SLOVENSKI STANDARD
oSIST prEN 607:2021

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Žlebovi in fazonski kosi iz PVC-U - Definicije, zahteve in preskušanje

Eaves gutters and fittings made of PVC-U - Definitions, requirements and testing

Hängedachrinnen und Zubehörteile aus PVC U - Begriffe, Anforderungen und Prüfung

Gouttières pendantes et leurs raccords en PVC-U - Définitions, exigences et méthodes d'essai

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Eaves gutters and fittings made of PVC-U - Definitions, requirements and testing

Gouttières pendantes et leurs raccords en PVC-U - Définitions, exigences et essais

Hängedachrinnen und Zubehörteile aus PVC-U - Begriffe, Anforderungen und Prüfung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 128.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 607:2021) has been prepared by Technical Committee CEN/TC 128 “Roof covering products for discontinuous laying and products for wall cladding”, SC10 “Gutters”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 607:2004.

The main changes include:

— Clarification of the products covered;

— Conditions for the use of non-virgin materials (see Annex A);

— Update of the Normative references.

1 Scope

This document specifies the requirements for eaves gutters made of unplasticized poly(vinyl chloride) (PVC-U), fittings and the system intended to be used for rainwater roof drainage.

It applies to:

— solid wall monolayer gutters;

— solid wall multilayer gutters;

— solid wall fittings.

The test parameters for the test methods are specified in the document.

Gutters covered by this document can be used in conjunction with fittings of acrylic materials provided these products meet the applicable requirements of this document.

NOTE 1 Products complying with this document can be used in conjunction with rainwater downpipes conforming to EN 12200-1 [1] and fixed with brackets complying with EN 1462 [2].

This document is applicable to PVC-U gutter systems of any shape with rubber seal or adhesive joints.

NOTE 2 It is the responsibility of the purchaser or specifier to make the appropriate selections from the size range and the design to take into account their particular requirements and any relevant national regulations and installation practices or codes.

NOTE 3 The term “rainwater” in this document is used also to encompass “surface water” (as defined in EN 752 [3]) run-off from buildings.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 513, *Plastics — Poly(vinyl chloride) (PVC) based profiles — Determination of the resistance to artificial weathering*

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

EN 681-2, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastic elastomers*

EN 681-3, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 3: Cellular materials of vulcanized rubber*

EN 681-4, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 4: Cast polyurethane sealing elements*

EN 14680, *Adhesives for non-pressure thermoplastics piping systems — Specifications*

EN 14814, *Adhesives for thermoplastic piping systems for fluids under pressure — Specifications*

EN ISO 1158, *Plastics — Vinyl chloride homopolymers and copolymers — Determination of chlorine content (ISO 1158)*

EN 20105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour (ISO 105-A02)*

EN ISO 527-2, *Plastics - Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2)*

EN ISO 580, *Plastics piping and ducting systems — Injection-moulded thermoplastics fittings — Methods for visually assessing the effects of heating (ISO 580)*

EN ISO 1183-3, *Plastics — Methods for determining the density of non-cellular plastics — Part 3: Gas pyknometer method (ISO 1183-3)*

EN ISO 2505, *Thermoplastics pipes — Longitudinal reversion — Test method and parameters (ISO 2505)*

EN ISO 2507-1, *Thermoplastics pipes and fittings — Vicat softening temperature — Part 1: General test method (ISO 2507-1)*

EN ISO 2507-2, *Thermoplastics pipes and fittings — Vicat softening temperature — Part 2: Test conditions for unplasticized poly(vinyl chloride) (PVC-U) or chlorinated poly(vinyl chloride) (PVC-C) pipes and fittings and for high impact resistance poly(vinyl chloride) (PVC-Hi) pipes (ISO 2507-2)*

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

EN ISO 3451-5, *Plastics — Determination of ash — Part 5: Poly(vinyl chloride)(ISO 3451-5)*

EN ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon arc sources (ISO 4892-2)*

EN ISO 4892-3, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps (ISO 4892-3)*

EN ISO 8256, *Plastics — Determination of tensile-impact strength (ISO 8256)*

EN ISO 11664-4, *Colorimetry —Part 4: CIE 1976 L*a*b* Colour space (ISO 11664-4)*

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

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
eaves gutter
channel for collecting and draining rainwater from a roof, intended to be located outside the building structure under the eaves

3.2
down-pipe
pipe fitted to a gutter to lead rainwater from the gutter to the drainage system or sewer

Note 1 to entry: PVC-U down pipes intended for above-ground external use are specified in EN 12200-1.

3.3
union-clip
gutter-union
fitting for joining two gutters and supported only by those gutters

3.4
joint bracket
union-bracket
fitting for joining two gutters which is supported by the building structure

3.5
gutter adaptor
fitting for joining two different shaped gutters

3.6
angle
fitting for joining two gutters installed in two different directions

3.7
stop end
fitting for stopping the flow, fixed at the end of a gutter or an outlet

3.8
outlet
fitting for draining off the rainwater from the gutter into the down-pipe

3.9
effective length
length of a gutter measured at 20 °C

3.10
upper opening width
w
overall width of a gutter when laid flat

Note 1 to entry: It is expressed in millimetres.

