INTERNATIONAL STANDARD

ISO 3823-2

Second edition
2003-05-15

Dentistry — Rotary bur instruments —

Part 2: Finishing burs

Art dentaire — Instruments rotatifs de fraisage —

Partie 2: Fraises à finir

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 3823-2 was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 4, *Dental instruments*.

This second edition cancels and replaces the first edition (ISO 3823-2:1986), which has been technically revised to contain the updated specifications for dental steel and carbide finishing burs. The specifications for steel finishing burs remain unchanged, while those for carbide finishing burs have been updated and changed in respect to bur shapes and diameters.

ISO 3823 consists of the following parts, under the general title *Dentistry — Rotary bur instruments*:

— *Part 1: Burs*

— *Part 2: Finishing burs*

Introduction

This part of ISO 3823 is one of a series of International Standards relating to dental rotary instruments.

This second edition of ISO 3823-2 contains the updated specifications for tungsten carbide finishing burs. The specifications for steel finishing burs remain unchanged.

The various dimensional and other requirements specified for steel and carbide finishing burs are those considered important to ensure the interchangeability and safe usage of these instruments in the practice of dentistry.

The nominal diameters of the working parts listed in Tables 1 to 68 comply with the diameters specified in ISO 2157.

Attention is drawn to the ISO 6360 series, which specifies a 15-digit numbering system for the identification of dental rotary instruments of all types.

Dentistry — Rotary bur instruments —

Part 2:
Finishing burs

1 Scope

This part of ISO 3823 specifies dimensional and other relevant requirements for the 17 most commonly used shapes of steel and carbide finishing burs, including a quality control and specifications for labelling of these instruments.

2 Normative references

The following referenced documents are indispensable for the application 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 1797-1:1992, *Dental rotary instruments — Shanks — Part 1: Shanks made of metals*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 6360-1, *Dentistry — Number coding system for rotary instruments — Part 1: General characteristics*

ISO 6360-3, *Dentistry — Number coding system for rotary instruments — Part 3: Specific characteristics of burs and cutters*

ISO 8325:1985, *Dental rotary instruments — Test methods*

ISO 13402:1995, *Surgical and dental hand instruments — Determination of resistance against autoclaving, corrosion and thermal exposure*

3 Classification

Steel and carbide finishing burs shall be classified, according to the material of the working part, into the following two types:

— Type 1: Steel finishing burs

— Type 2: Carbide finishing burs

4 Symbols

For the purposes of this part of ISO 3823, the following symbols apply:

d_1 diameter of working part, head diameter;

d_2 neck diameter;

d_3 diameter of tip;

l_1 length of working part, head length;

l_2 overall length;

α angle of the working part.

5 Requirements

5.1 Material

5.1.1 Working part

The working parts of steel finishing burs shall be made of steel and those of carbide finishing burs of tungsten carbide. The selection of the type of material and its treatment shall be left to the discretion of the manufacturer.

5.1.2 Shank

The material of the shank shall comply with ISO 1797-1.

5.2 Shape

The shape of the working part shall be as specified in Figures 1 to 34. Variations of the shape within the limited dimensions and the terms specified in the titles of the respective subclauses are permitted.

Testing shall be carried out in accordance with 6.1.

5.3 Dimensions and number of blades

5.3.1 Units used for dimensions and angles

Dimensions are given in millimetres, angles are given in degrees.

5.3.2 Working part

The dimensions of the working part shall be as specified in Tables 1 to 34.

The number of blades shall be as specified in Tables 1 to 34. The numbers refer to instruments with medium (standard) fineness.

The toothing shown in Figures 1 to 34 are examples only. Toothing shall be at the discretion of the manufacturer. The identification of the toothing shall be made in accordance with ISO 6360-3.

Testing shall be carried out in accordance with 6.2.

5.3.3 Shank

The shank shall be Type 1, 2 or 3 in accordance with ISO 1797-1.

5.3.4 Overall length

The overall length of the instrument, l_2, depends on the fitting length of the shank used.

In Tables 1 to 34 the term “Standard” refers to instruments with standard fitting lengths of the shanks. For instruments with longer or shorter shank length, the overall length, l_2, varies accordingly. See ISO 1797-1:1992, Table 1, for fitting length of shanks.

Testing shall be carried out in accordance with 6.2.

5.3.5 Figures and Tables for steel finishing burs

5.3.5.1 Spherical (round)

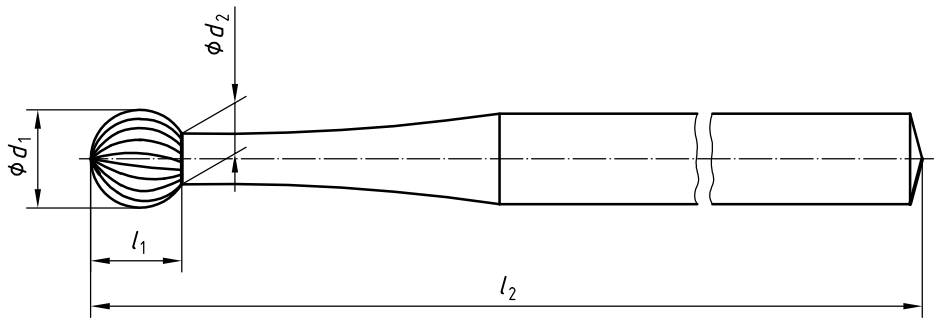


Figure 1 — Spherical, steel finishing burs

Table 1 — Spherical, steel finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
008	0,8	± 0,08	0,64	0,58	10	22,0	44,5	19,0	16,5
010	1,0		0,78	0,73	12				
012	1,2		0,88	0,90	14				
014	1,4	± 0,1	0,98	1,08	16				
016	1,6		1,04	1,26	16				
018	1,8		1,12	1,46	16				
021	2,1		1,20	1,71	20				
023	2,3		1,29	1,89	20				
025	2,5		1,40	2,05	20				
027	2,7		1,48	2,23	22				
029	2,9		1,60	2,39	22				
031	3,1		1,68	2,53	24				
033	3,3		1,78	2,72	26				
035	3,5		1,82	2,92	28				
037	3,7		1,92	3,09	30				
040	4,0		2,06	3,40	32				
042	4,2		2,16	3,51	32				
045	4,5		2,16	3,80	32				
047	4,7		2,24	3,97	36				
050	5,0		2,32	4,25	36				

5.3.5.2 Bud

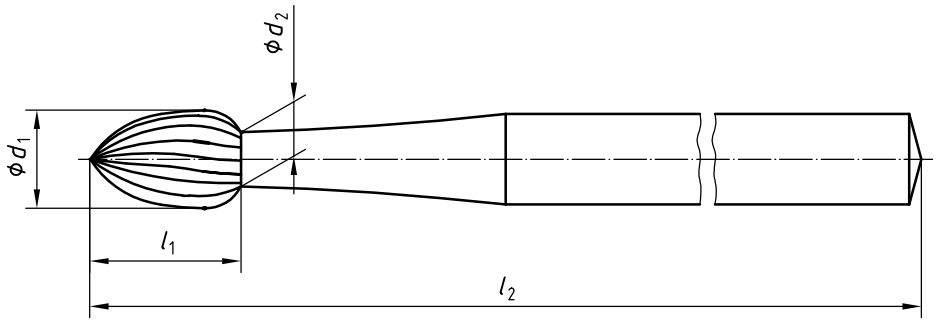
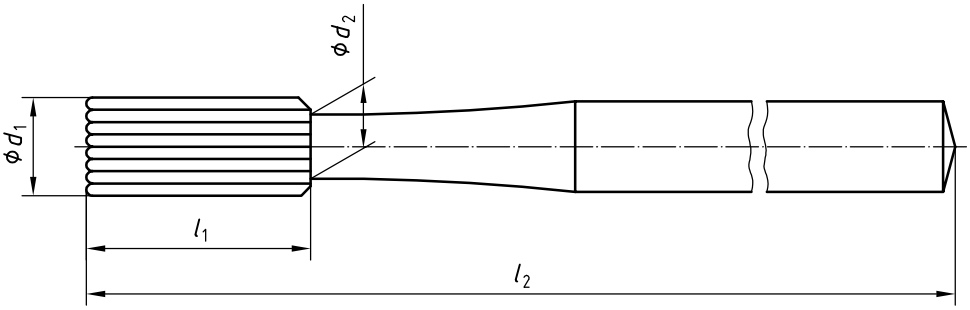


