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INTERNATIONAL STANDARD



1129

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

Boiler tubes — Dimensions, tolerances and conventional masses per unit length

Tubes chaudières — Dimensions, tolérances et masses conventionnelles par unité de longueur

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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 1129 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	Romania
Austria	Israel	South Africa, Rep. of
Belgium	Italy	Spain
Canada	Japan	Sweden
Chile	Korea, Rep. of	Switzerland
Czechoslovakia	Mexico	Turkey
Denmark	New Zealand	United Kingdom
Finland	Norway	U.S.A.
Germany	Philippines	Yugoslavia
Hungary	Poland	

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

France
U.S.S.R.

This International Standard cancels and replaces ISO Recommendation R 1129-1971, of which it constitutes a technical revision.

Boiler tubes — Dimensions, tolerances and conventional masses per unit length

0 INTRODUCTION

The outside diameters, thicknesses and conventional masses per unit length of carbon steel tubes have been taken from ISO 336.

The masses of austenitic stainless and ferritic and martensitic stainless tubes have been determined from the masses given in ISO 336, multiplied by the appropriate coefficient.

1 SCOPE

This International Standard specifies the diameters, thicknesses, tolerances and conventional masses per unit length of fired tubes (including superheater tubes).

2 FIELD OF APPLICATION

The boiler tubes for which dimensions and masses per unit length are given in this International Standard are intended for use in shell and water tube boilers and similar steam-raising, or high-temperature water plants.

3 REFERENCES

ISO 336, *Plain end steel tubes, welded or seamless — General table of 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 thicknesses of the tubes result from the method of manufacture, the steel type and the heat treatment. These tolerances shall be selected from the following values :

4.1 Tolerances on outside diameter

D_2 : ± 1 % with a minimum of $\pm 0,5$ mm

D_3 : $\pm 0,75$ % with a minimum of $\pm 0,3$ mm

D_4 : $\pm 0,50$ % with a minimum of $\pm 0,1$ mm

4.2 Tolerances on thickness

T_2 : $\pm 12,5$ % with a minimum of $\pm 0,4$ mm

T_3 : ± 10 % with a minimum of $\pm 0,2$ mm

T_4 : $\pm 7,5$ % with a minimum of $\pm 0,15$ mm

5 CONVENTIONAL MASSES PER UNIT LENGTH

The conventional masses per unit length have been determined as follows :

— carbon and low and medium alloy steel tubes (see table 1) : selected from ISO 336;

— austenitic stainless steel tubes (see table 2) : the mass given in table 1 multiplied by the coefficient 1,015;

— ferritic and martensitic stainless steel tubes (see table 3) : the mass given in table 1 multiplied by the coefficient 0,985.

1) At present at the stage of draft.

TABLE 1 – Carbon and low and medium alloy steel

NOTE – The inclusion of a size in this table does not necessarily mean that it is available, though at some future date it may be.

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Outside diameter mm	Thickness, mm																	
	Conventional masses per unit length, kg/m																	
	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,4	5,6	5,9	6,3	7,1	8,0	8,8	10,0	11,0
19	0,851	0,961	1,07	1,17	1,27	1,39	1,50	1,63	1,76									
21,3	0,966	1,10	1,22	1,34	1,45	1,59	1,74	1,89	2,04									
25	1,15	1,31	1,46	1,60	1,75	1,93	2,10	2,31	2,51	2,65	2,72	2,82	2,95					
25,4	1,17	1,33	1,48	1,63	1,78	1,97	2,14	2,35	2,56	2,70	2,77	2,88	3,01					
26,9	1,25	1,42	1,58	1,75	1,90	2,10	2,29	2,53	2,74	2,90	2,98	3,11	3,25					
30	1,40	1,59	1,79	1,97	2,14	2,38	2,60	2,87	3,13	3,33	3,42	3,56	3,74					
31,8	1,49	1,70	1,90	2,10	2,29	2,54	2,78	3,08	3,35	3,57	3,67	3,83	4,02	4,38	4,77			
33,7	1,58	1,81	2,02	2,23	2,45	2,71	2,97	3,29	3,59	3,83	3,94	4,10	4,32	4,73	5,15	5,48		
38	1,81	2,05	2,30	2,55	2,79	3,10	3,40	3,78	4,13	4,41	4,54	4,74	5,00	5,49	6,01	6,44		
42,4	2,02	2,30	2,59	2,86	3,14	3,49	3,85	4,27	4,68	5,00	5,16	5,39	5,69	6,27	6,89	7,40		
44,5	2,13	2,43	2,73	3,02	3,31	3,68	4,06	4,51	4,94	5,29	5,45	5,70	6,03	6,65	7,31	7,87	8,64	
51	2,46	2,80	3,15	3,49	3,83	4,27	4,71	5,24	5,76	6,16	6,36	6,66	7,04	7,81	8,61	9,30	10,3	
54	2,60	2,97	3,35	3,70	4,07	4,54	5,00	5,57	6,13	6,57	6,78	7,10	7,52	8,33	9,22	9,96	11,1	
57	2,75	3,15	3,54	3,93	4,31	4,81	5,31	5,92	6,51	6,97	7,21	7,55	8,00	8,87	9,82	10,7	11,8	12,7
60,3	2,92	3,34	3,76	4,17	4,58	5,11	5,63	6,28	6,92	7,42	7,66	8,04	8,52	9,46	10,5	11,4	12,6	13,6
63,5	3,08	3,52	3,96	4,39	4,83	5,40	5,96	6,65	7,32	7,86	8,12	8,51	9,02	10,0	11,1	12,1	13,4	14,4
70	3,40	3,90	4,38	4,87	5,35	5,99	6,61	7,38	8,13	8,73	9,02	9,47	10,0	11,2	12,4	13,5	15,0	16,2
76,1			4,78	5,32	5,84	6,54	7,22	8,07	8,90	9,56	9,89	10,4	11,0	12,3	13,6	14,8	16,5	18,0
82,5				5,78	6,35	7,10	7,86	8,79	9,70	10,5	10,8	11,3	12,0	13,4	14,9	16,2	18,2	19,7
88,9				6,24	6,86	7,68	8,51	9,51	10,5	11,3	11,7	12,3	13,0	14,5	16,2	17,7	19,8	21,4
101,6					7,89	8,83	9,77	11,0	12,1	13,0	13,5	14,1	15,0	16,7	18,8	20,4	22,9	25,0
108					8,39	9,41	10,5	11,7	12,9	13,9	14,3	15,1	16,0	18,0	20,0	21,8	24,6	26,7
114,3					8,90	9,98	11,1	12,4	13,7	14,7	15,2	16,0	17,1	19,1	21,3	23,2	26,1	28,4
127						11,2	12,3	13,8	15,2	16,4	17,1							

