
**Parallel shank jobber and stub series
drills and Morse taper shank drills**

*Forets à queue cylindrique courts et extra-courts et forets à queue
cône Morse*

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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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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.

The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 2, *Holding tools, adaptive items and interfaces*.

This third edition cancels and replaces the second edition (ISO 235:1980), of which it constitutes a minor revision, notably with the addition of [Annex A](#), which gives the relationship between the designations of this document and the ISO 13399 series. It also incorporates the Technical Corrigendum ISO 235:1980/Cor 1:1996.

Parallel shank jobber and stub series drills and Morse taper shank drills

1 Scope

This document specifies the dimensions of the following three types of drills:

- a) parallel shank drills, stub series;
- b) parallel shank drills, jobber series;
- c) Morse taper shank drills.

It comprises, for each type of drill mentioned above, three tables giving, respectively:

- a) the dimensions in millimetres;
- b) the dimension in inches;
- c) the corresponding lengths, in millimetres and in inches, set out as functions of diameter steps.

2 Normative references

There are no normative references in this document.

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:

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

4 Interchangeability

The numerical tables have been drawn up in such a way as to ensure that the standard dimensions in millimetres and inches correspond as closely as possible.

To this end, the complete range of diameters has been subdivided into a number of steps, the limits of which have been derived from the preferred number series for the metric values and converted directly from those for the inch values; the lengths and taper shank dimensions remain the same for the metric and the inch value within a given step.

The recommended diameters in the two systems of units of measurement differ, however, and the number of recommended diameters in a given step also differs in one system from that in the other.

Finally, the tolerance on the diameter of the cutting portion has been standardized solely on the basis of the metric value of h8, converted directly into inches for inch drills.

5 Parallel shank twist drills, stub series

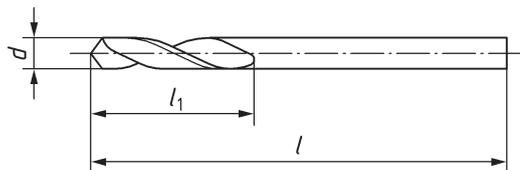


Figure 1

Table 1

Dimensions in millimetres

<i>d</i>	<i>l</i> ₁	<i>l</i>									
0,50	3	20	9,50	40	84	18,50			27,50		
0,80	5	24	9,80	43	89	18,75	64	127	27,75	81	162
1,00	6	26	10,00			19,00			28,00		
1,20	8	30	10,20			19,25			28,25		
1,50	9	32	10,50	47	95	19,50	66	131	28,50	84	168
1,80	11	36	10,80			19,75			28,75		
2,00	12	38	11,00			20,00			29,00		
2,20	13	40	11,20	51	102	20,25	68	136	29,25	87	174
2,50	14	43	11,50			20,50			29,50		
2,80	16	46	11,80			20,75			29,75		
3,00			12,00	21,00	30,00						
3,20	18	49	12,20	54	107	21,25	70	141	30,25	90	180
3,50	20	52	12,50			21,50			30,50		
3,80	22	55	12,80			21,75			30,75		
4,00			13,00	31,00							
4,20			13,20	31,25							
4,50	24	58	13,50	56	111	22,50	72	146	31,50	93	186
4,80	26	62	13,80			22,75			31,75		
5,00			14,00			23,00			32,00		
5,20	28	66	14,25	58	115	23,25	75	151	32,50	96	193
5,50			14,50			23,50			33,00		
5,80			14,75			23,75			33,50		
6,00	31	70	15,00	60	119	24,00	78	156	34,00	100	200
6,20			15,25			24,25			34,50		
6,50			15,50			24,50			35,00		
6,80	34	74	15,75	62	123	24,75	80	162	35,50	103	207
7,00			16,00			25,00			36,00		
7,20			16,25			25,25			36,50		
7,50	37	79	16,50	64	126	25,50	82	165	37,00	106	212
7,80			16,75			25,75			37,50		
8,00			17,00			26,00			38,00		
8,20	39	83	17,25	66	129	26,25	84	168	38,50	108	216
8,50			17,50			26,50			39,00		
8,80			17,75			26,75			39,50		

Table 1 (continued)

<i>d</i>	<i>l</i> ₁	<i>l</i>									
9,00	40	84	18,00			27,00	81	162	40,00		
9,20			18,25	64	127	27,25					

When intermediate sizes are needed, reference is to be made to [Table 3](#) for the corresponding lengths.

Cutting portion

- Tolerance on diameter, *d*, measured near the point: h8.

For dimensions in inches, direct conversion into inches of the metric values of the tolerance h8.

- Back taper: at the manufacturer's discretion.
- Hand of cutting, unless otherwise specified: right.

Shank: these drills are normally made without driving tenon.

For tolerances on lengths, see [Table 3](#).

