

BRITISH STANDARD

**BS EN ISO
1127 : 1997**

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

The European Standard EN ISO 1127 : 1996 has the status of a
British Standard

ICS 23.040.10

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ISE/8, Steel pipes, upon which the following bodies were represented:

- Adhesive Tape Manufacturers' Association
- British Compressed Air Society
- British Iron and Steel Producers' Association
- British Malleable Tubes Fittings Association
- British Stainless Steel Association
- British Valve and Actuator Manufacturers' Association
- British Welded Steel Tube Association
- Engineering Equipment and Materials Users' Association
- Food and Drink Federation
- Institution of Civil Engineers
- Institution of Gas Engineers
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- Large Diameter Steel Tube Association
- Mechanical Handling Engineers' Association
- National Association of Plumbing, Heating and Mechanical Services Contractors
- Seamless Steel Tube Association
- Steel Construction Institute
- Steel Tube Fittings Manufacturers' Technical Association
- Society of Motor Manufacturers and Traders Ltd.
- Water Companies Association
- Water Services Association of England and Wales
- Co-opted member

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National foreword

This British Standard has been prepared by Technical Committee ISE/8 *Stainless steel tubes — Dimensions, tolerances and conventional masses per unit length*, and is the English language version of EN ISO 1127 : 1996, published by the European Committee for Standardization (CEN). It is identical with ISO 1127 : 1992, prepared by ISO/TC 5, Ferrous metal pipes and metallic fittings, of the International Organization for Standardization (ISO) with the active participation of the UK.

It supersedes certain specifications in BS 3600 : 1976 which are deleted by amendment.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 1127

April 1996

ICS 23.040.10

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

English version

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

(ISO 1127 : 1992)

Tubes en acier inoxydable — Dimensions, tolérances et masses linéiques conventionnelles
(ISO 1127 : 1992)

Nichtrostende Stahlrohre — Masse, Grenzabmasse und längenbezogene Masse
(ISO 1127 : 1992)

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European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Ref. No. EN ISO 1127 : 1996 E



Foreword

The text of the International Standard from Technical Committee ISO/TC 5, Ferrous metal pipes and metallic fittings, of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee ECISS/TC 29, Steel tubes and fittings for steel tubes, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 1996, and conflicting standards shall be withdrawn at the latest by October 1996.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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.

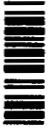
5 Conventional masses per unit length

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 $7,97 \text{ kg/dm}^3$.

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 $7,73 \text{ kg/dm}^3$.

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Table 3 — Conventional masses for austenitic stainless steel tubes

Outside diameter mm		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		0,344	0,410																	
	8		0,178	0,204		0,416	0,500																	
	10		0,225	0,264		0,445	0,536	0,598	0,658	0,711	0,761													
10,2			0,230	0,270		0,477	0,576	0,645																
	12		0,275			0,496	0,601																	
	12,7		0,283	0,345		0,577	0,701																	
13,5			0,313	0,369		0,625	0,761	0,858																
	14		0,326			0,657	0,801																	
	16		0,378	0,445		0,687	0,851																	
17,2			0,408			0,737	0,901																	
	18		0,425			0,769	0,966	1,22	1,45	1,74														
	19		0,451	0,535		0,801	1,00	1,22	1,48	1,74														
	20		0,476	0,564		0,837	1,05	1,25	1,56	1,75	1,90													
21,3			0,509			0,863	1,07	1,25	1,58	1,75	1,90													
	22		0,528			0,897	1,10	1,25	1,58	1,75	1,90													
	25		0,601	0,715		0,937	1,15	1,25	1,58	1,75	1,90													
26,9			0,649			0,963	1,17	1,25	1,58	1,75	1,90													
	25,4			0,727		0,953	1,17	1,25	1,58	1,75	1,90													
	30					1,01	1,25	1,25	1,58	1,75	1,90													
	31,8			0,920		1,21	1,49	1,49	1,90	2,29	2,78													
	32			0,925		1,50	1,50	1,50	1,90	2,29	2,78													
33,7			0,818	0,876		1,29	1,58	1,81	2,02	2,45	2,94													
	35			1,02		1,65	1,65	1,65	2,02	2,45	2,94													
	38			1,11		1,48	1,81	2,30	2,79	3,28	3,77													
40				1,17		1,54	1,81	2,44	2,93	3,42	3,91													
42,4						1,63	2,02	2,59	3,16	3,73	4,30													
	44,5					2,13	2,73	3,02	3,61	4,20	4,79													

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Outside diameter mm	Thickness, mm																				
	Conventional mass per unit length, kg/m																				
	1,0	1,2	1,6	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,8	6,3	7,1	8,0	8,8	10,0	11,0	12,5	14,2
1	2	3																			
48,3			1,97	2,31	2,37		3,61	4,03			5,42										
	1,25	1,49	1,98	2,46	3,15		3,83														
			2,10	2,60	3,35																
			2,22	2,75	3,93																
60,3			2,35	2,92	3,78	4,17	4,58	5,11	5,63			7,66									
			2,48	3,08	3,98		4,83														
			2,74	3,40	4,87																
76,1			2,98	3,70	4,78	5,32		6,54	7,22		8,90			12,3							
				4,03			6,35														
88,9			3,49	4,35	5,81	6,24	6,96	7,68	8,51			11,7			16,2						
				4,96			7,17		9,77			13,5			18,8						
114,3			4,52	5,62	7,27	8,09		9,98		12,4						23,2					
139,7			5,53	6,89	8,92		11,0		13,6	16,8							32,5				
			6,68	8,32	10,8		13,2		16,4	20,4								43,3			
168,3																					
219,1				10,9	14,1		17,3	19,4	21,5							42,2				64,7	
				13,6	17,6		21,6	24,3	28,9											81,5	92,0
273					20,9		25,7		32,1	35,9										87,4	
323,9																					
355,6					22,9		28,2		35,2	43,8										108	
408,4					28,3		32,3		40,3	50,2										123	
							36,3		45,4	56,5										139	157
457																					
508							40,4	45,5		62,9	70,4									155	176
610							48,6		60,7	84,8	95,2									187	212
711														125							
813															161						
914																					
1 016																					252

Outside diameter mm		Thickness, mm																					
		1,0	1,2	1,6	2,0	2,3	2,8	2,9	3,2	3,8	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	Series	Conventional mass per unit length, kg/m																				
48,3			1,81	2,25		2,89		3,51	3,91				5,26										
	51		1,92	2,38		3,05		3,71															
		54	2,04	2,52		3,25																	
			2,18	2,87			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															
			2,68	3,30			4,73																
76,1			2,80	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								
				4,94			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	6,68		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		104			
406,4						25,5		31,3		38,1		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	208		
711															121								
813																157							
814																		193					
1 016																							244

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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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