
Plastics piping systems for pressure and non-pressure water supply, irrigation, drainage or sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin — Pipes with flexible joints intended to be installed using jacking techniques

Systèmes de canalisations en matières plastiques pour l'alimentation en eau avec ou sans pression, pour l'irrigation ou l'assainissement — Systèmes en matières plastiques thermodurcissables renforcés de verre (PRV) à base de résine de polyester non saturé (UP) — Tubes avec assemblages flexibles destinés à être installés par les techniques de poussée



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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 2.

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.

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

ISO 25780 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 6, *Reinforced plastics pipes and fittings for all applications*.

Plastics piping systems for pressure and non-pressure water supply, irrigation, drainage or sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin — Pipes with flexible joints intended to be installed using jacking techniques

1 Scope

This International Standard specifies the properties of the piping system and its components made from glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) for water supply, irrigation, drainage or sewerage systems with or without pressure.

This International Standard is applicable to GRP-UP piping systems, with flexible joints, intended to be installed using jacking techniques. It specifies the characteristics of pipes made from GRP-UP, with or without aggregates or fillers and also specifies the test parameters for the test methods referred to in this International Standard.

NOTE Pipes referred to in this International Standard are, because of their intended use, required to have a minimum nominal stiffness of at least SN 20000 (see 5.2.1).

This International Standard is applicable to pipes and joints with a size range from DN100 to DN4000 which are intended to be used for the conveyance of water or sewage at temperatures up to 50 °C, with or without pressure.

It covers requirements to prove the design of the joint and specifies type test performance requirements for the joints as a function of the declared nominal pressure rating of the pipeline system and the required joint deflection capability of the system.

GRP-fittings, used between pipe systems covered by this International Standard, shall be in accordance with ISO 10639 for water supply systems or ISO 10467 for drainage and sewerage systems, as applicable. In a pipe-work system, pipes of different nominal pressure and stiffness ratings may be used together.

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.

ISO 75-2:2004, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

ISO 604:2002, *Plastics — Determination of compressive properties*

ISO 2078, *Textile glass — Yarns — Designation*

ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions*

ISO 4633, *Rubber seals — Joint rings for water supply, drainage and sewerage pipelines — Specification for materials*

ISO 7685, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of initial specific ring stiffness*

ISO 8639, *Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods for leaktightness of flexible joints*

ISO 10466, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Test method to prove the resistance to initial ring deflection*

ISO 10467, *Plastics piping systems for pressure and non-pressure drainage and sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin*

ISO 10468, *Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the long-term specific ring creep stiffness under wet conditions and calculation of the wet creep factor*

ISO 10471, *Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the long-term ultimate bending strain and the long-term ultimate relative ring deflection under wet conditions*

ISO 10639, *Plastics piping systems for pressure and non-pressure water supply — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin*

ISO 10928, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Methods for regression analysis and their use*

ISO 10952, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Determination of the resistance to chemical attack for the inside of a section in a deflected condition*

3 Terms and definitions

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

3.1 manufacturer's declared pipe outside diameter

d_{OD}

external diameter of the pipe barrel, excluding the spigot

NOTE Manufacturer's declared pipe outside diameter is expressed in millimetres (mm).

3.2 jacking diameter

d_e

calculated maximum outside diameter of the external profile of the pipe barrel at all cross-sections

$$d_e = d_{OD} + \Delta^+ \quad (1)$$

where

Δ^+ is the plus tolerance on the outside diameter;

d_{OD} is the manufacturer's declared outside diameter.

NOTE Jacking diameter, which is derived using the equation above, outside diameter and its tolerance are expressed in millimetres (mm).