INTERNATIONAL STANDARD

**ISO 7551**

First edition
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# Dental absorbent points

*Cônes absorbants à usage dentaire*



Reference number
ISO 7551:1996(E)

## 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.

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.



International Standard ISO 7551 was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 1, *Filling and restorative materials*.



Annex A of this International Standard is for information only.



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## Introduction

The sizes of the absorbent points specified in this International Standard have been aligned with the corresponding sizes for obturating points specified in ISO 6877.

Specific qualitative and quantitative requirements for freedom from biological hazard are not included in this International Standard, but it is recommended that in assessing possible or toxicological hazards, reference should be made to ISO 7405.

Dental absorbent points are used in root-canal therapy to dry root canals or to carry medicaments into the root canal. They are therefore made of fine-grade absorbent material with a close texture to give an essentially smooth lint-free surface. To enable insertion into a prepared root canal, the absorbent point must have some rigidity, be essentially straight and circular in cross-section.

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# Dental absorbent points

## 1 Scope

This International Standard specifies requirements and test methods for nonmedicated absorbent points used in endodontic procedures.

The requirements apply to absorbent points which have been sterilized once in a manner approved by the manufacturer. Dental absorbent points include standard points and taper size points.

This International Standard does not specify requirements or test methods for sterility and/or freedom from biological hazard of dental absorbent points.



## 2 Normative references



The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3630-1:1992, *Dental root-canal instruments — Part 1: Files, reamers, barbed broaches, rasps, paste carriers, explorers and cotton broaches.*

ISO 6360-1:1985, *Dental rotary instruments — Number coding system — Part 1: General characteristics.*

## 3 Definitions

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

**3.1 point:** Entire dental absorbent point.

**3.2 tip:** Narrow end of a dental absorbent point.

**3.3 unit pack:** Smallest pack distributed which contains one or more dental absorbent points of one or more sizes.

**3.4 standard absorbent point:** Absorbent point with standardized dimensions and a standardized taper of 0,02 mm per millimetre of length.

**3.5 taper size absorbent point:** Absorbent point with dimensions and taper at the discretion of the manufacturer.

## 4 Requirements

### 4.1 Dimensional requirements for standard absorbent points

The dimensions of standard absorbent points shall comply with table 1 and figure 1. Within the dimensions specified, variations in shape and design are permitted.

Testing for compliance shall be carried out in accordance with ISO 3630-1:1992, subclause 6.2, and in accordance with 6.2 and 6.3 of this International Standard.

The tip shall be rounded, conical or blunt. The neck may be continuously tapered or cylindrical, or a combination of both. The dimensions shall be as shown in table 1.

### 4.2 Dimensional requirements for taper size points

#### 4.2.1 General

The dimensions of taper size points shall comply with figures 1 and 2. Within the dimensional requirements, variations in shape and design are permitted.

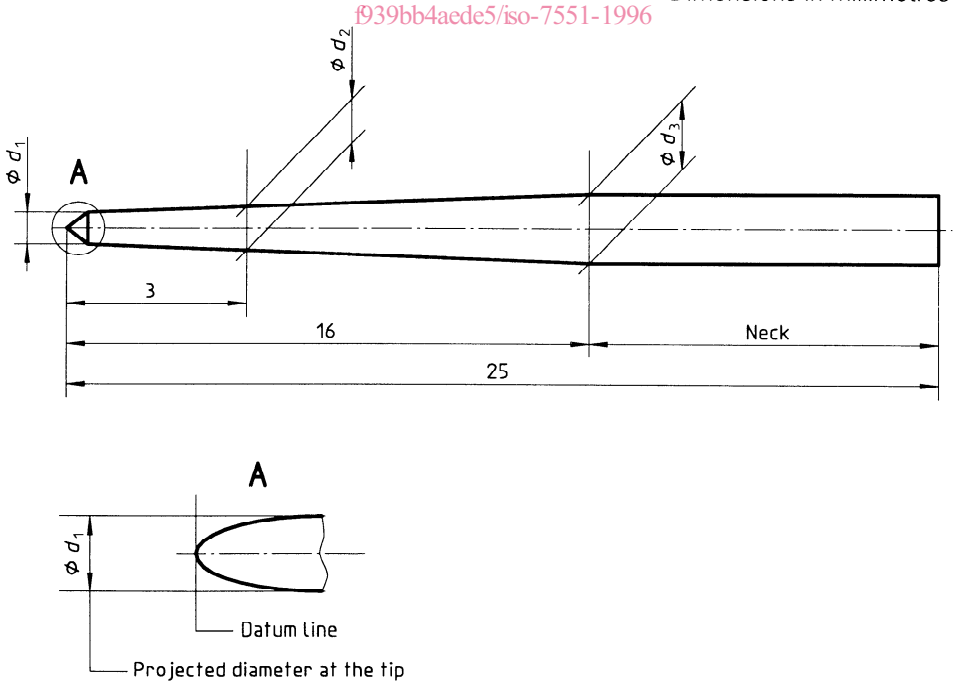
Taper size absorbent points may have diameters different from those in table 1. The taper shall be uniform for the first 16 mm of length from the tip.



