
British Standard

Instrumentation cables

Part 1. Specification for polyethylene insulated cables

Câbles d'instrumentation

Partie 1. Câbles isolés au polyéthylène — Spécifications

Zuführungskabel und -leitungen für Instrumente

Teil 1. Isoliertekabel aus Polyethylen

Foreword

BS 5308 has been prepared under the direction of the Electronic Components Standards Committee to cover the requirements for a range of instrument signal cables.

This Part of BS 5308 is a revision of BS 5308 : Part 1 : 1975, which is withdrawn, and updates the standard in line with current technology. Attention is drawn particularly to the increased operating voltage given in the scope and the new colour coding for the identification of pairs in appendix A.

These cables are not intended for use in coal mining (Group I) applications but may be suitable for Group II intrinsically safe systems (but see warning note).

This Part of BS 5308 covers polyethylene insulated cables used mainly by the petroleum industry. Part 2 covers PVC insulated cables, used mainly by the chemical and petrochemical industries.

Notes on the installation of thermoplastic cables are given in appendix B.

Further information relating to intrinsic safety may be obtained from the following British Standards:

- BS 5345 Code of practice for the selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres (other than mining applications or explosive processing and manufacture)
 - Part 1 : 1976 Basic requirements for all Parts of the code
 - Part 2 : 1983 Classification of hazardous areas
- BS 5501 Electrical apparatus for potentially explosive atmospheres
 - Part 1 : 1977 General requirements
 - Part 7 : 1977 Intrinsic safety 'i'
 - Part 9 : 1982 Specification for intrinsically safe electrical systems 'i'

WARNING NOTE. Cables used when installing an intrinsically safe system are required to conform to any relevant requirement in any certification documents, either for the system or for the intrinsically safe and associated apparatus forming parts of the system. Cables should also be suitable for the environment in which they are to be used (see, for example, 25.2.1 of BS 5345 : Part 1 : 1976). *This means that for some applications the cables specified in this British Standard may not be suitable.* The use in intrinsically safe systems of cables not covered by this standard is not precluded.

Amendment No. 1
published and effective from 15 July 1993
to BS 5308 : Part 1 : 1986

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Revised text

ID 7617
y 1993

Foreword

In line 6 of the last paragraph delete the text in brackets and substitute '(see for example, 19.3 of BS 5345 : Part 1 : 1989).'

ID 7617
y 1993

Clause 9 Pair screens

In line 1 of paragraph 3 delete '0.05 mm thick'.

ID 7617
y 1993

Clause 12.2 Cables other than one-pair cables

Delete the existing text entirely and substitute the following.

'A laminated screening tape shall be applied with a minimum overlap of 25 % and with the metallic side down in contact with a drain wire run longitudinally over the non-hygroscopic binder tape or tapes.'

ID 7617
y 1993

Clause 12.3.1 Cables where binder tape has been applied

In line 3, delete '(a) or shall not be applied'.

ID 7617
y 1993

Table 1. Details of conductors and insulation thickness

In the column headed '**Resistance at 20 °C maximum**', delete '13.7' and substitute '39.7'.

ID 7617
y 1993

Table 8. Dimensions of 1.5 mm² class 2 conductor (7/0.53 mm) multipair polyethylene insulated cables without individual pair screens

In subcolumn '2' (Cable type) of column headed '20' (Number of pairs), delete '2.0' and substitute '1.6' (twice), delete '31.5' and substitute '30.7' and delete '35.5' and substitute '34.7'.

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ly 1993

Table 9. Dimensions of 1.5 mm² class 2 conductor (7/0.53 mm)
multipair polyethylene insulated cables with individual pair screens

In subcolumns '2' and '3' (Cable type) of column headed '30' (Number of pairs), for
'Thickness of oversheath (nominal)' delete '2.5' and substitute '2.4' and delete '2.4' and
substitute '2.5' respectively.

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ly 1993

Table 11. Maximum mutual capacitance values

In column headed '1.5 mm²' delete '115' and substitute '120'.

ID 7617
y 1993

Appendix A. Identification of pairs

In line 1 of paragraph 1, after 'unscreened cables' insert 'and collectively screened cables'.

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Section one. General

1 Scope

This Part of BS 5308 specifies requirements for and dimensions of polyethylene insulated cables in pairs with or without screens and optionally incorporating single wire armour or lead sheath with single wire armour.

The insulation of these instrumentation cables is suitable for operation at voltages up to and including 300 V r.m.s. core to earth and 500 V r.m.s. core to core and at a maximum temperature of 65 °C. However, instrumentation cables are not for direct connection to a low impedance source, e.g. the public mains electricity supply.

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

2 Definitions

For the purposes of this Part of BS 5308 the definitions given in BS 4727 apply.

3 Categories of cable

Cables are categorized into three types as follows.

Type 1: polyethylene insulated and PVC sheathed

NOTE. These cables are not recommended for underground burial.

Type 2: polyethylene insulated, polyethylene bedded, single wire armoured and PVC oversheathed.

Type 3: polyethylene insulated, PVC bedded, lead alloy sheathed, PVC bedded, single wire armoured and PVC oversheathed.