INTERNATIONAL STANDARD

ISO 3823-1

Second edition
1997-08-01

Dental rotary instruments — Burs —

Part 1:
Steel and carbide burs

Instruments rotatifs dentaires — Fraises —

Partie 1: Fraises en acier et en carbure

Reference number
ISO 3823-1:1997(E)

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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.

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.

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.

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.

2 Normative references

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.

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)

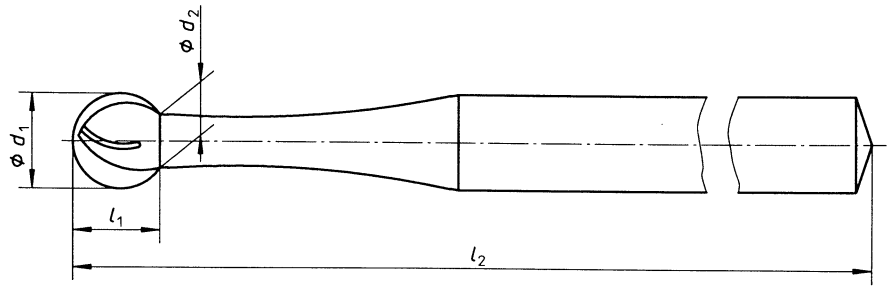


Figure 1

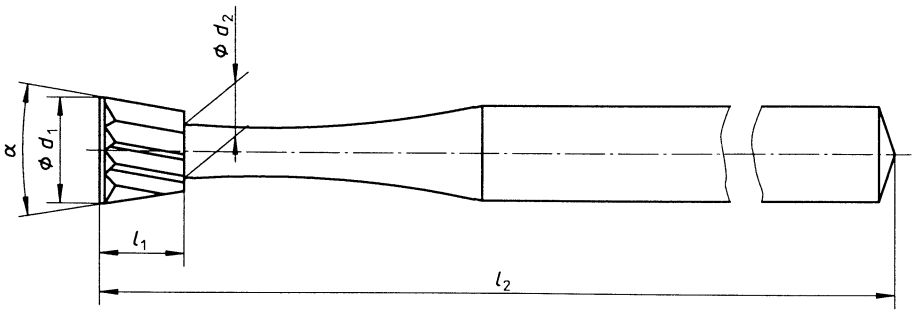
Table 1 — Dimensions and number of blades

Nominal diameter designation	d_1		d_2	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
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	± 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	± 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 : α = 10° to 16°
Type 2 : α = 6° to 16°

Figure 2

Table 2 — 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	0,48	0,42	6				
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	22,0	44,5	19,0	16,5
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)

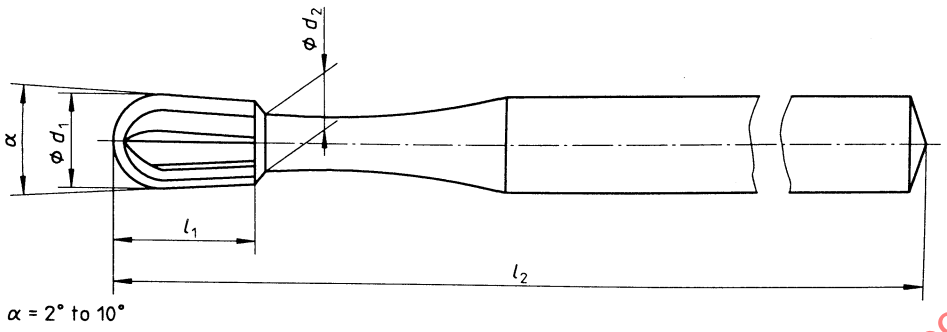


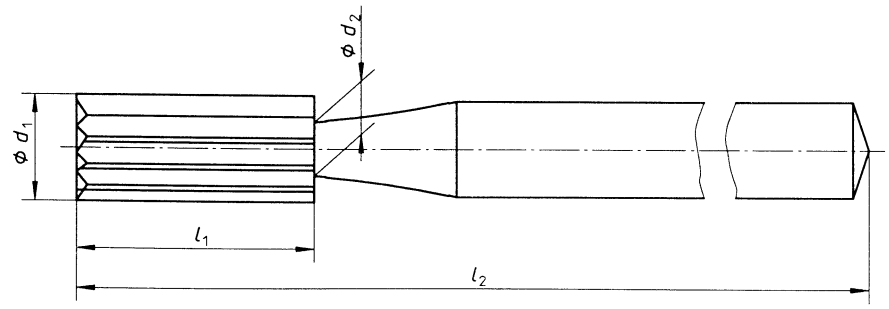
Figure 3

Table 3 — Dimensions and number of blades

Nominal diametre designation	d_1 ± 0,08	d_2 max.	l_1 min.		Number of blades min.	l_2*) ± 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°

