BRITISH STANDARD

BS EN
60526:2004

High-voltage cable plug and socket connections for medical X-ray equipment

The European Standard EN 60526:2004 has the status of a British Standard

ICS 11.040.50; 29.120.30

National foreword

This British Standard is the official English language version of EN 60526:2004. It is identical with IEC 60526:1978. It supersedes BS 6038:1980 which is withdrawn.

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags 〉 〈.

The UK participation in its preparation was entrusted by Technical Committee CH/62, Electromedical equipment in medical practice, to Subcommittee CH/62/2, Diagnostic imaging equipment, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 12, an inside back cover and a back cover.

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Amendments issued since publication

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EUROPEAN STANDARD **EN 60526**

NORME EUROPÉENNE

EUROPÄISCHE NORM September 2004

ICS 11.040.50; 29.120.30 Supersedes HD 364 S2:1983

English version

High-voltage cable plug and socket connections for medical X-ray equipment
(IEC 60526:1978, modified)

Raccordements par fiche et réceptacle des câbles haute tension pour équipements à rayons X à usage médical (CEI 60526:1978, modifiée)

Hochspannungskabel-Steckverbindungen für medizinische Röntgengeräte (IEC 60526:1978, modifiziert)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. EN 60526:2004 E

Foreword

The text of the International Standard IEC 60526:1978, prepared by SC 62B, Diagnostic imaging equipment, of IEC TC 62, Electrical equipment in medical practice, together with common modifications prepared by the Technical Committee CENELEC TC 62, Electrical equipment in medical practice, was approved by CENELEC as HD 364 S2 on 1983-09-07.

This Harmonization Document was submitted to the formal vote for conversion into a European Standard and was approved by CENELEC as EN 60526 on 2004-07-06.

The following date was fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-07-01

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Endorsement notice

The text of the International Standard IEC 60256:1978 was approved by CENELEC as a European Standard with agreed common modifications.

CONTENTS

HIGH-VOLTAGE CABLE PLUG AND SOCKET CONNECTIONS FOR MEDICAL X-RAY EQUIPMENT

1. Scope

This standard deals with:

— essential dimensions to ensure mechanical interchangeability;

— recommended dimensions;

— wiring connections to contacts of plug and socket;

— marking of contacts of plug and socket;

of three-conductor and four-conductor high-voltage cable plug and socket connections for medical X-ray equipment.

Notes 1. — Ratings of maximum potential difference and electric current are not dealt with in this standard because the behaviour of a high-voltage cable plug and socket connection depends on the materials of the cable termination plug assembly and the receptacle socket assembly, and upon environmental factors.

2. — This standard does not include details or particulars of means for preventing removal of the ring nut (see Sub-clause 2.2) or of the cable termination plug assembly without the use of a tool.

3. — In cases where high-voltage connections of a type not complying with this standard are used, the X-ray equipment shall comply with the appropriate IEC standards.

2. Terminology

2.1 *Degree of requirements*

In this standard the auxiliary verb

— "shall" implies that compliance with a requirement is mandatory for compliance with the standard

— "should" implies that compliance with a requirement is strongly recommended but is not mandatory for compliance with the standard

— "may" implies that compliance with a requirement is permitted to be accomplished in a particular manner, for compliance with the standard.

Note — These definitions are under consideration.

2.2 *Terms*

A high-voltage cable connection according to this standard is composed of:

— the cable termination plug assembly consisting of the main components:

ring nut	component 1 — Figures 1 and 5 (pages 14 and 17);
plug	component 2 — Figures 1 and 5;
contact pins	component 3 — Figures 1 and 5;

fitted to the prepared cable end with suitable provision for earthing, insulation and sealing;

— the receptacle socket assembly consisting of the main components:

mounting flange	component 4 — Figure 3 (page 16);
thrust ring	component 5 — Figure 4 (page 16);
socket with contacts and terminals	component 6 — Figures 2 and 6 (pages 15 and 18);

the mounting flange possibly forming part of a high potential assembly, an X-ray tube assembly or other item of equipment.

