

Mechanical cable glands —

Part 5: Code of practice for selection, installation and inspection of cable glands and armour glands

ICS 21.140; 29.080.20

Confirmed December 2011

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee GEL/20, Electric cables, to Subcommittee GEL/20/11/1, Cable glands, upon which the following bodies were represented:

- BEAMA Ltd. Council for Electrical Equipment
- BEAMA Installation Ltd.
- British Approvals Service for Cables
- British Cables Association
- Gland Manufacturers' Technical Committee
- Co-opted members

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 21 February 2005

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First published January 1993
Second edition February 2005

Amendments issued since publication

Amd. No.	Date	Comments

The following BSI references relate to the work on this British Standard:
Committee reference GEL/20/11/1
Draft for comment 03/308266 DC

ISBN 0 580 45375 8

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Foreword

This part of BS 6121 has been prepared by Subcommittee GEL/20/11/1. It supersedes BS 6121-5:1993 which is withdrawn.

This part of BS 6121 has been updated to refer to the properties of cable glands and armour glands specified in BS EN 50262 and in the new edition of BS 6121-1, respectively, which specify performance, rather than construction as was the case in earlier editions of BS 6121. Some of the testing recommended in BS 6121-5:1993 has been removed because this testing is now specified in BS EN 50262 and/or BS 6121-1. This revision of BS 6121-5 includes new recommendations for selection of glands on the basis of mechanical and electrical properties, as well as new clauses relating electrical properties to installation practice.

As a code of practice, this part of BS 6121 takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

It has been assumed in the drafting of this standard that the execution of its provisions will be entrusted to appropriately qualified and competent people, for whose use it has been prepared.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its 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 14, an inside back cover and a back cover.

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1 Scope

This part of BS 6121 gives recommendations on the selection, installation and inspection of cable glands conforming to BS EN 50262, armour glands conforming to BS 6121-1, and accessories, for industrial, commercial and domestic use. It is not applicable to glands for use with fibre-optic cables or mineral insulated cables. It is not applicable to glands for installation in explosive atmospheres.

NOTE Requirements for installation of electrical equipment in explosive gas atmospheres are specified in BS EN 60079-14. Requirements for installation of electrical equipment in explosive dust atmospheres are specified in BS EN 50281-1-2.

This part of BS 6121 is intended for use by specifiers of electrical installations, by installers and by those responsible for carrying out inspections.

2 Normative references

The following referenced documents are indispensable for the application 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.

BS 6121-1:2005, *Mechanical cable glands — Part 1: Armour glands — Requirements and test methods*.

BS 7671:2001 including amendments 1:2002 and 2:2004, *Requirements for electrical installations — IEE Wiring Regulations. Sixteenth edition*.

BS EN 50262:1999 including amendments 1:2001 and 2:2004, *Cable glands for electrical installations*.

3 Terms and definitions

For the purposes of this part of BS 6121, the terms and definitions given in BS EN 50262:1999 and BS 6121-1:2005 and the following apply.

3.1

non-integral earth connection

accessory with a means of attaching an additional earth conductor which is fitted to a cable gland or armour gland and which, when installed, provides a protective connection to earth

NOTE A protective connection to earth is also known as a PE function.

3.2

integral earth connection

connection point with a means of attaching an additional earth conductor which is permanently attached to a cable gland or armour gland and which, when installed, provides a protective connection to earth

3.3

clearance hole

hole in the wall of an enclosure which is not threaded internally

3.4

functional earth

earth connection required for the correct operation of a piece of equipment

NOTE An example of a functional earth is the earth connection to a co-axial radio-frequency cable or screened data cable. This connection reduces external interference and is essential to the functioning of the equipment; it does not work properly without it.

3.5

circuit protective conductor

conductor used to protect people against electric shock by interrupting the supply in the event of an earth fault and so causing the fuse or circuit breaker to trip

4 General

4.1 Properties of glands

4.1.1 BS EN 50262 and BS 6121-1 each specifies requirements to which all glands have to conform in order to be deemed to conform to the respective standard. Each of these standards also specifies additional requirements to which glands have to conform if the manufacturer wishes to claim that the glands have particular additional properties.

4.1.2 BS EN 50262 also provides a “classification” of cable glands according to the material from which they are made, their mechanical and electrical properties, the degree of ingress protection they provide and whether they have a single orifice or a multi-orifice seal.

4.1.3 Glands conforming to BS EN 50262 or to BS 6121-1 are supplied with manufacturer’s information including the following:

- the material(s) from which the glands have been manufactured;
- the type of seal (cable glands only);
- the entry thread length;
- the range of cable sizes with which the glands can be used;
- the impact category (indicating the impact resistance on a scale from 1 to 8, where 8 is the highest resistance).

4.1.4 BS EN 50262 and BS 6121-1 specify the following basic requirements for all glands:

- provision of basic cable retention;
- resistance to excess torque;
- provision of a minimum degree of ingress protection of IP54 (for cable glands) or of IP2X (for armour glands);

4.1.5 BS EN 50262 and BS 6121-1 specify the following additional requirements for glands for which the manufacturer claims the relevant additional properties:

- provision of cable anchorage (cable glands only):
 - Type A: glands resistant to repetitive cable pulling or twisting at low pull forces;
 - Type B: glands resistant to repetitive cable pulling or twisting at higher pull forces;
- provision of cable retention for armoured cable (cable glands only):
 - Class A: glands resistant to low pull forces;
 - Class B: glands resistant to higher pull forces;
- provision of equipotential bonding to the enclosure (see Note);
- provision of electrical bonding to metallic layer(s) in a cable;
- provision of a protective connection to earth;
 - Category A: glands resistant to low earth fault current;
 - Category B: glands resistant to intermediate earth fault current;
 - Category C: glands resistant to high earth fault current;
- electrical insulating characteristics (cable glands only);
- provision of a degree of ingress protection above IP54 (cable glands only);
- a working temperature range extending outside the range -20°C to $+65^{\circ}\text{C}$ (cable glands only);
- resistance to the corrosive effects of salt and sulfur dioxide laden atmospheres.

NOTE If a gland provides equipotential bonding to an enclosure this means that there is electrical continuity between the various metallic parts of the gland and that part of the gland which is used to make a connection to the enclosure.