3.11
solid wall
wall which is made from the same formulation throughout the wall

Note 1 to entry: Solid wall PVC does not contains numerous small gas cells distributed throughout the mass (also known as “foamed PVC”).

3.12
multilayer gutter
gutter with smooth internal and external surface, having co-extruded layers

3.13
external layer
layer which is subject to direct UV exposure, and not supporting the rainwater flow

Note 1 to entry: The external layer is generally visible from the ground level.

3.14
internal layer
layer which is subject to direct UV exposure and supporting the rainwater flow

Note 1 to entry: The internal layer is also subjected to direct UV exposure.

3.15
intermediate layer
any layer which is between internal and external layers

Note 1 to entry: The intermediate layer is not subjected to direct UV exposure and water flow.

3.16
virgin material
material in the form such as granules or powder that has not been subjected to use or processing other than that required for its manufacture and to which no reprocessed or recycled material has been added

Note 1 to entry: It is understood that the addition of additives, such as stabilizers and pigments still results in a virgin material.

3.17
own reprocessed material
material prepared from rejected unused pipes, gutters, fittings and ancillaries, including trimmings from the production, that will be reprocessed in a manufacturer's plant after having been previously processed by the same manufacturer by a process such as moulding or extrusion and for which the complete formulation is known

3.18
external reprocessed material
material prepared from unused thermoplastics products regardless of where those products were manufactured

3.19
recycled material
material prepared from used thermoplastic products which have been cleaned and crushed or ground

3.20
agreed specification
specification of the relevant material characteristics agreed between the supplier of the non-virgin material and the gutter and/or fitting manufacturer

4 Symbols

w upper opening width

5 Material

5.1 PVC material

The material shall be a mixture of PVC to which are added additives and if applicable non-virgin material that shall allow the final product to comply with the requirements of this document.

Non-virgin material (either supplied externally or own reprocessed or a mixture of both) may be used in the conditions given in Clause 5.3.

The material (including non-virgin materials if applicable) shall comply with the requirements given in Table 1 for PVC.

Table 1 — Requirements applicable for the PVC material

Characteristics	Requirements	Test method
PVC content:		
— for gutters	≥ 80 % by mass	Calculation or EN ISO 1158 [a]
— for fittings	≥ 85 % by mass [b]	Or EN ISO 3451-5, Method A [a]

[a] The measurement of filler content by ash rest is an alternative to the measurement of PVC content and is recommended when external non-virgin material is used.

[b] Not applicable to fittings produced in accordance with 5.2.

5.2 Other materials

The fittings and the external layer of the gutter may be made from acrylic polymers provided the products meet the requirements in Table 5.

5.3 Utilization of non-virgin material

Conditions for the utilization of non-virgin materials are given in Annex A. The maximum allowed amount of non-virgin material is given in Table 2. Products incorporating non-virgin material shall comply with all requirements of this document.

Table 2 — Maximum allowed amount of non-virgin material

	Own reprocessed material	External material with agreed specification	External material without agreed specification
Gutters External and internal layers	100 %	20 %	Not permitted
Gutters Intermediate layer	100 %	100 %	Not permitted
Fittings	100 %	20 %	Not permitted

Test results with the maximum specified amount of non-virgin material with the same agreed specification shall be taken as proving conformity of products containing a lower amount.

6 Appearance

When viewed without magnification, the following requirements apply:

— internal and external surfaces of gutter and fittings shall be smooth, clean and free from grooving, blistering, impurities and pores and any other surface irregularity likely to prevent their conformity to this document;

— gutter ends shall be cleanly cut and the ends of gutters and fittings shall be square to their axis.

7 Geometrical characteristics

7.1 Width of gutters

Gutters shall be designated by their upper opening width, *w* (See examples of cross section areas in Figure E.1, Annex E).

The manufacturer shall declare the usable area of the cross-section of the gutter at its upper opening width for the calculation of flow capacity. This usable area shall be either marked on the gutter or given in commercial documents.

7.2 Effective length of gutters

The effective length of a gutter shall be measured in accordance with EN ISO 3126 and shall have a positive tolerance.

EN ISO 3126 specifies that all dimensions shall be measured at (23 ± 2) °C.

7.3 Shape and dimensions of fittings

The fittings shall be compatible with the shape and the dimensions of the gutter. The outlets shall be compatible with down-pipes and fittings.

8 Physical and mechanical characteristics of gutters

The requirements for the physical and mechanical characteristics and the conditions for the respective test methods shall conform to those given in Table 3.

NOTE Any conflicting parameters and requirements given in the test method standards referred to do not apply here.