
International Standard



7492

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

Dental explorers

Sondes exploratrices dentaires

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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 developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

International Standard ISO 7492 was developed by Technical Committee ISO/TC 106, *Dentistry*, and was circulated to the member bodies in April 1982.

It has been approved by the member bodies of the following countries :

Australia	Germany, F. R.	Romania
Belgium	India	South Africa, Rep. of
Canada	Ireland	Sweden
China	Japan	Switzerland
Czechoslovakia	Mexico	United Kingdom
Egypt, Arab Rep. of	New Zealand	USA
France	Norway	USSR

No member body expressed disapproval of the document.

Dental explorers

1 Scope and field of application

This International Standard specifies the dimensions and performance requirements for dental explorers.

2 References

ISO 82, *Steel — Tensile testing.*

ISO 683/13, *Heat-treated steels, alloy steels and free-cutting steels — Part 13 : Wrought stainless steels.*¹⁾

ISO 4957, *Tool steels.*

ISO 6507/2, *Metallic materials — Hardness test — Vickers test — Part 2 : HV 0,2 to less than HV 5.*¹⁾

ISO 7153/1, *Instruments for surgery — Metallic materials — Part 1 : Stainless steel.*¹⁾

3 Definition

explorer; dental probe : A thin, wire-like instrument with a sharp point, designed for detecting dental caries. Its working end is defined as a "tine" which may be inserted into a handle or be an integral part of the handle.

4 Material of the working-end

The material of the working-end should be as shown in table 1, taking into account the intended use of the instrument. Other austenitic or martensitic stainless steels may also be used provided the instruments made therefrom meet the requirements of clause 5.

Table 1 — Material of the working-end

Type of steel	Reference letter according to ISO 7153/1	Reference	
		Reference grade No. according to ISO 4957	Reference grade No. according to ISO 683/13
Austenitic stainless steel	B	27	4
Martensitic stainless steel	C	28	5
	D	—	—

5 Requirements

5.1 Vickers hardness and tensile strength of the working end

The Vickers hardness of the finished instrument shall be within the range given in table 2 when tested in accordance with the method given in ISO 6507/2.

The tensile strength shall be within the range given in table 2 when tested in accordance with the method given in ISO 82.

Table 2 — Vickers hardness and tensile strength of the working-end

Steel grade used for the working-end	Vickers hardness HV 1	Tensile strength N/mm ²
Austenitic stainless steel	not applicable	1 700 min.
Martensitic stainless steel (reference letter according to ISO 7153/1)	B	415 to 465
	C	490 to 560
	D	530 to 610
	others	415 min.
		not applicable

5.2 Union of working-end and handle

The union between the working-end and handle of the instrument, which has previously been subjected to the dry heat test, shall not become loosened under tensile load when tested in accordance with 6.1.1 and under torque when tested in accordance with 6.1.2.

5.3 Resistance to dry heat

The instrument, when tested in accordance with 6.2 shall show no alteration to its physical appearance. The dry heat test should be carried out on the instrument prior to the tests for the union between working end and handle.

1) At present at the stage of draft.

5.4 Resistance to boiling water

5.4.1 Austenitic steel explorers

The instrument, when tested in accordance with 6.3, shall show no visible signs of corrosion. Any blemish not removed by vigorous hand rubbing with a cloth shall be considered as evidence of corrosion.

5.4.2 Martensitic steel explorers

The instrument, when tested in accordance with 6.3, shall show no visible signs of corrosion after vigorous hand rubbing with a cloth. Slight corrosion in the serrations of the handle shall not be cause for rejection.

5.5 Surface finish

5.5.1 All surfaces

All surfaces shall be visibly free from pores, crevices, grinding marks, residual scales, acid, greases, and residual grinding and polishing materials, when inspected using normal corrected vision.

5.5.2 Satin finish

Satin finish shall be uniform and smooth and it shall reduce glare.

5.5.3 Mirror finish

Mirror finish shall be ground to remove all surface imperfections and polished to remove grind marks, resulting in a mirror finish.

5.6 Dimensions

5.6.1 Overall length

The maximum overall length, irrespective of the design of the instrument, shall be 175 mm.

5.6.2 Working-end

The design and dimensions of the working-end of the instrument shall be as shown in the figure.

6 Test methods

6.1 Test for union of working-end and handle

6.1.1 Under tensile load

Subject the union between the working-end and handle to a tensile force of 600 N, applied in the direction of the axis of the handle, for a duration of 5 s.

6.1.2 Under torque

Subject the union between the working-end and handle to a torque of 45 N-cm for a duration of 5 s.

6.2 Dry heat test

Subject the instrument to a dry heat at a temperature of 180 °C for 60 min. If the instrument has a plastic handle, carry out the test three times on the one instrument.