Figure 2 — Bud, steel finishing burs

Table 2 — Bud, steel finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
010	1,0	± 0,08	0,78	1,10	12	22,0	44,5	19,0	16,5
012	1,2		0,88	1,40	14				
014	1,4		0,98	1,70	14				
016	1,6		1,04	2,00	16				
018	1,8		1,12	2,35	16				
021	2,1		1,20	2,75	20				
023	2,3		1,29	3,05	20				

5.3.5.3 Cylindrical



Taper angle of the head < 2°

Figure 3 — Cylindrical, steel finishing burs

Table 3 — Cylindrical, steel finishing burs: Dimensions and number of blades

Designation of nominal diameter (Nominal size)	d_1		d_2	l_1	**Number of blades**	l_2 ± 0,5			
	nom.	tol.	max.	min.	min.	**Shank Type 1 Standard**	**Shank Type 2 Standard**	**Shank Type 3 Standard**	**Shank Type 3 Short**
008	0,8	± 0,08	0,88	3,3	10	22,0	44,5	19,0	16,5
010	1,0		1,08	3,8	12				
012	1,2		1,28	3,8	14				
014	1,4		1,35	4,3	14				
016	1,6		1,50	4,3	16				
018	1,8		1,60	4,8	16				
021	2,1		1,70	4,8	20				
023	2,3		1,80	5,3	20				

5.3.5.4 Flame

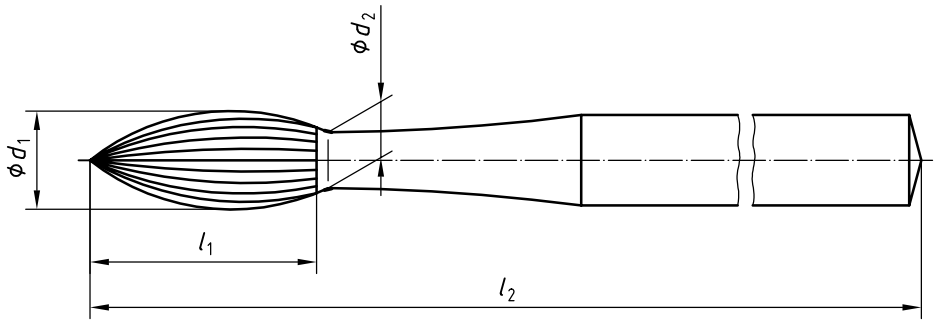


Figure 4 — Flame, steel finishing burs

Table 4 — Flame, steel finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	**Shank Type 1 Standard**	**Shank Type 2 Standard**	**Shank Type 3 Standard**	**Shank Type 3 Short**
010	1,0	± 0,08	0,86	3,8	12	22,0	44,5	19,0	16,5
012	1,2		0,96	3,8	14				
014	1,4		1,00	4,3	14				
016	1,6		1,05	4,3	16				
018	1,8		1,15	4,8	16				
021	2,1		1,20	4,8	20				
023	2,3		1,30	5,3	20				

5.3.5.5 Egg

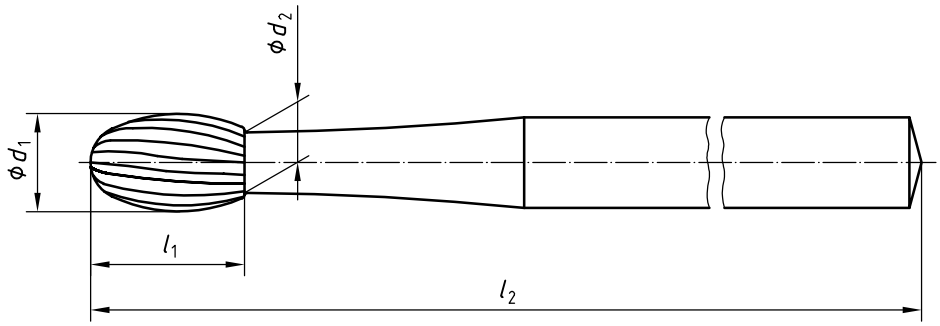
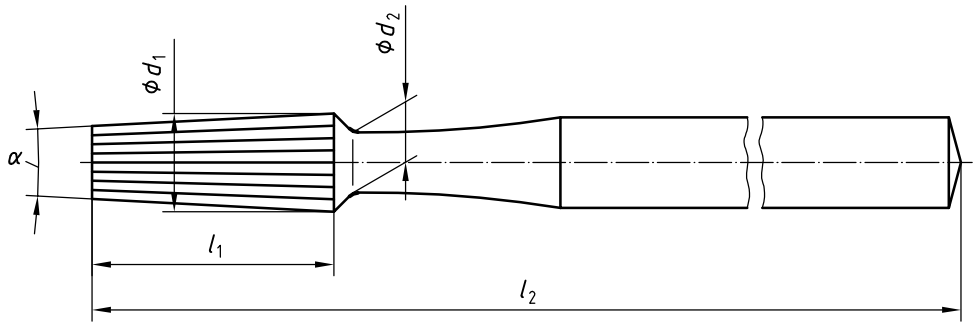


Figure 5 — Egg, steel finishing burs

Table 5 — Egg, steel finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
014	1,4	± 0,08	1,10	2,2	16	22,0	44,5	19,0	16,5
018	1,8		1,35	2,8	16				
027	2,7		—	3,7	22				
031	3,1		—	3,7	24				

5.3.5.6 Conical



α = 4° to 8°

Figure 6 — Conical, steel finishing burs

Table 6 — Conical, steel finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
010	1,0	± 0,08	1,08	3,0	8	22,0	44,5	19,0	16,5
012	1,2		1,28	3,0	10				
014	1,4		1,35	3,5	10				
016	1,6		1,50	3,5	12				
018	1,8		1,60	3,5	12				
021	2,1		1,70	4,0	14				
023	2,3		1,80	4,0	14				

5.3.5.7 Interproximal

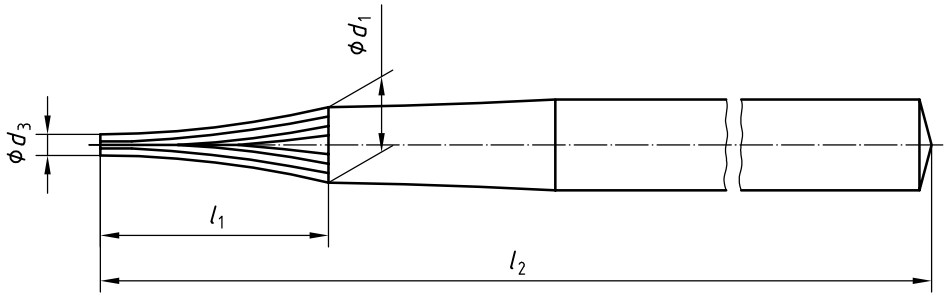


Figure 7 — Interproximal, steel finishing burs

Table 7 — Interproximal, steel finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_3	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
016	1,6	± 0,08	0,05	5,5	14	22,0	44,5	19,0	16,5
018	1,8		0,05	5,5	16				
023	2,3		0,05	5,5	18				