Table 2

Dimensions in inches

<i>d</i>	<i>l</i> ₁	<i>l</i>	<i>d</i>	<i>l</i> ₁	<i>l</i>	<i>d</i>	<i>l</i> ₁	<i>l</i>
1/32	3/16	15/16	17/32	2 1/8	4 7/32	1 1/32	3 1/16	6 1/8
3/64	5/16	1 3/16	35/64			1 3/64		
1/16	13/32	1 11/32	9/16	2 7/32	4 3/8	1 1/16	3 3/16	6 3/8
5/64	15/32	1 1/2	37/64			1 5/64		
3/32	9/16	1 11/16	19/32	2 9/32	4 17/32	1 3/32	3 5/16	6 5/8
7/64	5/8	1 13/16	39/64			1 7/64		
1/8	11/16	1 15/16	5/8	2 3/8	4 11/16	1 1/8	3 5/16	6 5/8
9/64	25/32	2 1/16	41/64			1 9/64		
5/32	7/8	2 5/32	21/32	2 7/16	4 27/32	1 5/32	3 7/16	6 27/32
11/64	15/16	2 9/32	43/64			1 11/64		
3/16	1 1/32	2 7/16	11/16	2 1/2	5	1 3/16	3 7/16	6 27/32
13/64			45/64			1 13/64		
7/32	1 1/8	2 19/32	23/32	2 1/2	5	1 7/32	3 7/16	7 3/32
15/64			47/64			1 15/64		
1/4	1 7/32	2 3/4	3/4	2 19/32	5 5/32	1 1/4	3 17/32	7 3/32
17/64	1 5/16	2 29/32	49/64			1 17/64		
9/32			1 7/16	3 1/8	25/32	1 9/32	3 17/32	7 3/32
19/64	51/64	1 19/64						
5/16	1 7/16	3 1/8	13/16	2 11/16	5 11/32	1 5/16	3 17/32	7 3/32
21/64			53/64			1 21/64		
11/32	1 9/16	3 5/16	27/32	2 3/4	5 9/16	1 11/32	3 21/32	7 5/16
23/64			55/64			1 23/64		
3/8	1 11/16	3 1/2	7/8	2 27/32	5 3/4	1 3/8	3 21/32	7 5/16
25/64			57/64			1 25/64		
13/32	1 27/32	3 3/4	29/32	2 15/16	5 15/16	1 13/32	3 25/32	7 19/32
27/64			59/64			1 27/64		
7/16	1 27/32	3 3/4	15/16	2 15/16	5 15/16	1 7/16	3 25/32	7 19/32
29/64			61/64			1 29/64		
15/32			31/32			1 15/32		

Table 2 (continued)

<i>d</i>	<i>l</i> ₁	<i>l</i>	<i>d</i>	<i>l</i> ₁	<i>l</i>	<i>d</i>	<i>l</i> ₁	<i>l</i>
31/64	2	4	63/64	3 1/16	6 1/8	1 31/64	3 15/16	7 7/8
1/2			1			1 1/2		
33/64			1 1/64					

When intermediate sizes are needed, reference is to be made to [Table 3](#) for the corresponding lengths.

Cutting portion

- Tolerance on diameter, *d*, measured near the point: h8.
- For dimensions in inches, direct conversion into inches of the metric values of the tolerance h8.
- Back taper: at the manufacturer's discretion.
- Hand of cutting, unless otherwise specified: right.

Shank: these drills are normally made without driving tenon.

For tolerances on lengths, see [Table 3](#).

Table 3 — Corresponding lengths for parallel shank twist drills, stub series set out as functions of diameter

Diameter ranges, <i>d</i>				Corresponding lengths				
over	incl.	over	incl.	<i>l</i> ₁	<i>l</i>	<i>l</i> ₁	<i>l</i>	
mm		in		mm		in		
0,19	0,24	0,007 5	0,009 4	1,5	19	1/16	3/4	
0,24	0,30	0,009 4	0,011 8			2,0		3/32
0,30	0,38	0,011 8	0,015 0			2,5		3/32
0,38	0,48	0,015 0	0,018 9	3,0	20	1/8	25/32	
0,48	0,53	0,018 9	0,020 9	3,5	21	1/8	13/16	
0,53	0,60	0,020 9	0,023 6	4,0	22	5/32	7/8	
0,60	0,67	0,023 6	0,026 4	4,5	23	3/16	29/32	
0,67	0,75	0,026 4	0,029 5	5,0	24	3/16	15/16	
0,75	0,85	0,029 5	0,033 5	5,5	25	7/32	31/32	
0,85	0,95	0,033 5	0,037 4	6,0	26	1/4	1 1/32	
0,95	1,06	0,037 4	0,041 7	7,0	28	9/32	1 3/32	
1,06	1,18	0,041 7	0,046 4	8,0	30	5/16	1 3/16	
1,18	1,32	0,046 4	0,052 0	9,0	32	11/32	1 1/4	
1,32	1,50	0,052 0	0,059 1	10	34	13/32	1 11/32	
1,50	1,70	0,059 1	0,066 9	11	36	7/16	1 7/16	
1,70	1,90	0,066 9	0,074 8	12	38	15/32	1 1/2	
1,90	2,12	0,074 8	0,083 5	13	40	1/2	1 9/16	
2,12	2,36	0,083 5	0,092 9	14	43	9/16	1 11/16	
2,36	2,65	0,092 9	0,104 3	16	46	5/8	1 13/16	
2,65	3,00	0,104 3	0,118 1	18	49	11/16	1 15/16	
3,00	3,35	0,118 1	0,131 9	20	52	25/32	2 1/16	
3,35	3,75	0,131 9	0,147 6	22	55	7/8	2 5/32	
3,75	4,25	0,147 6	0,167 3	24	58	15/16	2 9/32	
4,25	4,75	0,167 3	0,187 0	26	62	1 1/32	2 7/16	
4,75	5,30	0,187 0	0,208 7					

