INTERNATIONAL STANDARD 65

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Steel tubes suitable for screwing in accordance with International Standard ISO 7

First edition — 1973-11-15

UDC 621.643.2-181 : 669.14

Ref. No. ISO 65-1973 (E)

Descriptors : tubes, metal tubes, dimensions, characteristics.

Price based on 5 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 65 was drawn up by Technical Committee ISO/TC 5, *Metal pipes and fittings*. It was submitted directly to the ISO Council, in accordance with clause 6.12.1 of the Directives for the technical work of ISO.

This International Standard cancels and replaces ISO Recommendation R 65-1971, second edition.

Printed in Switzerland

Steel tubes suitable for screwing in accordance with International Standard ISO 7

1 SCOPE AND FIELD OF APPLICATION

This International Standard establishes the dimensions and the characteristics of seamless and welded steel tubes for four separate series, namely :

1) **heavy series** : for seamless and welded steel tubes.

2) **medium series** : for seamless and welded steel tubes.

3) **light series I** : for seamless and welded steel tubes.

4) **light series II** : for welded steel tubes.

The dimensions in millimetres and in inches, given in the tables, are considered to be "corresponding values", although some of them are not exact equivalents. In all cases, however, the dimensions ensure practical interchangeability.

2 REFERENCES

ISO 7 (revision of ISO/R 7).

ISO 50 (revision of ISO/R 50).

3 METHOD OF CALCULATION

The values of the masses per unit length, to at least five significant figures, have been calculated by the following formulae :

- for the metric system :
  $m = (D - a) \cdot a \cdot 0{,}024\,661\,5^{*}$ kg/m . . . (A)
- for the inch system :
  $m = (D - a) \cdot a \cdot 10.681\,42^{**}$ lb/ft . . . (B)

where

m is the mass per unit length;

D is the specified outside diameter;

a is the specified thickness.

The lb/ft value (B) is then converted to the kg/m value (C) by multiplying it by 1,488 2.

$$\text{Mean value in kg/m (D)} = \frac{(A) + (C)}{2}$$

If this value does not differ by more than 1,5 % from either (A) or (C), the tube dimensions are considered to be "corresponding" and the value (D) is the agreed value for tubes of the dimensions concerned, whether these dimensions be metric or inch. The mean value in kg/m (D) is rounded to three significant figures.

The equivalent mean lb/ft value (E) is found by dividing the rounded value (D) by 1,488 2. This value (E) is then rounded to three significant figures.

The values given in the tables are those of (D) and (E).

* This coefficient takes into account a density equal to 7,85 kg/dm^3.

** This coefficient takes into account a density equal to 489.6 lb/ft^3.

4 HEAVY SERIES

4.1 Dimensions and masses per unit length

TABLE 1

Nominal bore		Outside diameter Corresponding values				Thickness Corresponding values		Conventional mass per unit length			
		max.	min.	max.	min.			Plain-end tubes		Screwed and socketed tubes	
mm	in	mm	mm	in	in	mm	in	kg/m	lb/ft	kg/m	lb/ft
6	1/8	10,6	9,8	0.417	0.386	2,65	0.104	0,493	0.331	0,496	0.333
8	1/4	14,0	13,2	0.551	0.520	2,9	0.116	0,769	0.517	0,773	0.520
10	3/8	17,5	16,7	0.689	0.657	2,9	0.116	1,02	0.686	1,03	0.690
15	1/2	21,8	21,0	0.858	0.827	3,25	0.128	1,45	0.977	1,46	0.983
20	3/4	27,3	26,5	1.075	1.043	3,25	0.128	1,90	1.27	1,91	1.28
25	1	34,2	33,3	1.346	1.311	4,05	0.160	2,97	2.00	2,99	2.01
32	1 1/4	42,9	42,0	1.689	1.654	4,05	0.160	3,84	2.58	3,87	2.60
40	1 1/2	48,8	47,9	1.921	1.886	4,05	0.160	4,43	2.98	4,47	3.01
50	2	60,8	59,7	2.394	2.350	4,5	0.176	6,17	4.14	6,24	4.19
65	2 1/2	76,6	75,3	3.016	2.965	4,5	0.176	7,90	5.31	8,02	5.39
80	3	89,5	88,0	3.524	3.465	4,85	0.192	10,1	6.76	10,3	6.87
100	4	115,0	113,1	4.528	4.453	5,4	0.212	14,4	9.71	14,7	9.91
125	5	140,8	138,5	5.543	5.453	5,4	0.212	17,8	12.0	18,3	12.3
150	6	166,5	163,9	6.555	6.453	5,4	0.212	21,2	14.3	21,8	14.7

4.2 Thread

In accordance with ISO 7.

