
INTERNATIONAL STANDARD



336

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

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

Tubes en acier à extrémités lisses, soudés et sans soudure — Tableau général des dimensions et des masses 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 336 was drawn up by Technical Committee ISO/TC 5, *Metal pipes and fittings*, and circulated to the Member Bodies in March 1975.

It has been approved by the Member Bodies of the following countries :

Australia	France	South Africa, Rep. of
Austria	India	Spain
Belgium	Ireland	Sweden
Brazil	Israel	Switzerland
Bulgaria	Italy	Turkey
Canada	Netherlands	United Kingdom
Chile	New Zealand	U.S.A.
Czechoslovakia	Norway	Yugoslavia
Finland	Romania	

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Germany
U.S.S.R.

This second edition cancels and replaces the first edition (i.e. ISO 336-1974).

This International Standard is at present under further consideration within ISO/TC 5 with a view to classifying the outside diameters according to the following criteria in order to assist users of this International Standard in the selection of tubes :

Series 1 : Series for which all the accessories needed for the construction of pipeline systems are standardized.

Series 2 : Series for which the majority, but not all, accessories are standardized.

Series 3 : Series for special applications for which very few standardized accessories exist; some of these diameters might disappear in due course.

The three above definitions were adopted by ISO/TC 5 in October 1975. At the same time the following list of diameters was adopted as series 1 :

10,2 – 13,5 – 17,2 – 21,3 – 26,9 – 33,7 – 42,4 – 48,3 – 60,3 – 76,1 –
88,9 – 114,3 – 139,7 – 168,3 – 219,1 – 273 – 323,9 – 355,6 – 406,4 –
457 – 508 – 610 – 711 – 813 – 914 – 1 016 – 1 220 – 1 420 – 1 620 –
1 820 – 2 020 – 2 220

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0 INTRODUCTION

This International Standard shall be considered as a basic document for the preparation of specific International Standards. The diameters, thickness and masses per unit length for appropriate specifications (for example tubes for boilers, mechanical purposes, pipelines, etc.) may be selected from this general table.

1 SCOPE

This International Standard gives a table of diameters and thicknesses of plain end steel tubes in millimetres and their masses per unit length in kilograms per metre. The diameters are in accordance with ISO 64, *Steel tubes – Outside diameters*, and ISO 559, *Welded or seamless steel tubes for gas, water and sewage*, and the thicknesses with ISO 221, *Steel tubes – Thicknesses*.

2 FIELD OF APPLICATION

The main purpose of this table 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. The inclusion of a mass for a given size of tube in this table, therefore, does not necessarily mean that this size is available although at some future date it may be.

Should the mass of a tube which is not included in the table be required, it shall be calculated by the formula given in clause 3.

This table does not apply to tubes primarily intended to be screwed in accordance with ISO/R 7, *Pipe threads for gas list tubes and screwed fittings where pressure-tight joints are made on the threads (1/8 inch to 6 inches)*. The masses of such tubes, both screwed and plain end, are given in ISO 65.

The table is also applicable to special steel tubes (for example stainless), in which case the masses per unit length should be multiplied by appropriate coefficients.

The diameters shown in bold type correspond to values of tables 2 and 3 of ISO 64 up to diameters of 406,4 mm and to values of ISO 559 for larger diameters. Diameters shown in series 1 in the foreword (page iii) correspond to the diameters shown in bold type in this International Standard except for diameters 101,6 – 193,7 – 244,5 – 762, which do not appear in series 1.

3 METHOD OF CALCULATION

The values, to at least five significant figures, have been calculated by the formula given below, and then rounded to three significant figures for values below 100, and to the nearest whole number for larger values.

$$M = (D - T) \times T \times 0,024\ 661\ 5^* \text{ kg/m}$$

where

M is the mass per unit length;

D is the specified outside diameter, in millimetres;

T is the specified thickness, in millimetres.

* This coefficient takes into account a density equal to 7,85 kg/dm³.