5.3.6 Figures and Tables for carbide finishing burs

5.3.6.1 Spherical (round)

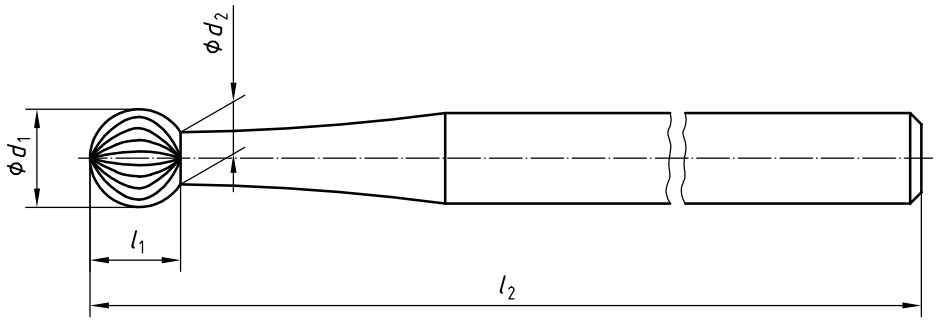


Figure 8 — Spherical, carbide finishing burs

Table 8 — Spherical, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
008	0,8	± 0,08	0,50	0,50	8	22,0	44,5	19,0	16,5
010	1,0		0,78	0,75	8				
012	1,2		0,88	0,90	10				
014	1,4		0,98	1,00	10				
016	1,6		1,04	1,20	12				
018	1,8		1,20	1,35	12				
021	2,1		1,35	1,50	14				
023	2,3		1,45	1,60	14				
025	2,5		1,50	1,70	16				
027	2,7		1,55	2,00	16				
031	3,1		1,75	2,45	18				

5.3.6.2 Bud

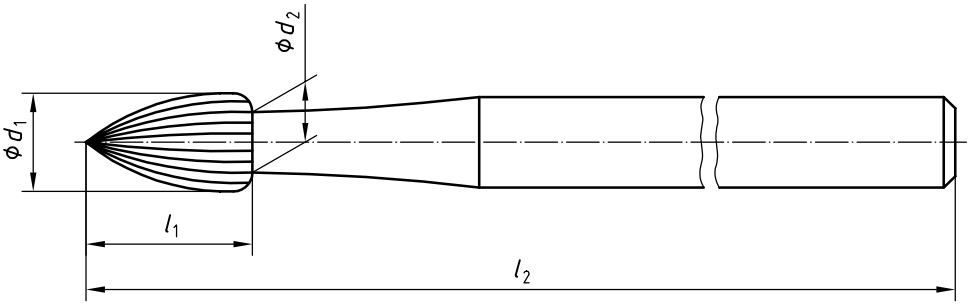


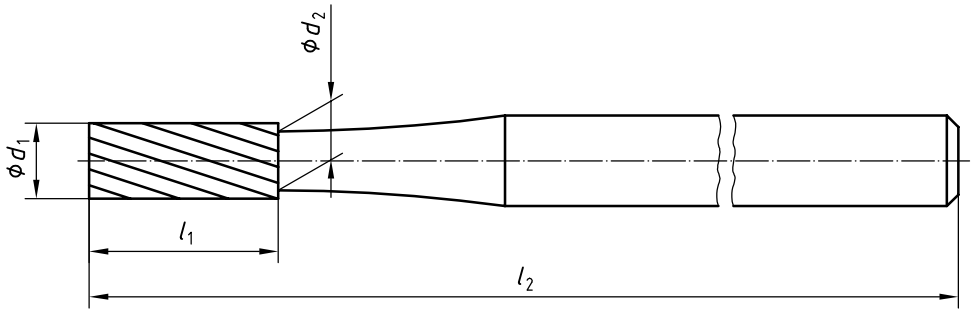
Figure 9 — Bud, carbide finishing burs

Table 9 — Bud, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
009	0,9	± 0,05	0,75	2,4	8	22,0	44,5	19,0	16,5
010	1,0	± 0,08	0,80	2,9	8				
012	1,2		0,90	3,3	10				
014	1,4		1,02	3,3	10				
016	1,6		1,22	3,5	12				
018	1,8		1,32	3,8	12				
023	2,3		1,42	3,9	12				
031	3,1		1,70	4,0	16				

11

5.3.6.3 Cylindrical



Taper angle of the head < 2°

Figure 10 — Cylindrical, carbide finishing burs

Table 10 — Cylindrical, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	**Number of blades**	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	**Shank Type 1 Standard**	**Shank Type 2 Standard**	**Shank Type 3 Standard**	**Shank Type 3 Short**
010	1,0	± 0,08	1,08	3,7	8	22,0	44,5	19,0	16,5
012	1,2		1,28	3,7	10				
014	1,4		1,35	4,1	10				
023	2,3		1,80	5,0	14				

5.3.6.4 Flame

5.3.6.4.1 Flame, short

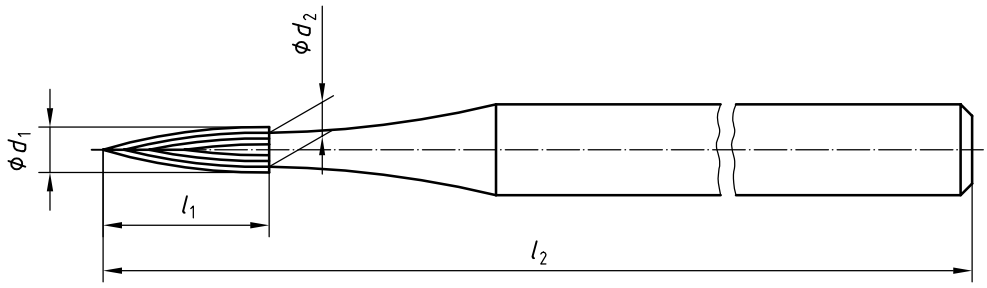


Figure 11 — Flame, short, carbide finishing burs

Table 11 — Flame, short, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
008	0,8	± 0,05	0,72	3,3	8	22,0	44,5	19,0	16,5
009	0,9		0,80	3,3	8				
010	1,0	± 0,08	0,88	3,3	8				
012	1,2		0,96	3,3	10				
014	1,4		1,00	3,5	10				
016	1,6		1,05	3,7	12				

5.3.6.4.2 Flame, long

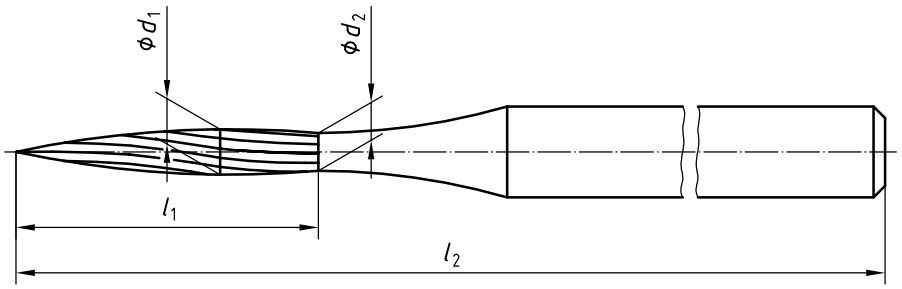


Figure 12 — Flame, long, carbide finishing burs

Table 12 — Flame, long, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter (Nominal size)	d_1		d_2	l_1	**Number of blades**	l_2 ± 0,5			
	nom.	tol.	max.	min.	min.	**Shank Type 1 Standard**	**Shank Type 2 Standard**	**Shank Type 3 Standard**	**Shank Type 3 Short**
010	1,0	± 0,08	1,0	8,0	8	27,0	46,0	23,0	—
012	1,2		1,2	8,0	10				

