

INTERNATIONAL STANDARD

ISO
7206-1

Second edition
1995-09-01

Implants for surgery — Partial and total hip joint prostheses —

Part 1:

Classification and designation of dimensions

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

Partie 1: Classification et désignation des dimensions



Reference number
ISO 7206-1:1995(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 7206-1 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 7206-1:1985), of which it constitutes a technical revision.

ISO 7206 consists of the following parts, under the general title *Implants for surgery — Partial and total hip joint prostheses*:

- Part 1: *Classification and designation of dimensions*
- Part 2: *Articulating surfaces made of metallic, ceramic and plastics materials*
- Part 3: *Determination of endurance properties of stemmed femoral components without application of torsion*
- Part 4: *Determination of endurance properties of stemmed femoral components with application of torsion*
- Part 5: *Determination of resistance to static load of head and neck region of stemmed femoral components*
- Part 6: *Determination of endurance properties of head and neck region of stemmed femoral components*

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- *Part 7: Endurance performance of stemmed femoral components without application of torsion*
- *Part 8: Endurance performance of stemmed femoral components with application of torsion*
- *Part 9: Determination of resistance to torque of head fixation of stemmed femoral components*

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Introduction

Partial and total hip joint prostheses are designed to transmit load and allow movement under high stress conditions. The task of preparing International Standards to cover all eventualities is complicated by the limited range of biologically suitable materials.

The purpose of this part of ISO 7206 and of other International Standards relating to joint prostheses is to provide direction in the control of manufacture and standard specifications for the different components of prostheses.

Attention is drawn to ISO 5839:1985, *Implants for surgery — Orthopaedic joint prostheses — Basic requirements*.

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Implants for surgery — Partial and total hip joint prostheses —

Part 1:

Classification and designation of dimensions

1 Scope

This part of ISO 7206 specifies the means of classification and standardizes the designation of dimensions for partial and total hip joint prostheses.

It does not give a comprehensive description of modular and anatomic prostheses but can be used for the description of specific features of such prostheses.

2 Classification

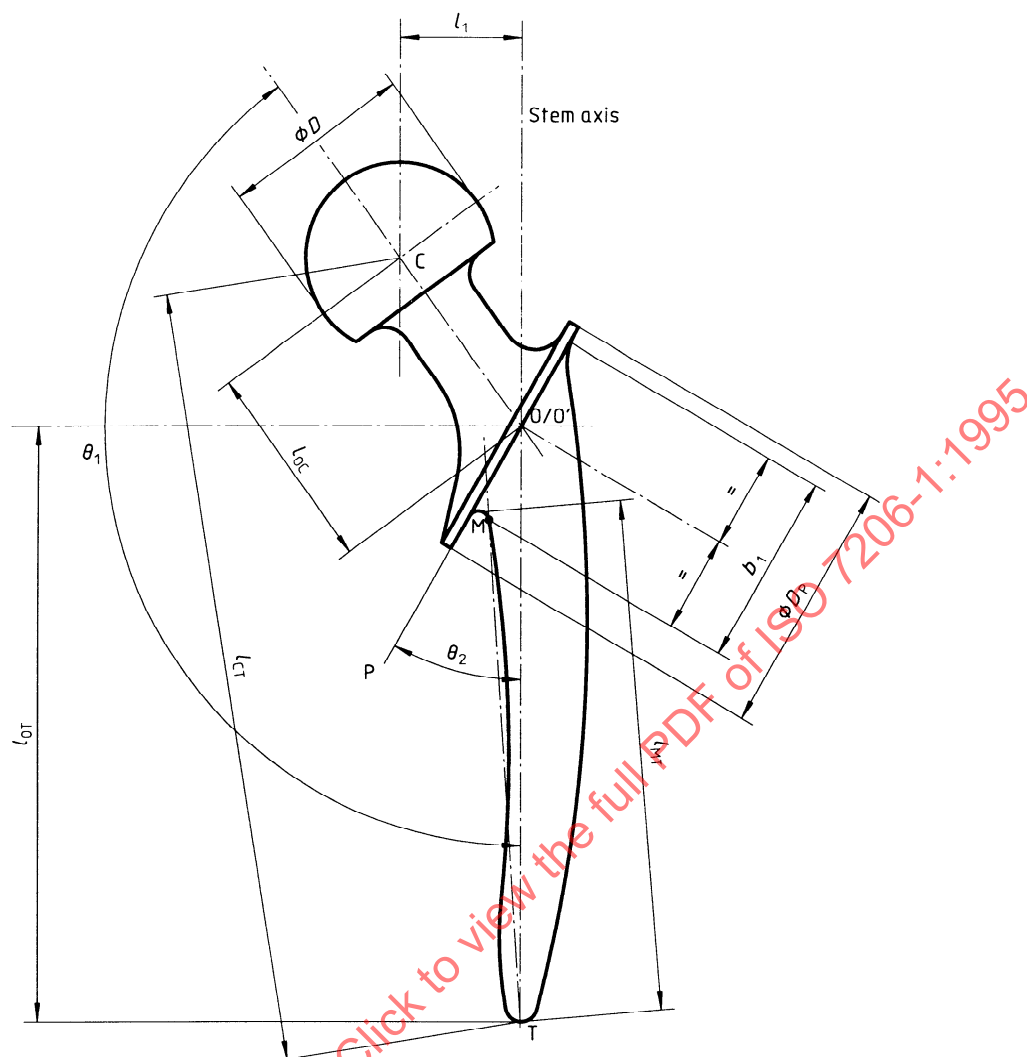
Hip joint prostheses shall be classified as follows:

