SASO ISO 65: 2007
ISO 65 :1981

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ISO 65 : 1981

أنابيب الفولاذ الكربوني القابلة للولبة وفقاً لـISO7-1

- Carbon steel tubes suitable - for screwing in accordance with ISO 7-1

تقديم وطني

قامـت الهيـئة العربية السعودية للمواصفات والمقاييس بتبني المواصفة القياسية الدولية التالية دون إدخال أي تعديلات فنية عليها:

ISO65 : 1981 " أنابيب الفولاذ الكربوني القابلة للولبة وفقاً لـ ISO 7-1 ."

NATIONAL FOREWORD

The Saudi Arabian Standards Organization (SASO) has adopted without any technical changes the International Standard:

ISO 65 : 1981 “Carbon steel tubes suitable for screwing in accordance with ISO 7-1”

International Standard 65

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

Carbon steel tubes suitable for screwing in accordance with ISO 7/1

Tubes en acier au carbone filetables selon ISO 7/1

Second edition — 1981-04-15

UDC 621.643.23 **Ref. No. ISO 65-1981 (E)**

Descriptors : piping, steel tubes, welded tubes, seamless tubes, materials specifications, appearance, dimensions, linear density, diameters.

Price based on 3 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 developed by Technical Committee ISO/TC 5, *Metal pipes and fittings*, and was circulated by the member bodies in December 1979.

It has been approved by the member bodies of the following countries:

Austria	France	Norway
Belgium	Germany, F.R.	Poland
Brazil	Hungary	Romania
Bulgaria	India	South Africa, Rep. of
China	Israel	Spain
Czechoslovakia	Italy	Sweden
Denmark	Japan	Switzerland
Egypt, Arab Rep. of	Korea, Rep. of	USSR
Finland	Netherlands	

The member bodies of the following countries expressed disapproval of the document on technical grounds:

Australia
Canada
United Kingdom
USA

This second edition cancels and replaces the first edition (i.e. ISO 65-1973).

Printed in Switzerland

Carbon steel tubes suitable for screwing in accordance with ISO 7/1

1 Scope and field of application

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

a) Heavy series, for seamless and welded steel tubes;

b) Medium series, for seamless and welded steel tubes;

c) Light series 1, for seamless and welded steel tubes;

d) Light series 2, for welded steel tubes.

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

2 References

ISO 7/1, *Pipe threads where pressure-tight joints are made on the threads — Part 1 : Designation, dimensions and tolerances.* [1)]

ISO 50, *Metal pipes — Steel sockets screwed according to ISO 7.*

ISO 404, *Steel and steel products — General technical delivery requirements.* [2)]

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

3 Calculation of masses

The values for masses per unit length have been calculated on the basis of the mean of the maximum and minimum diameters given in table 3 and using the basis for calculation as given in ISO 4200 and have been modified for screwed and socketed tubes by an amount based on the mean mass of a socket and a length of 7 m.

4 General requirements

4.1 The tubes shall be made by a seamless or welded process.

4.2 The tubes shall be suitable for fabrication and shaping by normal techniques.

4.3 The tubes shall be weldable.

4.4 Mechanical tests on, and chemical analysis of, the finished product are not required.

5 Material

For guidance, the steel shall have the following properties on longitudinal test pieces cut from the tube outside the welded area.

Table 1 — Properties of the steel

Steel grade designation		Tensile strength	Minimum elongation after fracture	Chemical composition ladle analysis % max.	
Seamless	Welded	N/mm^2	%*	P	S
TS.O	TW.O	320 to 520	15	0,06	0,06

* on $L_o = 5{,}65\sqrt{S_o}$

where L_o is the original gauge length and S_o is the original cross-sectional area.

6 Appearance

6.1 The tubes shall have smooth external and internal surfaces, the degree of smoothness depending on the method of manufacture. Unless otherwise agreed in the order, the internal weld bead shall not be removed. The tubes shall have a workmanlike finish but small imperfections are permissible provided that the thickness remains within the lower tolerance limit.

1) At present at the stage of draft. (Revision ISO 7/1-1978.)

2) At present at the stage of draft. (Revision of ISO/R 404-1964.)

6.2 Surface imperfections may be dressed provided that the thickness after dressing remains within the lower tolerance limit.

6.3 Peening of surface defects is not permitted.

6.4 The tubes shall be cut nominally square to the axis of the tube, and shall be free from excessive burrs and reasonably straight.

7 Dimensions

7.1 The nominal size DN, the thread designation, the specified outside diameter, the thickness and masses per unit length are given in table 2.

7.2 Thread

All screwed tubes shall have threads in accordance with the requirements of ISO 7/1 except that on light series 2 tubes, the basic length of useful thread shall be reduced to 80 % of that shown in ISO 7/1.

Tubes shall be screwed with taper threads and unless otherwise specified, fitted with one screwed socket.

7.3 Sockets

The sockets shall comply with the requirements of ISO 50.

7.4 Random lengths

Unless otherwise specified, 4 to 7 m.

8 Tolerances

8.1 On the outside diameter

Tolerances on outside diameter are given in table 3.