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Outside diameter mm															
	0,5	0,6	0,8	1,0	1,2	1,4	1,6	1,8	2,0	2,3	2,6	2,9	3,2	3,6	4,0
10,2	0,120	0,142	0,185	0,227	0,266	0,304	0,339	0,373	0,404	0,448	0,487				
12	0,142	0,169	0,221	0,271	0,320	0,366	0,410	0,453	0,493	0,550	0,603	0,651	0,694		
13,5	0,160	0,191	0,251	0,308	0,364	0,418	0,470	0,519	0,567	0,635	0,699	0,758	0,813	0,879	
16	0,191	0,228	0,300	0,370	0,438	0,504	0,568	0,630	0,691	0,777	0,859	0,937	1,01	1,10	1,18
17,2	0,206	0,246	0,324	0,400	0,474	0,546	0,616	0,684	0,750	0,845	0,936	1,02	1,10	1,21	1,30
19	0,228	0,272	0,359	0,444	0,527	0,608	0,687	0,764	0,838	0,947	1,05	1,15	1,25	1,37	1,48
20	0,240	0,287	0,379	0,469	0,556	0,642	0,726	0,808	0,888	1,00	1,12	1,22	1,33	1,46	1,58
21,3	0,256	0,306	0,404	0,501	0,595	0,687	0,777	0,866	0,952	1,08	1,20	1,32	1,43	1,57	1,71
25	0,302	0,361	0,477	0,592	0,704	0,815	0,923	1,03	1,13	1,29	1,44	1,58	1,72	1,90	2,07
25,4	0,307	0,367	0,485	0,602	0,716	0,829	0,939	1,05	1,15	1,31	1,46	1,61	1,75	1,94	2,11
26,9	0,326	0,389	0,515	0,639	0,761	0,880	0,998	1,11	1,23	1,40	1,56	1,72	1,87	2,07	2,26
30	0,364	0,435	0,576	0,715	0,852	0,987	1,12	1,25	1,38	1,57	1,76	1,94	2,11	2,34	2,56
31,8	0,386	0,462	0,612	0,760	0,906	1,05	1,19	1,33	1,47	1,67	1,87	2,07	2,26	2,50	2,74
33,7	0,409	0,490	0,649	0,806	0,962	1,12	1,27	1,42	1,56	1,78	1,99	2,20	2,41	2,67	2,93
38	0,462	0,553	0,734	0,912	1,09	1,26	1,44	1,61	1,78	2,02	2,27	2,51	2,75	3,05	3,35
42,4	0,517	0,619	0,821	1,02	1,22	1,42	1,61	1,80	1,99	2,27	2,55	2,82	3,09	3,44	3,79
44,5	0,543	0,650	0,862	1,07	1,28	1,49	1,69	1,90	2,10	2,39	2,69	2,98	3,26	3,63	4,00
48,3	0,589	0,706	0,937	1,17	1,39	1,62	1,84	2,06	2,28	2,61	2,93	3,25	3,56	3,97	4,37
51	0,623	0,746	0,990	1,23	1,47	1,71	1,95	2,18	2,42	2,76	3,10	3,44	3,77	4,21	4,64
54	0,660	0,790	1,05	1,31	1,56	1,82	2,07	2,32	2,56	2,93	3,30	3,65	4,01	4,47	4,93
57	0,697	0,835	1,11	1,38	1,65	1,92	2,19	2,45	2,71	3,10	3,49	3,87	4,25	4,74	5,23
60,3	0,737	0,883	1,17	1,46	1,75	2,03	2,32	2,60	2,88	3,29	3,70	4,11	4,51	5,03	5,55
63,5	0,777	0,931	1,24	1,54	1,84	2,14	2,44	2,74	3,03	3,47	3,90	4,33	4,76	5,32	5,87
70	0,857	1,03	1,37	1,70	2,04	2,37	2,70	3,03	3,35	3,84	4,32	4,80	5,27	5,90	6,51
73	0,894	1,07	1,42	1,78	2,12	2,47	2,82	3,16	3,50	4,01	4,51	5,01	5,51	6,16	6,81
76,1	0,932	1,12	1,49	1,85	2,22	2,58	2,94	3,30	3,65	4,19	4,71	5,24	5,75	6,44	7,11