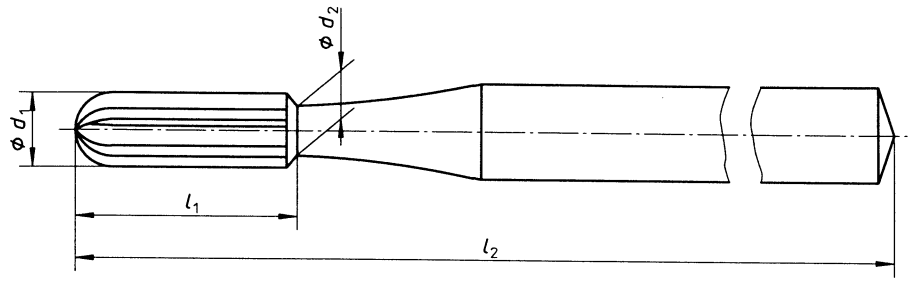
Figure 4

Table 4 — Dimensions and number of blades

Nominal diameter designation	d_1 ± 0,08	d_2 max.	l_1 min.	Number of blades min.	l_2*) Shank type 1 Standard	l_2*) Shank type 2 Standard	l_2*) Shank type 3 Standard	l_2*) 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.

5.3.1.5 **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 ± 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				
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)

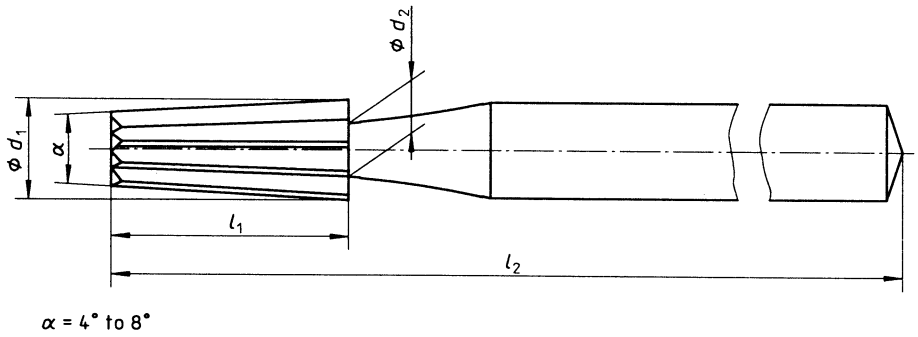


Figure 6

Table 6 — Dimensions and number of blades

Nominal diameter designation	d_1 ± 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
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)

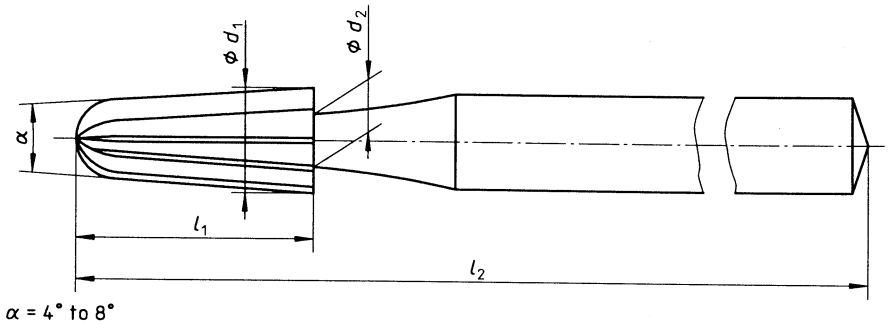


Figure 7

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.