3. Dimensions

The dimensions of the high-voltage cable connection shall comply with those shown in Figures 1 to 4 or 3 to 6, as appropriate, and should comply with those enclosed in parentheses.

4. Connections

The connections from the high potential assembly and from the X-ray tube to the terminals of the receptacle socket assembly and the connections of the two cable termination plug assemblies to the cable shall be effected as shown in Tables I or II, as appropriate.

5. Marking

The terminals of the receptacle socket assembly shall be identified by marking with either graphical or letter symbols as given in Tables I or II and shown in Figures 2 or 6.

If the contact pins of the cable termination plug assembly are to be identified, the marking shall be in accordance with Tables I or II and with Figures 1 or 5.

6. Statement of compliance

If compliance of a cable termination plug assembly and/or a receptacle socket assembly with this standard is to be stated, this shall be indicated appropriately as follows:

— three-conductor cable connection [C] IEC 60526:1975 or IEC 60526:1978 [C];

— three-conductor cable termination [C] IEC 60526:1975 or IEC 60526:1978 [C];

— three-conductor receptacle socket [C] IEC 60526:1975 or IEC 60526:1978 [C];

or:

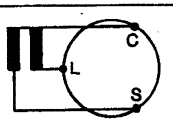
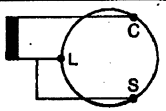
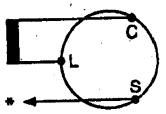
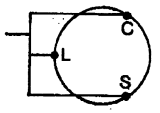
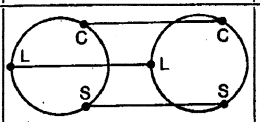
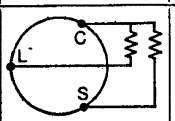
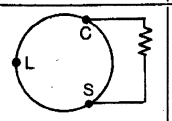
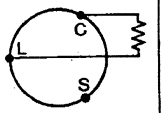
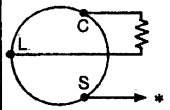
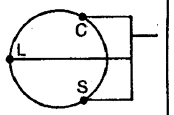
— four-conductor cable connection IEC 526/1978;

— four-conductor cable termination IEC 526/1978;

— four-conductor receptacle socket IEC 526/1978.

TABLE I

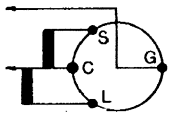
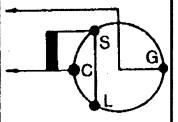
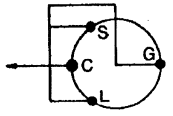
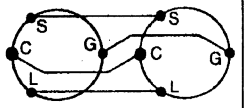
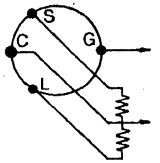
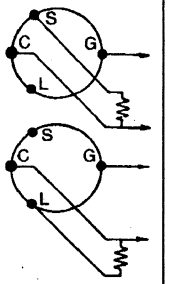
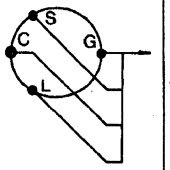
Marking and connections for three-conductor cable termination plug assemblies and receptacle socket assemblies

Marking of terminals of receptacle socket and optional marking of contact pins of cable termination plug			Connections for wiring					
			High potential assembly receptacle socket terminals				X-ray tube housing receptacle socket terminals	
			Cathode side with filament supply		Anode side	Cable with termination plug assemblies at either end	Cathode side with filament(s)	Anode side
Terminal or pin for	Graphical symbol (alternatives)	Letter symbol	For double or single focus tube	For single focus tube only			Double focus tube / Single focus tube	
Common	None	C	One end of both L and S filaments supply	One end of filament supply	All socket terminals connected	Corresponding contact pins interconnected	One end of both L and S filaments	One end of filament / All socket terminals connected
Larger focus filament (L)	□	L	Other end of L filament supply	Other end of filament supply			Other end of L filament	Other end of filament
Smaller focus filament (S)	■ □	S	Other end of S filament supply	Other end of filament supply or *			Other end of S filament	Other end of filament or *
Connection diagrams: common = C larger = L smaller = S				 or  *				 or  or  *	

* Auxiliary functional potential if required.