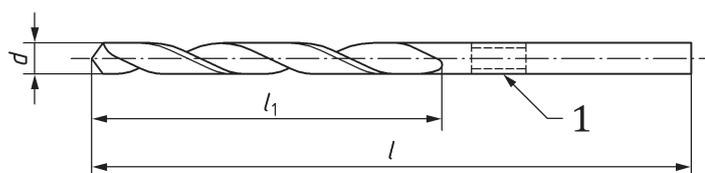
Table 3 (continued)

Diameter ranges, d				Corresponding lengths			
over	incl.	over	incl.	l_1	l	l_1	l
mm		in		mm		in	
5,30	6,00	0,208 7	0,236 2	28	66	1 1/8	2 19/32
6,00	6,70	0,236 2	0,263 8	31	70	1 7/32	2 3/4
6,70	7,50	0,263 8	0,295 3	34	74	1 5/16	2 29/32
7,50	8,50	0,295 3	0,334 6	37	79	1 7/16	3 3/8
8,50	9,50	0,334 6	0,374 0	40	84	1 9/16	3 5/16
9,50	10,60	0,374 0	0,417 3	43	89	1 11/16	3 1/2
10,60	11,80	0,417 3	0,464 6	47	95	1 27/32	3 3/4
11,80	13,20	0,464 6	0,519 7	51	102	2 1/8	4
13,20	14,00	0,519 7	0,551 2	54	107	2 1/8	4 7/32
14,00	15,00	0,551 2	0,590 6	56	111	2 7/32	4 3/8
15,00	16,00	0,590 6	0,629 9	58	115	2 9/32	4 17/32
16,00	17,00	0,629 9	0,669 3	60	119	2 3/8	4 11/16
17,00	18,00	0,669 3	0,708 7	62	123	2 7/16	4 27/32
18,00	19,00	0,708 7	0,748 0	64	127	2 1/2	5
19,00	20,00	0,748 0	0,787 4	66	131	2 19/32	5 5/32
20,00	21,20	0,787 4	0,834 6	68	136	2 11/16	5 11/32
21,20	22,40	0,834 6	0,881 9	70	141	2 3/4	5 9/16
22,40	23,60	0,881 9	0,929 1	72	146	2 27/32	5 3/4
23,60	25,00	0,929 1	0,984 0	75	151	2 15/16	5 15/16
25,00	26,50	0,984 0	1,043 3	78	156	3 1/16	6 1/8
26,50	28,00	1,043 3	1,102 4	81	162	3 3/16	6 3/8
28,00	30,00	1,102 4	1,181 1	84	168	3 5/16	6 5/8
30,00	31,50	1,181 1	1,240 2	87	174	3 7/16	6 27/32
31,50	33,50	1,240 2	1,318 9	90	180	3 17/32	7 3/32
33,50	35,50	1,318 9	1,397 6	93	186	3 21/32	7 5/16
35,50	37,50	1,397 6	1,476 4	96	193	3 25/32	7 19/32
37,50	40,00	1,476 4	1,574 8	100	200	3 15/16	7 7/8

NOTE 1 l and l_1 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. See as examples the note under [Table 6](#) and [Table 9](#).

NOTE 2 Standardized diameters in millimetres and in inches: see [Table 1](#) and [Table 2](#), respectively.