5.3.1.8 **Wheel head** (wheel)

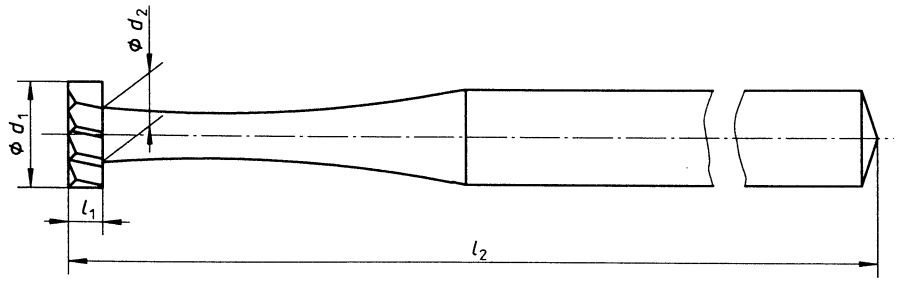


Figure 8

Table 8 — 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	0,48	0,19	6				
008	0,8	0,64	0,23	6				
010	1,0	0,78	0,26	6				
012	1,2	0,88	0,29	6				
014	1,4	0,98	0,32	6				
016	1,6	1,04	0,36	6				
018	1,8	1,12	0,42	6	22,0	44,5	19,0	16,5
021	2,1	1,20	0,48	6				
023	2,3	1,28	0,52	6				
025	2,5	1,40	0,57	10				
027	2,7	1,48	0,62	10				
029	2,9	1,60	0,66	10				
031	3,1	1,68	0,70	10				

*) See table 1.

5.3.2 Carbide burs

5.3.2.1 **Round head** (spherical)

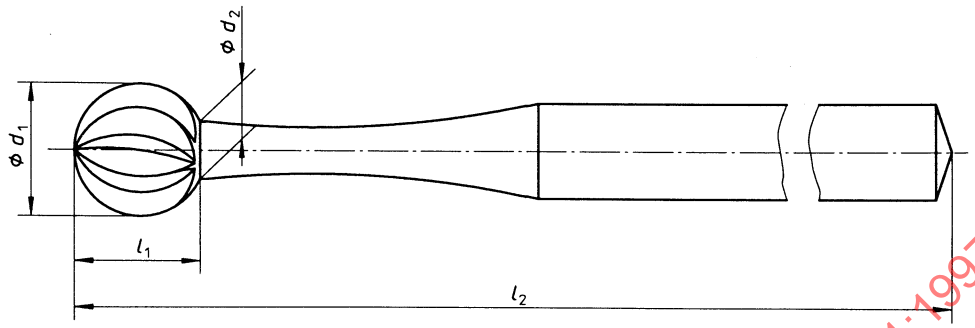


Figure 9

Table 9 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		nom.	tol.	max.	min.	min.	Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
005	—	0,5	± 0,05	0,41	0,30	6	22,0	44,5	19,0	16,5
006	—	0,6		0,48	0,40					
007	—	0,7		0,55	0,45					
008	—	0,8		0,64	0,50					
009	—	0,9		0,70	0,60					
010	—	1,0	± 0,08	0,78	0,65					
012	—	1,2		0,88	0,79					
014	—	1,4		0,98	0,82					
016	—	1,6		1,04	1,02					
018	—	1,8		1,20	1,26					
021	—	2,1		1,35	1,43	8				
023	—	2,3		1,45	1,60					
—	025	2,5		1,50	1,78	10				
—	027	2,7		1,55	1,85	8				
—	031	3,1		1,68	2,44	10				

*) See table 1.

5.3.2.2 **Inverted cone head** (inverted, truncated conical)

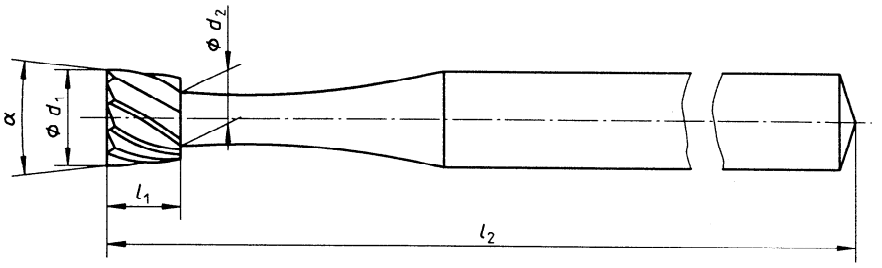


Figure 10

Table 10 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	α	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		nom.	tol.	max.		min.	min.	Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
006	—	0,6	±0,05	0,48	6° to 16°	0,34	6	22,0	44,5	19,0	16,5
008	—	0,8		0,64		0,45					
010	—	1,0	±0,08	0,78		0,60					
012	—	1,2		0,88		0,70					
014	—	1,4		0,98		0,80					
016	—	1,6		1,05		1,10					
018	—	1,8		1,20		1,30					
—	021	2,1		1,35		1,54					
—	023	2,3		1,45		1,65					

*) See table 1.

