

Mechanical cable glands —

Part 1: Specification for metallic glands

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- Aluminium Federation
- Association of Consulting Engineers
- Association of Manufacturers of Domestic Electrical Appliances
- British Approvals Service for Electric Cables
- British Cable Maker’s Confederation
- British Plastics Federation
- British Railways Board
- British Shipbuilders
- British Steel Industry
- British Telecommunications Plc
- Department of the Environment (Property Services Agency)
- Department of Trade and Industry (Consumer Safety Unit, CA Division)
- ERA Technology Ltd.
- Electricity Supply Industry in England and Wales
- Engineering Equipment and Materials Users’ Association
- Institution of Electrical Engineers
- London Regional Transport

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Electrical Installation Equipment Manufacturers Association (BEAMA Ltd.)
- Electrical, Electronic, Telecommunications and Plumbing Union
- Engineering Industries Association
- Gland Manufacturers Technical Committee
- Lighting Industry Federation Ltd.

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Foreword

This new edition of this Part of BS 6121 has been prepared under the direction of the General Electrotechnical Engineering Standards Policy Committee. The previous 1987 edition¹⁾ was a revision of BS 6121:1973 which was a metric revision of BS 4121:1967. Both of these standards have been withdrawn. This edition introduces technical changes to bring the standard up-to-date but it does not reflect a full review of the standard, which will be undertaken in due course. This standard specifies a range of metallic cable glands dimensionally standardized to a sufficient extent to ensure the interchangeability of glands of similar type and size made by different manufacturers. It provides for mechanical glands with International Organization for Standardization (ISO) metric threads as specified in BS 3643 on the threaded fixing component, such as are used with elastomer-insulated and PVC-insulated cables. To avoid restricting development, only dimensions essential to the interchangeability of the whole gland are specified, and no attempt has been made to secure interchangeability of components and cable cutting dimensions between different makes.

Glands suitable for use with flameproof enclosures are no longer included in this standard; reference should be made to BS 5501. Also, the original seal test has been replaced by a test based on BS 5490 or BS 5420 for IP66.

Attention is drawn to appendix A, which lists the information to be supplied by the purchaser when ordering the glands.

Part 2 of this standard will give requirements and tests for non-metallic glands.

It is intended to publish two further Parts to BS 6121. Part 3 will be a specification for composite glands manufactured from a combination of both metallic and polymeric components; and Part 4 will provide a code of practice for all types of mechanical cable glands specified in Parts 1, 2 and 3.

All amendments to the 1987 edition are indicated by a line in the margin.

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 12, 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⁾ Now Withdrawn.

1 Scope

This Part of BS 6121 specifies requirements for limiting dimensions, marking, materials, construction and type tests for metallic mechanical cable glands. It provides for interchangeability between complete glands of different makes, but not between component parts.

The glands are particularly suitable for use with cables complying with the following British Standards, but the range of glands specified does not completely cover all the cables included in these standards.

BS 5467, *Specification for armoured cables with thermosetting insulation for electricity supply.*

BS 6004, *Specification for PVC-insulated cables (non-armoured) for electric power and lighting.*

BS 6007, *Specification for rubber-insulated cables for electric power and lighting.*

BS 6116, *Specification for elastomer-insulated flexible trailing cables for quarries and miscellaneous mines.*

BS 6346, *Specification for PVC-insulated cables for electricity supply.*

BS 6480, *Specification for impregnated paper-insulated lead or lead alloy sheathed electric cables of rated voltages up to and including 33 000 V.*

BS 6500, *Specification for insulated flexible cords and cables.*

BS 6622, *Specification for cables with extruded cross-linked polyethylene or ethylene propylene rubber insulation for rated voltages from 3 800/6 600 V up to 19 000/33 000 V.*

BS 6724, *Specification for armoured cables for electricity supply having thermosetting insulation with low emission of smoke and corrosive gases when affected by fire.*

BS 6883²⁾, *Specification for elastomer-insulated cables for fixed wiring in ships.*

The glands are also suitable for use with certain cables of generally similar type not included in these British Standards.

A locknut is not regarded as part of a cable gland.

Locknuts are therefore outside the scope of this standard.

NOTE 1 The information to be supplied by the purchaser when ordering is given in appendix A.

NOTE 2 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

NOTE See Figure 1.

For the purposes of this Part of BS 6121, the definitions given in BS 4727-2:Group 08 apply, together with the following.

