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Dentistry — Extraction forceps —

Part 3: Design

Médecine bucco-dentaire -- Daviers —

Partie 3: Design

[Revision of second edition (ISO 9173-1:2006)]

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

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D R A F T

Foreword

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The main task of technical committees is to prepare International Standards. 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.

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ISO 9173-3 was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 4, *Dental instruments*.

ISO 9173 consists of the following parts, under the general title *Dentistry — Extraction forceps*:

- *Part 1: General requirements and test methods*
- *Part 2: Designation*
- *Part 3: Design*
- *Part 4: Dimensions*

Dentistry — Extraction forceps — Part 3: Design

1 Scope

This part of ISO 9173 specifies the design for extraction forceps used in dentistry.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1942, *Dentistry— Vocabulary*

ISO 9173-1, *Dentistry — Extraction forceps — Part 1: General requirements.*

ISO 9173-2, *Dentistry — Extraction forceps — Part 2: Designation*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1942, ISO 9173-1, ISO 9173-2 and the following apply.

3.1.1

beak

<extraction forceps> serrated inner or crown space

3.1.2

joint

<extraction forceps> connection point for first and second handles which are pivotally connected

3.1.3

handle

<extraction forceps> part which is hold in the hand (thumb, fingers)

3.2 Symbols

For the purposes of this document, the following symbols apply.

- b_1 beak thickness;
- b_2 crown space width;
- b_3 beak separation;
- b_6 beak width (combined);
- h_1 beak offset 1;
- h_2 beak offset 2;
- l_1 overall length;

l_2 overall beak length;
 l_3 working length of beak.

The symbols are shown in Figure 1. The indication of measurement points is shown in Table 1.

