INTERNATIONAL STANDARD 1127

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

Stainless steel tubes — Dimensions, tolerances and conventional masses per unit length

Tubes en acier inoxydable — Dimensions, tolérances et masses conventionnelles par unité de longueur

First edition — 1977-11-01

UDC 621.643.23 : 629.14.018.8

Ref. No. ISO 1127-1977 (E)

Descriptors : piping, steel tubes, stainless steels, specifications, dimensions, dimensional tolerances, linear density.

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 1127 was developed by Technical Committee ISO/TC 5, *Metal pipes and fittings*, and was circulated to the member bodies in June 1976.

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

Australia	India	South Africa, Rep. of
Belgium	Israel	Spain
Canada	Italy	Sweden
Chile	Mexico	Switzerland
Czechoslovakia	Netherlands	Turkey
Denmark	Norway	United Kingdom
Finland	Philippines	U.S.A.
Germany	Poland	Yugoslavia
Hungary	Romania	

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

France
Japan
U.S.S.R.

This International Standard cancels and replaces ISO Recommendation R 1127-1969, of which it constitutes a technical revision.

Printed in Switzerland

Stainless steel tubes — Dimensions, tolerances and conventional masses per unit length

0 INTRODUCTION

The outside diameters and thicknesses of the tubes have been selected from ISO 336 and the diameters 6, 8, 10, 14, 18, 22, 28 32, 35 and 40 mm from ISO 560 have been added.

1 SCOPE

This International Standard specifies the diameters, thicknesses, tolerances and conventional masses per unit length of stainless steel tubes.

2 FIELD OF APPLICATION

The main purpose of the tables included in this International Standard is to serve as a ready reckoner and to avoid the possibility of different countries putting forward different masses for a tube of the same nominal dimension and stainless steel type. The inclusion of a mass for a given size of tube in these tables, therefore, does not necessarily mean that this size is available, although at some future date it may be.

3 REFERENCES

ISO 336, *Plain end steel tubes, welded or seamless — General table of dimensions and masses per unit length.*

ISO 560, *Plain end precision steel tubes, seamless and welded — Dimensions and masses per unit length.*

ISO 5252, *Steel tubes — Tolerance systems.*[1)]

4 TOLERANCES (in accordance with ISO 5252)

The tolerances permitted on the outside diameter and thickness of the tubes result from the method of manufacture, the steel types, the heat treatment and pickling. The tolerances shall be selected from the following :

4.1 Tolerances on outside diameter

D_0 : ± 2 % with a minimum of ± 1,0 mm
D_1 : ± 1,5 % with a minimum of ± 0,75 mm
D_2 : ± 1,0 % with a minimum of ± 0,5 mm
D_3 : ± 0,75 % with a minimum of ± 0,3 mm
D_4 : ± 0,50 % with a minimum of ± 0,1 mm

4.2 Tolerances on thickness

T_0 : ± 20 % with a minimum of ± 1 mm
T_1 : ± 15 % with a minimum of ± 0,6 mm
T_2 : ± 12,5 % with a minimum of ± 0,4 mm
T_3 : ± 10 % with a minimum of ± 0,2 mm
T_4 : ± 7,5 % with a minimum of ± 0,15 mm

5 CONVENTIONAL MASSES PER UNIT LENGTH

Conventional masses per unit length have been calculated on the basis of the values contained in ISO 336 and ISO 560 :

— by multiplying them by 1,015 (table 1) for austenitic steels;

— by multiplying them by 0,985 (table 2) for ferritic and martensitic steels.

1) At present at the stage of draft.