5.3.6.5 Egg

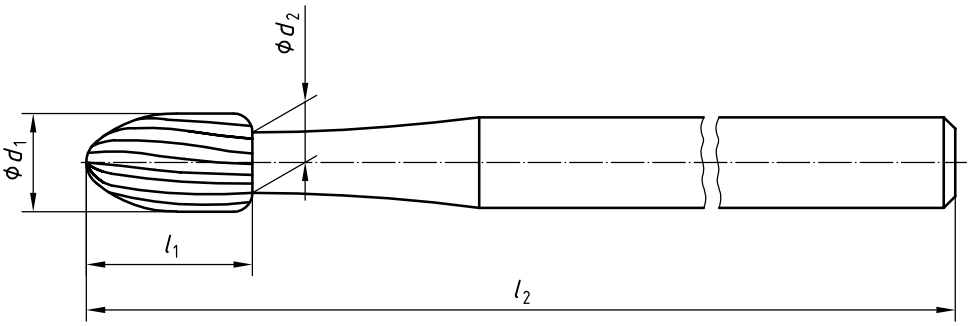


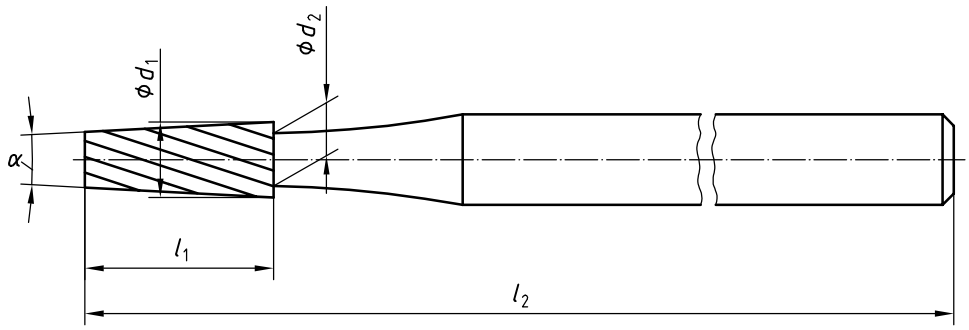
Figure 13 — Egg, carbide finishing burs

Table 13 — Egg, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter (Nominal size)	d_1		d_2	l_1	**Number of blades**	l_2 ± 0,5			
	nom.	tol.	max.	min.	min.	**Shank Type 1 Standard**	**Shank Type 2 Standard**	**Shank Type 3 Standard**	**Shank Type 3 Short**
014	1,4	± 0,08	1,10	2,6	10	22,0	44,5	19,0	16,5
018	1,8		1,35	3,0	12				
023	2,3		1,45	3,3	12				

5.3.6.6 Conical, sharp edge

5.3.6.6.1 Conical, sharp edge, regular



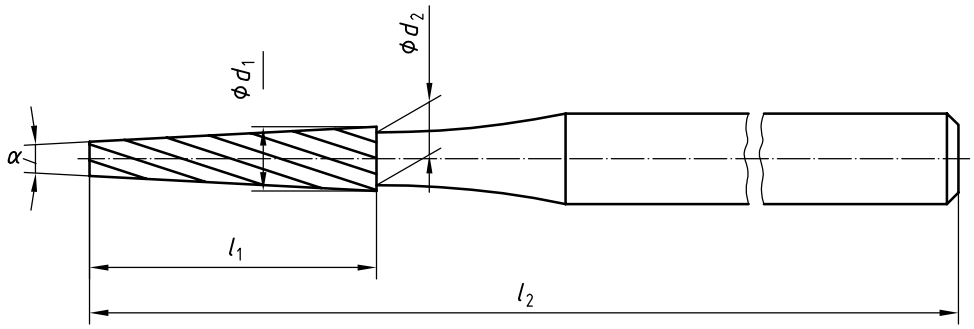
α = 4° to 8°

Figure 14 — Conical, sharp edge, regular, carbide finishing burs

Table 14 — Conical, sharp edge, regular, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
010	1,0	± 0,08	1,08	2,9	8	22,0	44,5	19,0	16,5
012	1,2		1,28	2,9	10				
014	1,4		1,35	3,3	10				
016	1,6		1,50	3,3	12				

5.3.6.6.2 Conical, sharp edge, head length above 6,5 mm



α = 4° to 8°

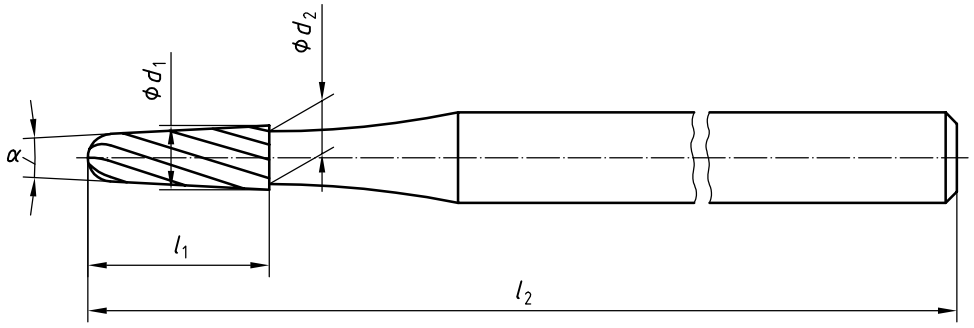
Figure 15 — Conical, sharp edge, head length above 6,5 mm, carbide finishing burs

Table 15 — Conical, sharp edge, head length above 6,5 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
012	1,2	± 0,08	1,15	6,5	10	27,0	46,0	23,0	—
014	1,4		1,35	7,5	10				
016	1,6		1,50	7,5	12				
018	1,8		1,60	7,5	12				

5.3.6.7 Conical, rounded edge

5.3.6.7.1 Conical, rounded edge, regular



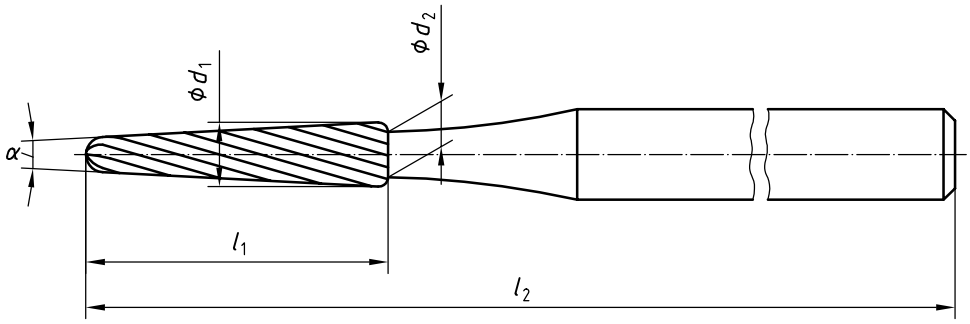
α = 4° to 8°

Figure 16 — Conical, rounded edge, regular, carbide finishing burs

Table 16 — Conical, rounded edge, regular, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
007	0,7	± 0,08	0,68	3,15	8	22,0	44,5	19,0	16,5
009	0,9		0,80	3,15	8				
010	1,0		0,90	3,35	8				
012	1,2		1,10	3,35	10				

5.3.6.7.2 Conical, rounded edge, head length above 7,5 mm



α = 4° to 8°

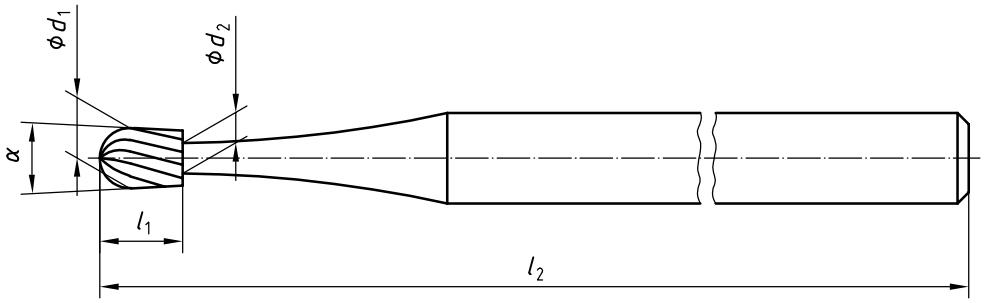
Figure 17 — Conical, rounded edge, head length above 7,5 mm, carbide finishing burs

Table 17 — Conical, rounded edge, head length above 7,5 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
012	1,2	± 0,08	1,15	7,5	10	27,0	46,0	23,0	—
014	1,4		1,15	7,5	10				
016	1,6		1,40	7,5	12				
018	1,8		1,50	7,5	12				
021	2,1		1,60	7,5	12				
023	2,3		1,60	7,5	12				

