



SLOVENSKI STANDARD
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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

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

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EUROPEAN STANDARD

EN 607

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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 méthodes d'essai

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

This European Standard was approved by CEN on 15 July 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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EN 607:2004 (E)**Foreword**

This document (EN 607:2004) has been prepared by Technical Committee CEN/TC 128 “Roof covering products for discontinuous laying and products for wall cladding”, the secretariat of which is held by IBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document supersedes EN 607:1995.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

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

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.

- EN 513 *Unplasticized polyvinyl chloride (PVC-U) profiles for the fabrication of windows and doors – Determination of the resistance to artificial weathering*
- EN 638 *Plastics piping and ducting systems – Thermoplastics pipes – Determination of tensile properties*
- 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 727 *Plastics piping and ducting systems – Thermoplastics pipes and fittings – Determination of Vicat softening temperature (VST)*
- EN 743 *Plastics piping and ducting systems – Thermoplastics pipes – Determination of the longitudinal reversion*
- EN 763 *Plastics piping and ducting systems - Injection-moulded thermoplastics fittings - Test method for visually assessing effects of heating*
- EN 922 *Plastics piping and ducting systems – Pipes and fittings of unplasticized poly(vinyl chloride) (PVC-U) – Specimen preparation for determination of the viscosity number and calculation of the K-value*
- EN 1905 *Plastics piping systems – Unplasticized poly(vinyl chloride) (PVC-U) pipes, fittings and material – Method for assessment of the PVC content based on total chlorine content*
- EN 10204:1991 *Metallic products – Types of inspection documents*
- EN 20105-A02 *Textiles - Tests for colour fastness – Part A02: Grey scale for assessing change in colour (ISO 105-A02:1993)*
- EN ISO 527-2 *Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:1993 including Corr 1:1994)*
- EN ISO 1183-3 *Plastics - Methods for determining the density of non-cellular plastics - Gas pycnometer method (ISO 1183-3:1999)*

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EN ISO 4892-2	<i>Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon arc sources (ISO 4892-2:1994)</i>
EN ISO 4892-3	<i>Plastics – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps (ISO 4892-3:1994)</i>
EN ISO 8256	<i>Plastics - Determination of tensile-impact strength (ISO 8256:1990, including Technical Corrigendum 1:1991)</i>

3 Terms and definitions

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

3.1**eaves gutter**

gutter situated outside the building and supported by brackets

3.2**down-pipe**

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

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**commercial length**

length of a gutter or a down-pipe which was produced in a factory

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4 Material

4.1 Raw material

The raw material shall be PVC-U to which are added those additives that are needed to facilitate the manufacture of components conforming to the requirements of this document.

When calculated on the basis of a known formulation or in case of dispute or not known formulation, determined in accordance with EN 1905 the PVC content shall be at least 80 % by mass for profiles and 85 % by mass for injection-moulded fittings.

4.2 Utilisation of non virgin material

Requirements for the utilisation of non-virgin materials are given in Annex A (normative).

5 General characteristics of profiles - Appearance

When viewed without magnification the internal and external surfaces of gutters shall be smooth, clean and free from scoring, cavities, and other surface defects. The ends of gutters shall be cut cleanly and square to the axis of the profile.

6 Geometrical characteristics of profiles

6.1 Width

Gutters shall be designated by their upper opening width (size) (See examples of cross section areas in Annex E). The manufacturer shall declare the usable area of the cross-section of the gutter at its designed top opening width for the calculation of flow capacity. This usable area shall be either marked on the gutter or given in commercial documents.

6.2 Length

The commercial length of a gutter shall have a positive tolerance when measured at 20 °C.

7 Physical and mechanical characteristics of profiles

The requirements for the physical and mechanical characteristics and the conditions for the respective test methods shall conform to those given in Table 1.

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

Table 1 — Physical and mechanical characteristics of profiles

Characteristics	Requirement	Test parameters		Test method
Hammer impact strength (type test)	No break or crack visible without magnification	Temperature	(0 ± 2) °C	Annex B
Tensile strength (type test)	≥ 42 N/mm ²	Speed Specimen type	5 mm/min type 2, 3 or 5 ^a conforming to EN ISO 527-2	EN 638
Elongation at break (type test)	≥ 100 %	Speed Specimen type	5 mm/min type 2, 3 or 5 ^a conforming to EN ISO 527-2	EN 638
Tensile impact strength (type test)	≥ 500 kJ/m ²	Specimen type Temperature	type 2, 3 or 5 ^a conforming to EN ISO 8256 (23 ± 2) °C	EN ISO 8256
Heat reversion (type and production control test)	≤ 3 %	Test temperature Time	(100 ± 2) °C (30 ± 2) min	EN 743
Vicat softening temperature (type test)	≥ 75 °C	Conforming to EN 727		EN 727

^a In case of dispute, test specimen 5 shall be used.

8 General characteristics of fittings

8.1 General

The following types of fittings shall conform to the requirements given in 8.2, 8.3 and Clause 8: union clip, joint-bracket, gutter adaptor, angle, stop-end, outlet and expansion piece.

8.2 Appearance

When viewed without magnification the internal and external surfaces of fittings shall be smooth, clean and free from scoring, cavities, and other surface defects.

8.3 Shape and dimensions

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

9 Physical characteristics of fittings

The requirements for the physical characteristics and the conditions for the respective test methods shall conform to those given in Table 2.

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

Table 2 — Physical characteristics of fittings

Characteristics	Requirement	Test parameters		Test method
Effect of heating ^a (production control test)	^c and ^d	Temperature	(150 ± 2) °C	Method A of EN 763 in air
		Time	(15 ± 2) min.	
Heat reversion ^b (type test)	No visible deformation without magnification	Temperature	(65 ± 2) °C	Annex C
		Time	(30 ± 2) min.	
Vicat softening temperature (type test)	≥ 75 °C	Conforming to EN 727		EN 727

^a Without seal and only for injection-moulded fittings.

^b For fittings produced by processes other than injection moulding.

^c 1) Within a radius of 15 times the wall thickness around the injection point, the depth of cracks, delamination or blisters shall not exceed 50 % of the wall thickness at that point.
 2) Within a distance of 10 times the wall thickness from the diaphragm zone, the depth of cracks, delamination or blisters shall not exceed 50 % of the wall thickness at that point.
 3) Within a distance of 10 times the wall thickness from the ring gate, the length of cracks shall not exceed 50 % of the wall thickness at that point.
 4) The weld line shall not have opened more than 50 % of the wall thickness at the line.
 5) In all other parts of the surface the depth of cracks and delaminations shall not exceed 30 % of the wall thickness at that point. Blisters shall not exceed a length 10 times of the wall thickness.

^d After cutting through the fitting, the cut surfaces shall show no foreign particles, when viewed without magnification.

10 Gutter sealing rings

10.1 The gutter seals shall have no detrimental effect on the properties of gutters and fittings and shall enable the test assembly to conform to Table 3.

10.2 Materials for sealing rings shall conform to EN 681-1, EN 681-2, EN 681-3 or EN 681-4 as applicable.

11 Solvent cements

The adhesive shall be solvent cement and shall be as specified by the manufacturer of profiles and/or fittings.

The adhesive shall have no detrimental effects on the properties of the profiles and of the fittings and shall not cause the test assembly to fail to conform to Table 3.