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Fifth edition
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Dentistry — Laboratory cutters —

Part 2: Carbide laboratory cutters

Médecine bucco-dentaire — Fraises de laboratoire —
Partie 2: Fraises de laboratoire en carbure

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 4, *Dental instruments*.

This fifth edition cancels and replaces the fourth edition (ISO 7787-2:2000), which has been technically revised. The main changes compared to the previous edition are as follows:

— normative references have been updated;

— definitions have been added;

— classification has been added as Clause 5;

— a requirement for designation of cutter blades and number of blades has been moved from the main body of this document to Annex A (now optional and for reference only).

A list of all parts in the ISO 7787 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is part of a series of international standards relating to dental rotary instruments.

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

Dentistry — Laboratory cutters —

Part 2:
Carbide laboratory cutters

1 Scope

This document specifies dimensional and other requirements for the 11 most commonly used carbide cutters which are predominantly used in the dental laboratory.

NOTE These cutters are also used in podiatry.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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, *Dentistry — Shanks for rotary and oscillating instruments*

ISO 1942, *Dentistry — Vocabulary*

ISO 2157, *Dentistry — Nominal diameters and designation code numbers for rotary instruments*

ISO 8325, *Dentistry — Test methods for rotary instruments*

ISO 15223-1, *Medical devices — Symbols to be used with medical device labels, labelling and information to be supplied — Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1942 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
laboratory cutter
rotary cutting instrument designed for use with dental materials in the dental laboratory

3.2
dental laboratory
facility where dental technical procedures complementing dental clinical treatment are carried out

[SOURCE: ISO 1942:2009, 2.77]

4 Symbols

d diameter of the working part, head diameter

l length of the working part, head length

α angle of working part

5 Classification

Dental laboratory cutters are classified according to the material used for the working part as

— steel laboratory cutters,

— carbide laboratory cutters, and

— other suitable material specified in ISO 1797.

NOTE Steel laboratory cutters are described in ISO 7787-1. Carbide laboratory cutters are described in this document, ISO 7787-3 and ISO 7787-4.

6 Requirements

6.1 Materials

6.1.1 Working part

The working part of the laboratory cutter shall be made of tungsten carbide. The selection of the type of tungsten carbide and the treatment given to it shall be left to the discretion of the manufacturer.

6.1.2 Shank

The shank of the laboratory cutter shall be made of stainless steel or other suitable material. The selection of the type of material and the treatment given to it shall be left to the discretion of the manufacturer.

6.2 Shapes

The shapes of the working part shall be as specified in Figures 1 to 11.

Variations of the shapes are permitted within the limited dimensions and the descriptions used in the subclause titles.

Testing shall be carried out in accordance with 8.1.

Dimensions in millimetres

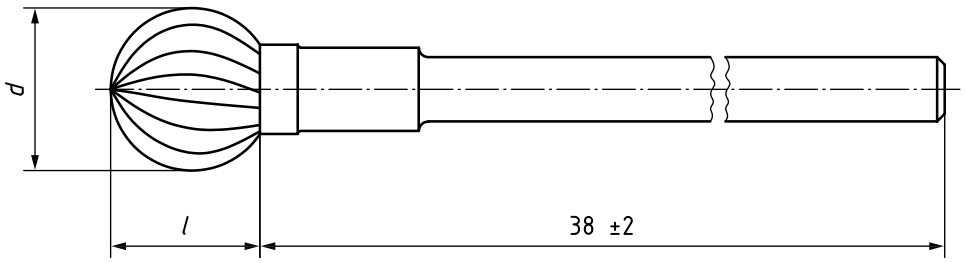

Figure 1 — Ball (spherical; round)

Table 1 — Dimensions for ball (spherical; round)