5.3.2.3 **Pear head** (hemispherical, inverted conical)

5.3.2.3.1 Head length regular

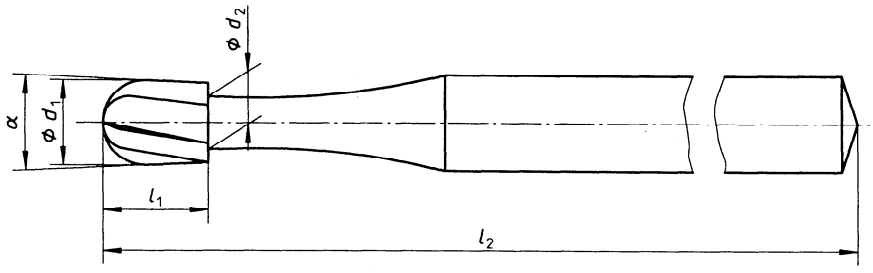


Figure 11

Table 11 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	α	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		nom.	tol.	max.		min.	min.	Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
006	—	0,6	± 0,05	0,48	2° to 10°	0,6	6	22,0	44,5	19,0	16,5
008	—	0,8		0,64		0,9					
009	—	0,9		0,70		1,0					
010	—	1,0	± 0,08	0,78		1,1					
012	—	1,2		0,88		1,3					
014	—	1,4		0,98		1,5					
—	016	1,6		1,04		1,8					
—	018	1,8		1,12		2,1					
—	021	2,1		1,20		2,4					

*) See table 1.

5.3.2.3.2 Head length long

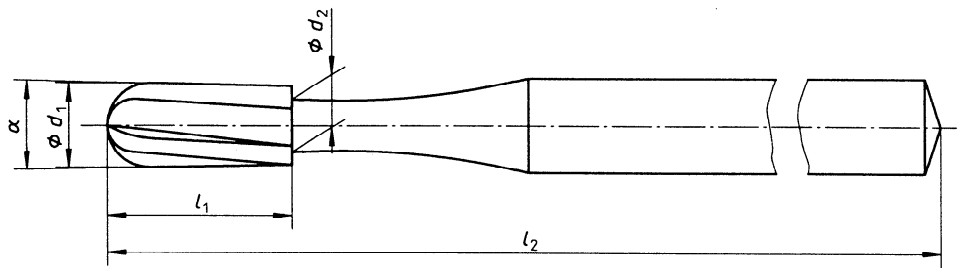


Figure 12

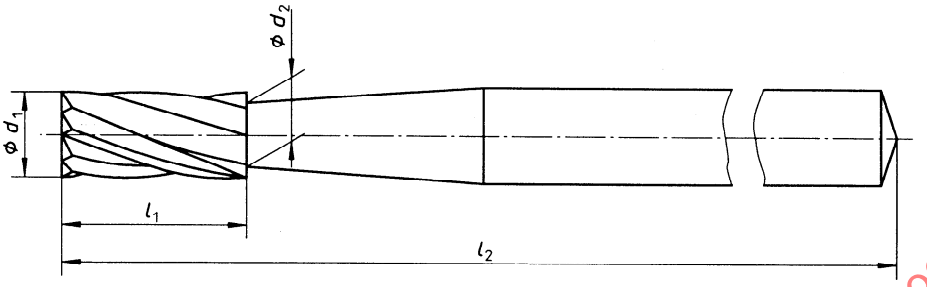
Table 12 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	α	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		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	0,64	2° to 10°	1,4	6	22,0	44,5	19,0	16,5
010	—	1,0	± 0,08	0,78		3,7					
012	—	1,2		0,88							
014	—	1,4		0,98		4,0					
—	016	1,6		1,04							
—	018	1,8		1,12		4,5					

*) See table 1.