TABLE II

Marking and connections for four-conductor cable termination plug assemblies and receptacle socket assemblies

Marking of terminals of receptacle socket and optional marking of contact pins of cable termination plug			Connections for wiring						
			High potential assembly receptacle socket terminals				X-ray tube housing receptacle socket terminals		
			Cathode side with filament supply and auxiliary potential supply		Anode side	Cable with termination plug assemblies at either end	Cathode side with filament(s) and auxiliary device		Anode side
Terminal or pin for	Graphical symbol (alternatives)	Letter symbol (alternatives)	For double or single focus tube	For single focus tube only			Double focus tube	Single focus tube	
Common	None	C	One end of both L and S filaments supply and one end of auxiliary potential supply	One end of filament supply and one end of auxiliary potential supply	All socket terminals connected	Corresponding contact pins interconnected	One end of both L and S filaments and one end of auxiliary device	One end of filament and one end of auxiliary device	All socket terminals connected
Larger focus filament (L)	□	L	Other end of L filament supply	Other end of filament supply			Other end of L filament	Other end of filament	
Smaller focus filament (S)	■ □	S	Other end of S filament supply	Terminals L and S interconnected			Other end of S filament	Other end of filament	
Auxiliary functional potential device	▬ ▬ ▬	G	Other end of auxiliary potential supply	Other end of auxiliary potential supply			Other end of auxiliary device	Other end of auxiliary device	
Connection diagrams: common = C larger = L smaller = S auxiliary = G									