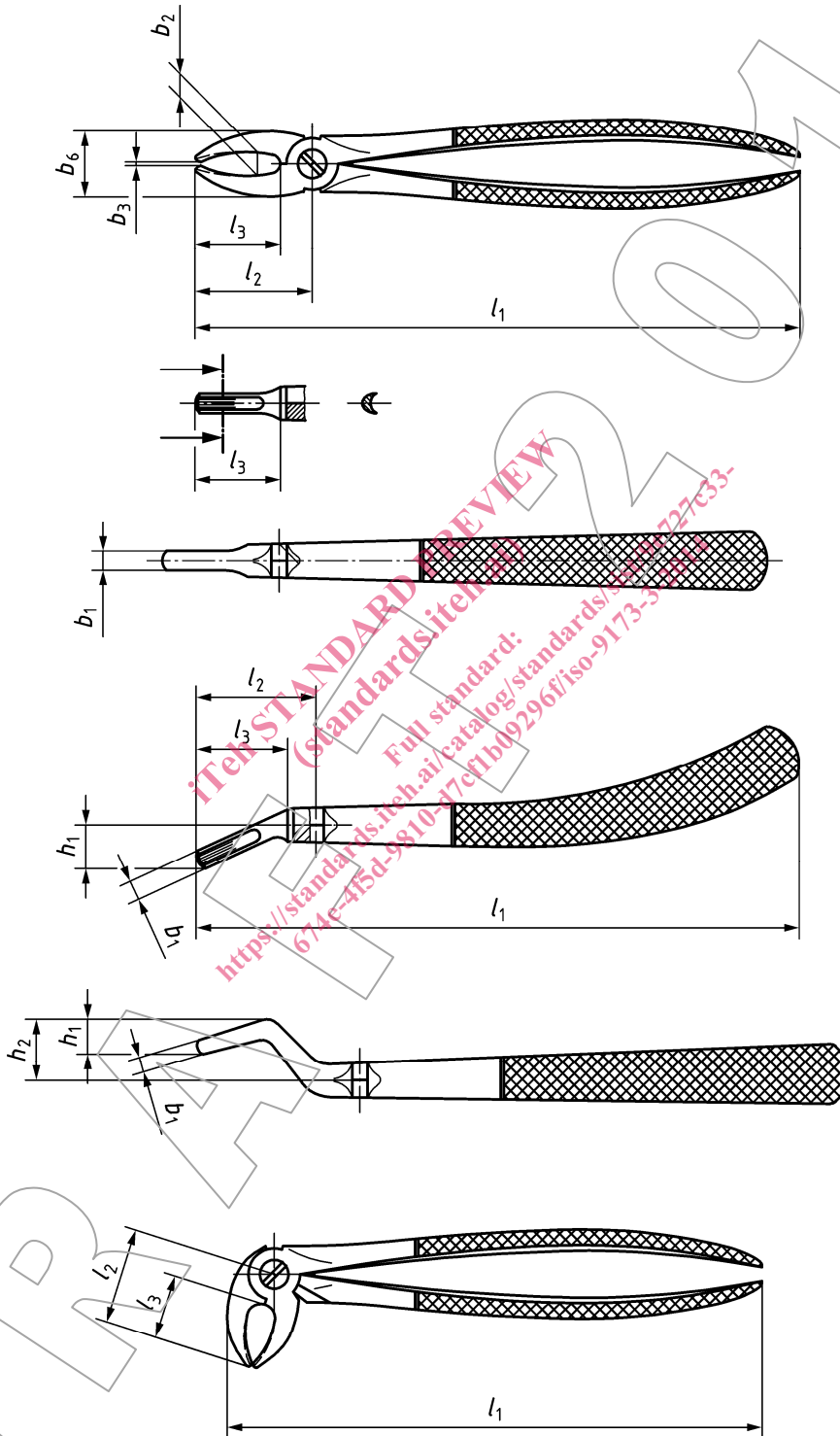


Figure 1 — Symbols for extraction forceps

Table 1 — Indication of measurement points

Dimension		Measurement point
b_1	Beak thickness	At the beak grip
b_2	Crown space width	At maximum width with forceps closed
b_3	Beak separation	At minimum gap with forceps closed
b_6	Beak width (combined)	At maximum distance across both beaks with forceps closed
h_1	Beak offset 1	If $h_2 = 0$, from furthest point of beak tip to forceps centreline If $h_2 \neq 0$, from furthest point of beak tip to measurement point of h_2 (i.e. on first bend in beak)
h_2	Beak offset 2	From furthest point on first bend to centreline of forceps
l_1	Overall length	From beak tip to end of handle
l_2	Overall beak length	From beak tip to pivot centre
l_3	Working length of beak	From beak tip to outside of the joint

4 Classification

4.1 General

Extraction forceps are used together with dental elevators (see ISO 15087 series) to extract teeth. Each extraction forceps is designed for a particular area of the mouth. The beaks are designed to fit around the cervical portion of the tooth. Pointed beaks are designed to grip the furcation area.

4.2 According to the joint

Extraction forceps are classified according to their joint into the following types as shown in Figure 2 to Figure 5:

- Circular joint (see Figure 2);
- Lap joint (see Figure 3);
- Box joint Type 1 (see Figure 4);
- Box joint Type 2 (see Figure 5).

Extraction forceps shall have joints allowing the beak and handle to be opened and grasped.

Care shall be taken with joints to prevent damage during reprocessing, especially sterilization.

For circular joints the usage of a PTFE sheet is recommended.

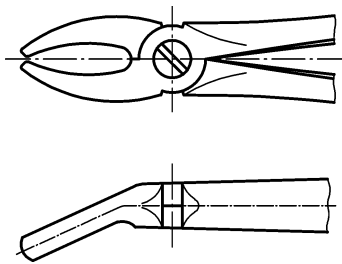


Figure 2 — Circular joint

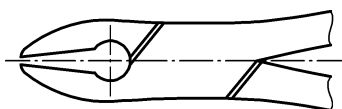


Figure 3 — Lap joint

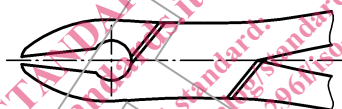


Figure 4 — Box joint Type 1

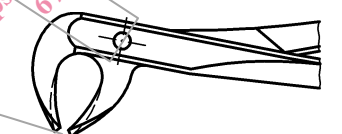


Figure 5 — Box joint Type 2



4.3 According to the handle

Extraction forceps are classified according to the shape of their handle into the following types:

- Straight handle;
- Curved handle.

4.4 According to the beak

Extraction forceps are classified according to their beaks into the following types:

- Coated;
- Non-coated,
- Serrated.

The beaks are designed to fit around the cervical portion of the tooth, i.e. around the curve of the tooth's crown. Pointed beaks are designed to grip the furcation area.

Universal forceps have a beak that can be used in any quadrant of the mouth.

Extraction forceps designed for multi-rooted teeth have beaks with a point that is adapted to grip the tooth furcation.

Extraction forceps designed for single-rooted teeth usually have smooth beaks.

5 Handle types

5.1 General

The shape of the handle is left to the discretion of the manufacturer.

The surface profile of the handle shall be designed according to the choice of the manufacturer. The serrated handles in the Figures are given as examples only. Other handle designs (e.g. with holes, anatomical) are also possible.

The surface of the handle shall be smooth and easy to clean.

The following handle designs are given as example:

- a) a serrated handle allows the operator to have a better grip.
- b) a palm grasp is used with the handle of the extraction forceps.
- c) a curve on the end of the handle can be present for the little finger, to provide more stability and leverage.
- d) maxillary forceps have a handle which is often curved upwards, with the beak in line with the handle.
- e) mandibular forceps have a straight handle with the beak at a 90° angle to the handle.