TECHNICAL DOCUMENT

WATER DISTRIBUTION OR DRAINAGE PIPES

Technical document 08-04 Non-traditional

Heating and/or domestic distribution and/or distribution of chilled water – Drainage pipes for siphon flow

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The English version is provided for information. In case of doubt or dispute, the French version only is valid.

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MODIFICATION HISTORY

Revision No.	Application date	Modifications
00	16/11/2018	Update to the document layout and reference Content modifications: Creation of technical document following transition of the products covered by this document to traditional status
01	17/04/2023	- Part 4 Marking

Contents

The requirements and provisions specified in this Technical Document will be updated in the case of new components or products.

1. STANDARDS

1.1. Test standards

NF EN ISO 580: Plastics piping and ducting systems — Injection-moulded thermoplastics fittings — Methods for visually assessing the effects of heating

NF EN ISO 1167-1: Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 1: General method

NF EN ISO 1167-2: Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 2: Preparation of pipe test pieces

NF EN ISO 1183-1: Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pyknometer method and titration method

NF EN ISO 2505: Thermoplastics pipes - Longitudinal reversion - Test method and parameters

NF EN ISO 3126: Plastics Piping Systems - Plastics components - Determination of dimensions

NF EN ISO 6259-1: Thermoplastics pipes - Determination of tensile properties - Part 1: General test method

NF EN ISO 13844: Plastics piping systems - Unplasticized poly(vinyl chloride) (PVC-U) elastomeric-sealing-ring-type socket joints for use with PVC-U pipes - Test method for leaktightness under negative pressure

NF EN ISO 9311: Adhesives for thermoplastic piping systems - Part 2: Determination of shear strength

ISO 6259-2: Thermoplastics pipes - Determination of tensile properties - Part 2: Pipes made of unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C) and high-impact poly(vinyl chloride) (PVC-HI)

NF EN 744: Plastics piping and ducting systems - Thermoplastics pipes - Test method for resistance to external blows by the round-the-clock method

NF EN 727: Plastics piping and ducting systems - Thermoplastics pipes and fittings - Determination of Vicat softening temperature (VST)

NF EN 1452-5: Plastics piping systems for water supply - Unplasticized poly(vinyl chloride) (PVC-U) - Part 5: Fitness for purpose of the system

NF EN 12061: Plastics piping systems - Thermoplastics fittings - Test method for impact strength

NF EN ISO 527-1 - Plastics - Determination of tensile properties - Part 1: General principles

NF EN 12294: Plastics piping systems - Systems for hot and cold water

2. CERTIFIED CHARACTERISTICS AND TEST METHODS

2.1. Certified characteristics

The characteristics listed in the table below will comply with the specifications given in the corresponding Technical Appraisals.

Certified characteristics	Modified PVC		
	Pipe	Fitting	Adhesive
Dimensional characteristics *	X	X	
Tensile properties	X		
Heat shrinkage	X		
Density	X	X	X
Vicat softening temperature	X	X	
Effects of heat		X	
Resistance to pressure 1 h	X		
Impact resistance	X	X	
Leaktightness under negative air pressure	X on assembly		
Ash content			X
Dry extract			X
Viscosity			X
Shear strength			X

* these characteristics are certified based on verification of the holder's registers and recorded in the audit report.

2.2. Test methods

The conditions for verification of the characteristics certified at CSTB are listed in the tables below.

These verification conditions may be supplemented by specific measures given in the Technical Appraisals.

Certified characteristics	Modified PVC (formulation which does not satisfy standard NF EN 1329)		
	Pipe	Fitting	Adhesive
Dimensional characteristics	NF EN ISO 3126 and according to ATEC		
Tensile properties	NF EN ISO 6259-1 - ISO 6259-3 type 2 test piece		
Heat shrinkage	NF EN ISO 2505 - Method B (2) (in air) 150 °C - 15 min		
Density	NF EN ISO 1183-1 Method A		NF EN 542
Vicat softening temperature	NF EN 727		
Effects of heat		NF EN ISO 580 150°C – Method A	
Resistance to pressure 1 h	NF EN ISO 1167-1-2 at 20°C – 26 MPa		
Resistance to impact (1)	NF EN 744 and according to ATEC	NF EN 12061 and according to ATEC	
Leaktightness under negative air pressure	NF EN ISO 13844 – Figure 2 of EN 1452-5 On assembly without deformation or deviation		
Ash content			Thermogravimetry CSTB protocol
Dry extract			
Viscosity			Rotovisco – type RVIII
Shear strength			NF EN ISO 9311-2 After drying: 1 h, 10 h at 23°C and 480 h at 23°C + 96 h at 60°C

(1) For a few DN, the mass of the striker and its drop height have been converted into energy at the point of impact. This delivered energy complies with the mark certification reference system RT 15-1 and the product standards using different striker masses and drop heights.

(2) : The choice of method A or method B is the responsibility of the holder. However, in case of dispute, only the reversion test performed according to the liquid bath method in standard NF EN ISO 2505 will be the reference test.

3. VERIFICATION REGIME

For products in family d), the applicable verification regime is the half-yearly regime for the 12 months following admission, then the annual regime.

4. MARKING

4.1. Modified PVC pipes

The tubes must be marked indelibly, at least every meter.
This marking must include at least the following elements:

- the name of the holder or the distributor (1) (name, acronym or logo, if the acronym or logo is not explicit, this must be filed with CSTB) and the commercial name of the product,
- the identification of the material,
- the dimensions (DN and e),
- the application area code,
- the reference to the standard, if applicable
- the QB logo followed by the last two parts of the certificate number
- the manufacturing marks allowing traceability comprising at least:
- the period of manufacture, at least the month and the year, in numbers or in code,

(1) A distributor is the beneficiary of a commercial extension.

4.2. Modified PVC fittings

The fittings must bear, individually, at least the indelible marking described below.

- the name of the holder or the distributor (1) (name, acronym or logo, if the acronym or logo is not explicit, this must be filed with CSTB) and the commercial name of the product,
- the nominal diameter of the associated tube,
- the angle (if necessary),
- the identification of the material,
- the manufacturing marks allowing traceability comprising at least:
- the period of manufacture, at least the month and the year, in numbers or in code,
- the identification of the factory when there are several manufacturing sites, by name or code.

(1) A distributor is the beneficiary of a commercial extension.

4.3. Labelling/Packaging of fittings

The following information must be marked on a label or on the packaging of the fittings.

- the name of the holder or the distributor (1) (name, acronym or logo, if the acronym or logo is not explicit, this must be filed with CSTB) and the commercial name of the product,
- the identification of the material,
- the nominal diameter of the associated tube,
- the QB logo followed by the last two parts of the certificate number

(1) A distributor is the beneficiary of a commercial extension

5. SAMPLING FOR TESTS AT CSTB

Modified PVC or TPHP		Adhesive*
Pipes	Fittings	
10 m in 1 DN	15 fittings of 1 type	1 pot

* case of a system with a specific adhesive that is not subject to Certifié CSTB Certified certification.