6.3 Boiling water test

6.3.1 Reagent

Distilled water.

6.3.2 Apparatus

Glass or ceramic beaker or suitable corrosion resisting stainless steel vessel.

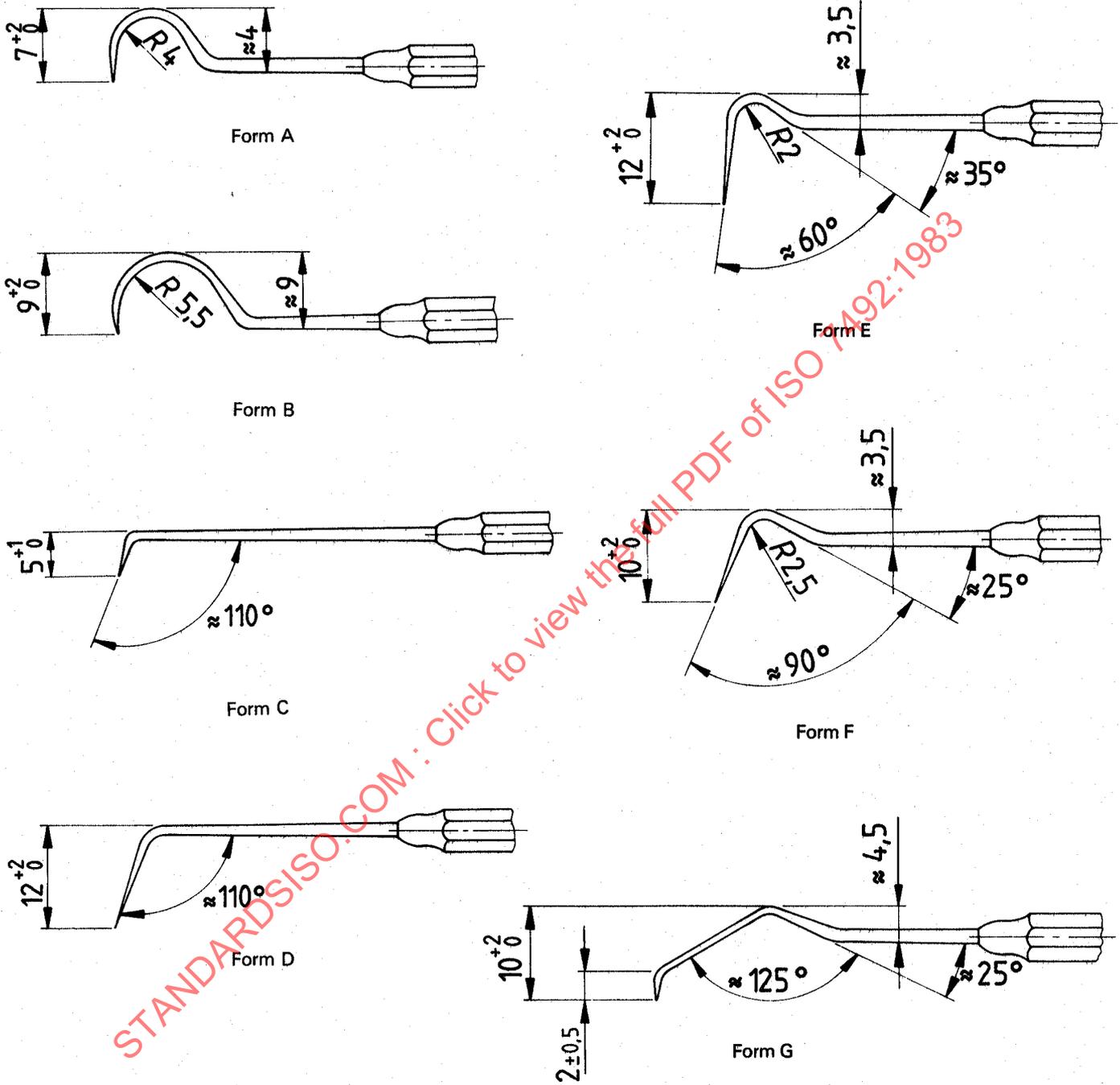
6.3.3 Preparation

Scrub the instrument using soap and warm water, rinse thoroughly in distilled water and dry.

6.3.4 Procedure

Immerse the instrument in boiling distilled water for at least 30 min. Leave the instrument in the water for at least 1 h while allowing it to cool. Remove the instrument and leave in air for 2 h.

Dimensions in millimetres



NOTE — The letters A to G are for identification only, but do not otherwise form part of this International Standard. They will be substituted by an overall ISO numbering system for dental instruments at the earliest opportunity.

Figure — Design and dimensions of working-ends of explorers
(design of handle not specified)

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