Dimensions en millimètres *Dimensions in millimetres*

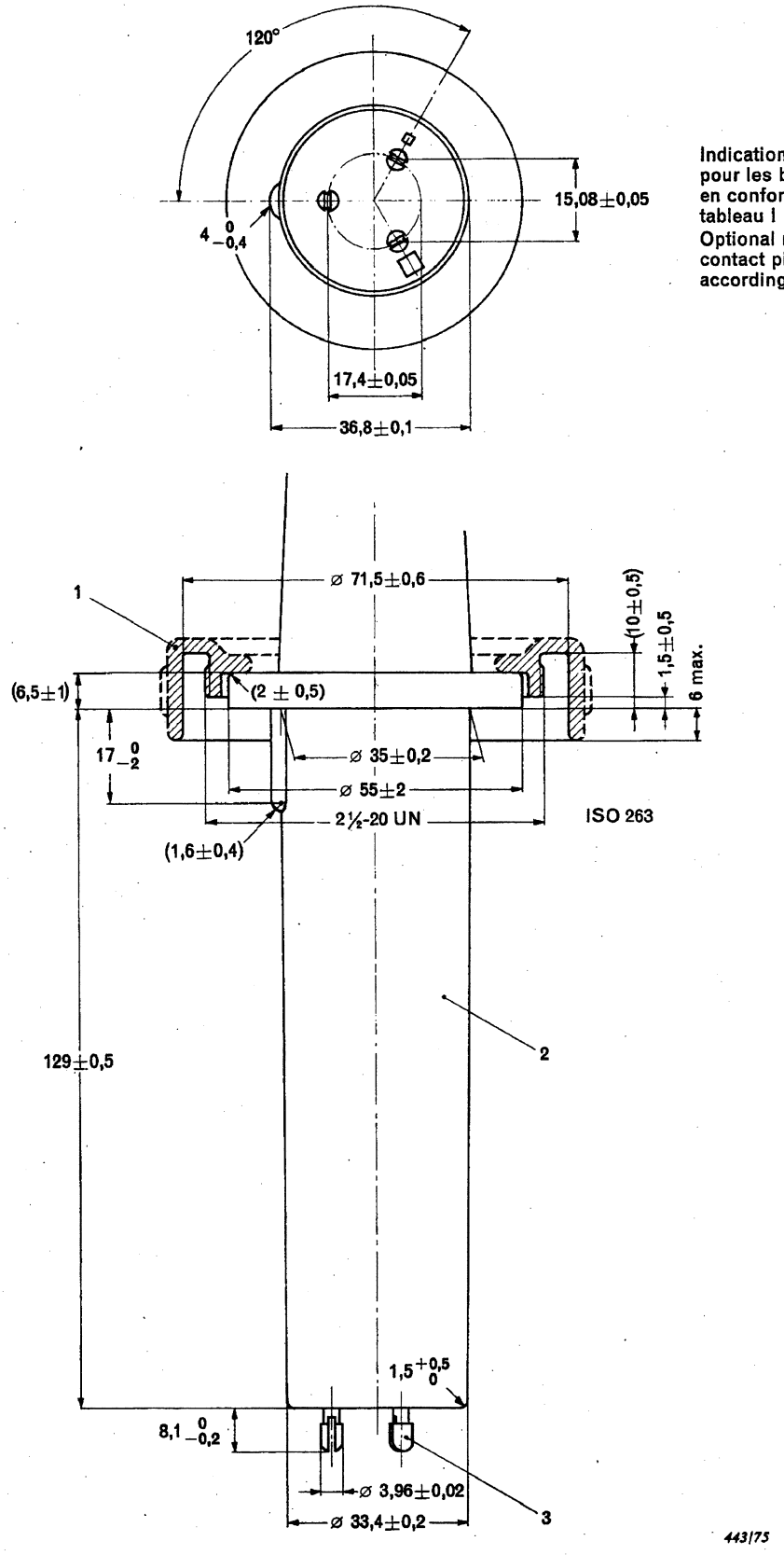


FIG. 1. — Embout de câble à trois conducteurs.
Three-conductor cable termination plug.