5.3.2.4 Straight fissure head (cylindrical)

5.3.2.4.1 Head length regular



Taper angle of the head ≤ 2°

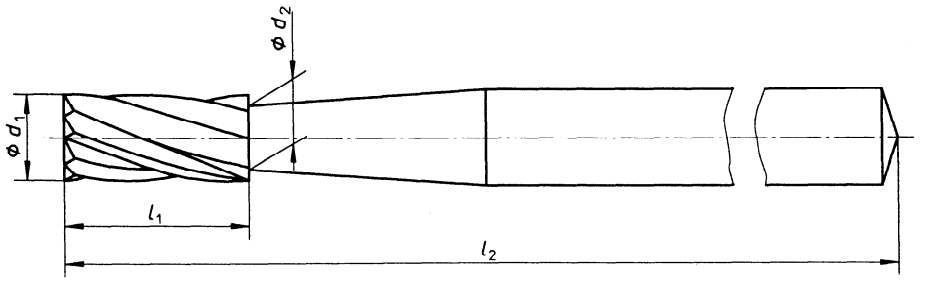
Figure 13

Table 13 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		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	0,80	3,2	6	22,0	44,5	19,0	16,5
—	009	0,9		0,90						
010	—	1,0	± 0,08	1,00	3,7					
012	—	1,2		1,20						
014	—	1,4		1,35	4,0					
016	—	1,6		1,50						
018	—	1,8		1,60	4,5					
—	021	2,1		1,80						

*) See table 1.

5.3.2.4.2 Head length miniature



Taper angle of the head ≤ 2°

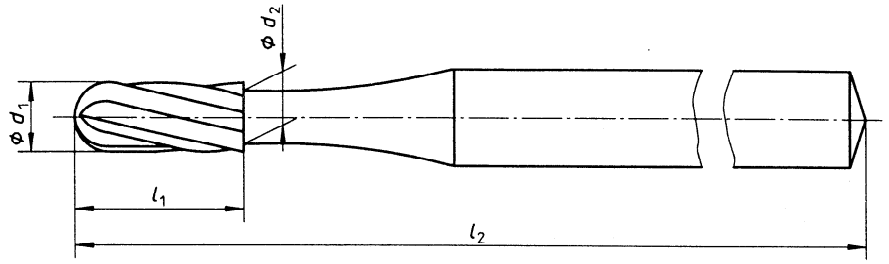
Figure 14

Table 14 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		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	0,80	2,9	6	22,0	44,5	19,0	16,5
—	010	1,0		1,00						
—	012	1,2	± 0,08	1,20						
—	016	1,4		1,35	3,3					
—	018	1,6		1,50						
—	021	1,8		1,60						
—	021	2,1		1,80	3,7					
—	023	2,3		1,85						

*) See table 1.

5.3.2.5 **Straight fissure head with rounded end** (hemispherical, cylindrical)



Taper angle of the head ≤ 2°

Figure 15

Table 15 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		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	0,80	3,2	6	22,0	44,5	19,0	16,5
—	009	0,9		0,90						
010	—	1,0	± 0,08	1,00	3,7					
012	—	1,2		1,20						
014	—	1,4		1,35	4,0					
—	016	1,6		1,50						
—	018	1,8		1,60	4,5					
	021	2,1		1,80						

*) See table 1.

5.3.2.6 Tapered fissure head (truncated conical)

5.3.2.6.1 Head length regular

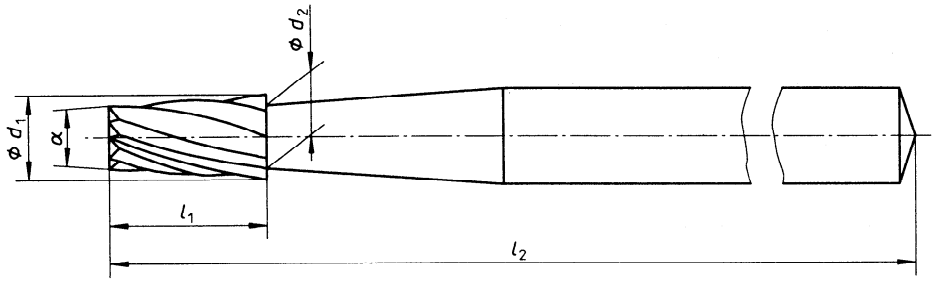


Figure 16

Table 16 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	α	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		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	0,80	4° to 8°	3,2	6	22,0	44,5	19,0	16,5
—	009	0,9		0,90							
010	—	1,0	±0,08	1,00		3,7					
012	—	1,2		1,20							
014	—	1,4		1,35		4,0					
016	—	1,6		1,50							
018	—	1,8		1,60		4,5					
—	021	2,1		1,80							

*) See table 1.