Nominal size	d ± 0,3 mm	l ± 0,25 mm
040	4,0	3,5
050	5,0	4,5
060	6,0	5,5

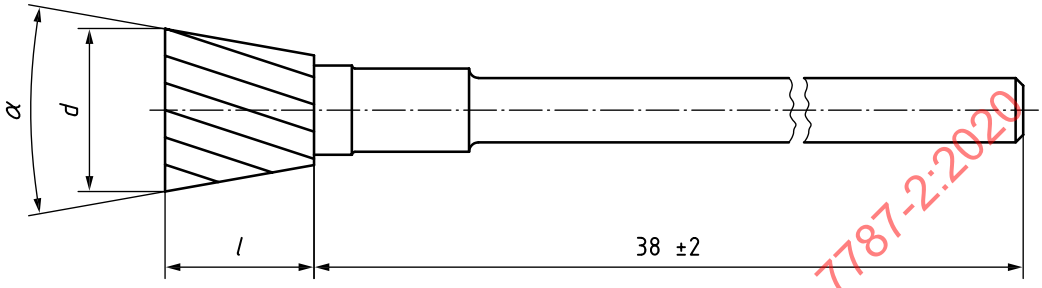

Figure 2 — Inverted truncated conical

Table 2 — Dimensions for inverted truncated conical

Nominal size	d ± 0,3 mm	l ± 0,5 mm	α °
060	6,0	5,5	8 to 12

Dimensions in millimetres

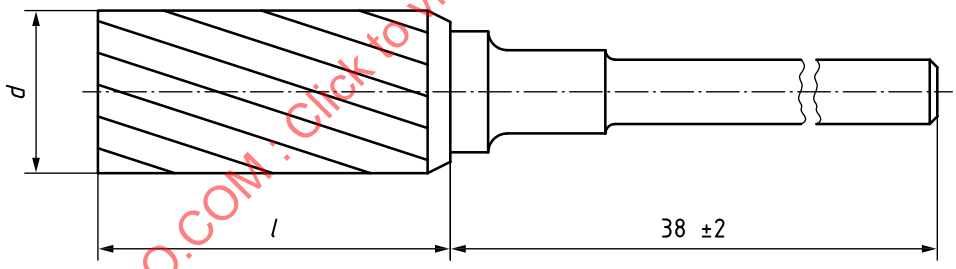

Figure 3 — Cylindrical

Table 3 — Dimensions for cylindrical

Nominal size	d ± 0,3 mm	l ± 0,5 mm
060	6,0	13,0

Dimensions in millimetres

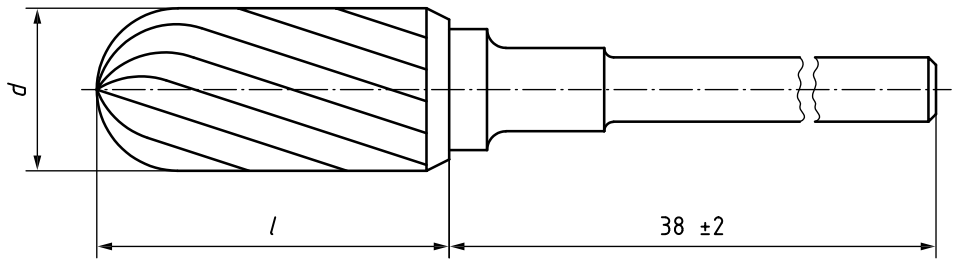

Figure 4 — Cylindrical domed

Table 4 — Dimensions for cylindrical domed

