INTERNATIONAL STANDARD

ISO 7786

Third edition
2001-04-01

Dental rotary instruments — Laboratory abrasive instruments

Instruments rotatifs dentaires — Instruments abrasifs de laboratoire

Reference number
ISO 7786:2001(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 7786 was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 4, *Dental instruments*.

This third edition cancels and replaces the second edition (ISO 7786:1990), which has been technically revised as follows:

— addition of new shape: Spherical;

— truncated conical: Nominal size 031;

— addition of requirement for manufacturer's instructions;

— addition of requirement for marking;

— addition of requirement for labelling.

Introduction

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

This International Standard contains the specifications for laboratory abrasive instruments. The various dimensional and other requirements specified for laboratory abrasive instruments are those considered important to ensure the interchangeability and safe usage of these grinding instruments in the dental laboratory.

The nominal diameters of the working part listed in Tables 1 to 10 comply with the diameters specified in ISO 2157.

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

Dental rotary instruments — Laboratory abrasive instruments

1 Scope

This International Standard specifies dimensional and other relevant requirements for the six most commonly available shapes of ceramic bonded abrasive instruments used for grinding in the dental laboratory, including a quality control and specifications for labelling of these instruments.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*.

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

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

3 Symbols

For the purposes of this International Standard, the following symbols apply.

d diameter of working part, head diameter;

l_1 length of working part, head length;

l_2 overall length;

α angle of the working part.

4 Requirements

4.1 Materials

4.1.1 Working part

The working part shall be made of abrasive materials. The selection of the type and the treatment of the abrasive material shall be left to the discretion of the manufacturer.

4.1.2 Shank

The material of the shank shall comply with ISO 1797-1.

4.2 Shapes

The shapes of the working part shall be as specified in Figures 1 to 10. Variations of the shapes within the limited dimensions and the descriptions used in the subclause titles are permitted.

Testing shall be carried out in accordance with 5.1.

4.3 Dimensions

Dimensions in tables and figures are given in millimetres and angles are given in degrees.

4.3.1 Working part and overall length

The dimensions of the working part and the overall length shall be as specified in Figures 1 to 10 as appropriate and Tables 1 to 10 as appropriate.

Testing shall be carried out in accordance with 5.2.

4.3.2 Shank

The shank shall be Type 2 in accordance with ISO 1797-1.

4.4 Specifications for dental laboratory abrasive instruments

4.4.1 Spherical (round)

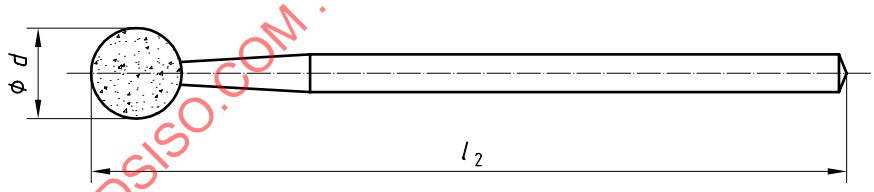

Figure 1 — Spherical (round)

Table 1 — Dimensions — Spherical (round)

Designation of nominal diameter (Nominal size)	d $^{+0,5}_{0}$	l_2 ± 3
031	3,1	45
040	4	46
050	5	47
060	6	48

4.4.2 Inverted truncated, conical

4.4.2.1 Inverted truncated, conical, short, $l_1 < d$

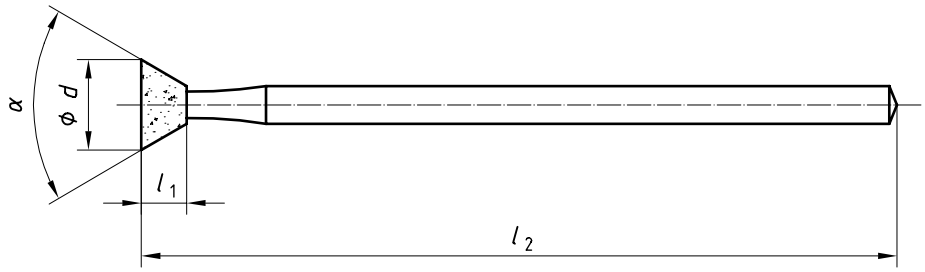

Figure 2 — Inverted truncated, conical, short

Table 2 — Dimensions — Inverted truncated, conical, short

Designation of nominal diameter (Nominal size)	d + 0,5 0	l_1 + 1 – 0,5	l_2 ± 3	α
040	4	2	42	50° to 90°
050	5	2,5	42	
060	6	3	42	
070	7	3,5	42	