5.3.2.6.2 Head length miniature

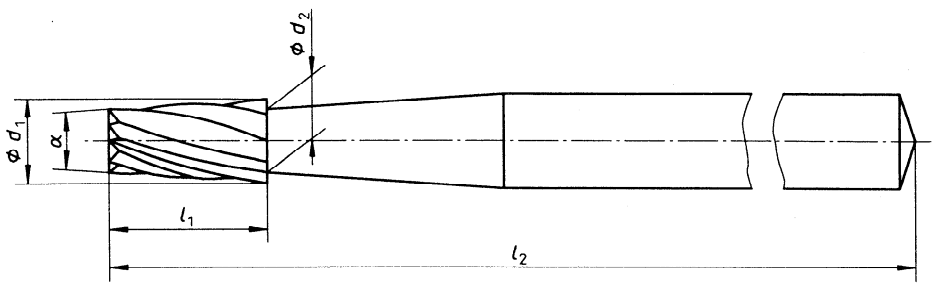


Figure 17

Table 17 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	α	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		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	0,80	4° to 8°	2,9	6	22,0	44,5	19,0	16,5
—	010	1,0	±0,08	1,00							
—	012	1,2		1,20							
—	014	1,4		1,35		3,3					
—	016	1,6		1,50							
—	018	1,8		1,50							
	021	2,1		1,80		3.7					
—	023	2,3		1,85							

*) See table 1.

5.3.2.7 Tapered fissure head with rounded end (truncated conical, domed)

5.3.2.7.1 Head length regular

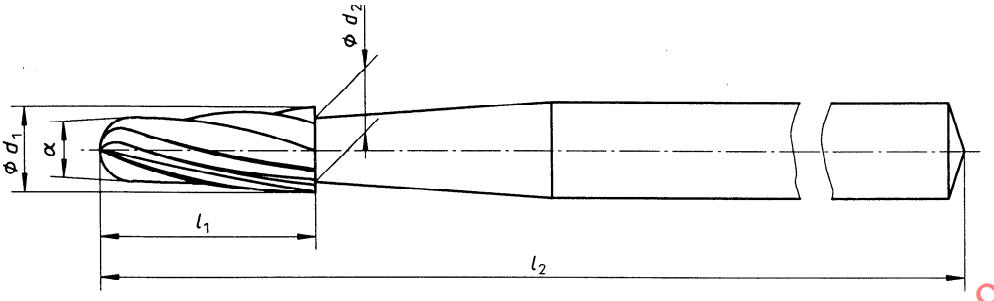


Figure 18

Table 18 — Dimensions and number of blades

Nominal diameter designation		d_1		d_2	α	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		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	0,80	4° to 8°	3,2	6	22,0	44,5	19,0	16,5
—	009	0,9		0,90							
010	—	1,0	±0,08	1,00		3,7					
012	—	1,2		1,20							
014	—	1,4		1,35		4,0					
016	—	1,6		1,50							
—	018	1,8		1,60		4,5					
—	021	2,1		1,80							

*) See table 1.

5.3.2.7.2 Head length long

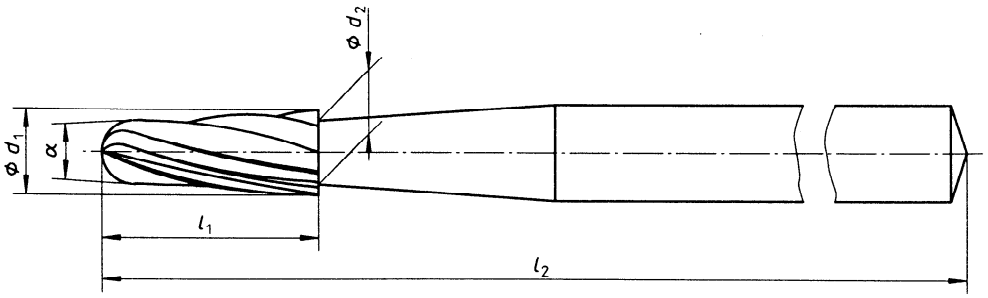


Figure 19

Table 19 — Dimensions and number of blades

Nominal diameter designation		d_1	d_2	α	l_1	Number of blades	l_2*) ± 0,5			
Preferred diameter		± 0,08	max.		min.	min.	Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
—	010	1,0	1,00	4° to 8°	3,7	6	22,0	44,5	19,0	16,5
—	012	1,2	1,20							

*) See table 1.