6 Parallel shank twist drills, jobber series



Key

1 recess optional

Figure 2

Table 4

Dimensions in millimetres

<i>d</i>	<i>l</i> ₁	<i>l</i>												
0,20	2,5	19	1,40	18	40	3,80	43	75	7,80	75	117	11,80	94	142
0,22			1,45			3,90			7,90			11,90		
0,25			1,50			4,00			8,00			12,00		
0,28	3		1,55	20	43	4,10			8,10			12,10		
0,30			1,60			4,20			8,20			12,20		
0,32	4		1,65	22	46	4,30			47			80	8,30	81
0,35		1,70	4,40			8,40	12,40							
0,38		1,75	4,50			8,50	12,50							
0,40	5	20	1,80	24	49	4,60	52	86	8,60	87	133	12,60	108	160
0,42			1,85			4,70			8,70			12,70		
0,45			1,90			4,80			8,80			12,80		
0,48	6	22	1,95	27	53	4,90	57	93	8,90	93	139	12,90	114	169
0,50			2,00			5,00			9,00			13,00		
0,52	2,05	5,10	9,10	13,10										
0,55	7	24	2,10	30	57	5,20	63	101	9,20	63	101	13,20	120	178
0,58			2,15			5,30			9,30			13,30		
0,60			2,20			5,40			9,40			13,40		
0,62	8	26	2,25	33	61	5,50	69	109	9,50	94	142	13,50	130	191
0,65			2,30			5,60			9,60			13,60		
0,68	9	28	2,35	36	65	5,70	69	109	9,70	94	142	13,70	135	198
0,70			2,40			5,80			9,80			13,80		
0,72			2,45			5,90			9,90			13,90		
0,75	10	30	2,50	36	65	6,00	69	109	10,00	94	142	14,00	135	198
0,78			2,55			6,10			10,10			14,25		
0,80	2,60	6,20	10,20	14,50										
0,82	2,65	6,30	10,30	14,75										
0,85	11	32	2,70	33	61	6,40	69	109	10,40	94	142	15,00	125	184
0,88			2,75			6,50			10,50			15,25		
0,90			2,80			6,60			10,60			15,50		
0,92	12	34	2,85	36	65	6,70	69	109	10,70	94	142	15,75	130	191
0,95			2,90			6,80			10,80			16,00		
0,98	2,95	6,90	10,90	16,50										
1,00	3,00	7,00	11,00	17,00										
1,05	14	36	3,10	36	65	7,10	69	109	11,10	94	142	17,50	135	198
1,10			3,20			7,20			11,20			18,00		
1,15			3,30			7,30			11,30			18,50		
1,20			3,40			7,40			11,40			19,00		

Table 4 (continued)

d	l_1	l	d	l_1	l	d	l_1	l	d	l_1	l	d	l_1	l
1,25	16	38	3,50	39	70	7,50			11,50			19,50	140	205
1,30			3,60			7,60			11,60			20,00		
1,35	18	40	3,70			7,70	75	117	11,70					

When intermediate sizes are needed, reference is to be made to [Table 6](#) for the corresponding lengths.

Cutting portion

— Tolerance on diameter d measured near the point: h8.

For dimensions in inches, direct conversion into inches of the metric values of the tolerance h8.

— Back taper: at the manufacturer's discretion.

— Hand of cutting, unless otherwise specified: right.

Shank: these drills are normally made without driving tenon.

For tolerances on lengths, see [Table 6](#).

Table 5

Dimensions in inches

d	l_1	l
1/64	3/16	13/16
1/32	13/32	1 3/16
3/64	5/8	1 1/2
1/16	25/32	1 11/16
5/64	15/16	1 15/16
3/32	1 3/16	2 1/4
7/64	1 5/16	2 13/32
1/8	1 7/16	2 9/16
9/64	1 17/32	2 3/4
5/32	1 11/16	2 15/16
11/64	1 27/32	3 5/32
3/16	2 1/16	3 3/8
13/64		
7/32	2 1/4	3 21/32
15/64		
1/4	2 1/2	3 31/32
17/64	2 23/32	4 9/32
9/32		
19/64	2 15/16	4 19/32
5/16		
21/64		
11/32	3 3/16	4 29/32
23/64		
3/8	3 7/16	5 1/4
25/64		
13/32		

Table 5 (continued)

<i>d</i>	<i>l</i> ₁	<i>l</i>
27/64	3 11/16	5 19/32
7/16		
29/64		
15/32	3 31/32	5 15/16
31/64		
1/2		
When intermediate sizes are needed, reference is to be made to Table 6 for the corresponding lengths. Cutting portion — Tolerance on diameter <i>d</i> measured near the point: h8. For dimensions in inches, direct conversion into inches of the metric values of the tolerance h8. — Back taper: at the manufacturer's discretion. — Hand of cutting, unless otherwise specified: right. Shank: these drills are normally made without driving tenon. For tolerances on lengths, see Table 6 .		

Table 6 — Corresponding lengths for parallel shank twist drills, jobber series set out as functions of diameter steps

