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# International Standard



# 3823 / 1

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## Dental rotary instruments — Part 1 : Steel and carbide burs

*Instruments rotatifs dentaires — Partie 1 : Fraises en acier et carbure*

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[ISO 3823-1:1986](https://standards.iteh.ai/catalog/standards/sist/04320da4-cb81-4b14-abaa-822ea919cdb1/iso-3823-1-1986)

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3823/1 was prepared by Technical Committee ISO/TC 106, *Dentistry*.

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Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

ISO 3823-1:1986  
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# Dental rotary instruments — Part 1 : Steel and carbide burs

## 0 Introduction

This International Standard is one of a series of standards relating to dental instruments. It consists of two parts :

Part 1 : Steel and carbide burs.

Part 2 : Steel and carbide finishing burs.

The various dimensional and other requirements specified for steel and carbide burs are those considered important to ensure the interchangeability of these instruments.

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

## 1 Scope and field of application

This part of ISO 3823 specifies dimensions of, and requirements for, the ten most commonly used forms of steel and carbide burs. It is envisaged to extend the scope of this International Standard to cover other forms of burs.

Other characteristics of bur heads, for example spiralled blades, cross-cut, are not covered by this International Standard. These will be dealt with in a future International Standard.

## 2 References

ISO 1797, *Dental rotary instruments — Shanks.*

ISO 2157, *Dental rotary instruments — Nominal sizes and designation.*

ISO 6360, *Dental rotary instruments — Numbering coding system.*

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

## 3 Classification

Dental 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

$d_1$  diameter of the working part, head diameter

$d_2$  neck diameter

$l_1$  length of the working part, head length

$l_2$  overall length

## 5 Material

The shaft shall be made of steel or other suitable material. The working parts of steel burs shall be made of steel and those of carbide burs of tungsten carbide.

The selection of the type of material and the treatment shall be left to the discretion of the manufacturer.

## 6 Dimensions and number of blades

All dimensions are in millimetres.

The dimensions, determined as described in ISO 8325, shall be as specified in the tables and as shown in figures 1 to 10.

For the overall length, see clause 7 and table 11.

Shank types 1, 2 and 3 shall be in accordance with ISO 1797.

A dash in a column of a table indicates that the particular size is not available.

6.1 Round head (spherical)

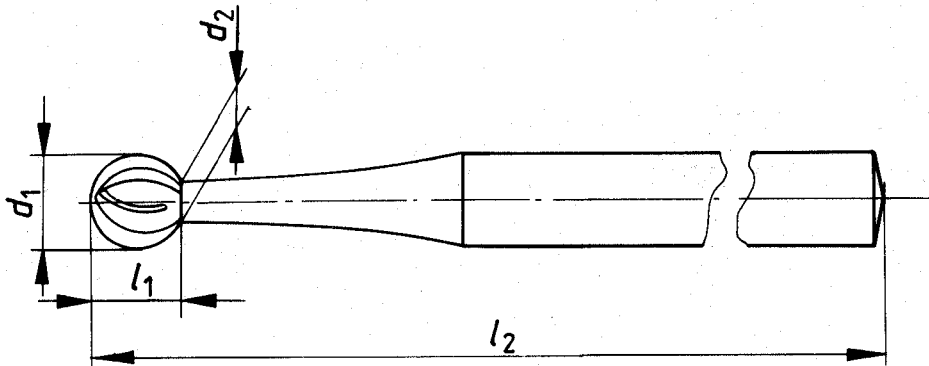
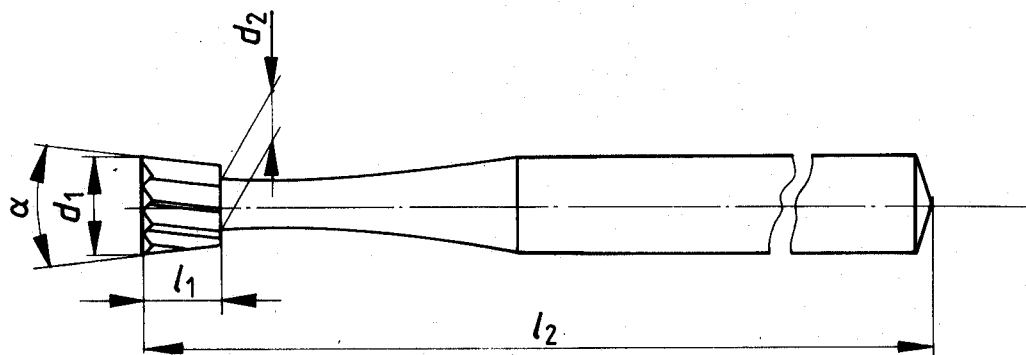


