
**Spinning preparatory, spinning and
doubling (twisting) machinery —
Tubes for ring-spinning, doubling and
twisting spindles, taper 1:38 and 1:64**

*Matériel de préparation de filature, de filature et de retordage —
Tubes pour broches de continus à filer et à retordre à anneaux,
conicité 1:38 et 1:64*

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 72, *Textile machinery and accessories*, Subcommittee SC 1, *Spinning preparatory, spinning, twisting and winding machinery and accessories*.

This fifth edition cancels and replaces the fourth edition (ISO 368:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

- [Clause 2](#) has been updated;
- additional tube types have been included.

Spinning preparatory, spinning and doubling (twisting) machinery — Tubes for ring-spinning, doubling and twisting spindles, taper 1:38 and 1:64

1 Scope

This document specifies the dimensions (length and inner diameter) and permissible total run-out tolerances of tubes with taper 1:38 and 1:64 for ring-spinning, doubling and twisting spindles used in the textile industry. It also specifies the dimensions and tolerances of the gauges for checking the tubes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 286-2, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Types, dimensions and tolerances

4.1 Tubes

4.1.1 Tube types

Plain top tubes as shown in [Figure 1](#) a) shall be designated as type A tubes. Rolled-in top tubes as shown in [Figure 1](#) b) shall be designated as type B tubes.

4.1.2 Dimensions

Tube sizes shall be chosen from the dimensions specified in [Table 1](#).

4.1.3 Total run-out tolerance

The permissible total run-out tolerance, T_r , shall be in accordance with the values specified in [Table 1](#). The total run-out shall be measured in accordance with [Figure 2](#).

4.2 Gauges

Gauges shall conform to the dimensions and tolerances specified in [Table 2](#).

5 Tubes and gauges

5.1 Tubes

See [Figures 1](#) and [2](#), and [Table 1](#).