Dimensions en millimètres *Dimensions in millimetres*

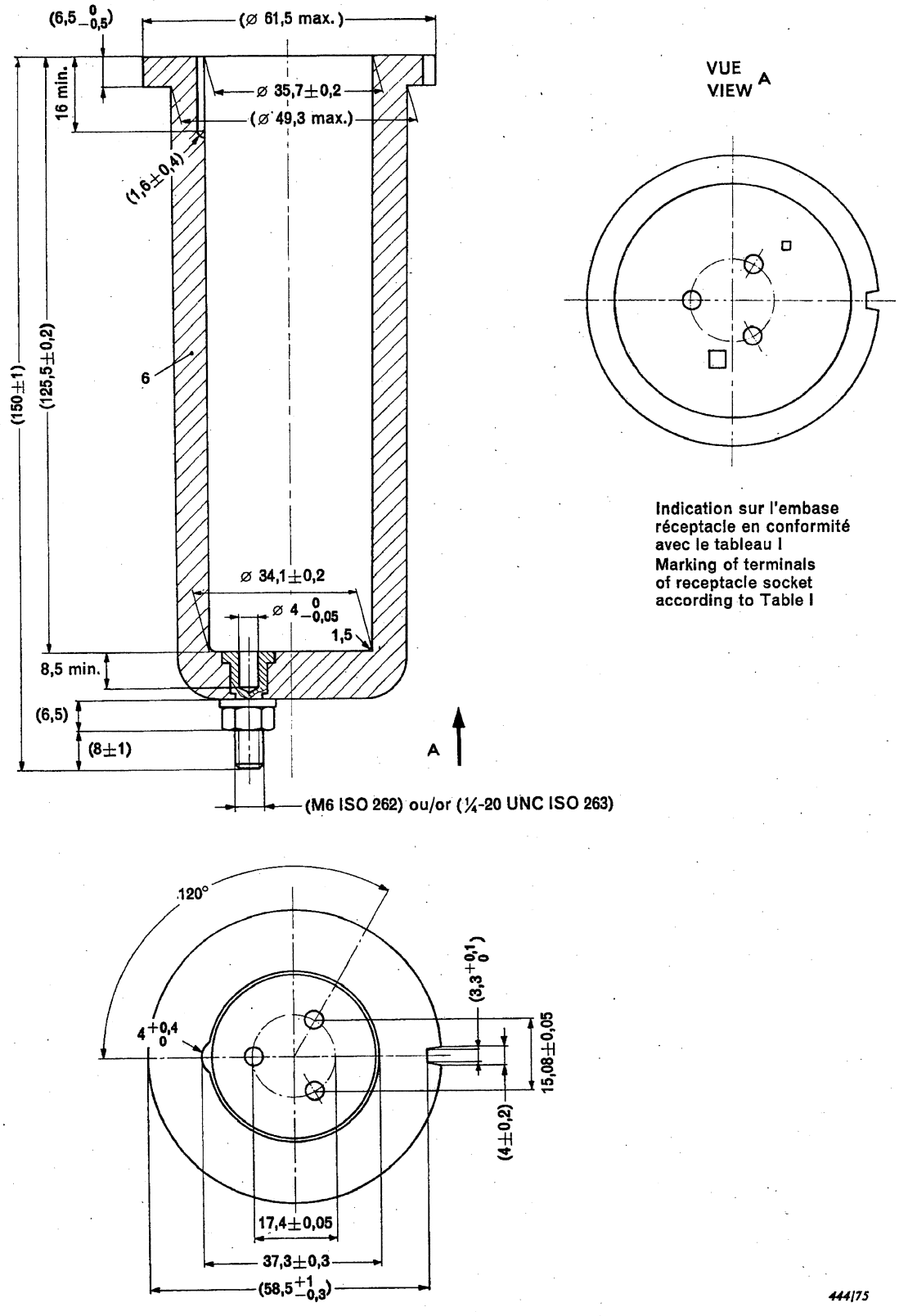


FIG. 2. — Embase réceptacle à trois conducteurs.
Three-conductor receptacle socket.