NOTE – The inclusion of a size in this table does not necessarily mean that it is available, though at some future date it may be.

TABLE 3 — Ferritic and martensitic stainless steel tubes

Outside diameter mm	Thickness, mm																	
	Conventional masses per unit length, kg/m																	
	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,4	5,6	5,9	6,3	7,1	8,0	8,8	10,0	11,0
19	0,825	0,933	1,03	1,13	1,23	1,35	1,46	1,59	1,70									
21,3	0,938	1,06	1,18	1,30	1,41	1,55	1,68	1,83	1,98									
25	1,11	1,27	1,42	1,56	1,69	1,87	2,04	2,25	2,43	2,57	2,64	2,74	2,87					
25,4	1,13	1,29	1,44	1,59	1,72	1,91	2,08	2,29	2,48	2,62	2,69	2,80	2,93					
26,9	1,21	1,38	1,54	1,69	1,84	2,04	2,23	2,45	2,66	2,82	2,90	3,01	3,15					
30	1,36	1,55	1,73	1,91	2,08	2,30	2,52	2,79	3,03	3,23	3,32	3,46	3,62					
31,8	1,45	1,64	1,84	2,04	2,23	2,46	2,70	2,98	3,25	3,47	3,57	3,71	3,90	4,26	4,63			
33,7	1,54	1,75	1,96	2,17	2,37	2,63	2,89	3,19	3,49	3,71	3,82	3,98	4,20	4,59	4,99	5,32		
38	1,75	1,99	2,24	2,47	2,71	3,00	3,30	3,66	4,01	4,27	4,40	4,60	4,86	5,33	5,83	6,24		
42,4	1,96	2,24	2,51	2,78	3,04	3,39	3,73	4,15	4,54	4,86	5,00	5,23	5,53	6,09	6,69	7,18		
44,5	2,07	2,35	2,65	2,94	3,21	3,58	3,94	4,37	4,80	5,13	5,29	5,54	5,85	6,45	7,09	7,63	8,38	
51	2,38	2,72	3,05	3,39	3,71	4,15	4,57	5,08	5,58	5,98	6,18	6,46	6,84	7,57	8,35	9,02	9,95	
54	2,52	2,89	3,25	3,60	3,95	4,40	4,86	5,41	5,95	6,37	6,58	6,90	7,30	8,09	8,94	9,66	10,7	
57	2,67	3,05	3,44	3,81	4,19	4,67	5,15	5,74	6,31	6,77	6,99	7,33	7,76	8,61	9,52	10,3	11,4	12,3
60,3	2,84	3,24	3,64	4,05	4,44	4,95	5,47	6,10	6,72	7,20	7,44	7,80	8,26	9,18	10,1	11,0	12,2	13,2
63,5	2,98	3,42	3,84	4,27	4,69	5,24	5,78	6,45	7,10	7,62	7,88	8,25	8,76	9,73	10,7	11,7	13,0	14,0
70	3,30	3,78	4,26	4,73	5,19	5,81	6,41	7,16	7,89	8,47	8,76	9,19	9,75	10,8	12,0	13,1	14,6	15,8
76,1			4,64	5,16	5,66	6,34	7,00	7,83	8,64	9,28	9,59	10,0	10,6	11,9	13,2	14,4	16,1	17,4
82,5				5,60	6,17	6,90	7,62	8,53	9,42	10,1	10,4	10,9	11,6	13,0	14,5	15,8	17,6	19,1
88,9				6,06	6,66	7,46	8,25	9,23	10,1	10,9	11,3	11,9	12,6	14,1	15,8	17,1	19,2	20,8
101,6					7,65	8,57	9,49	10,6	11,7	12,6	13,1	13,7	14,6	16,3	18,2	19,8	22,3	24,2
108					8,15	9,13	10,1	11,3	12,5	13,5	13,9	14,7	15,6	17,4	19,4	21,2	23,8	25,9
114,3					8,64	9,68	10,7	12,0	13,3	14,3	14,8	15,6	16,5	18,5	20,7	22,6	25,3	27,6
127						10,8	11,9	13,4	14,8	16,0	16,5	17,3	18,5	20,7	23,1	25,3	28,5	31,0
133						11,3	12,5	14,1	15,6	16,7	17,3	18,2	19,4	21,7	24,3	26,6	29,8	32,6
139,7							13,2	14,8	16,4	17,6	18,2	19,2	20,4	22,9	25,6	28,0	31,5	34,4

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