TABLE 1 — **Austenitic stainless steel tubes**

Outside diameter mm	Thicknesses, mm															
	0,5	0,8	1,0	1,2	1,6	2	2,3	2,6	2,9	3,2	3,6	4	4,5	5	5,6	6,3
	Conventional masses per unit length, kg/m															
6	0,069	0,105	0,125	0,144	0,177											
8	0,093	0,144	0,176	0,204	0,257											
10	0,119	0,185	0,225	0,264	0,336	0,401	0,444									
10,2	0,122	0,188	0,230	0,270	0,344	0,410	0,455									
12	0,144	0,224	0,275	0,325	0,416	0,500	0,558									
13,5	0,162	0,255	0,313	0,369	0,477	0,576	0,645	0,709	0,769							
14	0,168	0,264	0,326	0,385	0,496	0,601	0,674	0,742	0,806							
16	0,194	0,304	0,376	0,445	0,577	0,701	0,789	0,872	0,951							
17,2	0,209	0,329	0,406	0,481	0,625	0,761	0,858	0,950	1,04	1,12						
18	0,219	0,344	0,425	0,504	0,657	0,801	0,904	1,00	1,10	1,19						
19	0,231	0,364	0,451	0,535	0,697	0,851	0,961	1,07	1,17	1,27						
20	0,244	0,385	0,476	0,564	0,737	0,901	1,02	1,14	1,24	1,35	1,48	1,60	1,75	1,88	2,02	2,16
21,3	0,260	0,410	0,509	0,604	0,789	0,966	1,10	1,22	1,34	1,45	1,59	1,74	1,89	2,04	2,20	2,36
22	0,269	0,424	0,526	0,625	0,817	1,00	1,14	1,26	1,39	1,50	1,65	1,81	1,97	2,13	2,29	2,48
25	0,307	0,484	0,601	0,715	0,937	1,15	1,31	1,46	1,60	1,75	1,93	2,10	2,31	2,51	2,72	2,95
25,4	0,312	0,492	0,611	0,727	0,953	1,17	1,33	1,48	1,63	1,78	1,97	2,14	2,35	2,56	2,77	3,01
26,9	0,331	0,523	0,649	0,772	1,01	1,25	1,42	1,58	1,75	1,90	2,10	2,29	2,53	2,74	2,98	3,25
28	0,344	0,545	0,676	0,805	1,06	1,30	1,48	1,65	1,83	1,99	2,20	2,41	2,65	2,88	3,14	3,42
30	0,369	0,585	0,726	0,865	1,14	1,40	1,59	1,79	1,97	2,14	2,38	2,60	2,87	3,13	3,42	3,74
31,8	0,392	0,621	0,771	0,920	1,21	1,49	1,70	1,90	2,10	2,29	2,54	2,78	3,08	3,35	3,67	4,02
32	0,394	0,625	0,776	0,926	1,22	1,50	1,71	1,92	2,11	2,30	2,56	2,80	3,10	3,38	3,70	4,05
33,7	0,415	0,659	0,818	0,976	1,29	1,58	1,81	2,02	2,23	2,45	2,71	2,97	3,29	3,59	3,94	4,32
35	0,431	0,685	0,852	1,02	1,34	1,65	1,88	2,11	2,33	2,55	2,83	3,11	3,43	3,76	4,12	4,53
38	0,469	0,745	0,926	1,11	1,46	1,81	2,05	2,30	2,55	2,79	3,10	3,40	3,78	4,13	4,54	5,00
40	0,494	0,785	0,976	1,17	1,54	1,90	2,17	2,44	2,69	2,94	3,28	3,60	4,00	4,38	4,82	5,32
42,4	0,525	0,833	1,04	1,24	1,63	2,02	2,30	2,59	2,86	3,14	3,49	3,85	4,27	4,68	5,16	5,69
44,5	0,551	0,875	1,09	1,30	1,72	2,13	2,43	2,73	3,02	3,31	3,68	4,06	4,51	4,94	5,45	6,03

48,3	0,598	0,951	1,19	1,41	1,87	2,31	2,65	2,97	3,30	3,61	4,03	4,44	4,93	5,42	5,99	6,63
51				1,49	1,98	2,46	2,80	3,15	3,49	3,83	4,27	4,71	5,24	5,76	6,36	7,04
54				1,58	2,10	2,60	2,97	3,35	3,70	4,07	4,54	5,00	5,57	6,13	6,78	7,52
57				1,67	2,22	2,75	3,15	3,54	3,93	4,31	4,81	5,31	5,92	6,51	7,21	8,00
60,3				1,78	2,35	2,92	3,34	3,76	4,17	4,58	5,11	5,63	6,28	6,92	7,66	8,52
63,5					2,48	3,08	3,52	3,96	4,39	4,83	5,40	5,96	6,65	7,32	8,12	9,02
70					2,74	3,40	3,90	4,38	4,87	5,35	5,99	6,61	7,38	8,13	9,02	10,0
76,1					2,98	3,70	4,25	4,78	5,32	5,84	6,54	7,22	8,07	8,90	9,89	11,0
88,9					3,49	4,35	4,98	5,61	6,24	6,86	7,68	8,51	9,51	10,5	11,7	13,0
101,6					4,01	4,98	5,71	6,45	7,17	7,89	8,83	9,77	11,0	12,1	13,5	15,0
108					4,26	5,31	6,09	6,86	7,63	8,39	9,41	10,5	11,7	12,9	14,3	16,0
114,3					4,52	5,62	6,45	7,27	8,09	8,90	9,98	11,1	12,4	13,7	15,2	17,1
133					5,26	6,56	7,52	8,49	9,44	10,4	11,7	12,9	14,5	16,0	17,9	20,0
139,7					5,53	6,89	7,91	8,92	9,93	11,0	12,3	13,6	15,2	16,8	18,8	21,0
159					6,30	7,86	9,02	10,2	11,4	12,5	14,0	15,5	17,4	19,3	21,5	24,1
168,3					6,68	8,32	9,56	10,8	12,0	13,2	14,8	16,4	18,5	20,4	22,8	25,6
193,7					7,69	9,60	11,1	12,5	13,8	15,2	17,2	19,0	21,3	23,6	26,4	29,5
219,1					8,71	10,9	12,5	14,1	15,7	17,3	19,4	21,5	24,2	26,8	29,9	33,6
244,5					9,72	12,2	13,9	15,7	17,6	19,3	21,7	24,1	27,0	29,9	33,5	37,6
273					10,9	13,6	15,6	17,6	19,6	21,6	24,3	26,9	30,2	33,5	37,5	42,0
323,9					12,9	16,1	18,5	20,9	23,3	25,7	28,8	32,1	35,9	39,9	44,7	50,0
355,6					14,2	17,7	20,3	22,9	25,6	28,2	31,8	35,2	39,6	43,8	49,0	55,1
406,4						20,2	23,2	26,3	29,3	32,3	36,3	40,3	45,3	50,2	56,2	63,1
457						22,7	26,2	29,5	33,0	36,3	40,9	45,4	51,0	56,5	63,2	71,0
508						25,4	29,1	32,9	36,6	40,4	45,5	50,4	56,7	62,9	70,4	79,1
559							32,1	36,2	40,4	44,6	50,0	55,5	62,4	69,3	77,5	87,2
610								39,5	44,1	48,6	54,6	60,7	68,2	75,7	84,8	95,2