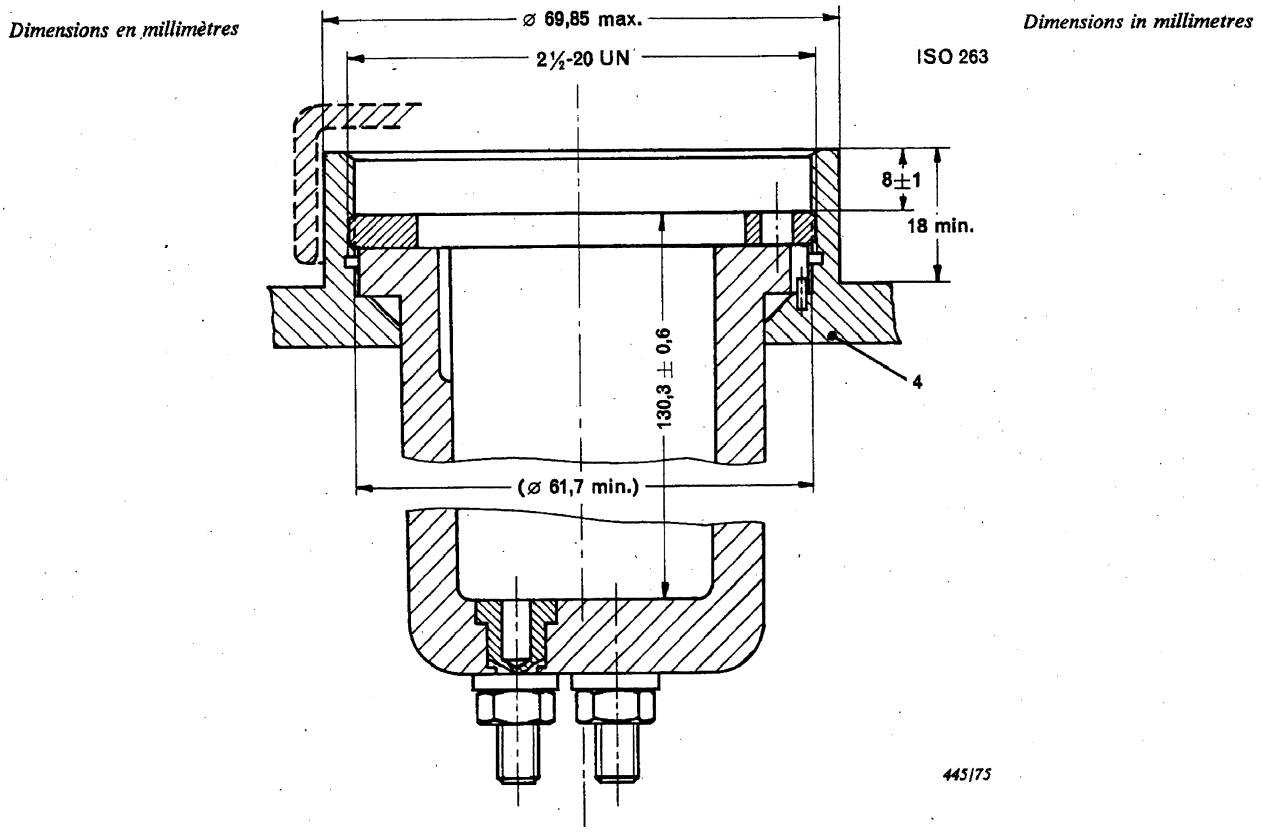


FIG. 3. — Ensemble embase réceptacle.
Receptacle socket assembly.

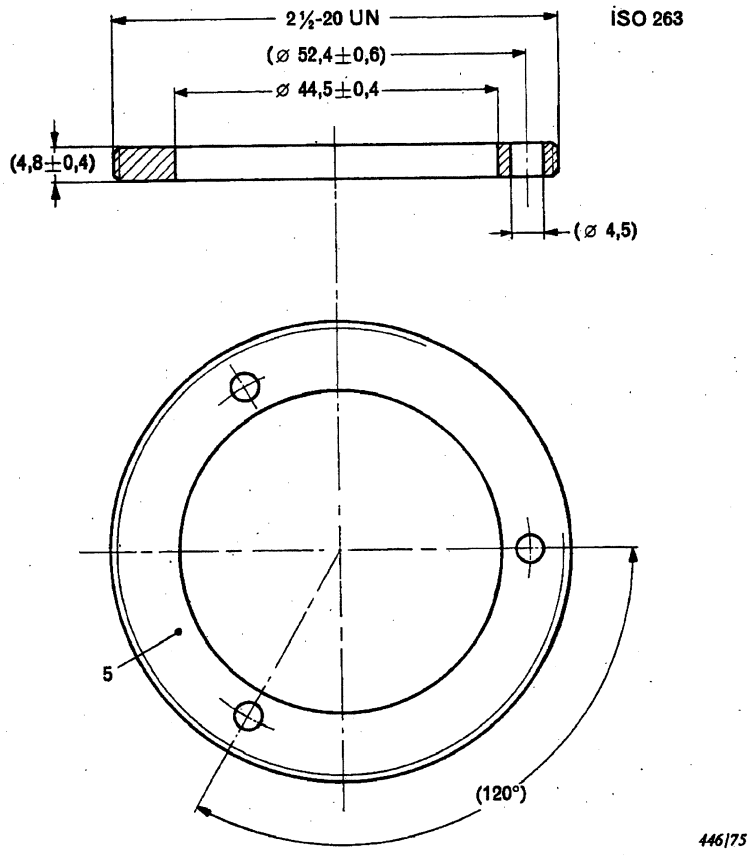


FIG. 4. — Bague de butée.
Thrust ring.

