

International Standard



7787/2

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

**Dental rotary instruments — Cutters —  
Part 2 : Carbide laboratory cutters**

*Instruments rotatifs dentaires — Fraises techniques — Partie 2 : Fraises techniques en carbure*

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Descriptors : dentistry, dental instruments, dental rotary-cutting instruments, burs (dental), specifications, dimensions, dimensional tolerances.

Price based on 6 pages

## 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 7787/2 was prepared by Technical Committee ISO/TC 106, *Dentistry*, in collaboration with the following international organization : FDI (International Dental Federation).

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ISO 7787-2:1984

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# Dental rotary instruments — Cutters — Part 2 : Carbide laboratory cutters

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## 0 Introduction

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

Part 1 : Steel laboratory cutters.

Part 2 : Carbide laboratory cutters.

The various dimensional and other requirements specified for carbide cutters 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 7787 specifies the dimensional and other requirements for the eleven most commonly used carbide cutters<sup>1)</sup> which are predominantly used in the dental laboratory.

Other characteristics of cutters, 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.*<sup>2)</sup>

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

ISO 2859, *Sampling procedures and tables for inspection by attributes.*

ISO 6360, *Dental rotary instruments — Number coding system.*<sup>3)</sup>

ISO 8325, *Dental rotary instruments — Test methods.*<sup>3)</sup>

## 3 Symbols

*d* diameter of the working part, head diameter.

*l* length of the working part, head length.

1) Sometimes called laboratory burs.

2) At present at the stage of draft. (Revision of ISO 1797-1976.)

3) At present at the stage of draft.

**4 Material**

The shaft shall be made of steel or other suitable material.

The working part shall be made of tungsten carbide.

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

**5 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 11.

The shank shall be type 2 of ISO 1797.

**5.1 Round head (spherical)**

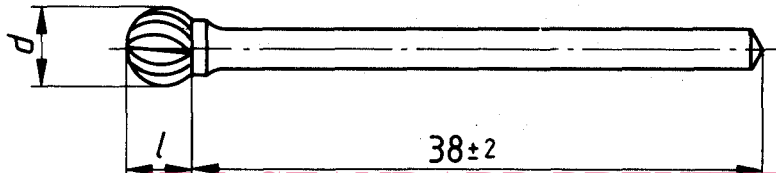


Figure 1  
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Table 1 — Dimensions and number of blades

Nominal size	d ± 0,3	l		Number of blades min.
		dimension	tolerance	
040	4	3,3	± 0,25	14
050	5	4,5	± 0,25	16
060	6	5,1	± 0,3	17

**5.2 Cylindrical, domed (hemispherico-cylindrical)**

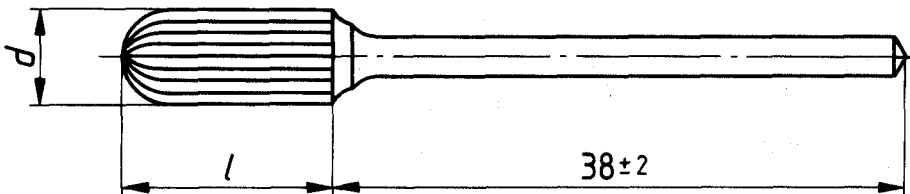


Figure 2

Table 2 — Dimensions and number of blades

Nominal size	d ± 0,3	l ± 0,5	Number of blades min.
060	6	13	17
070	7	13	17

5.3 Egg (longitudinal ellipsoidal)

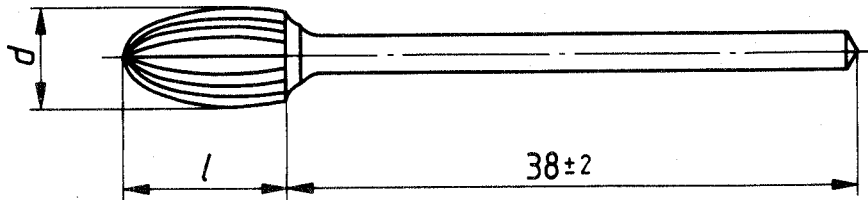


Figure 3

Table 3 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l$ $\pm 0,5$	Number of blades min.
060	6	10	17

5.4 Bud rounded (hemispherical/truncated conical or domed truncated conical)



$\alpha = 14^\circ$  to  $18^\circ$

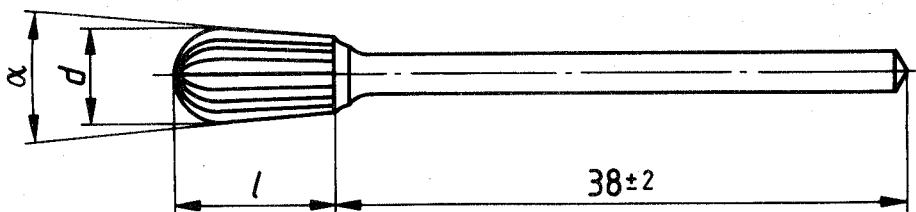
ISO 7787-2:1984  
Figure 4

<https://standards.itech.ai/catalog/standards/sst/d350cd32-9ff9-437c-a548-2acb03558bfe/iso-7787-2-1984>

Table 4 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l$ $\pm 0,5$	Number of blades min.
060	6	11	17
070	7	13	17

5.5 Pear (hemispherical/inverted conical truncated)



$\alpha = 14^\circ$  to  $18^\circ$

Figure 5

Table 5 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l$ $\pm 0,5$	Number of blades min.
050	5	10	17
060	6	11	17
070	7	12	17