Figure 1

Table 1 – Dimensions and number of blades

Nominal size	$d_1$	$l_1$ min.		$d_2$ max.	Number of blades min.
		Type 1	Type 2		
006	$0,6 \pm 0,08$	0,46	0,40	0,48	6
008	$0,8 \pm 0,08$	0,58	0,50	0,64	6
010	$1,0 \pm 0,08$	0,73	0,65	0,78	6
012	$1,2 \pm 0,08$	0,90	0,79	0,88	6
014	$1,4 \pm 0,08$	1,08	0,82	0,98	6
016	$1,6 \pm 0,08$	1,26	1,02	1,04	6
018	$1,8 \pm 0,08$	1,46	1,26	1,12	6
021	$2,1 \pm 0,08$	1,71	1,43	1,20	6
023	$2,3 \pm 0,08$	1,89	1,60	1,28	6
025	$2,5 \pm 0,08$	2,05	1,78	1,40	10
027	$2,7 \pm 0,08$	2,23	—	1,48	10
029	$2,9 \pm 0,08$	2,39	—	1,60	10
031	$3,1 \pm 0,08$	2,53	2,44	1,68	10
033	$3,3 \pm 0,10$	2,72	—	1,78	10
035	$3,5 \pm 0,10$	2,92	—	1,82	10
037	$3,7 \pm 0,10$	3,09	—	1,92	10
040	$4,0 \pm 0,10$	3,40	—	2,06	12
042	$4,2 \pm 0,10$	3,51	—	2,16	12
045	$4,5 \pm 0,10$	3,80	—	2,16	12
047	$4,7 \pm 0,10$	3,97	—	2,24	12
050	$5,0 \pm 0,10$	4,25	—	2,32	12

6.2 Inverted cone head (inverted cone)



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

Figure 2

Table 2 — Dimensions and number of blades

Nominal size	$d_1$ $\pm 0,08$	$l_1$ min.		$d_2$ max.	Number of blades min.
		Type 1	Type 2		
006	0,6	0,42	0,34	0,48	6
008	0,8	0,57	0,45	0,64	6
010	1,0	0,71	0,60	0,78	6
012	1,2	0,87	0,70	0,88	6
014	1,4	1,00	0,80	0,98	6
016	1,6	1,24	1,10	1,04	6
018	1,8	1,44	1,30	1,12	6
021	2,1	1,66	1,54	1,20	6
023	2,3	1,84	—	1,28	6
025	2,5	2,00	—	1,40	10
027	2,7	2,18	—	1,48	10
029	2,9	2,33	—	1,60	10
031	3,1	2,51	—	1,68	10