Measurements shall be carried out in accordance with 6.3.



Dimensions in millimetres




$d_1$ diameter of the projection of the taper at the tip end

$d_2$ diameter at 3 mm from the tip

$d_3$ diameter at 16 mm from the tip

**Figure 1 — Diagrammatic representation of absorbent points**

**Table 1 — Diameters, size designation and colour designation for standard sizes**

Dimensions in millimetres

| Nominal size designation | $d_1$* | $d_2$ | | $d_3$ | | Colour | |
|---|---|---|---|---|---|---|---|
| | | nom. | tol. | nom. | tol. | Designation | Abbreviation |
| 015 | 0,15 | 0,21 | | 0,47 | | white | wh |
| 020 | 0,20 | 0,26 | ± 0,05 | 0,52 | ± 0,05 | yellow | yel |
| 025 | 0,25 | 0,31 | | 0,57 | | red | red |
| 030 | 0,30 | 0,36 | | 0,62 | | blue | blu |
| 035 | 0,35 | 0,41 | | 0,67 | | green | grn |
| 040 | 0,40 | 0,46 | | 0,72 | | black | blk |
| 045 | 0,45 | 0,51 | | 0,77 | | white | wh |
| 050 | 0,50 | 0,56 | | 0,82 | | yellow | yel |
| 055 | 0,55 | 0,61 | | 0,87 | | red | red |
| 060 | 0,60 | 0,66 | | 0,92 | | blue | blu |
| 070 | 0,70 | 0,76 | ± 0,07 | 1,02 | ± 0,07 | green | grn |
| 080 | 0,80 | 0,86 | | 1,12 | | black | blk |
| 090 | 0,90 | 0,96 | | 1,22 | | white | wh |
| 100 | 1,00 | 1,06 | | 1,32 | | yellow | yel |
| 110 | 1,10 | 1,16 | | 1,42 | | red | red |
| 120 | 1,20 | 1,26 | | 1,52 | | blue | blu |
| 130 | 1,30 | 1,36 | | 1,62 | | green | grn |
| 140 | 1,40 | 1,46 | | 1,72 | | black | blk |

NOTE — The taper of 0,02 mm per millimetre of length shall be uniform throughout the range of sizes available.

* The tolerance for $d_1$ is not specified, $d_1$ is intended as a referenced dimension only.



For a taper size absorbent point, $d_1$ is the projected diameter at the tip, expressed in hundredths of millimetres, and its designation is a three-digit number. Taper is determined by the manufacturer, expressed in thousandths of millimetres, and its designation is a two-digit number. See also 7.2.

To determine diameters (see figure 1) or to test taper, follow these procedures.

a) Find diameter $d_1$ from figure 2 based on size designation.

b) Find taper ratio from figure 2 based on taper designation as given by the manufacturer.

c) Determine diameter $d_2$ at 3 mm: $d_1$ + 3 times taper ratio.

d) Determine diameter $d_3$ at 16 mm: $d_1$ + 16 times taper ratio.

e) Taper $= \dfrac{d_3 - d_2}{13}$

For taper size absorbent points where $d_1 < 0{,}30$ mm, diameter tolerances are ± 0,05 mm; where $d_1 \geqslant 0{,}30$ mm, diameter tolerances are ± 0,07 mm.

## 4.3 Absorption

Absorbent points shall absorb liquid to a height of not less than 10 mm above the liquid level when tested in accordance with 6.4.

