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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1129

BOILER TUBES

DIMENSIONS, TOLERANCES AND CONVENTIONAL MASSES PER UNIT LENGTH

1st EDITION

October 1969

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

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BRIEF HISTORY

The ISO Recommendation R 1129, *Boiler tubes – Dimensions, tolerances and conventional masses per unit length*, was drawn up by Technical Committee ISO/TC 5, *Pipes and fittings*, the Secretariat of which is held by the Association Suisse de Normalisation (SNV).

Work on this question led to the adoption of a Draft ISO Recommendation.

In January 1968, this Draft ISO Recommendation (No. 1495) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	India	South Africa, Rep. of
Belgium	Israel	Spain
Brazil	Italy	Sweden
Canada	Korea, Rep. of	Switzerland
Chile	Netherlands	Thailand
Colombia	New Zealand	Turkey
Czechoslovakia	Norway	U.A.R.
Denmark	Poland	United Kingdom
France	Portugal	

Three Member Bodies opposed the approval of the Draft :

Germany
Hungary
U.S.S.R.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in October 1969, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 1129 October 1969

BOILER TUBES

DIMENSIONS, TOLERANCES AND CONVENTIONAL MASSES PER UNIT LENGTH

INTRODUCTION

The outside diameters, the thicknesses and conventional masses per unit length* have been taken from ISO Recommendation R 336, *Plain end tubes, welded or seamless – General table of dimensions and masses per unit length.*

1. SCOPE

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

2. TOLERANCES

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

2.1 Tolerances on outside diameter

D_2 : ± 1 % with a minimum of ± 0.5 mm (0.02 in)
D_3 : ± 0.75 % with a minimum of ± 0.3 mm (0.012 in)
D_4 : ± 0.50 % with a minimum of ± 0.1 mm (0.004 in)

2.2 Tolerances on thickness

T_2 : ± 12.5 %
T_3 : ± 10 %
T_4 : ± 7.5 %

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* The conventional masses per unit length are applicable for carbon steel.

For boiler tubes of alloy steel, the conventional masses per unit length have to be modified according to the following coefficients for the respective kinds of steel :