4.4.2.2 Inverted truncated, conical, standard, $l_1 = d$

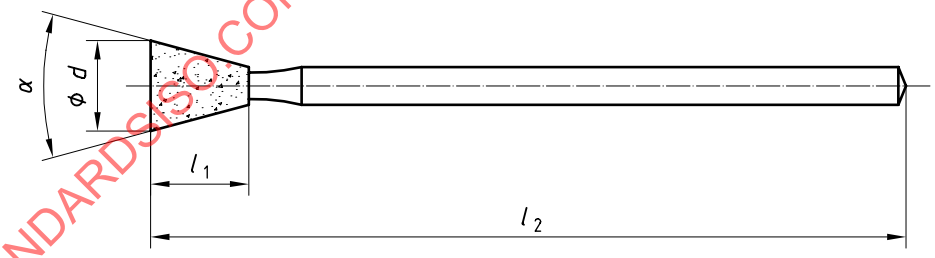

Figure 3 — Inverted truncated, conical, standard

Table 3 — Dimensions — Inverted truncated, conical, standard

Designation of nominal diameter (Nominal size)	d + 0,5 0	l_1 + 0,5 0	l_2 ± 3	α
065	6,5	6,5	48	20° to 30°

4.4.3 Inverted conical (hyperboloidal-inverted)

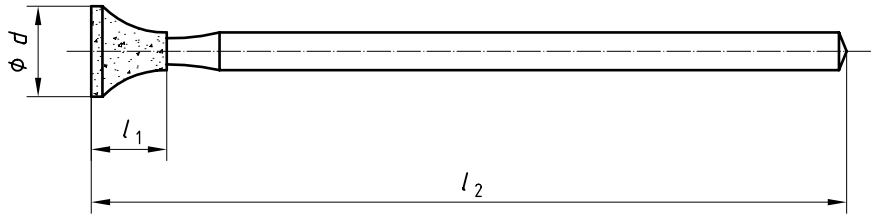

Figure 4 — Inverted conical (hyperboloidal-inverted)

Table 4 — Dimensions — Inverted conical (hyperboloidal-inverted)

Designation of nominal diameter (Nominal size)	d + 0,5 0	l_1 + 0,5 0	l_2 ± 3
070	7	5	46

4.4.4 Cylindrical

4.4.4.1 Cylindrical, short, $l_1 < d$

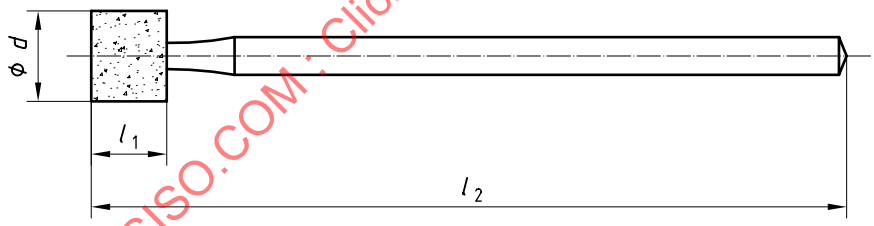

Figure 5 — Cylindrical, short

Table 5 — Dimensions — Cylindrical, short

Designation of nominal diameter (Nominal size)	d + 0,5 0	l_1 + 1 – 0,5	l_2 ± 3
060	6	3	44
060	6	5	44
100	10	2	44
100	10	3	44
100	10	4	44