6.3 Pear head, regular and long (spherical conical)

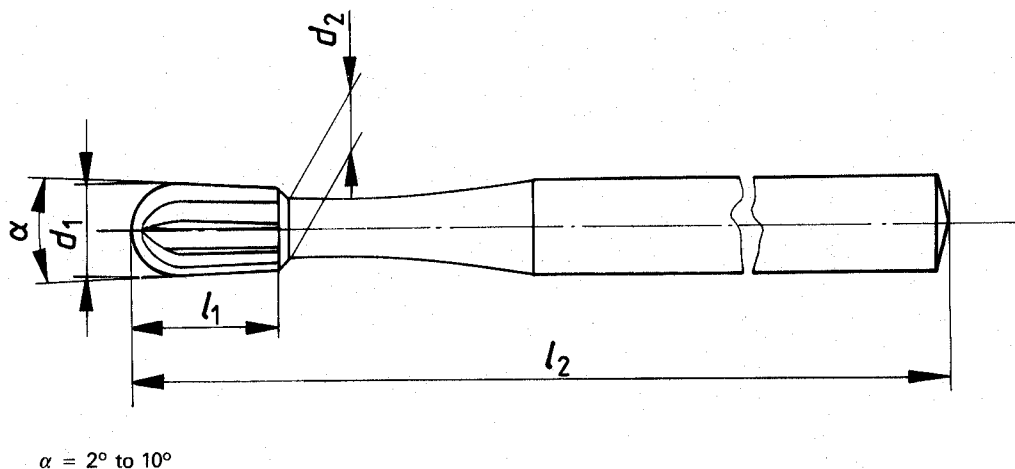


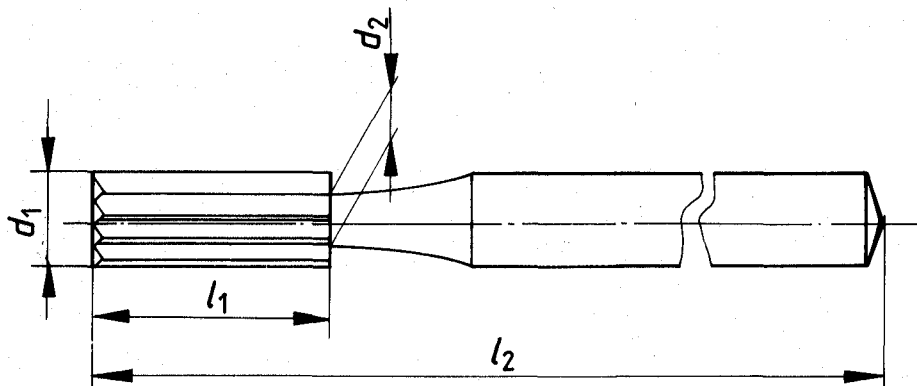
Figure 3

Table 3 – Dimensions and number of blades

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Nominal size	$d_1$ $\pm 0,08$	$l_1$ min.				$d_2$ max.	Number of blades min.
		Type 1		Type 2			
		regular	long	regular	long		
006	0,6	0,72	—	0,6	—	6	
008	0,8	0,97	—	0,8	—	6	
010	1,0	1,21	3,8	1,1	3,7	6	
012	1,2	1,47	3,8	1,3	3,7	6	
014	1,4	1,70	4,3	1,5	4,1	6	
016	1,6	2,04	4,3	1,8	4,1	6	
018	1,8	2,34	4,8	2,1	4,5	6	
021	2,1	2,71	—	2,4	—	6	
023	2,3	2,99	—	—	—	6	
025	2,5	3,25	—	—	—	10	
027	2,7	3,53	—	—	—	10	
029	2,9	3,78	—	—	—	10	
031	3,1	4,06	—	—	—	10	

6.4 Straight fissure head (cylindrical)



Taper angle of the head < 2°

Figure 4

6.4.1 Regular

Table 4a) – Dimensions and number of blades

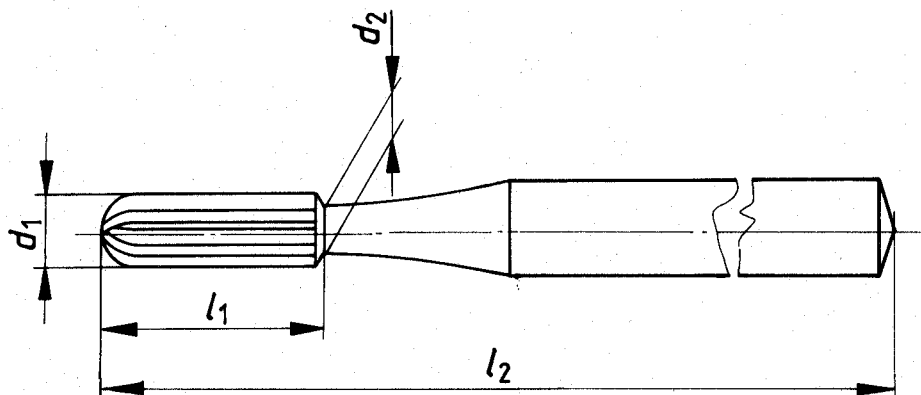
Nominal size	$d_1$ ± 0,08	$l_1$ min.		$d_2$ max.	Number of blades min.
		Type 1	Type 2		
006	0,6	2,8	—	0,68	6
008	0,8	3,2	—	0,88	6
010	1,0	3,7	—	1,08	6
012	1,2	3,8	—	1,28	6
014	1,4	4,3	4,1	1,35	6
016	1,6	4,3	4,1	1,50	6
018	1,8	4,8	4,5	1,60	6
021	2,1	4,8	4,5	1,70	6
023	2,3	5,3	—	1,80	6
025	2,5	5,3	—	1,85	10
027	2,7	6,0	—	1,90	10
029	2,9	6,0	—	2,00	10
031	3,1	6,6	—	2,00	10