Dimensions en millimètres *Dimensions in millimetres*

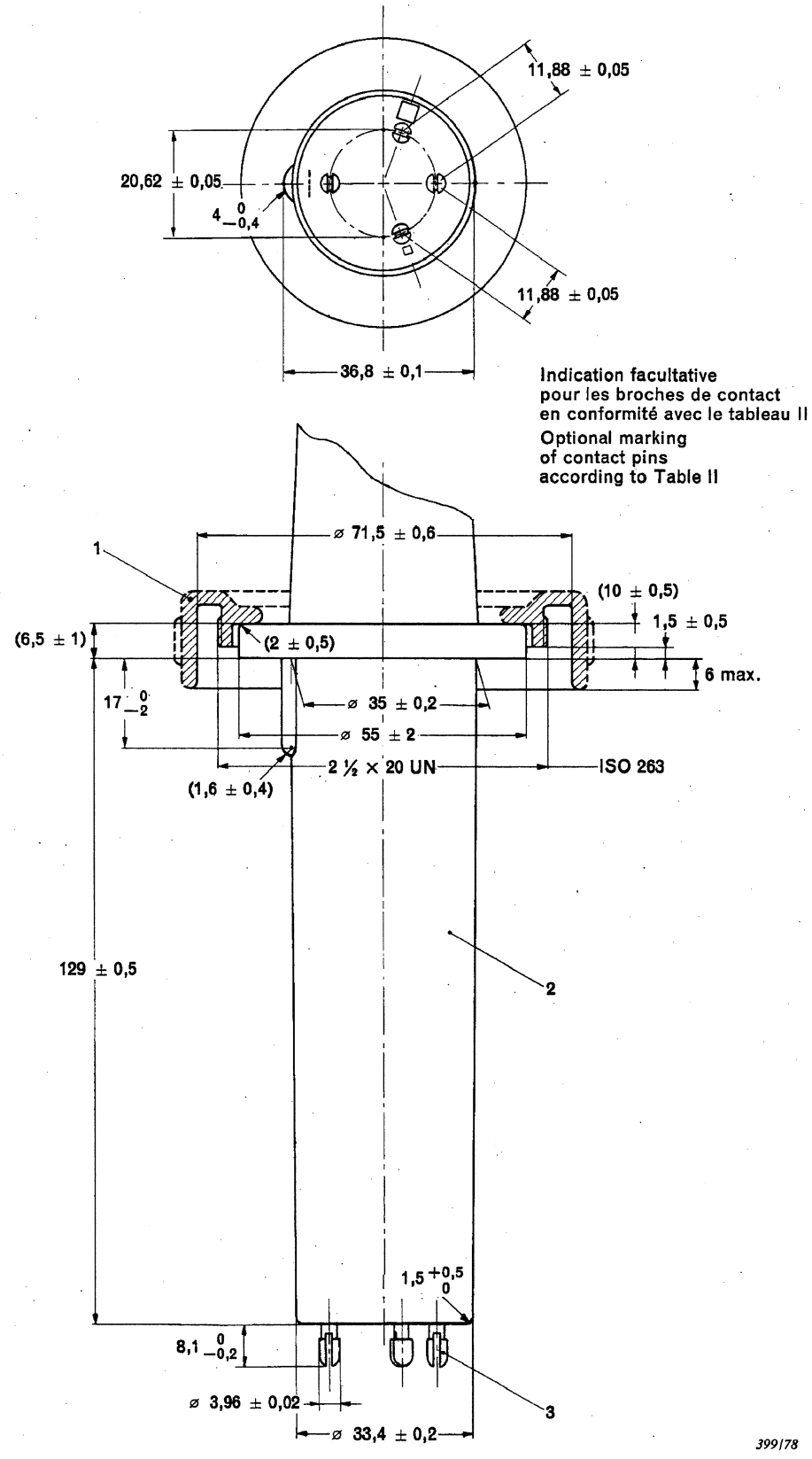


FIG. 5. — Embout de câble à quatre conducteurs.
Four-conductor cable termination plug.