8.2 On thickness

8.2.1 Heavy series, medium series and light series 1

+ not limited

− 12,5 %

(− 15 % on isolated areas, on a length not exceeding twice the specified outside diameter, provided this reduction in thickness only affects the external surface)

8.2.2 Light series 2

+ not limited

− 8 %

8.3 On mass per unit length

8.3.1 Heavy series, medium series and light series 1

± 10 % for each tube

± 7,5 % per load of 10 t minimum.

8.3.2 Light series 2

+ 10 %

− 8 % for each tube

± 5 % per load of 10 t minimum.

9 Tests

9.1 The tubes shall be submitted to visual inspection and to a leak tightness test.

9.2 Each tube shall be tested for leak tightness at the manufacturer's works.

At the option of the manufacturer, this test shall be either a hydraulic test at a pressure of 50 bar or a non-destructive test which ensures equivalent leak tightness.

9.3 Tubes which do not satisfy the test shall be deemed not to comply with this International Standard.

10 Designation

The tubes shall be designated by the nominal size, the thickness series, the type of end finish (plain end or screwed end), followed by the reference to this International Standard; for example :

— tube DN 20 medium series, screwed and socketed, ISO 65.

11 Certificate

11.1 When required by the purchaser in the order, the manufacturer shall supply a certificate stating that the tubes comply with this International Standard.

11.2 This certificate shall comply with the requirements of clause 5.2.1 of ISO 404.

Table 2 — Dimensions

DN	Designation of thread	Outside diameter[1]	Thicknesses (T) and masses per unit length (M) according to the series											
			Heavy series			Medium series			Light series 1			Light series 2		
		D mm	T mm	Plain end M kg/m	Screwed socketed M kg/m	T mm	Plain end M kg/m	Screwed socketed M kg/m	T mm	Plain end M kg/m	Screwed socketed M kg/m	T mm	Plain end M kg/m	Screwed socketed M kg/m
6	1/8	10,2	2,6	0,487	0,490	2,0	0,404	0,407	1,8	0,366	0,369	1,8	0,360	0,363
8	1/4	13,5	2,9	0,765	0,769	2,3	0,641	0,645	2,0	0,570	0,574	1,8	0,515	0,519
10	3/8	17,2	2,9	1,02	1,03	2,3	0,839	0,845	2,0	0,742	0,748	1,8	0,670	0,676
15	1/2	21,3	3,2	1,44	1,45	2,6	1,21	1,22	2,3	1,08	1,09	2,0	0,947	0,956
20	3/4	26,9	3,2	1,87	1,88	2,6	1,56	1,57	2,3	1,39	1,40	2,3	1,38	1,39
25	1	33,7	4,0	2,93	2,95	3,2	2,41	2,43	2,9	2,20	2,22	2,6	1,98	2,00
32	1 1/4	42,4	4,0	3,79	3,82	3,2	3,10	3,13	2,9	2,82	2,85	2,6	2,54	2,57
40	1 1/2	48,3	4,0	4,37	4,41	3,2	3,56	3,60	2,9	3,24	3,28	2,9	3,23	3,27
50	2	60,3	4,5	6,19	6,26	3,6	5,03	5,10	3,2	4,49	4,56	2,9	4,08	4,15
65	2 1/2	76,1	4,5	7,93	8,05	3,6	6,42	6,54	3,2	5,73	5,85	3,2	5,71	5,83
80	3	88,9	5,0	10,3	10,5	4,0	8,36	8,53	3,6	7,55	7,72	3,2	6,72	6,89
100	4	114,3	5,4	14,5	14,8	4,5	12,2	12,5	4,0	10,8	11,1	3,6	9,75	10,0
125	5	139,7	5,4	17,9	18,4	5,0	16,6	17,1						
150	6	165,1[2]	5,4	21,3	21,9	5,0	19,8	20,4						

1) See table 3 and clause 8.1.

2) This diameter is not listed in ISO 4200 but the mass per unit length for this tube has been calculated according to the rules laid down in clause 3.

Table 3 — Tolerances on the outside diameter

Dimensions in millimetres

DN	Designation of thread	Maximum and minimum outside diameter according to the series					
		Heavy and medium series		Light series 1		Light series 2	
		max.	min.	max.	min.	max.	min.
6	1/8	10,6	9,8	10,4	9,7	10,1	9,7
8	1/4	14,0	13,2	13,9	13,2	13,6	13,2
10	3/8	17,5	16,7	17,4	16,7	17,1	16,7
15	1/2	21,8	21,0	21,7	21,0	21,4	21,0
20	3/4	27,3	26,5	27,1	26,4	26,9	26,4
25	1	34,2	33,3	34,0	33,2	33,8	33,2
32	1 1/4	42,9	42,0	42,7	41,9	42,5	41,9
40	1 1/2	48,8	47,9	48,6	47,8	48,4	47,8
50	2	60,8	59,7	60,7	59,6	60,2	59,6
65	2 1/2	76,6	75,3	76,3	75,2	76,0	75,2
80	3	89,5	88,0	89,4	87,9	88,7	87,9
100	4	115,0	113,1	114,9	113,0	113,9	113,0
125	5	140,8	138,5				
150	6	166,5	163,9				

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