Diameter ranges, <i>d</i>				Corresponding lengths			
over	incl.	over	incl.	<i>l</i> ₁	<i>l</i>	<i>l</i> ₁	<i>l</i>
mm		in		mm		in	
0,19	0,24	0,007 5	0,009 4	2,5	19	3/32	3/4
0,24	0,30	0,009 4	0,011 8	3		1/8	
0,30	0,38	0,011 8	0,015 0	4		5/32	
0,38	0,48	0,015 0	0,018 9	5	20	3/16	13/16
0,48	0,53	0,018 9	0,020 9	6	22	1/4	7/8
0,53	0,60	0,020 9	0,023 6	7	24	9/32	15/16
0,60	0,67	0,023 6	0,026 4	8	26	5/16	1
0,67	0,75	0,026 4	0,029 5	9	28	11/32	1 1/8
0,75	0,85	0,029 5	0,033 5	10	30	13/32	1 3/16
0,85	0,95	0,033 5	0,037 4	11	32	7/16	1 1/4
0,95	1,06	0,037 4	0,041 7	12	34	15/32	1 5/16
1,06	1,18	0,041 7	0,046 4	14	36	9/16	1 7/16
1,18	1,32	0,046 4	0,052 0	16	38	5/8	1 1/2
1,32	1,50	0,052 0	0,059 1	18	40	11/16	1 9/16
1,50	1,70	0,059 1	0,066 9	20	43	25/32	1 11/16
1,70	1,90	0,066 9	0,074 8	22	46	7/8	1 13/16
1,90	2,12	0,074 8	0,083 5	24	49	15/16	1 15/16
2,12	2,36	0,083 5	0,092 9	27	53	1 1/16	2
2,36	2,65	0,092 9	0,104 3	30	57	1 3/16	2 1/4
2,65	3,00	0,104 3	0,118 1	33	61	1 5/16	2 13/32
3,00	3,35	0,118 1	0,131 9	36	65	1 7/16	2 9/16

Table 6 (continued)

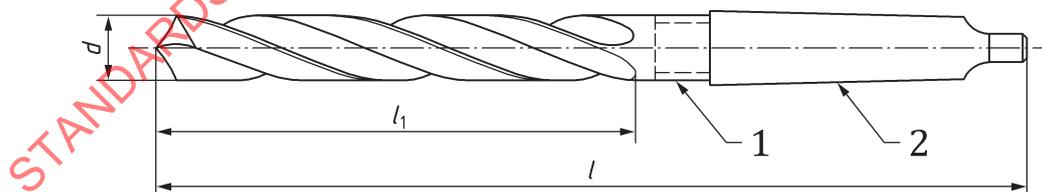
Diameter ranges, d				Corresponding lengths			
over	incl.	over	incl.	l_1	l	l_1	l
mm		in		mm		in	
3,35	3,75	0,131 9	0,147 6	39	70	1 17/32	2 3/4
3,75	4,25	0,147 6	0,167 3	43	75	1 11/16	2 15/16
4,25	4,75	0,167 3	0,187 0	47	80	1 27/32	3 5/32
4,75	5,30	0,187 0	0,208 7	52	86	2 1/16	3 3/8
5,30	6,00	0,208 7	0,236 2	57	93	2 1/4	3 21/32
6,00	6,70	0,236 2	0,263 8	63	101	2 1/2	3 31/32
6,70	7,50	0,263 8	0,295 3	69	109	2 23/32	4 9/32
7,50	8,50	0,295 3	0,334 6	75	117	2 15/16	4 19/32
8,50	9,50	0,334 6	0,374 0	81	125	3 3/16	4 29/32
9,50	10,60	0,374 0	0,417 3	87	133	3 7/16	5 1/4
10,60	11,80	0,417 3	0,464 6	94	142	3 11/16	5 19/32
11,80	13,20	0,464 6	0,519 7	101	151	3 31/32	5 15/16
13,20	14,00	0,519 7	0,551 2	108	160	4 1/4	6 5/16
14,00	15,00	0,551 2	0,590 6	114	169	4 1/2	6 5/8
15,00	16,00	0,590 6	0,629 9	120	178	4 3/4	7
16,00	17,00	0,629 9	0,669 3	125	184	4 7/8	7 1/4
17,00	18,00	0,669 3	0,708 7	130	191	5 1/8	7 1/2
18,00	19,00	0,708 7	0,748 0	135	198	5 1/4	7 13/16
19,00	20,00	0,748 0	0,787 4	140	205	5 1/2	8 1/16

NOTE 1 l and l_1 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 the diameter 4 mm, l_1 may vary between 39 and 47 from the nominal value 43 mm, and length l may vary between 70 and 80 from the nominal value 75 mm.

NOTE 2 For standardized diameters in millimetres and in inches, see the [Table 4](#) and [Table 5](#), respectively.

7 Morse taper shank twist drills



Key

- 1 recess optional
- 2 Morse taper ISO 296

Figure 3

Table 7

Dimensions in millimetres

d	l ₁	Standard shank		Oversize shank		l ₁	d	Standard shank		Oversize shank		l ₁	Standard shank		Oversize shank		
		l	M.T.	l	M.T.			l	M.T.	l	M.T.		l	M.T.	l	M.T.	
3,00	33	114				145	12,00					145	21,00			266	
3,20	36	117					12,20						21,25				
3,50	39	120				101	12,50	182		199		150	21,50			271	
3,80	43	124					12,80				2		21,75	248			3
4,00							13,00						182				
4,20	47	128					13,20						22,25				
4,50	52	133					13,50					155	22,50	253			
4,80							13,80						189				
5,00	57	138					14,00						23,00				
5,20	63	144					14,25					160	23,25	281			
5,50							14,50						212				
5,80	69	150					14,75						23,75				
6,00	75	156					15,00					165	24,00	286			
6,20							15,25						223				
6,50	81	162					15,50						24,50				
6,80	81	162					15,75					170,00	24,75	286			
7,00							16,00						223				
7,20	81	162					16,25						25,25				
7,50	81	162					16,50					170,00	25,50	286			
7,80							16,75						223				
8,00	81	162					17,00						26,25				
8,20	81	162					17,25					170,00	26,50	286			
8,50							17,50						223				
8,80	81	162					17,75						26,75				
9,00	81	162					18,00					170,00	27,00	286			
9,20							18,25						223				
9,50	81	162					18,50						27,50				
9,80	81	162					18,75						27,75				