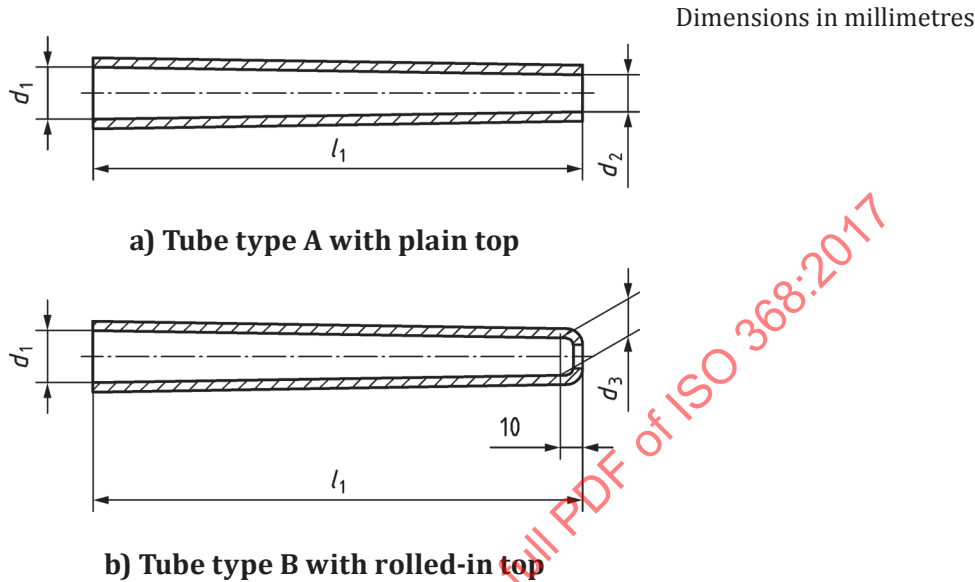


Figure 1 — Tubes

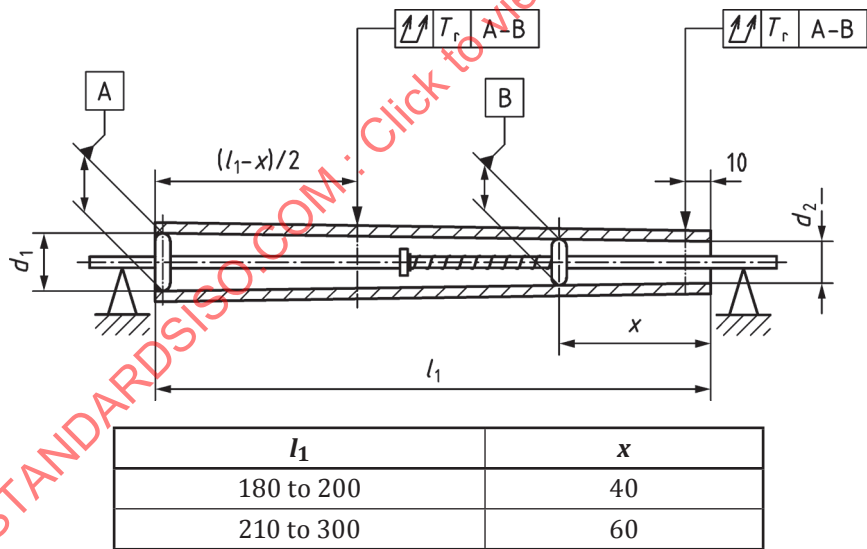


Figure 2 — Measurement of total run-out, T_r

Table 1 — Dimensions and total run-out tolerances of tubes

Dimensions in millimetres

Lengths		Row								Permissible total run-out		
l ₁	Permissible deviation	0		1		2		3		T _r ^a	T _r ^b	T _r ^c
		d ₁	d ₂	d ₁	d ₂	d ₁	d ₂	d ₁	d ₂			
Tubes with taper 1:38 d ₃ = d ₂ + 0,26												
180	±1,5	20,24	15,50	18,74	14,00	17,24	12,50			0,25	0,25	0,20
190		20,24	15,24	18,74	13,74	17,24	12,24					
200		22,26	17,00	20,26	15,00	18,76	13,50					
210		22,27	16,74	20,27	14,74	18,77	13,24					
220		24,28	18,49	22,28	16,49	20,28	14,49	18,78	12,99			
230		24,30	18,25	22,3	16,25	20,30	14,25	18,8	12,75			
240	±2	27,31	20,99	24,31	17,99	22,31	15,99	20,31	13,99	0,40	—	—
250		27,32	20,74	24,32	17,74	22,32	15,74	20,32	13,74			
260		30,34	23,50	27,34	20,50	24,34	17,50	22,34	15,50			
270		30,35	23,24	27,35	20,24	24,35	17,24	22,35	15,24			
280		33,36	25,99	30,36	22,99	27,36	19,99	24,36	16,99			
290		33,37	25,74	30,37	22,74	27,37	19,74	24,27	16,64			
300	±2,5	36,39	28,50	33,39	25,50	30,39	22,50	27,39	19,50			
Tubes with taper 1:64 d ₃ = d ₂ + 0,16												
180	±1,5	19	16,19	18	15,19	17	14,19	15	12,19	0,25	0,25	0,20
190		20	17,03	18	15,03	16	13,03	15	12,03			
200		21	17,88	20	16,88	19	15,88	18	14,88			
200						17	13,88	15	11,88			
210		22	18,72	20	16,72	18	14,72	16	12,72			
220		24	20,56	22	18,56	20	16,56	18	14,56			
230	±2	24	20,41	22	18,41	20	16,41	18	14,41	0,40	—	—
240		27	23,25	24	20,25	22	18,25	20	16,25			
250		27	23,09	24	20,09	22	18,09	20	16,09			
260		30	25,94	27	22,94	24	19,94	22	17,94			
270		30	25,78	27	22,78	24	19,78	22	17,78			
280		33	28,63	30	25,63	27	22,63	24	19,63			
290		33	28,47	30	25,47	27	22,47	24	19,47			
300	±2,5	36	31,31	33	28,31	30	25,31	27	22,31			
If not more than four rows should be defined, the following four “d ₁ ’s” are recommended for the length 200: 21, 20, 18, 15.												
a n ≤ 15 000 min ⁻¹ (r/min of spindle).												
b 15 000 min ⁻¹ < n ≤ 18 000 min ⁻¹ (r/min of spindle).												
c n > 18 000 min ⁻¹ (r/min of spindle).												

5.2 Gauges

See [Figure 3](#) and [Table 2](#).

For checking the internal diameter d_1 at the base of the tube by means of the corresponding marks on the gauge, the short part of the gauge shall be used. The marks $\pm b/2$ at the long part of the gauge shall be used for checking the internal diameter d_2 and/or d_3 at the top of the tube.

