

Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications —

Part 1: Fittings for socket fusion using heated tools

ICS 83.140.30; 75.200

National foreword

This British Standard reproduces verbatim ISO 8085-1:2001 and implements it as the UK national standard.

The UK participation in its preparation was entrusted by Technical Committee PRI/88, Plastic Piping Systems, to Subcommittee PRI/88/2, Pressure for Plastic Piping, 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;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this Subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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**Polyethylene fittings for use with
polyethylene pipes for the supply of
gaseous fuels — Metric series —
Specifications —**

**Part 1:
Fittings for socket fusion using heated
tools**

*Raccords en polyéthylène pour utilisation avec des tubes en polyéthylène
pour la distribution de combustibles gazeux — Série métrique —
Spécifications —*

Partie 1: Raccords à emboîture à souder au moyen d'outils chauffés



Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 8085 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8085-1 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 4, *Plastics pipes and fittings for the supply of gaseous fuels*.

ISO 8085 consists of the following parts, under the general title *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications*:

- *Part 1: Fittings for socket fusion using heated tools*
- *Part 2: Spigot fittings for butt fusion, for socket fusion using heated tools and for use with electrofusion fittings*
- *Part 3: Electrofusion fittings*

Annexes A, B and C form a normative part of this part of ISO 8085.

Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications —

Part 1: Fittings for socket fusion using heated tools

1 Scope

This part of ISO 8085 specifies the requirements for polyethylene (PE) socket fusion fittings intended to be used with PE pipes and fittings for the supply of gaseous fuels.

In addition, it specifies some general properties of the material from which these fittings are made.

This part of ISO 8085 also lays down requirements for dimensions and performance of such fittings.

It is applicable to socket fusion fittings designed to be fusion-jointed to PE pipes conforming to ISO 4437, and to spigot fittings conforming to ISO 8085-2.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8085. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 8085 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3:1973, *Preferred numbers — Series of preferred numbers*

ISO 497:1973, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*

ISO 1133:1997, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics*

ISO 1167:1996, *Thermoplastics pipes for the conveyance of fluids — Resistance to internal pressure — Test method*

ISO 1183 (all parts), *Plastics — Methods for determining the density of non-cellular plastics*

ISO 1872-1:1993, *Plastics — Polyethylene (PE) moulding and extrusion materials — Part 1: Designation system and basis for specifications*

ISO 3126:—¹⁾, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions*

1) To be published. (Revision of ISO 3126:1974)

ISO 4437:1997, *Buried polyethylene (PE) pipes for the supply of gaseous fuels — Metric series — Specifications*

ISO 6964:1986, *Polyolefin pipes and fittings — Determination of carbon black content by calcination and pyrolysis — Test method and basic specification*

ISO 8085-2:2001, *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications — Part 2: Spigot fittings for butt fusion, for socket fusion using heated tools and for use with electrofusion fittings*

ISO 8085-3:2001, *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications — Part 3: Electrofusion fittings*

ISO 9356:1989, *Polyolefin pipe assemblies with or without jointed fittings — Resistance to internal pressure — Test method*

ISO 9080:—²⁾, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation*

ISO/TR 10837:1991, *Determination of the thermal stability of polyethylene (PE) for use in gas pipes and fittings*

ISO/TS 10839:2000, *Polyethylene pipes and fittings for the supply of gaseous fuels — Code of practice for design, handling and installation*

ISO 12162:1995, *Thermoplastics materials for pipes and fittings for pressure applications — Classification and designation — Overall service (design) coefficient*

ISO 13477:1997, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Small-scale steady-state test (S4 test)*

ISO 13478:1997, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Full-scale test (FST)*

ISO 13479:1997, *Polyolefin pipes for the conveyance of fluids — Determination of resistance to crack propagation — Test method for slow crack growth on notched pipes (notch test)*

ISO 13951:2001, *Plastics piping systems — Test method for the resistance of polyolefin pipe/pipe or pipe/fitting assemblies to tensile loading*

ISO 18553:—³⁾, *Method for the assessment of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds*

ASTM D 4019-94, *Standard Test Method for Moisture in Plastics by Coulometric Regeneration of Phosphorus Pentoxide*

3 Terms and definitions

For the purposes of this part of ISO 8085, the following terms and definitions apply.

3.1 Geometrical definitions

3.1.1

nominal diameter of a fitting

d_n

the nominal diameter of a fitting is taken as the nominal diameter of the corresponding pipe series

2) To be published. (Revision of ISO/TR 9080:1992)

3) To be published. (Revision of ISO 11420:1996 and ISO 13949:1997)

3.1.2**nominal wall thickness of a fitting** e_n

the nominal wall thickness of a fitting is taken as the nominal wall thickness of the corresponding pipe series

3.1.3**mean inside diameter**

arithmetic mean of at least two inside diameters measured at right angles to each other in transverse planes

3.1.4**out-of-roundness of a socket**

maximum inside diameter minus the minimum inside diameter of the socket, measured in the same plane, parallel to the plane of the mouth

3.1.5**maximum out-of-roundness of a socket**

greatest value of the out-of-roundness between the plane of the mouth and a plane separated from it by a distance L (the socket reference length)

3.1.6**socket taper**

included angle at the vertex of the triangle corresponding to the longitudinal cross-section of a cone based on the mean socket-mouth diameter, the mean socket-root diameter and the reference length of the socket

3.1.7**standard dimension ratio of a fitting****SDR**

the SDR value of a fitting is taken as being the same as that of the corresponding pipe series

$$\text{SDR} = \frac{d_n}{e_n}$$

3.1.8**wall thickness of a fitting** E

wall thickness at any point of the body of the fitting which could be subjected to the full stress induced by the pressure of the gas in the piping system

3.2 Material definitions**3.2.1****virgin material**

thermoplastics material in a form such as granules or powder which has not been previously processed other than for compounding and to which no reprocessable or recyclable materials have been added

3.2.2**reprocessable material**

thermoplastics material prepared from clean unused rejected pipes, fittings or valves, produced in a manufacturer's plant by a process such as injection-moulding or extrusion, which will be reprocessed in the same plant

NOTE Such material may include trimmings from the production of such pipes, fittings and valves.

3.2.3**compound**

homogenous mixture of base polymer (PE) and additives, e.g. anti-oxidants, pigments and UV-stabilizers, at concentrations necessary for the particular application