5.3.6.8 Pear

5.3.6.8.1 Pear, short



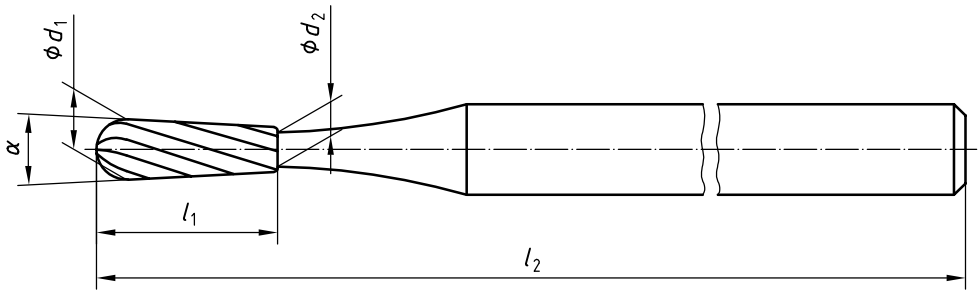
α = 2° to 6°

Figure 18 — Pear, short, carbide finishing burs

Table 18 — Pear, short, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter (Nominal size)	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
008	0,8	± 0,08	0,55	1,57	8	22,0	44,5	19,0	16,5
010	1,0		0,72	1,72	8				
012	1,2		0,82	1,77	10				
014	1,4		0,88	1,82	10				
016	1,6		0,98	2,07	12				
018	1,8		1,08	2,34	12				

5.3.6.8.2 Pear, long



α = 2° to 6°

Figure 19 — Pear, long, carbide finishing burs

Table 19 — Pear, long, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
010	1,0	± 0,08	0,85	3,7	8	22,0	44,5	19,0	16,5
012	1,2		1,05	3,7	10				
014	1,4		1,15	4,1	10				
016	1,6		1,25	4,1	12				

5.3.6.9 Interproximal

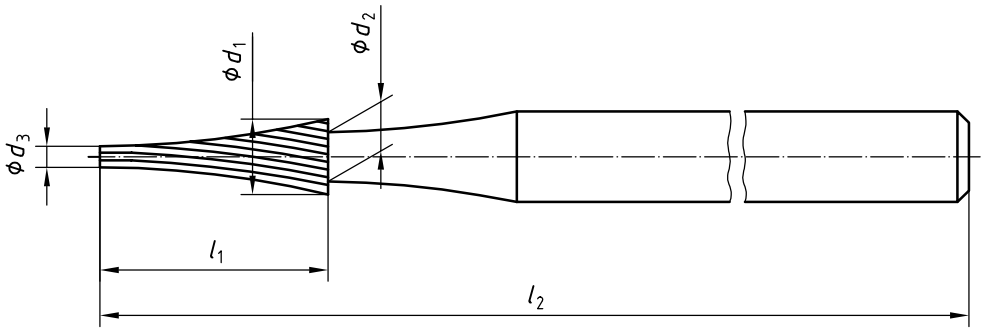


Figure 20 — Interproximal, carbide finishing burs

Table 20 — Interproximal, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter (Nominal size)	d_1 nom.	d_1 tol.	d_2 max.	d_3 max.	l_1 min.	Number of blades min.	l_2 ± 0,5 Shank Type 1 Standard	l_2 ± 0,5 Shank Type 2 Standard	l_2 ± 0,5 Shank Type 3 Standard	l_2 ± 0,5 Shank Type 3 Short
010	1,0	± 0,08	1,20	0,5	4,5	8	22,0	44,5	19,0	16,5
016	1,6		1,40	0,5	5,0	12				
018	1,8		1,50	0,5	5,0	12				
023	2,3		1,60	0,5	5,0	14				

5.3.6.10 Bullet

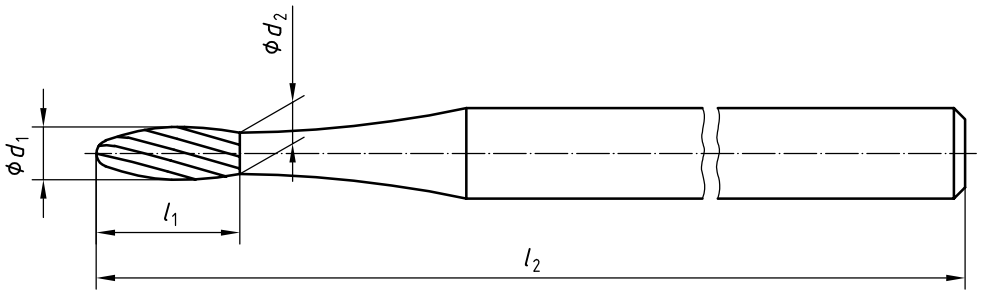


Figure 21 — Bullet, carbide finishing burs

Table 21 — Bullet, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter (Nominal size)	d_1		d_2	l_1	**Number of blades**	l_2 ± 0,5			
	nom.	tol.	max.	min.	min.	**Shank Type 1 Standard**	**Shank Type 2 Standard**	**Shank Type 3 Standard**	**Shank Type 3 Short**
009	0,9	± 0,08	0,70	2,6	8	22,0	44,5	19,0	16,5
010	1,0		0,86	2,6	8				
012	1,2		0,96	2,8	10				
014	1,4		0,98	3,1	14				

5.3.6.11 Torpedo, cylindrical

5.3.6.11.1 Torpedo, cylindrical, head length 5 mm

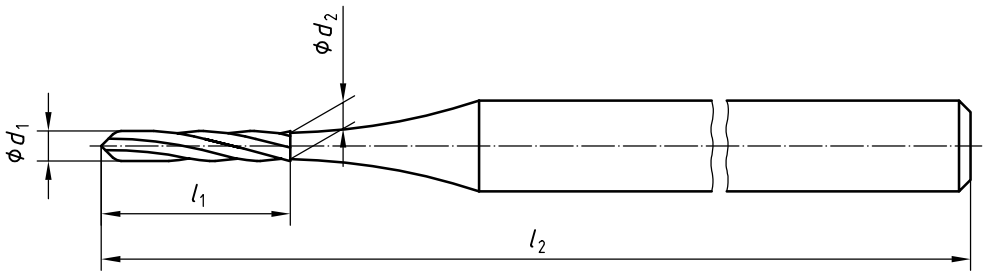


Figure 22 — Torpedo, cylindrical, head length 5 mm, carbide finishing burs

Table 22 — Torpedo, cylindrical, head length 5 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
009	0,9	± 0,08	0,9	5,0	8	22,0	44,5	19,0	16,5

5.3.6.11.2 Torpedo, cylindrical, head length 6 mm

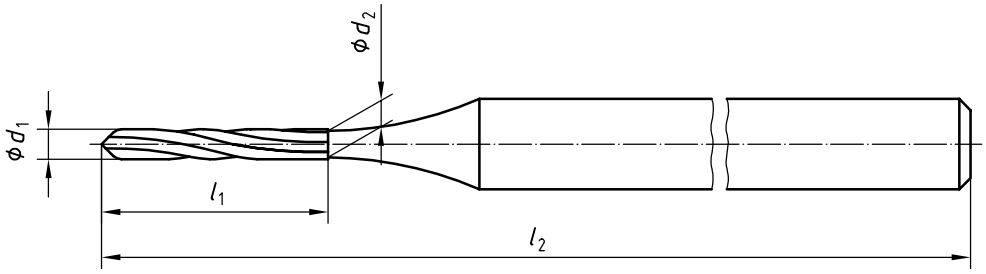


Figure 23 — Torpedo, cylindrical, head length 6 mm, carbide finishing burs

Table 23 — Torpedo, cylindrical, head length 6 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
009	0,9	± 0,08	0,9	6,0	8	22,0	44,5	19,0	16,5
010	1,0		1,0	6,0	8				
012	1,2		1,2	6,0	10				

5.3.6.11.3 Torpedo, cylindrical, head length 8 mm

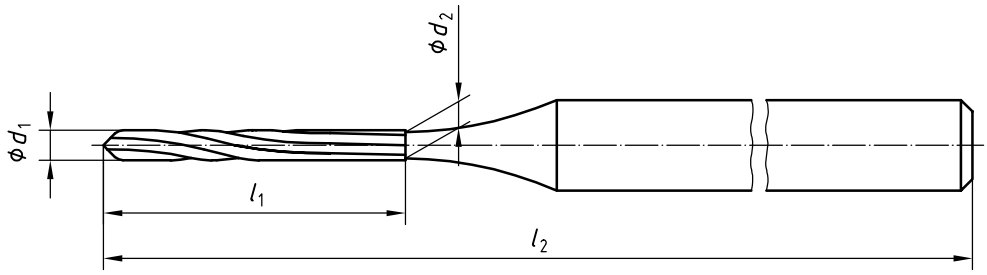


Figure 24 — Torpedo, cylindrical, head length 8 mm, carbide finishing burs

Table 24 — Torpedo, cylindrical, head length 8 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
010	1,0	± 0,08	1,0	8,0	8	27,0	46,0	23,0	—
012	1,2		1,2	8,0	10				
014	1,4		1,4	8,0	10				