4.4.4.2 Cylindrical, regular, $l_1 > d$

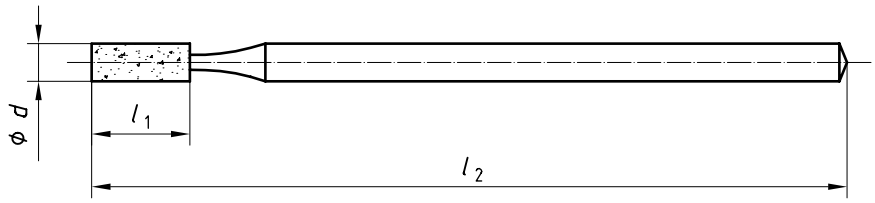

Figure 6 — Cylindrical, regular

Table 6 — Dimensions — Cylindrical, regular

Designation of nominal diameter (Nominal size)	d + 0,5 0	l_1 + 1 − 0,5	l_2 ± 3
021	2,1	6	44
031	3,1	6	44
040	4	6	44
050	5	6	44

4.4.4.3 Cylindrical, long, $l_1 \geqslant 2d$

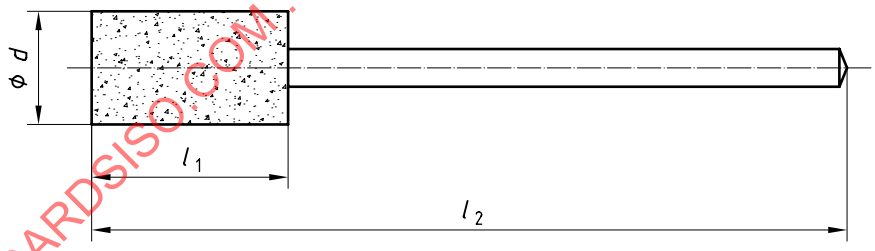

Figure 7 — Cylindrical, long

Table 7 — Dimensions — Cylindrical, long

Designation of nominal diameter (Nominal size)	d + 0,5 0	l_1 + 1 − 0,5	l_2 ± 3
050	5	12	48
065	6,5	13	50

4.4.5 Knife-edge (conico, inverted hyperboloidal)

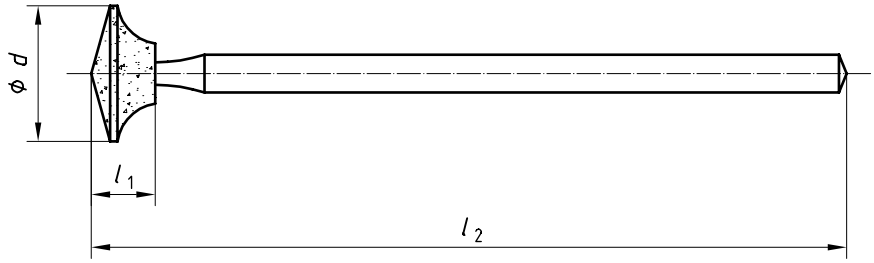

Figure 8 — Knife-edge (conico, inverted hyperboloidal)

Table 8 — Dimensions — Knife-edge (conico, inverted hyperboloidal)

Designation of nominal diameter (Nominal size)	d + 0,5 0	l_1 + 0,5 0	l_2 ± 3
090	9	4	46

4.4.6 Truncated conical

4.4.6.1 Truncated conical, regular, $l_1 > d$

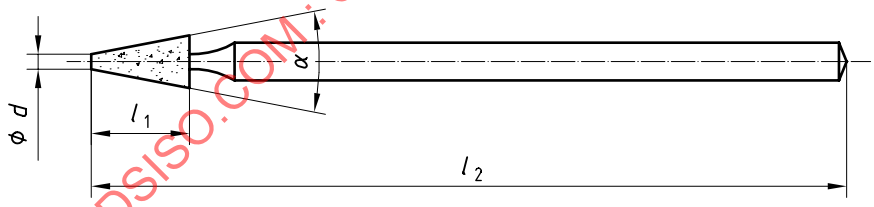

Figure 9 — Truncated conical, regular

Table 9 — Dimensions — Truncated conical, regular

Designation of nominal diameter (Nominal size)	d + 0,5 0	l_1 + 1 – 0,5	l_2 ± 3	α
021	2,1	6	44	8° to 14°
031	3,1	6	44	
040	4	6	44	
050	5	6	44	