
Dental rotary instruments — Burs —

Part 1:
Steel and carbide burs

Instruments rotatifs dentaires — Fraises —

Partie 1: Fraises en acier et en carbure

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ISO 3823-1:1997

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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.

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.

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International Standard ISO 3823-1 was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 4, *Dental instruments*.

This second edition cancels and replaces the first edition (ISO 3823-1:1986), which has been technically revised.

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ISO 3823 consists of the following parts, under the general title *Dental rotary instruments — Burs*:

- Part 1: *Steel and carbide burs*
- Part 2: *Steel and carbide finishing burs*

Introduction

This International Standard is one of a series of standards relating to dental rotary instruments.

This second edition of ISO 3823-1 contains the updated specifications for tungsten carbide burs. The specifications for steel burs remain unchanged.

The various dimensional and other requirements specified for steel and carbide 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 part listed in tables 1 to 22 comply with the diameters specified in ISO 2157. The diameter listed in the first column (preferred diameters) should be used.

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

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Dental rotary instruments — Burs —

Part 1: Steel and carbide burs

1 Scope

This part of ISO 3823 specifies dimensional and other relevant requirements for the 10 most commonly used shapes of steel and carbide burs, including a quality control for these instruments.

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2 Normative references

ISO 3823-1:1997

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 3823. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 3823 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1797-1:1992, *Dental rotary instruments — Shanks — Part 1: Shanks made of metals.*

ISO 2157:1992, *Dental rotary instruments — Nominal diameters and designation code number.*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods.*

ISO 6360-1:1995, *Dental rotary instruments — Number coding system — Part 1: General characteristics.*

ISO 6360-2:1986, *Dental rotary instruments — Number coding system — Part 2: Shape and specific characteristics.*

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

3 Classification

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

- Type 1: steel burs
- Type 2: carbide burs

4 Symbols for dimensions

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;
- l_1 length of working part, head length;
- l_2 overall length.

5 Requirements

5.1 Material

5.1.1 Working part

The working part shall be made of steel or 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 22.

Variations of the shape within the limited dimensions and the terms specified in the titles of the respective subclauses are permitted. <https://standards.iteh.ai/catalog/standards/sist/8767e680-6516-4c8b-8e42-8a8d900a5b7a/iso-3823-1-1997>

Testing shall be carried out in accordance with 6.1.

5.3 Dimensions of working part and number of blades

All dimensions are given in millimetres. The dimensions of the working part shall be as specified in the appropriate figures and tables. The number of blades shall be as specified in the respective tables.

Testing shall be carried out in accordance with 6.1.