TABLE 2 — **Ferritic and martensitic stainless steel tubes**

Outside diameter mm	Thicknesses, mm															
	0,5	0,8	1,0	1,2	1,6	2	2,3	2,6	2,9	3,2	3,6	4	4,5	5	5,6	6.3
	Conventional masses per unit length, kg/m															
6	0,067	0,101	0,121	0,140	0,171											
8	0,091	0,140	0,170	0,198	0,249											
10	0,115	0,179	0,219	0,256	0,326	0,389	0,430									
10,2	0,118	0,182	0,224	0,262	0,334	0,398	0,441									
12	0,140	0,166	0,267	0,315	0,404	0,486	0,542									
13,5	0,158	0,247	0,303	0,359	0,463	0,558	0,625	0,689	0,747							
14	0,164	0,256	0,316	0,373	0,482	0,583	0,654	0,720	0,782							
16	0,188	0,296	0,364	0,431	0,559	0,681	0,765	0,846	0,923							
17,2	0,203	0,319	0,394	0,467	0,607	0,739	0,832	0,922	1,00	1,08						
18	0,213	0,334	0,413	0,490	0,637	0,777	0,878	0,972	1,06	1,15						
19	0,225	0,354	0,437	0,519	0,677	0,825	0,933	1,03	1,13	1,23						
20	0,236	0,373	0,462	0,548	0,715	0,875	0,985	1,10	1,20	1,31	1,44	1,56	1,69	1,82	1,96	2,10
21,3	0,252	0,398	0,493	0,586	0,765	0,938	1,06	1,18	1,30	1,41	1,55	1,68	1,83	1,98	2,14	2,30
22	0,261	0,412	0,510	0,607	0,793	0,971	1,10	1,22	1,35	1,46	1,61	1,75	1,91	2,07	2,23	2,40
25	0,297	0,470	0,583	0,693	0,909	1,11	1,27	1,42	1,56	1,69	1,87	2,04	2,25	2,43	2,64	2,87
25,4	0,302	0,478	0,593	0,705	0,925	1,13	1,29	1,44	1,59	1,72	1,91	2,08	2,29	2,48	2,69	2,93
26,9	0,321	0,507	0,629	0,750	0,983	1,21	1,38	1,54	1,69	1,84	2,04	2,23	2,45	2,66	2,90	3,15
28	0,334	0,529	0,656	0,781	1,02	1,26	1,44	1,61	1,77	1,93	2,14	2,33	2,57	2,80	3,04	3,32
30	0,359	0,567	0,704	0,839	1,10	1,36	1,55	1,73	1,91	2,08	2,30	2,52	2,79	3,03	3,32	3,62
31,8	0,380	0,603	0,749	0,892	1,17	1,45	1,64	1,84	2,04	2,23	2,46	2,70	2,98	3,25	3,57	3,90
32	0,382	0,607	0,754	0,898	1,18	1,46	1,65	1,86	2,05	2,24	2,48	2,72	3,00	3,28	3,60	3,93
33,7	0,403	0,639	0,794	0,948	1,25	1,54	1,75	1,96	2,17	2,37	2,63	2,89	3,19	3,49	3,82	4,20
35	0,419	0,665	0,826	0,985	1,30	1,61	1,82	2,05	2,27	2,47	2,75	3,01	3,33	3,64	4,00	4,39
38	0,455	0,723	0,898	1,07	1,42	1,75	1,99	2,24	2,47	2,71	3,00	3,30	3,66	4,01	4,40	4,86
40	0,480	0,761	0,948	1,13	1,50	1,84	2,11	2,36	2,61	2,86	3,18	3,50	3,88	4,26	4,68	5,16
42,4	0,509	0,809	1,00	1,20	1,59	1,96	2,24	2,51	2,78	3,04	3,39	3,73	4,15	4,54	5,00	5,53
44,5	0,535	0,849	1,05	1,26	1,66	2,07	2,35	2,65	2,94	3,21	3,58	3,94	4,37	4,80	5,29	5,85