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**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**

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

*Partie 2: Raccords à bouts mâles pour assemblage par soudage bout à  
bout, pour assemblage dans une emboîture au moyen d'outils chauffés et  
pour utilisation avec des raccords électrosoudables*



Reference number  
ISO 8085-2:2001(E)

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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 8085-2 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*

Annex A forms 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 2:

## Spigot fittings for butt fusion, for socket fusion using heated tools and for use with electrofusion fittings

### 1 Scope

This part of ISO 8085 specifies the requirements for polyethylene (PE) spigot 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 spigot fittings designed to be fusion-jointed to

- PE pipes conforming to ISO 4437;
- socket fusion fittings conforming to ISO 8085-1;
- electrofusion fittings conforming to ISO 8085-3;
- other spigot fittings conforming to this part of ISO 8085.

### 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 161-1:1996, *Thermoplastics pipes for the conveyance of fluids — Nominal outside diameters and nominal pressures — Part 1: Metric series*

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 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:—<sup>1)</sup>, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions*

ISO 4065:1996, *Thermoplastic pipes — Universal wall thickness table*

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 8085-1:2001, *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*

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:—<sup>2)</sup>, *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 11414:1996, *Plastics pipes and fittings — Preparation of polyethylene (PE) pipe/pipe or pipe/fitting test piece assemblies by butt fusion*

ISO 11922-1:1997, *Thermoplastics pipes for the conveyance of fluids — Dimensions and tolerances — Part 1: Metric series*

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

ISO 12176-1:1998, *Plastics pipes and fittings — Equipment for fusion jointing polyethylene systems — Part 1: Butt fusion*

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 13953:2001, *Polyethylene (PE) pipes and fittings — Determination of the tensile strength and failure mode of test pieces from a butt-fused joint*

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

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

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

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

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

**mean outside diameter of a tubular part of a fitting**

$D_1$

arithmetic mean of a number of measurements of the outer circumference of the tubular part of the fitting in any cross-section, divided by  $\pi$  (3,141 6) and rounded up to the nearest 0,1 mm

##### 3.1.2

**nominal diameter of a fitting**

$d_n$

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

##### 3.1.3

**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

##### 3.1.4

**out-of-roundness of the tubular part of a fitting**

maximum outside diameter minus the minimum outside diameter of the fusion end-piece measured in the same plane, parallel to the plane of the spigot end, at a distance not greater than  $L_2$  (tube length) from that plane

##### 3.1.5

**standard dimension ratio of a fitting**

**SDR**

quotient of the nominal outside diameter and the nominal wall thickness

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

##### 3.1.6

**wall thickness of a fitting**

$E$

wall thickness at any point of the body of the fitting which could be submitted 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.