
Cylindrical shank twist drills — Long series

Forets à queue cylindrique — Série longue

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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ISO 494 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 2, *High speed steel cutting tools and their attachments*.

This second edition cancels and replaces the first edition (ISO 494:1975), of which it constitutes a minor revision. In particular, the dimensions in inches have been deleted.

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1 Scope

This International Standard specifies the dimensions of cylindrical shank twist drills, having working lengths in the long series.

The cylindrical shank jobber and stub series drills and Morse taper shank drills are given in ISO 235.

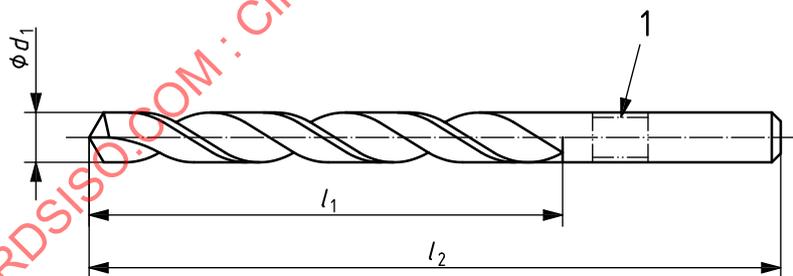
2 Dimensions

2.1 General

All dimensions and tolerances are given in millimetres.

2.2 General dimensions

The dimensions of cylindrical shank twist drills shall be in accordance with the dimensions shown in Figure 1 and given in Table 1.



Key

1 recess optional

Figure 1 — Dimensions of cylindrical shank twist drill

Table 1 — Dimensions of cylindrical shank twist drill

d_1 h8	l_1	l_2									
1,00	33	56	6,10	97	148	11,20	128	195	19,75	166	254
1,10	37	60	6,20			11,30			20,00		
1,20	41	65	6,30			11,40			20,25		
1,30			6,40			11,50			20,50		
1,40	45	70	6,50			11,60			20,75		
1,50			6,60			11,70			21,00		
1,60	50	76	6,70			11,80			21,25		
1,70			6,80	11,90	21,50						
1,80	53	80	6,90	102	156	12,00	134	205	21,75	176	268
1,90			7,00			12,10			22,00		
2,00			7,10			12,20			22,25		
2,10	56	85	7,20			12,30			22,50		
2,20			7,30			12,40			22,75		
2,30	59	90	7,40			12,50			23,00		
2,40			7,50			12,60			23,25		
2,50	62	95	7,60	109	165	12,70	140	214	23,50	185	282
2,60			7,70			12,80			23,75		
2,70	7,80	12,90	24,00								
2,80	66	100	7,90			13,00			24,25		
2,90			8,00			13,10			24,50		
3,00			8,10			13,20			24,75		
3,10	69	106	8,20			13,30			25,00		
3,20			8,30	13,40	25,25						
3,30			8,40	13,50	25,50						
3,40	73	112	8,50	115	175	13,60	144	227	25,75	190	290
3,50			8,60			13,70			26,00		
3,60			8,70			13,80			26,25		
3,70			8,80			13,90			26,50		
3,80	78	119	8,90			14,00			26,75		
3,90			9,00			14,25			27,00		
4,00			9,10			14,50			27,25		
4,10			9,20	14,75	27,50						
4,20	82	126	9,30	121	184	15,00	149	220	27,75	195	298
4,30			9,40			15,25			28,00		
4,40			9,50			15,50			28,25		
4,50			9,60			15,75			28,50		
4,60	87	132	9,70			16,00			28,75		
4,70			9,80			16,25			29,00		
4,80			9,90			16,50			29,25		
4,90			10,00	16,75	29,50						
5,00	91	139	10,10	128	195	17,00	154	235	29,75	201	307
5,10			10,20			17,25			30,00		
5,20			10,30			17,50			30,25		
5,30			10,40			17,75			30,50		
5,40	91	139	10,50			18,00	30,75				
5,50			10,60			18,25	31,00				
5,60			10,70			18,50	31,25				
5,70			10,80	18,75	31,50						
5,80	91	139	10,90	128	195	19,00	162	247	195	298	
5,90			11,00			19,25					30,00
6,00			11,10			19,50					30,25

2.3 Lengths set out as functions of diameter steps

The lengths set out as functions of diameter steps shall be as given in Table 2.

Table 2 — Lengths set out as functions of diameter steps

Diameter ranges d_1		Corresponding lengths	
Over	Up to and including	l_1	l_2
0,95	1,06	33	56
1,06	1,18	37	60
1,18	1,32	41	65
1,32	1,50	45	70
1,50	1,70	50	76
1,70	1,90	53	80
1,90	2,12	56	85
2,12	2,36	59	90
2,36	2,65	62	95
2,65	3,00	66	100
3,00	3,35	69	106
3,35	3,75	73	112
3,75	4,25	78	119
4,25	4,75	82	126
4,75	5,30	87	132
5,30	6,00	91	139
6,00	6,70	97	148
6,70	7,50	102	156
7,50	8,50	109	165
8,50	9,50	115	175
9,50	10,60	121	184
10,60	11,80	128	195
11,80	13,20	134	205
13,20	14,00	140	214
14,00	15,00	144	220
15,00	16,00	149	227
16,00	17,00	154	235
17,00	18,00	158	241
18,00	19,00	162	247
19,00	20,00	166	254
20,00	21,20	171	261
21,20	22,40	176	268
22,40	23,60	180	275
23,60	25,00	185	282
25,00	26,50	190	290
26,50	28,00	195	298
28,00	30,00	201	307
30,00	31,50	207	316

NOTE For tolerance on lengths, lengths l_1 and l_2 may vary, within one diameter step, between the minimum and maximum limits corresponding respectively to the figures given for the nearest lower or upper step.

EXAMPLE For diameter $d_1 = 4$ mm, length l_1 may vary between 73 mm and 82 mm from the nominal value 78 mm and length l_2 may vary between 112 mm and 126 mm from the nominal value 119 mm.

3 Cutting length

The cutting length shall be at the manufacturer's discretion. Unless otherwise specified, these drills shall be right-hand cutting.

4 Shank

The cylindrical shank twist drills shall be manufactured without tenon drive.

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