Dimensions en millimètres *Dimensions in millimetres*

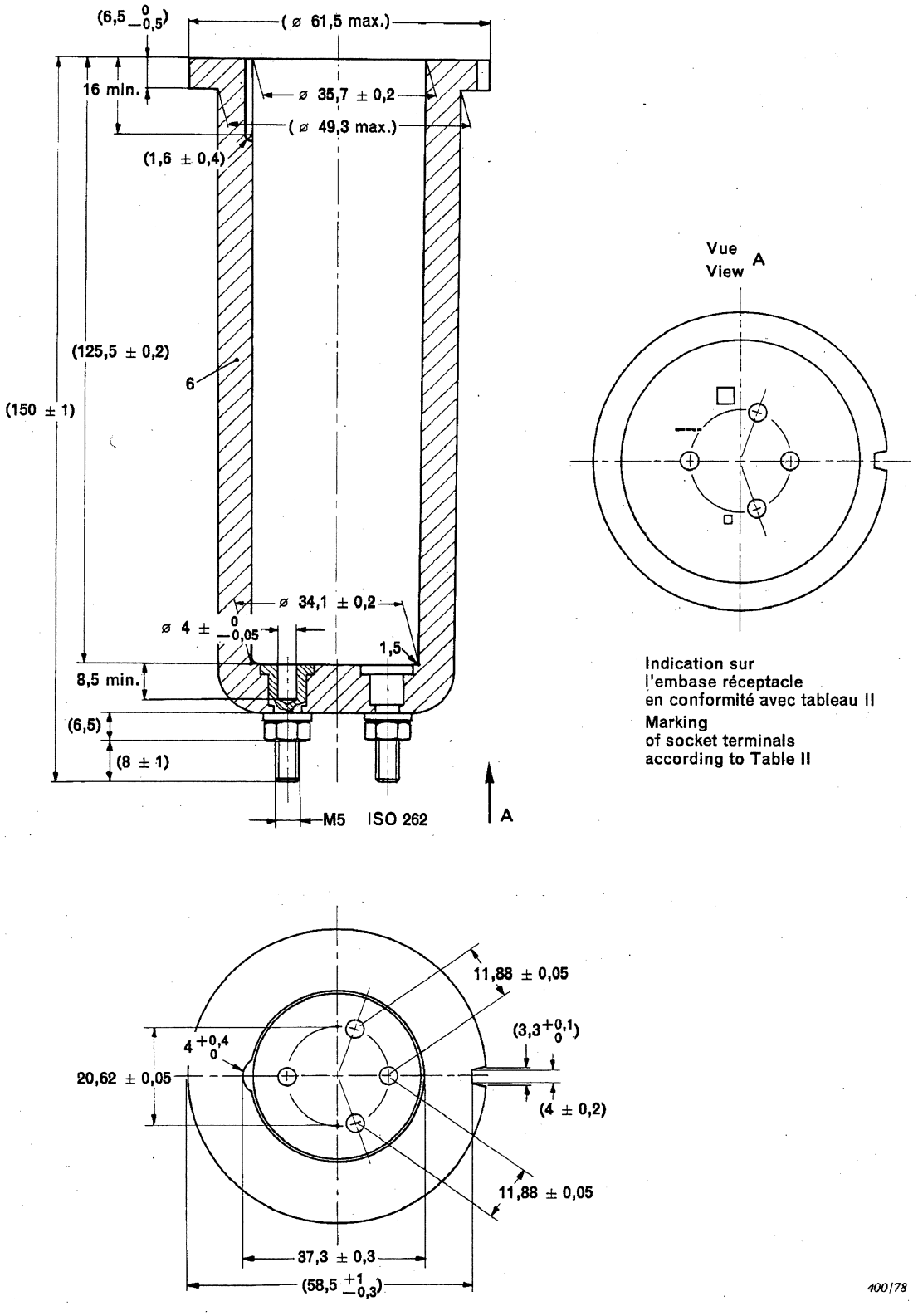


FIG. 6. — Embase réceptacle à quatre conducteurs.
Four-conductor receptacle socket.

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