Nominal size	d ± 0,3 mm	l ± 0,5 mm
060	6,0	13,0
070	7,0	13,0

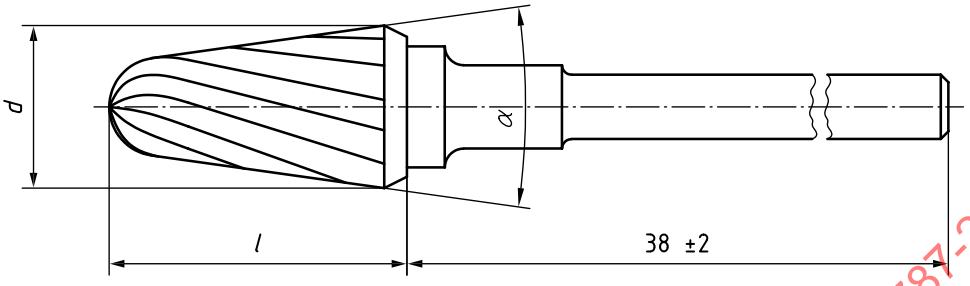

Figure 5 — Truncated conical domed

Table 5 — Dimensions for truncated conical domed

Nominal size	d ± 0,3 mm	l ± 0,5 mm	α °
040	4,0	8,0	14 to 18
050	5,0	10,0	14 to 18
060	6,0	11,0	14 to 18
070	7,0	13,0	14 to 18

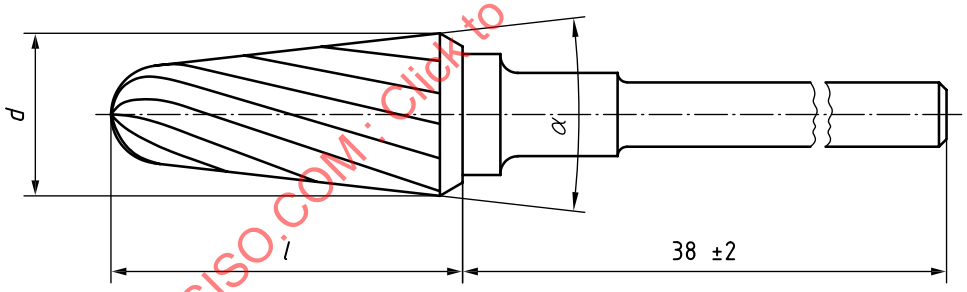

Figure 6 — Rounded cone

Table 6 — Dimensions for rounded cone

Nominal size	d ± 0,3 mm	l ± 0,5 mm	α °
040	4,0	13,0	10 to 14
050	5,0	13,0	10 to 14
060	6,0	13,0	10 to 14
070	7,0	14,0	10 to 14