5.3.6.11.4 Torpedo, cylindrical, head length 10 mm

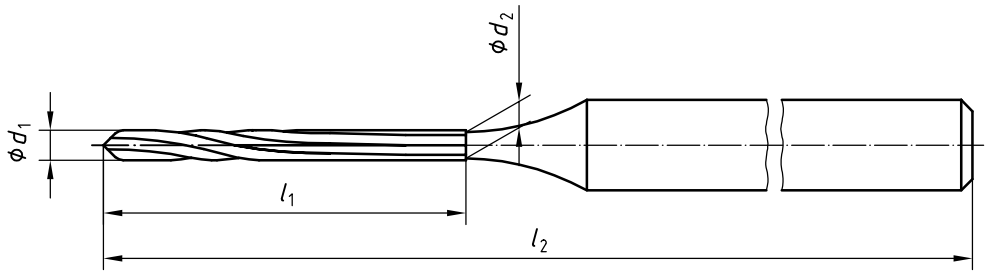


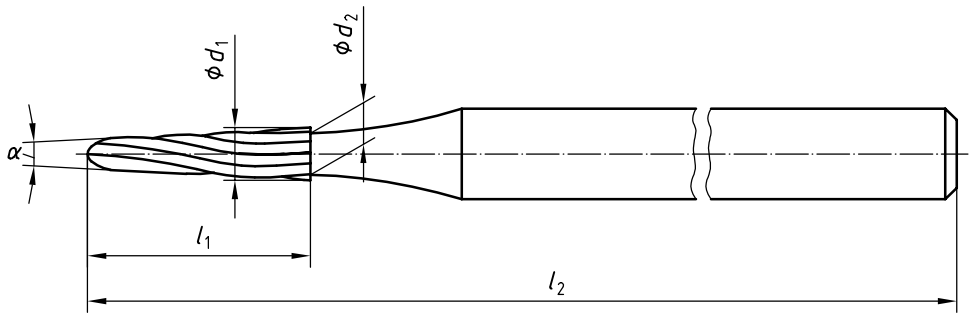
Figure 25 — Torpedo, cylindrical, head length 10 mm, carbide finishing burs

Table 25 — Torpedo, cylindrical, head length 10 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
014	1,4	± 0,08	1,4	10,0	10	27,0	46,0	24,0	—

5.3.6.12 Torpedo, conical

5.3.6.12.1 Torpedo, conical, head length 5 mm



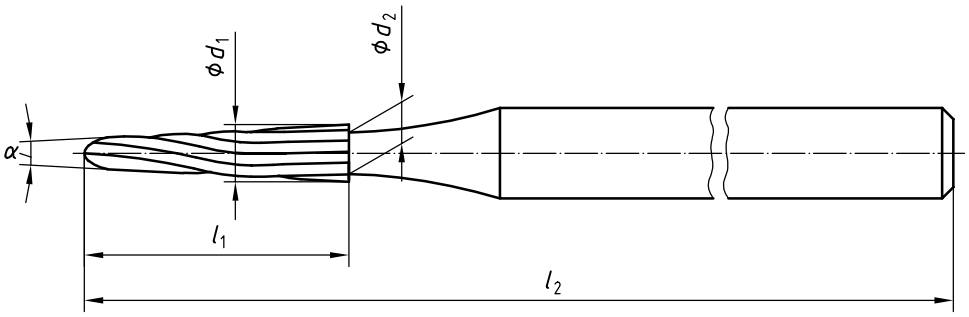
α = 4° to 8°

Figure 26 — Torpedo, conical, head length 5 mm, carbide finishing burs

Table 26 — Torpedo, conical, head length 5 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
012	1,2	± 0,08	1,15	5,0	8	22,0	44,5	19,0	16,5

5.3.6.12.2 Torpedo, conical, head length 6 mm



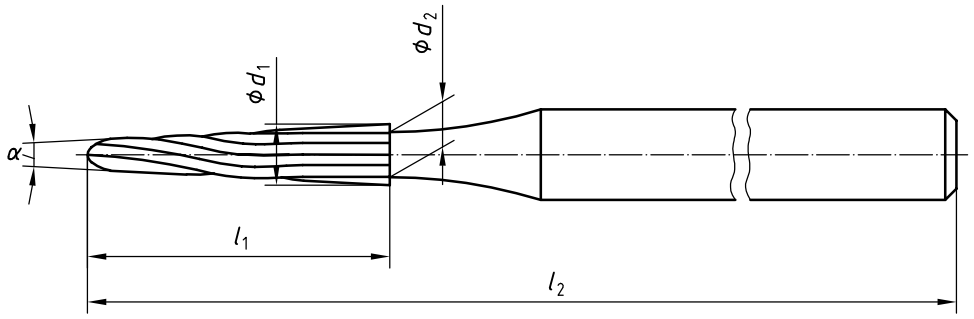
α = 4° to 8°

Figure 27 — Torpedo, conical, head length 6 mm, carbide finishing burs

Table 27 — Torpedo, conical, head length 6 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
014	1,4	± 0,08	1,15	6,0	10	22,0	44,5	19,0	16,5
016	1,6		1,40	6,0	12				

5.3.6.12.3 Torpedo, conical, head length 8 mm



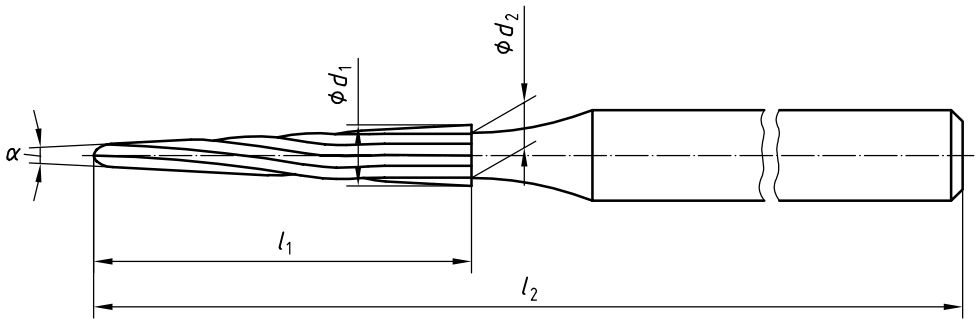
α = 4° to 8°

Figure 28 — Torpedo, conical, head length 8 mm, carbide finishing burs

Table 28 — Torpedo, conical, head length 8 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
014	1,4	± 0,08	1,15	8,0	10	27,0	46,0	23,0	—
016	1,6		1,40	8,0	12				
021	2,1		1,60	8,0	14				

5.3.6.12.4 Torpedo, conical, head length 10 mm



α = 4° to 8°

Figure 29 — Torpedo, conical, head length 10 mm, carbide finishing burs

Table 29 — Torpedo, conical, head length 10 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
014	1,4	± 0,08	1,4	10,0	10	27,0	46,0	24,0	—
016	1,6		1,6	10,0	12				
021	2,1		1,6	10,0	12				

5.3.6.13 Cylindrical, rounded edge

5.3.6.13.1 Cylindrical, rounded edge, head length 6 mm

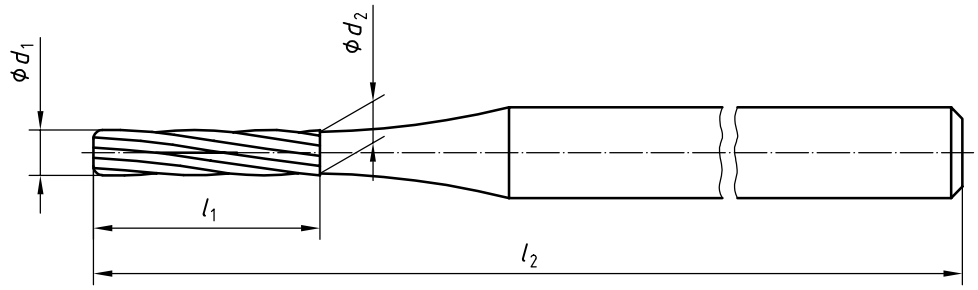


Figure 30 — Cylindrical, rounded edge, head length 6 mm, carbide finishing burs

Table 30 — Cylindrical, rounded edge, head length 6 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
010	1,0	± 0,08	1,0	6,0	8	22,0	44,5	19,0	16,5
012	1,2		1,2	6,0	10				
014	1,4		1,4	6,0	10				

