INTERNATIONAL STANDARD

ISO 1127

Third edition
1992-12-15

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

Tubes en acier inoxydable — Dimensions, tolérances et masses linéiques conventionnelles

Reference number
ISO 1127:1992(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 1127 was prepared by Technical Committee ISO/TC 5, *Ferrous metal pipes and metallic fittings*, Sub-Committee SC 1, *Steel tubes*.

This third edition cancels and replaces the second edition (ISO 1127:1980), of which tables 1 and 2 (now tables 3 and 4) have been technically revised. In particular, the diameter 12,7 mm has been added to series 2 in these two tables.

Annex A of this International Standard is for information only.

International Organization for Standardization
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Stainless steel tubes — Dimensions, tolerances and conventional masses per unit length

1 Scope

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

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5252:1991, *Steel tubes — Tolerance systems.*

3 Dimensions

The outside diameters and thicknesses of the tubes specified in this International Standard have been selected from ISO 4200. If thicknesses greater than 14,2 mm are needed, they should be chosen from ISO 4200.

4 Tolerances

The tolerances permitted on the outside diameter and thickness of the tubes result from the method of manufacture, the steel types and the heat treatment. The tolerances shall be selected from the values given in tables 1 and 2.

4.1 Tolerances on outside diameter

See table 1.

Table 1 — Tolerances on outside diameter

Tolerance class	Tolerance on outside diameter
D_1	± 1,5 % with ± 0,75 mm min.
D_2	± 1 % with ± 0,5 mm min.
D_3	± 0,75 % with ± 0,3 mm min.
D_4	± 0,5 % with ± 0,1 mm min.

The tolerances on outside diameter include ovality.

4.2 Tolerances on thickness

See table 2.

Table 2 — Tolerances on thickness

Tolerance class	Tolerance on thickness
T_1	± 15 % with ± 0,6 mm min.
T_2	± 12,5 % with ± 0,4 mm min.
T_3	± 10 % with ± 0,2 mm min.
T_4	± 7,5 % with ± 0,15 mm min.
T_5	± 5 % with ± 0,1 mm min.

The tolerances on thickness include eccentricity.

4.3 Other tolerances

For tolerances on dimensions other than outside diameter and thickness, reference shall be made to ISO 5252.

5 Conventional masses per unit length

The conventional masses per unit length given in table 3 for austenitic stainless steel tubes are the masses given in ISO 4200 multiplied by a factor of 1,015. This factor assumes an average density for these tubes of 7,97 kg/dm^3.

The conventional masses per unit length given in table 4 for ferritic and martensitic stainless steel tubes are the masses given in ISO 4200 multiplied by a factor of 0,985. This factor assumes an average density for these tubes of 7,73 kg/dm^3.

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Table 3 — Conventional masses for austenitic stainless steel tubes

Outside diameter mm	Series		Thickness, mm																									
			1,0	1,2	1,6	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	8,0	8,8	10,0	11,0	12,5	14,2
1	2	3	Conventional mass per unit length, kg/m																				
	6		0,125	0,144																			
	8		0,176	0,204																			
	10		0,225	0,264																			
10,2			0,230	0,270	0,344	0,410																	
	12		0,275		0,416	0,500																	
	12,7		0,283	0,345	0,445	0,536	0,599	0,658	0,711	0,761													
13,5			0,313	0,369	0,477	0,576	0,645		0,769														
	14		0,326		0,496	0,601																	
	16		0,376	0,445	0,577	0,701																	
17,2			0,406		0,625	0,761	0,858			1,12													
	18		0,425		0,657	0,801																	
	19		0,451	0,535	0,697	0,851																	
	20		0,476	0,564	0,737	0,901																	
21,3			0,509		0,789	0,966		1,22		1,45		1,74											
	22		0,526			1,00																	
	25		0,601	0,715	0,937	1,15		1,46															
	25,4			0,727	0,953	1,17		1,48		1,90													
26,9			0,649		1,01	1,25		1,58	1,75			2,29											
	30				1,14	1,40																	
	31,8			0,920	1,21	1,49		1,90		2,29		2,78											
	32			0,925		1,50																	
33,7			0,818	0,976	1,29	1,58	1,81	2,02		2,45			3,29										
	35			1,02		1,65																	
	38			1,11	1,46	1,81		2,30		2,79													
	40			1,17	1,54			2,44															
42,4					1,63	2,02		2,59		3,14	3,49			4,68									
	44,5					2,13		2,73	3,02														