- a) femoral prosthesis (consisting of one or more components);
- b) acetabular prosthesis (consisting of one or more components);
- c) a combination of a) and b).

3 Designation of dimensions

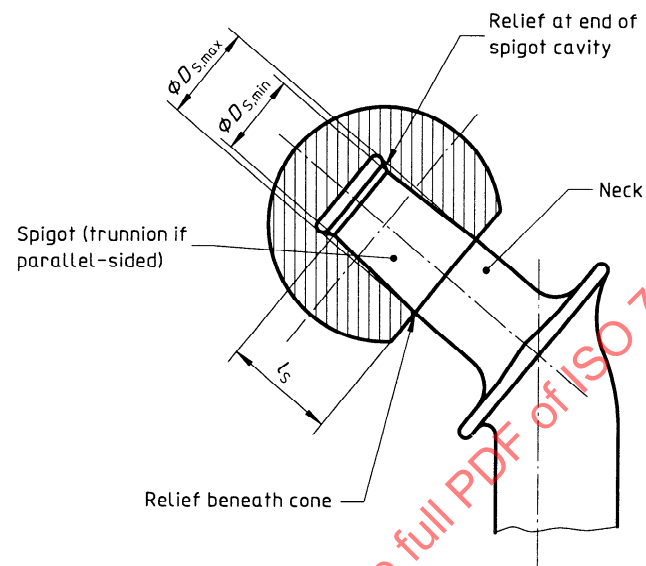
Dimensions of hip joint prostheses shall be designated in accordance with figures 1 to 6.

NOTE 1 Figures 1 to 6 are intended to be illustrative of typical hip joint prostheses and to designate dimensions, but representation of the components does not otherwise form part of this International Standard.



Key	
C	= head centre of curvature
CO'	= neck axis of symmetry (O' is not necessarily coincident with O)
O	= plateau stem centre (not necessarily coincident with O')
PO	= plateau major axis
T	= tip of stem
M	= junction radius mid-point of medial side of stem with plateau
b ₁	= width of stem adjoining plateau
D	= head diameter
D _P	= mediolateral plateau diameter
l ₁	= offset of head
l _{CT}	= length from head centre to tip of stem
l _{MT}	= medial stem length
l _{OC}	= neck length (OC) (not necessarily coincident with the neck axis)
l _{OT}	= stem length [length between tip and plateau (OT)]
θ ₁	= neck angle (COT)
θ ₂	= plateau angle (POT)
Stem axis	is the straight line from the centre of the stem tip in the intersection plane of the plateau
The stem axis mid-line	is the straight line passing through the centres of two sections, 10 mm and 80 mm respectively from the tip (see figure 4)

