INTERNATIONAL STANDARD

ISO 14879-1

Second edition
2020-07

Implants for surgery — Total knee-joint prostheses —

Part 1: Determination of endurance properties of knee tibial trays

Implants chirurgicaux — Prothèses totales de l'articulation du genou —

Partie 1: Détermination des propriétés d'endurance des embases tibiales

Reference number
ISO 14879-1:2020(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 150, *Implants for surgery, S*ubcommittee SC 4, *Bone and joint replacement.*

This second edition cancels and replaces the first edition (ISO 14879-1:2000), which has been technically revised. The main changes compared to the previous edition are as follows:

— in Clause 2, dynamic force calibration according to ISO 4965-1 was excluded and ISO 7500-1 was included;

— in 3.1 and 3.2, the centreline was defined considering stem as a reference;

— in 5.3, was included the possibility to glue the spacer;

— in 7.7, the test frequency was limited up to 10 Hz but higher test frequencies may be used if evidence (dynamic calibration) is provided.

A list of all parts in the ISO 14879 series can be found on the ISO website.

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.

Implants for surgery — Total knee-joint prostheses —

Part 1:
Determination of endurance properties of knee tibial trays

1 Scope

This document specifies a test method for determining the endurance properties, under specified laboratory conditions, of tibial trays used in knee-joint prostheses to support and secure the plastic articulating surface. It applies to tibial trays which cover both the medial and lateral plateaux of the tibia.

The test method does not apply to tibial components manufactured solely from plastic materials.

This document does not cover methods of examining and reporting the final condition of the test specimen; these can be the subject of agreement between the test laboratory and the parties submitting the specimen for test.

NOTE Correlation of test results with in vivo performance has not been established.

2 Normative references

The following referenced documents are indispensable for the application 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 7207-1:2007, *Implants for surgery — Components for partial and total knee joint prostheses — Part 1: Classification, definitions and designation of dimensions*

ISO 7500-1:2018, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 7207-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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

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

3.1
anteroposterior centreline
line which passes through the centre of the tibial tray stem, parallel to the sagittal plane and perpendicular to the line of force application

Note 1 to entry: The central stem or other prominence on the inferior surface of the tibial tray may also be named as keel.