Table 7 (continued)

d	Standard shank		Oversize shank		l ₁	Standard shank		Oversize shank		d	l ₁	Standard shank		Oversize shank	
	l	M.T.	l	M.T.		l	M.T.	l	M.T.			l	M.T.	l	M.T.
10,00	168	87		M.T.		19,00	238		3	28,00	175				4
10,20						19,25				28,25					
10,50						19,50				28,50					
10,80						19,75				28,75					
11,00	175	94		M.T.		20,00	243		3	29,00	175				324
11,20						20,25				29,25					
11,50						20,50				29,50					
11,80						20,75				29,75					
...										
30,00	296	175	324	4	3	44,00	359	210	5	69	250		437		504
30,25						44,50				70					
30,50						45,00				71					
30,75						45,50				72					
31,00	301	180	329	4	3	46,00	364	215	5	73	255		442		509
31,25						46,50				74					
31,50						47,00				75					
31,75						47,50				76					
32,00	334	185	334			48,00	369	220	5	77	260		514		
32,50						48,50				78					
33,00						49,00				79					
33,50						49,50				80					
34,00	339	190				50,00	374	225	5	81	265		519		
34,50						50,50				82					
35,00						51				83					
35,50						52				84					
36,00	344	195				53	412	230	5	85	270		524		—
36,50						54				86					
37,00						55				87					
37,50						56				88					

Table 7 (continued)

d	Standard shank		Oversize shank		d	l ₁	Standard shank		Oversize shank		d	l ₁	Standard shank		Oversize shank		
	l	M.T.	l	M.T.			l	M.T.	l	M.T.			l	M.T.	l	M.T.	l
38,00					57					—	—						
38,50					58	235	422										
39,00	200	349			59			5									
39,50			60														
40,00					61							275					
40,50					62	240	427										
41,00					63												
41,50	205	354			64												
42,00			65														
42,50					66	245	432										
43,00	210	359			67												
43,50			68														

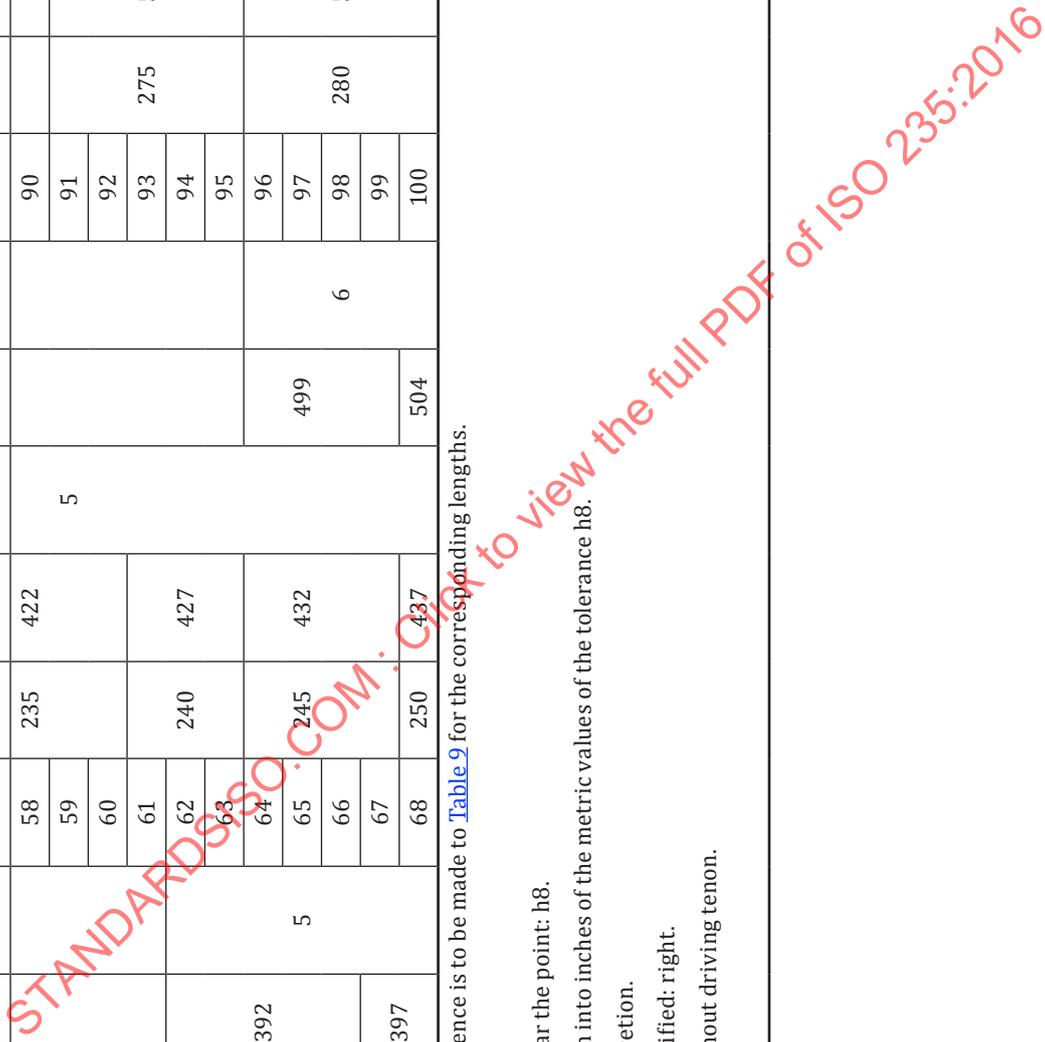
When intermediate sizes are needed, reference is to be made to [Table 9](#) for the corresponding lengths.