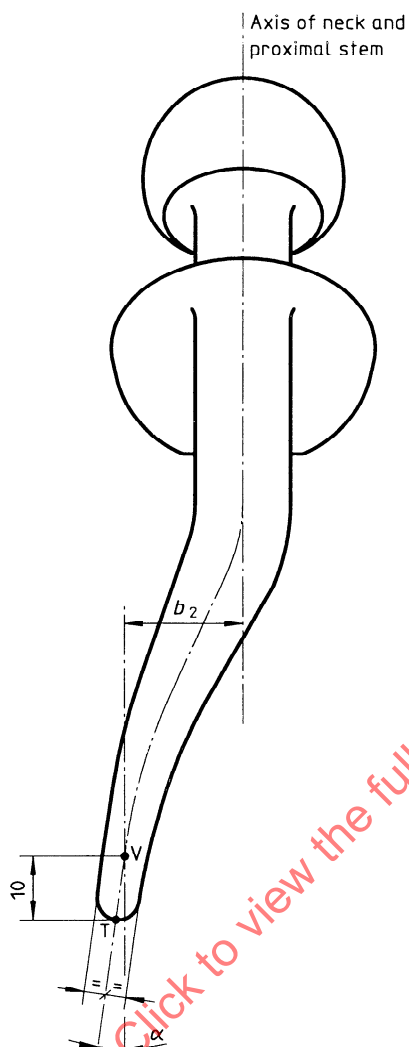
Figure 1 — Designation of dimensions of femoral components of hip joint prostheses with plateau

**Key**

- $D_{S,min}$ = spigot minimum diameter
 $D_{S,max}$ = spigot maximum diameter
 l_S = spigot length

Figure 2 — Detail of head secured by spigot or trunnion (alternative design of head)

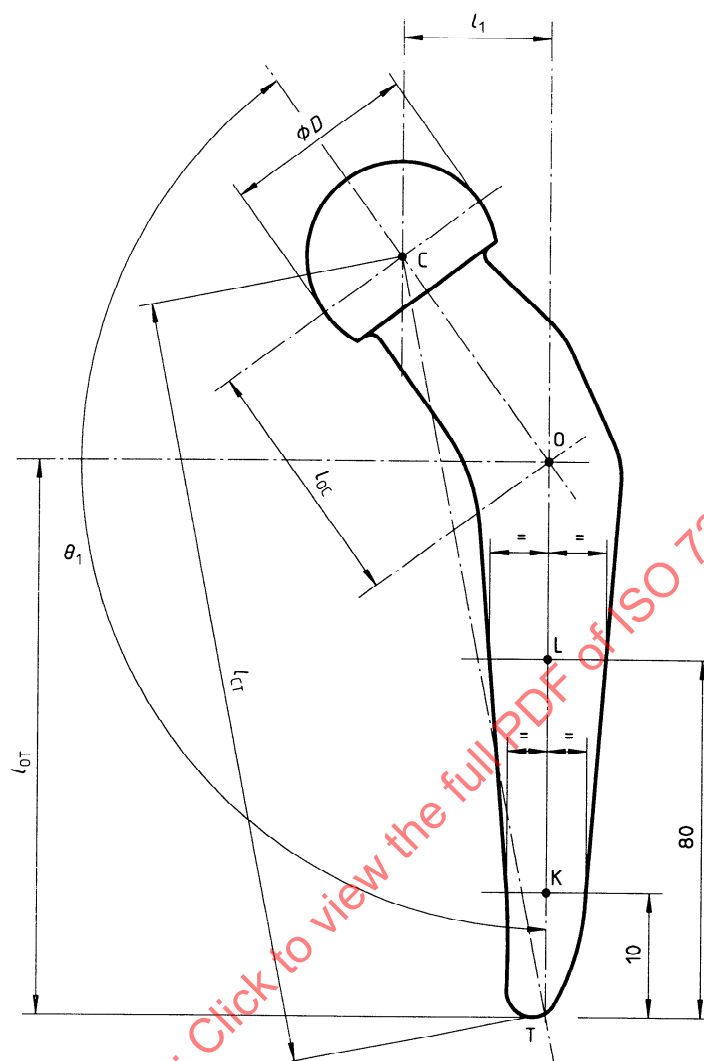
Dimensions in millimetres

**Key**

- V = point on stem centreline 10 mm from T
 b_2 = offset of V from plane containing neck and proximal part of stem
 α = angle of stem distal end to centreline of neck and proximal stem