4.3 Socket

Minimum length in accordance with ISO 50.

4.4 Tolerances on thickness

+ not limited.
− 12,5 %.
− 15 % on isolated areas, on a length not exceeding twice the outside diameter, provided this reduction in thickness affects only the external surface.

4.5 Tolerances on mass

± 10 % for each tube.
± 7,5 % per load of 10 t minimum.

4.6 Lengths

Unless otherwise specified, 4 to 7 m (corresponding values 13 to 23 ft).

4.7 Steel

To be defined in conjunction with Technical Committee ISO/TC 17, *Steel.*

4.8 Hydraulic test pressure

50 bar (corresponding value 700 lbf/in^2). (1 bar = 10^5 N/m^2.)

4.9 Application

The national Committees may lay down the limits of application for these tubes in accordance with the regulations in force in their country.

5 MEDIUM SERIES

5.1 Dimensions and masses per unit length

TABLE 2

Nominal bore		Outside diameter Corresponding values				Thickness Corresponding values		Conventional mass per unit length			
		max.	min.	max.	min.			Plain-end tubes		Screwed and socketed tubes	
mm	in	mm	mm	in	in	mm	in	kg/m	lb/ft	kg/m	lb/ft
6	1/8	10,6	9,8	0.417	0.386	2,0	0.080	0,407	0.273	0,410	0.275
8	1/4	14,0	13,2	0.551	0.520	2,35	0.092	0,650	0.437	0,654	0.440
10	3/8	17,5	16,7	0.689	0.657	2,35	0.092	0,852	0.573	0,858	0.577
15	1/2	21,8	21,0	0.858	0.827	2,65	0.104	1,22	0.822	1,23	0.828
20	3/4	27,3	26,5	1.075	1.043	2,65	0.104	1,58	1.06	1,59	1.07
25	1	34,2	33,3	1.346	1.311	3,25	0.128	2,44	1.64	2,46	1.65
32	1 1/4	42,9	42,0	1.689	1.654	3,25	0.128	3,14	2.11	3,17	2.13
40	1 1/2	48,8	47,9	1.921	1.886	3,25	0.128	3,61	2.43	3,65	2.46
50	2	60,8	59,7	2.394	2.350	3,65	0.144	5,10	3.42	5,17	3.47
65	2 1/2	76,6	75,3	3.016	2.965	3,65	0.144	6,51	4.38	6,63	4.46
80	3	89,5	88,0	3.524	3.465	4,05	0.160	8,47	5.69	8,64	5.80
100	4	115,0	113,1	4.528	4.453	4,5	0.176	12,1	8.14	12,4	8.34
125	5	140,8	138,5	5.543	5.453	4,85	0.192	16,2	10.9	16,7	11.2
150	6	166,5	163,9	6.555	6.453	4,85	0.192	19,2	12.9	19,8	13.3

5.2 Thread

In accordance with ISO 7.

5.3 Socket

Minimum length in accordance with ISO 50.

5.4 Tolerances on thickness

+ not limited.
− 12,5 %.
− 15 % on isolated areas, on a length not exceeding twice the outside diameter, provided this reduction in thickness affects only the external surface.

5.5 Tolerances on mass

± 10 % for each tube.
± 7,5 % per load of 10 t minimum.

5.6 Lengths

Unless otherwise specified, 4 to 7 m (corresponding values 13 to 23 ft).

5.7 Steel

To be defined in conjunction with Technical Committee ISO/TC 17, *Steel.*

5.8 Hydraulic test pressure

50 bar (corresponding value 700 lbf/in^2). (1 bar = 10^5 N/m^2.)

5.9 Application

The national Committees may lay down the limits of application for these tubes in accordance with the regulations in force in their country.