82,5	1,01	1,21	1,61	2,01	2,41	2,80	3,19	3,58	3,97	4,55	5,12	5,69	6,26	7,00	7,74
88,9	1,09	1,31	1,74	2,17	2,60	3,02	3,44	3,87	4,29	4,91	5,53	6,15	6,76	7,57	8,38
101,6	1,25	1,49	1,99	2,48	2,97	3,46	3,95	4,43	4,91	5,63	6,35	7,06	7,77	8,70	9,63
108	1,33	1,59	2,11	2,64	3,16	3,68	4,20	4,71	5,23	6,00	6,76	7,52	8,27	9,27	10,3
114,3	1,40	1,68	2,24	2,79	3,35	3,90	4,45	4,99	5,54	6,35	7,16	7,97	8,77	9,83	10,9
127		1,87	2,49	3,11	3,72	4,34	4,95	5,56	6,17	7,07	7,98	8,88	9,77	11,0	12,1
133		1,96	2,61	3,26	3,90	4,54	5,18	5,82	6,46	7,41	8,36	9,30	10,2	11,5	12,7
139,7		2,06	2,74	3,42	4,10	4,77	5,45	6,12	6,79	7,79	8,79	9,78	10,8	12,1	13,4
141,3		2,08	2,77	3,46	4,15	4,83	5,51	6,19	6,87	7,88	8,89	9,90	10,9	12,2	13,5
152,4			2,99	3,73	4,47	5,21	5,95	6,69	7,42	8,51	9,61	10,7	11,8	13,2	14,6
159			3,12	3,90	4,67	5,44	6,21	6,98	7,74	8,89	10,0	11,2	12,3	13,8	15,3
165,1			3,24	4,05	4,85	5,65	6,45	7,25	8,04	9,23	10,4	11,6	12,8	14,3	15,9
168,3			3,30	4,13	4,95	5,76	6,58	7,39	8,20	9,42	10,6	11,8	13,0	14,6	16,2
177,8			3,49	4,36	5,23	6,09	6,95	7,81	8,67	9,95	11,2	12,5	13,8	15,5	17,1
193,7			3,81	4,75	5,70	6,64	7,58	8,52	9,46	10,9	12,3	13,6	15,0	16,9	18,7
219,1			4,31	5,38	6,45	7,52	8,58	9,65	10,7	12,3	13,9	15,5	17,0	19,1	21,2
244,5			4,81	6,01	7,20	8,39	9,58	10,8	12,0	13,7	15,5	17,3	19,0	21,4	23,7
267				6,56	7,87	9,17	10,5	11,8	13,1	15,0	17,0	18,9	20,8	23,4	25,9
273				6,71	8,04	9,38	10,7	12,0	13,4	15,4	17,3	19,3	21,3	23,9	26,5
298,5					8,80	10,3	11,7	13,2	14,6	16,8	19,0	21,1	23,3	26,2	29,1
323,9						11,1	12,7	14,3	15,9	18,2	20,6	23,0	25,3	28,4	31,6
355,6						12,2	14,0	15,7	17,4	20,0	22,6	25,2	27,8	31,3	34,7
368						12,7	14,5	16,3	18,1	20,7	23,4	26,1	28,8	32,4	35,9
406,4								18,0	19,9	22,9	25,9	28,9	31,8	35,8	39,7
419								18,5	20,6	23,6	26,7	29,8	32,8	36,9	40,9
457								20,2	22,4	25,8	29,1	32,5	35,8	40,3	44,7
508									25,0	28,7	32,4	36,1	39,8	44,8	49,7
559										31,6	35,7	39,8	43,9	49,3	54,7
610											38,9	43,4	47,9	53,8	59,8
660											42,2	47,0	51,8	58,3	64,7
711												50,6	55,9	62,8	69,7
762												54,3	59,9	67,3	74,8
813													63,9	71,9	79,8
864													67,9	76,4	84,8
914														80,8	89,8
1 016															99,8
1 220															120
1 420															140
1 620															159
1 820															179
2 020															199
2 220															219