5.3.6.13.2 Cylindrical, rounded edge, head length 8 mm

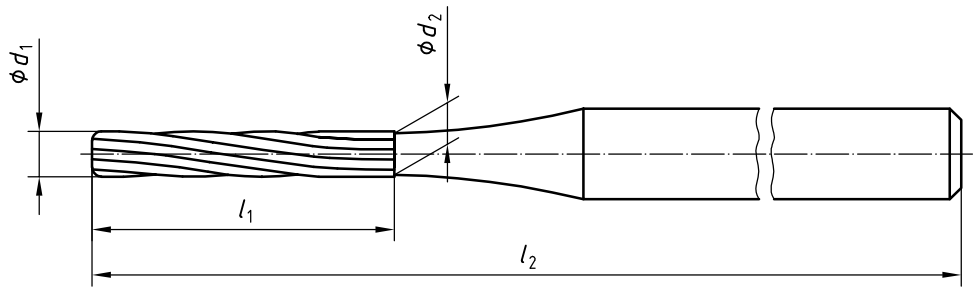


Figure 31 — Cylindrical, rounded edge, head length 8 mm, carbide finishing burs

Table 31 — Cylindrical, rounded edge, head length 8 mm, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
012	1,2	± 0,08	1,2	8,0	10	27,0	46,0	23,0	—
014	1,4		1,4	8,0	10				

5.3.6.14 Cylindrical, end hemispherical

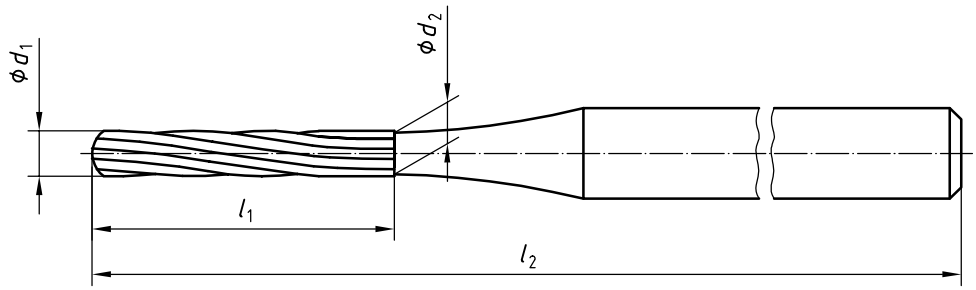
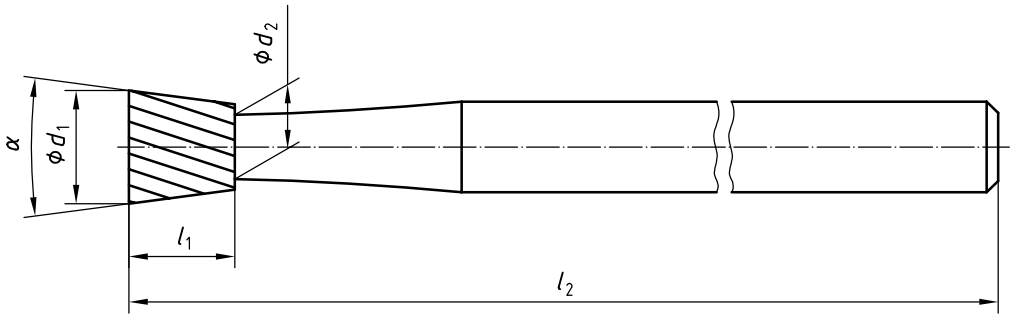


Figure 32 — Cylindrical, end hemispherical, carbide finishing burs

Table 32 — Cylindrical, end hemispherical, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
012	1,2	± 0,08	1,2	8,0	10	27,0	46,0	23,0	—
014	1,4		1,4	8,0	10				

5.3.6.15 Inverted conical



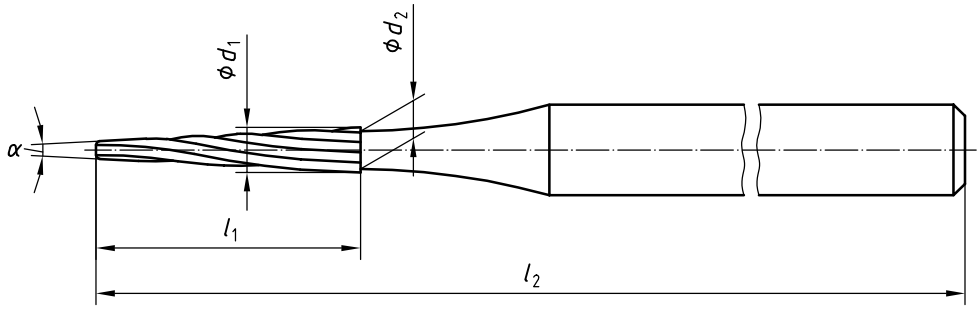
α = 10° to 16°

Figure 33 — Inverted conical, carbide finishing burs

Table 33 — Inverted conical, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
018	1,8	± 0,08	1,08	1,65	12	22,0	44,5	19,0	16,5
023	2,3		1,32	2,75	14				

5.3.6.16 Conical, rounded edge



α = 4° to 8°

Figure 34 — Conical, rounded edge, carbide finishing burs

Table 34 — Conical, rounded edge, carbide finishing burs: Dimensions and number of blades

Designation of nominal diameter	d_1		d_2	l_1	Number of blades	l_2 ± 0,5			
(Nominal size)	nom.	tol.	max.	min.	min.	Shank Type 1 Standard	Shank Type 2 Standard	Shank Type 3 Standard	Shank Type 3 Short
016	1,6	± 0,08	1,4	8,0	12	27,0	46,0	23,0	—

5.4 Run-out

The total indicated run-out shall not exceed the following values:

For steel finishing burs: 0,08 mm.

For carbide finishing burs: 0,05 mm.

Testing shall be carried out in accordance with 6.3.

5.5 Cleaning, disinfection and sterilization

5.5.1 Cleaning and disinfection

The manufacturer of the instrument shall provide instructions for cleaning and disinfection.

Steel and carbide finishing burs shall show no visible signs of corrosion or deterioration when processed according to these instructions.

5.5.2 Sterilization

The manufacturer of the instrument shall provide instructions for sterilization.

Carbide steel finishing burs shall show no visible signs of corrosion or deterioration when tested according to ISO 13402:1995, Clause 3, the test pieces having been subjected to three test cycles.

5.6 Neck strength

The instrument shall not fracture or take a permanent set exceeding:

For steel finishing burs: 0,08 mm.

For carbide finishing burs: 0,05 mm.

Testing shall be carried out after the corrosion test and in accordance with 6.5.

6 Test procedure

6.1 Shape

Determine the shape by using a shadowgraph or measuring the relevant dimensions in accordance with ISO 8325:1985, 3.1 to 3.5, as appropriate.

6.2 Dimensions and number of blades

Measure the dimensions in accordance with ISO 8325:1985, 3.1 to 3.5, as appropriate.

Determine the number of blades by visual inspection.

6.3 Run-out

Determine the run-out in accordance with ISO 8325:1985, 3.6.

The measurement point shall be the largest diameter or the middle of the working part for cylindrical instruments.

6.4 Corrosion resistance (in accordance with ISO 13402)

6.4.1 Apparatus

Autoclave, operating in the non-vacuum mode, capable of being operated at a temperature of 134 °C to 138 °C and at a pressure of 0,22 $MN \cdot m^{-2}$ (2,2 bar).

6.4.2 Reagent

Distilled or deionized water, Quality 3 in accordance with ISO 3696.