5.3.1 Steel burs

5.3.1.1 Round head (spherical)

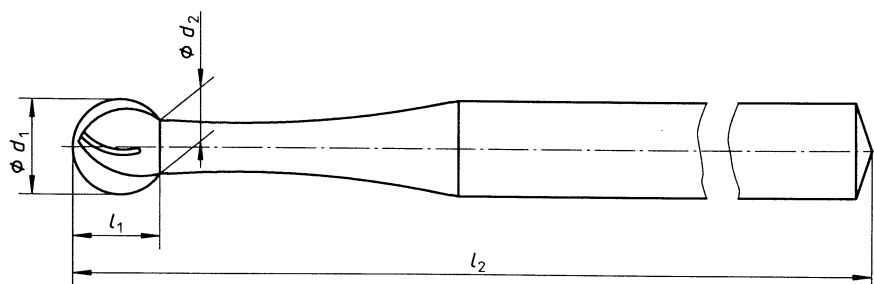


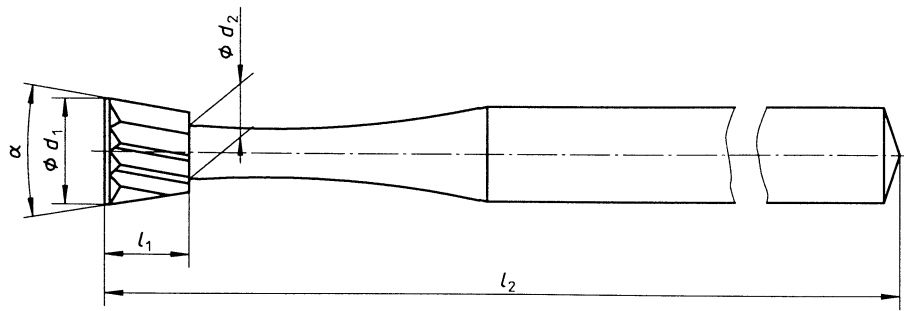
Figure 1

Table 1 — Dimensions and number of blades

Nominal diameter designation	d_1		d_2 max.	l_1 min.	Number of blades min.	$l_2^*)$ $\pm 0,5$			
	nom.	tol.				Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
006	0,6		0,48	0,46	6				
008	0,8		0,64	0,58	6				
010	1,0		0,78	0,73	6				
012	1,2		0,88	0,90	6				
014	1,4		0,98	1,08	6				
016	1,6		1,04	1,26	6				
018	1,8	$\pm 0,08$	1,12	1,46	6				
021	2,1		1,20	1,71	6				
023	2,3		1,28	1,89	6	22,0	44,5	19,0	16,5
025	2,5		1,40	2,05	10				
027	2,7		1,48	2,23	10				
029	2,9		1,60	2,39	10				
031	3,1		1,68	2,53	10				
033	3,3		1,78	2,72	10				
036	3,5		1,82	2,92	10				
037	3,7		1,92	3,09	10				
040	4,0		2,06	3,40	12				
042	4,2	$\pm 0,10$	2,16	3,51	12				
045	4,5		2,16	3,80	12				
047	4,7		2,24	3,97	12				
050	5,0		2,32	4,25	12				

*) The shank Type 1, 2 or 3 refers to the respective shanks of ISO 1797-1. "Standard" refers to instruments with standard fitting lengths of shank. For instruments with shorter or longer lengths of shank, the overall lengths l_2 vary accordingly. See ISO 1797-1, table 1.

5.3.1.2 Inverted cone head (inverted, truncated conical)



Type 1 : $\alpha = 10^\circ$ to 16°
 Type 2 : $\alpha = 6^\circ$ to 16°

Figure 2

Table 2 — Dimensions and number of blades

Nominal diameter designation	d_1	d_2	l_1	Number of blades min.	Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
	$\pm 0,08$	max.	min.					
006	0,6	0,48	0,42	6	22,0	44,5	19,0	16,5
008	0,8	0,64	0,57	6				
010	1,0	0,78	0,71	6				
012	1,2	0,88	0,87	6				
014	1,4	0,98	1,00	6				
016	1,6	1,04	1,24	6				
018	1,8	1,12	1,44	6				
021	2,1	1,20	1,66	6				
023	2,3	1,28	1,84	6				
025	2,5	1,40	2,00	10				
027	2,7	1,48	2,18	10				
029	2,9	1,60	2,33	10				
031	3,1	1,68	2,51	10				

*) See table 1.