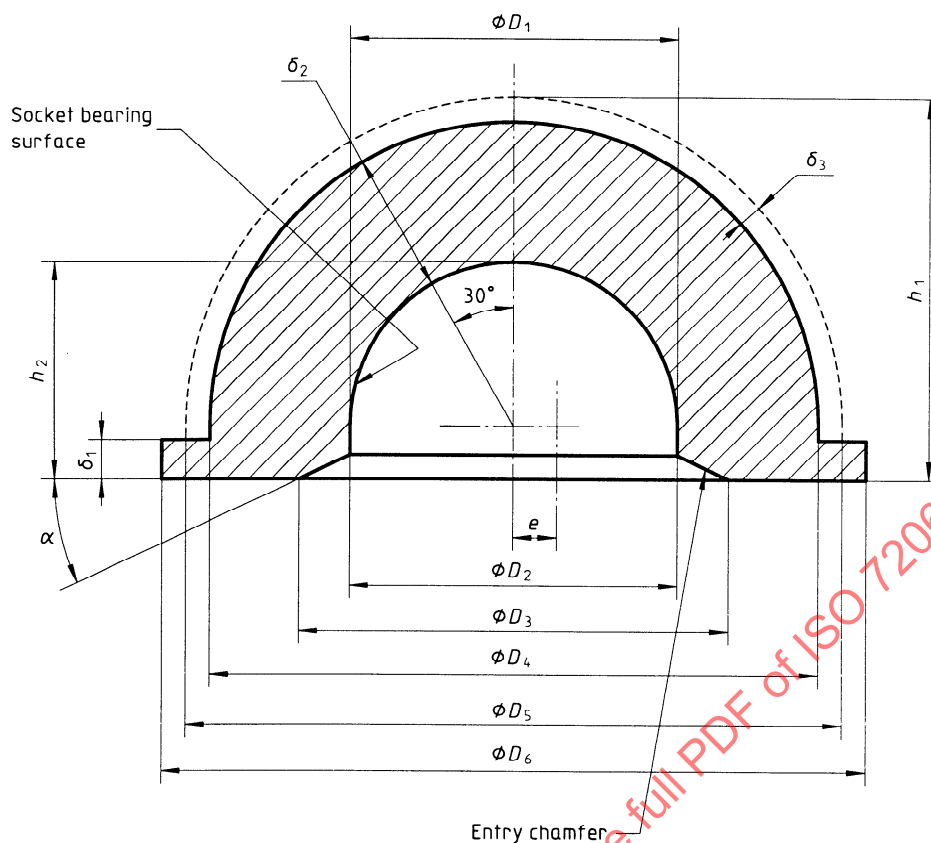
Figure 3 — Lateral view of asymmetrical prosthesis illustrating dimensions required to specify antero/posterior offset

Dimensions in millimetres

**Key**

- C = head centre of curvature
- CO = neck nominal axis
- O = stem axis and midline intersection of neck nominal axis
- T = tip of stem
- KL = stem axis midline
- D = head diameter
- l_1 = offset of head
- l_{CT} = length from head centre to tip of stem
- l_{OC} = neck length (OC)
- l_{OT} = effective stem length (OT)
- θ_1 = neck angle (COL)

Figure 4 — Designation of dimensions of femoral component of hip joint prostheses without plateau