6.4.3 Preparation of the test piece

Scrub the test piece with a copper bur brush for 10 s using soap and warm water. Rinse thoroughly in water (6.4.2) and dry.

6.4.4 Procedure

Place the unwrapped test piece into the autoclave. Using the water (6.4.2), subject the test piece to one autoclaving cycle of $(3\,^{+0,5}_{0})$ min at 134 °C to 138 °C and 0,22 $MN \cdot m^{-2}$. After the cycle, open the door. Remove the test piece and allow to cool to room temperature.

6.4.5 Evaluation

6.4.5.1 Signs of corrosion

Visually inspect the test piece at normal visual acuity for any signs of corrosion.

6.4.5.2 Functional deterioration

Determine the neck strength in accordance with ISO 8325:1985, 3.7 and report on any deterioration or failure.

6.5 Neck strength

6.5.1 General

Determine the neck strength in accordance with ISO 8325:1985, 3.7 and after the test for corrosion resistance, if applicable.

For the test loads, F, use the respective values specified in Tables 35 to 68. These tables cover the values for the sizes of finishing burs specified in this part of ISO 3823. The appropriate test loads, F, for the other sizes may be calculated from the data specified by use of the equation given in ISO 8325:1985.

Values for F are given in newtons.

6.5.2 Test loads F for steel finishing burs

Table 35 — Spherical, steel finishing burs: Test loads

Designation of nominal diameter	F
008	12,73
010	18,55
012	22,43
014	26,69
016	28,29
018	31,47
021	33,84
023	38,43
025	45,24
027	49,61
029	58,32
031	63,63
033	70,93
035	71,77
037	79,72
040	90,65
042	100,16
045	94,51
047	101,06
050	105,88

Table 36 — Bud, steel finishing burs: Test loads

Designation of nominal diameter	F
010	16,16
012	19,21
014	22,63
016	23,78
018	26,15
021	28,02
023	31,72

Table 37 — Cylindrical, steel finishing burs: Test loads

Designation of nominal diameter	F
008	13,42
010	21,02
012	32,76
014	34,24
016	44,74
018	49,00
021	56,04
023	60,86

Table 38 — Flame, steel finishing burs: Test loads

Designation of nominal diameter	F
010	11,02
012	14,56
014	14,64
016	16,34
018	19,25
021	20,93
023	24,22

Table 39 — Egg, steel finishing burs: Test loads

Designation of nominal diameter	F
014	27,78
018	40,57
027	137,19
031	131,16

Table 40 — Conical, steel finishing burs: Test loads

Designation of nominal diameter	F
010	24,33
012	37,54
014	38,62
016	50,16
018	58,23
021	61,79
023	70,63

Table 41 — Interproximal, steel finishing burs: Test loads

Designation of nominal diameter	F
016	38,50
018	62,87
023	118,18

6.5.3 Test loads F for carbide finishing burs

Table 42 — Spherical, carbide finishing burs: Test loads

Designation of nominal diameter	F
008	6,81
010	18,40
012	22,43
014	27,32
016	28,74
018	38,97
021	48,76
023	55,90
025	58,09
027	58,45
031	72,02

Table 43 — Bud, carbide finishing burs: Test loads

Designation of nominal diameter	F
009	10,22
010	10,25
012	12,77
014	17,59
016	27,32
018	31,25
023	36,86
031	54,77

Table 44 — Cylindrical, carbide finishing burs: Test loads

Designation of nominal diameter	F
010	21,38
012	33,29
014	35,24
023	62,87

Table 45 — Flame, short, carbide finishing burs: Test loads

Designation of nominal diameter	F
008	7,60
009	10,05
010	12,91
012	15,90
014	16,63
016	17,88

Table 46 — Flame, long, carbide finishing burs: Test loads

Designation of nominal diameter	F
010	9,81
012	16,30

Table 47 — Egg, carbide finishing burs: Test loads

Designation of nominal diameter	F
014	25,60
018	39,25
023	42,42

Table 48 — Conical, sharp edge, regular, carbide finishing burs: Test loads

Designation of nominal diameter	F
010	24,81
012	38,24
014	39,89
016	51,73

Table 49 — Conical, sharp edge, head length above 6,5 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
012	16,86
014	23,55
016	31,23
018	36,86

Table 50 — Conical, rounded edge, regular, carbide finishing burs: Test loads

Designation of nominal diameter	F
007	6,81
009	10,36
010	13,62
012	23,11

Table 51 — Conical, rounded edge, head length above 7,5 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
012	15,15
014	14,85
016	25,64
018	30,66
021	35,88
023	35,25

Table 52 — Pear, short, carbide finishing burs: Test loads

Designation of nominal diameter	F
008	5,59
010	10,64
012	14,27
014	16,31
016	19,86
018	23,67

Table 53 — Pear, long, carbide finishing burs: Test loads

Designation of nominal diameter	F
010	10,86
012	19,09
014	22,44
016	27,57

Table 54 — Interproximal, carbide finishing burs: Test loads

Designation of nominal diameter	F
010	25,30
016	33,65
018	39,89
023	45,15

Table 55 — Bullet shape, carbide finishing burs: Test loads

Designation of nominal diameter	F
009	8,01
010	13,99
012	17,50
014	16,85

Table 56 — Torpedo, cylindrical, head length 5 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
009	10,52

Table 57 — Torpedo, cylindrical, head length 6 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
009	9,17
010	12,26
012	20,18

Table 58 — Torpedo, cylindrical, head length 8 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
010	9,81
012	16,30
014	24,92

Table 59 — Torpedo, cylindrical, head length 10 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
014	21,03

Table 60 — Torpedo, conical, head length 5 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
012	20,30

Table 61 — Torpedo, conical, head length 6 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
014	17,45
016	29,91

Table 62 — Torpedo, conical, head length 8 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
014	14,14
016	24,47
021	34,34

Table 63 — Torpedo, conical, head length 10 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
014	21,03
016	30,44
018	29,99

Table 64 — Cylindrical, rounded edge, head length 6 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
010	12,26
012	20,18
014	30,59

Table 65 — Cylindrical, rounded edge, head length 8 mm, carbide finishing burs: Test loads

Designation of nominal diameter	F
012	16,30
014	24,92

Table 66 — Cylindrical, hemispherical, carbide finishing burs: Test loads

Designation of nominal diameter	F
012	16,30
014	24,92

Table 67 — Inverted conical, carbide finishing burs: Test loads

Designation of nominal diameter	F
018	27,28
023	35,42

Table 68 — Conical, rounded edge, carbide finishing burs: Test loads

Designation of nominal diameter	F
016	24,47

7 Quality control

7.1 Sampling

Use a sample size of between 100 and 150 finishing burs, containing at least 20 burs of each of a minimum of five different bur sizes. All three types of shank shall be included. Check 20 burs for each possible defect given in 7.2. The sample group is considered acceptable if no more than three of the 20 finishing burs are rejected. If four or more burs fail the requirements for any given possible defect, the batch from which the samples were drawn does not comply with the specified requirement.

7.2 Acceptance quality limit (AQL)

The acceptance quality limit, expressed as the maximum acceptable number of defects per 100 pieces, shall be 6,5 max.

The defects are as follows:

a) total indicated run-out exceeds the values specified;

b) head diameter does not conform to the diameter specified;

c) neck diameter exceeds the maximum value specified;

d) neck breakage, joint breakage, or neck taking a permanent set at loads less than those specified;

e) head length is below the minimum value specified;

f) overall length does not conform to the length specified.

8 Labelling

Labelling on the package of finishing burs shall contain at least the following information:

a) name and/or trade mark of the manufacturer or distributor;

b) material of the working part;

c) type of shank, in accordance with ISO 1797-1;

d) shape number;

e) specific characteristics;

f) the word or symbol for “sterile”, if applicable;

g) nominal diameter, nominal size;

h) lot number.

The information shall be given in accordance with ISO 6360-1.

9 Packaging

Steel and carbide finishing burs shall be packaged at the discretion of the manufacturer.

Bibliography

[1] ISO 2157, *Dental rotary instruments — Nominal diameters and designation code number*

ICS 11.060.20

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