5.3.1.3 Pear head, regular and long (hemispherical, inverted conical)

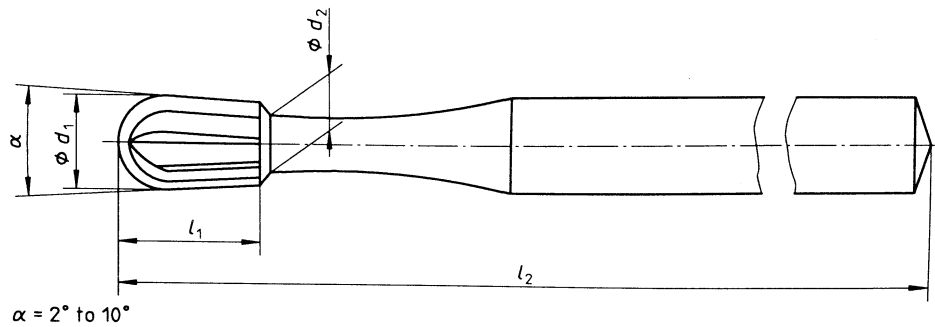


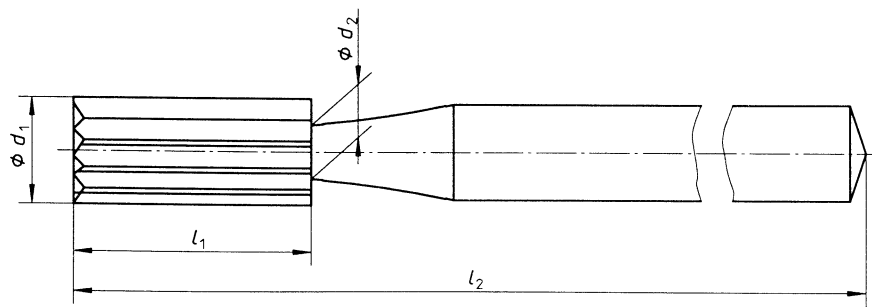
Figure 3

Table 3 — Dimensions and number of blades

Nominal diameter designation	d_1 $\pm 0,08$	d_2 max.	l_1 min.		Number of blades min.	$l_2^*)$ $\pm 0,5$			
			Regular	Long		Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
006	0,6	0,48	0,72	—	6				
008	0,8	0,64	0,97	—	6				
010	1,0	0,78	1,21	3,8	6				
012	1,2	0,88	1,47	3,8	6				
014	1,4	0,98	1,70	4,3	6				
016	1,6	1,04	2,04	4,3	6	22,0	44,5	19,0	16,5
018	1,8	1,12	2,34	4,8	6				
021	2,1	1,20	2,71	—	6				
023	2,3	1,28	2,99	—	6				
025	2,5	1,40	3,25	—	10				
027	2,7	1,48	3,53	—	10				
029	2,9	1,60	3,78	—	10				
031	3,1	1,68	4,06	—	10				

*) See table 1.

5.3.1.4 Straight fissure head (cylindrical)



Taper angle of the head $< 2^\circ$

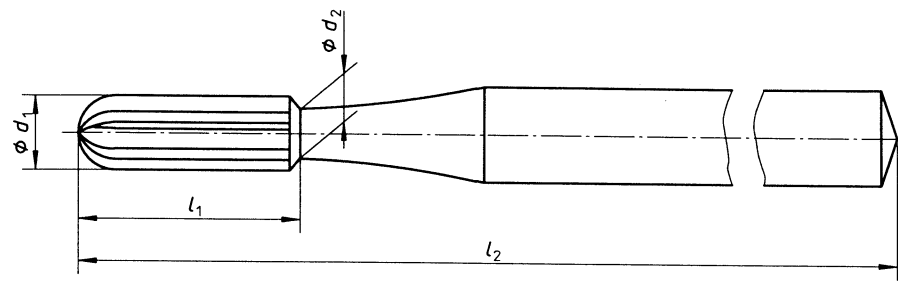
Figure 4

Table 4 — Dimensions and number of blades

Nominal diameter designation	d_1	d_2	l_1	Number of blades min.	$l_2^*)$			
	$\pm 0,08$	max.	min.		Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
Regular								
006	0,6	0,68	2,8	6	22,0	44,5	19,0	16,5
008	0,8	0,88	3,3	6				
010	1,0	1,08	3,8	6				
012	1,2	1,28	4,3	6				
014	1,4	1,35	4,3	6				
016	1,6	1,50	4,8	6				
018	1,8	1,60	4,8	6				
021	2,1	1,70	5,3	6				
023	2,3	1,80	5,3	6				
025	2,5	1,85	6,0	10				
027	2,7	1,90	6,0	10				
029	2,9	2,00	6,0	10				
031	3,1	2,00	6,6	10				
Miniature								
008	0,8	0,88	3,0	6	22,0	44,5	19,0	16,5
010	1,0	1,08	3,0	6				
012	1,2	1,28	3,0	6				
014	1,4	1,35	3,5	6				
016	1,6	1,50	3,5	6				
018	1,8	1,60	3,5	6				
021	2,1	1,70	4,0	6				
023	2,3	1,80	4,0	6				

*) See table 1.

5.3.1.5 Straight fissure head with rounded end (hemispherical, cylindrical)



Taper angle of the head - 2°

Figure 5

Table 5 — Dimensions and number of blades

Nominal diameter designation	d_1 $\pm 0,08$	d_2 max.	l_1 min.	Number of blades min.	$l_2^*)$ $\pm 0,5$			
					Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
006	0,6	0,68	2,8	6				
008	0,8	0,88	3,3	6				
010	1,0	1,08	3,8	6				
012	1,2	1,28	3,8	6				
014	1,4	1,35	4,3	6				
016	1,6	1,50	4,3	6				
018	1,8	1,60	4,8	6				
021	2,1	1,70	4,8	6	22,0	44,5	19,0	16,5
023	2,3	1,80	5,3	6				
025	2,5	1,85	5,3	10				
027	2,7	1,90	6,0	10				
029	2,9	2,00	6,0	10				
031	3,1	2,00	6,6	10				

*) See table 1.