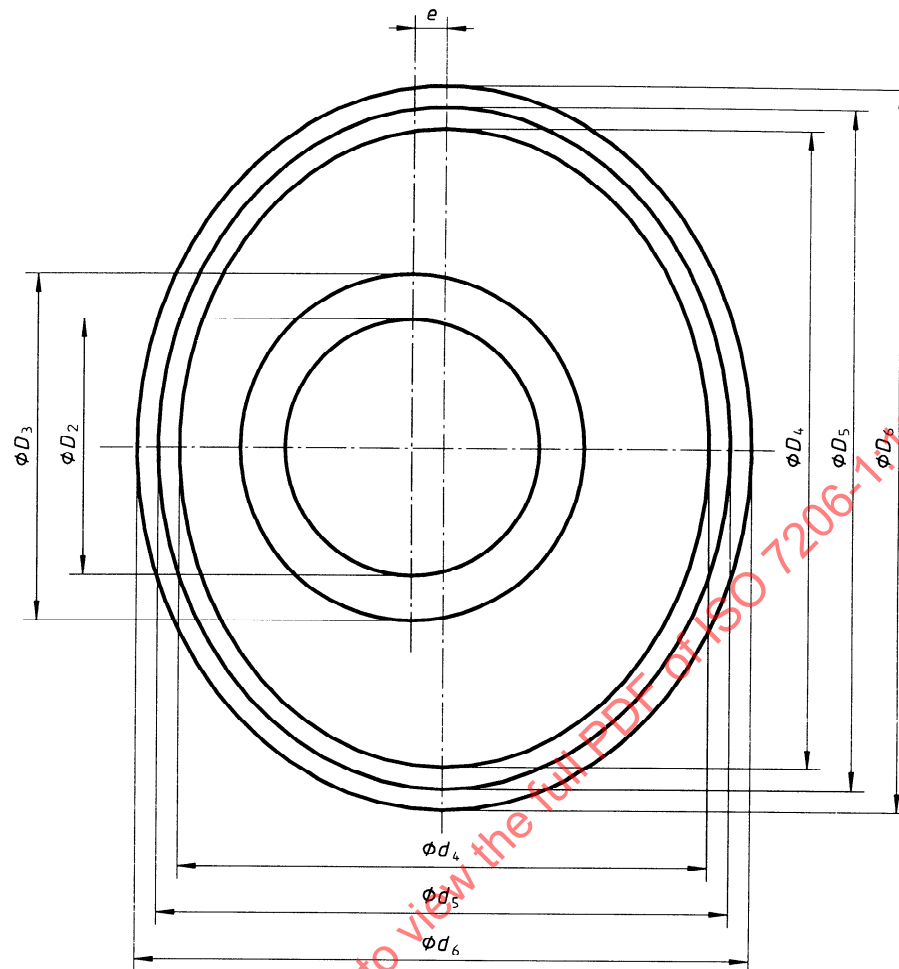
**Key**

- D_1 = spherical socket diameter
- D_2 = retentive or non-retentive entry diameter
- D_3 = relief diameter (entry chamfer, if present, need not extend through whole circumference)
- D_4 = effective spherical external diameter
- D_5 = outside cup diameter
- D_6 = flange diameter (when present)
- δ_1 = flange thickness (when present)
- δ_2 = minimum wall thickness
- δ_3 = retention system (grooves, ribs, spikes, etc.) depth may be variable
- h_1 = overall height
- h_2 = inside depth
- α = angle of entry chamfer

NOTE — The socket may be eccentrically disposed to the effective spherical external surface (circumscribed by D_5) in which case lateral displacement is denoted by eccentricity e (see figure 6 for designation of dimensions of oval/eccentric configurations).

Various means to extend part of the wall of the cup may be incorporated.

Figure 5 — Designation of dimensions of acetabular components of hip joint prostheses

**Key**

- D_2 = retentive or non-retentive entry diameter
- D_3 = relief diameter (entry chamfer, if present, need not extend through whole circumference)
- D_4 = major effective spherical external diameter
- D_5 = major outside diameter
- D_6 = major flange diameter (when present)
- d_4 = minor effective spherical external diameter
- d_5 = minor cup outside diameter
- d_6 = minor flange diameter (when present)
- e = eccentricity between centre of spherical socket and centre of effective external diameter

Figure 6 — Designation of dimensions of acetabular components of hip joint prostheses — Plan view of oval/eccentric configuration

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