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**Plastics piping systems for non-pressure  
drainage and sewerage — Polyester resin  
concrete (PRC) —**

Part 1:  
**Pipes and fittings with flexible joints**

*Systèmes de canalisations en plastique pour les branchements et les  
collecteurs d'assainissement sans pression — Béton résines polyester  
(BRP) —*

*Partie 1: Tubes et raccords avec assemblages flexibles*



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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 18672-1 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*.

ISO 18672 consists of the following parts, under the general title *Plastics piping systems for non-pressure drainage and sewerage — Polyester resin concrete (PRC)*:

— *Part 1: Pipes and fittings with flexible joints*

# Plastics piping systems for non-pressure drainage and sewerage — Polyester resin concrete (PRC) —

## Part 1: Pipes and fittings with flexible joints

### 1 Scope

This part of ISO 18672 specifies definitions, requirements and characteristics of pipes, fittings, joints, materials, test methods and marking for pipes and fittings made from polyester resin concrete (PRC), intended to be used within a drain or sewer system operating without pressure. It applies to products for use in buried installations to be installed by open-trench techniques or pipe jacking.

It applies to pipes, fittings and their joints of nominal sizes from DN 150 to DN 3000 for circular cross-sections, from WN/HN 300/450 to WN/HN 1400/2100 for egg-shaped cross-sections and from DN 800 to DN 1800 for kite-shaped cross-sections.

The intended use of these products is for the conveyance of sewage, rainwater and surface water at temperatures up to 50 °C, without pressure or occasionally at a head of pressure up to 0,5 bar<sup>1)</sup>, and installed in areas subjected to vehicle and/or pedestrian traffic.

The pipes are classified on the basis of the intended method of installation and cross-sectional shape.

**NOTE** It is the responsibility of the purchaser or specifier to make the appropriate selections, taking into account the particular requirements and any relevant national regulations and installation practices or codes.

### 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, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

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

ISO 7510, *Plastics piping systems — Glass-reinforced plastics (GRP) components — Determination of the amounts of constituents using the gravimetric method*

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

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

EN 681-1, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

1) 1 bar = 0,1 MPa = 0,1 N/mm<sup>2</sup> = 10<sup>5</sup> N/m<sup>2</sup>

### 3 Terms, definitions, symbols and abbreviations

#### 3.1 Terms and definitions

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

##### 3.1.1

##### **adaptor**

fitting that provides for connections to structures, pipes of other materials, or valves

##### 3.1.2

##### **angular deflection**

$\delta$

angle between the axes of two adjacent pipes

See Figures 1b) and 1c).

NOTE Angular deflection is expressed in degrees ( $^{\circ}$ ).

##### 3.1.3

##### **bend**

fitting that provides for a change of alignment within a pipeline

##### 3.1.4

##### **branch**

fitting comprising a pipe with one additional connecting pipe of equal or smaller nominal size, DN or WN/HN, to connect two pipelines

NOTE See 3.1.13 and 3.1.14 for DN and WN/HN.

##### 3.1.5

##### **design service temperature**

maximum sustained temperature at which the system is expected to operate

NOTE It is expressed in degrees Celsius ( $^{\circ}\text{C}$ ).

##### 3.1.6

##### **draw**

$D$

longitudinal movement of a joint

See Figure 1a).

NOTE Draw is expressed in millimetres (mm).

##### 3.1.7

##### **laying length of a bend**

$L$

distance from one end of the bend, excluding the spigot insertion depth,  $L_i$ , of a socket end, where applicable, projected along the axis of that end of the bend to the point of intersection with the axis of the other end of the bend

See Figure 8.

NOTE Laying length of a bend is expressed in metres (m).