International Standard

ISO 20127

Dentistry — Physical properties of powered toothbrushes

Médecine bucco-dentaire — Caractéristiques physiques des brosses à dents électriques

Third edition
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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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This document was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 7, *Oral care products*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 55, *Dentistry*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 20127:2020), which has been technically revised.

The main changes are as follows:

— requirements and procedure for determining filament end-rounding were added.

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.

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Introduction

Powered toothbrushes are used for the removal of dental plaque and oral debris in order to facilitate oral hygiene.

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Dentistry — Physical properties of powered toothbrushes

1 Scope

This document specifies requirements and test methods for the physical properties of powered toothbrushes in order to promote the safety of these products for their intended use.

There are different technologies of powered toothbrushes. Common features of those powered toothbrushes to which this document applies are:

— a battery;

— a motor;

— a mechanical or magnetic drive system;

— a moving brush head with tufted filaments.

Powered toothbrushes can have a moving brush head with different motions (e.g. oscillating-rotating, side-by-side), frequencies and velocities.

These types of electric toothbrushes are tested for safety in use by means of appropriate test procedures or clinical studies

The requirements listed in this document apply to all types of powered toothbrushes. However, there is a possibility that some requirements are not applicable for all types. For example, brush head plate retention can only be applied if the brush has a head portion that can detach from the brush shaft. In addition, for the filaments end-rounding requirements, this document does not apply to filament types that are very thin (less than 0,1 mm outside diameter) or have no sharp edges (e.g. tapered, feathered, with split tips or spherical cap) or non-synthetic filaments, where applying the end-rounding process is inappropriate or impossible.

This document is not applicable to other types of powered oral hygiene devices (such as powered interdental brushes) or manual toothbrushes.

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 1942, *Dentistry — Vocabulary*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*

IEC 60068-2-75, *Environmental testing — Part 2-75: Tests — Test Eh: Hammer tests*

IEC 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements*

IEC 60335-2-52, *Household and similar electrical appliances — Safety — Part 2-52: Particular requirements for oral hygiene appliances*

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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 terminology databases for use in standardization at the following addresses:

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

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

3.1
brush head
working end of an electrically powered toothbrush to which the filaments are attached

[SOURCE: ISO 22254:2005, 3.2, modified — Term "a toothbrush" changed to "an electrically powered toothbrush".]

3.2
filament
single strand within the brush head

[SOURCE: ISO 22254:2005, 3.3]

3.3
powered toothbrush
hand-held electrically powered appliance, the brush head of which carries filaments, used primarily for cleaning surfaces within the oral cavity

3.4
brush head removal force
force required to remove the toothbrush tuft plate from the toothbrush shaft

3.5
tuft
group of filaments gathered together and attached to the brush head

[SOURCE: ISO 22254:2005, 3.4]

3.6
tuft removal force
force required to remove one tuft from the brush head

[SOURCE: ISO 20126:2022, 3.5]

3.7
end-rounding
procedure of manufacturing toothbrushes to eliminate the sharp edge of the free end of filaments

[SOURCE: ISO 20126:2022, 3.11]

4 Requirements

4.1 Physical inspection

The powered toothbrush, its components and all accessories shall be intact and free of visible contamination and sharp or rough surfaces when examined according to 6.2 and 6.3.

4.2 Electrical safety

The powered toothbrush and related accessories shall meet the requirements described in IEC 60335-1 and IEC 60335-2-52.

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