Outside diameter mm			Thickness, mm																			
Series			1,0	1,2	1,6	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	8,0	8,8	10,0	11,0	12,5	14,2
1	2	3	Conventional mass per unit length, kg/m																				
48,3					1,87	2,31		2,97		3,61	4,03			5,42									
	51		1,25	1,49	1,98	2,46		3,15		3,83													
		54			2,10	2,60		3,35															
	57				2,22	2,75			3,93														
60,3					2,35	2,92	3,34	3,76	4,17	4,58	5,11	5,63			7,66								
	63,5				2,48	3,08		3,96		4,83													
	70				2,74	3,40			4,87														
76,1					2,98	3,70	4,25	4,78	5,32		6,54	7,22		8,90			12,3						
		82,5				4,03				6,35													
88,9					3,49	4,35	4,98	5,61	6,24	6,86	7,68	8,51			11,7			16,2					
	101,6					4,98			7,17			9,77			13,5			18,8					
114,3					4,52	5,62		7,27	8,09		9,98		12,4			17,1			23,2				
139,7					5,53	6,89		8,92		11,0		13,6		16,8		21,0	23,5			32,5			
168,3					6,68	8,32		10,8		13,2		16,4	18,5	20,4			28,6				43,3		
219,1						10,9		14,1		17,3	19,4	21,5				33,6		42,2				64,7	
273						13,6		17,6		21,6	24,3	26,9				42,0				65,9		81,5	92,0
323,9								20,9		25,7		32,1	35,9	39,9			56,3			78,6		97,4	
355,6								22,9		28,2		35,2		43,8						86,5	94,9	108	
406,4								26,3		32,3		40,3		50,2						99,3		123	
457										36,3		45,4		56,5						112		139	157
508										40,4	45,5			62,9	70,4						137	155	176
610										48,6		60,7			84,8	95,2						187	212
711																	125						
813																		161					
914																			199				
1 016																				252			

Table 4 — Conventional masses for ferritic and martensitic stainless steel tubes

Outside diameter mm			Thickness, mm																							
	Series		1,0	1,2	1,6	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	8,0	8,8	10,0	11,0	12,5	14,2
1	2	3	Conventional mass per unit length, kg/m																				
	6		0,121	0,140																			
	8		0,170	0,198																			
	10		0,219	0,256																			
10,2			0,224	0,262	0,334	0,398																	
	12		0,267		0,404	0,486																	
	12,7		0,285	0,335	0,431	0,520	0,581	0,638	0,690	0,739													
13,5			0,303	0,359	0,463	0,558	0,625		0,747														
	14		0,316		0,482	0,583																	
	16		0,384	0,431	0,559	0,681																	
17,2			0,394		0,607	0,739	0,832			1,08													
	18		0,413		0,637	0,777																	
	19		0,437	0,519	0,677	0,825																	
	20		0,462	0,548	0,715	0,875																	
21,3			0,493		0,765	0,938		1,18		1,41		1,68											
	22		0,510			0,971																	
	25		0,583	0,693	0,909	1,11		1,42															
	25,4			0,705	0,925	1,13		1,44		1,84		2,23											
26,9			0,629		0,983	1,21		1,54	1,69														
	30				1,10	1,36																	
	31,8			0,892	1,17	1,45		1,84		2,23		2,70											
	32			0,897		1,46																	
33,7			0,794	0,948	1,25	1,54	1,75	1,96		2,37			3,19										
	35			0,985		1,61																	
	38			1,07	1,42	1,75		2,24		2,71													
	40			1,13	1,50			2,36															
42,4					1,59	1,96		2,51		3,04	3,39			4,54									
	44,5					2,07		2,65	2,94														

Outside diameter mm			Thickness, mm																			
Series			1,0	1,2	1,6	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	8,0	8,8	10,0	11,0	12,5	14,2
1	2	3	Conventional mass per unit length, kg/m																				
48,3					1,81	2,25		2,89		3,51	3,91			5,26									
	51		1,21	1,45	1,92	2,38		3,05		3,71													
		54			2,04	2,52		3,25															
	57				2,16	2,67			3,81														
60,3					2,29	2,84	3,24	3,64	4,05	4,44	4,95	5,47			7,44								
	63,5				2,40	2,98		3,84		4,69													
	70				2,66	3,30			4,73														
76,1					2,90	3,60	4,13	4,64	5,16		6,34	7,00		8,64			11,9						
		82,5				3,91				6,17													
88,9					3,39	4,23	4,84	5,45	6,06	6,66	7,46	8,25			11,3			15,8					
	101,6					4,84			6,95			9,49			13,1			18,2					
114,3					4,38	5,46		7,05	7,85		9,68		12,0			16,5			22,6				
139,7					5,37	6,69		8,66		10,6		13,2		16,4		20,4	22,9			31,5			
168,3					6,48	8,08		10,4		12,8		16,0	17,9	19,8			27,8				42,1		
219,1						10,5		13,7		16,7	18,8	20,9				32,6		41,0				62,7	
273						13,2		17,0		21,0	23,5	26,1				40,8				63,9		79,1	89,2
323,9								20,3		24,9		31,1	34,9	38,7			54,7			76,2		94,6	
355,6								22,3		27,4		34,2		42,6						83,9	92,1	104	
406,4								25,5		31,3		39,1		48,8						96,3		119	
457										35,3		44,0		54,9						108		135	153
508										39,2	44,1			61,1	68,4						133	151	170
610										47,2		58,9			82,2	92,4						181	206
711																	121						
813																		157					
914																			193				
1 016																				244			

Annex A
(informative)

Bibliography

[1] ISO 4200:1991, *Plain end steel tubes, welded and seamless — General tables of dimensions and masses per unit length.*

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Descriptors: piping, stainless steels, austenitic steels, ferritic steels, martensitic steels, steel tubes, dimensions, dimensional tolerances, linear density.

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