5.3.2.8 Wheel head (wheel)

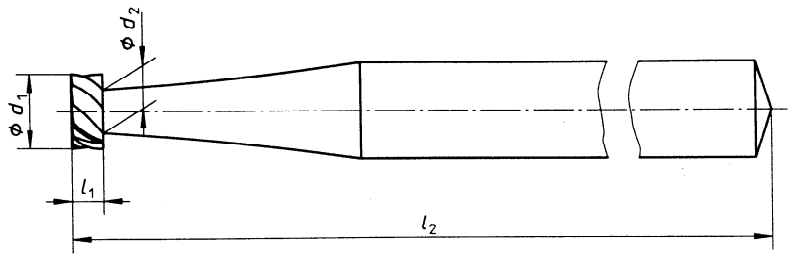


Figure 20

Table 20 — Dimensions and number of blades

Nominal diameter designation		d_1	d_2	l_1	**Number of blades**	l_2*) ± 0,5			
Preferred diam-eter		± 0,08	max.	min.	min.	**Shank type 1 Standard**	**Shank type 2 Standard**	**Shank type 3 Standard**	**Shank type 3 Short**
—	012	1,2	0,88	0,21	6	22,0	44,5	19,0	16,5
*) See table 1.									

5.3.2.9 Cylindrical with cross-cut

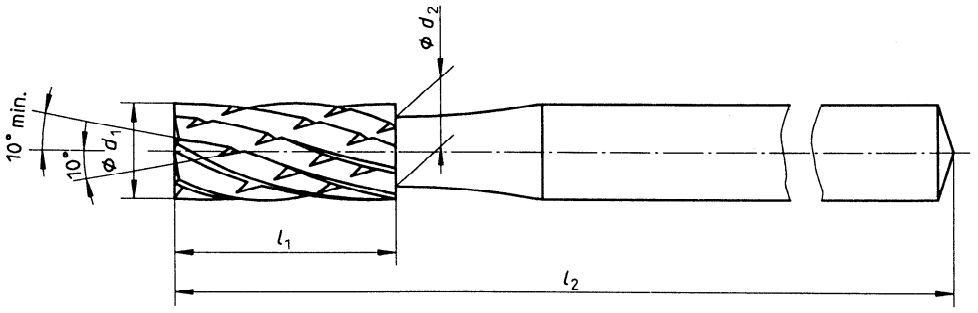


Figure 21

Table 21 — Dimensions and number of blades

Nominal diameter designation		d_1	d_2	l_1	Number of blades[1]	l_2*) ± 0,5			
Preferred diameter		± 0,08	max.	min.	min.	Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
010	—	1,0	1,00	3,7	6	22,0	44,5	19,0	16,5
012	—	1,2	1,20						
—	014	1,4	1,35	4,0					
—	016	1,6	1,50						
—	018	1,8	1,60	4,5					
—	021	2,1	1,80						
—	023	2,3	1,85						

1) Spiral left and right each.

*) See table 1.

5.3.2.10 Tapered with cross-cut

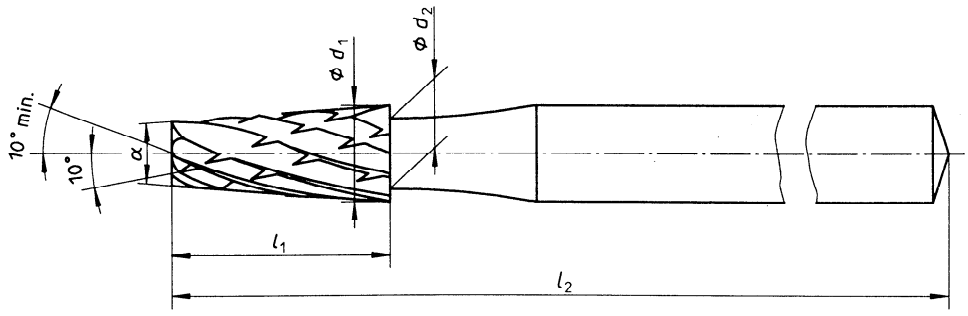


Figure 22

Table 22 — Dimensions and number of blades

Nominal diameter designation		d_1	d_2	α	l_1	Number of blades[1]	l_2*) ± 0,5			
Preferred diameter		± 0,08	max.		min.	min.	Shank type 1 Standard	Shank type 2 Standard	Shank type 3 Standard	Shank type 3 Short
—	010	1,0	1,00	4° to 8°	3,7	6	22,0	44,5	19,0	16,5
012	—	1,2	1,20							
—	014	1,4	1,35		4,0					
—	016	1,6	1,50							
—	018	1,8	1,60		4,5					
—	021	2,1	1,70							
—	023	2,3	1,85							

1) Spiral left and right each.
*) See table 1.