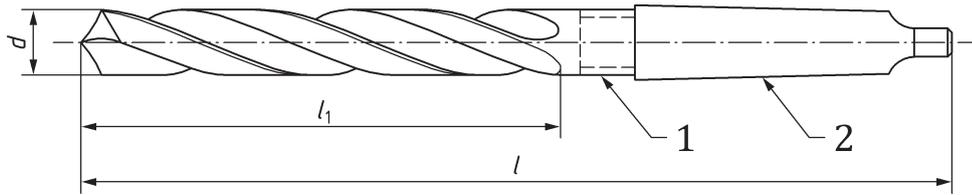
Cutting portion

- Tolerance on diameter, *d*, measured near the point: h8.
- For dimensions in inches, direct conversion into inches of the metric values of the tolerance h8.
- Back taper: at the manufacturer's discretion.
- Hand of cutting, unless otherwise specified: right.

Shank: these drills are normally made without driving tenon.

For tolerances on lengths, see [Table 9](#).



**Key**

- 1 recess optional
- 2 Morse taper ISO 296

Figure 4

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Table 8

Dimensions in inches

d	l ₁	Standard shank		Oversize shank		d	l ₁	Standard shank		Oversize shank		Standard shank		Oversize shank	
		l	M.T.	l	M.T.			l	M.T.	l	M.T.	l	M.T.	l	M.T.
1/8	1 7/16	4 5/8				23/32	5 1/4	9 1/8		10		15/16	7 1/4	13 1/8	
9/64	1 17/32	4 3/4			47/64							1 21/64			
5/32	1 11/16	4 27/32			3/4							1 11/32			
11/64	1 27/32	5 1/32			49/64	5 1/2	9 3/8			10 1/4		1 23/64	7 1/2	13 3/8	
3/16	2 1/16	5 1/4			25/32							1 3/8			
13/64					53/64							1 25/64			
7/32	2 1/4	5 7/16			13/16	5 3/4	9 5/8		2	10 1/2	3	1 13/32			
15/64					53/64							1 27/64			
1/4	2 1/2	5 11/16			27/32	5 7/8	9 3/4			10 5/8		1 7/16	7 5/8	13 1/2	
17/64	2 23/32	5 29/32			55/64							1 29/64			
9/32					7/8							1 15/32			
19/64					57/64	6 1/8	10			10 7/8		1 31/64			
5/16	2 15/16	6 1/8			29/32							1 1/2			
21/64					59/64		10 7/8					1 33/64			
11/32	3 3/16	6 3/8			15/16							1 17/32	7 7/8	13 3/4	4
23/64					61/64	6 1/4	11					1 35/64			
3/8					31/32							1 9/16			
25/64	3 7/16	6 7/8			63/64							1 37/64			
13/32					1	6 1/2	11 1/4					1 19/32			
27/64					1 1/64							1 39/64			
7/16	3 11/16	6 7/8			11/32							1 5/8	8 1/8	14	
29/64					1 5/8							1 41/64			
15/32					1 1/16	6 5/8	11 3/8			12 1/2		1 21/32			
31/64					1 5/64				3			1 43/64			
1/2	3 31/32	7 5/32			1 3/32							1 11/16			
33/64					1 7/64							1 45/64			
17/32	4 1/4	7 7/16			1 1/8	6 7/8	11 5/8			12 3/4	4	1 23/32	8 1/4	14 1/8	
35/64					1 9/64							1 47/64			