austenitic steel : 1.015
ferritic and martensitic steel : 0.985

TABLE – **Tube list**

Outside Diameter		Thicknesses																			
mm	in	mm in	2.0 0.080	2.3 0.092	2.6 0.104	2.9 0.116	3.2 0.128	3.6 0.144	4.0 0.160	4.5 0.176	– 0.192	5.0 –	5.4 0.212	5.6 0.219	5.9 0.232	6.3 0.250	7.1 0.281	8.0 0.312	8.8 0.344	– 0.375	10.0 –	11.0 0.438
		Conventional masses per unit length																				
19	0.750	kg/m lb/ft	0.845 0.568	0.955 0.642	1.06 0.712	1.16 0.779	1.26 0.847	1.38 0.927	1.49 1.00	1.61 1.08	1.14	1.73										
21.3	0.840	kg/m lb/ft	0.962 0.646	1.09 0.732	1.21 0.813	1.33 0.894	1.44 0.968	1.59 1.07	1.72 1.16	1.87 1.26	1.34	2.01										
25	–	kg/m lb/ft	1.13	1.29	1.44	1.58	1.72	1.90	2.07	2.28		2.47	2.61	2.68	2.78	2.91						
25.4	1.000	kg/m lb/ft	1.16 0.779	1.32 0.887	1.47 0.988	1.62 1.09	1.76 1.18	1.95 1.31	2.12 1.42	2.31 1.55	1.66	2.52	2.66 1.79	2.73 1.83	2.83 1.90	2.97 2.00						
30	1.181	kg/m lb/ft	1.39 0.934	1.59 1.07	1.77 1.19	1.96 1.32	2.14 1.44	2.37 1.59	2.59 1.74	2.83 1.90	2.04	3.08	3.28 2.20	3.37 2.26	3.52 2.37	3.70 2.49						
31.8	1.250	kg/m lb/ft	1.48 0.994	1.68 1.13	1.88 1.26	2.08 1.40	2.27 1.53	2.52 1.69	2.76 1.85	3.02 2.03	2.17	3.30	3.51 2.36	3.60 2.42	3.76 2.53	3.97 2.67	4.33 2.91	4.68 3.14				
33.7	1.327	kg/m lb/ft	1.57 1.05	1.79 1.20	2.01 1.35	2.22 1.49	2.42 1.63	2.69 1.81	2.95 1.98	3.23 2.17	2.33	3.54	3.76 2.53	3.87 2.60	4.04 2.71	4.27 2.87	4.67 3.14	5.05 3.39	5.39 3.62			
38	1.500	kg/m lb/ft	1.79 1.20	2.04 1.37	2.29 1.54	2.53 1.70	2.77 1.86	3.08 2.07	3.38 2.27	3.71 2.49	2.68	4.07	4.34 2.92	4.47 3.00	4.67 3.14	4.95 3.33	5.43 3.65	5.91 3.97	6.33 4.25			
44.5	1.750	kg/m lb/ft	2.11 1.42	2.41 1.62	2.70 1.81	2.99 2.01	3.28 2.20	3.65 2.45	4.02 2.70	4.42 2.97	3.20	4.87	5.20 3.49	5.35 3.59	5.61 3.77	5.95 4.00	6.56 4.41	7.17 4.82	7.72 5.19	5.51	8.51	
51	2.000	kg/m lb/ft	2.43 1.63	2.78 1.87	3.12 2.10	3.46 2.32	3.79 2.55	4.23 2.84	4.66 3.13	5.13 3.45	3.71	5.67	6.05 4.07	6.24 4.19	6.54 4.39	6.95 4.67	7.69 5.17	8.43 5.66	9.10 6.11	6.51	10.1	
54	2.125	kg/m lb/ft	2.58 1.73	2.95 1.98	3.32 2.23	3.68 2.47	4.04 2.71	4.50 3.02	4.97 3.34	5.47 3.68	3.96	6.04	6.46 4.34	6.66 4.48	6.99 4.70	7.43 4.99	8.23 5.53	9.04 6.07	9.77 6.56	7.01	10.9	
57	2.250	kg/m lb/ft	2.74 1.84	3.13 2.10	3.52 2.37	3.90 2.62	4.28 2.88	4.78 3.21	5.27 3.54	5.81 3.90	4.22	6.41	6.87 4.62	7.08 4.76	7.44 5.00	7.91 5.32	8.77 5.89	9.65 6.48	10.4 6.99	7.51	11.6	12.5 8.40
60.3	2.375	kg/m lb/ft	2.90 1.95	3.31 2.22	3.73 2.51	4.14 2.78	4.54 3.05	5.07 3.41	5.59 3.76	6.17 4.15	4.48	6.82	7.30 4.91	7.53 5.06	7.91 5.32	8.42 5.66	9.34 6.28	10.3 6.92	11.1 7.46	8.01	12.4	13.4 9.00
63.5	2.500	kg/m lb/ft	3.06 2.06	3.50 2.35	3.93 2.64	4.36 2.93	4.79 3.22	5.36 3.60	5.91 3.97	6.52 4.38	4.73	7.21	7.72 5.19	7.97 5.36	8.37 5.62	8.91 5.99	9.90 6.65	10.9 7.32	11.8 7.93	8.51	13.2	14.3 9.61
70	2.750	kg/m lb/ft	3.37 2.26	3,86 2.59	4.35 2.92	4.83 3.25	5.30 3.56	5.93 3.98	6.55 4.40	7.24 4,86	5.25	8.01	8.58 5.77	8.85 5.95	9.31 6.26	9.92 6.67	11.0 7.39	12.2 8.20	13.2 8.87	9.51	14.8	16.0 10.8

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.