Dentistry - Test methods for machining accuracy of computer-aided milling machines (ISO 23298:2023)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 23298:2023 sisaldab Euroopa standardi EN ISO 23298:2023 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 23298:2023 consists of the English text of the European standard EN ISO 23298:2023.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 07.06.2023.	Date of Availability of the European standard is 07.06.2023.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 23298

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English Version

Dentistry - Test methods for machining accuracy of computer-aided milling machines (ISO 23298:2023)

Médecine bucco-dentaire - Méthodes d'essai pour l'exactitude d'usinage des fraiseuses à commande numérique (ISO 23298:2023)

Zahnheilkunde - Prüfverfahren zur Bewertung der Genauigkeit von computergesteuerten Fräsmaschinen (ISO 23298:2023)

This European Standard was approved by CEN on 30 April 2023.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 23298:2023) has been prepared by Technical Committee ISO/TC 106 "Dentistry" in collaboration with Technical Committee CEN/TC 55 “Dentistry” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2023, and conflicting national standards shall be withdrawn at the latest by December 2023.

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

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 23298:2023 has been approved by CEN as EN ISO 23298:2023 without any modification.

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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.

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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 9, *Dental CAD/CAM systems,* 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 first edition of ISO 23298 cancels and replaces ISO/TR 18845:2017, which has been technically revised.

The main changes are as follows:

— the type of document has been changed from Technical Report to International Standard;

— two test methods have been specified using metal dies and software as the normative test methods;

— the selection guidance of test methods has been clarified;

— the details of the procedures of both test methods based on the inter-laboratory test have been revised.

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.

Introduction

Dental CAD/CAM systems have been successfully used for the fabrication of indirect dental restorations such as inlays, crowns and bridges. The accuracy of these restorations is one of the most important factors for their clinical success. This document provides standardized test methods to evaluate the machining accuracy of computer-aided milling machines which are used as a part of dental CAD/CAM systems and the information to be provided by the manufacturer. Flow charts of the test methods are given in Figures A.1 and A.2.

There are two methods using metal dies or software to evaluate machining accuracy of the target restoration(s). Either or both test methods should be selected to evaluate the machining accuracy.

Dentistry — Test methods for machining accuracy of computer-aided milling machines

1 Scope

This document specifies the test methods to evaluate the machining accuracy of computer-aided milling machines as a part of dental CAD/CAM systems, which fabricate dental restorations, such as inlays, crowns and bridges.

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 18739, *Dentistry — Vocabulary of process chain for CAD/CAM systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1942, ISO 18739 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
computer-aided milling machine
computer-aided machining device designed for subtractive manufacturing of dental prostheses using rotary instruments for cutting and grinding

3.2
blank
material to be machined by a *computer-aided milling machine* (3.1)

Note 1 to entry: A blank can be a *block* (3.3) or a *disc* (3.4).

3.3
block
cuboidal material with holding device to be machined by a *computer-aided milling machine* (3.1)

3.4
disc
flat circular-shaped material to be machined by a *computer-aided milling machine* (3.1)

3.5
stock material
material *blanks* (3.2) that are in stock to be machined by a *computer-aided milling machine* (3.1)