6 LIGHT SERIES I

6.1 Dimensions and masses per unit length

TABLE 3

Nominal bore		Outside diameter Corresponding values				Thickness Corresponding values		Conventional mass per unit length			
		max.	min.	max.	min.			Plain-end tubes		Screwed and socketed tubes	
mm	in	mm	mm	in	in	mm	in	kg/m	lb/ft	kg/m	lb/ft
6	1/8	10,4	9,7	0.409	0.383	1,8	0.072	0,369	0.248	0.372	0.250
8	1/4	13,9	13,2	0.547	0.518	2,0	0.080	0,573	0.385	0,577	0.388
10	3/8	17,4	16,7	0.685	0.656	2,0	0.080	0,747	0.502	0,753	0.506
15	1/2	21,7	21,0	0.854	0.825	2,35	0.092	1,10	0.737	1,11	0.743
20	3/4	27,1	26,4	1.067	1.041	2,35	0.092	1,41	0.948	1,42	0.958
25	1	34,0	33,2	1.339	1.309	2,9	0.116	2,21	1.49	2,23	1.50
32	1 1/4	42,7	41,9	1.681	1.650	2,9	0.116	2,84	1.91	2,87	1.93
40	1 1/2	48,6	47,8	1.913	1.882	2,9	0.116	3,26	2.19	3,30	2.22
50	2	60,7	59,6	2.390	2.347	3,25	0.128	4,56	3.06	4,63	3.11
65	2 1/2	76,3	75,2	3.004	2.960	3,25	0.128	5,81	3.90	5,93	3.98
80	3	89,4	87,9	3.520	3.460	3,65	0.144	7,65	5.14	7,82	5.25
100	4	114,9	113,0	4.524	4.450	4,05	0.160	11,0	7.39	11,3	7.59

6.2 Thread

In accordance with ISO 7.

6.3 Socket

Minimum length in accordance with ISO 50.

6.4 *Tolerances on thickness*

+ not limited.
− 12,5 %.
− 15 % on isolated areas, on a length not exceeding twice the outside diameter provided this reduction in thickness affects only the external surface.

6.5 Tolerances on mass

± 10 % for each tube.
± 7,5 % per load of 10 t minimum.

6.6 Lengths

Unless otherwise specified, 4 to 7 m (corresponding values 13 to 23 ft).

6.7 Steel

To be defined in conjunction with Technical Committee ISO/TC 17, *Steel*.

6.8 Hydraulic test pressure

50 bar (corresponding value 700 lbf/in^2). (1 bar = 10^5 N/m^2.)

6.9 Application

The national Committees may lay down the limits of application for these tubes in accordance with the regulations in force in their country.

7 LIGHT SERIES II

7.1 Dimensions and masses per unit length

TABLE 4

Nominal bore		Outside diameter Corresponding values				Thickness Corresponding values		Conventional mass per unit length			
		max.	min.	max.	min.			Plain-end tubes		Screwed and socketed tubes	
mm	in	mm	mm	in	in	mm	in	kg/m	lb/ft	kg/m	lb/ft
6	1/8	10,1	9,7	0.396	0.383	1,8	0.072	0,361	0.243	0,364	0.245
8	1/4	13,6	13,2	0.532	0.518	1,8	0.072	0,517	0.347	0,521	0.350
10	3/8	17,1	16,7	0.671	0.656	1,8	0.072	0,674	0.453	0,680	0.457
15	1/2	21,4	21,0	0.841	0.825	2,0	0.080	0,952	0.640	0,961	0.646
20	3/4	26,9	26,4	1.059	1.041	2,35	0.092	1,41	0.944	1,42	0.954
25	1	33,8	33,2	1.328	1.309	2,65	0.104	2,01	1.35	2,03	1.36
32	1 1/4	42,5	41,9	1.670	1.650	2,65	0.104	2,58	1.73	2,61	1.75
40	1 1/2	48,4	47,8	1.903	1.882	2,9	0.116	3,25	2.19	3,29	2.22
50	2	60,2	59,6	2.370	2.347	2,9	0.116	4,11	2.76	4,18	2.81
65	2 1/2	76,0	75,2	2.991	2.960	3,25	0.128	5,80	3.90	5,92	3.98
80	3	88,7	87,9	3.491	3.460	3,25	0.128	6,81	4.58	6,98	4.69
100	4	113,9	113,0	4.481	4.450	3,65	0.144	9,89	6.64	10,2	6.84

7.2 Thread

In accordance with ISO 7, except that the minimum length of thread may be reduced to 80 % of that shown in column 15 of ISO 7.

7.3 Socket

Minimum length in accordance with ISO 50.

7.4 Tolerances on thickness

+ not limited.
− 8 %.

7.5 Tolerances on mass

$\left.\begin{matrix} +\ 10 \\ -\ 8 \end{matrix}\right\}$ % for each tube.

± 5 % per load of 10 t minimum.

7.6 Lengths

Unless otherwise specified, 4 to 7 m (corresponding values 13 to 23 ft).

7.7 Steel

To be defined in conjunction with Technical Committee ISO/TC 17, *Steel*.

7.8 Hydraulic test pressure

50 bar (corresponding value 700 lbf/in^2). (1 bar = 10^5 N/m^2.)

7.9 Application

The national Committees may lay down the limits of application for these tubes in accordance with the regulations in force in their country.