

Specification for

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

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- British Railways Board
- Consumer Standards Advisory Committee of BSI
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- Department of Trade
- Electricity Supply Industry in England and Wales
- Electronic Engineering Association
- Institution of Electrical Engineers
- Ministry of Defence*
- United Kingdom Medical Equipment Industries Group

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the Technical Committee entrusted with the preparation of this British Standard:

- Association of X-ray Equipment Manufacturers
- Bath Institute of Medical Engineering
- British Dental Association
- British Institute of Radiology
- British Medical Association
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- National Radiological Protection Board
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- Royal College of Radiologists
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- Society of Radiographers

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National foreword

This British Standard has been prepared under the direction of the Light Electrical Engineering Standards Committee. It is identical with IEC Publication 526 “*High-voltage cable plug and socket connections for medical X-ray equipment*”, published in 1978 by the International Electrotechnical Commission (IEC).

Terminology and conventions. The text of the International Standard has been approved as suitable for publication, without deviation, as a British Standard. Some terminology and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

The comma has been used throughout as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Cross-references

International Standard	Corresponding British Standard
ISO 262:1973	BS 3643 <i>ISO metric screw threads</i> Part 1:1963 <i>Thread data and standard thread series</i> (Technically equivalent)
ISO 263:1973	BS 1580 <i>Unified screw threads</i> . Parts 1 and 2:1962 <i>Diameters ¼ in and larger</i> (Technically equivalent)

NOTE *Textual errors.* When the text of the International Standard was adopted, it was noticed that in clause 6, in the statement of compliance, the first edition of IEC 526 (1975) was quoted as the sole compliance reference for three-conductor assemblies. It has been subsequently confirmed with the Secretariat of IEC Subcommittee that it was intended that both the first and second edition could be used as a reference for three-conductor assemblies. The content of the first and second editions, in respect of three-conductor assemblies, is identical, and this standard can therefore be used as the reference for compliance for those assemblies.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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.

NOTE 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.

NOTE 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.

NOTE 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 — Figure 1 and Figure 5 (pages 5 and 9);
plug	component 2 — Figure 1 and Figure 5;
contact pins	component 3 — Figure 1 and Figure 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 7);
thrust ring	component 5 — Figure 4 (page 8);
socket with contacts and terminals	component 6 — Figure 2 and Figure 6 (pages 6 and 10);

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 Figure 1 to Figure 4 or Figure 3 to Figure 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 Table I or Table II, as appropriate.