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**Polyethylene pipes and fittings for the
supply of gaseous fuels — Code of practice
for design, handling and installation**

*Tubes et raccords en polyéthylène pour le transport de combustibles
gazeux — Code de pratique pour la conception, la manutention et
l'installation*



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.

The main task of technical committees is to prepare International Standards. 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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by more than 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed every three years with a view to deciding whether it can be transformed into an International Standard.

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

ISO/TS 10839 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*.

Annexes A and B are for information only.

Polyethylene pipes and fittings for the supply of gaseous fuels — Code of practice for design, handling and installation

1 Scope

This Technical Specification presents a code of practice dealing with polyethylene (PE) pipes and fittings for buried pipeline systems outside buildings and designed to distribute gaseous fuels within the temperature range $-20\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$ and gives appropriate temperature-related requirements.

The code of practice covers mains and service lines whose components are prepared for jointing by scraping and/or machining, and gives instructions for the design, storage, handling, transportation, laying conditions and fusion quality control of PE pipes and fittings up to and including 630 mm outside diameter, as well as subsequent joint testing, backfilling, pipe system testing, commissioning and decommissioning.

The jointing methods covered by this Technical Specification are heated-tool fusion jointing (butt, socket and saddle fusion), electrofusion jointing and mechanical jointing.

No special precautions are necessary for areas exposed to the influence of mining and earthquakes other than those precautions mentioned in this code of practice.

Existing and new national regulations take precedence over this Technical Specification.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this Technical Specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this Technical Specification 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 4437:1997, *Buried polyethylene (PE) pipes for the supply of gaseous fuels — Metric series — Specifications*.

ISO 8085-1:—¹⁾, *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications — Part 1: Fittings for socket fusion heated tools*.

ISO 8085-2:—¹⁾, *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications — Part 2: Spigot fittings for butt or socket fusion using heated tools and spigot fittings for use with electrofusion fittings*.

ISO 8085-3:—¹⁾, *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications — Part 3: Electrofusion fittings*.

ISO 10838-1:2000, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 1: Metal fittings for pipes of nominal outside diameter less than or equal to 63 mm*.

1) To be published.

ISO 10838-2:2000, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 2: Metal fittings for pipes of nominal outside diameter greater than 63 mm.*

ISO 10838-3:—²⁾, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 3: Thermoplastics fittings for pipes of nominal outside diameter less than or equal to 63 mm.*

ISO 10933:1997, *Polyethylene (PE) valves for gas distribution systems.*

ISO 11413:1996, *Plastics pipes and fittings — Preparation of test piece assemblies between a polyethylene (PE) pipe and an electrofusion fitting.*

ISO/TR 11647:1996, *Fusion compatibility of polyethylene (PE) pipes and fittings.*

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 12176-2:—²⁾, *Plastics pipes and fittings — Equipment for fusion jointing polyethylene systems — Part 2: Electrofusion.*

ISO 12176-3:—²⁾, *Plastics pipes and fittings — Equipment for fusion jointing polyethylene systems — Part 3: Operator's badge.*

EN 12327:—²⁾, *Gas supply systems — Pressure testing, commissioning and decommissioning procedures — Functional requirements.*

3 Terms and definitions

For the purposes of this Technical Specification, the following terms and definitions apply.

3.1

butt fusion machine pressure

pressure indicated on the manometer or on a pressure display on a butt fusion machine, giving an indication of the interface force applied to the pipe and/or fitting ends

3.2

clearance

shortest distance between the outer limits of two objects

3.3

drag resistance

frictional resistance due to the weight of the length of pipe fixed in the moveable clamp at the point at which movement of the moveable clamp is initiated (peak drag), or the friction occurring during movement (dynamic drag)

3.4

electrofusion control box

unit implementing the output fusion parameters of voltage or current and time or energy to execute the fusion cycle as specified by the electrofusion fitting manufacturer

3.5

frictional losses in the butt fusion machine

force necessary to overcome friction in the whole mechanism of a butt fusion machine

2) To be published.