2.1

cable gland

a device designed to attach and secure the end of a cable to the equipment by means suitable for the type and description of cable for which it is designed, including provision for making electrical connection to the armour or braid and lead or aluminium sheath of the cable, if any

NOTE Type A glands may also be used for sealing cables passing through bulkheads or gland plates.

2.2

mechanical cable gland

a cable gland in which the cable is secured and any necessary electrical continuity is provided by mechanical means, without a plumber's wiped joint

2.3

sealed gland

a gland having a seal so constructed as to exclude dust and water under the conditions prescribed in appendix F (IP66 test)

2.4

threaded fixing component

the part of a cable gland designed for attaching it to the casing of the apparatus to which the cable is to be connected. It is provided with an external thread which either engages in a similarly threaded hole in the casing of the apparatus, or is inserted through a plain hole in the casing and secured by means of a locknut inside the casing

2.5

inner sheath of a cable

that sheath to which it may be required to establish an internal seal or bond

NOTE In some British Standards this component is referred to as the bedding or inner covering.

2.6

outer sheath of a cable

an elastomeric or plastics envelope applied to the outside of an electric cable

²⁾ The glands covered by this Part of BS 6121 will not necessarily comply with the tests for watertightness required for ships' installations.

2.7
protrusion

the distance which the gland protrudes outside the apparatus casing when the gland is assembled with the largest cable for which it is designed, and with each hexagonal component tightened to the proof torque specified in the appropriate table

2.8
insulated adaptor

a component which provides electrical insulation between the gland and the casing of the appliance. In addition it may cater for a change of thread type, size or material between the gland and the appliance

3 Types of gland

The basic designations of the glands are as follows.

- Type A1. For unarmoured cable with an elastomeric or plastics outer sheath, where the function of the gland is to secure the outer sheath of the cable.
- Type A2. As type A1, but with an IP66 seal between the outer sheath and gland.
- Type A3. As type A1, but with an electrical bond for the metallic inner sheath.
- Type A4. As type A2, but with an electrical bond for the metallic inner sheath.
- Type B. For armoured or wire braided cable, where the function of the gland is to secure the armour or metallic braid and to provide electrical continuity between such armour or braid and the threaded fixing component of the gland.
- Type C. For armoured or wire braided cable with elastomeric or plastics outer sheath. As type B, but with an IP66 seal between outer sheath and gland.
- Type D1. For armoured or wire braided cable with an extruded elastomeric or plastics inner sheath. As type B, but with an IP66 seal between the inner sheath and threaded fixing component.
- Type D2. As type D1, but with an electrical bond for the metallic inner sheath.
- Type E1. For armoured or wire braided cable with an extruded elastomeric or plastics inner sheath and elastomeric or plastics outer sheath. As type B, but with IP66 seals between the outer sheath and gland and between the inner sheath and threaded fixing component.

Type E2. As type E1, but with an electrical bond for the metallic inner sheath.

Glands of type B, C, D1, E1 and E2 suitable for armoured or wire braided types of protection shall be identified by a suffix, added to the type designation, to indicate the type of protection for which the gland is suitable. The suffix for each type of protection shall be as follows.

Single wire armoured	W
Pliable wire armoured flexible	T
Wire braided	X
Aluminium strip armoured	Y
Double steel tape armoured	Z

If a gland is suitable for more than one type of protection, all of the relevant suffixes shall be used.

- NOTE 1 The following are examples of type designations.
- Type A2. A gland for unarmoured cable, with an IP66 seal between the outer sheath and gland.
 - Type BW. An armour clamp without a watertight seal, for single wire armoured cable.
 - Type CT. A gland for pliable wire armoured flexible cable, with an IP66 seal between the outer sheath and gland.
 - Type E2X. A gland for wire braided cable with an electrical bond for the metallic inner sheath.

NOTE 2 Glands containing inner seals are only intended for use on extruded inner sheaths.

4 Sizes of gland

The size designations, of which there are 12, and the range of sizes for each type are shown in Table 1 to Table 6, the suffix “S” denoting smaller bore.

5 Marking

- An appropriate part of the gland shall be legibly and permanently marked with the following particulars:
- a) the number of this standard, i.e. BS 6121-1³⁾;
 - b) the size designation of the gland (see clause 4);
 - c) whenever possible, the type of the gland and the appropriate suffix (see clause 3).

Where appropriate the outer packaging of the gland shall be marked with an “R” to indicate the inclusion of a compound seal.

³⁾ Marking BS 6121-1 on or in relation to a product represents a manufacturer’s declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.