6.4.2 Miniature

Table 4b) – Dimensions and number of blades

Nominal size	$d_1$ ± 0,08	$l_1$ min.		$d_2$ max.	Number of blades min.
		Type 1	Type 2		
008	0,8	3,0	2,9	0,88	6
010	1,0	3,0	2,9	1,08	6
012	1,2	3,0	2,9	1,28	6
014	1,4	3,5	3,3	1,35	6
016	1,6	3,5	3,3	1,50	6
018	1,8	3,5	3,3	1,60	6
021	2,1	4,0	3,7	1,70	6
023	2,3	4,0	3,7	1,80	6

6.5 Straight fissure head with rounded end (hemispherical cylindrical)



Taper angle of the head < 2°

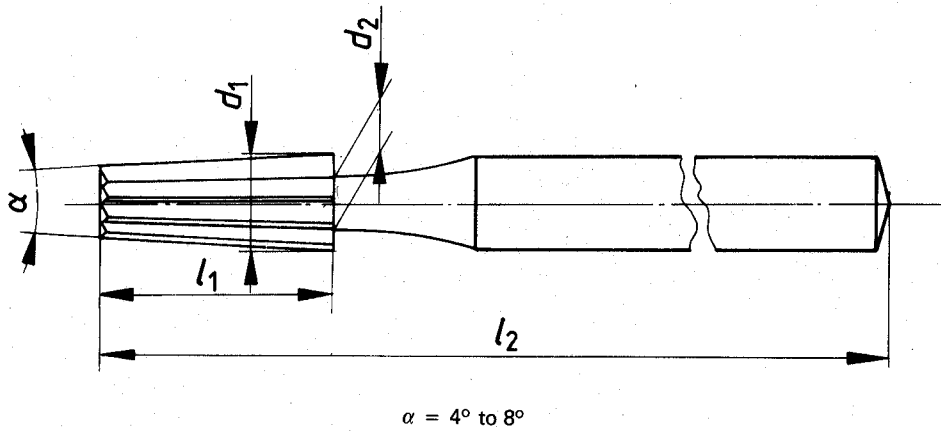
Figure 5

Table 5 – Dimensions and number of blades

Nominal size	$d_1$ ± 0,08	$l_1$ min.		$d_2$ max.	Number of blades min.
		Type 1	Type 2		
006	0,6	2,8	—	0,68	6
008	0,8	3,3	—	0,88	6
010	1,0	3,8	3,7	1,08	6
012	1,2	3,8	3,7	1,28	6
014	1,4	4,3	4,1	1,35	6
016	1,6	4,3	4,1	1,50	6
018	1,8	4,8	4,5	1,60	6
021	2,1	4,8	4,5	1,70	6
023	2,3	5,3	—	1,80	6
025	2,5	5,3	—	1,85	10
027	2,7	6,0	—	1,90	10
029	2,9	6,0	—	2,00	10
031	3,1	6,6	—	2,00	10



6.6 Tapered fissure head (flat truncated)



$\alpha = 4^\circ \text{ to } 8^\circ$

Figure 6

6.6.1 Regular

Table 6a) — Dimensions and number of blades

Nominal size	$d_1$ $\pm 0,08$	$l_1$ min.		$d_2$ max.	Number of blades min.
		Type 1	Type 2		
006	0,6	2,8	—	0,68	6
008	0,8	3,3	3,2	0,88	6
010	1,0	3,8	3,7	1,08	6
012	1,2	3,8	3,786	1,28	6
014	1,4	4,3	4,1	1,35	6
016	1,6	4,3	4,1	1,50	6
018	1,8	4,8	4,5	1,60	6
021	2,1	4,8	4,5	1,70	6
023	2,3	5,3	—	1,80	6
025	2,5	5,3	—	1,85	10
027	2,7	6,0	—	1,90	10
029	2,9	6,0	—	2,00	10
031	3,1	6,6	—	2,00	10

6.6.2 Miniature

Table 6b) — Dimensions and number of blades

Nominal size	$d_1$ $\pm 0,08$	$l_1$ min.		$d_2$ max.	Number of blades min.
		Type 1	Type 2		
008	0,8	3,0	2,9	0,88	6
010	1,0	3,0	2,9	1,08	6
012	1,2	3,0	2,9	1,28	6
014	1,4	3,5	3,3	1,35	6
016	1,6	3,5	3,3	1,50	6
018	1,8	3,5	3,3	1,60	6
021	2,1	4,0	3,7	1,70	6
023	2,3	4,0	3,7	1,80	6