5.4 Dimensions of shank

The shank shall be Type 1, 2 or 3 of ISO 1797-1.

5.5 Run-out

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

— for steel burs: 0,08 mm;

— for carbide burs: 0,05 mm.

Testing shall be carried out in accordance with 6.2.

5.6 Corrosion resistance

Steel and carbide burs, if declared corrosion-resistant (or any similar term), shall not show signs of corrosion or functional deterioration after testing. For carbide burs, a slight galvanic corrosion is permitted at the junction of the neck to the carbide working part.

Testing shall be carried out in accordance with 6.3.

5.7 Neck strength

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

— for steel burs: 0,08 mm;

— for carbide burs: 0,05 mm.

Testing shall be carried out after the corrosion test and in accordance with 6.4.

6 Test procedure

6.1 Shapes, dimensions and number of blades

Measure and/or determine the shapes and the dimensions in accordance with ISO 8325:1985, 3.1 to 3.5 respectively, as appropriate.

Determine the number of blades by visual inspection.

6.2 Run-out

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

The measurement point shall be the largest diameter just behind the working part.

6.3 Corrosion resistance

6.3.1 Equipment

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

6.3.2 Reagent

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

6.3.3 Preparation of test piece

Scrub the test piece using soap and warm water. Rinse thoroughly in water (6.3.2) and dry.

6.3.4 Procedure

Place the unwrapped test piece in the autoclave. Using the water (6.3.2) subject the test piece to an 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.

6.3.5 Evaluation

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

Functional deterioration is determined after testing the neck strength, see 6.4.

6.4 Neck strength

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

For the test load *F*, use the appropriate value specified in tables 23 to 40. These tables cover the values for the most commonly used sizes of bur. The appropriate test load *F* for other sizes may be calculated using the equation given in ISO 8325.

6.4.1 Test loads *F* for steel burs

Table 23 — Round head

Values in newtons

Nominal diameter	*F*
006	7,36
008	13,24
010	19,12
012	23,35
014	28,84
016	30,12
018	32,96
021	35,90
023	39,73

Table 24 — Inverted cone head

Values in newtons

Nominal diameter	*F*
006	7,65
008	13,64
010	19,52
012	24,03
014	29,04
016	29,53
018	32,67
021	35,02

Table 25 — Pear head

Values in newtons

Nominal diameter	*F*	
	Regular head	Long head
006	6,37	—
008	10,88	9,02
010	16,08	8,43
012	19,71	11,47
014	23,74	14,22
016	24,81	16,28
018	27,36	18,54
021	29,72	—

Table 26 — Straight fissure head

Values in newtons

Nominal diameter	*F*	
	Regular head	Miniature head
008	10,39	11,08
010	17,16	20,01
012	27,76	31,98
014	31,68	39,82
016	45,91	51,69
018	52,67	62,19
021	57,97	64,25
023	—	73,28

Table 27 — Straight fissure head with rounded end

Values in newtons

Nominal diameter	*F*
008	10,39
010	17,16
012	27,76
014	35,21
016	45,91
018	52,67
021	57,97

Table 28 — Tapered fissure head

Values in newtons

Nominal diameter	*F*	
	Regular head	Miniature head
008	10,39	11,08
010	17,16	20,01
012	27,76	31,98
014	36,21	39,82
016	45,91	51,69
018	52,67	62,19
021	57,97	64,25
023	—	73,28

Table 29 — Tapered fissure head with rounded end

Values in newtons

Nominal diameter	*F*	
	Regular head	Long head
008	10,39	—
010	17,16	14,12
012	27,76	23,15
014	35,21	—
016	45,91	—
018	52,67	—
021	57,97	—

Table 30 — Wheel head

Values in newtons

Nominal diameter	*F*
012	29,13