Dimensions in millimetres

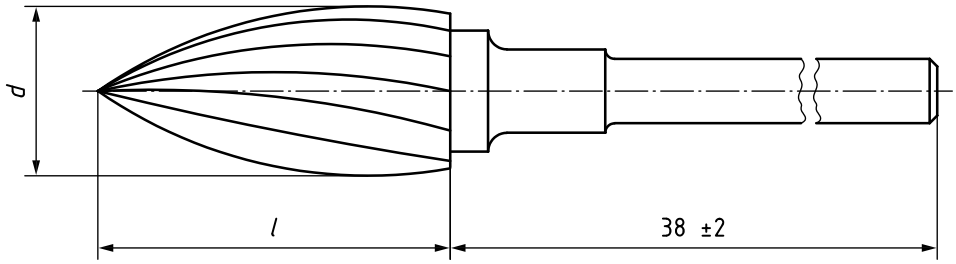

Figure 7 — Bud slender

Table 7 — Dimensions for bud slender

Nominal size	d ± 0,3 mm	l ± 0,5 mm
050	5,0	10,0
060	6,0	12,0

Dimensions in millimetres

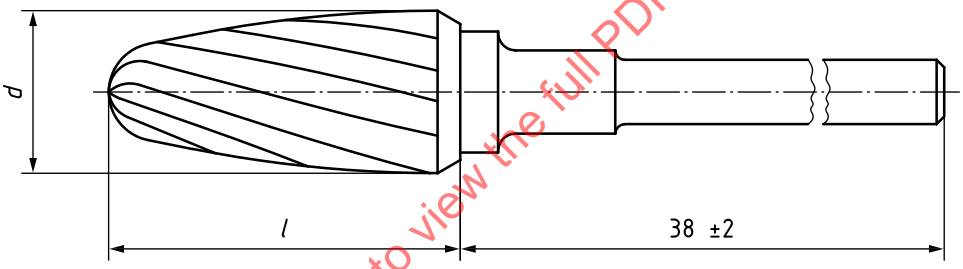

Figure 8 — Paraboloidal

Table 8 — Dimensions for paraboloidal

Nominal size	d ± 0,3 mm	l ± 0,5 mm
060	6,0	14,0
070	7,0	14,0

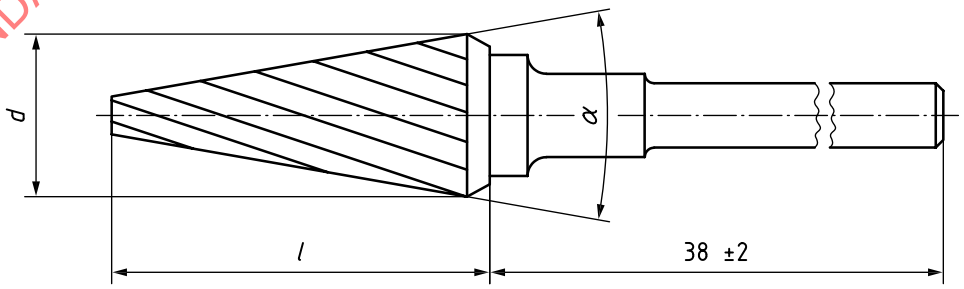

Figure 9 — Cone (truncated conical)

Table 9 — Dimensions for cone (truncated conical)

Nominal size	d ± 0,3 mm	l ± 0,5 mm	α °
060	6,0	14,0	18 to 22

Dimensions in millimetres

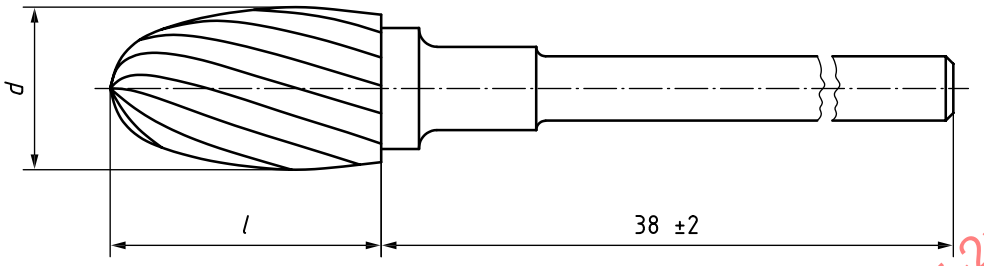

Figure 10 — Egg

Table 10 — Dimensions for egg

Nominal size	d ± 0,3 mm	l ± 0,5 mm
060	6,0	10,0

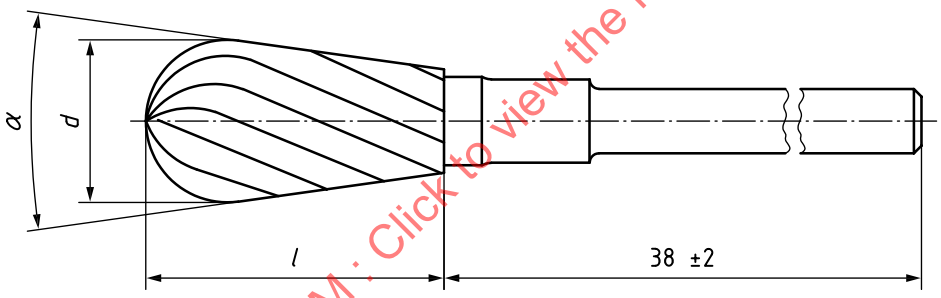

Figure 11 — Pear

Table 11 — Dimensions for pear

Nominal size	d ± 0,3 mm	l ± 0,5 mm	α °
050	5,0	10,0	14 to 28
060	6,0	11,0	14 to 28
070	7,0	12,0	14 to 28

6.3 Dimensions and number of blades

6.3.1 Working part

The dimensions of the working part shall be as specified in Figures 1 to 11, as appropriate, and Tables 1 to 11, as appropriate.

Testing shall be carried out in accordance with 8.2.