Table 8 (continued)

d	Standard shank		Oversize shank		l ₁	Standard shank		Oversize shank		d	l ₁	Standard shank		Oversize shank	
	l	M.T.	l	M.T.		l	M.T.	l	M.T.			l	M.T.	l	M.T.
9/16	4 1/2	2	—	—	1 5/32	—	—	—	—	1 3/4	—	—	—	—	—
37/64	8 3/8	8 3/8	—	—	1 11/64	—	—	—	—	1 49/64	—	—	—	—	—
19/32	4 3/4	8 5/8	—	—	1 13/16	—	—	—	—	1 25/32	—	—	—	—	—
39/64	8 5/8	8 5/8	—	—	1 13/64	7 1/8	11 7/8	13	13	1 51/64	8 1/2	14 3/8	14 3/8	15 7/8	15 7/8
5/8	8 3/4	8 3/4	—	—	1 7/32	—	—	—	—	1 13/16	8 1/2	14 3/8	14 3/8	15 7/8	15 7/8
41/64	4 7/8	8 3/4	—	—	1 15/64	—	—	—	—	1 53/64	—	—	—	—	—
21/32	8 3/4	8 3/4	—	—	1 1/4	12	13 1/8	13 1/8	13 1/8	1 27/32	—	—	—	—	—
43/64	9	9	—	—	1 17/64	7 1/4	13 1/8	—	—	1 55/64	8 5/8	14 1/2	14 1/2	16	16
11/16	9	9	—	—	1 9/32	—	—	—	—	1 7/8	8 5/8	14 1/2	14 1/2	16	16
45/64	9	9	—	—	1 19/64	—	—	—	—	1 57/64	—	—	—	—	—
...
1 29/32	8 5/8	4	16	5	2 15/32	9 1/2	16 7/8	—	—	3 1/8	10 1/4	20 1/4	20 1/4	—	—
1 59/64	14 1/2	14 1/2	—	—	2 1/2	—	—	—	—	3 5/32	—	—	—	—	—
1 15/16	14 1/2	14 1/2	—	—	2 17/32	—	—	—	—	3 3/16	—	—	—	—	—
1 61/64	14 3/4	14 3/4	—	—	2 9/16	9 5/8	17	19 5/8	19 5/8	3 7/32	10 3/8	20 3/8	20 3/8	—	—
1 31/32	14 3/4	14 3/4	—	—	2 19/32	—	—	—	—	3 1/4	10 3/8	20 3/8	20 3/8	—	—
1 63/64	8 7/8	8 7/8	—	—	2 5/8	—	—	—	—	3 9/32	—	—	—	—	—
2	8 7/8	8 7/8	—	—	2 21/32	—	—	—	—	3 5/16	—	—	—	—	—
2 1/32	16 1/4	16 1/4	—	—	2 11/16	9 7/8	17 1/4	5	5	3 11/32	—	—	—	—	—
2 1/16	16 3/8	16 3/8	—	—	2 23/32	—	—	—	—	3 3/8	—	—	—	—	—
2 3/32	16 3/8	16 3/8	—	—	2 3/4	—	—	—	—	3 13/32	—	—	—	—	—
2 1/8	9	9	—	—	2 25/32	—	—	—	—	3 7/16	10 5/8	20 5/8	20 5/8	—	—
2 5/32	9	9	—	—	2 13/16	—	—	—	—	3 15/32	—	—	—	—	—
2 3/16	9 1/4	9 1/4	—	—	2 27/32	—	—	—	—	3 1/2	—	—	—	—	—
2 7/32	16 5/8	16 5/8	—	—	2 7/8	10	17 3/8	20	20	3 9/16	10 7/8	20 7/8	20 7/8	—	—
2 1/4	16 5/8	16 5/8	—	—	2 29/32	—	—	—	—	3 5/8	10 7/8	20 7/8	20 7/8	—	—
2 9/32	16 5/8	16 5/8	—	—	2 15/16	—	—	—	—	3 11/16	—	—	—	—	—
2 5/16	16 5/8	16 5/8	—	—	2 31/32	—	—	—	—	3 3/4	—	—	—	—	—
2 11/32	16 5/8	16 5/8	—	—	3	—	—	—	—	3 13/16	11	21	21	—	—

Table 8 (continued)

d	l ₁	Standard shank		Oversize shank		d	l ₁	Standard shank		Oversize shank		Standard shank		Oversize shank	
		l	M.T.	l	M.T.			l	M.T.	l	M.T.	l	M.T.	l	M.T.
2 3/8						3 1/32	10 1/4								
2 13/32	9 1/2	16 7/8			3 1/16			20 1/4	6	—	—				
2 7/16					3 3/32							11 1/4	21 1/4		

When intermediate sizes are needed, reference is to be made to [Table 9](#) for the corresponding lengths.

Cutting portion

- Tolerance on diameter, d, measured near the point: h8.

For dimensions in inches, direct conversion into inches of the metric values of the tolerance h8.

- Back taper: at the manufacturer's discretion.
- Hand of cutting, unless otherwise specified: right.

Shank: these drills are normally made without driving tenon.

For tolerances on lengths, see [Table 9](#).

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