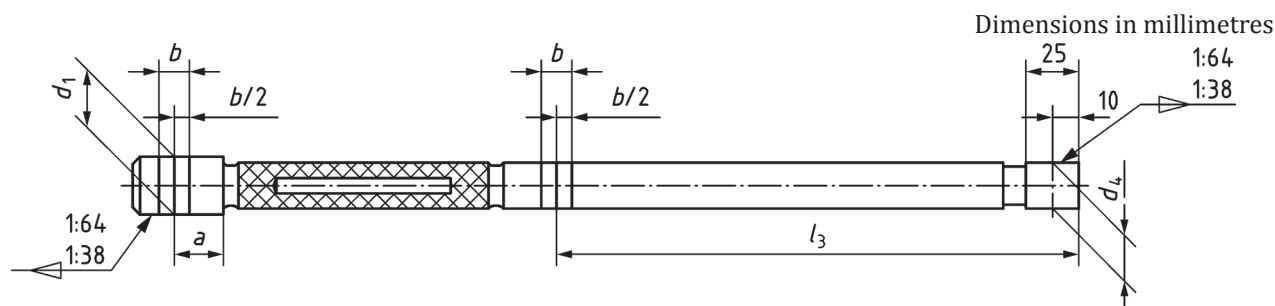


Figure 3 — Gauge for tube types A and B

Table 2 — Dimensions and tolerances of gauges for tubes

Dimensions in millimetres

Length of corresponding tube l_1	l_3 $\pm 0,2$	Row								a	b $\pm 0,1$
		0		1		2		3			
		d_1 js6 ^a	d_4 js6	d_1 js6	d_4 js6	d_1 js6	d_4 js6	d_1 js6	d_4 js6		
Gauges with taper 1:38											
180	150	20,24	16,56	18,74	15,06	17,24	13,56	—	—	15	6
190	160	20,24	16,29	18,74	14,79	17,24	13,29				
200	170	22,26	18,05	20,26	16,05	18,76	14,55				
210	170	22,27	18,06	20,27	16,06	18,77	14,56				
220	170	24,28	20,05	22,28	18,07	20,28	16,07	18,78	14,57		
230	180	24,30	19,83	22,3	17,83	20,30	15,83	18,80	14,33		
240	190	27,31	22,57	24,31	19,57	22,31	17,57	20,31	15,57		8
250	200	27,32	22,32	24,32	19,32	22,32	17,32	20,32	15,32		
260	210	30,34	25,08	27,34	22,08	24,34	19,08	22,34	17,08		
270	220	30,35	24,82	27,35	21,82	24,35	18,82	22,35	16,82		
280	230	33,36	27,57	30,36	24,57	27,36	21,57	24,36	18,57		
290	240	33,37	27,32	30,37	24,32	27,37	21,32	24,27	18,22		
300	250	36,39	30,07	33,39	27,07	30,39	24,07	27,39	21,07		

^a In accordance with ISO 286-2.

^a In accordance with ISO 286-2.

Table 2 (continued)

Length of corresponding tube l_1	l_3 $\pm 0,2$	Row								a	b $\pm 0,1$
		0		1		2		3			
		d_1 js6 ^a	d_4 js6	d_1 js6	d_4 js6	d_1 js6	d_4 js6	d_1 js6	d_4 js6		
Gauges with taper 1:64											
180	150	19	16,81	18	15,81	17	14,81	15	12,81	20	10
190	160	20	17,66	18	15,66	16	13,66	15	12,66		
200	170	21	18,50	20	17,50	19	16,50	18	15,50		
						17	14,50	15	12,50		
210	170	22	19,50	20	17,50	18	15,50	16	13,50		
220	170	24	21,50	22	19,50	20	17,50	18	15,50		
230	180	24	21,34	22	19,34	20	17,34	18	15,34		
240	190	27	24,19	24	21,19	22	19,19	20	17,19		
250	200	27	24,03	24	21,03	22	19,03	20	17,03		
260	210	30	26,88	27	23,88	24	20,88	22	18,88		12
270	220	30	26,72	27	23,72	24	20,72	22	18,72		
280	230	33	29,56	30	26,56	27	23,56	24	20,56		
290	240	33	29,41	30	26,41	27	23,41	24	20,41		
300	250	36	32,25	33	29,25	30	26,25	27	23,25		
^a In accordance with ISO 286-2.											

6 Designation

6.1 Tubes

The designation of a tube in accordance with this document shall comprise the following information, in the order given:

- "Tube";
- a reference to this document, i.e. ISO 368;
- the taper (1:38 or 1:64);
- the type of tube (i.e. A or B);
- the length l_1 ;
- the number of the row.

If necessary, further information may be given by agreement between the customer and the supplier.

EXAMPLE A tube with taper 1:64, type B with rolled-in top, of length $l_1 = 230$ mm and row 2 is designated as follows:

Tube ISO 368 - 1:64 B - 230/2