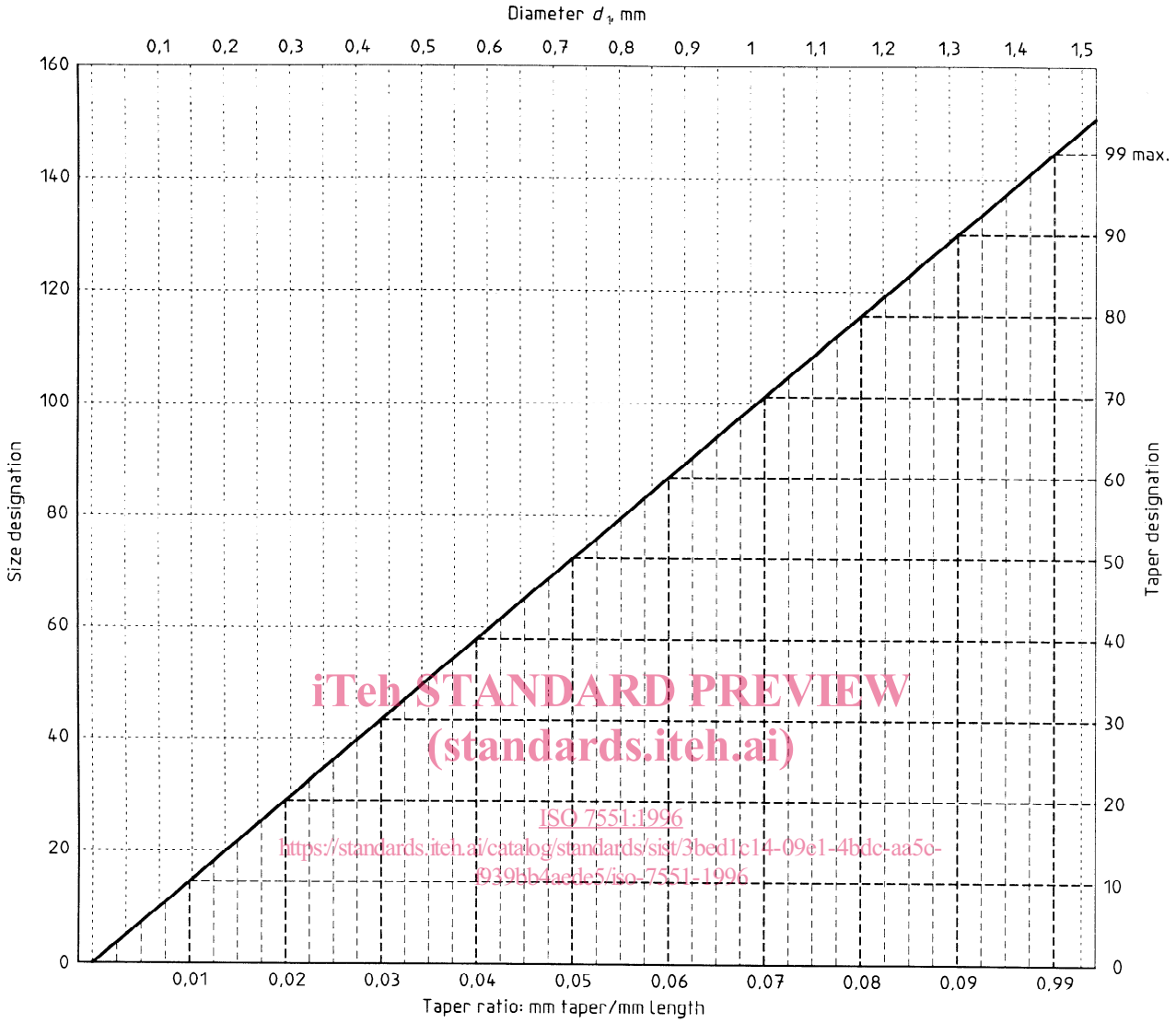





**Figure 2 — Identification and dimensions of taper size absorbent points**

## 4.4 Disintegration

Absorbent points shall not disintegrate while being immersed in water at (40 ± 1) °C for 10 min or during removal from the water with forceps.

Evaluation shall be carried out in accordance with 6.2.

## 4.5 Sterility

Where sterility of the unopened pack is claimed, the test used by the manufacturer to substantiate this claim shall conform to the local national standard. If no local requirements exist, then testing shall conform to the United States or European Pharmacopoeia.

NOTE — A claim by the manufacturer that the contents of the unopened pack are sterile is the responsibility of the manufacturer. This International Standard does not specify requirements or test methods for sterility.

### 4.6 Toxicity

Biological hazard is discussed in the Introduction. See also clause 1.

## 5 Sampling

Take 10 individual absorbent points from retail packs at random. If all 10 samples pass the test, the product passes. If eight or fewer samples pass, the product fails. If nine samples pass, test five additional samples. When five additional samples must be tested, all five must pass to accept the product.

## 6 Testing

### 6.1 Test conditions

Carry out all tests at (23 ± 2) °C and (50 ± 5) % relative humidity.

Sterilize the absorbent points once, as recommended by the manufacturer, then precondition for at least 24 h in the test atmosphere.

### 6.2 Visual inspection

Visually inspect at normal visual acuity.



### 6.3 Dimensions



Measure the dimensions with a calibrated shadowgraph or other equipment capable of measuring to an accuracy of 0,002 mm.

### 6.4 Absorption

Suspend the test pieces vertically in a solution of C.I. Acid Yellow 23 (C.I.19140) (0,4 % concentration) such that the tip is immersed to a depth of 5 mm while isolated from the container sides and other test pieces. Record the height to which the stain marking rises above the liquid level after 60 s. The reported value shall be the average result of 10 test pieces, rounded to the nearest 0,5 mm.

## 7 Designation

### 7.1 Standard absorbent points

The designation of the size of a standard absorbent point is comprised of the nominal size designation expressed as a three-digit number in accordance with table 1 and the specified colour or its abbreviation.

EXAMPLE: