:

- group 1: tubes for general purposes (e. g. pressure, structural and mechanical application; see tables 1 and 2)
- group 2: tubes for special requirements regarding tolerances and surface finish, called "precision tubes" in the following (see table 3)

Relevant subcommittees of ECISS and relevant Technical Committees of CEN should select these dimensions for their tubes.

The outside diameters are classified into three series for group 1 and two series for group 2 reflecting the availability of other components of a pipe line (see clause 2). This classification of outside diameters into different series and of preferred wall thicknesses indicates the range of manufactured steel tube available today.

The masses given in the Prestandard are calculated from the nominal diameter and thickness. To calculate the masses per unit length of tubes with different dimensions from those given in the tables, the formula in clause 3 should be used.

It should be noted that it may not be possible in all cases to supply series 2 and 3 tube sizes for which the values are given in the tables.

2 Classification of outside diameters

The tubes in accordance with this European Prestandard are classified in three series which may be defined in the following way:

- series 1: tubes for which all the accessories needed for the construction of piping systems are standardized
- series 2: tubes for which not all accessories are standardized
- series 3: tubes for special applications for which very few standardized accessories exist. Some of these diameters may be withdrawn in due course.

3 Method of calculating masses per unit length

The values of the masses per unit length have been calculated to at least five significant figures, precisely as specified in the formula given below, and have then been rounded to three significant figures for values of less than 100 and to the nearest whole number for larger values.

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

where

M is the mass per unit length in kg/m,
D is the specified outside diameter in mm and
T is the specified 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 steel
- 0,985 for ferritic and martensitic stainless steel.

Note: These factors may possibly be changed using the coefficients recommended by ISO/TC 17 in ISO 683-13, table 8.

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1) This factor is based on a density of 7,85 kg/dm^3

4 Dimensions and masses per unit length

4.1 Group 1

Table 1 gives dimensions and the values of the masses per unit length for tubes for general purposes and for use as components in piping systems. Table 2 offers additional values for seamless tubes with higher thickness.

For tubes intended to be used as components in piping systems, it is recommended that only those dimensions in table 1 in series 1 outside diameters should be applied.

4.2 Group 2

Table 3 gives the dimensions and values of the masses per unit length for precision steel tubes.