5.6 Bud slender (ogivo/ellipsoid, long)

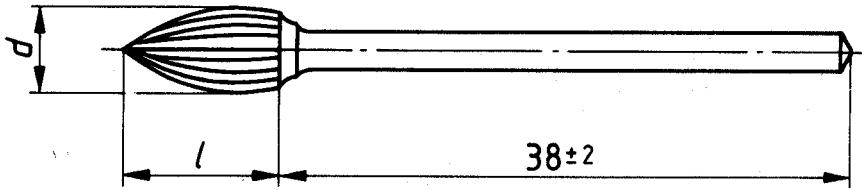


Figure 6

Table 6 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l$ $\pm 0,5$	Number of blades min.
050	5	10	17
060	6	12	17

5.7 Cylinder (cylindrical)

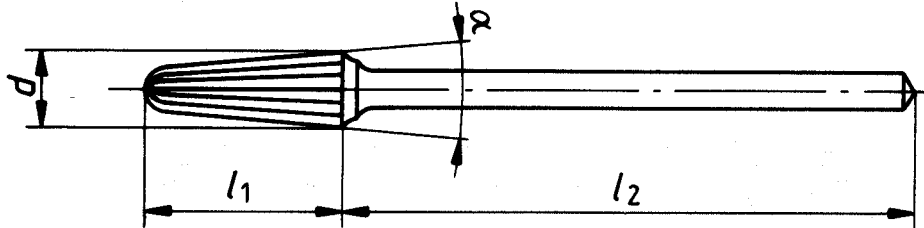


Figure 7

<https://standards.iteh.ai/catalog/standards/sist/d350cd32-9ff9-437c-a548-2ac60558011c/iso-7787-2-1984>  
Table 7 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l$ $\pm 0,5$	Number of blades min.
060	6	13	20

5.8 Rounded cone (truncated conical, domed)



$\alpha = 10^\circ$  to  $14^\circ$   
Size 023 =  $4^\circ$  to  $8^\circ$

Figure 8

Table 8 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l_1$ $\pm 0,5$	$l_2$ $\pm 2$	Number of blades min.
023	2,3	13,0	31,5	12
040	4,0	13,0	38	12
050	5,0	13,0	38	16
070	7,0	14,0	38	20

5.9 Paraboloidal

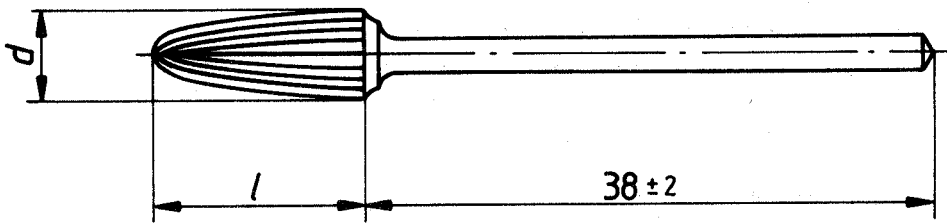


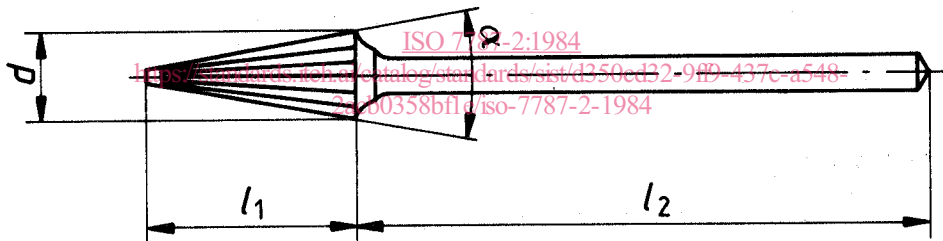
Figure 9

Table 9 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l$ $\pm 0,5$	Number of blades min.
060	6	14	20
070	7	14	20

5.10 Cone (conical)

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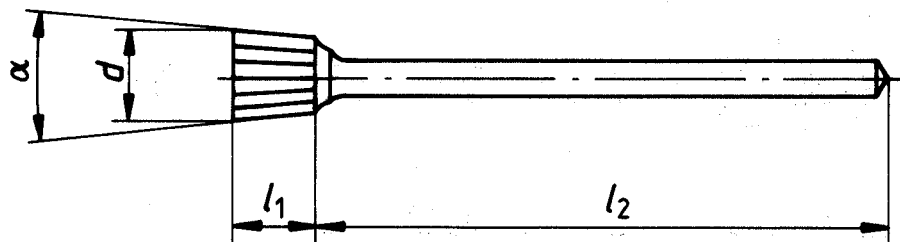
$\alpha$  = Size 023 = 6° to 10°  
Size 060 = 18° to 22°

Figure 10

Table 10 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l_1$ $\pm 0,5$	$l_2$ $\pm 2$	Number of blades min.
023	2,3	13	31,5	12
060	6,0	14	38	20

5.11 Inverted, truncated, conical



$\alpha$  = Size 031 = 12° to 16°  
 Size 060 = 8° to 12°

Figure 11

Table 11 – Dimensions and number of blades

Nominal size	$d$ $\pm 0,3$	$l_1$ $\pm 0,5$	$l_2$ $\pm 2$	Number of blades min.
031	3,1	3	41,5	24
060	6	5,5	38	24

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6 Run-out

The total indicated run-out determined as described in ISO 8325 shall not exceed 0,08 mm.

The measurement point is the largest diameter or, for cylindrical instruments, the middle of the working part.

7 Sampling and acceptance levels

The acceptable quality level (AQL) according to ISO 2859 shall be 6,5.