



**BSI Standards Publication**

## **Implants for surgery — Partial and total hip-joint prostheses**

---

Part 10: Determination of resistance to static load of modular femoral heads

This is a preview of "BS ISO 7206-10:2018+...". [Click here to purchase the full version from the ANSI store.](#)

## National foreword

This British Standard is the UK implementation of ISO 7206-10:2018+A1:2021. It supersedes BS ISO 7206-10:2018, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CH/150/4, Surgical Implants - Bone and Joint Replacements.

A list of organizations represented on this committee can be obtained on request to its committee manager.

### Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2021  
Published by BSI Standards Limited 2021

ISBN 978 0 539 11976 3

ICS 11.040.40

### Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2018.

### Amendments/corrigenda issued since publication

Date	Text affected
31 May 2021	Implementation of ISO amendment 1:2021: Scope amended.

This is a preview of "BS ISO 7206-10:2018+...". [Click here to purchase the full version from the ANSI store.](#)

Second edition  
2018-08-10

---

---

# Implants for surgery — Partial and total hip-joint prostheses —

Part 10:

## Determination of resistance to static load of modular femoral heads

*Implants chirurgicaux — Prothèses partielles et totales de l'articulation de la hanche —*

*Partie 10: Détermination de la résistance à la charge statique de têtes fémorales modulaires*



Reference number  
ISO 7206-10:2018(E)

© ISO 2018

This is a preview of "BS ISO 7206-10:2018+...". Click here to purchase the full version from the ANSI store.



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2018, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

This is a preview of "BS ISO 7206-10:2018+...". Click here to purchase the full version from the ANSI store.

## Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Principle of the test method</b> .....	<b>3</b>
<b>5 Apparatus</b> .....	<b>3</b>
5.1 Static compression test.....	3
5.2 Static tension test.....	3
<b>6 Test Specimens</b> .....	<b>4</b>
<b>7 Procedure</b> .....	<b>4</b>
7.1 Sampling.....	4
7.2 Assembly of test specimens.....	4
7.3 Static compression test.....	5
7.4 Static tension test.....	6
<b>8 Test report</b> .....	<b>6</b>
<b>9 Disposal of test specimens</b> .....	<b>6</b>

This is a preview of "BS ISO 7206-10:2018+...". Click here to purchase the full version from the ANSI store.

## 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](http://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](http://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 on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 150, *Implants for surgery*, Subcommittee SC 4, *Bone and joint replacements*.

This second edition cancels and replaces the first edition (ISO 7206-10:2003), which has been technically revised.

This is a preview of "BS ISO 7206-10:2018+...". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

Some designs of stemmed femoral components of total hip-joint prostheses comprise a stem/neck component and a component that forms the articulating surface, which is commonly in the form of a partial sphere incorporating a female conical taper connection for attachment to the neck of the stem. It is important, therefore, that the head and neck are of sufficient strength to withstand the static axial forces likely to be exerted on the prosthesis during use. This method addresses the static strength and attachment of the head. It should be noted that the test conditions described in this document do not exactly reproduce all the factors in the clinical situation.

This is a preview of "BS ISO 7206-10:2018+...". [Click here to purchase the full version from the ANSI store.](#)

This is a preview of "BS ISO 7206-10:2018+...". Click here to purchase the full version from the ANSI store.

# Implants for surgery — Partial and total hip-joint prostheses —

## Part 10: Determination of resistance to static load of modular femoral heads

### 1 Scope

This document specifies methods of determining the compressive (fracture) or the tension (disassembly) loads required, under specific laboratory conditions, to cause failure of a modular head system.

This document applies to components made of metallic and non-metallic materials, such as femoral heads of partial or total hip-joint replacements of modular construction (i.e. a head/neck conical taper connection).

This document excludes methods of examining and reporting the test specimens.

**NOTE** The method for determining the compressive (fracture) load to failure utilizes quasi-static loading of the modular femoral heads. ASTM F2345 can be used for dynamic compressive loading of ceramic modular femoral heads and utilizes the same test set-up, assembly and loading procedure described in this method.

### 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 4288, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 7206-1, *Implants for surgery — Partial and total hip joint prostheses — Part 1: Classification and designation of dimensions*

ISO 7500-1, *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 given in ISO 7206-1 and the following apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 3.1

##### **bore**

conical blind hole in the surface of the modular femoral head