5.3.1.6 Tapered fissure head (truncated conical)

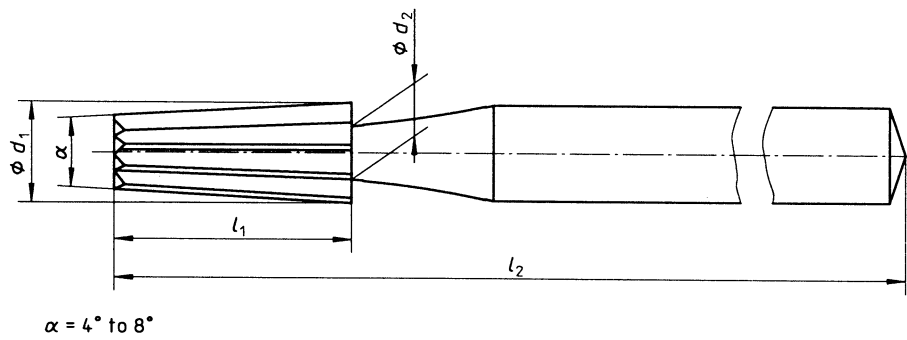


Figure 6

Table 6 — Dimensions and number of blades

Nominal diameter designation	d_1 $\pm 0,08$	d_2 max.	l_1 min.	Number of blades min.	$l_2^*)$ $\pm 0,5$			
					Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
Regular								
006	0,6	0,68	2,8	6	22,0	44,5	19,0	16,5
008	0,8	0,88	3,3	6				
010	1,0	1,08	3,8	6				
012	1,2	1,28	3,8	6				
014	1,4	1,35	4,3	6				
016	1,6	1,50	4,3	6				
018	1,8	1,60	4,8	6				
021	2,1	1,70	4,8	6				
023	2,3	1,80	5,3	6				
025	2,5	1,85	5,3	10				
027	2,7	1,90	6,0	10				
029	2,9	2,00	6,0	10				
031	3,1	2,00	6,6	10				
Miniature								
008	0,8	0,88	3,0	6	22,0	44,5	19,0	16,5
010	1,0	1,08	3,0	6				
012	1,2	1,28	3,0	6				
014	1,4	1,35	3,5	6				
016	1,6	1,50	3,5	6				
018	1,8	1,60	3,5	6				
021	2,1	1,70	4,0	6				
023	2,3	1,80	4,0	6				

*) See table 1.

5.3.1.7 Tapered fissure head with rounded end, regular and long (truncated conical, domed)

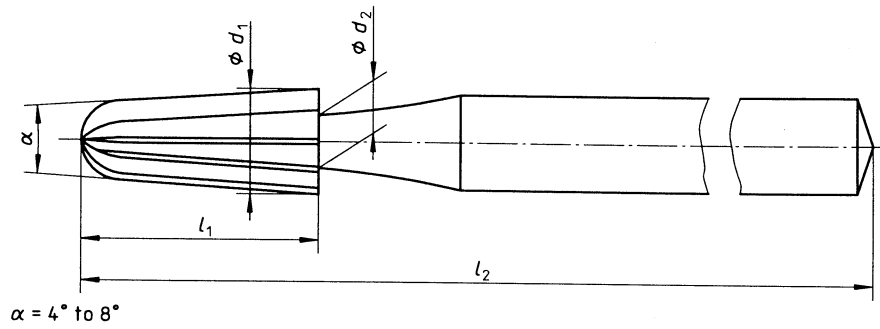


Figure 7

Table 7 — Dimensions and number of blades

Nominal diameter designation	d_1 ± 0,08	d_2 max.	l_1 min.	Number of blades min.	$l_2^*)$ ± 0,5			
					Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
006	0,6	0,68	2,8	6				
008	0,8	0,88	3,3	6				
010	1,0	1,08	3,8	6				
012	1,2	1,28	3,8	6				
014	1,4	1,35	4,3	6				
016	1,6	1,50	4,3	6				
018	1,8	1,60	4,8	6	22,0	44,5	19,0	16,5
021	2,1	1,70	4,8	6				
023	2,3	1,80	5,3	6				
025	2,5	1,85	5,3	10				
027	2,7	1,90	6,0	10				
029	2,9	2,00	6,0	10				
031	3,1	2,00	6,6	10				

*) See table 1.